TRAINING COURSE FOR CLP ORGANIC DATA VALIDATION 2001

US Environmental Protection Agency
Region II
Edison, NJ

George Karras

and

Lockheed Martin
ESAT
Edison, NJ
Maureen Hammill

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Appendix K

Answers

Pesticides/PCBs Final Quiz

CLP Data Assessment

CASE No.: **SDG No.:** _____
LABORATORY: **SITE:**
DATA ASSESSMENT

The current SOP No. HW-6 (Revision 12), January 2000 for CLP Organics Review and Preliminary Review has been applied.

All data were found to be valid and acceptable except those analytes which have been rejected, "R" (unusable). Due to various QC problems some analytes may have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detect), or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's

Signature: Your name Date: Date completed

Verified By: _____ Date: _____

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

There were no problems with holding times for all samples in this SDG.

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

Sample BPJ51MSD was qualified "J" for detects and "UJ" for non-detects.

Sample BXZ26 was qualified "J" for detects and "R" for non-detects.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

No action taken on MS/MSD data.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons*:

A) Method blank contamination:

Methoxychlor: BPJ51DL, BDR43, BNR68, BPH62MSD

Alpha BHC: BNR68, BPH62, BPH62MS, BPH62MSD

* Do not qualify spiked analytes in MS/MSD samples.

B) Field or rinse blank contamination:

Samples not affected by rinse blank contaminants.

5. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the calibration factor (CF) from the initial calibration. A value outside of the limits indicates potential detection and quantitation errors.

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes except for the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the sample shown were qualified for %RSD and %D:

Initial calibration: "J" all samples for alpha BHC, aldrin, Endosulfan II, delta BHC, heptachlor epoxide, endosulfan sulfate, gamma chlordane.

Calibration verification: "J" the following analytes and samples-

Endrin- PBLKS1, PBLKW1

Methoxychlor, aldrin - BDR43, BNR68

Endosulfan I, alpha chlordane - BPJ71, BPL04

Gamma chlordane - BPJ51, BPJ51DL, BPJ51MS, BPJ51MSD, BXZ26

6. COMPOUND IDENTIFICATION:

Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.

Sample BPJ51DL value and qualifier for DDD was transferred to the form 1 of BPJ51.

Sample BPH62DL value and qualifier for alpha chlordane and gamma chlordane were transferred to the form 1 of BPH62.

"J"
BDR43:DDE, gamma chlordane
BPH71: endrin
BPH62: endosulfan sulfate, gamma chlordane
BPJ51: DDD
BPJ51DL: DDD, methoxychlor
BXZ26: beta BHC
PBLKS1: methoyxchlor

PBLKW1: endrin

BPH62MS: dieldrin, endosulfan sulfate
BPH62MSD: alpha BHC, beta BHC, delta BHC, DDE, alpha chlordane
BPJ51MS: DDD, methoxychlor
BPJ51MSD: DDD, methoxychlor

"JN"

BDR43: gamma BHC, DDD

BNR68: alpha BHC

BPJ51: Methoxychlor* This analyte exceeds the calibration range and is "J" for identification and "U" for method blank contamination in the dilution. Therefore using professional judgement, the analyte was qualified "JN" rather than "R".

PBLKS1: alpha BHC, DDT

PBLKW1: Methoxychlor* This analyte is present in the other blank. Therefore using professional judgement, the analyte was qualified "JN" rather than "R".

"R"

PBLKS1: gamma BHC

PBLKW1: beta BHC

"U"

BNR68: endosulfan sulfate

BPH71: delta BHC, endrin aldehyde

BPH62: alpha BHC

BPH62MSD: endosulfan sulfate, methoxychlor, endrin aldehyde

7. CONTRACT PROBLEMS NON-COMPLIANCE:

More than 2 analytes failed initial calibration criterion on each column.

Sequence was not followed as outlined in the SOW. Initial calibration did not end with required standards. Incorrect level standards were used for the one set of midlevel standards (no samples associated with these standards).

Not all failing standards were re-injected as required by the SOW. Failed re-injected standards require the lab to stop analyzing the samples. The lab continued to acquire data after the failing standards.

8. FIELD DOCUMENTATION:

9. OTHER PROBLEMS:

Florisil failed clean-up criterion for DDT. All samples were qualified as "J" for DDT.

GPC failed clean-up criterion for Endrin. All samples were qualified as "J" for Endrin.

% breakdown for Endrin did not meet criterion for samples BPJ51, BPJ51DL, BPJ51MS, BPJ51MSD, BXZ26. Positive hits for Endrin and Endrin ketone were qualified "J" for BPJ51MS, BPJ51MSD.

% breakdown failed for standard analyzed 08/05/01 at 0119. No samples were associated with this standard.

10. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.

BPJ51DL, BPH62DL

2E

WATER PESTICIDE SURROGATE RECOVERY

EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
BDR43	**67**	**67**	**20***	**23***			
BPJ51MSD	**25***	**28**	**22***	**24***			

2F

SOIL PESTICIDE SURROGATE RECOVERY

EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
BPH62	**93**	**87**	**93**	**93**			
BPH62DL	**88**	**75**	**91**	**81**			
BXZ26	**28***	**27***	**8***	**9***			

3E

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Heptachlor:	0.50	0.0	0.28	**56**	40-131

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Heptachlor:	0.51	0.40	78	**33***	20	40-131
Dieldrin:	1.0	0.85	**85**	33*	18	52-126

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
4,4'DDT:	38	0.0	27	**71**	23-134

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin:	19	13	68	15	**43**	34-132
Endrin:	38	26	68	**8**	45	42-139

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Matrix: (soil/water) ____WATER_____ Lab Sample ID: ___ BDR25-08_____

72-55-9	4,4'DDE	**0.23**	**P**
5103-74-2	gamma-Chlordane	**0.44**	**P**

1= RTX35 2= DB5 Modified Quant report for BDR43

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
11.50	3581	gamma-Chlordane	**0.004309**	**0.4420**			0.051
9.50	5539				**0.00646**	**0.6626**	0.051
12.40	16879	4,4'DDE	**0.02265**	**0.2323**			0.102
10.15	24254				**0.03339**	**0.3424**	0.102

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Matrix: (soil/water) _____SOIL_____ Lab Sample ID: ___BDR25-12_____

72-43-5	Methoxychlor	**25**	
11096-82-5	Aroclor 1260	**120**	

1= RTX352= DB5 Modified Quant report for BNR68

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
16.16	16721	Methoxychlor	**0.06550**	**25.096**			20.73
13.38	21447				**0.06902**	**28.0556**	20.73
13.61	18578	Aroclor 1260 peak 1	**0.2742**	**111.47**			40.24
11.39	25788				**0.4297**	**174.66**	40.24
15.25	8635	1260 peak 2	**0.2464**	**100.15**			40.24
12.30	6853				**0.2232**	**90.71**	40.24
18.90	47051	1260 peak 3	**0.5588**	**227.16**			40.24
13.48	45401				**0.6483**	**263.54**	40.24
16.69	13567	1260 peak 4	**0.2437**	**99.08**			40.24
14.15	15673				**0.3844**	**156.27**	40.24
18.00	2538	1260 peak 5	**0.1622**	**65.92**			40.24
15.58	3852				**0.1711**	**69.56**	40.24

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: ___ BDR25-15_____

5103-71-9	alpha-Chlordane	**54**	**E**
5103-74-2	gamma-Chlordane	**35**	**EP**

1= RTX35 2= DB5 Modified Quant report for BPH62

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
11.56	75200	gamma-Chlordane	**0.09050**	**34.676**			1.95
9.51	105965				**0.1236**	**47.35**	1.95
11.87	109856	alpha-Chlordane	**0.1419**	**54.00**			1.95
9.82	118212				**0.1415**	**54.23**	1.95

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62DL

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: ___ BDR25-15DL_____

5103-71-9	alpha-Chlordane	**52**	**D**
5103-74-2	gamma-Chlordane	**47**	**D**

1= RTX35 2= DB5 Modified Quant report for BPH62DL

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
11.51	20445	gamma-Chlordane	**0.0246**	**47.14**			
9.51	24651				**0.0287**	**55.078**	
11.87	21178	alpha-Chlordane	**0.0272**	**52.054**			
9.82	28456				**0.0341**	**65.274**	

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH71

Matrix: (soil/water) ___WATER_____ Lab Sample ID: ___ BDR25-13_____

72-20-8	Endrin	**0.082**	**JP**

1= RTX35 2= DB5 Modified Quant report for BPH71

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
13.28	3792	Endrin	**0.00824**	**0.0824**			0.10
11.12	7391				**0.01244**	**0.1245**	0.10

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51

Matrix: (soil/water) ____WATER_____ Lab Sample ID: ___ BDR25-16_____

72-54-8	4,4'DDD	**2.5**	**EP**
72-43-5	Methoxychlor	**10**	**EP**

1= RTX35 2= DB5 Modified Quant report for BPJ51

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
13.73	134784	4,4'DDD	**0.25082**	**2.508**			0.10
11.52	191545				**0.33089**	**3.3089**	0.10
16.10	263655	Methoxychlor	**1.03280**	**10.328**			0.50
13.38	687895				**2.21366**	**22.1366**	0.50

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51DL

Matrix: (soil/water) ____WATER_____ Lab Sample ID: ___ BDR25-16_____

72-43-5	Methoxychlor	**15**	**P**

1= RTX35 2= DB5 Modified Quant report for BPJ51DL

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
16.10	39052	Methoxychlor	**0.152977**	**15.2977**			
13.38	69005				**0.22205**	22.2059	

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: ___ BDR25-17_____

11097-69-1	Aroclor 1254	**480**	

1= RTX35 2= DB5 Modified Quant report for BXZ26

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
11.62	37589	Aroclor 1254 PEAK 1	**0.81875**	**341.15**			41.25
08.86	30798				**1.01076**	**421.1519**	41.25
12.65	58785	Aroclor 1254 PEAK 2	**1.14479**	**476.996**			41.25
09.50	57875				**1.37079**	**571.16**	41.25
13.18	62587	Aroclor 1254 PEAK 3	**1.11246**	**463.525**			41.25
10.33	75278				**1.3752**	**572.996**	41.25
14.00	53457	Aroclor 1254 PEAK 4	**1.59933**	**663.897**			41.25
11.01	62534				**1.41736**	**590.567**	41.25
14.39	64698	Aroclor 1254 PEAK 5	**1.045877**	**435.782**			41.25
12.05	76489				**1.3925**	**580.200**	41.25

6F

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
alpha-BHC:	**605600**	**1027750**	**1084938**	**906096**	**28.9**
Aldrin:	**598600**	**876050**	**934025**	**802892**	**22.33**

6F

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
delta-BHC:	**593600**	**905900**	**1011500**	**837000**	**25.9**
Endosulfan sulfate:	**365600**	**661800**	**615231**	**547543**	**29.1**

6G

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Aroclor 1248:	0.10	1	10.15	10.08	10.22	23080
		2	10.43	10.36	10.50	**25630**
		3	11.05	10.98	11.12	32670
		4	11.67	11.60	11.74	**28850**
		5	12.66	12.59	12.73	19590
Aroclor 1254:	0.10	1	11.60	11.53	11.67	45910
		2	12.65	12.58	12.72	**51350**
		3	13.18	13.11	13.25	56260
		4	13.97	13.90	14.04	**33550**
		5	14.41	14.34	14.48	61860
Aroclor 1260:	0.10	1	13.60	13.53	13.67	**67750**
		2	15.29	15.22	15.36	35050
		3	15.87	15.80	15.94	84200
		4	16.69	16.62	16.76	55660
		5	18.00	17.93	18.07	**15650**

6G

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Aroclor 1248:	0.10	1	6.74	6.67	6.81	38970
		2	8.00	7.93	8.07	41630
		3	9.02	8.95	9.09	**32840**
		4	10.35	10.28	10.42	19430
		5	10.98	10.91	11.05	**14920**
Aroclor 1254:	0.10	1	8.87	8.80	8.94	**30470**
		2	9.47	9.40	9.54	**42220**
		3	10.35	10.28	10.42	54740
		4	10.98	10.91	11.05	44120
		5	12.02	11.95	12.09	54930
Aroclor 1260:	0.10	1	11.41	11.34	11.48	60020
		2	12.30	12.23	12.37	**30710**
		3	13.54	13.47	13.61	**70030**
		4	14.15	14.08	14.22	40770
		5	15.55	15.48	15.62	22510

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01__ _08/01/01__

GC Column (1): _RTX35_ ID: _0.53__(mm)

Lab Sample ID (PEM##) : ____PEM00_____ Time Analyzed : _____1917_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
4,4'DDT	14.43	14.36	14.50	**0.088**	**0.10**	**-11.8**

Endrin % Breakdown (1): ____**5.72**_____

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01__ _08/01/01___

GC Column (1): _DB-5___ ID: __0.53___(mm)

Lab Sample ID (PEM##) : ____PEMA0_____ Time Analyzed : _____1917_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
beta BHC	6.27	6.22	6.32	**0.011**	**0.010**	**12.1**

Combined % Breakdown (1): __**6.46**_____

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : __08/01/01_ _08/01/01__

GC Column (1): _RTX35_ ID: __0.53__(mm)

Lab Sample ID (PEM##) : _____PEM02_____ Time Analyzed : ___1104_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
Endrin	13.28	13.21	13.35	**0.036**	**0.050**	**-28.8**

Endrin % Breakdown (1): ____**7.37**_____

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01_ _08/01/01_

GC Column (1): _DB-5__ ID: _0.53__(mm)

Lab Sample ID (PEM##) : _____PEMA2_____ Time Analyzed : ___1104_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
gamma BHC	6.01	5.96	6.06	**0.0097**	**0.010**	**-3.0**

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01__ __08/01/01_

GC Column (1): _RTX-35___ ID: _0.53__(mm)

Lab Sample ID (PEM##) : ____PEM03_____ Time Analyzed : _____0119_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
4,4'DDT	14.41	14.36	14.50	**0.075**	**0.10**	**-25.3**

Combined % Breakdown (1): __**13.90**_____

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01 __08/01/01_

GC Column (1): __DB-5___ ID: _0.53___(mm)

Lab Sample ID (PEM##) : ____PEM A3_____ Time Analyzed : _____0119_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
4,4'DDT	12.12	12.07	12.21	**0.068**	**0.10**	**-31.6**

4,4'DDT % Breakdown (1): ____**16.99**_____

Endrin % Breakdown (1): ____**13.42**_____

Combined % Breakdown (1): __**30.41**_____

7E
PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Sample ID (PEM##) : ____PEM09_____ Time Analyzed : _____0754_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
beta BHC	8.03	8.02	8.12	**0.012**	**0.010**	**20.0**

4,4'DDT % Breakdown (1): ____**1.05**_____ Endrin % Breakdown (1): ____**15.36**_____

Combined % Breakdown (1): __**16.40**_____

7E
PESTICIDE CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01__ __08/01/01_

GC Column (1): _DB-5____ ID: _0.53__(mm)

Lab Sample ID (PEM##) : ____PEMA9_____ Time Analyzed : _____0754_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			

Endrin % Breakdown (1): ____**21.82**_____ Combined % Breakdown (1): __**22.47**_____

7F
CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01__ _08/01/01__

GC Column (1): _RTX-35 ID: _0.53_(mm)

Lab Sample ID (INDA) : _INDAM01_____ Time Analyzed : ____1725_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Methoxychlor	16.07	16.03	16.17	**0.255**	**0.200**	**27.5**

7F
CALIBRATION VERIFICATION SUMMARY

EPA Sample No. (INDBM##) : __INDBMA1____ Date Analyzed : _____08/04/01_____

Lab Sample ID (INDB) : ___INDBMA1____ Time Analyzed : _____1749_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Aldrin	7.75	7.72	7.82	**0.026**	**0.020**	**30.5**

7F
CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01_ _08/01/01_

GC Column (1): _RTX-35 ID: _0.53__(mm)

Lab Sample ID (INDA) : ___INDAM05_____ Time Analyzed : ____0128_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
4,4'DDT	14.41	14.36	14.50	**0.039**	**0.040**	**-2.5**

EPA Sample No. (INDBM##) : __INDBM05_____ Date Analyzed : _____08/08/01_____

Lab Sample ID (INDB) : ___INDBM05_____ Time Analyzed : _____0218_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-Chlordane	11.84	11.80	11.94	**0.015**	**0.020**	**-27.5**

7F
CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01__ _08/01/01__

GC Column (1): _DB-5__ ID: _0.53___(mm)

Lab Sample ID (INDA) : ___INDAMA5_____ Time Analyzed : ____0128_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Endosulfan I	10.05	10.01	10.15	**0.015**	**0.020**	**-26.5**

7F
CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01__ _08/01/01__

GC Column (1): _RTX-35 ID: _0.53_(mm)

EPA Sample No. (INDBM##) : __INDBM06____ Date Analyzed : _____08/08/01_____

Lab Sample ID (INDB) : ___INDBM06____ Time Analyzed : _____1042_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Endosulfan sulfate	15.20	15.16	15.30	**0.041**	**0.040**	**2.5**

7F

CALIBRATION VERIFICATION SUMMARY

Initial Calib. Date(s) : _08/01/01_ _08/01/01__

GC Column (1): _DB-5__ ID: _0.53__(mm)

Lab Sample ID (INDB) : ___INDBMA6____ Time Analyzed : _____1042_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Gamma-Chlordane	9.48	9.44	9.58	**0.015**	**0.020**	**-26.0**

9A

PESTICIDE FLORISIL CARTRIDGE CHECK

Florisil Cartridge Lot Number: __FLAB123_____ Date of Analysis : ____07/30/01_____

GC Column (1): _RTX35__ ID: _____(mm) GC Column (2): _DB5___ ID: _____(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC #	QC LIMITS
Alpha-BHC	0.010	**0.0098**	**98**	80-120

9B

PESTICIDE GPC CALIBRATION VERIFICATION

GPC Column: ____GPC444_____ Calibration Verification Date : ____07/30/01_____

GC Column (1): _RTX-35__ ID: _0.53___(mm) GC Column (2): _DB-5___ ID: _0.53__(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC #	QC LIMITS
Dieldrin	0.10	**0.088**	**88**	80-110

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BDR43

Lab Sample ID (1): ____BDR25-08_____ Date(s) Analyzed : _08/04/01_ __08/04/01_

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	% D
			FROM	TO		
Gamma BHC	1	7.80	7.75	7.85	**0.12**	**117**
	2	6.00	5.96	6.06	**0.26**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BNR68

Lab Sample ID (1): ___BDR25-12_____ Date(s) Analyzed : _08/04/01__ __08/04/01__

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Endosulfan sulfate	1	15.20	15.16	15.30	**0.48**	**108.7**
	2	13.68	13.51	13.70	**0.23**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BPH62

Lab Sample ID (1): ___BDR25-15_____ Date(s) Analyzed : _08/04/01_ _08/04/01__

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Endosulfan sulfate	1	15.23	15.16	15.30	**2.6**	**35**
	2	13.58	13.51	13.70	**3.5**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BPH62DL

Lab Sample ID (1): _____BDR25-15DL_____ Date(s) Analyzed : _08/04/01__ __08/04/01__

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Gamma chlordane	1	11.56	11.44	11.60	**47**	**17**
	2	9.51	9.44	9.58	**55**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BPH71

Lab Sample ID (1): ____BDR25-13_____ Date(s) Analyzed : __08/08/01_ __08/08/01__

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Delta BHC	1	8.79	8.74	8.84	**0.033**	**52**
	2	6.65	6.60	6.70	**0.050**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BPJ51

Lab Sample ID (1): ___BDR25-16_____ Date(s) Analyzed : _08/08/01_ __08/08/01__

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Methoxychlor	1	16.10	16.03	16.20	**10**	**120**
	2	13.38	13.31	13.50	**22**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BPJ51DL

Lab Sample ID (1): ___BDR25-16DL_____ Date(s) Analyzed : _08/08/01_ __08/08/01__

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
DDD	1	13.70	13.66	13.80	**3.2**	**59**
	2	11.50	11.45	11.60	**5.1**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BXZ26

Lab Sample ID (1): ___BDR25-17_____ Date(s) Analyzed : _08/08/01__ _08/08/01___

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Beta BHC	1	8.04	8.02	8.12	**1.10**	**27**
	2	6.25	6.22	6.32	**1.40**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

PBLKS1

Lab Sample ID (1): _____MBS1_____ Date(s) Analyzed : _08/04/01_ ___08/04/01___

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Gamma BHC	1	7.77	7.75	7.85	**1.1**	**127.3**
	2	6.00	5.96	6.06	**2.5**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

PBLKW1

Lab Sample ID (1): ___MBW1_____ Date(s) Analyzed : _08/04/01_ __08/04/01__

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
beta BHC	1	8.07	8.02	8.12	**0.030**	**150**
	2	6.27	6.22	6.32	**0.075**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.
BPH62MS

Lab Sample ID (1): ___BDR25-15MS_____ Date(s) Analyzed : _08/04/01__ _08/04/01___

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Dieldrin	1	12.56	12.53	12.70	**28**	**3.6**
	2	10.60	10.56	10.70	**29**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.
BPH62MS

Lab Sample ID (1): ___BDR25-15MS_____ Date(s) Analyzed : _08/04/01__ _08/04/01___

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Gamma chlordane	1	11.51	11.44	11.60	**53**	**17**
	2	9.51	9.44	9.58	**62**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.
BPH62MSD

Lab Sample ID (1): ___BDR25-15MSD_____ Date(s) Analyzed : _08/04/01__ _08/04/01___

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
DDE	1	12.36	12.32	12.50	**0.41**	**28**
	2	10.14	10.10	10.20	**0.32**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BPH62MSD

Lab Sample ID (1): ___BDR25-15MSD_____

Date(s) Analyzed : _08/04/01__ _08/04/01___

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Methoxychlor	1	16.15	16.03	16.20	**9**	**999**
	2	13.44	13.31	13.50	**0.57**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BPJ51MS

Lab Sample ID (1): ____BDR25-16MS_____

Date(s) Analyzed : _08/08/01_ __08/08/01____

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Aldrin	1	9.60	9.58	9.68	**0.30**	**3.4**
	2	7.74	7.72	7.82	**0.29**	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

BPJ51MSD

Lab Sample ID (1): ____BDR25-16MSD_____

Date(s) Analyzed : _08/08/01_ __08/08/01____

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
DDD	1	13.73	13.66	13.80	**3.1**	**26**
	2	11.52	11.45	11.60	**3.9**	

10B

PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

BNR68

Lab Sample ID (1): ___BDR25-12_____ Date(s) Analyzed : _08/04/01__ __08/04/01___

ANALYTE	PEAK	RT	RT WINDOW		CONCENTRATION	MEAN CONCENTRATION	% D
			FROM	TO			
	1	13.61	13.53	13.67	**111**	**120**	**25**
_1260____	2	15.25	15.22	15.36	**100**		
	3	18.90	15.80	15.94	**106**		
COLUMN 1	4	16.69	16.62	16.76	**92**		
	5	18.00	17.93	18.07	**191**		
						150	
	1	11.39	11.34	11.48	**175**		
	2	12.30	12.23	12.37	**91**		
	3	13.48	13.47	13.61	**264**		
COLUMN 2	4	14.15	14.08	14.22	**156**		
	5	15.58	15.48	15.62	**70**		

10B

PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

BXZ26

Lab Sample ID (1): ___BDR25-17_____ Date(s) Analyzed : _08/08/01_ __08/08/01__

ANALYTE	PEAK	RT	RT WINDOW		CONCENTRATION	MEAN CONCENTRATION	% D
			FROM	TO			
	1	11.62	11.53	11.67	**341**	**480**	**15**
_1254__	2	12.65	12.58	12.72	**477**		
	3	13.18	13.11	13.25	**464**		
COLUMN 1	4	14.00	13.90	14.04	**664**		
	5	14.39	14.34	14.48	**436**		
						550	
	1	8.86	8.80	8.94	**421**		
	2	9.50	9.40	9.54	**571**		
	3	10.33	10.28	10.42	**573**		
COLUMN 2	4	11.01	10.91	11.05	**591**		
	5	12.05	11.95	12.09	**580**		

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKS1

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: ___MBS1_____

72-43-5	Methoxychlor	**15**	**JP**

1= RTX35 2= DB5 Modified Quant report for PBLKS1

RT	area	Compounds	On-column amt. ng (1)	Final Ug/kg (1)	On-column amt. ng (2)	Final Ug/kg (2)	Adjusted CRQL
16.10	18457	Methoxychlor	**0.07230**	**24.100**			17
13.35	14224				**0.04577**	**15.26**	17

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKW1

Matrix: (soil/water) __WATER_____ Lab Sample ID: ___MBW1_____

319-85-7	beta BHC	**0.030**	**JP**

1= RTX35 2= DB5 Modified Quant report for PBLKW1

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
8.07	1301	beta BHC	**0.00352**	**0.0352**			0.050
6.27	3434				**0.00753**	**0.075**	0.050

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62MS

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: ___BDR25-15MS____

76-44-8	Heptachlor	**14**	
5103-71-9	alpha-Chlordane	**68**	**E**

1= RTX35 2= DB5 Modified Quant report for BPH62MS

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
8.84	35589	Heptachlor	**0.0364**	**14.00**			1.954
7.08	42564				**0.0409**	**16.00**	1.954
9.51	139005				0.16212	62.12	1.954
11.87	138414	alpha-Chlordane	**0.1776**	**68.04**			1.954
9.82	157254				**0.1883**	**72.14**	1.954

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62MSD

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: ___BDR25-15MSD____

319-85-7	beta BHC	**0.47**	**JP**
5103-74-2	gamma-Chlordane	**39**	**E**

1= RTX35 2= DB5 Modified Quant report for BPH62MSD

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
8.04	453	beta BHC	**0.0012**	**0.470**			1.954
6.24	724				**0.0016**	**0.610**	1.954
11.57	85245	gamma-Chlordane	**0.10259**	**39.31**			1.954
9.56	103574				**0.12080**	**46.28**	1.954

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51MS

Matrix: (soil/water) __WATER_____ Lab Sample ID: ___ BDR25-16MS_____

60-57-1	Dieldrin	**0.61**	
72-54-8	4,4'DDD	**2.8**	**P**

1= RTX35 2= DB5 Modified Quant report for BPJ51MS

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
12.57	43266	Dieldrin	**0.060561**	**0.610**			0.10
10.60	48120				**0.062431**	**0.600**	0.10
13.73	151474	4,4'DDD	**0.28188**	**2.8188**			0.10
11.52	220877				**0.38156**	**3.8156**	0.10

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51MSD

Matrix: (soil/water) __WATER_____ Lab Sample ID: ___ BDR25-16MSD____

72-54-8	4,4'DDD	**3.1**	**P**

1= RTX35 2= DB5 Modified Quant report for BPJ51MSD

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
13.73	163545	4,4'DDD	**0.30434**	**3.1214**			0.102
11.52	220924				**0.38164**	**3.9143**	0.102

Appendix J

Pesticides/PCBs Final Quiz

Final Quiz

Instruction:

- Perform all necessary calculations to fill in the missing information on the forms.
- Qualify the Form 1s for all criteria discussed in Learning Modules 1-10
- Write the qualifications on the Form 1s.
- Write the required qualification statements in the Data Assessment found at the beginning of the test. Don't forget contractual problems.
- Sampling Trip Report and SDG Narrative are located at the beginning of the quiz. A modified Quant report for each sample is placed after the Form 1s for each sample.
- All data is located in the same order as specified in the SOW. See Learning Module 2 for additional information.

CLP Data Assessment

CASE No.: **SDG No.:** _____

LABORATORY: **SITE:**

DATA ASSESSMENT

The current SOP No. HW-6 (Revision 12), January 2000 for CLP Organics Review and Preliminary Review has been applied.

All data were found to be valid and acceptable except those analytes which have been rejected, "R" (unusable). Due to various QC problems some analytes may have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detect), or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's

Signature: _____ Date: _____

Verified By: _____ Date: _____

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

B) Field or rinse blank contamination:

5. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the calibration factor (CF) from the initial calibration. A value outside of the limits indicates potential detection and quantitation errors.

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes except for the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the sample shown were qualified for %RSD and %D:

6. COMPOUND IDENTIFICATION:

Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.

7. CONTRACT PROBLEMS NON-COMPLIANCE:

8. FIELD DOCUMENTATION:

9. OTHER PROBLEMS:

10. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.

Sampling Trip Report
February 05, 2001
Any Site
New Jersey

Samples	Sampling Date	Shipping Date	Airbill No.	Description
BDR43	08/01/01	08/02/01	VFT5348762	DI Blank
BNR68	08/02/01	08/02/01	HYR7652037	4"-8" depth of soil from location GRD12
BPH62	08/02/01	08/02/01	HYR7652037	1'-2' depth of soil from location GRD17
BPH71	08/01/01	08/02/01	VFT5348762	Rinse Blank for bucket
BPJ51	08/01/01	08/02/01	VFT5348762	Ground water from on sight spigot GRD15
BPL01	08/01/01	08/02/01	VFT5348762	Trip blank
BPL04	08/01/01	08/02/01	HYR7652037	Rinse blank for bowl and trowel
BXZ26	08/02/01	08/02/01	HYR7652037	1'-2' depth of soil from location GRD19

*There are 20 samples in this SDG. For the test, only the above samples are addressed and will be validated.

NEWLAB
Nowhere, NJ, USA

SDG Narrative
Case # 12345
SDG BDR25
Contract # 123456

Sample Identifications: BDR43, BNR68, BPH62, BPH71, BPJ51, BPL01, BPL04, and BXZ26.

The ten samples listed above were received on August 03, 2001 in good conditions except as noted below, with proper documentation. The cooler temperatures were measured at 3°C for cooler with airbill no. VFT5348762 and at 5°C for cooler with airbill No. HYR7652037.

All samples were scheduled for volatile, semivolatile and pesticide/PCB analyses except for BPL01, which was submitted for volatile only analysis. All water and medium level soil samples were analyzed following SOW OLM04.2.

This portion of the SDG narrative pertains to the Pesticide fraction only.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

John S. Jones
Laboratory Manager
February 17, 2001

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ___123456___

Lab Code: __NLB____ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25____

GC Column (1) : __RTX35___ ID: _0.53_ (mm) GC Column (2) : _DB5_____ ID: _0.53_ (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
7.	PBLKW1	75	70	80	85			
8.	BDR43							
9.	BPH71	65	65	65	70			
10.	BPJ51	25*	33	55	60			
11.	BPJ51DL	55	60	85	55			
12.	BPJ51MS	49	48	50	55			
13.	BPJ51MSD							
14.	BPL04	65	65	75	80			
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
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30.								
31.								
32.								
33.								
34.								
35.								
36.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)
DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

page ___1__ of __1_____

FORM II PEST-1

OLM04.2

2F

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ___123456___

Lab Code: __NLB____ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25____

GC Column (1) : __RTX35___ ID: _0.53_ (mm) GC Column (2) : _DB5_____ ID: _0.53_ (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
1.	PBLKS1	71	65	71	70			
2.	BNR68	44	38	79	79			
3.	BPH62							
4.	BPH62DL							
5.	BPH62MS	73	73	73	73			
6.	BPH62MSD	63	60	80	73			
7.	BXZ26							
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)

DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ___123456___

Lab Code: __NLB____ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Matrix Spike - EPA Sample No.: _BPJ51_____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma BHC:	0.50	0.0	0.29	58	56-123
Heptachlor:	0.50	0.0	0.28		40-131
Aldrin:	0.50	0.0	0.29	58	40-120
Dieldrin:	1.0	0.0	0.61	61	52-126
Endrin:	1.0	0.0	0.60	60	56-121
4,4'DDT:	1.0	0.0	0.56	56	38-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
gamma BHC:	0.51	0.42	82	34*	15	56-123
Heptachlor:	0.51	0.40	78		20	40-131
Aldrin:	0.51	0.41	80	32*	22	40-120
Dieldrin:	1.0	0.85		33*	18	52-126
Endrin:	1.0	0.85	85	34*	21	56-121
4,4'DDT:	1.0	0.79	79	34*	27	38-127

Column to be used to flag recovery and RPD values with asterisk

* Values outside of QC lmits

RPD: __6___ out of __6___ outside limits
Spike Recovery: _0____ out of __12___ outside limits

COMMENTS: _____

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ___123456___

Lab Code: __NLB____ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Level: (low/med) __LOW_____

Matrix Spike - EPA Sample No.: _BPH62___

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma BHC:	19	0.0	14	74	46-127
Heptachlor:	19	0.0	14	74	35-130
Aldrin:	19	0.0	15	79	34-132
Dieldrin:	38	0.0	28	74	31-134
Endrin:	38	0.0	28	74	42-139
4,4'DDT:	38	0.0	27		23-134

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
gamma BHC:	19	12		16	50	46-127
Heptachlor:	19	12	63	16	31	35-130
Aldrin:	19	13	68	15		34-132
Dieldrin:	38	25	66	11	38	31-134
Endrin:	38	26	68		45	42-139
4,4'DDT:	38	24	63	12	50	23-134

#Column to be used to flag recovery and RPD values with asterisk

- Values outside of QC lmits

RPD: __0___ out of __6___ outside limits
Spike Recovery: __0___ out of _12____ outside limits

COMMENTS: _____

4C

EPA SAMPLE NO.

PESTICIDE METHOD BLANK SUMMARY

PBLKS1

Lab Name: __NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25_

Lab Sample ID: ____PBLKS1_____ Lab File ID: _____MBS1_____

Matrix: (soil/water) ____SOIL_____ Extraction: (Type) __SONC_____

Sulfur Cleanup: (Y/N) ___N_____ Date Extracted: _____08/03/01_____

Date Analyzed (1): ___08/04/01_____ Date Analyzed (2): ____08/04/01_____

Time Analyzed (1): ____1128_____ Time Analyzed (2): _____1128_____

Instrument ID (1): ____5890AA_____ Instrument ID (2): ___5890AB_____

GC Column (1): RTX35___ ID: __0.53_ (mm) GC Column (2): _DB5___ ID: __0.53_ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BNR68	BDR25-12	08/04/01	08/04/01
2.	BPH62	BDR25-15	08/04/01	08/04/01
3.	BPH62DL	BDR25-15DL	08/04/01	08/04/01
4.	BPH62MS	BDR25-15MS	08/04/01	08/04/01
5.	BPH62MSD	BDR25-15MSD	08/04/01	08/04/01
6.	BXZ26	BDR25-17	08/08/01	08/08/01
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

COMMENTS: _____

4C

EPA SAMPLE NO.

PESTICIDE METHOD BLANK SUMMARY

PBLKW1

Lab Name: __NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25_

Lab Sample ID: ____PBLKW1_____ Lab File ID: _____MBW1_____

Matrix: (soil/water) ____WATER_____ Extraction: (Type) ___SEPF_____

Sulfur Cleanup: (Y/N) _____N_____ Date Extracted: ___08/03/01_____

Date Analyzed (1): ___08/04/01_____ Date Analyzed (2): ___08/04/01_____

Time Analyzed (1): ___1152_____ Time Analyzed (2): ___1152_____

Instrument ID (1): ___5890AA_____ Instrument ID (2): ___5890AB_____

GC Column (1): _RTX35_ ID: _0.53_____ (mm) GC Column (2): _DB5__ ID: _0.53__ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BDR43	BDR25-08	08/04/01	08/04/01
2.	BPH71	BDR25-13	08/08/01	08/08/01
3.	BPJ51	BDR25-16	08/08/01	08/08/01
4.	BPJ51DL	BDR25-16DL	08/08/01	08/08/01
5.	BPJ51MS	BDR25-16MS	08/08/01	08/08/01
6.	BPJ51MSD	BDR25-16MSD	08/08/01	08/08/01
7.	BPL04	BDR25-14	08/08/01	08/08/01
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

COMMENTS: _____

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BDR43

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ____WATER_____ Lab Sample ID: ___ BDR25-08_____

Sample wt/vol: ____975.0_____(g/mL) ___ML_____ Lab File ID: ____ BDR25-08_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: __08/03/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___08/04/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: ___1.0___(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)__N_ pH _____ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma BHC	0.12	P
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE		
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.31	P
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.35	J
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

1= RTX35 2= DB5 Modified Quant report for BDR43

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.22	8920	TCMX	0.01365	0.140			
3.97	10484				0.01366	0.140	
6.88		alpha-BHC					
5.28							
7.80	1085	gamma BHC	0.001177	0.1207			0.051
6.00	2533				0.00254	0.2606	0.051
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.50	3581	gamma-Chlordane					0.051
9.50	5539						0.051
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40	16879	4,4'DDE					0.102
10.15	24254						0.102
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.70	16354	4,4'DDD	0.03043	0.3213			0.102
11.50	34456				0.05952	0.6105	0.102
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.15	8787	Methoxychlor	0.03442	0.3530			0.51
13.35	11587				0.03729	0.3824	
16.38		Endrin ketone					
14.14							
19.32	2676	DBC	0.00460	0.00472			
16.56	3717				0.00500	0.05132	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) _____SOIL_____ Lab Sample ID: ___BDR25-12_____

Sample wt/vol: ___30.0_____(g/mL) ___G_____ Lab File ID: ___ BDR25-12_____

% Moisture: ____18_____ Decanted: (Y/N) __N___ Date Received: ___08/03/01_____

Extraction : (Type) __SONC_____ Date Extracted: ___08/03/01_____

Concentrated Extract Volume: ___5000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)_Y__ pH __7.6_____ Sulfur Cleanup: (Y/N)_N_

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _	Q
319-84-6	alpha-BHC	0.11	JP
319-85-7	beta BHC	2.1	U
319-86-8	delta-BHC	0.30	J
58-89-9	gamma BHC	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'DDE	4.0	U
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'DDD	4.0	U
1031-07-8	Endosulfan sulfate	0.230	J
50-29-3	4,4'DDT	4.0	U
72-43-5	Methoxychlor		
53494-70-5	Endrin ketone	4.0	U
7421-93-4	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	4.0	U
5103-74-2	gamma-Chlordane	4.0	U
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor 1016	40	U
11104-28-2	Aroclor 1221	82	U
11141-16-5	Aroclor 1232	40	U
53469-21-9	Aroclor 1242	78	
12672-29-6	Aroclor 1248	40	U
11097-69-1	Aroclor 1254	40	U
11096-82-5	Aroclor 1260		

1= RTX35 2= DB5 Modified Quant report for BNR68

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.23	17216	TCMX	0.0263	11.0			
4.01	19984				0.0260	11.0	
6.84	284	alpha-BHC	0.000277	0.11			2.07
5.24	2048				0.00197	0.800	2.07
7.80		gamma BHC					
5.99	4547				0.00456	1.90	2.07
8.07		beta BHC					
6.25	1100				0.0024	0.980	2.07
8.78	697	delta-BHC	0.000775	0.320			2.07
6.62	666				0.00074	0.300	2.07
8.87		Heptachlor					
7.16	3908				0.00376	1.50	2.07
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.37	2211	4,4'DDE	0.00297	1.200			4.024
10.17							
12.65	507	Dieldrin	0.00071	0.290			4.024
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.20	670	Endosulfan sulfate	0.00120	0.48297			4.024
13.68	383				0.000578	0.230	4.024
16.16	16721	Methoxychlor					20.73
13.38	21447						20.73
16.38		Endrin ketone					
14.14							
19.34	15866	DBC	0.0273	11.0			
16.58	25182				0.0339	14.0	
06.50	798	Aroclor 1242 peak 1	0.0890	36.20			40.24
04.87	1758				0.1040	42.29	40.24
07.62	2954	1242 peak 2	0.1923	78.18			40.24
05.71	3978				0.1378	56.03	40.24
08.71	10454	1242 peak 3	0.2567	104.36			40.24
06.72	19525				0.3553	144.44	40.24
11.15	3654	1242 peak 4	0.2197	89.32			40.24
07.01	4456				0.1787	72.63	40.24
11.67	3495	1242 peak 5	0.2046	83.18			40.24
08.99	4459				0.2352	95.60	40.24
13.61	18578	Aroclor 1260 peak 1	0.2742				40.24
11.39	25788				0.4297		40.24
15.25	8635	1260 peak 2	0.2464				40.24
12.30	6853				0.2232		40.24
18.90	47051	1260 peak 3	0.5588				40.24
13.48	45401				0.6483		40.24
16.69	13567	1260 peak 4	0.2437				40.24
14.15	15673				0.3844		40.24
18.00	2538	1260 peak 5	0.1622				40.24
15.58	3852				0.1711		40.24

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: ___ BDR25-15_____

Sample wt/vol: __30.0_____(g/mL) ___G_____ Lab File ID: _____ BDR25-15_____

% Moisture: ____13_____ Decanted: (Y/N) __N__ Date Received: ___08/03/01_____

Extraction : (Type) __SONC___ Date Extracted: ___08/03/01_____

Concentrated Extract Volume: ___5000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: ___1.0___(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)_Y___ pH __6.8__ Sulfur Cleanup: (Y/N)_N___

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _	Q
319-84-6	alpha-BHC	1.2	JP
319-85-7	beta BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma BHC	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.8	U
72-55-9	4,4'DDE	3.8	U
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'DDD	3.8	U
1031-07-8	Endosulfan sulfate	2.6	JP
50-29-3	4,4'DDT	3.8	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	1.9	J
7421-93-4	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor 1016	38	U
11104-28-2	Aroclor 1221	77	U
11141-16-5	Aroclor 1232	38	U
53469-21-9	Aroclor 1242	38	U
12672-29-6	Aroclor 1248	38	U
11097-69-1	Aroclor 1254	38	U
11096-82-5	Aroclor 1260	38	U

1= RTX35 2= DB5 Modified Quant report for BPH62

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.22	23056	TCMX	0.0353	14.0			
4.00	26701				0.0348	13.0	
6.85	3258	alpha-BHC	0.00317	1.2146			1.95
5.28	6656				0.005567	2.13313	1.95
7.78	875	gamma BHC	0.000949	0.360			1.95
6.01							
8.04	579	beta BHC	0.00156	0.600			1.95
6.27							
8.75	1340	delta-BHC	0.00149	0.570			1.95
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.56	75200	gamma-Chlordane					1.95
9.51	105965						1.95
11.87	109856	alpha-Chlordane					1.95
9.82	118212						1.95
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23	3786	Endosulfan sulfate	0.00679	2.60			3.8
13.58	6046				0.009135	3.50	3.8
16.03	2002	Methoxychlor	0.00784	3.00			19.54
13.38							
16.38	2685	Endrin ketone	0.00498	1.907			3.8
14.14	4102				0.00611	2.340	3.8
19.33	21229	DBC	0.0365	14.0			
16.57	27122				0.0365	14.0	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62DL

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: ___ BDR25-15DL_____

Sample wt/vol: __30.0_____(g/mL) ___G_____ Lab File ID: _____ BDR25-15DL_____

% Moisture: ____13_____ Decanted: (Y/N) __N__ Date Received: ___08/03/01_____

Extraction : (Type) __SONC___ Date Extracted: ___08/03/01_____

Concentrated Extract Volume: ___5000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: ___1.0___(lL) Dilution Factor: ____5.0_____

GPC Cleanup: (Y/N)_Y___ pH __6.8__ Sulfur Cleanup: (Y/N)_N___

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
319-84-6	alpha-BHC	10	U
319-85-7	beta BHC	10	U
319-86-8	delta-BHC	10	U
58-89-9	gamma BHC	10	U
76-44-8	Heptachlor	10	U
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor epoxide	10	U
959-98-8	Endosulfan I	10	U
60-57-1	Dieldrin	20	U
72-55-9	4,4'DDE	20	U
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'DDD	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'DDT	20	U
72-43-5	Methoxychlor	100	U
53494-70-5	Endrin ketone	20	U
7421-93-4	Endrin aldehyde	20	U
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	1000	U
12674-11-2	Aroclor 1016	200	U
11104-28-2	Aroclor 1221	160	U
11141-16-5	Aroclor 1232	200	U
53469-21-9	Aroclor 1242	200	U
12672-29-6	Aroclor 1248	200	U
11097-69-1	Aroclor 1254	200	U
11096-82-5	Aroclor 1260	200	U

1= RTX35 2= DB5 Modified Quant report for BPH62DL

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.25	23556	TCMX	0.0353	67.60			
4.02	23387				0.0305	58.38	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51	20445	gamma-Chlordane					
9.51	24651						
11.87	21178	alpha-Chlordane					
9.82	28456						
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10		Methoxychlor					
13.38							
16.38		Endrin ketone					
14.14							
19.36	23331	DBC	0.0401	76.84			
16.60	24117				0.0325	62.20	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH71

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: ___ BDR25-13_____

Sample wt/vol: __1000_____(g/mL) __ML_____ Lab File ID: ___ BDR25-13_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___08/03/01_____

Extraction : (Type) __SEPF____ Date Extracted: ___08/03/01_____

Concentrated Extract Volume: ___10000__(lL) Date Analyzed: ____08/08/01_____

Injection Volume: ___1.0___(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)_N__ pH _____ Sulfur Cleanup: (Y/N)__N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta BHC	0.050	U
319-86-8	delta-BHC	0.033	JP
58-89-9	gamma BHC	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin		
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.092	JP
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

1= RTX35 2= DB5 Modified Quant report for BPH71

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.21	8589	TCMX	0.01314	0.1314			
3.99	10283				0.0134	0.1339	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79	2945	delta-BHC	0.003277	0.03277			0.50
6.65	4534				0.005005	0.05005	0.50
8.87		Heptachlor					
7.13	31127				0.0299	0.300	0.050
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28	3792	Endrin					0.10
11.12	7391						0.10
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60	4265	Endrin aldehyde	0.009222	0.0922			0.10
12.61	8562				0.15233	0.15233	0.10
15.23		Endosulfan sulfate					
13.58							
16.10		Methoxychlor					
13.38							
16.38		Endrin ketone					
14.14							
19.32	7387	DBC	0.0127	0.130			
16.56	10248				0.01379	0.140	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ____WATER_____ Lab Sample ID: ___ BDR25-16_____

Sample wt/vol: ____1000_____(g/mL) ____ML_____ Lab File ID: ____ BDR25-16_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___08/03/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ____08/03/01_____

Concentrated Extract Volume: __10000_____(lL) Date Analyzed: ___08/08/01_____

Injection Volume: __1.0_____(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)__N__ pH _____ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L __	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma BHC	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor		
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

1= RTX35 2= DB5 Modified Quant report for BPJ51

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.22	3302	TCMX	0.00505	0.0505			
3.99	5081				0.00662	0.06620	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73	134784	4,4'DDD					0.10
11.52	191545						0.10
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10	263655	Methoxychlor					0.50
13.38	687895						0.50
16.38		Endrin ketone					
14.14							
19.33	6617	DBC	0.01137	0.110			
16.57	9171				0.0123	0.120	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51DL

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ____WATER_____ Lab Sample ID: ___ BDR25-16_____

Sample wt/vol: ____1000_____(g/mL) ____ML_____ Lab File ID: ____ BDR25-16_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___08/03/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ____08/03/01_____

Concentrated Extract Volume: __10000_____(lL) Date Analyzed: ___08/08/01_____

Injection Volume: __1.0_____(lL) Dilution Factor: _____10_____

Sulfur Cleanup: (Y/N)_N__

GPC Cleanup: (Y/N)__N__ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L __	Q
319-84-6	alpha-BHC	0.50	U
319-85-7	beta BHC	0.50	U
319-86-8	delta-BHC	0.50	U
58-89-9	gamma BHC	0.50	U
76-44-8	Heptachlor	0.50	U
309-00-2	Aldrin	0.50	U
1024-57-3	Heptachlor epoxide	0.50	U
959-98-8	Endosulfan I	0.50	U
60-57-1	Dieldrin	1.0	U
72-55-9	4,4'DDE	1.0	U
72-20-8	Endrin	1.0	U
33213-65-9	Endosulfan II	1.0	U
72-54-8	4,4'DDD	3.2	P
1031-07-8	Endosulfan sulfate	1.0	U
50-29-3	4,4'DDT	1.0	U
72-43-5	Methoxychlor		
53494-70-5	Endrin ketone	1.0	U
7421-93-4	Endrin aldehyde	1.0	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor 1016	10	U
11104-28-2	Aroclor 1221	20	U
11141-16-5	Aroclor 1232	10	U
53469-21-9	Aroclor 1242	10	U
12672-29-6	Aroclor 1248	10	U
11097-69-1	Aroclor 1254	10	U
11096-82-5	Aroclor 1260	10	U

1= RTX35 2= DB5 Modified Quant report for BPJ51DL

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.25	711	TCMX	0.001088	0.1088			
4.02	884				0.0011518	0.1152	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73	17279	4,4'DDD	0.03215	3.215			1.0
11.52	29645				0.05121	5.1211	1.0
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10	39052	Methoxychlor					
13.38	69005						
16.38		Endrin ketone					
14.14							
19.36	678	DBC	0.0011656	0.11656			
16.60	819				0.001103	0.1103	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) __WATER_____ Lab Sample ID: ____ BDR25-14____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ___ BDR25-14_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___08/03/01_____

Extraction : (Type) __SEPF_____ Date Extracted: ___08/03/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: __08/08/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)_N___ pH _____ Sulfur Cleanup: (Y/N)_N_

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma BHC	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

1= RTX35 2= DB5 Modified Quant report for BPL04

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.21	8501	TCMX	0.0130	0.130			
4.02	9724				0.012669	0.126692	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10		Methoxychlor					
13.38							
16.38		Endrin ketone					
14.14							
19.33	8613	DBC	0.0148	0.150			
16.57	11851				0.1595	0.160	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: ___ BDR25-17_____

Sample wt/vol: __30.0_____(g/mL) ____G_____ Lab File ID: ____ BDR25-17_____

% Moisture: ____20_____ Decanted: (Y/N) __N___ Date Received: ___08/03/01_____

Extraction : (Type) ___SONC_____ Date Extracted: ___08/03/01_____

Concentrated Extract Volume: __5000____(lL) Date Analyzed: ___08/08/01_____

Injection Volume: __1.0____(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)_Y___ pH __6.6___ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg	Q
319-84-6	alpha-BHC	2.1	U
319-85-7	beta BHC	1.1	J P
319-86-8	delta-BHC	2.1	U
58-89-9	gamma BHC	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	4.1	U
72-55-9	4,4'DDE	4.1	U
72-20-8	Endrin	4.1	U
33213-65-9	Endosulfan II	4.1	U
72-54-8	4,4'DDD	4.1	U
1031-07-8	Endosulfan sulfate	4.1	U
50-29-3	4,4'DDT	4.1	U
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.1	U
7421-93-4	Endrin aldehyde	4.1	U
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	2.1	U
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor 1016	41	U
11104-28-2	Aroclor 1221	84	U
11141-16-5	Aroclor 1232	41	U
53469-21-9	Aroclor 1242	41	U
12672-29-6	Aroclor 1248	41	U
11097-69-1	Aroclor 1254		
11096-82-5	Aroclor 1260	41	U

1= RTX35 2= DB5 Modified Quant report for BXZ26

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.23	7535	TCMX	0.011532	4.805			
4.00	8539				0.011126	4.636	
6.84	2477	alpha-BHC	0.0024	1.00			2.125
5.28							
7.80		gamma BHC					
5.99	5020				0.00503	2.100	2.125
8.04	1011	beta BHC	0.00273	1.100			2.125
6.25	1500				0.00329	1.400	2.125
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.37	5136	4,4'DDE	0.00689	2.900			4.125
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.60	1298				0.00230	0.960	4.125
15.23		Endosulfan sulfate					
13.58							
16.16	10498	Methoxychlor	0.0411	17.0			21.25
13.38							
16.38		Endrin ketone					
14.14							
19.34	1962	DBC	0.003373	1.405			
16.58	2740				0.003689	1.537	
11.62	37589	Aroclor 1254 PEAK 1	0.81875				41.25
08.86	30798				1.01076		41.25
12.65	58785	Aroclor 1254 PEAK 2	1.14479				41.25
09.50	57875				1.37079		41.25
13.18	62587	Aroclor 1254 PEAK 3	1.11246				41.25
10.33	75278				1.3752		41.25
14.00	53457	Aroclor 1254 PEAK 4	1.59933				41.25
11.01	62534				1.41736		41.25
14.39	64698	Aroclor 1254 PEAK 5	1.045877				41.25
12.05	76489				1.3925		41.25

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: ____NEWLAB_____ Contract : ___123456__

Lab Code: ___NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BDR25

Instrument ID: 5890AA____ Level (x low): low ___1.0___ mid __4.0___ high __16.0__

GC Column: ___ RTX35_____ ID: _____0.53_____(mm) Date(s) Analyzed: _08/01/01_
_08/01/01

COMPOUND	RT OF STANDARD				RT WINDOW	
	LOW	MID	HIGH	MEAN RT	FROM	TO
alpha-BHC:	6.88	6.88	6.88	6.88	6.83	6.93
beta BHC:	8.07	8.07	8.07	8.07	8.02	8.12
delta-BHC:	8.79	8.79	8.79	8.79	8.74	8.84
gamma BHC:	7.80	7.80	7.80	7.80	7.75	7.85
Heptachlor:	8.87	8.87	8.87	8.87	8.82	8.92
Aldrin:	9.63	9.63	9.63	9.63	9.58	9.68
Heptachlor epoxide:	11.06	11.06	11.06	11.06	10.99	11.10
Endosulfan I:	11.95	11.95	11.95	11.95	11.88	12.00
Dieldrin:	12.60	12.60	12.60	12.60	12.53	12.70
4,4'DDE:	12.39	12.39	12.39	12.39	12.32	12.50
Endrin:	13.28	13.28	13.28	13.28	13.21	13.40
Endosulfan II:	13.79	13.79	13.79	13.79	13.72	13.90
4,4'DDD:	13.73	13.73	13.73	13.73	13.66	13.80
Endosulfan sulfate:	15.23	15.23	15.23	15.23	15.16	15.30
4,4'DDT:	14.43	14.43	14.43	14.43	14.36	14.50
Methoxychlor:	16.10	16.10	16.10	16.10	16.03	16.20
Endrin ketone:	16.39	16.39	16.39	16.39	16.32	16.50
Endrin aldehyde:	14.60	14.60	14.60	14.60	14.53	14.70
alpha-Chlordane:	11.87	11.87	11.87	11.87	11.80	11.90
gamma-Chlordane:	11.51	11.51	11.51	11.51	11.44	11.60
Tetrachloro-m-xylene	5.25	5.25	5.25	5.25	5.20	5.30
Decachlorobiphenyl	19.36	19.36	19.37	19.36	19.26	19.50

*Surrogate retention times are measured from Standard Mix A analyses

Retention time windows are ± 0.05 minutes for all compounds that elute before Heptachlor epoxide, ± 0.07 minutes for all other compounds, except ± 0.10 minutes for Decachlorobiphenyl.

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: ____NEWLAB_____ Contract : ___123456__

Lab Code: ___NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BDR25

Level (x low): low ___1.0___ mid __4.0___ high __16.0__

Instrument ID: 5890AA____

GC Column: ___ RTX35_____ ID: _____0.53_____(mm) Date(s) Analyzed: _08/01/01 08/01/01

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
alpha-BHC:					
beta BHC:	348200	369900	356888	358329	3.0
delta-BHC:	699800	898650	918263	838904	14.4
gamma BHC:	738200	921850	963350	874467	13.7
Heptachlor:	845000	977100	931950	918017	7.3
Aldrin:					
Heptachlor epoxide:	692800	778450	712750	728000	6.2
Endosulfan I:	692000	794600	709375	731992	7.5
Dieldrin:	617400	714400	660863	664221	7.3
4,4'DDE:	692400	745200	683144	706915	4.7
Endrin:	402000	460025	412831	424952	7.3
Endosulfan II:	588300	622450	858506	689752	21.3
4,4'DDD:	447700	537375	522994	502690	9.6
Endosulfan sulfate:	530600	557125	511413	533046	4.3
4,4'DDT:	461700	557700	540331	519910	9.8
Methoxychlor:	241060	255280	212946	236428	9.1
Endrin ketone:	529400	539275	507488	525388	3.1
Endrin aldehyde:	438400	462450	421275	440708	4.7
alpha-Chlordane:	805200	779400	721688	768763	5.6
gamma-Chlordane:	741200	830900	780475	784192	5.7
Tetrachloro-m-xylene	552800	653350	624238	610129	8.5
Decachlorobiphenyl	546700	581675	506881	545085	6.9

*Surrogate calibration factors are measured from Standard Mix A analyses.

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: ____NEWLAB_____ Contract : ___123456__

Lab Code: ___NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BDR25

Instrument ID: 5890AB____ Level (x low): low ___1.0___ mid __4.0___ high __16.0__

GC Column: ___ DB5_____ ID: _____0.53_____(mm) Date(s) Analyzed: _08/01/01_ _08/01/01

COMPOUND	RT OF STANDARD				RT WINDOW	
	LOW	MID	HIGH	MEAN RT	FROM	TO
alpha-BHC:	5.28	5.28	5.28	5.28	5.23	5.33
beta BHC:	6.27	6.27	6.27	6.27	6.22	6.32
delta-BHC:	6.65	6.65	6.65	6.65	6.60	6.70
gamma BHC:	6.01	6.01	6.02	6.01	5.96	6.06
Heptachlor:	7.11	7.11	7.11	7.11	7.06	7.16
Aldrin:	7.77	7.78	7.77	7.78	7.72	7.82
Heptachlor epoxide:	9.22	9.22	9.22	9.22	9.15	9.29
Endosulfan I:	10.08	10.08	10.08	10.08	10.01	10.20
Dieldrin:	10.63	10.63	10.64	10.63	10.56	10.70
4,4'DDE:	10.17	10.17	10.17	10.17	10.10	10.20
Endrin:	11.12	11.12	11.12	11.12	11.05	11.20
Endosulfan II:	11.64	11.64	11.64	11.64	11.57	11.70
4,4'DDD:	11.52	11.52	11.52	11.52	11.45	11.60
Endosulfan sulfate:	13.58	13.58	13.58	13.58	13.51	13.70
4,4'DDT:	12.14	12.14	12.14	12.14	12.07	12.20
Methoxychlor:	13.38	13.38	13.38	13.38	13.31	13.50
Endrin ketone:	14.14	14.14	14.14	14.14	14.07	14.20
Endrin aldehyde:	12.61	12.61	12.61	12.61	12.54	12.70
alpha-Chlordane:	9.82	9.82	9.82	9.82	9.75	9.89
gamma-Chlordane:	9.51	9.51	9.51	9.51	9.44	9.58
Tetrachloro-m-xylene	4.01	4.02	4.02	4.02	3.97	4.07
Decachlorobiphenyl	16.60	16.60	16.60	16.60	16.50	16.70

*Surrogate retention times are measured from Standard Mix A analyses

Retention time windows are ± 0.05 minutes for all compounds that elute before Heptachlor epoxide, ± 0.07 minutes for all other compounds, except ± 0.10 minutes for Decachlorobiphenyl.

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: ____NEWLAB_____ Contract : ___123456__

Lab Code: ___NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BDR25

Instrument ID: 5890AB____ Level (x low): low ___1.0___ mid __4.0___ high __16.0__

GC Column: ___ DB5_____ ID: _____0.53_____(mm) Date(s) Analyzed: _08/01/01 08/01/01

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
alpha-BHC:	810200	1040150	1190975	1013775	18.9
beta BHC:	451800	455800	422300	443300	4.1
delta-BHC:					
gamma BHC:	800400	996750	1097563	964904	15.7
Heptachlor:	953200	1040000	1036613	1009938	4.9
Aldrin:	814800	873050	884963	857604	4.4
Heptachlor epoxide:	830200	848100	505300	727867	26.5
Endosulfan I:	779600	832000	795513	802371	3.3
Dieldrin:	671400	770775	786244	742806	8.4
4,4'DDE:	641500	726425	767569	711831	9.0
Endrin:	521300	593850	587544	567564	7.1
Endosulfan II:	686500	703225	666250	685325	2.7
4,4'DDD:	492300	578875	610838	560671	10.9
Endosulfan sulfate:					
4,4'DDT:	542100	627575	651213	606963	9.5
Methoxychlor:	303240	310750	264526	292839	8.5
Endrin ketone:	668300	671475	652094	663956	1.6
Endrin aldehyde:	581300	562050	514988	552779	6.2
alpha-Chlordane:	822400	835150	804700	820750	1.9
gamma-Chlordane:	556000	857400	842113	751838	22.6
Tetrachloro-m-xylene	645000	767450	754425	722292	9.3
Decachlorobiphenyl	772100	742775	646275	720383	9.1

*Surrogate calibration factors are measured from Standard Mix A analyses.

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: ____NEWLAB_____ Contract : ___123456__

Lab Code: ___NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BDR25

Instrument ID: 5890AA____ Date(s) Analyzed: _08/01/01 08/01/01

GC Column: ___ RTX35_____ ID: _____0.53_____(mm)

COMPOUND	AMOUNT (NG)	PEAK[1]	RT	RT WINDOW		CALIBRATION FACTOR
				FROM	TO	
Toxaphene:	0.50	1	14.00	13.93	14.07	22380
		2	14.62	14.55	14.69	21416
		3	15.74	15.67	15.81	33668
		4	16.62	16.55	16.69	15260
		5	17.09	17.02	17.16	11792
Aroclor 1016:	0.10	1	6.55	6.48	6.62	10330
		2	7.58	7.51	7.65	22580
		3	8.69	8.62	8.76	54450
		4	9.01	8.94	9.08	23190
		5	10.15	10.08	10.22	17870
Aroclor 1221:	0.20	1	4.38	4.31	4.45	2835
		2	6.05	5.98	6.12	4195
		3	6.40	6.33	6.47	3435
		4	6.55	6.48	6.62	13535
		5				
Aroclor 1232:	0.10	1	6.55	6.48	6.62	13610
		2	7.58	7.51	7.65	8480
		3	8.69	8.62	8.76	23450
		4	9.02	8.95	9.09	9540
		5	10.15	10.08	10.22	6380
Aroclor 1242:	0.10	1	6.55	6.48	6.62	8960
		2	7.58	7.51	7.65	15360
		3	8.69	8.62	8.76	40720
		4	11.15	11.08	11.22	16630
		5	11.67	11.60	11.74	17080
Aroclor 1248:	0.10	1	10.15	10.08	10.22	23080
		2	10.43	10.36	10.50	
		3	11.05	10.98	11.12	32670
		4	11.67	11.60	11.74	
		5	12.66	12.59	12.73	19590
Aroclor 1254:	0.10	1	11.60	11.53	11.67	45910
		2	12.65	12.58	12.72	
		3	13.18	13.11	13.25	56260
		4	13.97	13.90	14.04	
		5	14.41	14.34	14.48	61860
Aroclor 1260:	0.10	1	13.60	13.53	13.67	
		2	15.29	15.22	15.36	35050
		3	15.87	15.80	15.94	84200
		4	16.69	16.62	16.76	55660
		5	18.00	17.93	18.07	

[1]At least 3 peaks for each column are required for identification of multi-component analytes.

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: ____NEWLAB_____ Contract : ___123456__

Lab Code: ___NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BDR25

Instrument ID: 5890AB____ Date(s) Analyzed: _08/01/01 08/01/01

GC Column: ___ DB5_____ ID: _____0.53_____(mm)

COMPOUND	AMOUNT (NG)	PEAK[1]	RT	RT WINDOW		CALIBRATION FACTOR
				FROM	TO	
Toxaphene:	0.50	1	11.79	11.72	11.86	23252
		2	12.45	12.38	12.52	24374
		3	12.85	12.78	12.92	34110
		4	13.31	13.24	13.38	32874
		5	14.09	14.02	14.16	22282
Aroclor 1016:	0.10	1	4.87	4.80	4.94	19720
		2	5.69	5.62	5.76	36480
		3	6.74	6.67	6.81	71490
		4	7.05	6.98	7.12	32920
		5	7.99	7.92	8.06	31670
Aroclor 1221:	0.20	1	3.77	3.70	3.84	5665
		2	4.45	4.38	4.52	8410
		3	4.78	4.71	4.85	4570
		4	4.87	4.80	4.94	23485
		5				
Aroclor 1232:	0.10	1	4.87	4.80	4.94	24140
		2	5.68	5.61	5.75	16540
		3	6.74	6.67	6.81	33480
		4	7.04	6.97	7.11	15260
		5	8.00	7.93	8.07	13240
Aroclor 1242:	0.10	1	4.87	4.80	4.94	16900
		2	5.69	5.62	5.76	28860
		3	6.74	6.67	6.81	54950
		4	7.04	6.97	7.11	24940
		5	9.02	8.95	9.09	18960
Aroclor 1248:	0.10	1	6.74	6.67	6.81	38970
		2	8.00	7.93	8.07	41630
		3	9.02	8.95	9.09	
		4	10.35	10.28	10.42	19430
		5	10.98	10.91	11.05	
Aroclor 1254:	0.10	1	8.87	8.80	8.94	
		2	9.47	9.40	9.54	
		3	10.35	10.28	10.42	54740
		4	10.98	10.91	11.05	44120
		5	12.02	11.95	12.09	54930
Aroclor 1260:	0.10	1	11.41	11.34	11.48	60020
		2	12.30	12.23	12.37	
		3	13.54	13.47	13.61	
		4	14.15	14.08	14.22	40770
		5	15.55	15.48	15.62	22510

[1]At least 3 peaks for each column are required for identification of multi-component analytes.

PESTICIDE ANALYTE RESOLUTION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Instrument ID (1): __5890AA_____

EPA Sample No. (RESC##) : __RESC00____ Lab Sample ID (1): __RESC00_____

Date Analyzed (1) : __08/01/01_____ Time Analyzed (1): ___1843_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.24	100.0
2	gamma-Chlordane	11.51	100.0
3	Endosulfan I	11.95	100.0
4	4,4'DDE	12.39	100.0
5	Dieldrin	12.60	100.0
6	Endosulfan sulfate	15.22	100.0
7	Methoxychlor	16.10	100.0
8	Endrin ketone	16.38	100.0
9	DBC	19.36	

GC Column (2): _DB-5__ ID: __0.53__(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (RESC##) : ___RESCA0____ Lab Sample ID (2): ___RESCA0_____

Date Analyzed (2) : ____08/01/01_____ Time Analyzed (2): ___1843_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	gamma-Chlordane	9.51	100.0
3	Endosulfan I	10.08	71.0
4	4,4'DDE	10.17	100.0
5	Dieldrin	10.63	100.0
6	Methoxychlor	13.38	100.0
7	Endosulfan sulfate	13.58	100.0
8	Endrin ketone	14.13	100.0
9	DBC	16.60	

PERFORMANCE EVALUATION MIXTURE (PEM)

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Instrument ID (1): __5890AA_____

EPA Sample No. (PEM##) : __PEM00____ Lab Sample ID (1): __PEM00_____

Date Analyzed (1) : __08/01/01_____ Time Analyzed (1): ___1917_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	Alpha BHC	6.88	100.0
3	Gamma BHC	7.80	100.0
4	Beta BHC	8.07	100.0
5	Endrin	13.28	100.0
6	4,4'DDT	14.43	100.0
7	Methoxychlor	16.10	100.0
8	DBC	19.36	

GC Column (2): _DB5__ ID: __0.53__(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (PEM##) : ___PEMA0____ Lab Sample ID (2): ___PEMA0_____

Date Analyzed (2) : ____08/01/01_____ Time Analyzed (2): ___1917_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	Alpha BHC	5.28	100.0
3	Gamma BHC	6.02	100.0
4	Beta BHC	6.27	100.0
5	Endrin	11.12	100.0
6	4,4'DDT	12.14	100.0
7	Methoxychlor	13.38	100.0
8	DBC	16.60	

PERFORMANCE EVALUATION MIXTURE (PEM)

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Instrument ID (1): __5890AA_____

EPA Sample No. (PEM##) : __PEM02____ Lab Sample ID (1): __PEM02_____

Date Analyzed (1) : __08/04/01_____ Time Analyzed (1): ___1104_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	Alpha BHC	6.88	100.0
3	Gamma BHC	7.80	100.0
4	Beta BHC	8.07	100.0
5	Endrin	13.28	100.0
6	4,4'DDT	14.43	100.0
7	Methoxychlor	16.10	100.0
8	DBC	19.36	

GC Column (2): _DB5__ ID: __0.53__(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (PEM##) : ___PEMA2____ Lab Sample ID (2): ___PEMA2_____

Date Analyzed (2) : ____08/04/01_____ Time Analyzed (2): ___1104_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	Alpha BHC	5.28	100.0
3	Gamma BHC	6.02	100.0
4	Beta BHC	6.27	100.0
5	Endrin	11.12	100.0
6	4,4'DDT	12.14	100.0
7	Methoxychlor	13.38	100.0
8	DBC	16.60	

PERFORMANCE EVALUATION MIXTURE (PEM)

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Instrument ID (1): __5890AA_____

EPA Sample No. (PEM##) : __PEM03____ Lab Sample ID (1): __PEM03_____

Date Analyzed (1) : __08/05/01_____ Time Analyzed (1): ___0119_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	Alpha BHC	6.88	100.0
3	Gamma BHC	7.80	100.0
4	Beta BHC	8.07	100.0
5	Endrin	13.28	100.0
6	4,4'DDT	14.43	100.0
7	Methoxychlor	16.10	100.0
8	DBC	19.36	

GC Column (2): _DB5__ ID: __0.53__(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (PEM##) : ___PEMA3____ Lab Sample ID (2): ___PEMA3_____

Date Analyzed (2) : ____08/05/01_____ Time Analyzed (2): ___0119_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	Alpha BHC	5.28	100.0
3	Gamma BHC	6.02	100.0
4	Beta BHC	6.27	100.0
5	Endrin	11.12	100.0
6	4,4'DDT	12.14	100.0
7	Methoxychlor	13.38	100.0
8	DBC	16.60	

PERFORMANCE EVALUATION MIXTURE (PEM)

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Instrument ID (1): __5890AA_____

EPA Sample No. (PEM##) : __PEM09____ Lab Sample ID (1): __PEM09_____

Date Analyzed (1) : __08/08/01_____ Time Analyzed (1): ___0754_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	Alpha BHC	6.88	100.0
3	Gamma BHC	7.80	100.0
4	Beta BHC	8.07	100.0
5	Endrin	13.28	100.0
6	4,4'DDT	14.43	100.0
7	Methoxychlor	16.10	100.0
8	DBC	19.36	

GC Column (2): _DB5__ ID: __0.53__(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (PEM##) : ___PEMA9____ Lab Sample ID (2): ___PEMA9_____

Date Analyzed (2) : ____08/08/01_____ Time Analyzed (2): ___0754_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	Alpha BHC	5.28	100.0
3	Gamma BHC	6.02	100.0
4	Beta BHC	6.27	100.0
5	Endrin	11.12	100.0
6	4,4'DDT	12.14	100.0
7	Methoxychlor	13.38	100.0
8	DBC	16.60	

INDIVIDUAL STANDARD MIXTURE A

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35___ ID: __0.53__(mm) Instrument ID (1): ____5890AA_____

EPA Sample No. (INDAM##) : __INDAM00_____ Lab Sample ID (1): ____ INDAM00_____

Date Analyzed (1) : ____08/01/01_____ Time Analyzed (1): _____2242_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	alpha-BHC	6.88	100.0
3	gamma BHC	7.80	100.0
4	Heptachlor	8.87	100.0
5	Endosulfan I	11.95	100.0
6	Dieldrin	12.60	100.0
7	Endrin	13.28	100.0
8	4,4'DDD	13.73	100.0
9	4,4'DDT	14.43	100.0
10	Methoxychlor	16.10	100.0
11	DBC	19.36	

GC Column (2): __DB5_ ID: __0.53_(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (INDAM##) : _ INDAMA0_____ Lab Sample ID (2): __ INDAMA0_____

Date Analyzed (2) : ____08/01/01_____ Time Analyzed (2): _____2242_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.01	100.0
2	alpha-BHC	5.28	100.0
3	gamma BHC	6.01	100.0
4	Heptachlor	7.10	100.0
5	Endosulfan I	10.08	100.0
6	Dieldrin	10.64	100.0
7	Endrin	11.12	100.0
8	4,4'DDD	11.52	100.0
9	4,4'DDT	12.14	100.0
10	Methoxychlor	13.38	100.0
11	DBC	16.60	

INDIVIDUAL STANDARD MIXTURE B

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Instrument ID (1): __5890AA_____

EPA Sample No. (INDBM##) : __ INDBM00____ Lab Sample ID (1): ___ INDBM00_____

Date Analyzed (1) : ___08/01/01_____ Time Analyzed (1): ____2353_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	beta BHC	8.07	100.0
3	delta-BHC	8.79	100.0
4	Aldrin	9.63	100.0
5	Heptachlor epoxide	11.06	100.0
6	gamma-Chlordane	11.51	100.0
7	alpha-Chlordane	11.87	100.0
8	4,4'DDE	12.40	100.0
9	Endosulfan II	13.79	100.0
10	Endrin aldehyde	14.60	100.0
11	Endosulfan sulfate	15.23	100.0
12	Endrin ketone	16.38	100.0
13	DBC	19.36	

GC Column (2): _DB5___ ID: __0.53_(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (INDBM##) : __ INDBMA0____ Lab Sample ID (2): __ INDBMA0_____

Date Analyzed (2) : _____08/01/01_____ Time Analyzed (2): ____2353_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	beta BHC	6.27	100.0
3	delta-BHC	6.65	100.0
4	Aldrin	7.77	100.0
5	Heptachlor epoxide	9.22	100.0
6	gamma-Chlordane	9.51	100.0
7	alpha-Chlordane	9.82	100.0
8	4,4'DDE	10.17	100.0
9	Endosulfan II	11.64	100.0
10	Endrin aldehyde	12.61	100.0
11	Endosulfan sulfate	13.58	100.0
12	Endrin ketone	14.14	100.0
13	DBC	16.60	

INDIVIDUAL STANDARD MIXTURE A

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35___ ID: __0.53__(mm) Instrument ID (1): ____5890AA_____

EPA Sample No. (INDAM##) : __INDAM01_____ Lab Sample ID (1): ____ INDAM01_____

Date Analyzed (1) : ____08/04/01_____ Time Analyzed (1): _____1725_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	alpha-BHC	6.88	100.0
3	gamma BHC	7.80	100.0
4	Heptachlor	8.87	100.0
5	Endosulfan I	11.95	100.0
6	Dieldrin	12.60	100.0
7	Endrin	13.28	100.0
8	4,4'DDD	13.73	100.0
9	4,4'DDT	14.43	100.0
10	Methoxychlor	16.10	100.0
11	DBC	19.36	

GC Column (2): __DB5_ ID: __0.53_(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (INDAM##) : _ INDAMA1_____ Lab Sample ID (2): __ INDAMA1_____

Date Analyzed (2) : ____08/04/01_____ Time Analyzed (2): _____1725_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	3.99	100.0
2	alpha-BHC	5.28	100.0
3	gamma BHC	6.01	100.0
4	Heptachlor	7.10	100.0
5	Endosulfan I	10.08	100.0
6	Dieldrin	10.64	100.0
7	Endrin	11.12	100.0
8	4,4'DDD	11.52	100.0
9	4,4'DDT	12.14	100.0
10	Methoxychlor	13.38	100.0
11	DBC	16.60	

INDIVIDUAL STANDARD MIXTURE B

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Instrument ID (1): __5890AA_____

EPA Sample No. (INDBM##) : __ INDBM01____ Lab Sample ID (1): ___ INDBM01_____

Date Analyzed (1) : ___08/04/01_____ Time Analyzed (1): ____1749_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	beta BHC	8.07	100.0
3	delta-BHC	8.79	100.0
4	Aldrin	9.63	100.0
5	Heptachlor epoxide	11.06	100.0
6	gamma-Chlordane	11.51	100.0
7	alpha-Chlordane	11.87	100.0
8	4,4'DDE	12.40	100.0
9	Endosulfan II	13.79	100.0
10	Endrin aldehyde	14.60	100.0
11	Endosulfan sulfate	15.23	100.0
12	Endrin ketone	16.38	100.0
13	DBC	19.36	

GC Column (2): _DB5___ ID: __0.53_(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (INDBM##) : __ INDBMA1____ Lab Sample ID (2): __ INDBMA1_____

Date Analyzed (2) : _____08/04/01_____ Time Analyzed (2): ____1749_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	3.99	100.0
2	beta BHC	6.27	100.0
3	delta-BHC	6.65	100.0
4	Aldrin	7.77	100.0
5	Heptachlor epoxide	9.22	100.0
6	gamma-Chlordane	9.51	100.0
7	alpha-Chlordane	9.82	100.0
8	4,4'DDE	10.17	100.0
9	Endosulfan II	11.64	100.0
10	Endrin aldehyde	12.61	100.0
11	Endosulfan sulfate	13.58	100.0
12	Endrin ketone	14.14	100.0
13	DBC	16.60	

INDIVIDUAL STANDARD MIXTURE A

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35___ ID: __0.53__(mm) Instrument ID (1): ____5890AA_____

EPA Sample No. (INDAM##) : __INDAM05_____ Lab Sample ID (1): ____ INDAM05_____

Date Analyzed (1) : ____08/08/01_____ Time Analyzed (1): _____0128_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	alpha-BHC	6.88	100.0
3	gamma BHC	7.80	100.0
4	Heptachlor	8.87	100.0
5	Endosulfan I	11.95	100.0
6	Dieldrin	12.60	100.0
7	Endrin	13.28	100.0
8	4,4'DDD	13.73	100.0
9	4,4'DDT	14.43	100.0
10	Methoxychlor	16.10	100.0
11	DBC	19.36	

GC Column (2): __DB5_ ID: __0.53_(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (INDAM##) : _ INDAMA5_____ Lab Sample ID (2): __ INDAMA5_____

Date Analyzed (2) : ____08/08/01_____ Time Analyzed (2): _____0128_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.01	100.0
2	alpha-BHC	5.28	100.0
3	gamma BHC	6.01	100.0
4	Heptachlor	7.10	100.0
5	Endosulfan I	10.08	100.0
6	Dieldrin	10.64	100.0
7	Endrin	11.12	100.0
8	4,4'DDD	11.52	100.0
9	4,4'DDT	12.14	100.0
10	Methoxychlor	13.38	100.0
11	DBC	16.60	

INDIVIDUAL STANDARD MIXTURE B

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Instrument ID (1): __5890AA_____

EPA Sample No. (INDBM##) : __ INDBM05____ Lab Sample ID (1): ___ INDBM05_____

Date Analyzed (1) : ___08/08/01_____ Time Analyzed (1): ____0218_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	beta BHC	8.07	100.0
3	delta-BHC	8.79	100.0
4	Aldrin	9.63	100.0
5	Heptachlor epoxide	11.06	100.0
6	gamma-Chlordane	11.51	100.0
7	alpha-Chlordane	11.87	100.0
8	4,4'DDE	12.40	100.0
9	Endosulfan II	13.79	100.0
10	Endrin aldehyde	14.60	100.0
11	Endosulfan sulfate	15.23	100.0
12	Endrin ketone	16.39	100.0
13	DBC	19.36	

GC Column (2): _DB5___ ID: __0.53_(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (INDBM##) : __ INDBMA5____ Lab Sample ID (2): __ INDBMA5_____

Date Analyzed (2) : _____08/08/01_____ Time Analyzed (2): ____0218_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	beta BHC	6.27	100.0
3	delta-BHC	6.65	100.0
4	Aldrin	7.77	100.0
5	Heptachlor epoxide	9.22	100.0
6	gamma-Chlordane	9.51	100.0
7	alpha-Chlordane	9.82	100.0
8	4,4'DDE	10.17	100.0
9	Endosulfan II	11.64	100.0
10	Endrin aldehyde	12.61	100.0
11	Endosulfan sulfate	13.58	100.0
12	Endrin ketone	14.14	100.0
13	DBC	16.60	

INDIVIDUAL STANDARD MIXTURE A

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35___ ID: __0.53__(mm) Instrument ID (1): ____5890AA_____

EPA Sample No. (INDAM##) : __INDAM06_____ Lab Sample ID (1): ____ INDAM06_____

Date Analyzed (1) : ____08/08/01_____ Time Analyzed (1): _____1042_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	alpha-BHC	6.88	100.0
3	gamma BHC	7.80	100.0
4	Heptachlor	8.87	100.0
5	Endosulfan I	11.95	100.0
6	Dieldrin	12.60	100.0
7	Endrin	13.28	100.0
8	4,4'DDD	13.73	100.0
9	4,4'DDT	14.43	100.0
10	Methoxychlor	16.10	100.0
11	DBC	19.36	

GC Column (2): __DB5_ ID: __0.53_(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (INDAM##) : _ INDAMA6_____ Lab Sample ID (2): __ INDAMA6_____

Date Analyzed (2) : ____08/08/01_____ Time Analyzed (2): _____1042_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.00	100.0
2	alpha-BHC	5.28	100.0
3	gamma BHC	6.01	100.0
4	Heptachlor	7.10	100.0
5	Endosulfan I	10.08	100.0
6	Dieldrin	10.64	100.0
7	Endrin	11.12	100.0
8	4,4'DDD	11.52	100.0
9	4,4'DDT	12.14	100.0
10	Methoxychlor	13.38	100.0
11	DBC	16.60	

INDIVIDUAL STANDARD MIXTURE B

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Instrument ID (1): __5890AA_____

EPA Sample No. (INDBM##) : __ INDBM06____ Lab Sample ID (1): ___ INDBM06_____

Date Analyzed (1) : ___08/08/01_____ Time Analyzed (1): ____1106_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	beta BHC	8.07	100.0
3	delta-BHC	8.79	100.0
4	Aldrin	9.63	100.0
5	Heptachlor epoxide	11.06	100.0
6	gamma-Chlordane	11.51	100.0
7	alpha-Chlordane	11.87	100.0
8	4,4'DDE	12.40	100.0
9	Endosulfan II	13.79	100.0
10	Endrin aldehyde	14.60	100.0
11	Endosulfan sulfate	15.23	100.0
12	Endrin ketone	16.38	100.0
13	DBC	19.36	

GC Column (2): _DB5___ ID: __0.53_(mm) Instrument ID (2): ___5890AB_____

EPA Sample No. (INDBM##) : __ INDBMA6____ Lab Sample ID (2): __ INDBMA6_____

Date Analyzed (2) : _____08/08/01_____ Time Analyzed (2): ____1106_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	beta BHC	6.27	100.0
3	delta-BHC	6.65	100.0
4	Aldrin	7.77	100.0
5	Heptachlor epoxide	9.22	100.0
6	gamma-Chlordane	9.51	100.0
7	alpha-Chlordane	9.82	100.0
8	4,4'DDE	10.17	100.0
9	Endosulfan II	11.64	100.0
10	Endrin aldehyde	12.61	100.0
11	Endosulfan sulfate	13.58	100.0
12	Endrin ketone	14.14	100.0
13	DBC	16.60	

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: _0.53__(mm) Initial Calib. Date(s) : _08/01/01__ _08/01/01__

EPA Sample No. (PIBLK##) : __ _____ Date Analyzed : _____

Lab Sample ID (PIBLK##) : ___ _____ Time Analyzed : _____

EPA Sample No. (PEM##) : ___PEM00_____ Date Analyzed : ____08/01/01_____

Lab Sample ID (PEM##) : ____PEM00_____ Time Analyzed : _____1917_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC	6.88	6.83	6.93	0.0091	0.010	-9.0
beta BHC	8.07	8.02	8.12	0.011	0.010	10.2
gamma BHC	7.80	7.75	7.85	0.0095	0.010	-4.7
Endrin	13.28	13.21	13.35	0.051	0.050	1.7
4,4'DDT	14.43	14.36	14.50		0.10	
Methoxychlor	16.10	16.03	16.17	0.212	0.25	-15.4

4,4'DDT % Breakdown (1): ____0.58_____ Endrin % Breakdown (1): _____

Combined % Breakdown (1): __6.30_____

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _DB-5___ ID: __0.53___(mm) Initial Calib. Date(s) : _08/01/01__ _08/01/01___

EPA Sample No. (PIBLK##) : __ _____ Date Analyzed : _____

Lab Sample ID (PIBLK##) : ___ _____ Time Analyzed : _____

EPA Sample No. (PEM##) : ___PEMA0_____ Date Analyzed : ____08/01/01_____

Lab Sample ID (PEM##) : ____PEMA0_____ Time Analyzed : _____1917_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC	5.28	5.23	5.33	0.0091	0.010	-8.5
beta BHC	6.27	6.22	6.32		0.010	
gamma BHC	6.01	5.96	6.06	0.0094	0.010	-6.1
Endrin	11.12	11.05	11.19	0.052	0.050	5.0
4,4'DDT	12.14	12.07	12.21	0.096	0.10	-4.4
Methoxychlor	13.38	13.31	13.45	0.223	0.25	-10.8

4,4'DDT % Breakdown (1): ____0.56_____ Endrin % Breakdown (1): ____5.89_____

Combined % Breakdown (1): _____

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35_ ID: __0.53__(mm) Initial Calib. Date(s) : __08/01/01_ _08/01/01__

EPA Sample No. (PIBLK##) : ___PIBLK01_____ Date Analyzed : ___08/04/01_____

Lab Sample ID (PIBLK##) : _____PIBLK02_____ Time Analyzed : ___1040_____

EPA Sample No. (PEM##) : _____PEM02___ Date Analyzed : ___08/04/01_____

Lab Sample ID (PEM##) : _____PEM02_____ Time Analyzed : ___1104_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC	6.88	6.83	6.93	0.0096	0.010	-4.3
beta BHC	8.06	8.02	8.12	0.011	0.010	10.0
gamma BHC	7.80	7.75	7.85	0.0100	0.010	0.0
Endrin	13.28	13.21	13.35		0.050	
4,4'DDT	14.43	14.36	14.50	0.097	0.10	-2.9
Methoxychlor	16.10	16.03	16.17	0.231	0.25	-7.7

4,4'DDT % Breakdown (1): ____0.57_____ Endrin % Breakdown (1): _____

Combined % Breakdown (1): __7.95_____

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _DB-5__ ID: _0.53__(mm) Initial Calib. Date(s) : _08/01/01_ _08/01/01_

EPA Sample No. (PIBLK##) : ___PIBLKA1_____ Date Analyzed : ___08/04/01_____

Lab Sample ID (PIBLK##) : _____PIBLKA1_____ Time Analyzed : ___1040_____

EPA Sample No. (PEM##) : _____PEMA2___ Date Analyzed : ___08/04/01_____

Lab Sample ID (PEM##) : _____PEMA2_____ Time Analyzed : ___1104_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC	5.28	5.23	5.33	0.0095	0.010	-5.0
beta BHC	6.27	6.22	6.32	0.012	0.010	15.0
gamma BHC	6.01	5.96	6.06		0.010	
Endrin	11.12	11.05	11.19	0.054	0.050	7.6
4,4'DDT	12.14	12.07	12.21	0.100	0.10	0.0
Methoxychlor	13.38	13.31	13.45	0.229	0.25	-8.5

4,4'DDT % Breakdown (1): ____0.61_____ Endrin % Breakdown (1): ____7.18_____
Combined % Breakdown (1): __7.79_____

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX-35___ ID: _0.53__(mm) Initial Calib. Date(s) : _08/01/01__ __08/01/01_

EPA Sample No. (PIBLK##) : ___PIBLK03_____ Date Analyzed : ____08/05/01_____

Lab Sample ID (PIBLK##) : ____PIBLK03____ Time Analyzed : ____0055_____

EPA Sample No. (PEM##) : ____PEM03____ Date Analyzed : _____08/05/01_____

Lab Sample ID (PEM##) : ____PEM03_____ Time Analyzed : _____0119_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC	6.86	6.83	6.93	0.0096	0.010	-4.2
beta BHC	8.04	8.02	8.12	0.012	0.010	20.0
gamma BHC	7.78	7.75	7.85	0.010	0.010	0.0
Endrin	13.26	13.21	13.35	0.055	0.050	10.0
4,4'DDT	14.41	14.36	14.50		0.10	
Methoxychlor	16.08	16.03	16.17	0.233	0.25	-6.6

4,4'DDT % Breakdown (1): ____0.83_____ Endrin % Breakdown (1): _____

Combined % Breakdown (1): _____

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): __DB-5___ ID: _0.53___(mm) Initial Calib. Date(s) : _08/01/01 __08/01/01_

EPA Sample No. (PIBLK##) : ___PIBLKA3_____ Date Analyzed : ____08/05/01_____

Lab Sample ID (PIBLK##) : ____PIBLK A3____ Time Analyzed : ____0055_____

EPA Sample No. (PEM##) : ____PEM A3____ Date Analyzed : _____08/05/01_____

Lab Sample ID (PEM##) : ____PEM A3_____ Time Analyzed : _____0119_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC	5.26	5.23	5.33	0.0095	0.010	-5.0
beta BHC	6.25	6.22	6.32	0.011	0.010	11.0
gamma BHC	6.00	5.96	6.06	0.0098	0.010	-2.0
Endrin	11.10	11.05	11.19	0.054	0.050	8.4
4,4'DDT	12.12	12.07	12.21		0.10	
Methoxychlor	13.36	13.31	13.45	0.236	0.25	-5.6

4,4'DDT % Breakdown (1): _____ Endrin % Breakdown (1): _____

Combined % Breakdown (1): _____

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX-35___ ID: __0.53_(mm) Initial Calib. Date(s) : _08/01/01__ _08/01/01_

EPA Sample No. (PIBLK##) : __PIBLK07_____ Date Analyzed : ____08/08/01_____

Lab Sample ID (PIBLK##) : ___PIBLK07_____ Time Analyzed : _____0706_____

EPA Sample No. (PEM##) : ___PEM09_____ Date Analyzed : ____08/08/01_____

Lab Sample ID (PEM##) : ____PEM09_____ Time Analyzed : _____0754_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC	6.84	6.83	6.93	0.0097	0.010	-2.7
beta BHC	8.03	8.02	8.12		0.010	
gamma BHC	7.76	7.75	7.85	0.010	0.010	0.0
Endrin	13.24	13.21	13.35	0.056	0.050	11.0
4,4'DDT	14.40	14.36	14.50	0.101	0.10	0.6
Methoxychlor	16.07	16.03	16.17	0.243	0.25	-2.9

4,4'DDT % Breakdown (1): _____ Endrin % Breakdown (1): _____

Combined % Breakdown (1): _____

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _DB-5____ ID: _0.53__(mm) Initial Calib. Date(s) : _08/01/01__ __08/01/01_

EPA Sample No. (PIBLK##) : __PIBLKA7_____ Date Analyzed : ____08/08/01_____

Lab Sample ID (PIBLK##) : ___PIBLKA7_____ Time Analyzed : _____0706_____

EPA Sample No. (PEM##) : ___PEMA9_____ Date Analyzed : ____08/08/01_____

Lab Sample ID (PEM##) : ____PEMA9_____ Time Analyzed : _____0754_____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC	5.24	5.23	5.33	0.0098	0.010	-2.0
beta BHC	6.23	6.22	6.32	0.012	0.010	15.0
gamma BHC	5.98	5.96	6.06	0.0099	0.010	-1.0
Endrin	11.09	11.05	11.19	0.056	0.050	11.0
4,4'DDT	12.10	12.07	12.21	0.105	0.10	4.6
Methoxychlor	13.34	13.31	13.45	0.243	0.25	-2.7

4,4'DDT % Breakdown (1): ____0.65_____ Endrin % Breakdown (1): _____

Combined % Breakdown (1): _____

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX-35 ID: _0.53_(mm) Initial Calib. Date(s) : _08/01/01__ _08/01/01__

EPA Sample No. (PIBLK##) : __PIBLK02_____ Date Analyzed : _____08/04/01_____

Lab Sample ID (PIBLK##) : ____PIBLK02_____ Time Analyzed : _____1701_____

EPA Sample No. (INDAM##) : __INDAM01__ Date Analyzed : _____08/04/01_____

Lab Sample ID (INDA) : _INDAM01_____ Time Analyzed : ____1725_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	6.85	6.83	6.93	0.020	0.020	0.0
Gamma BHC	7.78	7.75	7.85	0.019	0.020	-5.0
Heptachlor	8.84	8.82	8.92	0.020	0.020	0.0
Endosulfan I	11.92	11.88	12.02	0.020	0.020	0.0
Dieldrin	12.57	12.53	12.67	0.041	0.040	2.5
Endrin	13.25	13.21	13.35	0.041	0.040	2.5
4,4'DDD	13.70	13.66	13.80	0.042	0.040	5.0
4,4'DDT	14.41	14.36	14.50	0.041	0.040	2.5
Methoxychlor	16.07	16.03	16.17		0.200	
Tetrachloro-m-xylene	5.22	5.20	5.30	0.020	0.020	0.0
Decachlorobiphenyl	19.34	19.26	19.46	0.043	0.040	7.5

EPA Sample No. (INDBM##) : __INDBM01____ Date Analyzed : _____08/04/01_____

Lab Sample ID (INDB) : ___INDBM01____ Time Analyzed : _____1749_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	8.04	8.02	8.12	0.020	0.020	0.0
Delta-BHC	8.76	8.74	8.84	0.020	0.020	0.0
Aldrin	9.60	9.58	9.68	0.020	0.020	0.0
Heptachlor epoxide	11.03	10.99	11.13	0.020	0.020	0.0
4,4'DDE	12.37	12.32	12.50	0.041	0.040	2.5
Endosulfan II	13.76	13.72	13.86	0.042	0.040	5.0
Endosulfan sulfate	15.20	15.16	15.30	0.043	0.040	7.5
Endrin ketone	16.36	16.32	16.46	0.043	0.040	7.5
Endrin aldehyde	14.56	14.53	14.67	0.042	0.040	5.0
Alpha-Chlordane	11.84	11.80	11.94	0.020	0.020	0.0
Gamma-Chlordane	11.48	11.44	11.58	0.020	0.020	0.0
Tetrachloro-m-xylene	5.22	5.20	5.30	0.020	0.020	0.0
Decachlorobiphenyl	19.33	19.26	19.46	0.040	0.040	0.0

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _DB-5__ ID: _0.53__(mm) Initial Calib. Date(s) : _08/01/01_ _08/01/01__

EPA Sample No. (PIBLK##) : __PIBLKA2_____ Date Analyzed : _____08/04/01_____

Lab Sample ID (PIBLK##) : ____PIBLKA2_____ Time Analyzed : _____1701_____

EPA Sample No. (INDAM##) : __INDAMA1__ Date Analyzed : _____08/04/01_____

Lab Sample ID (INDA) : _INDAMA1_____ Time Analyzed : ____1725_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	5.25	5.23	5.33	0.020	0.020	0.0
Gamma BHC	5.99	5.96	6.06	0.020	0.020	0.0
Heptachlor	7.08	7.06	7.16	0.020	0.020	0.0
Endosulfan I	10.05	10.01	10.15	0.020	0.020	0.0
Dieldrin	10.61	10.56	10.70	0.040	0.040	0.0
Endrin	11.10	11.05	11.19	0.040	0.040	0.0
4,4'DDD	11.49	11.45	11.59	0.040	0.040	0.0
4,4'DDT	12.11	12.07	12.21	0.040	0.040	0.0
Methoxychlor	13.35	13.31	13.45	0.204	0.200	2.0
Tetrachloro-m-xylene	4.00	3.97	4.07	0.020	0.020	5.0
Decachlorobiphenyl	16.57	16.50	16.70	0.042	0.040	5.0

EPA Sample No. (INDBM##) : __INDBMA1____ Date Analyzed : _____08/04/01_____

Lab Sample ID (INDB) : ___INDBMA1____ Time Analyzed : _____1749_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	6.24	6.22	6.32	0.020	0.020	0.0
Delta-BHC	6.62	6.60	6.70	0.020	0.020	0.0
Aldrin	7.75	7.72	7.82		0.020	
Heptachlor epoxide	9.19	9.15	9.29	0.020	0.020	0.0
4,4'DDE	10.14	10.10	10.24	0.040	0.040	0.0
Endosulfan II	11.61	11.57	11.71	0.041	0.040	2.5
Endosulfan sulfate	13.55	13.51	13.65	0.041	0.040	2.5
Endrin ketone	14.11	14.07	14.21	0.041	0.040	2.5
Endrin aldehyde	12.58	12.54	12.68	0.040	0.040	0.0
Alpha-Chlordane	9.79	9.75	9.89	0.020	0.020	0.0
Gamma-Chlordane	9.48	9.44	9.58	0.020	0.020	0.0
Tetrachloro-m-xylene	4.00	3.97	4.07	0.020	0.020	0.0
Decachlorobiphenyl	16.57	16.50	16.70	0.039	0.040	-2.5

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX-35 ID: _0.53__(mm) Initial Calib. Date(s) : _08/01/01_ _08/01/01_

EPA Sample No. (PIBLK##) : __PIBLK06_____ Date Analyzed : ____08/08/01_____

Lab Sample ID (PIBLK##) : ____PIBLK06_____ Time Analyzed : ____0017_____

EPA Sample No. (INDAM##) : __INDAM05_____ Date Analyzed : ____08/08/01_____

Lab Sample ID (INDA) : ___INDAM05_____ Time Analyzed : ____0128_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	6.85	6.83	6.93	0.020	0.020	0.0
Gamma BHC	7.78	7.75	7.85	0.020	0.020	0.0
Heptachlor	8.84	8.82	8.92	0.019	0.020	-5.0
Endosulfan I	11.92	11.88	12.02	0.019	0.020	-5.0
Dieldrin	12.57	12.53	12.67	0.040	0.040	0.0
Endrin	13.25	13.21	13.35	0.040	0.040	0.0
4,4'DDD	13.70	13.66	13.80	0.039	0.040	-2.5
4,4'DDT	14.41	14.36	14.50		0.040	
Methoxychlor	16.07	16.03	16.17	0.197	0.200	-1.5
Tetrachloro-m-xylene	5.22	5.20	5.30	0.020	0.020	0.0
Decachlorobiphenyl	19.33	19.26	19.46	0.041	0.040	2.5

EPA Sample No. (INDBM##) : __INDBM05_____ Date Analyzed : _____08/08/01_____

Lab Sample ID (INDB) : ___INDBM05_____ Time Analyzed : _____0218_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	8.04	8.02	8.12	0.020	0.020	0.0
Delta-BHC	8.76	8.74	8.84	0.020	0.020	0.0
Aldrin	9.60	9.58	9.68	0.020	0.020	0.0
Heptachlor epoxide	11.03	10.99	11.13	0.020	0.020	0.0
4,4'DDE	12.36	12.32	12.50	0.040	0.040	0.0
Endosulfan II	13.76	13.72	13.86	0.040	0.040	0.0
Endosulfan sulfate	15.20	15.16	15.30	0.041	0.040	2.5
Endrin ketone	16.35	16.32	16.46	0.040	0.040	0.0
Endrin aldehyde	14.56	14.53	14.67	0.040	0.040	0.0
Alpha-Chlordane	11.84	11.80	11.94		0.020	
Gamma-Chlordane	11.48	11.44	11.58	0.020	0.020	0.0
Tetrachloro-m-xylene	5.22	5.20	5.30	0.020	0.020	0.0
Decachlorobiphenyl	19.33	19.26	19.46	0.039	0.040	-2.5

FORM VII PEST-2 OLM04.2

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _DB-5__ ID: _0.53___(mm) Initial Calib. Date(s) : _08/01/01__ _08/01/01__

EPA Sample No. (PIBLK##) : __PIBLKA6_____ Date Analyzed : ____08/08/01_____

Lab Sample ID (PIBLK##) : ____PIBLKA6_____ Time Analyzed : ____0017_____

EPA Sample No. (INDAM##) : __INDAMA5____ Date Analyzed : ____08/08/01_____

Lab Sample ID (INDA) : ___INDAMA5_____ Time Analyzed : ____0128_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	5.25	5.23	5.33	0.020	0.020	0.0
Gamma BHC	5.99	5.96	6.06	0.020	0.020	0.0
Heptachlor	7.08	7.06	7.16	0.019	0.020	-5.0
Endosulfan I	10.05	10.01	10.15		0.020	
Dieldrin	10.61	10.56	10.70	0.040	0.040	0.0
Endrin	11.10	11.05	11.19	0.039	0.040	-2.5
4,4'DDD	11.49	11.45	11.59	0.039	0.040	-2.5
4,4'DDT	12.11	12.07	12.21	0.039	0.040	-2.5
Methoxychlor	13.35	13.31	13.45	0.202	0.200	1.0
Tetrachloro-m-xylene	4.00	3.97	4.07	0.020	0.020	0.0
Decachlorobiphenyl	16.57	16.50	16.70	0.041	0.040	2.5

EPA Sample No. (INDBM##) : __INDBMA5_____ Date Analyzed : _____08/08/01_____

Lab Sample ID (INDB) : ___INDBMA5_____ Time Analyzed : _____0218_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	6.24	6.22	6.32	0.020	0.020	0.0
Delta-BHC	6.62	6.60	6.70	0.020	0.020	0.0
Aldrin	7.74	7.72	7.82	0.020	0.020	0.0
Heptachlor epoxide	9.19	9.15	9.29	0.020	0.020	0.0
4,4'DDE	10.14	10.10	10.24	0.040	0.040	0.0
Endosulfan II	11.61	11.57	11.71	0.041	0.040	2.5
Endosulfan sulfate	13.55	13.51	13.65	0.041	0.040	2.5
Endrin ketone	14.11	14.07	14.21	0.041	0.040	2.5
Endrin aldehyde	12.58	12.54	12.68	0.040	0.040	0.0
Alpha-Chlordane	9.79	9.75	9.89	0.020	0.020	0.0
Gamma-Chlordane	9.48	9.44	9.58	0.020	0.020	0.0
Tetrachloro-m-xylene	4.00	3.97	4.07	0.020	0.020	0.0
Decachlorobiphenyl	16.57	16.50	16.70	0.039	0.040	-2.5

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX-35 ID: _0.53_(mm) Initial Calib. Date(s) : _08/01/01__ _08/01/01__

EPA Sample No. (PIBLK##) : __PIBLK08_____ Date Analyzed : _____08/08/01_____

Lab Sample ID (PIBLK##) : ____PIBLK08_____ Time Analyzed : _____1018_____

EPA Sample No. (INDAM##) : __INDAM06__ Date Analyzed : _____08/08/01_____

Lab Sample ID (INDA) : _INDAM06_____ Time Analyzed : ____1042_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	6.85	6.83	6.93	0.020	0.020	0.0
Gamma BHC	7.78	7.75	7.85	0.020	0.020	0.0
Heptachlor	8.84	8.82	8.92	0.019	0.020	-5.0
Endosulfan I	11.92	11.88	12.02	0.019	0.020	-5.0
Dieldrin	12.57	12.53	12.67	0.032	0.040	-21.25
Endrin	13.25	13.21	13.35	0.041	0.040	2.5
4,4'DDD	13.70	13.66	13.80	0.040	0.040	0.0
4,4'DDT	14.41	14.36	14.50	0.038	0.040	-5.0
Methoxychlor	16.07	16.03	16.17	0.194	0.200	-3.0
Tetrachloro-m-xylene	5.22	5.20	5.30	0.020	0.020	0.0
Decachlorobiphenyl	19.34	19.26	19.46	0.041	0.040	2.5

EPA Sample No. (INDBM##) : __INDBM06____ Date Analyzed : _____08/08/01_____

Lab Sample ID (INDB) : ___INDBM06____ Time Analyzed : _____1042_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	8.04	8.02	8.12	0.020	0.020	0.0
Delta-BHC	8.76	8.74	8.84	0.019	0.020	-5.0
Aldrin	9.60	9.58	9.68	0.020	0.020	0.0
Heptachlor epoxide	11.03	10.99	11.13	0.020	0.020	0.0
4,4'DDE	12.37	12.32	12.50	0.040	0.040	0.0
Endosulfan II	13.76	13.72	13.86	0.041	0.040	2.5
Endosulfan sulfate	15.20	15.16	15.30		0.040	
Endrin ketone	16.36	16.32	16.46	0.040	0.040	0.0
Endrin aldehyde	14.56	14.53	14.67	0.040	0.040	0.0
Alpha-Chlordane	11.84	11.80	11.94	0.020	0.020	0.0
Gamma-Chlordane	11.48	11.44	11.58	0.020	0.020	0.0
Tetrachloro-m-xylene	5.22	5.20	5.30	0.020	0.020	0.0
Decachlorobiphenyl	19.33	19.26	19.46	0.039	0.040	-2.5

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _DB-5__ ID: _0.53__(mm) Initial Calib. Date(s) : _08/01/01_ _08/01/01__

EPA Sample No. (PIBLK##) : __PIBLKA8_____ Date Analyzed : _____08/08/01_____

Lab Sample ID (PIBLK##) : ____PIBLKA8_____ Time Analyzed : _____1018_____

EPA Sample No. (INDAM##) : __INDAMA6__ Date Analyzed : _____08/08/01_____

Lab Sample ID (INDA) : _INDAMA6_____ Time Analyzed : ____1042_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	5.25	5.23	5.33	0.020	0.020	0.0
Gamma BHC	5.99	5.96	6.06	0.020	0.020	0.0
Heptachlor	7.08	7.06	7.16	0.019	0.020	0.0
Endosulfan I	10.05	10.01	10.15	0.020	0.020	0.0
Dieldrin	10.61	10.56	10.70	0.040	0.040	0.0
Endrin	11.10	11.05	11.19	0.040	0.040	0.0
4,4'DDD	11.49	11.45	11.59	0.040	0.040	0.0
4,4'DDT	12.11	12.07	12.21	0.040	0.040	0.0
Methoxychlor	13.35	13.31	13.45	0.204	0.200	2.0
Tetrachloro-m-xylene	4.00	3.97	4.07	0.021	0.020	5.0
Decachlorobiphenyl	16.57	16.50	16.70	0.041	0.040	2.5

EPA Sample No. (INDBM##) : __INDBMA6____ Date Analyzed : _____08/08/01_____

Lab Sample ID (INDB) : ___INDBMA6____ Time Analyzed : _____1042_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	6.24	6.22	6.32	0.020	0.020	0.0
Delta-BHC	6.62	6.60	6.70	0.020	0.020	0.0
Aldrin	7.75	7.72	7.82	0.020	0.020	0.0
Heptachlor epoxide	9.19	9.15	9.29	0.021	0.020	5.0
4,4'DDE	10.14	10.10	10.24	0.041	0.040	2.5
Endosulfan II	11.61	11.57	11.71	0.042	0.040	5.0
Endosulfan sulfate	13.55	13.51	13.65	0.041	0.040	2.5
Endrin ketone	14.11	14.07	14.21	0.040	0.040	0.0
Endrin aldehyde	12.58	12.54	12.68	0.041	0.040	2.5
Alpha-Chlordane	9.79	9.75	9.89	0.021	0.020	5.0
Gamma-Chlordane	9.48	9.44	9.58		0.020	
Tetrachloro-m-xylene	4.00	3.97	4.07	0.020	0.020	0.0
Decachlorobiphenyl	16.57	16.50	16.70	0.039	0.040	-2.5

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35__ ID: _____(mm) Init. Calib. Date(s) : _08/01/01_ __08/01/01__

Instrument ID (1): ___5890AA_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: _____5.20_____ DCB: _____19.26_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	RESC00	RESC00	08/01/01	1843	5.25	19.36
2	PEM00	PEM00	08/01/01	1917	5.25	19.36
3	AR166000	AR166000	08/01/01	1931	5.25	19.36
4	AR122100	AR122100	08/01/01	1955	5.25	19.36
5	AR123200	AR123200	08/01/01	2019	5.25	19.36
6	AR124200	AR124200	08/01/01	2043	5.25	19.36
7	AR124800	AR124800	08/01/01	2106	5.25	19.36
8	AR125400	AR125400	08/01/01	2130	5.25	19.36
9	TOXAPH00	TOXAPH00	08/01/01	2154	5.25	19.37
10	INDAL00	INDAL00	08/01/01	2218	5.25	19.36
11	INDAM00	INDAM00	08/01/01	2242	5.25	19.36
12	INDAH00	INDAH00	08/01/01	2305	5.25	19.36
13	INDBL00	INDBL00	08/01/01	2329	5.25	19.37
14	INDBM00	INDBM00	08/01/01	2353	5.25	19.37
15	INDBH00	INDBH00	08/02/01	0017	5.25	19.37
16	PIBLK01	PIBLK01	08/04/01	1040	5.25	19.36
17	PEM02	PEM02	08/04/01	1104	5.25	19.36
18	PBLKS1	MBS1	08/04/01	1128	5.25	19.37
19	PBLKW1	MBW1	08/04/01	1152	5.25	19.37
20	BDR25	BDR25-1	08/04/01	1216	5.25	19.36
21	BDR25DL	BDR25-1DL	08/04/01	1240	5.25	19.37
22	BDR26	BDR25-2	08/04/01	1303	5.25	19.36
23	BDR26DL	BDR25-2DL	08/04/01	1327	5.25	19.37
24	BDR27	BDR25-3	08/04/01	1351	5.25	19.36
25	BDR27DL	BDR25-3DL	08/04/01	1415	5.25	19.36
26	BDR28	BDR25-4	08/04/01	1439	5.25	19.36
27	BDR28DL	BDR25-4DL	08/04/01	1502	5.25	19.37
28	BDR29	BDR25-5	08/04/01	1526	5.25	19.36
29	BDR32	BDR25-6	08/04/01	1550	5.25	19.37
30	BDR34	BDR25-7	08/04/01	1614	5.25	19.36
31	BDR34DL	BDR25-7	08/04/01	1638	5.25	19.36
32	PIBLK02	PIBLK02	08/04/01	1701	5.25	19.36

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with an asterisk
* Values outside of QC limits.

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35__ ID: _____(mm) Init. Calib. Date(s) : _08/01/01_ __08/01/01_

Instrument ID (1): ___5890AA_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: _____5.20_____ DCB: _____19.26_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	INDAM01	INDAM01	08/04/01	1725	5.25	19.36
2	INDBM01	INDBM01	08/04/01	1749	5.25	19.36
3	BDR43	BDR25-08	08/04/01	1813	5.25	19.36
4	BDR44	BDR25-09	08/04/01	1837	5.25	19.36
5	BDR44DL	BDR25-09DL	08/04/01	1901	5.25	19.36
6	BDR45	BDR25-10	08/04/01	1925	5.25	19.36
7	BDR46	BDR25-11	08/04/01	2036	5.25	19.36
8	BNR68	BDR25-12	08/04/01	2100	5.25	19.36
9	ZZZZZZZZZ	BDR25-13DL	08/04/01	2123	5.25	19.36
10	ZZZZZZZZZ	HEXANE	08/04/01	2147	5.25	19.36
11	BDR28	BDR25-14	08/04/01	2211	5.25	19.36
12	BPH62	BDR25-15	08/04/01	2235	5.25	19.36
13	BPH62DL	BDR25-15DL	08/04/01	2259	5.25	19.36
14	BPH62MS	BDR25-15MS	08/04/01	2322	5.25	19.36
15	PBH62MSD	BDR25-15MSD	08/04/01	2346	5.25	19.36
16	ZZZZZZZZZ	BDR25-14DL	08/05/01	0031	5.25	19.36
17	PIBLK03	PIBLK03	08/05/01	0055	5.25	19.36
18	PEM03	PEM03	08/05/01	0119	5.25	19.36
19	PIBLK04	PIBLK04	08/05/01	2043	5.25	19.36
20	INDAL03	INDAL03	08/05/01	2106	5.25	19.36
21	INDBL03	INDBL03	08/05/01	2130	5.25	19.36
22	PIBLK04	PIBLK04	08/06/01	1154	5.25	19.36
23	PEM04	PEM04	08/06/01	1218	5.25	19.36
24	PEM05	PEM05	08/06/01	1242	5.25	19.36
25	PIBLK05	PIBLK05	08/06/01	1305	5.25	19.36
26	PEM06	PEM06	08/07/01	2329	5.25	19.36
27	PEM07	PEM07	08/07/01	2353	5.25	19.36
28	PIBLK06	PIBLK06	08/08/01	0017	5.25	19.36
29	INDAM04	INDAM04	08/08/01	0041	5.25	19.36
30	INDBM04	INDBM04	08/08/01	0104	5.25	19.36
31	INDAM05	INDAM05	08/08/01	0128	5.25	19.36
32	INDBM05	INDBM05	08/08/01	0218	5.25	19.36

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with an asterisk
* Values outside of QC limits.

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _RTX35__ ID: _____(mm) Init. Calib. Date(s) : _08/01/01__ __08/01/01_

Instrument ID (1): ___5890AA_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: _____5.20_____ DCB: _____19.26_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	BPH71	BDR25-13	08/08/01	0242	5.25	19.36
2	BPL04	BDR25-14	08/08/01	0306	5.25	19.36
3	ZZZZZZZZZ	ZZZZZZZZZ	08/08/01	0330	5.25	19.36
4	ZZZZZZZZZ	ZZZZZZZZZ	08/08/01	0354	5.25	19.36
5	ZZZZZZZZZ	ZZZZZZZZZ	08/08/01	0418	5.25	19.36
6	ZZZZZZZZZ	ZZZZZZZZZ	08/08/01	0442	5.25	19.36
7	ZZZZZZZZZ	HEXANE	08/08/01	0506		
8	ZZZZZZZZZ	BDR25-16	08/08/01	0530	5.25	19.36
9	ZZZZZZZZZ	BDR25-17	08/08/01	0554	5.25	19.36
10	ZZZZZZZZZ	HEXANE	08/08/01	0618		
11	AR166002	AR166002	08/08/01	0642	5.25	19.36
12	PIBLK07	PIBLK07	08/08/01	0706	5.25	19.36
13	PEM08	PEM08	08/08/01	0730	5.25	19.36
14	PEM09	PEM09	08/08/01	0754	5.25	19.36
15	BPJ51	BDR25-16	08/08/01	0818	5.25	19.36
16	BPJ51DL	BDR25-16DL	08/08/01	0842	5.25	19.36
17	BPJ51MS	BDR25-16MS	08/08/01	0906	5.25	19.36
18	PBJ51MSD	BDR25-16MSD	08/08/01	0930	5.25	19.36
19	BXZ26	BDR25-17	08/08/01	0954	5.25	19.36
20	PIBLK08	PIBLK08	08/08/01	1018	5.25	19.36
21	INDAM06	INDAM06	08/08/01	1042	5.25	19.36
22	INDBM06	INDBM06	08/08/01	1106	5.25	19.36
23						
24						
25						
26						
27						
28						
29						
30						

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with an asterisk
* Values outside of QC limits.

Page __3____ of ____3___

FORM VIII PEST

OLM04.2

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _DB-5__ ID: _____(mm) Init. Calib. Date(s) : _08/01/01__ _08/01/01__

Instrument ID (1): __5890AB_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: _____4.02_____ DCB: ___16.60_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	RESCA0	RESCA0	08/01/01	1843	3.97	16.57
2	PEMA0	PEMA0	08/01/01	1917	3.97	16.57
3	AR1660A0	AR1660A0	08/01/01	1931	3.97	16.57
4	AR1221A0	AR1221A0	08/01/01	1955	3.97	16.57
5	AR1232A0	AR1232A0	08/01/01	2019	3.97	16.57
6	AR1242A0	AR1242A0	08/01/01	2043	3.97	16.57
7	AR1248A0	AR1248A0	08/01/01	2106	3.97	16.57
8	AR1254A0	AR1254A0	08/01/01	2130	3.97	16.57
9	TOXAPHA0	TOXAPHA0	08/01/01	2154	3.97	19.37
10	INDALA0	INDALA0	08/01/01	2218	3.97	16.57
11	INDAMA0	INDAMA0	08/01/01	2242	3.97	16.57
12	INDAHA0	INDAHA0	08/01/01	2305	3.97	16.57
13	INDBLA0	INDBLA0	08/01/01	2329	3.97	19.37
14	INDBMA0	INDBMA0	08/01/01	2353	3.97	19.37
15	INDBHA0	INDBHA0	08/02/01	0017	3.97	19.37
16	PIBLKA1	PIBLKA1	08/04/01	1040	3.97	16.57
17	PEMA2	PEMA2	08/04/01	1104	3.97	16.57
18	PBLKS1	MBS1	08/04/01	1128	3.97	19.37
19	PBLKW1	MBW1	08/04/01	1152	3.97	19.37
20	BDR25	BDR25-1	08/04/01	1216	3.97	16.57
21	BDR25DL	BDR25-1DL	08/04/01	1240	3.97	19.37
22	BDR26	BDR25-2	08/04/01	1303	3.97	16.57
23	BDR26DL	BDR25-2DL	08/04/01	1327	3.97	19.37
24	BDR27	BDR25-3	08/04/01	1351	3.97	16.57
25	BDR27DL	BDR25-3DL	08/04/01	1415	3.97	16.57
26	BDR28	BDR25-4	08/04/01	1439	3.97	16.57
27	BDR28DL	BDR25-4DL	08/04/01	1502	3.97	19.37
28	BDR29	BDR25-5	08/04/01	1526	3.97	16.57
29	BDR32	BDR25-6	08/04/01	1550	3.97	19.37
30	BDR34	BDR25-7	08/04/01	1614	3.97	16.57
31	BDR34DL	BDR25-7	08/04/01	1638	3.97	16.57
32	PIBLKA2	PIBLKA2	08/04/01	1701	3.97	16.57

QC LIMITS

TCX = Tetrachloro-m-xylene (± 0.05 MINUTES)

DCB = Decachlorobiphenyl (± 0.10 MINUTES)

Column used to flag retention time values with an asterisk

* Values outside of QC limits.

Page __1____ of __3_____

FORM VIII PEST OLM04.2

8D

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _DB-5_ ID: _____(mm) Init. Calib. Date(s) : _08/01/01_ __08/01/01_

Instrument ID (1): ___5890AB_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: _____4.02_____ DCB: _____16.60_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	INDAMA1	INDAMA1	08/04/01	1725	3.97	16.57
2	INDBMA1	INDBMA1	08/04/01	1749	3.97	16.57
3	BDR43	BDR25-08	08/04/01	1813	3.97	16.57
4	BDR44	BDR25-09	08/04/01	1837	3.97	16.57
5	BDR44DL	BDR25-09DL	08/04/01	1901	3.97	16.57
6	BDR45	BDR25-10	08/04/01	1925	3.97	16.57
7	BDR46	BDR25-11	08/04/01	2036	3.97	16.57
8	BNR68	BDR25-12	08/04/01	2100	3.97	16.57
9	ZZZZZZZZZ	BDR25-13DL	08/04/01	2123	3.97	16.57
10	ZZZZZZZZZ	HEXANE	08/04/01	2147	3.97	16.57
11	BDR28	BDR25-14	08/04/01	2211	3.97	16.57
12	BPH62	BDR25-15	08/04/01	2235	3.97	16.57
13	BPH62DL	BDR25-15DL	08/04/01	2259	3.97	16.57
14	BPH62MS	BDR25-15MS	08/04/01	2322	3.97	16.57
15	PBH62MSD	BDR25-15MSD	08/04/01	2346	3.97	16.57
16	ZZZZZZZZZ	BDR25-14DL	08/05/01	0031	3.97	16.57
17	PIBLKA3	PIBLKA3	08/05/01	0055	3.97	16.57
18	PEMA3	PEMA3	08/05/01	0119	3.97	16.57
19	PIBLKA4	PIBLKA4	08/05/01	2043	3.97	16.57
20	INDALA3	INDALA3	08/05/01	2106	3.97	16.57
21	INDBLA3	INDBLA3	08/05/01	2130	3.97	16.57
22	PIBLKA4	PIBLKA4	08/06/01	1154	3.97	16.57
23	PEMA4	PEMA4	08/06/01	1218	3.97	16.57
24	PEMA5	PEMA5	08/06/01	1242	3.97	16.57
25	PIBLKA5	PIBLKA5	08/06/01	1305	3.97	16.57
26	PEMA6	PEMA6	08/07/01	2329	3.97	16.57
27	PEMA7	PEMA7	08/07/01	2353	3.97	16.57
28	PIBLKA6	PIBLKA6	08/08/01	0017	3.97	16.57
29	INDAMA4	INDAMA4	08/08/01	0041	3.97	16.57
30	INDBMA4	INDBMA4	08/08/01	0104	3.97	16.57
31	INDAMA5	INDAMA5	08/08/01	0128	3.97	16.57
32	INDBMA5	INDBMA5	08/08/01	0218	3.97	16.57

QC LIMITS

TCX = Tetrachloro-m-xylene (± 0.05 MINUTES)

DCB = Decachlorobiphenyl (± 0.10 MINUTES)

Column used to flag retention time values with an asterisk

* Values outside of QC limits.

Page __2____ of ___3____

FORM VIII PEST OLM04.2

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GC Column (1): _____ ID: _____(mm) Init. Calib. Date(s) : __08/01/01_ _08/01/01___

Instrument ID (1): ____5890AB_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: _____4.02_____ DCB: _____16.60_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	BPH71	BDR25-13	08/08/01	0242	3.97	16.57
2	BPL04	BDR25-14	08/08/01	0306	3.97	16.57
3	ZZZZZZZZZ	ZZZZZZZZZ	08/08/01	0330	3.97	16.57
4	ZZZZZZZZZ	ZZZZZZZZZ	08/08/01	0354	3.97	16.57
5	ZZZZZZZZZ	ZZZZZZZZZ	08/08/01	0418	3.97	16.57
6	ZZZZZZZZZ	ZZZZZZZZZ	08/08/01	0442	3.97	16.57
7	ZZZZZZZZZ	HEXANE	08/08/01	0506		
8	ZZZZZZZZZ	BDR25-16	08/08/01	0530	3.97	16.57
9	ZZZZZZZZZ	BDR25-17	08/08/01	0554	3.97	16.57
10	ZZZZZZZZZ	HEXANE	08/08/01	0618		
11	AR1660A2	AR1660A2	08/08/01	0642	3.97	16.57
12	PIBLKA7	PIBLKA7	08/08/01	0706	3.97	16.57
13	PEMA8	PEMA8	08/08/01	0730	3.97	16.57
14	PEMA9	PEMA9	08/08/01	0754	3.97	16.57
15	BPJ51	BDR25-16	08/08/01	0818	3.97	16.57
16	BPJ51DL	BDR25-16DL	08/08/01	0842	3.97	16.57
17	BPJ51MS	BDR25-16MS	08/08/01	0906	3.97	16.57
18	PBJ51MSD	BDR25-16MSD	08/08/01	0930	3.97	16.57
19	BXZ26	BDR25-17	08/08/01	0954	3.97	16.57
20	PIBLKA8	PIBLKA8	08/08/01	1018	3.97	16.57
21	INDAMA6	INDAMA6	08/08/01	1042	3.97	16.57
22	INDBMA6	INDBMA6	08/08/01	1106	3.97	16.57
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS

TCX = Tetrachloro-m-xylene (± 0.05 MINUTES)

DCB = Decachlorobiphenyl (± 0.10 MINUTES)

Column used to flag retention time values with an asterisk

* Values outside of QC limits.

9A

PESTICIDE FLORISIL CARTRIDGE CHECK

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Florisil Cartridge Lot Number: __FLAB123_____ Date of Analysis : ____07/30/01_____

GC Column (1): _RTX35__ ID: _____(mm) GC Column (2): _DB5___ ID: _____(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC #	QC LIMITS
Alpha-BHC	0.010			80-120
Gamma BHC	0.010	0.01	100	80-120
Heptachlor	0.010	0.011	110	80-120
Endosulfan I	0.010	0.011	110	80-120
Dieldrin	0.020	0.022	110	80-120
Endrin	0.020	0.022	110	80-120
4,4'DDD	0.020	0.022	110	80-120
4,4'DDT	0.020	0.015	75	80-120
Methoxychlor	0.10	0.11	110	80-120
Tetrachloro-m-xylene	0.010	0.011	110	80-120
Decachlorobiphenyl	0.020			80-120
2,4,5-Trichlorophenol	0.050	0.0019	3.8	< 5

Column used to flag retention time values with an asterisk

* Values outside of QC limits.

THIS CARTRIDGE LOT APPLIES TO THE FOLLOWING SAMPLES, BLANKS, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	PBLKS1	MBS1	08/04/01	08/04/01
2	PBLKW1	MBW1	08/04/01	08/04/01
3	BDR43	BDR25-08	08/04/01	08/04/01
4	BNR68	BDR25-12	08/04/01	08/04/01
5	BPH62	BDR25-15	08/04/01	08/04/01
6	BPH62DL	BDR25-15DL	08/04/01	08/04/01
7	BPH62MS	BDR25-15MS	08/04/01	08/04/01
8	BPH62MSD	BDR25-15MSD	08/04/01	08/04/01
9	BPH71	BDR25-13	08/04/01	08/04/01
10	BPJ51	BDR25-16	08/04/01	08/04/01
11	BPJ51DL	BDR25-16DL	08/04/01	08/04/01
12	BPJ51MS	BDR25-16MS	08/04/01	08/04/01
13	BPJ51MSD	BDR25-16MSD	08/04/01	08/04/01
14	BPL04	BDR25-14	08/04/01	08/04/01
15	BXZ26	BDR25-17	08/08/01	08/08/01
16				
17				
18				
19				
20				

PESTICIDE GPC CALIBRATION VERIFICATION

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

GPC Column: ____GPC444_____ Calibration Verification Date : ____07/30/01_____

GC Column (1): _RTX-35__ ID: _0.53___(mm) GC Column (2): _DB-5___ ID: _0.53__(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC #	QC LIMITS
Gamma BHC (Lindane)	0.050	0.045	90	80-110
Heptachlor	0.050	0.042	84	80-110
Aldrin	0.050	0.048	96	80-110
Dieldrin	0.10			80-110
Endrin	0.10	0.077	77	80-110
4,4'DDT	0.10	0.083	83	80-110

\# Column used to flag retention time values with an asterisk

* Values outside of QC limits.

THIS GPC CALIBRATION VERIFICATION APPLIES TO THE FOLLOWING SAMPLES, BLANKS, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	PBLKS1	MBS1	08/04/01	08/04/01
2	BNR68	BDR25-12	08/04/01	08/04/01
3	BPH62	BDR25-15	08/04/01	08/04/01
4	BPH62DL	BDR25-15DL	08/04/01	08/04/01
5	BPH62MS	BDR25-15MS	08/04/01	08/04/01
6	BPH62MSD	BDR25-15MSD	08/04/01	08/04/01
7	BXZ26	BDR25-17	08/08/01	08/08/01
8				
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10A

EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BDR43

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ____BDR25-08_____ Date(s) Analyzed : _08/04/01_ __08/04/01_

Instrument ID (1): _____5890AA_____ Instrument ID (2): ___5890AB_____

GC Column (1): _RTX35__ ID: _0.53__(mm) GC Column (2): _DB5_ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Gamma BHC	1	7.80	7.75	7.85		
	2	6.00	5.96	6.06		
DDE	1	12.40	12.32	12.50	0.23	48
	2	10.15	10.10	10.20	0.34	
DDD	1	13.70	13.66	13.80	0.31	97
	2	11.50	11.45	11.60	0.61	
Methoxychlor	1	16.15	16.03	16.20	0.35	8.6
	2	13.45	13.31	13.50	0.38	
Gamma chlordane	1	11.50	11.44	11.60	0.44	50
	2	9.50	9.44	9.58	0.66	
	1					
	2					
	1					
	2					
	1					
	2					

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10A

EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BNR68

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-12_____ Date(s) Analyzed : _08/04/01__ __08/04/01__

Instrument ID (1): __5890AA_____ Instrument ID (2): __5890AB_____

GC Column (1): _RTX35__ ID: _0.53__(mm) GC Column (2): _DB5_ ID: _0.53_(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Alpha BHC	1	6.84	6.83	6.93	0.11	81.8
	2	5.24	5.23	5.33	0.20	
Delta BHC	1	8.78	8.74	8.84	0.30	10
	2	6.62	6.60	6.70	0.33	
Endosulfan sulfate	1	15.20	15.16	15.30		
	2	13.68	13.51	13.70		
Methoxychlor	1	16.16	16.03	16.20	25	12
	2	13.38	13.31	13.50	28	
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

10A

EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BPH62

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-15_____ Date(s) Analyzed : _08/04/01_ _08/04/01__

Instrument ID (1): ___5890AA_____ Instrument ID (2): ___5890AB_____

GC Column (1): _RTX35__ ID: _0.53___(mm) GC Column (2): __DB5__ ID: _0.53___(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Alpha BHC	1	6.85	6.83	6.93	1.2	75
	2	5.28	5.23	5.33	2.1	
Endosulfan sulfate	1	15.23	15.16	15.30		
	2	13.58	13.51	13.70		
Endrin ketone	1	16.38	16.32	16.50	1.9	21
	2	14.14	14.07	14.20	2.3	
Alpha chlordane	1	11.87	11.80	11.90	54	0.0
	2	9.82	9.75	9.89	54	
Gamma chlordane	1	11.56	11.44	11.60	35	34
	2	9.51	9.44	9.58	47	
	1					
	2					
	1					
	2					
	1					
	2					

10A

EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BPH62DL

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): _____BDR25-15DL_____ Date(s) Analyzed : _08/04/01__ __08/04/01__

Instrument ID (1): ____5890AA_____ Instrument ID (2): ____5890AB_____

GC Column (1): _RTX35_ ID: _0.53___(mm) GC Column (2): _DB5__ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Alpha chlordane	1	11.87	11.80	11.90	52	25
	2	9.82	9.75	9.89	65	
Gamma chlordane	1	11.56	11.44	11.60		
	2	9.51	9.44	9.58		
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

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EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BPH71

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ____BDR25-13_____ Date(s) Analyzed : __08/08/01_ __08/08/01__

Instrument ID (1): ___5890AA_____ Instrument ID (2): ____5890AB_____

GC Column (1): _RTX35__ ID: _0.53__(mm) GC Column (2): _DB5_ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Delta BHC	1	8.79	8.74	8.84		
	2	6.65	6.60	6.70		
Endrin	1	13.28	13.21	13.40	0.082	46
	2	11.12	11.05	11.20	0.12	
Endrin aldehyde	1	14.60	14.53	14.70	0.092	63
	2	12.61	12.54	12.70	0.15	
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

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EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BPJ51

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-16_____ Date(s) Analyzed : _08/08/01_ __08/08/01__

Instrument ID (1): _____5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35_ ID: _0.53__(mm) GC Column (2): _DB5_ ID: _0.53_(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
DDD	1	13.73	13.66	13.80	2.5	32
	2	11.52	11.45	11.60	3.3	
Methoxychlor	1	16.10	16.03	16.20		
	2	13.38	13.31	13.50		
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

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EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BPJ51DL

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-16DL_____ Date(s) Analyzed : _08/08/01_ __08/08/01__

Instrument ID (1): _____5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35_ ID: _0.53__(mm) GC Column (2): _DB5_ ID: _0.53_(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
DDD	1	13.70	13.66	13.80		
	2	11.50	11.45	11.60		
Methoxychlor	1	16.08	16.03	16.20	15	47
	2	13.35	13.31	13.50	22	
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

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EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BXZ26

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-17_____ Date(s) Analyzed : _08/08/01__ _08/08/01___

Instrument ID (1): ___5890AA_____ Instrument ID (2): ____5890AB_____

GC Column (1): _RTX35__ ID: _0.53_(mm) GC Column (2): _DB5__ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	% D
			FROM	TO		
Beta BHC	1	8.04	8.02	8.12		
	2	6.25	6.22	6.32		
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

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EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

PBLKS1

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ____MBS1_____ Date(s) Analyzed : __08/04/01_ __08/04/01__

Instrument ID (1): _____5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35__ ID: _0.53__(mm) GC Column (2): __DB5___ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Alpha BHC	1	6.89	6.83	6.93	0.9	66.7
	2	5.30	5.23	5.33	1.5	
Gamma BHC	1	7.77	7.75	7.85		
	2	6.00	5.96	6.06		
DDT	1	14.40	14.36	14.50	2.0	75
	2	12.10	12.07	12.20	3.5	
Methoxychlor	1	16.10	16.03	16.20	24	60
	2	13.35	13.31	13.50	15	
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

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OLM04.2

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EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

PBLKW1

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___MBW1_____ Date(s) Analyzed : _08/04/01_ __08/04/01__

Instrument ID (1): __5890AA_____ Instrument ID (2): ____5890AB_____

GC Column (1): _RTX35__ ID: _0.53___(mm) GC Column (2): _DB5___ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
beta BHC	1	8.07	8.02	8.12		
	2	6.27	6.22	6.32		
Endrin	1	13.28	13.21	13.40	0.80	50
	2	11.12	11.05	11.20	1.2	
Methoxychlor	1	16.10	16.03	16.20	0.45	118
	2	13.38	13.31	13.50	0.98	
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

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EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BPH62MS

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-15MS_____ Date(s) Analyzed : _08/04/01__ _08/04/01___

Instrument ID (1): ___5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35__ ID: _0.53__(mm) GC Column (2): _DB5__ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Alpha BHC	1	6.88	6.83	6.93	0.78	10
	2	5.28	5.23	5.33	0.86	
Gamma BHC	1	7.77	7.75	7.85	14	7.1
	2	5.98	5.96	6.06	15	
Heptachlor	1	8.84	8.82	8.92	14	14
	2	7.08	7.06	7.16	16	
Aldrin	1	9.60	9.58	9.68	15	0.0
	2	7.74	7.72	7.82	15	
Dieldrin	1	12.56	12.53	12.70		
	2	10.60	10.56	10.70		
Endrin	1	13.25	13.21	13.40	28	0.0
	2	11.09	11.05	11.20	28	
Endosulfan sulfate	1	15.23	15.16	15.30	0.96	46
	2	13.58	13.51	13.70	1.4	
DDT	1	14.40	14.36	14.50	27	0.0
	2	12.11	12.07	12.20	27	
Endrin ketone	1	16.35	16.32	16.50	3.90	11
	2	14.10	14.07	14.20	3.50	

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EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BPH62MS

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-15MS_____ Date(s) Analyzed : _08/04/01__ _08/04/01___

Instrument ID (1): ___5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35__ ID: _0.53__(mm) GC Column (2): _DB5__ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Endrin aldehyde	1	14.56	14.53	14.70	1.10	0.0
	2	12.58	12.54	12.70	1.10	
Alpha chlordane	1	11.87	11.80	11.90	68	5.9
	2	9.82	9.75	9.89	72	
Gamma chlordane	1	11.51	11.44	11.60		
	2	9.51	9.44	9.58		
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

10A

EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BPH62MSD

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-15MSD_____ Date(s) Analyzed : _08/04/01__ _08/04/01___

Instrument ID (1): ___5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35__ ID: _0.53__(mm) GC Column (2): _DB5__ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Alpha BHC	1	6.88	6.83	6.93	0.49	44
	2	5.28	5.23	5.33	0.34	
Beta BHC	1	8.04	8.02	8.12	0.47	30
	2	6.24	6.22	6.32	0.61	
Delta BHC	1	8.76	8.74	8.84	0.46	39
	2	6.62	6.60	6.70	0.33	
Gamma BHC	1	7.77	7.75	7.85	12	0.0
	2	5.98	5.96	6.06	12	
Heptachlor	1	8.84	8.82	8.92	12	8.3
	2	7.08	7.06	7.16	13	
Aldrin	1	9.60	9.58	9.68	13	0.0
	2	7.74	7.72	7.82	13	
Dieldrin	1	12.56	12.53	12.70	25	4.0
	2	10.60	10.56	10.70	26	
DDE	1	12.36	12.32	12.50		
	2	10.14	10.10	10.20		
Endrin	1	13.25	13.21	13.40	26	0.0
	2	11.09	11.05	11.20	26	

10A

EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

BPH62MSD

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-15MSD_____ Date(s) Analyzed : _08/04/01__ _08/04/01___

Instrument ID (1): ___5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35__ ID: _0.53__(mm) GC Column (2): _DB5__ ID: _0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
DDD	1	13.70	13.66	13.80	0.26	18.2
	2	11.48	11.45	11.60	0.22	
Endosulfan sulfate	1	15.24	15.16	15.30	0.15	293
	2	13.54	13.51	13.70	0.59	
DDT	1	14.40	14.36	14.50	25	4.2
	2	12.11	12.07	12.20	24	
Methoxychlor	1	16.15	16.03	16.20		
	2	13.44	13.31	13.50		
Endrin ketone	1	16.36	16.32	16.50	3.0	3.4
	2	14.11	14.07	14.20	2.9	
Endrin aldehyde	1	14.57	14.53	14.70	1.1	74.6
	2	12.59	12.54	12.70	0.63	
Alpha chlordane	1	11.87	11.80	11.90	46	26.1
	2	9.82	9.75	9.89	58	
Gamma chlordane	1	11.57	11.44	11.60	39	18.0
	2	9.56	9.44	9.58	46	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.
BPJ51MS

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ____BDR25-16MS_____ Date(s) Analyzed : _08/08/01_ __08/08/01____

Instrument ID (1): ___5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35_ ID: _0.53__(mm) GC Column (2): _DB5__ ID: __0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Gamma BHC	1	7.77	7.75	7.85	0.29	0.0
	2	5.99	5.96	6.06	0.29	
Heptachlor	1	8.84	8.82	8.92	0.28	11
	2	7.08	7.06	7.16	0.31	
Aldrin	1	9.60	9.58	9.68		
	2	7.74	7.72	7.82		
Dieldrin	1	12.57	12.53	12.70	0.61	1.6
	2	10.60	10.56	10.70	0.60	
Endrin	1	13.25	13.21	13.40	0.62	3.3
	2	11.10	11.10	11.20	0.60	
DDD	1	13.76	13.66	13.80	2.52.8	36
	2	11.55	11.45	11.60	3.33.8	
DDT	1	14.40	14.40	14.50	0.56	1.8
	2	12.11	12.11	12.20	0.57	
Methoxychlor	1	16.12	16.03	16.20	1012	50
	2	13.40	13.31	13.50	2218	
Endrin ketone	1	16.35	16.35	16.50	0.081	9.5
	2	14.11	14.11	14.20	0.074	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.
BPJ51MSD

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ____BDR25-16MSD_____ Date(s) Analyzed : _08/08/01_ __08/08/01____

Instrument ID (1): ___5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35_ ID: _0.53__(mm) GC Column (2): _DB5__ ID: __0.53__(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
Gamma BHC	1	7.77	7.75	7.85	0.42	0.0
	2	5.99	5.96	6.06	0.42	
Heptachlor	1	8.84	8.82	8.92	0.40	2.5
	2	7.08	7.06	7.16	0.41	
Aldrin	1	9.60	9.58	9.68	0.41	4.9
	2	7.74	7.72	7.82	0.43	
Dieldrin	1	12.57	12.53	12.70	0.85	4.7
	2	10.60	10.56	10.70	0.89	
Endrin	1	13.25	13.21	13.40	0.85	1.2
	2	11.09	11.10	11.20	0.86	
DDD	1	13.73	13.66	13.80		
	2	11.52	11.45	11.60		
DDT	1	14.40	14.40	14.50	0.79	3.8
	2	12.11	12.11	12.20	0.82	
Methoxychlor	1	16.10	16.03	16.20	14	50
	2	13.38	13.31	13.50	21	
Endrin ketone	1	16.35	16.35	16.50	0.11	10
	2	14.11	14.11	14.20	0.10	

10B

PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

BNR68

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-12_____ Date(s) Analyzed : _08/04/01__ __08/04/01___

Instrument ID (1): ___5890AA_____ Instrument ID (2): ____5890AB_____

GC Column (1): _RTX35__ ID: _0.53_(mm) GC Column (2): _DB5__ ID: _0.53__(mm)

ANALYTE	PEAK	RT	RT WINDOW		CONCENTRATION	MEAN CONCENTRATION	% D
			FROM	TO			
	1	6.50	6.48	6.62	36	78	5.1
__1242_____	2	7.62	7.51	7.65	78		
	3	8.71	8.62	8.76	104		
COLUMN 1	4	11.15	11.08	11.22	89		
	5	11.67	11.60	11.74	83		
						82	
	1	4.87	4.80	4.94	42		
	2	5.71	5.62	5.76	56		
	3	6.72	6.67	6.81	144		
COLUMN 2	4	7.01	6.97	7.11	73		
	5	8.99	8.95	9.09	96		
	1	13.61	13.53	13.67			
_1260____	2	15.25	15.22	15.36			
	3	18.90	15.80	15.94			
COLUMN 1	4	16.69	16.62	16.76			
	5	18.00	17.93	18.07			
	1	11.39	11.34	11.48			
	2	12.30	12.23	12.37			
	3	13.48	13.47	13.61			
COLUMN 2	4	14.15	14.08	14.22			
	5	15.58	15.48	15.62			
	1						
_____	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks for each column are required for identification of multicomponent analytes

10B

PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.
BXZ26

Lab Name: ____NEWLAB_____ Contract : __123456____

Lab Code: ___NLB___ Case No.: __12345_ SAS No.: _____ SDG No.:_BDR25

Lab Sample ID (1): ___BDR25-17_____ Date(s) Analyzed : _08/08/01_ __08/08/01__

Instrument ID (1): ___5890AA_____ Instrument ID (2): _____5890AB_____

GC Column (1): _RTX35_ ID: _0.53__(mm) GC Column (2): _DB5__ ID: _0.53_(mm)

ANALYTE	PEAK	RT	RT WINDOW		CONCENTRATION	MEAN CONCENTRATION	% D
			FROM	TO			
	1	11.62	11.53	11.67			
_1254__	2	12.65	12.58	12.72			
	3	13.18	13.11	13.25			
COLUMN 1	4	14.00	13.90	14.04			
	5	14.39	14.34	14.48			
	1	8.86	8.80	8.94			
	2	9.50	9.40	9.54			
	3	10.33	10.28	10.42			
COLUMN 2	4	11.01	10.91	11.05			
	5	12.05	11.95	12.09			
	1						
_____	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						
	1						
_____	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks for each column are required for identification of multicomponent analytes

RTX35 Calibration standards

Resc00 08/01/01 1843

RT	area	Compounds
5.24	11967	TCMX
11.51	7146	gamma chlordane
11.95	6195	Endosulfan I
12.39	13255	4,4'DDE
12.60	12234	Dieldrin
15.22	9187	Endosulfan sulfate
16.10	20067	Methoxychlor
16.38	8752	Endrin ketone
19.36	10496	DBC

PEM00 08/01/01 1917

RT	area	Compounds	On-column amt. ng
5.25	12043	TCMX	0.020
6.88	9349	alpha-BHC	0.010
7.80	8788	gamma BHC	0.010
8.07	4078	Beta BHC	0.010
13.28	23390	Endrin	0.050
13.74	314	4,4'DDD	0.000
14.43	49182	4,4'DDT	0.100
14.60	562	Endrin aldehyde	0.000
16.10	54020	Methoxychlor	0.250
16.38	887	Endrin ketone	0.000
19.36	10747	DBC	0.020

Ar166000 08/01/01 1931

RT	area	Compounds	On-column amt. ng
5.25	12389	TCMX	0.020
6.55	1034	Aroclor 1016-1	0.100
7.58	2258	Aroclor 1016-2	0.100
8.69	5445	Aroclor 1016-3	0.100
9.01	2319	Aroclor 1016-4	0.100
10.15	1787	Aroclor 1016-5	0.100
13.60	6775	Aroclor 1260-1	0.100
15.28	3505	Aroclor 1260-2	0.100
15.87	8421	Aroclor 1260-3	0.100
16.68	5566	Aroclor 1260-4	0.100
18.00	1566	Aroclor 1260-5	0.100
19.36	9669	DBC	0.040

Ar122100 08/01/01 1955

RT	area	Compounds	On-column amt. ng
4.38	568	Aroclor 1221-1	0.200
5.25	12957	TCMX	0.200
6.05	839	Aroclor 1221-2	0.200
6.40	687	Aroclor 1221-3	0.200
6.55	2707	Aroclor 1221-4	0.200
19.36	9484	DBC	0.040

Ar123200 08/01/01 2019

RT	area	Compounds	On-column amt. ng
5.25	12424	TCMX	0.020
6.55	1362	Aroclor 1232-1	0.100
7.58	848	Aroclor 1232-2	0.100
8.69	2345	Aroclor 1232-3	0.100
9.02	955	Aroclor 1232-4	0.100
10.15	638	Aroclor 1232-5	0.100
19.36	9462	DBC	0.040

Ar124200 08/01/01 2043

RT	area	Compounds	On-column amt. ng
5.25	12883	TCMX	0.020
6.55	897	Aroclor 1242-1	0.100
7.58	1537	Aroclor 1242-2	0.100
8.69	4073	Aroclor 1242-3	0.100
11.15	1664	Aroclor 1242-4	0.100
11.67	1709	Aroclor 1242-5	0.100
19.36	9960	DBC	0.040

Ar124800 08/01/01 2106

RT	area	Compounds	On-column amt. ng
5.25	12106	TCMX	0.020
10.14	2308	Aroclor 1248-1	0.100
10.43	2563	Aroclor 1248-2	0.100
11.05	3268	Aroclor 1248-3	0.100
11.67	2886	Aroclor 1248-4	0.100
12.66	1959	Aroclor 1248-5	0.100
19.36	9500	DBC	0.040

Ar125400 08/01/01 2130

RT	area	Compounds	On-column amt. ng
5.25	12568	TCMX	0.020
11.60	4592	Aroclor 1254-1	0.100
12.65	5135	Aroclor 1254-2	0.100
13.18	5627	Aroclor 1254-3	0.100
13.97	3356	Aroclor 1254-4	0.100
14.41	6187	Aroclor 1254-5	0.100
19.36	9908	DBC	0.040

Toxaph00 08/01/01 2154

RT	area	Compounds	On-column amt. ng
5.25	12875	TCMX	0.020
14.00	11190	tox1	0.500
14.62	10708	Tox2	0.500
15.74	16834	Tox3	0.500
16.62	7630	Tox4	0.500
17.08	5897	tox5	0.500
19.36	10017	DBC	0.040

INDAL00 08/01/01 2218

RT	area	Compounds	On-column amt. ng
5.25	2764	TCMX	0.005
6.88	3028	alpha-BHC	0.005
7.80	3692	gamma BHC	0.005
8.87	4225	Heptachlor	0.005
11.95	3461	Endosulfan I	0.005
12.60	6175	Dieldrin	0.010
13.28	4021	Endrin	0.010
13.73	4477	4,4'DDD	0.010
14.43	4618	4,4'DDT	0.010
16.10	12053	Methoxychlor	0.05
19.36	5467	DBC	0.010

INDAM00 08/01/01 2242

RT	area	Compounds	On-column amt. ng
5.25	13068	TCMX	0.020
6.88	20556	alpha-BHC	0.020
7.80	18437	gamma BHC	0.020
8.87	19543	Heptachlor	0.020
11.95	15892	Endosulfan I	0.020
12.60	28577	Dieldrin	0.040
13.28	18401	Endrin	0.040
13.73	21495	4,4'DDD	0.040
14.43	22309	4,4'DDT	0.040
16.10	51056	Methoxychlor	0.200
19.36	23268	DBC	0.040

INDBL00 08/01/01 2329

RT	area	Compounds	On-column amt. ng
5.25	2894	TCMX	0.005
8.07	1741	beta BHC	0.005
8.79	3500	delta-BHC	0.005
9.63	2933	Aldrin	0.005
11.06	3464	Heptachlor epoxide	0.005
11.51	3706	gamma-Chlordane	0.005
11.87	4026	alpha-Chlordane	0.005
12.40	6925	4,4'DDE	0.010
13.79	5883	Endosulfan II	0.010
14.60	4385	Endrin aldehyde	0.010
15.23	5307	Endosulfan sulfate	0.010
16.38	5295	Endrin ketone	0.010
19.36	5464	DBC	0.010

INDBM00 08/01/01 2353

RT	area	Compounds	On-column amt. ng
5.25	12737	TCMX	0.020
8.07	7398	beta BHC	0.020
8.79	17973	delta-BHC	0.020
9.63	17522	Aldrin	0.020
11.06	15570	Heptachlor epoxide	0.020
11.51	16619	gamma-Chlordane	0.020
11.87	15589	alpha-Chlordane	0.020
12.40	29808	4,4'DDE	0.040
13.79	24898	Endosulfan II	0.040
14.60	18498	Endrin aldehyde	0.040
15.23	22285	Endosulfan sulfate	0.040
16.38	21572	Endrin ketone	0.040
19.36	21955	DBC	0.040

INDAH00 08/01/01 2305

RT	area	Compounds	On-column amt. ng
5.25	49939	TCMX	0.080
6.88	86796	alpha-BHC	0.080
7.80	77069	gamma BHC	0.080
8.87	74557	Heptachlor	0.080
11.95	56751	Endosulfan I	0.080
12.60	105738	Dieldrin	0.160
13.28	66054	Endrin	0.160
13.73	83680	4,4'DDD	0.160
14.43	86454	4,4'DDT	0.160
16.10	170358	Methoxychlor	0.800
19.36	81102	DBC	0.160

INDBH00 08/02/01 0017

RT	area	Compounds	On-column amt. ng
5.25	48476	TCMX	0.080
8.07	28551	beta BHC	0.080
8.79	73461	delta-BHC	0.080
9.63	74722	Aldrin	0.080
11.06	57020	Heptachlor epoxide	0.080
11.51	62439	gamma-Chlordane	0.080
11.87	57736	alpha-Chlordane	0.080
12.40	109303	4,4'DDE	0.160
13.79	137361	Endosulfan II	0.160
14.60	67405	Endrin aldehyde	0.160
15.23	81827	Endosulfan sulfate	0.160
16.38	81199	Endrin ketone	0.160
19.36	76188	DBC	0.160

PEM02 08/04/01 1104

RT	area	Compounds	On-column amt. ng
5.25	12806	TCMX	0.020
6.88	9863	alpha-BHC	0.010
7.80	9194	gamma BHC	0.010
8.07	4237	Beta BHC	0.010
13.28	16368	Endrin	0.050
13.74	307	4,4'DDD	0.000
14.43	54151	4,4'DDT	0.100
14.60	809	Endrin aldehyde	0.000
16.10	58894	Methoxychlor	0.250
16.38	1046	Endrin ketone	0.000
19.36	12214	DBC	0.020

INDAM01 08/04/01 1725

RT	area	Compounds	On-column amt. ng
5.25	13153	TCMX	0.020
6.88	20797	alpha-BHC	0.020
7.80	17569	gamma BHC	0.020
8.87	19274	Heptachlor	0.020
11.95	15971	Endosulfan I	0.020
12.60	29529	Dieldrin	0.040
13.28	19060	Endrin	0.040
13.73	22369	4,4'DDD	0.040
14.43	22711	4,4'DDT	0.040
16.10	65103	Methoxychlor	0.200
19.36	25231	DBC	0.040

INDBM01 08/04/01 1749

RT	area	Compounds	On-column amt. ng
5.25	13061	TCMX	0.020
8.07	7480	beta BHC	0.020
8.79	18057	delta-BHC	0.020
9.63	17720	Aldrin	0.020
11.06	15859	Heptachlor epoxide	0.020
11.51	16930	gamma-Chlordane	0.020
11.87	15905	alpha-Chlordane	0.020
12.40	30449	4,4'DDE	0.040
13.79	26019	Endosulfan II	0.040
14.60	19249	Endrin aldehyde	0.040
15.23	23895	Endosulfan sulfate	0.040
16.38	22976	Endrin ketone	0.040
19.36	23585	DBC	0.040

PEM03 08/05/01 0119

RT	area	Compounds	On-column amt. ng
5.25	13154	TCMX	0.020
6.88	9844	alpha-BHC	0.010
7.80	9269	gamma BHC	0.010
8.07	4286	Beta BHC	0.010
13.28	25101	Endrin	0.050
13.74	444	4,4'DDD	0.000
14.43	41644	4,4'DDT	0.100
14.60	1430	Endrin aldehyde	0.000
16.10	59577	Methoxychlor	0.250
16.38	1858	Endrin ketone	0.000
19.36	12279	DBC	0.020

INDAM05 08/08/01 0128

RT	area	Compounds	On-column amt. ng
5.25	13100	TCMX	0.020
6.88	20170	alpha-BHC	0.020
7.80	18306	gamma BHC	0.020
8.87	18337	Heptachlor	0.020
11.95	15396	Endosulfan I	0.020
12.60	28479	Dieldrin	0.040
13.28	18237	Endrin	0.040
13.73	21198	4,4'DDD	0.040
14.43	21511	4,4'DDT	0.040
16.10	50341	Methoxychlor	0.200
19.36	23961	DBC	0.040

INDBM05 08/08/01 0218

RT	area	Compounds	On-column amt. ng
5.25	12817	TCMX	0.020
8.07	7374	beta BHC	0.020
8.79	17652	delta-BHC	0.020
9.63	17339	Aldrin	0.020
11.06	15466	Heptachlor epoxide	0.020
11.51	16386	gamma-Chlordane	0.020
11.87	11291	alpha-Chlordane	0.020
12.40	29504	4,4'DDE	0.040
13.79	25102	Endosulfan II	0.040
14.60	18332	Endrin aldehyde	0.040
15.23	22616	Endosulfan sulfate	0.040
16.38	21570	Endrin ketone	0.040
19.36	22717	DBC	0.040

PEM09 08/08/01 0754

RT	area	Compounds	On-column amt. ng
5.25	13431	TCMX	0.020
6.88	10003	alpha-BHC	0.010
7.80	9467	gamma BHC	0.010
8.07	4431	Beta BHC	0.010
13.28	25528	Endrin	0.050
13.74	563	4,4'DDD	0.000
14.43	56115	4,4'DDT	0.100
14.60	1588	Endrin aldehyde	0.000
16.10	61965	Methoxychlor	0.250
16.38	2289	Endrin ketone	0.000
19.36	13002	DBC	0.020

INDAM06 08/08/01 1042

RT	area	Compounds	On-column amt. ng
5.25	12974	TCMX	0.020
6.88	20382	alpha-BHC	0.020
7.80	18540	gamma BHC	0.020
8.87	18402	Heptachlor	0.020
11.95	15291	Endosulfan I	0.020
12.60	22518	Dieldrin	0.040
13.28	18797	Endrin	0.040
13.73	21391	4,4'DDD	0.040
14.43	21234	4,4'DDT	0.040
16.10	49675	Methoxychlor	0.200
19.36	23658	DBC	0.040

INDBM06 08/08/01 1106

RT	area	Compounds	On-column amt. ng
5.25	12957	TCMX	0.020
8.07	7500	beta BHC	0.020
8.79	18100	delta-BHC	0.020
9.63	17691	Aldrin	0.020
11.06	15577	Heptachlor epoxide	0.020
11.51	16642	gamma-Chlordane	0.020
11.87	15620	alpha-Chlordane	0.020
12.40	29946	4,4'DDE	0.040
13.79	25437	Endosulfan II	0.040
14.60	18639	Endrin aldehyde	0.040
15.23	22841	Endosulfan sulfate	0.040
16.38	21648	Endrin ketone	0.040
19.36	22516	DBC	0.040

DB5 Calibration Standards

RescA0 08/01/01 1843

RT	area	Compounds
4.02	14484	TCMX
9.51	8149	gamma chlordane
10.08	7785	Endosulfan I
10.17	14030	4,4'DDE
10.63	14636	Dieldrin
13.38	29771	Methoxychlor
13.58	13456	Endosulfan sulfate
14.13	14284	Endrin ketone
16.60	14428	DBC

PEMA0 08/01/01 1917

RT	area	Compounds	On-column amt. ng
4.02	14717	TCMX	0.020
5.28	9516	alpha-BHC	0.010
6.02	9355	gamma BHC	0.010
6.27	5111	Beta BHC	0.010
11.12	31171	Endrin	0.050
11.53	326	4,4'DDD	0.000
12.14	59973	4,4'DDT	0.100
12.62	846	Endrin aldehyde	0.000
13.38	69318	Methoxychlor	0.250
14.14	969	Endrin ketone	0.000
16.60	15156	DBC	0.020

Ar1660A0 08/01/01 1931

RT	area	Compounds	On-column amt. ng
4.02	15264	TCMX	0.020
4.87	1972	Aroclor 1016-1	0.100
5.69	3649	Aroclor 1016-2	0.100
6.74	7149	Aroclor 1016-3	0.100
7.05	3293	Aroclor 1016-4	0.100
7.99	3168	Aroclor 1016-5	0.100
11.41	6002	Aroclor 1260-1	0.100
12.30	3071	Aroclor 1260-2	0.100
13.54	7003	Aroclor 1260-3	0.100
14.15	4078	Aroclor 1260-4	0.100
15.55	2252	Aroclor 1260-5	0.100
16.60	13343	DBC	0.040

Ar1221A0 08/01/01 1955

RT	area	Compounds	On-column amt. ng
3.77	1134	Aroclor 1221-1	0.200
4.02	15886	TCMX	0.200
4.45	1682	Aroclor 1221-2	0.200
4.78	915	Aroclor 1221-3	0.200
4.87	4697	Aroclor 1221-4	0.200
16.60	13409	DBC	0.040

Ar1232A0 08/01/01 2019

RT	area	Compounds	On-column amt. ng
4.02	14997	TCMX	0.020
4.87	2414	Aroclor 1232-1	0.100
5.68	1654	Aroclor 1232-2	0.100
6.74	3348	Aroclor 1232-3	0.100
7.04	1527	Aroclor 1232-4	0.100
8.00	1324	Aroclor 1232-5	0.100
16.60	13009	DBC	0.040

Ar1242A0 08/01/01 2043

RT	area	Compounds	On-column amt. ng
4.02	15864	TCMX	0.020
4.87	1690	Aroclor 1242-1	0.100
5.69	2887	Aroclor 1242-2	0.100
6.74	5495	Aroclor 1242-3	0.100
7.04	2495	Aroclor 1242-4	0.100
9.02	1896	Aroclor 1242-5	0.100
16.60	13492	DBC	0.040

Ar1248A0 08/01/01 2106

RT	area	Compounds	On-column amt. ng
4.01	15066	TCMX	0.020
6.74	3898	Aroclor 1248-1	0.100
8.00	4163	Aroclor 1248-2	0.100
9.02	3284	Aroclor 1248-3	0.100
10.35	1943	Aroclor 1248-4	0.100
10.98	1492	Aroclor 1248-5	0.100
16.60	13055	DBC	0.040

Ar1254A0 08/01/01 2130

RT	area	Compounds	On-column amt. ng
4.02	15100	TCMX	0.020
8.87	3048	Aroclor 1254-1	0.100
9.47	4223	Aroclor 1254-2	0.100
10.35	5474	Aroclor 1254-3	0.100
10.98	4413	Aroclor 1254-4	0.100
12.02	5494	Aroclor 1254-5	0.100
16.60	13408	DBC	0.040

ToxaphA0 08/01/01 2154

RT	area	Compounds	On-column amt. ng
4.02	15395	TCMX	0.020
11.79	11626	tox1	0.500
12.45	12188	Tox2	0.500
12.85	17056	Tox3	0.500
13.31	16437	Tox4	0.500
14.09	11141	tox5	0.500
16.60	13499	DBC	0.040

INDALA0 08/01/01 2218

RT	area	Compounds	On-column amt. ng
4.01	3225	TCMX	0.005
5.28	4052	alpha-BHC	0.005
6.01	4002	gamma BHC	0.005
7.10	4766	Heptachlor	0.005
10.08	3899	Endosulfan I	0.005
10.64	6715	Dieldrin	0.010
11.12	5213	Endrin	0.010
11.52	4924	4,4'DDD	0.010
12.14	5421	4,4'DDT	0.010
13.38	15163	Methoxychlor	0.05
16.60	7722	DBC	0.010

INDBLA0 08/01/01 2329

RT	area	Compounds	On-column amt. ng
4.02	3507	TCMX	0.005
6.27	2260	beta BHC	0.005
6.65	2968	delta-BHC	0.005
7.77	4075	Aldrin	0.005
9.22	4152	Heptachlor epoxide	0.005
9.51	2780	gamma-Chlordane	0.005
9.82	4112	alpha-Chlordane	0.005
10.17	6416	4,4'DDE	0.010
11.64	6866	Endosulfan II	0.010
12.61	5814	Endrin aldehyde	0.010
13.58	3656	Endosulfan sulfate	0.010
14.14	6683	Endrin ketone	0.010
16.60	7724	DBC	0.010

INDAMA0 08/01/01 2242

RT	area	Compounds	On-column amt. ng
4.01	15350	TCMX	0.020
5.28	20804	alpha-BHC	0.020
6.01	19936	gamma BHC	0.020
7.10	20801	Heptachlor	0.020
10.08	16641	Endosulfan I	0.020
10.64	30831	Dieldrin	0.040
11.12	23755	Endrin	0.040
11.52	23155	4,4'DDD	0.040
12.14	25104	4,4'DDT	0.040
13.38	62151	Methoxychlor	0.200
16.60	29712	DBC	0.040

INDBMA0 08/01/01 2353

RT	area	Compounds	On-column amt. ng
4.02	15127	TCMX	0.020
6.27	9117	beta BHC	0.020
6.65	18119	delta-BHC	0.020
7.77	17461	Aldrin	0.020
9.22	16962	Heptachlor epoxide	0.020
9.51	17148	gamma-Chlordane	0.020
9.82	16704	alpha-Chlordane	0.020
10.17	29057	4,4'DDE	0.040
11.64	28130	Endosulfan II	0.040
12.61	22483	Endrin aldehyde	0.040
13.58	26473	Endosulfan sulfate	0.040
14.14	26860	Endrin ketone	0.040
16.60	28021	DBC	0.040

INDAHA0 08/01/01 2305

RT	area	Compounds	On-column amt. ng
4.01	60354	TCMX	0.080
5.28	95279	alpha-BHC	0.080
6.01	87805	gamma BHC	0.080
7.10	82930	Heptachlor	0.080
10.08	63642	Endosulfan I	0.080
10.64	125799	Dieldrin	0.160
11.12	94007	Endrin	0.160
11.52	97734	4,4'DDD	0.160
12.14	104194	4,4'DDT	0.160
13.38	211621	Methoxychlor	0.800
16.60	103404	DBC	0.160

INDBHA0 08/02/01 0017

RT	area	Compounds	On-column amt. ng
4.02	57997	TCMX	0.080
6.27	33784	beta BHC	0.080
6.65	80920	delta-BHC	0.080
7.77	70798	Aldrin	0.080
9.22	40424	Heptachlor epoxide	0.080
9.51	67370	gamma-Chlordane	0.080
9.82	64377	alpha-Chlordane	0.080
10.17	122812	4,4'DDE	0.160
11.64	106600	Endosulfan II	0.160
12.61	82398	Endrin aldehyde	0.160
13.58	98438	Endosulfan sulfate	0.160
14.14	104335	Endrin ketone	0.160
16.60	97144	DBC	0.160

PEMA2 08/04/01 1104

RT	area	Compounds	On-column amt. ng
4.02	15498	TCMX	0.020
5.28	9908	alpha-BHC	0.010
6.02	9683	gamma BHC	0.010
6.27	5254	Beta BHC	0.010
11.12	31939	Endrin	0.050
11.53	352	4,4'DDD	0.000
12.14	62493	4,4'DDT	0.100
12.62	1001	Endrin aldehyde	0.000
13.38	71112	Methoxychlor	0.250
14.14	1214	Endrin ketone	0.000
16.60	16067	DBC	0.020

INDAMA1 08/04/01 1725

RT	area	Compounds	On-column amt. ng
3.99	15597	TCMX	0.020
5.28	20489	alpha-BHC	0.020
6.01	19640	gamma BHC	0.020
7.10	20443	Heptachlor	0.020
10.08	17021	Endosulfan I	0.020
10.64	31193	Dieldrin	0.040
11.12	23546	Endrin	0.040
11.52	23226	4,4'DDD	0.040
12.14	25284	4,4'DDT	0.040
13.38	63322	Methoxychlor	0.200
16.60	30956	DBC	0.040

INDBMA1 08/04/01 1749

RT	area	Compounds	On-column amt. ng
3.99	15190	TCMX	0.020
6.27	8945	beta BHC	0.020
6.65	18071	delta-BHC	0.020
7.77	17494	Aldrin	0.020
9.22	22148	Heptachlor epoxide	0.020
9.51	17285	gamma-Chlordane	0.020
9.82	16861	alpha-Chlordane	0.020
10.17	29168	4,4'DDE	0.040
11.64	28699	Endosulfan II	0.040
12.61	22687	Endrin aldehyde	0.040
13.58	27156	Endosulfan sulfate	0.040
14.14	27556	Endrin ketone	0.040
16.60	29218	DBC	0.040

PEMA3 08/05/01 0119

RT	area	Compounds	On-column amt. ng
4.02	15522	TCMX	0.020
5.28	9853	alpha-BHC	0.010
6.01	9719	gamma BHC	0.010
6.27	5049	Beta BHC	0.010
11.12	32157	Endrin	0.050
11.53	9834	4,4'DDD	0.000
12.14	42906	4,4'DDT	0.100
12.62	1582	Endrin aldehyde	0.000
13.38	73372	Methoxychlor	0.250
14.14	2616	Endrin ketone	0.000
16.60	16451	DBC	0.020

INDAMA5 08/08/01 0128

RT	area	Compounds	On-column amt. ng
4.01	15548	TCMX	0.020
5.28	20561	alpha-BHC	0.020
6.01	19720	gamma BHC	0.020
7.10	20122	Heptachlor	0.020
10.08	12229	Endosulfan I	0.020
10.64	30854	Dieldrin	0.040
11.12	23074	Endrin	0.040
11.52	22748	4,4'DDD	0.040
12.14	24754	4,4'DDT	0.040
13.38	62859	Methoxychlor	0.200
16.60	30560	DBC	0.040

INDBMA5 08/08/01 0218

RT	area	Compounds	On-column amt. ng
4.02	15376	TCMX	0.020
6.27	8692	beta BHC	0.020
6.65	17869	delta-BHC	0.020
7.77	17470	Aldrin	0.020
9.22	17203	Heptachlor epoxide	0.020
9.51	17307	gamma-Chlordane	0.020
9.82	16853	alpha-Chlordane	0.020
10.17	28833	4,4'DDE	0.040
11.64	28839	Endosulfan II	0.040
12.61	22726	Endrin aldehyde	0.040
13.58	27258	Endosulfan sulfate	0.040
14.14	27402	Endrin ketone	0.040
16.60	29140	DBC	0.040

INDBMA6 08/08/01 1106

RT	area	Compounds	On-column amt. ng
4.02	15632	TCMX	0.020
6.27	8935	beta BHC	0.020
6.65	18605	delta-BHC	0.020
7.77	17912	Aldrin	0.020
9.22	17526	Heptachlor epoxide	0.020
9.51	12683	gamma-Chlordane	0.020
9.82	17175	alpha-Chlordane	0.020
10.17	29681	4,4'DDE	0.040
11.64	29179	Endosulfan II	0.040
12.61	22874	Endrin aldehyde	0.040
13.58	27301	Endosulfan sulfate	0.040
14.14	27175	Endrin ketone	0.040
16.60	29247	DBC	0.040

PEMA9 08/08/01 0754

RT	area	Compounds	On-column amt. ng
4.02	15887	TCMX	0.020
5.28	10181	alpha-BHC	0.010
6.02	9887	gamma BHC	0.010
6.27	5227	Beta BHC	0.010
11.12	32940	Endrin	0.050
11.53	377	4,4'DDD	0.000
12.14	65646	4,4'DDT	0.100
12.62	1991	Endrin aldehyde	0.000
13.38	75595	Methoxychlor	0.250
14.14	4949	Endrin ketone	0.000
16.60	17166	DBC	0.020

INDAMA6 08/08/01 1042

RT	area	Compounds	On-column amt. ng
4.00	15787	TCMX	0.020
5.28	20878	alpha-BHC	0.020
6.01	20054	gamma BHC	0.020
7.10	20565	Heptachlor	0.020
10.08	16958	Endosulfan I	0.020
10.64	31180	Dieldrin	0.040
11.12	23486	Endrin	0.040
11.52	23208	4,4'DDD	0.040
12.14	24834	4,4'DDT	0.040
13.38	63455	Methoxychlor	0.200
16.60	30559	DBC	0.040

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKS1

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: ___MBS1_____

Sample wt/vol: __30.0_____(g/mL) __G_____ Lab File ID: _____MBS1_____

% Moisture: _____0_____ Decanted: (Y/N) _N___ Date Received: _____

Extraction : (Type) ___SONC_____ Date Extracted: ____08/03/01_____

Concentrated Extract Volume: ___5000____(lL) Date Analyzed: ____08/04/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

Sulfur Cleanup: (Y/N)_N__

GPC Cleanup: (Y/N)_Y_ Ph _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg _	Q
319-84-6	alpha-BHC	0.9	JP
319-85-7	beta BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma BHC	1.1	JP
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'DDE	3.3	U
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'DDD	3.3	U
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'DDT	2.0	JP
72-43-5	Methoxychlor		
53494-70-5	Endrin ketone	3.3	U
7421-93-4	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor 1016	33	U
11104-28-2	Aroclor 1221	67	U
11141-16-5	Aroclor 1232	33	U
53469-21-9	Aroclor 1242	33	U
12672-29-6	Aroclor 1248	33	U
11097-69-1	Aroclor 1254	33	U
11096-82-5	Aroclor 1260	33	U

1= RTX35 2= DB5 Modified Quant report for PBLKS1

RT	area	Compounds	On-column amt. ng (1)	Final Ug/kg (1)	On-column amt. ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.22	18120	TCMX	0.0277	9.200			
4.00	19375				0.0254	8.400	
6.89	2790	alpha-BHC	0.00271	0.9049			1.70
5.30	4824				0.004637	1.5459	1.70
7.77	3102	gamma BHC	0.003365	1.122			1.70
6.00	7501				0.007525	2.5085	1.70
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.40	3380	4,4'DDT	0.00606	2.020			3.3
12.10	6628				0.01056	3.5204	3.3
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10	18457	Methoxychlor					17
13.35	14224						17
16.38		Endrin ketone					
14.14							
19.33	16009	DBC	0.0275	9.200			
16.57	20379				0.0274	9.10	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKW1

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) __WATER_____ Lab Sample ID: ___MBW1_____

Sample wt/vol: ___1000_____(g/mL) ___ML_____ Lab File ID: _____ MBW1_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __SEPF_____ Date Extracted: ____08/03/01_____

Concentrated Extract Volume: __10000___(lL) Date Analyzed: ____08/04/01_____

Injection Volume: __1.0____(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N___

GPC Cleanup: (Y/N)__N__ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta BHC		
319-86-8	delta-BHC	0.050	U
58-89-9	gamma BHC	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.80	P
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.45	J P
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

1= RTX35 2= DB5 Modified Quant report for PBLKW1

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.22	9681	TCMX	0.0148	0.15			
3.99	11045				0.01439	0.1439	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07	1301	beta BHC					0.050
6.27	3434						0.050
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.81	1536	alpha-Chlordane	0.001969	0.020			0.050
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28	37018	Endrin	0.080469	0.804			0.10
11.12	71384				0.1202	1.202	0.10
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10	11568	Methoxychlor	0.04531	0.453			0.50
13.38	30554				0.09832	0.9832	0.50
16.38		Endrin ketone					
14.14							
19.34	9150	DBC	0.0157	0.1600			
16.57	12542				0.016885	0.170	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLK01

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLK01_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLK01_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L __	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLKA1

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLKA1_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLKA1_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

1= RTX35 2= DB5 Modified Quant report for PIBLK01 & PIBLKA1

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.25	13167	TCMX	0.020153	0.201			
4.02	15749				0.020521	0.205	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10		Methoxychlor					
13.38							
16.38		Endrin ketone					
14.14							
19.36	10543	DBC	0.018124	0.180			
16.60	13993				0.018839	0.190	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLK02

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLK02_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLK02_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLKA2

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLKA2_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLKA2_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

1= RTX35 2= DB5 Modified Quant report for PIBLK02 & PIBLKA2

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.25	13991	TCMX	0.021415	0.214			
4.02	16309				0.021251	0.200	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10		Methoxychlor					
13.38							
16.38		Endrin ketone					
14.14							
19.36	10927	DBC	0.018786	0.190			
16.60	14757				0.19868	0.200	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLK03

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLK03_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLK03_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/05/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLKA3

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLKA3_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLKA3_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/05/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

1= RTX35 2= DB5 Modified Quant report for PIBLK03 & PIBLKA3

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.25	13412	TCMX	0.020529	0.205			
4.02	15841				0.020641	0.206	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10		Methoxychlor					
13.38							
16.38		Endrin ketone					
14.14							
19.36	11308	DBC	0.019441	0.190			
16.60	14380				0.019360	0.190	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLK06

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLK06_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLK06_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/08/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLKA6

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLKA6_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLKA6_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/08/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

1= RTX35 2= DB5 Modified Quant report for PIBLK06 & PIBLKA6

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.25	13473	TCMX	0.020621	0.206214			
4.02	15910				0.020731	0.207	
6.88		alpha-BHC	0.005				
5.28							
7.80		gamma BHC	0.005				
6.01							
8.07		beta BHC	0.005				
6.27							
8.79		delta-BHC	0.005				
6.65							
8.87		Heptachlor	0.005				
7.11							
9.63		Aldrin	0.005				
7.78							
11.06		Heptachlor epoxide	0.005				
9.22							
11.51		gamma-Chlordane	0.005				
9.51							
11.87		alpha-Chlordane	0.005				
9.82							
11.95		Endosulfan I	0.005				
10.08							
12.40		4,4'DDE	0.010				
10.17							
12.60		Dieldrin	0.010				
10.63							
13.28		Endrin	0.010				
11.12							
13.73		4,4'DDD	0.010				
11.52							
13.79		Endosulfan II	0.010				
11.64							
14.43		4,4'DDT	0.010				
12.14							
14.60		Endrin aldehyde	0.010				
12.61							
15.23		Endosulfan sulfate	0.010				
13.58							
16.10		Methoxychlor	0.050				
13.38							
16.38		Endrin ketone	0.010				
14.14							
19.36	11095	DBC	0.019074	0.190			
16.60	14670				0.019750	0.200	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLK07

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLK07_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLK07_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/08/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLKA7

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLKA7_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLKA7_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/08/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

1= RTX35 2= DB5 Modified Quant report for PIBLK07 & PIBLKA7

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.25	13217	TCMX	0.020230	0.203			
4.02	15799				0.020586	0.206	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10		Methoxychlor					
13.38							
16.38		Endrin ketone					
14.14							
19.36	10762	DBC	0.018503	0.190			
16.60	14198				0.19114	0.190	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLK08

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLK08_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLK08_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/08/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PIBLKA8

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __PIBLKA8_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ____ PIBLKA8_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) __ _____ Date Extracted: _____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___08/08/01_____

Injection Volume: _1.0___(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.025	U
319-85-7	beta BHC	0.025	U
319-86-8	delta-BHC	0.025	U
58-89-9	gamma BHC	0.025	U
76-44-8	Heptachlor	0.025	U
309-00-2	Aldrin	0.025	U
1024-57-3	Heptachlor epoxide	0.025	U
959-98-8	Endosulfan I	0.025	U
60-57-1	Dieldrin	0.05	U
72-55-9	4,4'DDE	0.05	U
72-20-8	Endrin	0.05	U
33213-65-9	Endosulfan II	0.05	U
72-54-8	4,4'DDD	0.05	U
1031-07-8	Endosulfan sulfate	0.05	U
50-29-3	4,4'DDT	0.05	U
72-43-5	Methoxychlor	0.25	U
53494-70-5	Endrin ketone	0.05	U
7421-93-4	Endrin aldehyde	0.05	U
5103-71-9	alpha-Chlordane	0.025	U
5103-74-2	gamma-Chlordane	0.025	U
8001-35-2	Toxaphene	2.5	U
12674-11-2	Aroclor 1016	0.50	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	0.50	U
53469-21-9	Aroclor 1242	0.50	U
12672-29-6	Aroclor 1248	0.50	U
11097-69-1	Aroclor 1254	0.50	U
11096-82-5	Aroclor 1260	0.50	U

1= RTX35 2= DB5 Modified Quant report for PIBLK08 & PIBLKA8

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.25	13305	TCMX	0.020365	0.204			
4.02	16265				0.21194	0.212	
6.88		alpha-BHC					
5.28							
7.80		gamma BHC					
6.01							
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.87		Heptachlor					
7.11							
9.63		Aldrin					
7.78							
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.60		Dieldrin					
10.63							
13.28		Endrin					
11.12							
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.43		4,4'DDT					
12.14							
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10		Methoxychlor					
13.38							
16.38		Endrin ketone					
14.14							
19.36	10521	DBC	0.018088	0.180			
16.60	14428				0.19425	0.190	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62MS

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: ___BDR25-15MS_____

Sample wt/vol: ____30.0_____(g/mL) _____G_____ Lab File ID: ____ BDR25-15MS _____

% Moisture: _____13_____ Decanted: (Y/N) __N___ Date Received: __08/03/01_____

Extraction : (Type) ___SONC___ Date Extracted: __08/03/01_____

Concentrated Extract Volume: ___5000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____
Sulfur Cleanup: (Y/N)__N_

GPC Cleanup: (Y/N)_Y__ pH ___6.8__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg _	Q
319-84-6	alpha-BHC	0.78	J
319-85-7	beta BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma BHC	14	
76-44-8	Heptachlor		
309-00-2	Aldrin	15	
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	28	
72-55-9	4,4'DDE	3.8	U
72-20-8	Endrin	28	
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'DDD	3.8	U
1031-07-8	Endosulfan sulfate	0.96	JP
50-29-3	4,4'DDT	27	
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	3.5	J
7421-93-4	Endrin aldehyde	1.1	J
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane	53	E
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor 1016	38	U
11104-28-2	Aroclor 1221	77	U
11141-16-5	Aroclor 1232	38	U
53469-21-9	Aroclor 1242	38	U
12672-29-6	Aroclor 1248	38	U
11097-69-1	Aroclor 1254	38	U
11096-82-5	Aroclor 1260	38	U

1= RTX35 2= DB5 Modified Quant report for BPH62MS

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.25	18836	TCMX	0.0288	11.00			
4.00	21464				0.0279	11.00	
6.88	2104	alpha-BHC	0.00205	0.7844			1.954
5.28	2344				0.002253	0.8634	1.954
7.77	34631	gamma BHC	0.0375	14.00			1.954
5.98	38046				0.0381	15.00	1.954
8.07		beta BHC					
6.24	713				0.0015	0.600	1.954
8.79		delta-BHC					
6.65							
8.84	35589	Heptachlor					1.954
7.08	42564						1.954
9.60	33754	Aldrin	0.0385	15.00			1.954
7.74	33652				0.3854	15.00	1.954
11.06		Heptachlor epoxide					
9.22							
11.51	115878	gamma-Chlordane	0.13946	53.43			1.954
9.51	139005				0.16212	62.12	1.954
11.87	138414	alpha-Chlordane					1.954
9.82	157254						1.954
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.56	52634	Dieldrin	0.0736	28.00			3.793
10.60	59250				0.0768	29.00	3.793
13.25	33955	Endrin	0.0738	28.00			3.793
11.09	43577				0.0734	28.00	3.793
13.73		4,4'DDD					
11.52							
13.79		Endosulfan II					
11.64							
14.40	38894	4,4'DDT	0.0697	27.00			3.793
12.11	44998				0.0717	27.00	3.793
14.56	1347	Endrin aldehyde	0.0029	1.10			3.793
12.58	1623				0.0029	1.100	3.793
15.23	1399	Endosulfan sulfate	0.0025	0.96			3.793
13.58	2456				0.0037	1.422	3.793
16.10		Methoxychlor					
13.38							
16.35	5473	Endrin ketone	0.0101	3.90			3.793
14.10	6129				0.0091	3.500	3.793
19.33	17024	DBC	0.0293	11.00			
16.57	21797				0.0293	11.00	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62MSD

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: ___BDR25-15MSD_____

Sample wt/vol: ____30.0_____(g/mL) _____G_____ Lab File ID: ____ BDR25-15MSD _____

% Moisture: _____13_____ Decanted: (Y/N) __N___ Date Received: __08/03/01_____

Extraction : (Type) ___SONC___ Date Extracted: __08/03/01_____

Concentrated Extract Volume: ___5000____(lL) Date Analyzed: ___08/04/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____
Sulfur Cleanup: (Y/N)__N_

GPC Cleanup: (Y/N)_Y__ pH ___6.8__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg	Q
319-84-6	alpha-BHC	0.34	JP
319-85-7	beta BHC		
319-86-8	delta-BHC	0.33	JP
58-89-9	gamma BHC	12	
76-44-8	Heptachlor	12	
309-00-2	Aldrin	13	
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	25	
72-55-9	4,4'DDE	0.32	JP
72-20-8	Endrin	26	
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'DDD	0.22	J
1031-07-8	Endosulfan sulfate	0.15	JP
50-29-3	4,4'DDT	24	
72-43-5	Methoxychlor	0.57	JP
53494-70-5	Endrin ketone	2.9	J
7421-93-4	Endrin aldehyde	0.63	JP
5103-71-9	alpha-Chlordane	46	EP
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor 1016	38	U
11104-28-2	Aroclor 1221	77	U
11141-16-5	Aroclor 1232	38	U
53469-21-9	Aroclor 1242	38	U
12672-29-6	Aroclor 1248	38	U
11097-69-1	Aroclor 1254	38	U
11096-82-5	Aroclor 1260	38	U

1= RTX35 2= DB5 Modified Quant report for BPH62MSD

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.22	16201	TCMX	0.0248	9.500			
4.00	18010				0.0235	9.00	
6.84	1301	alpha-BHC	0.0013	0.490			1.954
5.24	927				0.0009	0.34	1.954
7.77	29888	gamma BHC	0.0324	12.00			1.954
5.99	32162				0.0323	12.00	1.954
8.04	453	beta BHC					1.954
6.24	724						1.954
8.76	1075	delta-BHC	0.0012	0.460			1.954
6.62	776				0.0009	0.330	1.954
8.84	29826	Heptachlor	0.0305	12.00			1.954
7.08	34843				0.0335	13.00	1.954
9.60	28672	Aldrin	0.0327	13.00			1.954
7.74	28785				0.0330	13.00	1.954
11.06		Heptachlor epoxide					
9.22							
11.57	85245	gamma-Chlordane					1.954
9.56	103574						1.954
11.87	94351	alpha-Chlordane	0.12105	46.38			1.954
9.84	126564				0.15155	58.06	1.954
11.95		Endosulfan I					
10.06	408				0.0005	0.190	1.954
12.36	805	4,4'DDE	0.0011	0.410			3.793
10.14	603				0.0008	0.320	3.793
12.57	46919	Dieldrin	0.0657	25.00			3.793
10.60	52023				0.0675	26.00	3.793
13.25	31543	Endrin	0.0686	26.00			3.793
11.09	39881				0.0672	26.00	3.793
13.70	360	4,4'DDD	0.0007	0.260			3.793
11.48	331				0.0006	0.220	3.793
13.79		Endosulfan II					
11.64							
14.40	35679	4,4'DDT	0.0639	25.00			3.793
12.11	39632				0.0632	24.0	3.793
14.57	1305	Endrin aldehyde	0.0028	1.100			3.793
12.59	922				0.0016	0.630	3.793
15.24	223	Endosulfan sulfate	0.0004	0.150			3.793
13.54	1014				0.0015	0.590	3.793
16.15	5993	Methoxychlor	0.0235	9.00			19.54
13.44	463				0.0015	0.570	19.54
16.36	4273	Endrin ketone	0.0079	3.00			3.793
14.11	5161				0.0077	2.900	3.793
19.33	18812	DBC	0.3234	12.00			
16.57	20908				0.2815	11.00	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51MS

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) __WATER_____ Lab Sample ID: ___ BDR25-16MS_____

Sample wt/vol: ___1000_____(g/mL) __ML_____ Lab File ID: ____ BDR25-16MS _____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___08/03/01_____

Extraction : (Type) _SEPF____ Date Extracted: ___08/03/01_____

Concentrated Extract Volume: __10000___(lL) Date Analyzed: ____08/08/01_____

Injection Volume: __1.0____(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_

GPC Cleanup: (Y/N)_N___ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L __	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma BHC	0.29	
76-44-8	Heptachlor	0.28	
309-00-2	Aldrin	0.29	
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin		
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.60	
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.56	
72-43-5	Methoxychlor	12	P
53494-70-5	Endrin ketone	0.074	J
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

1= RTX35 2= DB5 Modified Quant report for BPJ51MS

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.22	6424	TCMX	0.00983	0.0980			
3.99	7314				0.009529	0.095	
6.88		alpha-BHC					
5.28							
7.77	26639	gamma BHC	0.028897	0.290			0.05
5.99	28810				0.028903	0.290	0.05
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.84	27195	Heptachlor	0.02783	0.280			0.05
7.08	31777				0.030555	0.310	0.05
9.60	26386	Aldrin	0.030119	0.300			0.05
7.74	25676				0.029410	0.290	0.05
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.57	43266	Dieldrin					0.10
10.60	48120						0.10
13.25	28688	Endrin	0.62362	0.620			0.10
11.10	35840				0.06352	0.600	0.10
13.73	151474	4,4'DDD					0.10
11.52	220877						0.10
13.79		Endosulfan II					
11.64							
14.40	31175	4,4'DDT	0.55897	0.560			0.10
12.11	35741				0.056951	0.5700	0.10
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10	309654	Methoxychlor	1.212299	12.1299			0.50
13.38	556857				1.79797	17.9197	0.50
16.35	4395	Endrin ketone	0.008148	0.081			0.10
14.11	4967				0.007397	0.074	0.10
19.33	5753	DBC	0.009890	0.0990			
16.57	8181				0.011014	0.110	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51MSD

Lab Name: _____NEWLAB_____ Contract : ____123456____

Lab Code: __NLB____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BDR25

Matrix: (soil/water) __WATER_____ Lab Sample ID: ___ BDR25-16MSD____

Sample wt/vol: ___975_____(g/mL) __ML_____ Lab File ID: ____ BDR25-16MSD _____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___08/03/01_____

Extraction : (Type) _SEPF____ Date Extracted: ___08/03/01_____

Concentrated Extract Volume: __10000___(lL) Date Analyzed: ____08/08/01_____

Injection Volume: __1.0____(lL) Dilution Factor: _____1.0_____

Sulfur Cleanup: (Y/N)_N_

GPC Cleanup: (Y/N)_N___ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.051	U
319-85-7	beta BHC	0.051	U
319-86-8	delta-BHC	0.051	U
58-89-9	gamma BHC	0.42	
76-44-8	Heptachlor	0.40	
309-00-2	Aldrin	0.41	
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	U
60-57-1	Dieldrin	0.85	
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.85	
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.79	
72-43-5	Methoxychlor	14	P
53494-70-5	Endrin ketone	0.10	J
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.051	U
5103-74-2	gamma-Chlordane	0.051	U
8001-35-2	Toxaphene	5.1	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

1= RTX35 2= DB5 Modified Quant report for BPJ51MSD

RT	area	Compounds	On-column amt. Ng (1)	Final Ug/kg (1)	On-column amt. Ng (2)	Final Ug/kg (2)	Adjusted CRQL
5.22	3405	TCMX	0.005211	0.05345			
4.00	4445				0.00579	0.05940	
6.88		alpha-BHC					
5.28							
7.77	38060	gamma BHC	0.041287	0.420			0.051
5.98	40958				0.041091	0.420	0.051
8.07		beta BHC					
6.27							
8.79		delta-BHC					
6.65							
8.84	38138	Heptachlor	0.03902	0.400			0.051
7.07	41287				0.39699	0.410	0.051
9.60	35149	Aldrin	0.040121	0.410			0.051
7.74	36896				0.042261	0.430	0.051
11.06		Heptachlor epoxide					
9.22							
11.51		gamma-Chlordane					
9.51							
11.87		alpha-Chlordane					
9.82							
11.95		Endosulfan I					
10.08							
12.40		4,4'DDE					
10.17							
12.57	59120	Dieldrin	0.082755	0.8500			0.102
10.60	66866				0.086752	0.8900	0.102
13.25	38195	Endrin	0.083028	0.850			0.102
11.09	49784				0.083833	0.8600	0.102
13.73	163545	4,4'DDD					0.102
11.52	220924						0.102
13.79		Endosulfan II					
11.64							
14.40	42879	4,4'DDT	0.076884	0.7900			0.102
12.11	50140				0.079895	0.8200	0.102
14.60		Endrin aldehyde					
12.61							
15.23		Endosulfan sulfate					
13.58							
16.10	357621	Methoxychlor	1.400897	14.3681			0.512
13.38	642341				2.0671	21.2007	0.512
16.35	5574	Endrin ketone	0.010334	0.110			0.102
14.10					0.01011	0.100	0.102
19.35	2678	DBC	0.00460	0.0472			
16.57	3715				0.00500	0.0513	

1= RTX35 2= DB5 Modified Quant report for FLAB123 07/30/01

RT	area	Compounds	QUANT RF	On-column amt. Ng (1)	Final Ug/kg (1)	Adjusted CRQL
2.01	1070	2,4,5 Trichlorophenol	559952	0.001909	1.90	5.0
3.85	6659	TCMX	631950	0.010536	10.535	0.00
5.17	8151	alpha-BHC	831250	0.009806	9.80	5.0
5.96	8147	gamma BHC	797850	0.010210	10.0	5.0
7.13	9459	Heptachlor	891550	0.010610	11.0	5.0
10.44	8506	Endosulfan I	743950	0.011432	11.0	5.0
11.06	15542	Dieldrin	702075	0.022136	22.0	10.
11.62	12886	Endrin	593675	0.021705	22.0	10.
12.10	10992	4,4'DDD	492125	0.022334	22.0	10.
12.80	11666	Endosulfan II	538850	0.021648	22.0	10.
14.23	32824	Methoxychlor	293415	0.111865	110.0	50.
17.89	15544	DBC	680450	0.022842	23.0	0.00

1= RTX35 2= DB5 Modified Quant report for GPC444 07/30/01

RT	area	Compounds	QUANT RF	On-column amt. Ng (1)	Final Ug/kg (1)	Adjusted CRQL
7.28	51829	gamma BHC	1140700	0.045436	0.45436	0.050
8.34	54560	Heptachlor	1294900	0.042135	0.42135	0.050
9.09	48374	Aldrin	997500	0.048495	0.48495	0.050
12.06	86976	Dieldrin	984650	0.088332	0.88332	0.100
12.74	60246	Endrin	715775	0.084169	0.84169	0.100
13.94	50958	4,4'DDT	610500	0.083469	0.83469	0.100

Appendix I

Answers

BNA Final Quiz

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

Technical And contractual holding times were met for all samples in the BNA fraction.

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

Sample BBB25 had two base-neutral surrogates below criteria. One of the surrogates has a recovery < 10%. All positive hits were qualified "J" and non-detects as "R" for base-neutral analytes only.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

RPD for Pyrene exceeded limits for soil matrix. No action taken on MS/MSD data.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times

for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

"U"

BBB24: Acetophenone, Hexachlorocyclopentadiene, 3-nitroaniline, Diethylphthalate, 4,6 dinirto-2-methylphenol, bis-(2-ethyl-hexyl) phthalate, Di-n-octylphthalate, Indeno(1,2,3-cd)pyrene.

BBB25: Diethylphthalate.

BBB21: Hexachlorobutadiene, Butylbenzylphthalate, bis-(2-ethyl-hexyl) phthalate.

B) Field or rinse blank contamination:

BBB24: Benzo (b) fluoranthene, Benzo (k) fluoranthene.

BBB21: Di-n-butylphthalate.

C) Trip blank contamination:

Not applicable.

D) Storage Blank contamination:

Not applicable.

E) Tics

"R" unknown: BBB24, BBB25.

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

Sample BBB25MSD was analyzed outside the 12-hour clock. All positive analytes were qualified "J" and non-detects were qualified "R".

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

RRF <0.05: Pentachlorophenol- all positive analytes were qualified "J" and non-detects were qualified "R" for all samples in this SDG.

7. CALIBRATION:

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

The following analytes in the sample shown were qualified for %RSD and %D:

%RSD

Phenol- "J" all positive hits only for samples BBB21MS, BBB21MSD, BBB25MS, BBB25MSD.

Benzo (b) fluoranthene- "J" all positive hits only for samples BBB23, BBB24, BBB25, BBB25MS, BBB25MSD.

The above samples reported non-detects for the following analytes:4-Nitroaniline, Atrazune and Benzo (b) fluoranthene, therefore no action was taken.

%D:

"J": 2,4 Dichlorophenol, 2,4 Dinitrophenol, 4-nitrophenol, Atrazine*- BBB21, BBB22, BBB23, SBLKW1, BBB21MS, BBB21MSD.

(FYI - "R": Pentachlorophenol - BBB21, BBB22, BBB23, SBLKW1, BBB21MS, BBB21MSD. This need not be reported since it was covered in RRF section.)

"J" : 2,4 Dimethylphenol, 2,4 Dichlorophenol*,2-methylnaphthalene*, 2,4 Dinitrophenol, 4-nitrophenol, 4-nitroaniline*, Atrazine*-BBB24, BBB25, BBB25MS, BBB25MSD, SBLKS1.

(FYI - "R": Pentachlorophenol - -BBB24, BBB25, BBB25MS, BBB25MSD, SBLKS1. This need not be reported since it was covered in RRF section.)

*** Analyte may reflect the qualifier "R" for failing another criteria.**

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.

The analytes associated with the following internal standards and samples were qualified "R" for non-detects and "J" for positive hits:

IS1: BBB25MSD, BBB23 **IS2: BBB25MS**

IS3: BBB21MS, BBB21MSD **IS4: BBB22**

IS5: BBB25MSD **IS6: BBB24, BBB21**

The analytes associated with the following internal standards and samples were qualified "J" for positive hits only:

IS2: BBB21 **IS3: BBB25**

IS5: BBB25, BBB23

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

No problems.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

BBB25MSD was analyzed outside the 12-hour clock. Sample should have been re-analyzed.

Samples BBB22, BBB23 BBB24 failed internal standard criteria and were not re-analyzed as per the SOW.

Analyte 2,4,5 Trichlorophenol was reported at a concentration >CRQL in method blank SBLKW1. Target analyte concentration must be < CRQL except for phthalates , which can be 5 times the CRQL. The blank should have been re-analyzed as per the SOW.

The SOW allows up to 4 required analytes to fail criteria provided the RRF is > 0.010 and the %D be < 40.0%. Three analytes: 2,4 Dichlorophenol, 2-methylnaphthalene and Pentachlorophenol have RRF values that failed criterion. Although the RRF values were >0.010, the %D are >40%.

Mandatory GPC clean-up was not performed on soil sample BBB24.

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

Incorrect CRQL values were reported for sample BBB24. Values were corrected by the validator.

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKW1	**78**	76	78	83	76	74	**83**	64	0
2.	BBB21	26 *	**61**	61	59	50	66	61	48	1
3.	BBB21MS	66	39 *	**61**	65	63	69	69	60	1
4.	BBB21MSD	51	72	54	**57**	47	60	60	**53**	0
5.	BBB22	28 *	71	64	72	**66**	41	71	58	1
6.	BBB23	52	61	75	34	31	**63**	37	74	0

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKS1	63	69	**72**	61	75	65	69	60	0
2.	BBB24	30	32	57	44	43	43	41	**11 ***	1
3.	BBB25	28	**27 ***	47	44	31	23	32	**9 ***	2

4.	BB25MS	29	37	44	35	44	40	41	**26**	0
5.	BB25MSD	**40**	43	61	69	64	47	47	74	0

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #
Phenol	**75.00**	**0.00**	**46.93**	**63**
2-chlorophenol	**75.00**	**0.00**	**48.99**	**65**
N-Nitrosodi-n-prop. (1)	**50.00**	**0.00**	**36.07**	**72**
4-Chloro-3-methylphenol	**75.00**	**0.00**	**53.20**	**71**
Acenaphthene	**50.00**	**0.00**	**36.30**	**73**
4-Nitrophenol	**75.00**	**0.00**	**50.40**	**67**
2,4-Dinitrotoluene	**50.00**	**0.00**	**44.42**	**89**
Pentachlorophenol	**75.00**	**0.00**	**60.84**	**81**
Pyrene	**50.00**	**0.00**	**37.67**	**75**

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #
Phenol	**75.00**	**42.57**	**57**	**10**
2-chlorophenol	**75.00**	**44.07**	**59**	**10**
N-Nitrosodi-n-prop. (1)	**50.00**	**32.46**	**65**	**10**
4-Chloro-3-methylphenol	**75.00**	**50.63**	**68**	**4**
Acenaphthene	**50.00**	**32.52**	**65**	**12**
4-Nitrophenol	**75.00**	**39.50**	**53**	**23**
2,4-Dinitrotoluene	**50.00**	**34.94**	**70**	**24**
Pentachlorophenol	**75.00**	**53.46**	**71**	**13**
Pyrene	**50.00**	**32.61**	**65**	**14**

RPD: ___**0**__ out of __**9**___ outside limits
Spike Recovery: __**0**___ out of __**18**___ outside limits

3D
SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #
Phenol	**3012**	**0.00**	**1212**	**40**
2-chlorophenol	**3012**	**0.00**	**1151**	**38**
N-Nitrosodi-n-prop. (1)	**2008**	**0.00**	**846**	**42**
4-Chloro-3-methylphenol	**3012**	**0.00**	**1209**	**40**
Acenaphthene	**2008**	**0.00**	**833**	**41**
4-Nitrophenol	**3012**	**0.00**	**2314**	**77**
2,4-Dinitrotoluene	**2008**	**0.00**	**801**	**40**
Pentachlorophenol	**3012**	**0.00**	**1328**	**44**
Pyrene	**2008**	**0.00**	**1000**	**50**

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #
Phenol	**3012**	**1499**	**50**	**22**
2-chlorophenol	**3012**	**1390**	**46**	**19**
N-Nitrosodi-n-prop. (1)	**2008**	**1101**	**55**	**27**
4-Chloro-3-methylphenol	**3012**	**1330**	**44**	**10**
Acenaphthene	**2008**	**998**	**50**	**20**
4-Nitrophenol	**3012**	**2365**	**79**	**3**
2,4-Dinitrotoluene	**2008**	**1076**	**54**	**30**
Pentachlorophenol	**3012**	**1704**	**57**	**26**
Pyrene	**2008**	**1210**	**60**	**18**

RPD: __**1**___ out of __**9**___ outside limits
Spike Recovery: __**0**___ out of _**18**____ outside limits

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab File ID: __DF001222AA1____ DFTPP Injection Date: _____12/22/00_____

Instrument ID: ___5972HPAA_____ DFTPP Injection Time: _____1721_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0-80.0% of mass 198	**71.9**	
68	Less than 2.0% of mass 69	**0.0**	**(0.0)1**
69	Mass 69 relative abundance	**85.1**	
70	Less than 2.0% of mass 69	**0.0**	**(1.0)1**
127	25.0-75.0% of mass 198	**54.0**	
197	Less than 1.0% of mass 198	**0.0**	
198	Base peak, 100% relative abundance	**100.0**	
199	5.0-9.0% of mass 198	**6.7**	
275	10.0-30.0% of mass 198	**18.6**	
365	Greater than 0.75% of mass 198	**1.95**	
441	Present, but less than mass 443	**7.4**	
442	40.0-110.0% of mass 198	**46.7**	
443	15.0-24.0% of mass 442	**9.1**	**(19.4)2**

1- Value is % mass 69 2- Value is % mass 442

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab File ID: __DF010130AA1____ DFTPP Injection Date: _____01/30/01_____

Instrument ID: ___5972HPAA_____ DFTPP Injection Time: _____1625_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0-80.0% of mass 198	**55.4**	
68	Less than 2.0% of mass 69	**0.0**	**(0.0)1**
69	Mass 69 relative abundance	**68.3**	
70	Less than 2.0% of mass 69	**0.0**	**(0.0)1**
127	25.0-75.0% of mass 198	**48.1**	
197	Less than 1.0% of mass 198	**0.0**	
198	Base peak, 100% relative abundance	**100.0**	
199	5.0-9.0% of mass 198	**6.6**	
275	10.0-30.0% of mass 198	**21.0**	
365	Greater than 0.75% of mass 198	**1.87**	
441	Present, but less than mass 443	**9.5**	
442	40.0-110.0% of mass 198	**59.4**	
443	15.0-24.0% of mass 442	**11.4**	**(19.1)2**

1- Value is % mass 69 2- Value is % mass 442

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab File ID: __DF010202AA1____ DFTPP Injection Date: _____02/02/01_____

Instrument ID: ___5972HPAA_____ DFTPP Injection Time: _____1103_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	**57.2**
68	Less than 2.0% of mass 69	**0.0** **(0.0)1**
69	Mass 69 relative abundance	**70.6**
70	Less than 2.0% of mass 69	**0.0** **(0.0)1**
127	25.0-75.0% of mass 198	**48.4**
197	Less than 1.0% of mass 198	**0.0**
198	Base peak, 100% relative abundance	**100.0**
199	5.0-9.0% of mass 198	**6.6**
275	10.0-30.0% of mass 198	**20.6**
365	Greater than 0.75% of mass 198	**1.7**
441	Present, but less than mass 443	**8.4**
442	40.0-110.0% of mass 198	**54.0**
443	15.0-24.0% of mass 442	**10.3** **(19.6)2**

1- Value is % mass 69 2- Value is % mass 442

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

EPA Sample N0. (SSTD50##): __SSTD50GA_____ Date Analyzed: ____01/30/01_____

Lab File ID: (Standard) ___GA010130A1_____ Time Analyzed: ____1647_____

Instrument ID: ___5972HPAA_____ GC Column: _RTX-5MS__ ID: ___0.25_ (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	287596	8.33	811190	11.20	446006	14.73
	UPPER LIMIT	575192	8.83	1622380	11.70	892012	15.23
	LOWER LIMIT	143798	7.83	405595	10.70	223003	14.23
	EPA SAMPLE						
1.	SBLKW1	295213	8.33	829078	11.20	470766	14.71
2.	BBB21	328096	8.33	**1913723 ***	11.20	486077	14.72
3.	BBB21MS	357053	8.33	1028111	11.20	**103621 ***	14.73
4.	BBB21MSD	327896	8.33	959488	11.20	**108123 ***	14.72
5.	BBB22	321408	8.33	1921571	11.20	491806	14.71
6.	BBB23	**55002 ***	8.33	993294	11.20	533199	14.72

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

EPA Sample N0. (SSTD50##): __SSTD50GA_____ Date Analyzed: ____01/30/01_____

Lab File ID: (Standard) ___GA010130A1_____ Time Analyzed: ____1647_____

Instrument ID: ___5972HPAA_____ GC Column: _RTX-5MS__ ID: ___0.25_ (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	744700	19.06	745493	24.68	689252	27.30
	UPPER LIMIT	1489400	19.56	1490986	25.18	1378504	27.80
	LOWER LIMIT	372350	18.56	372746	24.18	344626	26.80
	EPA SAMPLE						
1.	SBLKW1	**816435**	19.05	771890	24.66	697863	27.30
2.	BBB21	853590	19.06	795235	24.66	**116384**	27.30
3.	BBB21MS	979688	19.06	969101	24.66	268953	27.30
4.	BBB21MSD	919067	19.06	881574	24.66	804134	27.30
5.	BBB22	**153004 ***	19.06	827565	24.66	746961	27.30
6.	BBB23	937427	19.06	**1888741 ***	24.66	821548	27.30

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

EPA Sample N0. (SSTD50##): __SSTD50GJ_____ Date Analyzed: ____02/02/01_____

Lab File ID: (Standard) ___GJ010202A1_____ Time Analyzed: ____1123_____

Instrument ID: ___5972HPAA_____ GC Column: _RTX-5MS__ ID: ___0.25_ (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	273371	8.27	793968	11.16	404967	14.67
	UPPER LIMIT	1546742	8.88	1587936	11.66	809934	15.17
	LOWER LIMIT	136686	7.77	396984	10.66	202484	14.17
	EPA SAMPLE						
1.	SBLKS1	356995	8.28	987636	11.15	514455	14.67
2.	BBB24	382398	8.28	1128961	11.16	597062	14.69
3.	BBB25	428929	8.28	1126559	11.17	**909137 ***	14.68
4.	BB25MS	393671	8.28	**133583 ***	11.17	597106	14.68
5.	BB25MSD	**58761 ***	8.29	1215261	11.16	641498	14.69

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

EPA Sample N0. (SSTD50##): __SSTD50GJ_____ Date Analyzed: ____02/02/01_____

Lab File ID: (Standard) ___GJ010202A1_____ Time Analyzed: ____1123_____

Instrument ID: ___5972HPAA_____ GC Column: _RTX-5MS__ ID: ___0.25_ (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	680939	19.01	634714	24.63	584681	27.25
	UPPER LIMIT	1361878	19.51	1269428	25.13	1169362	27.75
	LOWER LIMIT	340470	18.51	317357	24.13	292340	26.75
	EPA SAMPLE						
1.	SBLKS1	**852570**	19.01	730186	24.63	601951	27.24
2.	BBB24	1000462	19.03	852146	24.63	**107470 ***	27.25
3.	BBB25	1063174	19.02	**1377163 ***	24.63	753824	27.25
4.	BB25MS	1026534	19.02	900489	24.63	756055	27.25
5.	BB25MSD	1081924	19.03	**123974 ***	24.63	755692	27.25

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB21

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: __BBB00-1____

Sample wt/vol: ___950_____(g/mL) ____mL_____ Lab File ID: ___BBB00-1A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: __5.3_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _____	Q
100-52-7	Benzaldehyde	11	U
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)ether	11	U
95-57-8	2-Chlorophenol	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
98-86-2	Acetophenone	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-di-n-propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	bis(2-Chloroethoxy)methane	11	U
120-83-2	2,4-Dichlorophenol	11	U**J**
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	25	**UJ**
105-60-2	Caprolactam	11	U
59-50-7	4-Chloro-3-methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	26	U
92-52-4	1,1 Biphenyl	11	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	**(20.75) 21**	**J**
131-11-3	Dimethylphthalate	11	U
606-20-2	2,6-Dinitrotoluene	11	U
208-96-8	Acenaphthylene	11	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	11	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB21

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: __BBB00-1____

Sample wt/vol: ___950_____(g/mL) ____mL_____ Lab File ID: ___BBB00-1A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: __5.3_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L __	Q
51-28-5	2,4-Dinitrophenol	26	U**J**
100-02-7	4-Nitrophenol	26	U**J**
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate	**(33.25) 33**	
86-73-7	Fluorene	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
1912-24-9	Atrazine	11	U**J**
87-86-5	Pentachlorophenol	26	**R**
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
86-74-8	Carbazole	11	U
84-74-2	Di-n-butylphthalate	**(19.24) 19**	**U**
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	43	**U**
91-94-1	3,3'-Dichlorobenzidine	11	U
56-55-3	Benzo(a)anthracene	11	U
218-01-9	Chrysene	11	U
117-81-7	bis(2-Ethylhexyl)phthalate	**(74.83) 75**	**U**
117-84-0	Di-n-octylphthalate	11	**R**
205-99-2	Benzo(b)fluoranthene	11	**R**
207-08-9	Benzo(k)fluoranthene	11	**R**
50-32-8	Benzo(a)pyrene	11	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	11	**R**
53-70-3	Dibenz(a,h)anthracene	11	**R**
191-24-2	Benzo(g,h,i)perylene	11	**R**

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB22

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-4_____

Sample wt/vol: _____800_____(g/mL) ____mL_____ Lab File ID: ___BBB00-4A1_____

Level: (low/med) ___LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ____N_____ pH: __7.2_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
100-52-7	Benzaldehyde	**(10.01) 10**	**J**
108-95-2	Phenol	13	U
111-44-4	bis(2-Chloroethyl)ether	13	U
95-57-8	2-Chlorophenol	13	U
95-48-7	2-Methylphenol	13	U
108-60-1	2,2'-oxybis(1-Chloropropane)	13	U
98-86-2	Acetophenone	13	U
106-44-5	4-Methylphenol	13	U
621-64-7	N-Nitroso-di-n-propylamine	13	U
67-72-1	Hexachloroethane	13	U
98-95-3	Nitrobenzene	13	U
78-59-1	Isophorone	6	J
88-75-5	2-Nitrophenol	13	U
105-67-9	2,4-Dimethylphenol	13	U
111-91-1	bis(2-Chloroethoxy)methane	13	U
120-83-2	2,4-Dichlorophenol	13	U**J**
91-20-3	Naphthalene	13	U
106-47-8	4-Chloroaniline	3	J
87-68-3	Hexachlorobutadiene	13	U
105-60-2	Caprolactam	13	U
59-50-7	4-Chloro-3-methylphenol	13	U
91-57-6	2-Methylnaphthalene	13	U
77-47-4	Hexachlorocyclopentadiene	13	U
88-06-2	2,4,6-Trichlorophenol	13	U
95-95-4	2,4,5-Trichlorophenol	**(29.85) 30**	**J**
92-52-4	1,1 Biphenyl	13	U
91-58-7	2-Chloronaphthalene	13	U
88-74-4	2-Nitroaniline	31	U
131-11-3	Dimethylphthalate	13	U
606-20-2	2,6-Dinitrotoluene	13	U
208-96-8	Acenaphthylene	13	U
99-09-2	3-Nitroaniline	31	U
83-32-9	Acenaphthene	13	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB22

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-4_____

Sample wt/vol: _____800_____(g/mL) ____mL_____ Lab File ID: ___BBB00-4A1_____

Level: (low/med) ___LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ____N_____ pH: __7.2_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L __	Q
51-28-5	2,4-Dinitrophenol	31	U**J**
100-02-7	4-Nitrophenol	31	U**J**
132-64-9	Dibenzofuran	13	U
121-14-2	2,4-Dinitrotoluene	13	U
84-66-2	Diethylphthalate	2	J
86-73-7	Fluorene	13	U
7005-72-3	4-Chlorophenyl-phenylether	13	U
100-01-6	4-Nitroaniline	31	U
534-52-1	4,6-Dinitro-2-methylphenol	31	**R**
86-30-6	N-Nitrosodiphenylamine (1)	13	**R**
101-55-3	4-Bromophenyl-phenylether	13	**R**
118-74-1	Hexachlorobenzene	13	**R**
1912-24-9	Atrazine	13	**R**
87-86-5	Pentachlorophenol	31	**R**
85-01-8	Phenanthrene	13	**R**
120-12-7	Anthracene	13	**R**
86-74-8	Carbazole	13	**R**
84-74-2	Di-n-butylphthalate	**(7.13) 7**	**J**
206-44-0	Fluoranthene	13	**R**
129-00-0	Pyrene	13	U
85-68-7	Butylbenzylphthalate	13	U
91-94-1	3,3'-Dichlorobenzidine	13	U
56-55-3	Benzo(a)anthracene	13	U
218-01-9	Chrysene	13	U
117-81-7	bis(2-Ethylhexyl)phthalate	11	J
117-84-0	Di-n-octylphthalate	13	U
205-99-2	Benzo(b)fluoranthene	13	U
207-08-9	Benzo(k)fluoranthene	13	U
50-32-8	Benzo(a)pyrene	13	U
193-39-5	Indeno(1,2,3-cd)pyrene	13	U
53-70-3	Dibenz(a,h)anthracene	13	U
191-24-2	Benzo(g,h,i)perylene	**(4.42) 4**	**J**

(1) Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB23

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-5_____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: ___BBB00-5A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ____6.5_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L __	Q
100-52-7	Benzaldehyde	10	**R**
108-95-2	Phenol	10	**R**
111-44-4	bis(2-Chloroethyl)ether	10	**R**
95-57-8	2-Chlorophenol	10	**R**
95-48-7	2-Methylphenol	10	**R**
108-60-1	2,2'-oxybis(1-Chloropropane)	10	**R**
98-86-2	Acetophenone	10	**R**
106-44-5	4-Methylphenol	10	**R**
621-64-7	N-Nitroso-di-n-propylamine	10	**R**
67-72-1	Hexachloroethane	10	**R**
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U**J**
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	2	J
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	**(3.11) 3**	**J**
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	6	J
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB23

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-5_____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: ___BBB00-5A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ____6.5_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L __	Q
51-28-5	2,4-Dinitrophenol	25	U**J**
100-02-7	4-Nitrophenol	25	U**J**
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	6	J
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	**(8.36) 8**	**J**
1912-24-9	Atrazine	10	U**J**
87-86-5	Pentachlorophenol	25	**R**
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	2	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	**(1.04) 1**	**J**
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	14	**J**
117-84-0	Di-n-octylphthalate	4	J
205-99-2	Benzo(b)fluoranthene	6	**J**
207-08-9	Benzo(k)fluoranthene	**(6.10) 6**	**J**
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,I)perylene	10	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB24

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-6_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-6A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____12_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____2_____

GPC Cleanup: (Y/N) ___N_____ pH: ____4.5_____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg__	Q
100-52-7	Benzaldehyde	380	U
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
98-86-2	Acetophenone	**380**	**U**
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U**J**
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
91-20-3	Naphthalene	**(310.39) 310**	**J**
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
105-60-2	Caprolactam	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	460	
77-47-4	Hexachlorocyclopentadiene	**380**	**U**
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	950	U
92-52-4	1,1 Biphenyl	380	U
91-58-7	2-Chloronaphthalene	100	J
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	380	U
606-20-2	2,6-Dinitrotoluene	380	U
208-96-8	Acenaphthylene	380	U
99-09-2	3-Nitroaniline	**(600.30) 600**	**U**
83-32-9	Acenaphthene	390	

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB24

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-6_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-6A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____12_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____2_____

GPC Cleanup: (Y/N) ___N_____ pH: ____4.5_____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _	Q
51-28-5	2,4-Dinitrophenol	950	U**J**
100-02-7	4-Nitrophenol	950	U**J**
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	**380**	**U**
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
100-01-6	4-Nitroaniline	950	U**J**
534-52-1	4,6-Dinitro-2-methylphenol	**(820.37) 950**	**U**
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
1912-24-9	Atrazine	380	U**J**
87-86-5	Pentachlorophenol	**(1218.12) 1200**	**J**
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	320	J
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	1500	**U**
117-84-0	Di-n-octylphthalate	**(2801.48) 2800**	**UJ**
205-99-2	Benzo(b)fluoranthene	**380**	**UJ**
207-08-9	Benzo(k)fluoranthene	**380**	**UJ**
50-32-8	Benzo(a)pyrene	**380**	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	**380**	**UJ**
53-70-3	Dibenz(a,h)anthracene	380	**R**
191-24-2	Benzo(g,h,I)perylene	380	**R**

(1) Cannot be separated from Diphenylamine

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BBB24

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-6_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-6A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____12_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____2_____

GPC Cleanup: (Y/N) ___N__ pH: ____4.5____ Extraction: (Type) ____SONC_____
Number TICs found: ____3_____ CONCENTRATION UNITS
(lg/L or lg/Kg) _lg/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown (BC)	7.05	1300	**R**
2.	Unknown (BC)	8.35	320	**R**
3.	Unknown	9.82	120	J
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FORM I SV-TIC

OLM04.2

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB25

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-7_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-7A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: ____7.8_____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
100-52-7	Benzaldehyde	400	**R**
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	**R**
95-57-8	2-Chlorophenol	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	**R**
98-86-2	Acetophenone	**(470.04) 470**	**J**
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	**R**
67-72-1	Hexachloroethane	400	**R**
98-95-3	Nitrobenzene	400	**R**
78-59-1	Isophorone	400	**R**
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U**J**
111-91-1	bis(2-Chloroethoxy)methane	400	**R**
120-83-2	2,4-Dichlorophenol	400	U
91-20-3	Naphthalene	400	**R**
106-47-8	4-Chloroaniline	400	**R**
87-68-3	Hexachlorobutadiene	400	**R**
105-60-2	Caprolactam	400	**R**
59-50-7	4-Chloro-3-methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	**R**
77-47-4	Hexachlorocyclopentadiene	400	**R**
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
92-52-4	1,1 Biphenyl	400	**R**
91-58-7	2-Chloronaphthalene	400	**R**
88-74-4	2-Nitroaniline	1000	**R**
131-11-3	Dimethylphthalate	400	**R**
606-20-2	2,6-Dinitrotoluene	400	**R**
208-96-8	Acenaphthylene	400	**R**
99-09-2	3-Nitroaniline	1000	**R**
83-32-9	Acenaphthene	400	**R**

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB25

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-7_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-7A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: ____7.8_____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	1000	U**J**
100-02-7	4-Nitrophenol	1000	U**J**
132-64-9	Dibenzofuran	400	**R**
121-14-2	2,4-Dinitrotoluene	400	**R**
84-66-2	Diethylphthalate	**(603.78) 600**	**UJ**
86-73-7	Fluorene	400	**R**
7005-72-3	4-Chlorophenyl-phenylether	400	**R**
100-01-6	4-Nitroaniline	1000	**R**
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	**R**
101-55-3	4-Bromophenyl-phenylether	400	**R**
118-74-1	Hexachlorobenzene	400	**R**
1912-24-9	Atrazine	400	**R**
87-86-5	Pentachlorophenol	1000	**R**
85-01-8	Phenanthrene	400	**R**
120-12-7	Anthracene	400	**R**
86-74-8	Carbazole	400	**R**
84-74-2	Di-n-butylphthalate	**(748.99) 750**	**J**
206-44-0	Fluoranthene	400	**R**
129-00-0	Pyrene	400	**R**
85-68-7	Butylbenzylphthalate	400	**R**
91-94-1	3,3'-Dichlorobenzidine	400	**R**
56-55-3	Benzo(a)anthracene	400	**R**
218-01-9	Chrysene	400	**R**
117-81-7	bis(2-Ethylhexyl)phthalate	**(2030.00) 2000**	**J**
117-84-0	Di-n-octylphthalate	400	**R**
205-99-2	Benzo(b)fluoranthene	**(1221.79) 1200**	**J**
207-08-9	Benzo(k)fluoranthene	**(1428.31) 1400**	**J**
50-32-8	Benzo(a)pyrene	400	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	400	**R**
53-70-3	Dibenz(a,h)anthracene	400	**R**
191-24-2	Benzo(g,h,I)perylene	400	**R**

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

BBB25

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-7_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-7A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____
Number TICs found: ___2_____ CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN(BC)	7.05	1000	**R**
2.	UNKNOWN(BC)	8.38	170	**R**
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FORM I SV-TIC

OLM04.2

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _5972HPAA_____ Calibration Date: _12/22/00___ __12/22/00__

Calibration Times: _1746____ ___2057__

LAB FILE ID: RRF20 = __ C001222A1___ RRF50 = __ A001222A1____

RRF80 = _E001222A1___ RRF120 = __ D001222A1____ RRF160 = __ B001222A1_____

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	_____ RRF	% RSD
Benzaldehyde	1.277	1.289	1.140	1.069	0.937	1.142	13.0
Phenol *	**3.070**	**2.007**	**1.850**	**1.860**	**0.687**	**1.895**	**44.6***
bis(2-Chloroethyl)ether *	1.588	1.643	1.569	1.578	1.549	1.579	2.3*
2-Chlorophenol *	1.481	1.475	1.413	1.408	1.381	1.432	3.1*
2-Methylphenol *	1.106	1.166	1.151	1.148	1.112	1.137	2.3*
2,2'-oxybis(1-Chloropropane)	3.270	3.296	3.124	3.086	2.972	3.150	4.3
Acetophenone	1.971	1.918	2.029	2.012	1.974	1.981	2.2
4-Methylphenol *	1.329	1.376	1.258	1.248	1.214	1.285	5.1*
N-Nitroso-di-n-propylamine *	0.785	0.827	0.810	0.798	0.782	0.800	2.3*
Hexachloroethane *	0.775	0.759	0.735	0.738	0.718	0.745	3.0*
Nitrobenzene *	0.574	0.566	0.554	0.558	0.565	0.563	1.4*
Isophorone *	1.097	1.083	1.037	1.024	1.024	1.053	3.3*
2-Nitrophenol *	0.235	0.253	0.243	0.250	0.251	0.246	3.1*
2,4-Dimethylphenol *	0.323	0.321	0.317	0.324	0.325	0.322	1.0*
bis(2-Chloroethoxy)methane *	0.495	0.525	0.525	0.514	0.542	0.520	3.3*
2,4-Dichlorophenol *	**0.287**	**0.279**	**0.307**	**0.283**	**0.299**	**0.291**	**4.0***
Naphthalene *	1.162	1.149	1.107	1.083	1.121	1.124	2.8*
4-Chloroaniline	0.410	0.424	0.424	0.400	0.413	0.414	2.5
Hexachlorobutadiene	0.208	0.196	0.194	0.201	0.204	0.201	2.8
Caprolactam	0.114	0.124	0.120	0.104	0.102	0.113	8.7
4-Chloro-3-methylphenol *	0.328	0.343	0.331	0.337	0.329	0.334	2.0*
2-Methylnaphthalene *	0.788	0.759	0.637	0.673	0.649	0.701	9.7*
Hexachlorocyclopentadiene	0.335	0.404	0.413	0.445	0.444	0.408	11.0
2,4,6-Trichlorophenol *	0.413	0.436	0.414	0.425	0.410	0.420	2.5*
2,4,5-Trichlorophenol *		0.501	0.483	0.506	0.480	0.493	2.6*
1,1 Biphenyl	1.730	1.642	1.631	1.652	1.552	1.641	3.9
2-Chloronaphthalene *	1.294	1.241	1.234	1.208	1.213	1.238	2.8*
2-Nitroaniline		0.646	0.602	0.611	0.576	0.609	4.7
Dimethylphthalate	1.574	1.615	1.554	1.490	1.435	1.534	4.7
2,6-Dinitrotoluene *	0.363	0.377	0.371	0.379	0.342	0.366	4.1*
Acenaphthylene *	2.264	2.268	2.151	2.118	2.131	2.186	3.4*
3-Nitroaniline		0.399	0.376	0.369	0.341	0.371	6.4
Acenaphthene *	1.354	1.382	1.376	1.339	1.341	1.358	1.5*
2,4-Dinitrophenol		0.198	0.218	0.218	0.224	0.215	5.3
4-Nitrophenol		0.205	0.209	0.206	0.217	0.209	2.7
Dibenzofuran *	1.846	1.882	1.776	1.766	1.784	1.811	2.8*

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

6D

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _5972HPAA_____ Calibration Date: _12/22/00___ __12/22/00__

Calibration Times: _1746____ ___2057__

LAB FILE ID: RRF20 = __ C001222A1___ RRF50 = __ A001222A1____

RRF80 = _E001222A1___ RRF120 = __ D001222A1____ RRF160 = __ B001222A1_____

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	_____ RRF	% RSD
2,4-Dinitrotoluene *	0.512	0.527	0.509	0.529	0.500	0.515	2.4*
Diethylphthalate	1.746	1.797	1.765	1.711	1.732	1.750	1.9
Fluorene *	1.426	1.409	1.352	1.410	1.375	1.394	2.1*
4-Chlorophenyl-phenylether *	0.691	0.716	0.698	0.667	0.716	0.698	2.9*
4-Nitroaniline		0.376	0.218	0.192	0.152	0.234	**41.9**
4,6-Dinitro-2-methylphenol		0.186	0.185	0.194	0.201	0.192	4.0
N-Nitrosodiphenylamine (1)	0.592	0.575	0.557	0.532	0.553	0.562	4.1
4-Bromophenyl-phenylether *	0.217	0.221	0.220	0.225	0.235	0.224	3.2*
Hexachlorobenzene *	0.264	0.271	0.260	0.269	0.273	0.267	1.9*
Atrazine	**0.300**	**0.184**	**0.173**	**0.154**	**0.123**	**0.187**	**36.1**
Pentachlorophenol *		0.044	0.036	0.053	0.043	**0.044**	15.9*
Phenanthrene *	1.240	1.270	1.219	1.218	1.207	1.231	2.0*
Anthracene *	1.341	1.343	1.301	1.203	1.204	1.278	5.5*
Carbazole	1.019	0.800	0.766	0.756	0.778	0.824	13.4
Di-n-butylphthalate	1.838	1.860	1.814	1.891	1.844	1.849	1.5
Fluoranthene *	1.323	1.366	1.268	1.279	1.269	1.301	3.3*
Pyrene *	1.685	1.644	1.549	1.605	1.527	1.602	4.1*
Butylbenzylphthalate	1.030	1.044	0.993	0.949	1.012	1.006	3.7
3,3'-Dichlorobenzidine	0.282	0.256	0.246	0.222	0.203	0.242	12.6
Benzo(a)anthracene *	1.419	1.436	1.391	1.430	1.451	1.425	1.6*
Chrysene *	1.405	1.384	1.322	1.325	1.289	1.345	3.6*
bis(2-Ethylhexyl)phthalate	1.479	1.476	1.436	1.433	1.448	1.454	1.5
Di-n-octylphthalate	2.691	2.736	2.633	2.699	2.688	2.689	1.4
Benzo(b)fluoranthene *	**1.034**	**1.458**	**1.386**	**2.394**	**1.930**	**1.640**	**32.2***
Benzo(k)fluoranthene *	1.569	1.604	1.577	1.660	1.449	1.572	4.9*
Benzo(a)pyrene *	1.285	1.302	1.260	1.298	1.290	1.287	1.3*
Indeno(1,2,3-cd)pyrene *	1.275	1.301	1.259	1.253	1.376	1.293	3.9*
Dibenz(a,h)anthracene *	1.192	1.242	1.188	1.234	1.273	1.226	2.9*
Benzo(g,h,i)perylene *	1.246	1.281	1.205	1.205	1.211	1.230	2.7*
Nitrobenzene-d5 *	0.550	0.574	0.556	0.560	0.562	0.560	1.6*
2-Fluorobiphenyl *	1.436	1.431	1.422	1.473	1.393	1.431	2.0*
Terphenyl-d14 *	1.106	1.116	1.071	1.094	1.121	1.102	1.8*
Phenol-d5 *	1.632	1.790	1.691	1.717	1.658	1.698	3.6*
2-Fluorophenol	1.199	1.356	1.329	1.378	1.389	1.330	5.8*
2,4,6 Tribromophenol	0.137	0.143	0.144	0.148	0.154	0.145	4.4
2-Chlorophenol-d4 *	1.560	1.590	1.484	1.479	1.487	1.520	3.4*
1,2 Dichlorobenzene-d4 *	0.998	0.984	0.950	0.949	0.932	0.963	2.8*

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __5972HPAA_____ Calibration Date: ___01/30/01____ Time: __1647_____

Lab File ID: __GA010130A1_____ Init. Calib Date(s): _12/22/00__ _12/22/00__

EPA Sample N0. (SSTD50##): _SSTD50GA_ Init. Calib Times: __1746___ ___2057_

GC Column: _RTX-5MS__ ID: _0.25____(mm)

COMPOUND		_____ RRF	RRF50	MIN RRF	% D	MAX % D
Benzaldehyde		1.142	**1.130**		**-1.1**	
Phenol	*	**1.895**	1.630	0.800	-14.0	25.0
bis(2-Chloroethyl)ether	*	1.579	1.421	0.700	-10.0	25.0
2-Chlorophenol	*	1.432	1.358	0.800	-5.2	25.0
2-Methylphenol	*	1.137	1.036	0.700	-8.9	25.0
2,2'-oxybis(1-Chloropropane)		3.150	2.708		-14.0	
Acetophenone		1.981	2.046		3.3	
4-Methylphenol	*	1.285	1.171	0.600	-8.9	25.0
N-Nitroso-di-n-propylamine	*	0.800	0.762	0.500	-4.8	25.0
Hexachloroethane	*	0.745	0.671	0.300	-9.9	25.0
Nitrobenzene	*	0.563	0.531	0.200	-5.7	25.0
Isophorone	*	1.053	1.038	0.400	-1.4	25.0
2-Nitrophenol	*	0.246	0.285	0.100	15.9	25.0
2,4-Dimethylphenol	*	0.322	0.402	0.200	24.8	25.0
bis(2-Chloroethoxy)methane	*	0.520	0.545	0.300	4.8	25.0
2,4-Dichlorophenol	*	**0.291**	0.333	0.200	**14.4**	25.0
Naphthalene	*	1.124	0.977	0.700	-13.1	25.0
4-Chloroaniline		0.414	0.390		-5.8	
Hexachlorobutadiene		0.201	0.208		3.5	
Caprolactam		0.113	0.125		10.6	
4-Chloro-3-methylphenol	*	0.334	**0.284**	0.200	**-15.0**	25.0
2-Methylnaphthalene	*	0.701	0.799	0.400	14.0	25.0
Hexachlorocyclopentadiene		0.408	0.346		-15.2	
2,4,6-Trichlorophenol	*	0.420	0.407	0.200	-3.1	25.0
2,4,5-Trichlorophenol	*	0.493	0.457	0.200	-7.3	25.0
1,1 Biphenyl		1.641	1.696		3.4	
2-Chloronaphthalene	*	1.238	1.203	0.800	-2.8	25.0
2-Nitroaniline		0.609	0.485		-20.4	
Dimethylphthalate		1.534	1.469		-4.2	
2,6-Dinitrotoluene	*	0.366	0.366	0.200	0.0	25.0
Acenaphthylene	*	2.186	1.957	0.900	-10.5	25.0
3-Nitroaniline		0.371	**0.313**		**-15.6**	
Acenaphthene	*	1.358	1.210	0.900	-10.9	25.0
2,4-Dinitrophenol		0.215	0.141		**-34.4**	
4-Nitrophenol		0.209	0.116		**-44.5**	
Dibenzofuran	*	1.811	1.709	0.800	-5.6	25.0

All other compounds must meet a minimum RRF of 0.010.

FORM VII SV-1 OLM04.2

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __5972HPAA_____ Calibration Date: ___01/30/01____ Time: __1647_____

Lab File ID: __GA010130A1_____ Init. Calib Date(s): _12/22/00__ _12/22/00__

EPA Sample N0. (SSTD50##): _SSTD50GA_ Init. Calib Times: __1746___ ___2057_

GC Column: _RTX-5MS__ ID: _0.25____(mm)

COMPOUND		_____ RRF	RRF50	MIN RRF	% D	MAX % D
2,4-Dinitrotoluene	*	0.515	0.446	0.200	-13.4	25.0
Diethylphthalate		1.750	1.605		-8.3	
Fluorene	*	1.394	1.237	0.900	-11.3	25.0
4-Chlorophenyl-phenylether	*	0.698	0.660	0.400	-5.4	25.0
4-Nitroaniline		0.234	0.221		-5.6	
4,6-Dinitro-2-methylphenol		0.192	0.170		-11.5	
N-Nitrosodiphenylamine (1)		0.562	0.534		-5.0	
4-Bromophenyl-phenylether	*	0.224	0.244	0.100	8.9	25.0
Hexachlorobenzene	*	0.267	**0.289**	0.100	**8.2**	25.0
Atrazine		**0.187**	0.095		**-49.2**	
Pentachlorophenol	*	0.044	**0.144**	0.050	**227.3**	25.0
Phenanthrene	*	1.231	1.138	0.700	-7.6	25.0
Anthracene	*	1.278	1.168	0.700	-8.6	25.0
Carbazole		0.824	0.863		4.7	
Di-n-butylphthalate		1.849	1.718		-7.1	
Fluoranthene	*	1.301	1.299	0.600	-0.2	25.0
Pyrene	*	1.602	**1.340**	0.600	**-16.4**	25.0
Butylbenzylphthalate		1.006	0.770		-23.5	
3,3'-Dichlorobenzidine		0.242	0.285		17.8	
Benzo(a)anthracene	*	1.425	1.235	0.800	-13.3	25.0
Chrysene	*	1.345	1.221	0.700	-9.2	25.0
bis(2-Ethylhexyl)phthalate		1.454	1.173		-19.3	
Di-n-octylphthalate		2.689	2.058		-23.5	
Benzo(b)fluoranthene	*	**1.640**	1.592	0.700	2.9	25.0
Benzo(k)fluoranthene	*	1.572	1.405	0.700	-10.6	25.0
Benzo(a)pyrene	*	1.287	1.202	0.700	-6.6	25.0
Indeno(1,2,3-cd)pyrene	*	1.293	1.340	0.500	3.6	25.0
Dibenzo(a,h)anthracene	*	1.226	1.115	0.400	-9.1	25.0
Benzo(g,h,i)perylene	*	1.230	**1.160**	0.500	**-5.7**	25.0
Nitrobenzene-d5	*	0.560	0.553	0.200	-1.3	25.0
2-Fluorobiphenyl	*	1.431	1.328	0.700	-7.2	25.0
Terphenyl-d14	*	1.102	0.954	0.500	-13.4	25.0
Phenol-d5	*	1.698	1.403	0.800	-17.4	25.0
2-Fluorophenol	*	1.330	1.169	0.600	-12.1	25.0
2,4,6 Tribromophenol		0.145	0.158		9.0	
2-Chlorophenol-d4	*	1.520	1.292	0.800	-15.0	25.0
1,2 Dichlorobenzene-d4	*	0.963	0.928	0.400	-3.6	25.0

All other compounds must meet a minimum RRF of 0.010.

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __5972HPAA_____ Calibration Date: ___02/02/01____ Time: __1123_____

Lab File ID: __GJ010202A1_____ Init. Calib Date(s): _12/22/00__ _12/22/00__

EPA Sample N0. (SSTD50##): _SSTD50GJ_ Init. Calib Times: __1746___ ___2057_

GC Column: _RTX-5MS__ ID: _0.25____(mm)

COMPOUND		_____ RRF	RRF50	MIN RRF	% D	MAX % D
Benzaldehyde		1.142	1.102		-3.5	
Phenol	*	**1.895**	1.630	0.800	-14.0	25.0
bis(2-Chloroethyl)ether	*	1.579	1.427	0.700	-9.6	25.0
2-Chlorophenol	*	1.432	**1.351**	0.800	**-5.7**	25.0
2-Methylphenol	*	1.137	1.069	0.700	-6.0	25.0
2,2'-oxybis(1-Chloropropane)		3.150	2.735		-13.2	
Acetophenone		1.981	2.010		1.5	
4-Methylphenol	*	1.285	1.188	0.600	-7.5	25.0
N-Nitroso-di-n-propylamine	*	0.800	0.795	0.500	-0.6	25.0
Hexachloroethane	*	0.745	0.679	0.300	-8.9	25.0
Nitrobenzene	*	0.563	0.521	0.200	-7.5	25.0
Isophorone	*	1.053	1.021	0.400	-3.0	25.0
2-Nitrophenol	*	0.246	0.258	0.100	4.9	25.0
2,4-Dimethylphenol	*	0.322	0.410	0.200	**27.3**	25.0
bis(2-Chloroethoxy)methane	*	0.520	0.572	0.300	10.0	25.0
2,4-Dichlorophenol	*	**0.291**	0.323	0.200	**11.0**	25.0
Naphthalene	*	1.124	0.960	0.700	-14.6	25.0
4-Chloroaniline		0.414	0.378		-8.7	
Hexachlorobutadiene		0.201	0.198		-1.5	
Caprolactam		0.113	0.114		0.9	
4-Chloro-3-methylphenol	*	0.334	0.320	0.200	-4.2	25.0
2-Methylnaphthalene	*	0.701	**0.760**	0.400	**8.4**	25.0
Hexachlorocyclopentadiene		0.408	0.337		-17.4	
2,4,6-Trichlorophenol	*	0.420	0.383	0.200	-8.8	25.0
2,4,5-Trichlorophenol	*	0.493	0.458	0.200	-7.1	25.0
1,1 Biphenyl		1.641	1.695		3.3	
2-Chloronaphthalene	*	1.238	1.177	0.800	-4.9	25.0
2-Nitroaniline		0.609	0.510		-16.3	
Dimethylphthalate		1.534	1.459		-4.9	
2,6-Dinitrotoluene	*	0.366	0.359	0.200	-1.9	25.0
Acenaphthylene	*	2.186	1.954	0.900	-10.6	25.0
3-Nitroaniline		0.371	0.281		-24.3	
Acenaphthene	*	1.358	1.236	0.900	-9.0	25.0
2,4-Dinitrophenol		0.215	0.105		**-51.2**	
4-Nitrophenol		0.209	**0.075**		**-64.1**	
Dibenzofuran	*	1.811	1.700	0.800	-6.1	25.0

All other compounds must meet a minimum RRF of 0.010.

7D
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __5972HPAA_____ Calibration Date: ___02/02/01____ Time: __1123_____

Lab File ID: __GJ010202A1_____ Init. Calib Date(s): _12/22/00__ _12/22/00__

EPA Sample N0. (SSTD50##): _SSTD50GJ_ Init. Calib Times: __1746___ ___2057_

GC Column: _RTX-5MS__ ID: _0.25____(mm)

COMPOUND		_____ RRF	RRF50	MIN RRF	% D	MAX % D
2,4-Dinitrotoluene	*	0.515	0.498	0.200	-5.2	25.0
Diethylphthalate		1.750	1.631		-6.8	
Fluorene	*	1.394	1.229	0.900	-11.8	25.0
4-Chlorophenyl-phenylether	*	0.698	0.644	0.400	-7.7	25.0
4-Nitroaniline		0.234	0.157		**-32.9**	
4,6-Dinitro-2-methylphenol		0.192	0.154		-19.8	
N-Nitrosodiphenylamine (1)		0.562	0.518		-7.8	
4-Bromophenyl-phenylether	*	0.224	0.230	0.100	2.7	25.0
Hexachlorobenzene	*	0.267	0.272	0.100	1.9	25.0
Atrazine		**0.187**	0.097		**-48.1**	
Pentachlorophenol	*	0.044	**0.124**	0.050	**181.8**	25.0
Phenanthrene	*	1.231	1.099	0.700	-10.7	25.0
Anthracene	*	1.278	1.145	0.700	-10.4	25.0
Carbazole		0.824	0.899		9.1	
Di-n-butylphthalate		1.849	**1.689**		**-8.7**	
Fluoranthene	*	1.301	1.240	0.600	-4.7	25.0
Pyrene	*	1.602	1.361	0.600	-15.0	25.0
Butylbenzylphthalate		1.006	0.815		-19.0	
3,3'-Dichlorobenzidine		0.242	0.277		14.5	
Benzo(a)anthracene	*	1.425	1.259	0.800	-11.6	25.0
Chrysene	*	1.345	1.245	0.700	-7.4	25.0
bis(2-Ethylhexyl)phthalate		1.454	1.165		-19.9	
Di-n-octylphthalate		2.689	2.080		-22.6	
Benzo(b)fluoranthene	*	**1.640**	1.592	0.700	-2.9	25.0
Benzo(k)fluoranthene	*	1.572	**1.419**	0.700	**-9.7**	25.0
Benzo(a)pyrene	*	1.287	1.186	0.700	-7.8	25.0
Indeno(1,2,3-cd)pyrene	*	1.293	1.337	0.500	3.4	25.0
Dibenzo(a,h)anthracene	*	1.226	1.082	0.400	-11.7	25.0
Benzo(g,h,i)perylene	*	1.230	1.132	0.500	-8.0	25.0
Nitrobenzene-d5	*	0.560	0.563	0.200	0.5	25.0
2-Fluorobiphenyl	*	1.431	1.315	0.700	-8.1	25.0
Terphenyl-d14	*	1.102	0.930	0.500	-15.6	25.0
Phenol-d5	*	1.698	1.582	0.800	-6.8	25.0
2-Fluorophenol	*	1.330	1.013	0.600	-23.8	25.0
2,4,6 Tribromophenol		0.145	0.138		-4.8	
2-Chlorophenol-d4	*	1.520	1.230	0.800	-19.1	25.0
1,2 Dichlorobenzene-d4	*	0.963	0.922	0.400	-4.3	25.0

All other compounds must meet a minimum RRF of 0.010.

FORM VII SV-1

OLM04.2

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLKS1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __MBS0202_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___MBS0202A1_____

Level: (low/med) ____LOW_____ Date Received: _____

% Moisture: not dec. ____0_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg _____	Q
100-52-7	Benzaldehyde	330	U
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)ether	330	U
95-57-8	2-Chlorophenol	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
98-86-2	Acetophenone	**(42.81) 43**	**J**
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-di-n-propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U**J**
111-91-1	bis(2-Chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
105-60-2	Caprolactam	330	U
59-50-7	4-Chloro-3-methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	**(122.92) 120**	**J**
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	830	U
92-52-4	1,1 Biphenyl	330	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	830	U
131-11-3	Dimethylphthalate	330	U
606-20-2	2,6-Dinitrotoluene	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	**(151.52) 150**	**J**
83-32-9	Acenaphthene	330	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLKS1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __MBS0202_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___MBS0202A1_____

Level: (low/med) ____LOW_____ Date Received: _____

% Moisture: not dec. ____0_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	830	U**J**
100-02-7	4-Nitrophenol	830	U**J**
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	100	J
86-73-7	Fluorene	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
100-01-6	4-Nitroaniline	830	U**J**
534-52-1	4,6-Dinitro-2-methylphenol	90	J
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
1912-24-9	Atrazine	330	U**J**
87-86-5	Pentachlorophenol	830	**R**
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	**(277.90) 280**	**J**
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	350	
117-84-0	Di-n-octylphthalate	270	J
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	**(127.19) 130**	**J**
53-70-3	Dibenz(a,h)anthracene	330	U
191-24-2	Benzo(g,h,I)perylene	330	U

(1) Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKW1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __MBW0130_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ___MBW0130A1_____

Level: (low/med) _____LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ___1000____(lL) Date Analyzed: __01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ____7.5___ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ____lg/L ___	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	**(3.07) 3**	**J**
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U**J**
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	8	J
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	22	J
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	**(5.25) 5**	**J**
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLKW1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __MBW0130_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ___MBW0130A1_____

Level: (low/med) _____LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ___1000____(lL) Date Analyzed: __01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ____7.5___ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L ___	Q
51-28-5	2,4-Dinitrophenol	25	U**J**
100-02-7	4-Nitrophenol	25	U**J**
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U**J**
87-86-5	Pentachlorophenol	25	**R**
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	**(18.33) 18**	
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	15	
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	**(30.38) 30**	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,I)perylene	10	U

(1) Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB21MS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: ___BBB00-2____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-2A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L ___	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	**(46.93) 47**	**J**
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	**(48.99) 49**	
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	**(36.07) 36**	
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U**J**
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	20	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	**(53.20) 53**	
91-57-6	2-Methylnaphthalene	10	**R**
77-47-4	Hexachlorocyclopentadiene	10	**R**
88-06-2	2,4,6-Trichlorophenol	10	**R**
95-95-4	2,4,5-Trichlorophenol	25	**R**
92-52-4	1,1 Biphenyl	10	**R**
91-58-7	2-Chloronaphthalene	10	**R**
88-74-4	2-Nitroaniline	15	**J**
131-11-3	Dimethylphthalate	10	**R**
606-20-2	2,6-Dinitrotoluene	10	**R**
208-96-8	Acenaphthylene	10	**R**
99-09-2	3-Nitroaniline	25	**R**
83-32-9	Acenaphthene	**(36.30) 36**	**J**

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB21MS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: ___BBB00-2____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-2A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L ___	Q
51-28-5	2,4-Dinitrophenol	25	**R**
100-02-7	4-Nitrophenol	**(50.40) 50**	**J**
132-64-9	Dibenzofuran	10	**R**
121-14-2	2,4-Dinitrotoluene	**(44.42) 44**	**J**
84-66-2	Diethylphthalate	30	**J**
86-73-7	Fluorene	10	**R**
7005-72-3	4-Chlorophenyl-phenylether	10	**R**
100-01-6	4-Nitroaniline	25	**R**
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U**J**
87-86-5	Pentachlorophenol	**(60.84) 61**	**J**
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	**(37.67) 38**	
85-68-7	Butylbenzylphthalate	20	
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	50	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,I)perylene	10	U

(1) Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB21MSD

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: ___BBB00-3____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-3A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: __5.3_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L ___	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	**(42.57) 43**	**J**
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	**(44.07) 44**	
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	**(32.46) 32**	
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U**J**
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	30	
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	**(50.63) 51**	
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	**R**
88-06-2	2,4,6-Trichlorophenol	10	**R**
95-95-4	2,4,5-Trichlorophenol	25	**R**
92-52-4	1,1 Biphenyl	10	**R**
91-58-7	2-Chloronaphthalene	10	**R**
88-74-4	2-Nitroaniline	5	**J**
131-11-3	Dimethylphthalate	10	**R**
606-20-2	2,6-Dinitrotoluene	10	**R**
208-96-8	Acenaphthylene	10	**R**
99-09-2	3-Nitroaniline	25	**R**
83-32-9	Acenaphthene	**(32.52) 33**	**J**

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB21MSD

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: ___BBB00-3____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-3A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: __5.3_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____lg/L ___	Q
51-28-5	2,4-Dinitrophenol	25	**R**
100-02-7	4-Nitrophenol	**(39.50) 40**	**J**
132-64-9	Dibenzofuran	10	**R**
121-14-2	2,4-Dinitrotoluene	**(34.94) 35**	**J**
84-66-2	Diethylphthalate	100	**J**
86-73-7	Fluorene	10	**R**
7005-72-3	4-Chlorophenyl-phenylether	10	**R**
100-01-6	4-Nitroaniline	25	**R**
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U**J**
87-86-5	Pentachlorophenol	**(53.46) 53**	**J**
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	80	
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	34	
85-68-7	Butylbenzylphthalate	120	
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	500	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,I)perylene	10	U

(1) Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB25MS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-8_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-8A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg _____	Q
100-52-7	Benzaldehyde	400	U
108-95-2	Phenol	**(1212.26) 1200**	**J**
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	**(1151.32) 1200**	
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
98-86-2	Acetophenone	420	
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	**(845.99) 850**	
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	**R**
78-59-1	Isophorone	400	**R**
88-75-5	2-Nitrophenol	400	**R**
105-67-9	2,4-Dimethylphenol	400	**R**
111-91-1	bis(2-Chloroethoxy)methane	400	**R**
120-83-2	2,4-Dichlorophenol	400	**R**
91-20-3	Naphthalene	400	**R**
106-47-8	4-Chloroaniline	400	**R**
87-68-3	Hexachlorobutadiene	400	**R**
105-60-2	Caprolactam	400	**R**
59-50-7	4-Chloro-3-methylphenol	**(1209.24) 1200**	**J**
91-57-6	2-Methylnaphthalene	400	**R**
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
92-52-4	1,1 Biphenyl	400	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
606-20-2	2,6-Dinitrotoluene	400	U
208-96-8	Acenaphthylene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	**(832.68) 830**	

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB25MS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-8_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-8A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	1000	U**J**
100-02-7	4-Nitrophenol	**(2314.06) 2300**	**J**
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	**(800.54) 800**	
84-66-2	Diethylphthalate	1300	
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
100-01-6	4-Nitroaniline	1000	U**J**
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
1912-24-9	Atrazine	400	U**J**
87-86-5	Pentachlorophenol	**(1328.14) 1300**	**J**
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	1100	
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	**1000**	
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	3000	
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	1400	**J**
207-08-9	Benzo(k)fluoranthene	1500	
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,I)perylene	400	U

(1) Cannot be separated from Diphenylamine

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB25MSD

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-9_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-9A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
100-52-7	Benzaldehyde	400	**R**
108-95-2	Phenol	**(1499.28) 1500**	**J**
111-44-4	bis(2-Chloroethyl)ether	400	**R**
95-57-8	2-Chlorophenol	**(1389.81) 1400**	**J**
95-48-7	2-Methylphenol	400	**R**
108-60-1	2,2'-oxybis(1-Chloropropane)	400	**R**
98-86-2	Acetophenone	600	**J**
106-44-5	4-Methylphenol	400	**R**
621-64-7	N-Nitroso-di-n-propylamine	**(1101.23) 1100**	**J**
67-72-1	Hexachloroethane	400	**R**
98-95-3	Nitrobenzene	400	**R**
78-59-1	Isophorone	400	**R**
88-75-5	2-Nitrophenol	400	**R**
105-67-9	2,4-Dimethylphenol	400	**R**
111-91-1	bis(2-Chloroethoxy)methane	400	**R**
120-83-2	2,4-Dichlorophenol	400	**R**
91-20-3	Naphthalene	400	**R**
106-47-8	4-Chloroaniline	400	**R**
87-68-3	Hexachlorobutadiene	400	**R**
105-60-2	Caprolactam	400	**R**
59-50-7	4-Chloro-3-methylphenol	**(1330.48) 1300**	**J**
91-57-6	2-Methylnaphthalene	400	**R**
77-47-4	Hexachlorocyclopentadiene	400	**R**
88-06-2	2,4,6-Trichlorophenol	400	**R**
95-95-4	2,4,5-Trichlorophenol	1000	**R**
92-52-4	1,1 Biphenyl	400	**R**
91-58-7	2-Chloronaphthalene	400	**R**
88-74-4	2-Nitroaniline	1000	**R**
131-11-3	Dimethylphthalate	400	**R**
606-20-2	2,6-Dinitrotoluene	400	**R**
208-96-8	Acenaphthylene	400	**R**
99-09-2	3-Nitroaniline	1000	**R**
83-32-9	Acenaphthene	**(997.56) 1000**	**J**

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB25MSD

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-9_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-9A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	1000	**R**
100-02-7	4-Nitrophenol	**(2365.01) 2400**	**J**
132-64-9	Dibenzofuran	400	**R**
121-14-2	2,4-Dinitrotoluene	**(1074.39) 1100**	**J**
84-66-2	Diethylphthalate	1200	**J**
86-73-7	Fluorene	400	**R**
7005-72-3	4-Chlorophenyl-phenylether	400	**R**
100-01-6	4-Nitroaniline	1000	**R**
534-52-1	4,6-Dinitro-2-methylphenol	1000	**R**
86-30-6	N-Nitrosodiphenylamine (1)	400	**R**
101-55-3	4-Bromophenyl-phenylether	400	**R**
118-74-1	Hexachlorobenzene	400	**R**
1912-24-9	Atrazine	400	**R**
87-86-5	Pentachlorophenol	**(1704.19) 1700**	**J**
85-01-8	Phenanthrene	400	**R**
120-12-7	Anthracene	400	**R**
86-74-8	Carbazole	400	**R**
84-74-2	Di-n-butylphthalate	1500	**J**
206-44-0	Fluoranthene	400	**R**
129-00-0	Pyrene	**(1210.58) 1200**	**J**
85-68-7	Butylbenzylphthalate	400	**R**
91-94-1	3,3'-Dichlorobenzidine	400	**R**
56-55-3	Benzo(a)anthracene	400	**R**
218-01-9	Chrysene	400	**R**
117-81-7	bis(2-Ethylhexyl)phthalate	5000	**J**
117-84-0	Di-n-octylphthalate	400	**R**
205-99-2	Benzo(b)fluoranthene	1400	**J**
207-08-9	Benzo(k)fluoranthene	1800	**J**
50-32-8	Benzo(a)pyrene	400	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	400	**R**
53-70-3	Dibenz(a,h)anthracene	400	**R**
191-24-2	Benzo(g,h,I)perylene	400	**R**

(1) Cannot be separated from Diphenylamine

Appendix H

BNA Final Quiz

BNA Final Quiz

Instruction:

- Perform all necessary calculations to fill in the missing information on the forms.
- Qualify the Form 1s for all criteria discussed in Learning Modules 11-18
- Write the qualifications on the Form 1s.
- Write the required qualification statements in the Data Assessment found at the beginning of the test. Don't forget contractual problems.
- Sampling Trip Report and SDG Narrative are located at the beginning of the quiz. A modified Quant report for each sample is placed after the Form 1s for each sample.
- All data is located in the same order as specified in the SOW. See Learning Module 2 for additional information.

CASE No.: **SDG No.: _____**

LABORATORY: **SITE:**

DATA ASSESSMENT

The current SOP No. HW-6 (Revision 12), January 2000 for CLP Organics Review and Preliminary Review has been applied.

All data were found to be valid and acceptable except those analytes which have been rejected, "R" (unusable). Due to various QC problems some analytes may have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detect), or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's

Signature: _____Date: _____

Verified By: _____Date: _____

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

B) Field or rinse blank contamination:

C) Trip blank contamination:

D) Storage Blank contamination:

E) TICs:

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be $\geq$ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

7. CALIBRATION:

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

The following analytes in the sample shown were qualified for %RSD and %D:

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.

Sampling Trip Report
February 05, 2001
Any Site
New Jersey

Samples	Sampling Date	Shipping Date	Airbill No.	Description
BBB21	01/23/01	01/23/01	VFT5348762	Surface water of stream behind property.
BBB22	01/23/01	01/23/01	VFT5348762	Rinse Blank for bucket
BBB23	01/23/01	01/23/01	VFT5348762	Rinse blank for bowl and trowel
BBB24	01/23/01	01/23/01	HYR7652037	1'-2' depth of soil from location GRD17
BBB25	01/23/01	01/23/01	VFT5348762	3'-4' depth of soil from location GRD17

NEWLAB
Nowhere, NJ, USA

SDG Narrative
Case # 12345
SDG BBB00
Contract # 123456

Sample Identifications: BBB21, BBB22, BBB23, BBB24, BBB25

The FIVE samples listed above were received on January 25, 2001 in good conditions except as noted below, with proper documentation. The cooler temperatures were measured at 3°C for cooler with airbill no. VFT5348762 and at 5°C for cooler with airbill No. HYR7652037.
All samples were scheduled for volatile, semivolatile and pesticide/PCB analyses .
This portion of the SDG narrative pertains to the Semivolatile fraction only. Analysis holding times were met for all samples.

The associated method blanks met all quality control criteria and did not contain any target analytes above the CRQL. The associated storage blank met all quality control criteria and did not contain any target analytes above the CRQL.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

_____

John S. Jones
Laboratory Manager
February 09, 2001

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKW1		76	78	83	76	74		64	
2.	BBB21	26 *		61	59	50	66	61	48	
3.	BBB21MS	66	39 *		65	63	69	69	60	
4.	BBB21MSD	51	72	54		47	60	60		
5.	BBB22	28 *	71	64	72		41	71	58	
6.	BBB23	52	61	75	34	31		37	74	
7.										
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		QC LIMITS	
S1	(NBZ) = Nitrobenzene-d5	(35-114)	
S2	(FBP) = 2-Fluorobiphenyl	(43-116)	
S3	(TPH) = Terphenyl-d14	(33-141)	
S4	(PHL) = Phenol-d5	(10-110)	
S5	(2FP) = 2-Fluorophenol	(21-110)	
S6	(TBP) = 2,4,6 Tribromophenol	(10-123)	
S7	(2CP) = 2-Chlorophenol-d4	(33-110)	(advisory)
S8	(DCB) = 1,2 Dichlorobenzene-d4	(16-110)	(advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) ____LOW_____

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKS1	63	69		61	75	65	69	60	
2.	BBB24	30	32	57	44	43	43	41		
3.	BBB25	28		30	44	31	23	32		
4.	BB25MS	29	37	44	35	44	40	41		
5.	BB25MSD		43	61	69	64	47	47	74	
6.										
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		QC LIMITS
S1	(NBZ) = Nitrobenzene-d5	(23-120)
S2	(FBP) = 2-Fluorobiphenyl	(30-115)
S3	(TPH) = Terphenyl-d14	(18-137)
S4	(PHL) = Phenol-d5	(24-113)
S5	(2FP) = 2-Fluorophenol	(25-121)
S6	(TBP) = 2,4,6 Tribromophenol	(19-122)
S7	(2CP) = 2-Chlorophenol-d4	(20-130) (advisory)
S8	(DCB) = 1,2 Dichlorobenzene-d4	(20-130) (advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix Spike - EPA Sample No.: ___BBB21_____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol					12-110
2-chlorophenol					27-123
N-Nitrosodi-n-prop. (1)					41-116
4-Chloro-3-methylphenol					23-97
Acenaphthene					46-118
4-Nitrophenol					10-80
2,4-Dinitrotoluene					24-96
Pentachlorophenol					9-103
Pyrene					26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Phenol					42	12-110
2-chlorophenol					40	27-123
N-Nitrosodi-n-prop. (1)					38	41-116
4-Chloro-3-methylphenol					42	23-97
Acenaphthene					31	46-118
4-Nitrophenol					50	10-80
2,4-Dinitrotoluene					38	24-96
Pentachlorophenol					50	9-103
Pyrene					31	26-127

(1) N- Nitrosodiphenylamine

Column to be used to flag recovery and RPD values with asterisk

* Values outside of QC lmits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

_____

FORM III SV-1

OLM04.2

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) _____

Matrix Spike - EPA Sample No.: __BBB25LOW_____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol					26-90
2-chlorophenol					25-102
N-Nitrosodi-n-prop. (1)					41-126
4-Chloro-3-methylphenol					26-103
Acenaphthene					31-137
4-Nitrophenol					11-114
2,4-Dinitrotoluene					28-89
Pentachlorophenol					17-109
Pyrene					35-142

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Phenol					35	26-90
2-chlorophenol					50	25-102
N-Nitrosodi-n-prop. (1)					38	41-126
4-Chloro-3-methylphenol					33	26-103
Acenaphthene					19	31-137
4-Nitrophenol					50	11-114
2,4-Dinitrotoluene					47	28-89
Pentachlorophenol					47	17-109
Pyrene					36	35-142

(1) N- Nitrosodiphenylamine

Column to be used to flag recovery and RPD values with asterisk

* Values outside of QC lmits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

_____

FORM III SV-2

OLM04.2

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLKW1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

Lab File ID: ____MBW0130A1_____ Lab Sample ID: __MBW0130_____

Instrument ID : ___5972HPAA_____ Date Extracted: ____01/28/01_____

Matrix: (soil/water) ____WATER_____ Date Analyzed: ____01/30/01_____

Level: (low/med) ____LOW_____ Time Analyzed: _____1743_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1.	BBB21	BBB00-1	BBB00-1A1	01/30/01
2.	BBB21MS	BBB00-2	BBB00-2A1	01/30/01
3.	BBB21MSD	BBB00-3	BBB00-3A1	01/30/01
4.	BBB22	BBB00-4	BBB00-4A1	01/30/01
5.	BBB23	BBB00-5	BBB00-5A1	01/30/01
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COMMENTS: _____

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SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLKS1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

Lab File ID: ____MBS0202A1_____ Lab Sample ID: __MBS0202_____

Instrument ID : ___5972HPAA_____ Date Extracted: ____01/27/01_____

Matrix: (soil/water) ____SOIL_____ Date Analyzed: ____02/02/01_____

Level: (low/med) ____LOW_____ Time Analyzed: _____1208_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1.	BBB24	BBB00-6	BBB00-6A1	02/02/01
2.	BBB25	BBB00-7	BBB00-7A1	02/02/01
3.	BB25MS	BBB00-8	BBB00-8A1	02/02/01
4.	BB25MSD	BBB00-9	BBB00-9A1	02/02/01
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COMMENTS: _____

_____

page __1___ of ___1_____

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Lab File ID: __DF001222AA1____ DFTPP Injection Date: _____12/22/00_____

Instrument ID: ___5972HPAA_____ DFTPP Injection Time: _____1721_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1- Value is % mass 69 2- Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	SSTD050A0	SSTD050A0	A001222A1	12/22/00	1746
2.	SSTD160A0	SSTD160A0	B001222A1	12/22/00	1833
3.	SSTD020A0	SSTD020A0	C001222A1	12/22/00	1921
4.	SSTD120A0	SSTD120A0	D001222A1	12/22/00	2009
5.	SSTD080A0	SSTD080A0	E001222A1	12/22/00	2057
6.					
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Lab File ID: __DF010130AA1____ DFTPP Injection Date: _____01/30/01_____

Instrument ID: ___5972HPAA_____ DFTPP Injection Time: _____1625_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1- Value is % mass 69 2- Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	SSTD050GA	SSTD050GA	GA010130A1	01/30/01	1647
2.	SBLKW1	MBW0130	MBW0130A1	01/30/01	1743
3.	BBB21	BBB00-1	BBB00-1A1	01/30/01	1828
4.	BBB21MS	BBB00-2	BBB00-2A1	01/30/01	1913
5.	BBB21MSD	BBB00-3	BBB00-3A1	01/30/01	1958
6.	BBB22	BBB00-4	BBB00-4A1	01/30/01	2043
7.	BBB23	BBB00-5	BBB00-5A1	01/30/01	2128
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Lab File ID: __DF010202AA1____ DFTPP Injection Date: _____02/02/01_____

Instrument ID: ___5972HPAA_____ DFTPP Injection Time: _____1103_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1- Value is % mass 69 2- Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	SSTD50GJ	SSTD50GJ	GJ010202A1	02/02/01	1123
2.	SBLKS1	MBS0202	MBS0202A1	02/02/01	1208
3.	BBB24	BBB00-6	BBB00-6A1	02/02/01	1253
4.	BBB25	BBB00-7	BBB00-7A1	02/02/01	1338
5.	BB25MS	BBB00-8	BBB00-8A1	02/02/01	1423
6.	BB25MSD	BBB00-9	BBB00-9A1	02/02/01	2338
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8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (SSTD50##): __SSTD50GA_____ Date Analyzed: ____01/30/01_____

Lab File ID: (Standard) ___GA010130A1_____ Time Analyzed: ____1647_____

Instrument ID: ___5972HPAA_____ GC Column: _RTX-5MS__ ID: ___0.25_ (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	287596	8.33	811190	11.20	446006	14.73
	UPPER LIMIT	575192	8.83	1622380	11.70	892012	15.23
	LOWER LIMIT	143798	7.83	405595	10.70	223003	14.23
	EPA SAMPLE						
1.	SBLKW1	295213	8.33	829078	11.20	470766	14.71
2.	BBB21	328096	8.33	1913723	11.20	486077	14.72
3.	BBB21MS	357053	8.33	1028111	11.20		14.73
4.	BBB21MSD	327896	8.33		11.20	108123	14.72
5.	BBB22	321408	8.33	1921571	11.20	491806	14.71
6.	BBB23		8.33	993294	11.20	533199	14.72
7.							
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IS1 (DCB) = 1,4 Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page __1___ of __1___

FORM VIII SV-1

OLM04.2

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (SSTD50##): __SSTD50GA_____ Date Analyzed: ____01/30/01_____

Lab File ID: (Standard) ___GA010130A1_____ Time Analyzed: ____1647_____

Instrument ID: ___5972HPAA_____ GC Column: _RTX-5MS__ ID: ___0.25_ (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	744700	19.06	745493	24.68	689252	27.30
	UPPER LIMIT	1489400	19.56	1490986	25.18	1378504	27.80
	LOWER LIMIT	372350	18.56	372746	24.18	344626	26.80
	EPA SAMPLE						
1.	SBLKW1		19.05	771890	24.66	697863	27.30
2.	BBB21	853590	19.06	795235	24.66		27.30
3.	BBB21MS	979688	19.06	969101	24.66	868953	27.30
4.	BBB21MSD	919067	19.06	881574	24.66	804134	27.30
5.	BBB22	153004	19.06	827565	24.66	746961	27.30
6.	BBB23	937427	19.06		24.66	821548	27.30
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IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page __1___ of __1___

FORM VIII SV-2

OLM04.2

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (SSTD50##): __SSTD50GJ_____ Date Analyzed: ____02/02/01_____

Lab File ID: (Standard) ___GJ010202A1_____ Time Analyzed: ____1123_____

Instrument ID: ___5972HPAA_____ GC Column: _RTX-5MS__ ID: ___0.25_ (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	273371	8.27	793968	11.16	404967	14.67
	UPPER LIMIT	1546742	8.88	1587936	11.66	809934	15.17
	LOWER LIMIT	136686	7.77	396984	10.66	202484	14.17
	EPA SAMPLE						
1.	SBLKS1	356995	8.28	987636	11.15	514455	14.67
2.	BBB24	382398	8.28	1128961	11.16	597062	14.69
3.	BBB25	428929	8.28	1126559	11.17		14.68
4.	BB25MS	393671	8.28		11.17	597106	14.68
5.	BB25MSD		8.29	1215261	11.16	641498	14.69
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18.							
19.							
20.							

IS1 (DCB) = 1,4 Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page __1___ of __1___

FORM VIII SV-1

OLM04.2

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (SSTD50##): __SSTD50GJ_____ Date Analyzed: ____02/02/01_____

Lab File ID: (Standard) ___GJ010202A1_____ Time Analyzed: ____1123_____

Instrument ID: ___5972HPAA_____ GC Column: _RTX-5MS__ ID: ___0.25_ (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	680939	19.01	634714	24.63	584681	27.25
	UPPER LIMIT	1361878	19.51	1269428	25.13	1169362	27.75
	LOWER LIMIT	340470	18.51	317357	24.13	292340	26.75
	EPA SAMPLE						
1.	SBLKS1		19.01	730186	24.63	601951	27.24
2.	BBB24	1000462	19.03	852146	24.63		27.25
3.	BBB25	1063174	19.02		24.63	753824	27.25
4.	BB25MS	1026534	19.02	900489	24.63	756055	27.25
5.	BB25MSD	1081924	19.03	123974	24.63	755692	27.25
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19.							
20.							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page __1___ of __1__

FORM VIII SV-2

OLM04.2

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB21

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: __BBB00-1____

Sample wt/vol: ___950_____(g/mL) ____mL_____ Lab File ID: ___BBB00-1A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: __5.3_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
100-52-7	Benzaldehyde	11	U
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)ether	11	U
95-57-8	2-Chlorophenol	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
98-86-2	Acetophenone	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-di-n-propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	bis(2-Chloroethoxy)methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	25	
105-60-2	Caprolactam	11	U
59-50-7	4-Chloro-3-methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	26	U
92-52-4	1,1 Biphenyl	11	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline		
131-11-3	Dimethylphthalate	11	U
606-20-2	2,6-Dinitrotoluene	11	U
208-96-8	Acenaphthylene	11	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	11	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBB21

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: __BBB00-1____

Sample wt/vol: ___950_____(g/mL) ____mL_____ Lab File ID: ___BBB00-1A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: __5.3_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L __	Q
51-28-5	2,4-Dinitrophenol	26	U
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate		
86-73-7	Fluorene	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
1912-24-9	Atrazine	11	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
86-74-8	Carbazole	11	U
84-74-2	Di-n-butylphthalate		
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	43	
91-94-1	3,3'-Dichlorobenzidine	11	U
56-55-3	Benzo(a)anthracene	11	U
218-01-9	Chrysene	11	U
117-81-7	bis(2-Ethylhexyl)phthalate		
117-84-0	Di-n-octylphthalate	11	U
205-99-2	Benzo(b)fluoranthene	11	U
207-08-9	Benzo(k)fluoranthene	11	U
50-32-8	Benzo(a)pyrene	11	U
193-39-5	Indeno(1,2,3-cd)pyrene	11	U
53-70-3	Dibenz(a,h)anthracene	11	U
191-24-2	Benzo(g,h,i)perylene	11	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

BBB21

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: __BBB00-1____

Sample wt/vol: ___950_____(g/mL) ____mL_____ Lab File ID: ___BBB00-1A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: __5.3___ Extraction: (Type) ____CONT_____
Number TICs found: ____3_____ CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/L _____

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	544-63-8	Tetradecanoic acid	18.70	5	NJ
2.	2091-29-4	9-hexadecanoic acid	20.56	7	NJ
3.	57-10-3	Hexadecanoic acid	20.71	3	NJ
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30.					

Modified Quant Report for BBB21

Compound	RT	Response	On col ng	Final Ug/l
1,4 Dichlorobenzene-d4	8.331	328096	40.0	
Naphthalene-d8	11.202	1913723	40.0	
Acenaphthene-d10	14.715	486077	40.0	
Phenanthrene-d10	19.056	853590	40.0	
Chrysene-d12	24.663	795235	40.0	
Perylene-d12	27.298	116384	40.0	
2-Fluorophenol	5.815	724292	75.538	39.76
Phenol-d5	7.858	1009853	87.756	46.07
2-Chlorophenol-d4	7.960	963188	90.904	47.72
1,2 Dichlorobenzene-d4	8.753	366010	48.086	25.24
Nitrobenzene-d5	9.733	681272	26.62	13.31
2-Fluorobiphenyl	13.263	983959	60.976	32.01
2,4,6 Tribromophenol	17.266	331437	98.351	51.64
Terphenyl-d14	22.687	1164087	61.357	32.21
Benzaldehyde				
Phenol				
bis(2-Chloroethyl)ether				
2-Chlorophenol				
Acetophenone				
N-Nitroso-di-n-propylamine				
Isophorone				
Naphthalene				
4-Chloroaniline				
Hexachlorobutadiene	11.48	475826	50.33	25.17
4-Chloro-3-methylphenol				
2-Methylnaphthalene				
Hexachlorocyclopentadiene				
2,4,5-Trichlorophenol				
2-Chloronaphthalene				
2-Nitroaniline	13.815	232365		
2,6-Dinitrotoluene				
3-Nitroaniline				
Acenaphthene				
4-Nitrophenol				
2,4-Dinitrotoluene				
Diethylphthalate	16.452	1232304		
4,6-Dinitro-2-methylphenol				
Hexachlorobenzene				
Pentachlorophenol				
Di-n-butylphthalate	20.775	1340025		
Pyrene				
Butylbenzylphthalate	23.732	1252201	86.10	43.05
bis(2-Ethylhexyl)phthalate	24.860	3315665		
Di-n-octylphthalate				
Benzo(b)fluoranthene				
Benzo(k)fluoranthene				
Indeno(1,2,3-cd)pyrene				
Benzo(g,h,i)perylene				

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB22

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-4_____

Sample wt/vol: _____800_____(g/mL) ____mL_____ Lab File ID: ___BBB00-4A1_____

Level: (low/med) ___LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ____N_____ pH: __7.2_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
100-52-7	Benzaldehyde		
108-95-2	Phenol	13	U
111-44-4	bis(2-Chloroethyl)ether	13	U
95-57-8	2-Chlorophenol	13	U
95-48-7	2-Methylphenol	13	U
108-60-1	2,2'-oxybis(1-Chloropropane)	13	U
98-86-2	Acetophenone	13	U
106-44-5	4-Methylphenol	13	U
621-64-7	N-Nitroso-di-n-propylamine	13	U
67-72-1	Hexachloroethane	13	U
98-95-3	Nitrobenzene	13	U
78-59-1	Isophorone	6	J
88-75-5	2-Nitrophenol	13	U
105-67-9	2,4-Dimethylphenol	13	U
111-91-1	bis(2-Chloroethoxy)methane	13	U
120-83-2	2,4-Dichlorophenol	13	U
91-20-3	Naphthalene	13	U
106-47-8	4-Chloroaniline	3	J
87-68-3	Hexachlorobutadiene	13	U
105-60-2	Caprolactam	13	U
59-50-7	4-Chloro-3-methylphenol	13	U
91-57-6	2-Methylnaphthalene	13	U
77-47-4	Hexachlorocyclopentadiene	13	U
88-06-2	2,4,6-Trichlorophenol	13	U
95-95-4	2,4,5-Trichlorophenol		
92-52-4	1,1 Biphenyl	13	U
91-58-7	2-Chloronaphthalene	13	U
88-74-4	2-Nitroaniline	31	U
131-11-3	Dimethylphthalate	13	U
606-20-2	2,6-Dinitrotoluene	13	U
208-96-8	Acenaphthylene	13	U
99-09-2	3-Nitroaniline	31	U
83-32-9	Acenaphthene	13	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB22

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-4_____

Sample wt/vol: _____800_____(g/mL) ____mL_____ Lab File ID: ___BBB00-4A1_____

Level: (low/med) ___LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ____N_____ pH: __7.2_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L __	Q
51-28-5	2,4-Dinitrophenol	31	U
100-02-7	4-Nitrophenol	31	U
132-64-9	Dibenzofuran	13	U
121-14-2	2,4-Dinitrotoluene	13	U
84-66-2	Diethylphthalate	2	J
86-73-7	Fluorene	13	U
7005-72-3	4-Chlorophenyl-phenylether	13	U
100-01-6	4-Nitroaniline	31	U
534-52-1	4,6-Dinitro-2-methylphenol	31	U
86-30-6	N-Nitrosodiphenylamine (1)	13	U
101-55-3	4-Bromophenyl-phenylether	13	U
118-74-1	Hexachlorobenzene	13	U
1912-24-9	Atrazine	13	U
87-86-5	Pentachlorophenol	31	U
85-01-8	Phenanthrene	13	U
120-12-7	Anthracene	13	U
86-74-8	Carbazole	13	U
84-74-2	Di-n-butylphthalate		
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
85-68-7	Butylbenzylphthalate	13	U
91-94-1	3,3'-Dichlorobenzidine	13	U
56-55-3	Benzo(a)anthracene	13	U
218-01-9	Chrysene	13	U
117-81-7	bis(2-Ethylhexyl)phthalate	11	J
117-84-0	Di-n-octylphthalate	13	U
205-99-2	Benzo(b)fluoranthene	13	U
207-08-9	Benzo(k)fluoranthene	13	U
50-32-8	Benzo(a)pyrene	13	U
193-39-5	Indeno(1,2,3-cd)pyrene	13	U
53-70-3	Dibenz(a,h)anthracene	13	U
191-24-2	Benzo(g,h,i)perylene		

(1) Cannot be separated from Diphenylamine

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BBB22

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-4_____

Sample wt/vol: _____800_____(g/mL) ____mL_____ Lab File ID: ___BBB00-4A1_____

Level: (low/med) ___LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ____N__ pH: __7.2_____ Extraction: (Type) ____CONT_____
Number TICs found: ____0_____ CONCENTRATION UNITS
(lg/L or lg/Kg) _lg/L __

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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Modified Quant Report for BBB22

Compound	RT	Response	On-col ng	Final ug/l
1,4 Dichlorobenzene-d4	8.330	321408	40.00	
Naphthalene-d8	11.202	1921571	40.00	
Acenaphthene-d10	14.715	491806	40.00	
Phenanthrene-d10	19.055	153004	40.00	
Chrysene-d12	24.663	827565	40.00	
Perylene-d12	27.297	746961	40.00	
2-Fluorophenol	5.814	934000	99.436	57.55
Phenol-d5	7.857	1209257	107.271	62.07
2-Chlorophenol-d4	7.959	1110790	107.017	61.92
1,2 Dichlorobenzene-d4	8.753	429290	57.573	33.31
Nitrobenzene-d5	9.732	744602	58.457	33.82
2-Fluorobiphenyl	13.262	1154140	70.689	40.91
2,4,6 Tribromophenol	17.282	37173	110.384	63.87
Terphenyl-d14	22.686	1258225	63.728	36.87
Benzaldehyde	7.431	145422		
Phenol				
bis(2-Chloroethyl)ether				
2-Chlorophenol				
Acetophenone				
N-Nitroso-di-n-propylamine				
Isophorone	10.309	455424	11.42	5.70
Naphthalene				
4-Chloroaniline	11.430	89987	6.00	3.00
Hexachlorobutadiene				
4-Chloro-3-methylphenol				
2-Methylnaphthalene				
Hexachlorocyclopentadiene				
2,4,5-Trichlorophenol	13.264	268435		
2-Chloronaphthalene				
2-Nitroaniline				
2,6-Dinitrotoluene				
3-Nitroaniline				
Acenaphthene				
4-Nitrophenol				
2,4-Dinitrotoluene				
Diethylphthalate	16.450	64278	4.07	2.03
4,6-Dinitro-2-methylphenol				
Hexachlorobenzene				
Pentachlorophenol				
Di-n-butylphthalate	20.768	75024		
Pyrene				
Butylbenzylphthalate				
bis(2-Ethylhexyl)phthalate	24.860	445357	22.94	11.47
Di-n-octylphthalate				
Benzo(b)fluoranthene				
Benzo(k)fluoranthene				
Indeno(1,2,3-cd)pyrene				
Benzo(g,h,i)perylene	30.536	153246		

EPA SAMPLE NO.
BBB23

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-5_____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: ___BBB00-5A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ____6.5_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L __	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	2	J
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene		
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	6	J
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB23

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-5_____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: ___BBB00-5A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ____6.5_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L __	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	6	J
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene		
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	2	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate		
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	14	
117-84-0	Di-n-octylphthalate	4	J
205-99-2	Benzo(b)fluoranthene	6	J
207-08-9	Benzo(k)fluoranthene		
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,I)perylene	10	U

(1) Cannot be separated from Diphenylamine

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BBB23

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBB00-5_____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: ___BBB00-5A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N___ pH: ____6.5__ Extraction: (Type) ____CONT_____
Number TICs found: ____0_____ CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/L __

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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Modified Quant Report for BBB23

Compound	RT	Response	On col ng	Final ug/l
1,4 Dichlorobenzene-d4	8.331	55002	40.00	
Naphthalene-d8	11.202	993294	40.00	
Acenaphthene-d10	14.715	533199	40.00	
Phenanthrene-d10	19.056	937427	40.00	
Chrysene-d12	24.663	1888741	40.00	
Perylene-d12	27.298	821548	40.00	
2-Fluorophenol	5.814	75651	41.43	20.71
Phenol-d5	7.858	97690	50.64	25.32
2-Chlorophenol-d4	7.959	99720	56.13	28.06
1,2 Dichlorobenzene-d4	8.753	93893	73.58	36.79
Nitrobenzene-d5	9.733	710272	51.736	25.87
2-Fluorobiphenyl	13.263	1075097	60.736	30.37
2,4,6 Tribromophenol	17.282	351041	94.852	47.43
Terphenyl-d14	22.687	3388497	65.486	32.74
Benzaldehyde				
Phenol				
bis(2-Chloroethyl)ether				
2-Chlorophenol				
Acetophenone				
N-Nitroso-di-n-propylamine				
Isophorone				
Naphthalene				
4-Chloroaniline	11.426	42455	4.38	2.19
Hexachlorobutadiene				
4-Chloro-3-methylphenol				
2-Methylnaphthalene	12.448	123350		
Hexachlorocyclopentadiene				
2,4,5-Trichlorophenol				
2-Chloronaphthalene	13428	195540	12.19	6.09
2-Nitroaniline				
2,6-Dinitrotoluene				
3-Nitroaniline				
Acenaphthene				
4-Nitrophenol				
2,4-Dinitrotoluene				
Diethylphthalate	16.443	260044	12.15	6.08
4,6-Dinitro-2-methylphenol				
Hexachlorobenzene	18.286	113302		
Pentachlorophenol				
Di-n-butylphthalate	20.769	182210	4.53	2.26
Pyrene				
Butylbenzylphthalate	23.729	75480		
bis(2-Ethylhexyl)phthalate	24.860	1585654	28.63	14.31
Di-n-octylphthalate	25.926	342125	8.09	4.05
Benzo(b)fluoranthene	26.570	395895	12.11	6.05
Benzo(k)fluoranthene	26.620	352265		
Indeno(1,2,3-cd)pyrene				
Benzo(g,h,i)perylene				

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-6_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-6A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____12_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____2_____

GPC Cleanup: (Y/N) ___Y_____ pH: ____4.5_____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg__	Q
100-52-7	Benzaldehyde	380	U
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
98-86-2	Acetophenone	220	J
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
91-20-3	Naphthalene		
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
105-60-2	Caprolactam	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	460	J
77-47-4	Hexachlorocyclopentadiene	260	J
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	950	U
92-52-4	1,1 Biphenyl	380	U
91-58-7	2-Chloronaphthalene	100	J
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	380	U
606-20-2	2,6-Dinitrotoluene	380	U
208-96-8	Acenaphthylene	380	U
99-09-2	3-Nitroaniline		
83-32-9	Acenaphthene	390	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB24

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-6_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-6A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____12_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____2_____

GPC Cleanup: (Y/N) ___Y_____ pH: ____4.5_____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	75	J
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
100-01-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol		
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
1912-24-9	Atrazine	380	U
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	320	J
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	1500	
117-84-0	Di-n-octylphthalate		
205-99-2	Benzo(b)fluoranthene	35	J
207-08-9	Benzo(k)fluoranthene	55	J
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	500	J
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,I)perylene	380	U

(1) Cannot be separated from Diphenylamine

1G

EPA SAMPLE NO.

BBB24

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-6_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-6A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____12_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____1000_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____2_____

GPC Cleanup: (Y/N) ___Y__ pH: ____4.5____ Extraction: (Type) ____SONC_____
Number TICs found: ____3_____ CONCENTRATION UNITS
(lg/L or lg/Kg) _lg/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown (BC)	7.05	1300	JB
2.	Unknown (BC)	8.35	320	JB
3.	Unknown	9.82	120	J
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FORM I SV-TIC

OLM04.2

Modified Quant Report for BBB24

Compound	RT	Response	On col ng	Final ug/kg
1,4 Dichlorobenzene-d4	8.285	382398	40.00	
Naphthalene-d8	11.156	1128961	40.00	
Acenaphthene-d10	14.686	597062	40.00	
Phenanthrene-d10	19.026	1000462	40.00	
Chrysene-d12	24.634	852146	40.00	
Perylene-d12	27.252	107470	40.00	
2-Fluorophenol	5.836	628089	64.836	1286
Phenol-d5	7.829	1007309	66.611	1322
2-Chlorophenol-d4	7.930	722650	61.442	1219
1,2 Dichlorobenzene-d4	8.724	99404	11.281	223.8
Nitrobenzene-d5	9.686	482957	30.407	603.3
2-Fluorobiphenyl	13.216	620242	31.603	627.0
2,4,6 Tribromophenol	17.236	220829	64.032	1270
Terphenyl-d14	22.658	1134682	57.284	1137
Benzaldehyde				
Phenol				
bis(2-Chloroethyl)ether				
2-Chlorophenol				
Acetophenone	9.325	111775	5.82	220.34
N-Nitroso-di-n-propylamine				
Isophorone				
Naphthalene	11.230	222024		
4-Chloroaniline				
Hexachlorobutadiene				
4-Chloro-3-methylphenol				
2-Methylnaphthalene	12.416	126192	12.14	460.22
Hexachlorocyclopentadiene	12.850	34582	6.87	260.41
2,4,5-Trichlorophenol				
2-Chloronaphthalene	13.891	46512	2.64	100.28
2-Nitroaniline				
2,6-Dinitrotoluene				
3-Nitroaniline	14.815	66472		
Acenaphthene	14.760	190076	10.30	390.25
4-Nitrophenol				
2,4-Dinitrotoluene				
Diethylphthalate	16.400	48222	1.98	75.03
4,6-Dinitro-2-methylphenol	16.890	83421		
Hexachlorobenzene				
Pentachlorophenol	18.830	99737		
Di-n-butylphthalate				
Pyrene				
Butylbenzylphthalate	23.715	146507	8.44	319.63
bis(2-Ethylhexyl)phthalate	24.825	987105	39.77	1506.54
Di-n-octylphthalate	25.892	413316		
Benzo(b)fluoranthene	26.531	3983	0.93	35.27
Benzo(k)fluoranthene	26.582	5542	1.45	55.06
Indeno(1,2,3-cd)pyrene	29.725	47627	13.26	502.22
Benzo(g,h,i)perylene				

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB25

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-7_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-7A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: ____7.8_____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
100-52-7	Benzaldehyde	400	U
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
98-86-2	Acetophenone		
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
105-60-2	Caprolactam	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
92-52-4	1,1 Biphenyl	400	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
606-20-2	2,6-Dinitrotoluene	400	U
208-96-8	Acenaphthylene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB25

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-7_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-7A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: ____7.8_____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate		
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
1912-24-9	Atrazine	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate		
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate		
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene		
207-08-9	Benzo(k)fluoranthene		
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,I)perylene	400	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

BBB25

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-7_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-7A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____
Number TICs found: ___2_____ CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN(BC)	7.05	1000	JB
2.	UNKNOWN(BC)	8.38	170	JB
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Compound	RT	Response	On col ng	Final ug/kg
1,4 Dichlorobenzene-d4	8.280	428929	40.00	
Naphthalene-d8	11.168	1126559	40.00	
Acenaphthene-d10	14.681	909137	40.00	
Phenanthrene-d10	19.022	1063174	40.00	
Chrysene-d12	24.629	1377163	40.00	
Perylene-d12	27.247	753824	40.00	
2-Fluorophenol	5.831	517033	45.845	1033
Phenol-d5	7.841	876333	65.703	1480
2-Chlorophenol-d4	7.925	620903	48.097	1083
1,2 Dichlorobenzene-d4	8.719	83581	8.68	195.5
Nitrobenzene-d5	9.682	450881	28.304	637.5
2-Fluorobiphenyl	13.228	544514	27.306	615.0
2,4,6 Tribromophenol	17.248	128020	34.112	768.3
Terphenyl-d14	22.653	949328	46.878	1056
Benzaldehyde				
Phenol				
bis(2-Chloroethyl)ether				
2-Chlorophenol				
Acetophenone	9.321	504524		
N-Nitroso-di-n-propylamine				
Isophorone				
Naphthalene				
4-Chloroaniline				
Hexachlorobutadiene				
4-Chloro-3-methylphenol				
2-Methylnaphthalene				
Hexachlorocyclopentadiene				
2,4,5-Trichlorophenol				
2-Chloronaphthalene				
2-Nitroaniline				
2,6-Dinitrotoluene				
3-Nitroaniline				
Acenaphthene				
4-Nitrophenol				
2,4-Dinitrotoluene				
Diethylphthalate	16.404	1114625		
4,6-Dinitro-2-methylphenol				
Hexachlorobenzene				
Pentachlorophenol				
Di-n-butylphthalate	20.741	1674487		
Pyrene				
Butylbenzylphthalate				
bis(2-Ethylhexyl)phthalate	24.826	4054872		
Di-n-octylphthalate				
Benzo(b)fluoranthene	26.531	1825487		
Benzo(k)fluoranthene	26.583	1902145		
Indeno(1,2,3-cd)pyrene				
Benzo(g,h,i)perylene				

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _5972HPAA_____ Calibration Date: _12/22/00___ __12/22/00__

Calibration Times: _1746____ ___2057__

LAB FILE ID: RRF20 = __ C001222A1___ RRF50 = __ A001222A1____
RRF80 = _E001222A1___ RRF120 = __ D001222A1____ RRF160 = __ B001222A1_____

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	_____ RRF	% RSD
Benzaldehyde	1.277	1.289	1.140	1.069	0.937	1.142	13.0
Phenol *							
bis(2-Chloroethyl)ether *	1.588	1.643	1.569	1.578	1.549	1.579	2.3*
2-Chlorophenol *	1.481	1.475	1.413	1.408	1.381	1.432	3.1*
2-Methylphenol *	1.106	1.166	1.151	1.148	1.112	1.137	2.3*
2,2'-oxybis(1-Chloropropane)	3.270	3.296	3.124	3.086	2.972	3.150	4.3
Acetophenone	1.971	1.918	2.029	2.012	1.974	1.981	2.2
4-Methylphenol *	1.329	1.376	1.258	1.248	1.214	1.285	5.1*
N-Nitroso-di-n-propylamine *	0.785	0.827	0.810	0.798	0.782	0.800	2.3*
Hexachloroethane *	0.775	0.759	0.735	0.738	0.718	0.745	3.0*
Nitrobenzene *	0.574	0.566	0.554	0.558	0.565	0.563	1.4*
Isophorone *	1.097	1.083	1.037	1.024	1.024	1.053	3.3*
2-Nitrophenol *	0.235	0.253	0.243	0.250	0.251	0.246	3.1*
2,4-Dimethylphenol *	0.323	0.321	0.317	0.324	0.325	0.322	1.0*
bis(2-Chloroethoxy)methane *	0.495	0.525	0.525	0.514	0.542	0.520	3.3*
2,4-Dichlorophenol *							
Naphthalene *	1.162	1.149	1.107	1.083	1.121	1.124	2.8*
4-Chloroaniline	0.410	0.424	0.424	0.400	0.413	0.414	2.5
Hexachlorobutadiene	0.208	0.196	0.194	0.201	0.204	0.201	2.8
Caprolactam	0.114	0.124	0.120	0.104	0.102	0.113	8.7
4-Chloro-3-methylphenol *	0.328	0.343	0.331	0.337	0.329	0.334	2.0*
2-Methylnaphthalene *	0.788	0.759	0.637	0.673	0.649	0.701	9.7*
Hexachlorocyclopentadiene	0.335	0.404	0.413	0.445	0.444	0.408	11.0
2,4,6-Trichlorophenol *	0.413	0.436	0.414	0.425	0.410	0.420	2.5*
2,4,5-Trichlorophenol *		0.501	0.483	0.506	0.480	0.493	2.6*
1,1 Biphenyl	1.730	1.642	1.631	1.652	1.552	1.641	3.9
2-Chloronaphthalene *	1.294	1.241	1.234	1.208	1.213	1.238	2.8*
2-Nitroaniline		0.646	0.602	0.611	0.576	0.609	4.7
Dimethylphthalate	1.574	1.615	1.554	1.490	1.435	1.534	4.7
2,6-Dinitrotoluene *	0.363	0.377	0.371	0.379	0.342	0.366	4.1*
Acenaphthylene *	2.264	2.268	2.151	2.118	2.131	2.186	3.4*
3-Nitroaniline		0.399	0.376	0.369	0.341	0.371	6.4
Acenaphthene *	1.354	1.382	1.376	1.339	1.341	1.358	1.5*
2,4-Dinitrophenol		0.198	0.218	0.218	0.224	0.215	5.3
4-Nitrophenol		0.205	0.209	0.206	0.217	0.209	2.7
Dibenzofuran *	1.846	1.882	1.776	1.766	1.784	1.811	2.8*

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _5972HPAA_____ Calibration Date: _12/22/00___ __12/22/00__

Calibration Times: _1746____ ___2057__

LAB FILE ID: RRF20 = __ C001222A1___ RRF50 = __ A001222A1____
RRF80 = _E001222A1___ RRF120 = __ D001222A1____ RRF160 = __ B001222A1_____

COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	_____ RRF	% RSD
2,4-Dinitrotoluene	*	0.512	0.527	0.509	0.529	0.500	0.515	2.4*
Diethylphthalate		1.746	1.797	1.765	1.711	1.732	1.750	1.9
Fluorene	*	1.426	1.409	1.352	1.410	1.375	1.394	2.1*
4-Chlorophenyl-phenylether	*	0.691	0.716	0.698	0.667	0.716	0.698	2.9*
4-Nitroaniline			0.376	0.218	0.192	0.152	0.234	41.9
4,6-Dinitro-2-methylphenol			0.186	0.185	0.194	0.201	0.192	4.0
N-Nitrosodiphenylamine (1)		0.592	0.575	0.557	0.532	0.553	0.562	4.1
4-Bromophenyl-phenylether	*	0.217	0.221	0.220	0.225	0.235	0.224	3.2*
Hexachlorobenzene	*	0.264	0.271	0.260	0.269	0.273	0.267	1.9*
Atrazine								
Pentachlorophenol	*		0.044	0.036	0.053	0.043	0.044	15.9*
Phenanthrene	*	1.240	1.270	1.219	1.218	1.207	1.231	2.0*
Anthracene	*	1.341	1.343	1.301	1.203	1.204	1.278	5.5*
Carbazole		1.019	0.800	0.766	0.756	0.778	0.824	13.4
Di-n-butylphthalate		1.838	1.860	1.814	1.891	1.844	1.849	1.5
Fluoranthene	*	1.323	1.366	1.268	1.279	1.269	1.301	3.3*
Pyrene	*	1.685	1.644	1.549	1.605	1.527	1.602	4.1*
Butylbenzylphthalate		1.030	1.044	0.993	0.949	1.012	1.006	3.7
3,3'-Dichlorobenzidine		0.282	0.256	0.246	0.222	0.203	0.242	12.6
Benzo(a)anthracene	*	1.419	1.436	1.391	1.430	1.451	1.425	1.6*
Chrysene	*	1.405	1.384	1.322	1.325	1.289	1.345	3.6*
bis(2-Ethylhexyl)phthalate		1.479	1.476	1.436	1.433	1.448	1.454	1.5
Di-n-octylphthalate		2.691	2.736	2.633	2.699	2.688	2.689	1.4
Benzo(b)fluoranthene	*							
Benzo(k)fluoranthene	*	1.569	1.604	1.577	1.660	1.449	1.572	4.9*
Benzo(a)pyrene	*	1.285	1.302	1.260	1.298	1.290	1.287	1.3*
Indeno(1,2,3-cd)pyrene	*	1.275	1.301	1.259	1.253	1.376	1.293	3.9*
Dibenz(a,h)anthracene	*	1.192	1.242	1.188	1.234	1.273	1.226	2.9*
Benzo(g,h,i)perylene	*	1.246	1.281	1.205	1.205	1.211	1.230	2.7*
Nitrobenzene-d5	*	0.550	0.574	0.556	0.560	0.562	0.560	1.6*
2-Fluorobiphenyl	*	1.436	1.431	1.422	1.473	1.393	1.431	2.0*
Terphenyl-d14	*	1.106	1.116	1.071	1.094	1.121	1.102	1.8*
Phenol-d5	*	1.632	1.790	1.691	1.717	1.658	1.698	3.6*
2-Fluorophenol		1.199	1.356	1.329	1.378	1.389	1.330	5.8*
2,4,6 Tribromophenol		0.137	0.143	0.144	0.148	0.154	0.145	4.4
2-Chlorophenol-d4	*	1.560	1.590	1.484	1.479	1.487	1.520	3.4*
1,2 Dichlorobenzene-d4	*	0.998	0.984	0.950	0.949	0.932	0.963	2.8*

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

1746- 2057

Compound IS = 40 ng	RT	Area response 20	Area response 50	Area response 80	Area response 120	Area response 160
1,4 Dichlorobenzene-d4	8.371	110312	114259	112060	109451	108080
Naphthalene-d8	11.547	336037	355647	343689	331215	316786
Acenaphthene-d10	14.806	168576	176482	169369	164104	160578
Phenanthrene-d10	17.559	276983	29211	281919	266948	258201
Chrysene-d12	22.508	226690	243469	238787	223525	215585
Perylene-d12	26.409	203249	215208	206754	194496	191886
2-Fluorophenol	6.024	66121	193672	297888	452380	600616
Phenol-d5	7.814	90030	255625	378918	563863	716628
2-Chlorophenol-d4	7.966	86021	227095	332633	485505	642793
1,2 Dichlorobenzene-d4	8.878	55031	140532	213026	311483	403055
Nitrobenzene-d5	10.060	92366	255244	382266	556322	712217
2-Fluorobiphenyl	13.573	121052	315749	481754	725394	894918
2,4,6 Tribromophenol	16.343	19033	52304	80972	118522	159546
Terphenyl-d14	20.549	125370	339524	511632	733774	966300
Benzaldehyde	7.459	70447	184168	255465	350926	404952
Phenol	7.848	169399	286699	415037	610112	297166
bis(2-Chloroethyl)ether	7.882	85929	234605	351672	518065	669604
2-Chlorophenol	8.00	81679	210634	316657	462476	596960
Acetophenone	9.655	108689	273945	454720	660763	853230
N-Nitroso-di-n-propylamine	9.739	43290	118174	181491	262060	338038
Isophorone	10.736	184279	481576	712983	1017945	1297333
2,4 Dichlorophenol	11.428	48229	124066	211441	281332	378462
Naphthalene	11.580	195173	511001	761205	1075823	1420332
4-Chloroaniline	11.800	68804	188334	291706	397371	522757
Hexachlorobutadiene	11.901	34907	87131	133562	200180	258841
4-Chloro-3-methylphenol	12.763	55097	152611	227540	334899	416376
2-Methylnaphthalene	12.830	132336	337466	437723	669146	821973
Hexachlorocyclopentadiene	13.236	28243	89166	140056	219048	285248
2,4,5-Trichlorophenol	13.590	40255	110535	163759	248946	308558
2-Chloronaphthalene	13.725	109040	273674	418093	594522	779383
2-Nitroaniline	14.080	52565	142528	203984	300585	370186
2,6-Dinitrotoluene	14.604	30616	83211	125525	186790	219895
3-Nitroaniline	14.891	27399	87936	127260	181139	218826
Acenaphthene	14.857	114151	304849	466171	658981	861435
4-Nitrophenol	15.414	12021	45180	70709	101287	139637
2,4-Dinitrotoluene	15.347	43163	116235	172586	260403	321246
Diethylphthalate	15.786	147193	396402	597984	842498	1112669
4-Nitroaniline	16.090	21795	60866	73929	94320	97625
4,6-Dinitro-2-methylphenol	16.107	20366	67876	104074	155411	207341
Hexachlorobenzene	17.002	36601	99104	146663	215254	281613
Atrazine	17.188	41610	67267	97285	123235	127189
Pentachlorophenol	17.390	17664	56100	87911	128907	168234
Di-n-butylphthalate	18.792	254550	679189	1022806	1514165	1904995
Pyrene	20.211	190955	500198	739804	1076384	1316747
Butylbenzylphthalate	21.512	116725	317864	474345	636222	872644
bis(2-Ethylhexyl)phthalate	22.643	167670	449213	685683	960676	1248543
Di-n-octylphthalate	24.079	273485	735877	1088697	1574763	2063007
Benzo(b)fluoranthene	25.143	105104	392205	573267	1397000	1480715
Benzo(k)fluoranthene	25.210	159431	431464	651943	968740	1111803
Indeno(1,2,3-cd)pyrene	31.206	129543	350070	520701	731018	1055839
Benzo(g,h,i)perylene	32.659	126644	344598	498339	703344	929861

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __5972HPAA_____ Calibration Date: ___01/30/01____ Time: __1647_____

Lab File ID: __GA010130A1_____ Init. Calib Date(s): _12/22/00__ _12/22/00__

EPA Sample N0. (SSTD50##): _SSTD50GA_ Init. Calib Times: __1746___ ___2057_

GC Column: _RTX-5MS__ ID: _0.25____(mm)

COMPOUND		____ RRF	RRF50	MIN RRF	% D	MAX % D
Benzaldehyde		1.142				
Phenol	*		1.630	0.800	-7.3	25.0
bis(2-Chloroethyl)ether	*	1.579	1.421	0.700	-10.0	25.0
2-Chlorophenol	*	1.432	1.358	0.800	-5.2	25.0
2-Methylphenol	*	1.137	1.036	0.700	-8.9	25.0
2,2'-oxybis(1-Chloropropane)		3.150	2.708		-14.0	
Acetophenone		1.981	2.046		3.3	
4-Methylphenol	*	1.285	1.171	0.600	-8.9	25.0
N-Nitroso-di-n-propylamine	*	0.800	0.762	0.500	-4.8	25.0
Hexachloroethane	*	0.745	0.671	0.300	-9.9	25.0
Nitrobenzene	*	0.563	0.531	0.200	-5.7	25.0
Isophorone	*	1.053	1.038	0.400	-1.4	25.0
2-Nitrophenol	*	0.246	0.285	0.100	15.9	25.0
2,4-Dimethylphenol	*	0.322	0.402	0.200	24.8	25.0
bis(2-Chloroethoxy)methane	*	0.520	0.545	0.300	4.8	25.0
2,4-Dichlorophenol	*		0.333	0.200	70.8	25.0
Naphthalene	*	1.124	0.977	0.700	-13.1	25.0
4-Chloroaniline		0.414	0.390		-5.8	
Hexachlorobutadiene		0.201	0.208		3.5	
Caprolactam		0.113	0.125		10.6	
4-Chloro-3-methylphenol	*	0.334		0.200		25.0
2-Methylnaphthalene	*	0.701	0.799	0.400	14.0	25.0
Hexachlorocyclopentadiene		0.408	0.346		-15.2	
2,4,6-Trichlorophenol	*	0.420	0.407	0.200	-3.1	25.0
2,4,5-Trichlorophenol	*	0.493	0.457	0.200	-7.3	25.0
1,1 Biphenyl		1.641	1.696		3.4	
2-Chloronaphthalene	*	1.238	1.203	0.800	-2.8	25.0
2-Nitroaniline		0.609	0.485		-20.4	
Dimethylphthalate		1.534	1.469		-4.2	
2,6-Dinitrotoluene	*	0.366	0.366	0.200	0.0	25.0
Acenaphthylene	*	2.186	1.957	0.900	-10.5	25.0
3-Nitroaniline		0.371				
Acenaphthene	*	1.358	1.210	0.900	-10.9	25.0
2,4-Dinitrophenol		0.215	0.141		-34.4	
4-Nitrophenol		0.209	0.116		-44.5	
Dibenzofuran	*	1.811	1.709	0.800	-5.6	25.0

All other compounds must meet a minimum RRF of 0.010.

FORM VII SV-1

OLM04.2

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __5972HPAA_____ Calibration Date: ___01/30/01____ Time: __1647_____

Lab File ID: __GA010130A1_____ Init. Calib Date(s): _12/22/00__ _12/22/00__

EPA Sample N0. (SSTD50##): _SSTD50GA_ Init. Calib Times: __1746___ ___2057_

GC Column: _RTX-5MS__ ID: _0.25____(mm)

COMPOUND		____ RRF	RRF50	MIN RRF	% D	MAX % D
2,4-Dinitrotoluene	*	0.515	0.446	0.200	-13.4	25.0
Diethylphthalate		1.750	1.605		-8.3	
Fluorene	*	1.394	1.237	0.900	-11.3	25.0
4-Chlorophenyl-phenylether	*	0.698	0.660	0.400	-5.4	25.0
4-Nitroaniline		0.234	0.221		-5.6	
4,6-Dinitro-2-methylphenol		0.192	0.170		-11.5	
N-Nitrosodiphenylamine (1)		0.562	0.534		-5.0	
4-Bromophenyl-phenylether	*	0.224	0.244	0.100	8.9	25.0
Hexachlorobenzene	*	0.267		0.100		25.0
Atrazine			0.095		-49.2	
Pentachlorophenol	*	0.044		0.050		25.0
Phenanthrene	*	1.231	1.138	0.700	-7.6	25.0
Anthracene	*	1.278	1.168	0.700	-8.6	25.0
Carbazole		0.824	0.863		4.7	
Di-n-butylphthalate		1.849	1.718		-7.1	
Fluoranthene	*	1.301	1.299	0.600	-0.2	25.0
Pyrene	*	1.602		0.600		25.0
Butylbenzylphthalate		1.006	0.770		-23.5	
3,3'-Dichlorobenzidine		0.242	0.285		17.8	
Benzo(a)anthracene	*	1.425	1.235	0.800	-13.3	25.0
Chrysene	*	1.345	1.221	0.700	-9.2	25.0
bis(2-Ethylhexyl)phthalate		1.454	1.173		-19.3	
Di-n-octylphthalate		2.689	2.058		-23.5	
Benzo(b)fluoranthene	*		1.592	0.700	2.9	25.0
Benzo(k)fluoranthene	*	1.572	1.405	0.700	-10.6	25.0
Benzo(a)pyrene	*	1.287	1.202	0.700	-6.6	25.0
Indeno(1,2,3-cd)pyrene	*	1.293	1.340	0.500	3.6	25.0
Dibenzo(a,h)anthracene	*	1.226	1.115	0.400	-9.1	25.0
Benzo(g,h,i)perylene	*	1.230		0.500		25.0
Nitrobenzene-d5	*	0.560	0.553	0.200	-1.3	25.0
2-Fluorobiphenyl	*	1.431	1.328	0.700	-7.2	25.0
Terphenyl-d14	*	1.102	0.954	0.500	-13.4	25.0
Phenol-d5	*	1.698	1.403	0.800	-17.4	25.0
2-Fluorophenol	*	1.330	1.169	0.600	-12.1	25.0
2,4,6 Tribromophenol		0.145	0.158		9.0	
2-Chlorophenol-d4	*	1.520	1.292	0.800	-15.0	25.0
1,2 Dichlorobenzene-d4	*	0.963	0.928	0.400	-3.6	25.0

All other compounds must meet a minimum RRF of 0.010.

Modified Quant Report for Calibration 01/30/01 injection time - 1647

Compound	RT	response	Cal amt.	On-col ng
1,4 Dichlorobenzene-d4	8.332	287596	40.0	
Naphthalene-d8	11.203	811190	40.0	
Acenaphthene-d10	14.733	446006	40.0	
Phenanthrene-d10	19.057	744700	40.0	
Chrysene-d12	24.681	745493	40.0	
Perylene-d12	27.229	689252	40.0	
2-Fluorophenol	5.849	420240	50.0	43.94
Phenol-d5	7.859	504349	50.0	41.32
2-Chlorophenol-d4	7.960	464384	50.0	42.50
1,2 Dichlorobenzene-d4	8.754	333597	50.0	48.20
Nitrobenzene-d5	9.734	560589	50.0	49.33
2-Fluorobiphenyl	13.264	740321	50.0	46.39
2,4,6 Tribromophenol	17.283	147002	50.0	54.32
Terphenyl-d14	22.688	889271	50.0	43.32
Benzaldehyde	7.437	406115	50.0	49.44
Phenol	7.893	585837	50.0	42.48
bis(2-Chloroethyl)ether	7.910	511008	50.0	45.00
2-Chlorophenol	7.994	488257	50.0	47.44
Acetophenone	9.379	735635	50.0	51.66
N-Nitroso-di-n-propylamine	9.480	273776	50.0	47.57
Isophorone	10.325	1052755	50.0	49.29
2,4 Dichlorophenol	11.085	337687	50.0	57.20
Naphthalene	11.237	990166	50.0	43.42
4-Chloroaniline	11.439	395219	50.0	47.07
Hexachlorobutadiene	11.541	211287	50.0	51.90
4-Chloro-3-methylphenol	12.402	287732	50.0	42.53
2-Methylnaphthalene	12.453	810151	50.0	56.98
Hexachlorocyclopentadiene	12.892	192956	50.0	42.38
2,4,5-Trichlorophenol	13.264	255057	50.0	46.43
2-Chloronaphthalene	13.432	670734	50.0	48.59
2-Nitroaniline	13.821	270325	50.0	39.82
2,6-Dinitrotoluene	14.480	203807	50.0	49.87
3-Nitroaniline	14.851	174745	50.0	42.27
Acenaphthene	14.800	674735	50.0	44.55
4-Nitrophenol	15.763	64442	50.0	27.63
2,4-Dinitrotoluene	15.594	248789	50.0	43.28
Diethylphthalate	16.456	894798	50.0	45.85
4-Nitroaniline	16.878	123163	50.0	52.74
4,6-Dinitro-2-methylphenol	16.962	158311	50.0	44.45
Hexachlorobenzene	18.297	269073	50.0	54.04
Atrazine	18.719	88356	50.0	27.47
Pentachlorophenol	18.871	134315	50.0	45.56
Di-n-butylphthalate	20.779	1599654	50.0	46.46
Pyrene	22.266	1249071	50.0	41.84
Butylbenzylphthalate	23.735	717645	50.0	38.29
bis(2-Ethylhexyl)phthalate	24.867	1093329	50.0	40.34
Di-n-octylphthalate	25.931	1773101	50.0	38.26
Benzo(b)fluoranthene	26.572	1371500	50.0	53.76
Benzo(k)fluoranthene	26.623	1210289	50.0	44.69
Indeno(1,2,3-cd)pyrene	29.815	1154444	50.0	51.83
Benzo(g,h,i)perylene	30.542	999119	50.0	47.15

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __5972HPAA_____ Calibration Date: ___02/02/01____ Time: __1123_____

Lab File ID: __GJ010202A1_____ Init. Calib Date(s): _12/22/00__ _12/22/00__

EPA Sample N0. (SSTD50##): _SSTD50GJ_ Init. Calib Times: __1746___ ___2057_

GC Column: _RTX-5MS__ ID: _0.25____(mm)

COMPOUND		____ RRF	RRF50	MIN RRF	% D	MAX % D
Benzaldehyde		1.142	1.102		-3.5	
Phenol	*		1.630	0.800	-7.3	25.0
bis(2-Chloroethyl)ether	*	1.579	1.427	0.700	-9.6	25.0
2-Chlorophenol	*	1.432		0.800		25.0
2-Methylphenol	*	1.137	1.069	0.700	-6.0	25.0
2,2'-oxybis(1-Chloropropane)		3.150	2.735		-13.2	
Acetophenone		1.981	2.010		1.5	
4-Methylphenol	*	1.285	1.188	0.600	-7.5	25.0
N-Nitroso-di-n-propylamine	*	0.800	0.795	0.500	-0.6	25.0
Hexachloroethane	*	0.745	0.679	0.300	-8.9	25.0
Nitrobenzene	*	0.563	0.521	0.200	-7.5	25.0
Isophorone	*	1.053	1.021	0.400	-3.0	25.0
2-Nitrophenol	*	0.246	0.258	0.100	4.9	25.0
2,4-Dimethylphenol	*	0.322	0.410	0.200	27.3	25.0
bis(2-Chloroethoxy)methane	*	0.520	0.572	0.300	10.0	25.0
2,4-Dichlorophenol	*		0.323	0.200	65.6	25.0
Naphthalene	*	1.124	0.960	0.700	-14.6	25.0
4-Chloroaniline		0.414	0.378		-8.7	
Hexachlorobutadiene		0.201	0.198		-1.5	
Caprolactam		0.113	0.114		0.9	
4-Chloro-3-methylphenol	*	0.334	0.320	0.200	-4.2	25.0
2-Methylnaphthalene	*	0.701		0.400		25.0
Hexachlorocyclopentadiene		0.408	0.337		-17.4	
2,4,6-Trichlorophenol	*	0.420	0.383	0.200	-8.8	25.0
2,4,5-Trichlorophenol	*	0.493	0.458	0.200	-7.1	25.0
1,1 Biphenyl		1.641	1.695		3.3	
2-Chloronaphthalene	*	1.238	1.177	0.800	-4.9	25.0
2-Nitroaniline		0.609	0.510		-16.3	
Dimethylphthalate		1.534	1.459		-4.9	
2,6-Dinitrotoluene	*	0.366	0.359	0.200	-1.9	25.0
Acenaphthylene	*	2.186	1.954	0.900	-10.6	25.0
3-Nitroaniline		0.371	0.281		-24.3	
Acenaphthene	*	1.358	1.236	0.900	-9.0	25.0
2,4-Dinitrophenol		0.215	0.105		-51.2	
4-Nitrophenol		0.209				
Dibenzofuran	*	1.811	1.700	0.800	-6.1	25.0

All other compounds must meet a minimum RRF of 0.010.

FORM VII SV-1

OLM04.2

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __5972HPAA_____ Calibration Date: ___02/02/01____ Time: __1123_____

Lab File ID: __GJ010202A1_____ Init. Calib Date(s): _12/22/00__ _12/22/00__

EPA Sample N0. (SSTD50##): _SSTD50GJ_ Init. Calib Times: __1746___ ___2057_

GC Column: _RTX-5MS__ ID: _0.25____(mm)

COMPOUND		____ RRF	RRF50	MIN RRF	% D	MAX % D
2,4-Dinitrotoluene	*	0.515	0.498	0.200	-5.2	25.0
Diethylphthalate		1.750	1.631		-6.8	
Fluorene	*	1.394	1.229	0.900	-11.8	25.0
4-Chlorophenyl-phenylether	*	0.698	0.644	0.400	-7.7	25.0
4-Nitroaniline		0.234	0.157		-32.9	
4,6-Dinitro-2-methylphenol		0.192	0.154		-19.8	
N-Nitrosodiphenylamine (1)		0.562	0.518		-7.8	
4-Bromophenyl-phenylether	*	0.224	0.230	0.100	2.7	25.0
Hexachlorobenzene	*	0.267	0.272	0.100	1.9	25.0
Atrazine			0.097		-48.1	
Pentachlorophenol	*	0.044		0.050		25.0
Phenanthrene	*	1.231	1.099	0.700	-10.7	25.0
Anthracene	*	1.278	1.145	0.700	-10.4	25.0
Carbazole		0.824	0.899		9.1	
Di-n-butylphthalate		1.849				
Fluoranthene	*	1.301	1.240	0.600	-4.7	25.0
Pyrene	*	1.602	1.361	0.600	-15.0	25.0
Butylbenzylphthalate		1.006	0.815		-19.0	
3,3'-Dichlorobenzidine		0.242	0.277		14.5	
Benzo(a)anthracene	*	1.425	1.259	0.800	-11.6	25.0
Chrysene	*	1.345	1.245	0.700	-7.4	25.0
bis(2-Ethylhexyl)phthalate		1.454	1.165		-19.9	
Di-n-octylphthalate		2.689	2.080		-22.6	
Benzo(b)fluoranthene	*		1.592	0.700	-2.9	25.0
Benzo(k)fluoranthene	*	1.572		0.700		25.0
Benzo(a)pyrene	*	1.287	1.186	0.700	-7.8	25.0
Indeno(1,2,3-cd)pyrene	*	1.293	1.337	0.500	3.4	25.0
Dibenzo(a,h)anthracene	*	1.226	1.082	0.400	-11.7	25.0
Benzo(g,h,i)perylene	*	1.230	1.132	0.500	-8.0	25.0
Nitrobenzene-d5	*	0.560	0.563	0.200	0.5	25.0
2-Fluorobiphenyl	*	1.431	1.315	0.700	-8.1	25.0
Terphenyl-d14	*	1.102	0.930	0.500	-15.6	25.0
Phenol-d5	*	1.698	1.582	0.800	-6.8	25.0
2-Fluorophenol	*	1.330	1.013	0.600	-23.8	25.0
2,4,6 Tribromophenol		0.145	0.138		-4.8	
2-Chlorophenol-d4	*	1.520	1.230	0.800	-19.1	25.0
1,2 Dichlorobenzene-d4	*	0.963	0.922	0.400	-4.3	25.0

All other compounds must meet a minimum RRF of 0.010.

Compound	RT	response	Cal amt.	On-col ng
1,4 Dichlorobenzene-d4	8.268	273371	40.0	
Naphthalene-d8	11.156	793968	40.0	
Acenaphthene-d10	14.669	404967	40.0	
Phenanthrene-d10	19.010	680939	40.0	
Chrysene-d12	24.634	634714	40.0	
Perylene-d12	27.252	584681	40.0	
2-Fluorophenol	5.786	346266	50.0	38.09
Phenol-d5	7.795	540530	50.0	46.59
2-Chlorophenol-d4	7.897	420401	50.0	40.47
1,2 Dichlorobenzene-d4	8.691	314959	50.0	47.87
Nitrobenzene-d5	9.670	558498	50.0	50.21
2-Fluorobiphenyl	13.217	665581	50.0	45.93
2,4,6 Tribromophenol	17.220	117363	50.0	47.43
Terphenyl-d14	22.641	737686	50.0	42.20
Benzaldehyde	7.373	376710	50.0	48.25
Phenol	7.829	556993	50.0	42.49
bis(2-Chloroethyl)ether	7.846	487648	50.0	45.18
2-Chlorophenol	7.931	461573	50.0	47.18
Acetophenone	9.316	686796	50.0	50.74
N-Nitroso-di-n-propylamine	9.417	271648	50.0	49.66
Isophorone	10.261	1013759	50.0	48.50
2,4 Dichlorophenol	11.038	320741	50.0	55.51
Naphthalene	11.190	952948	50.0	42.70
4-Chloroaniline	11.393	375145	50.0	45.65
Hexachlorobutadiene	11.494	196538	50.0	49.32
4-Chloro-3-methylphenol	12.356	317561	50.0	47.96
2-Methylnaphthalene	12.406	754476	50.0	54.21
Hexachlorocyclopentadiene	12.845	170818	50.0	41.32
2,4,5-Trichlorophenol	13.217	231840	50.0	46.48
2-Chloronaphthalene	13.386	595756	50.0	47.54
2-Nitroaniline	13.774	258077	50.0	41.87
2,6-Dinitrotoluene	14.433	181790	50.0	48.99
3-Nitroaniline	14.805	142245	50.0	37.90
Acenaphthene	14.754	625477	50.0	45.48
4-Nitrophenol	15.683	38130	50.0	18.01
2,4-Dinitrotoluene	15.548	247091	50.0	47.34
Diethylphthalate	16.392	825709	50.0	46.59
4-Nitroaniline	16.882	79683	50.0	37.58
4,6-Dinitro-2-methylphenol	16.899	131488	50.0	40.37
Hexachlorobenzene	18.250	231108	50.0	50.76
Atrazine	18.672	82550	50.0	28.06
Pentachlorophenol	18.824	105862	50.0	39.27
Di-n-butylphthalate	20.733	1437917	50.0	45.67
Pyrene	22.219	1079576	50.0	42.47
Butylbenzylphthalate	23.705	646535	50.0	40.52
bis(2-Ethylhexyl)phthalate	24.820	924536	50.0	40.06
Di-n-octylphthalate	25.884	1519842	50.0	38.66
Benzo(b)fluoranthene	26.526	1163405	50.0	53.76
Benzo(k)fluoranthene	26.577	1036942	50.0	45.14
Indeno(1,2,3-cd)pyrene	29.718	977295	50.0	51.72
Benzo(g,h,i)perylene	30.444	827614	50.0	46.04

Modified DFTPP data FOR CALIBRATION 12/22/00 1746 TO 2057

m/z	abundance	m/z	abundance	m/z	abundance	m/z	abundance
37.00	169	108.00	405	177.00	176	247.00	33
38.00	214	110.00	5851	178.00	78	249.00	37
39.00	1244	111.00	863	179.00	635	253.00	28
40.00	106	112.00	96	180.00	399	255.00	7040
42.00	58	116.00	18	181.00	190	256.00	1011
45.00	106	117.00	3113	184.00	81	257.00	94
47.00	29	118.00	222	185.00	338	258.00	442
49.00	15	122.00	239	186.00	2032	259.00	43
50.00	3564	123.00	319	187.00	646	265.00	185
51.00	12134	124.00	151	188.00	41	273.00	217
52.00	582	125.00	127	189.00	171	274.00	573
55.00	58	127.00	9108	191.00	93	275.00	3142
56.00	421	128.00	754	192.00	195	276.00	420
57.00	793	129.00	4436	196.00	473	277.00	257
61.00	166	130.00	356	197.00	22	278.00	90
62.00	191	131.00	86	198.00	16872	285.00	36
63.00	413	134.00	123	199.00	1139	293.00	38
64.00	71	135.00	353	200.00	83	296.00	859
65.00	230	136.00	144	201.00	71	297.00	117
66.00	18	137.00	136	203.00	135	303.00	78
68.00	15	139.00	107	204.00	522	314.00	31
69.00	14363	141.00	541	205.00	918	315.00	69
70.00	145	142.00	196	206.00	3690	316.00	38
73.00	96	143.00	123	207.00	488	323.00	257
74.00	1231	146.00	103	208.00	166	324.00	42
75.00	1808	147.00	230	209.00	64	327.00	40
76.00	602	148.00	636	210.00	65	334.00	174
77.00	10828	149.00	145	211.00	154	335.00	35
79.00	1003	151.00	89	215.00	28	346.00	44
80.00	599	153.00	161	216.00	32	352.00	82
81.00	875	154.00	110	217.00	997	353.00	49
82.00	222	155.00	276	218.00	122	354.00	77
83.00	199	156.00	351	221.00	738	365.00	329
86.00	316	157.00	109	223.00	219	366.00	42
87.00	116	158.00	121	224.00	1998	372.00	129
91.00	217	159.00	69	225.00	475	373.00	33
92.00	223	160.00	176	226.00	45	383.00	39
93.00	1581	161.00	206	227.00	879	402.00	40
94.00	33	162.00	58	228.00	126	403.00	59
95.00	104	165.00	215	229.00	158	421.00	57
96.00	82	166.00	142	231.00	41	422.00	55
97.00	60	167.00	954	234.00	36	423.00	490
98.00	1068	168.00	480	235.00	42	424.00	74
99.00	887	169.00	111	237.00	34	441.00	1252
100.00	85	170.00	21	241.00	34	442.00	7882
101.00	428	172.00	74	242.00	102	443.00	1529
103.00	156	173.00	88	243.00	118	444.00	143
104.00	290	174.00	168	244.00	1463		
105.00	297	175.00	317	245.00	206		
107.00	2813	176.00	86	246.00	317		

Modified DFTPP data FOR CALIBRATION 01/30/01 1625

m/z	abundance	m/z	abundance	m/z	abundance	m/z	abundance
37.00	174	104.00	766	167.00	2908	228.00	320
38.00	952	105.00	754	168.00	1199	229.00	455
39.00	3422	107.00	8251	169.00	197	231.00	210
40.00	44	108.00	1242	170.00	19	234.00	169
49.00	216	110.00	17328	172.00	214	242.00	307
50.00	10102	111.00	2519	173.00	238	244.00	5743
51.00	33752	112.00	202	174.00	420	245.00	577
52.00	1941	116.00	577	175.00	926	246.00	707
55.00	401	117.00	8096	176.00	172	255.00	27096
56.00	1131	118.00	418	177.00	395	256.00	3893
57.00	2278	122.00	669	179.00	2159	257.00	226
61.00	479	123.00	895	180.00	1114	258.00	1450
62.00	553	124.00	286	181.00	448	259.00	187
63.00	1587	125.00	240	185.00	872	265.00	431
64.00	372	127.00	29280	186.00	6989	273.00	581
65.00	603	128.00	2232	187.00	2198	274.00	2339
69.00	41632	129.00	13250	188.00	113	275.00	12817
73.00	221	130.00	1127	189.00	408	276.00	1504
74.00	3310	134.00	258	192.00	489	277.00	690
75.00	5374	135.00	922	193.00	450	278.00	167
76.00	1674	136.00	260	196.00	1571	296.00	2984
77.00	30800	137.00	338	198.00	60928	297.00	318
78.00	2017	141.00	1576	199.00	4013	303.00	258
79.00	2618	142.00	609	200.00	201	315.00	219
80.00	1908	143.00	251	201.00	194	323.00	940
81.00	2295	146.00	214	203.00	282	334.00	415
82.00	622	147.00	754	204.00	1811	352.00	259
83.00	508	148.00	1627	205.00	3167	354.00	254
85.00	253	149.00	288	206.00	13095	365.00	1137
86.00	723	153.00	362	207.00	1696	372.00	374
87.00	194	154.00	267	208.00	384	421.00	169
91.00	577	155.00	819	211.00	410	422.00	167
92.00	663	156.00	1100	217.00	3540	423.00	2028
93.00	4362	157.00	223	218.00	327	424.00	266
94.00	408	158.00	228	221.00	3003	441.00	5807
98.00	3022	160.00	356	223.00	584	442.00	36208
99.00	2124	161.00	445	224.00	7160	443.00	6923
101.00	1190	165.00	413	225.00	1764	444.00	679
103.00	267	166.00	297	227.00	3027		

Modified DFTPP data FOR CALIBRATION 02/02/01 1103

m/z	abundance	m/z	abundance	m/z	abundance	m/z	abundance
37.00	212	107.00	9459	169.00	213	231.00	230
38.00	1029	108.00	1392	170.00	445	234.00	175
39.00	3946	110.00	20064	172.00	208	235.00	212
40.00	212	111.00	2920	173.00	258	237.00	324
50.00	11772	112.00	258	174.00	513	244.00	6228
51.00	38984	116.00	630	175.00	951	245.00	597
52.00	2109	117.00	9002	176.00	234	246.00	1072
55.00	699	118.00	507	177.00	477	247.00	188
56.00	1293	122.00	696	179.00	2337	255.00	29760
57.00	2820	123.00	1011	180.00	1331	256.00	4411
61.00	508	124.00	368	181.00	517	257.00	230
62.00	672	125.00	326	184.00	174	258.00	1434
63.00	1816	127.00	33008	185.00	975	259.00	202
64.00	204	128.00	2744	186.00	7813	265.00	469
65.00	620	129.00	15024	187.00	2350	273.00	653
69.00	48152	130.00	1255	188.00	71	274.00	2438
73.00	454	131.00	192	189.00	436	275.00	14020
74.00	4005	134.00	336	191.00	199	276.00	1688
75.00	6146	135.00	1087	192.00	498	277.00	995
76.00	1911	136.00	309	193.00	531	278.00	189
77.00	35528	137.00	361	196.00	1929	293.00	175
78.00	2273	141.00	2212	198.00	68200	296.00	3198
79.00	2987	142.00	652	199.00	4521	297.00	307
80.00	2071	143.00	279	200.00	272	303.00	235
81.00	2694	146.00	250	201.00	238	315.00	247
82.00	701	147.00	887	203.00	353	323.00	958
83.00	679	148.00	1942	204.00	2051	334.00	448
85.00	311	149.00	325	205.00	3463	352.00	199
86.00	941	151.00	167	206.00	14705	353.00	183
87.00	221	153.00	388	207.00	2333	354.00	220
91.00	795	154.00	305	208.00	406	365.00	1180
92.00	749	155.00	883	211.00	447	372.00	342
93.00	4791	156.00	1187	217.00	3817	403.00	198
94.00	144	157.00	230	218.00	362	423.00	2108
98.00	3360	158.00	246	221.00	3439	424.00	228
99.00	2266	160.00	420	223.00	669	441.00	5693
100.00	173	161.00	576	224.00	7645	442.00	36840
101.00	1349	165.00	684	225.00	2037	443.00	6837
103.00	414	166.00	363	227.00	3257	444.00	656
104.00	930	167.00	3044	228.00	357		
105.00	827	168.00	1545	229.00	516		

EPA SAMPLE NO.
SBLKS1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __MBS0202_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___MBS0202A1_____

Level: (low/med) ____LOW_____ Date Received: _____

% Moisture: not dec. ____0_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
100-52-7	Benzaldehyde	330	U
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)ether	330	U
95-57-8	2-Chlorophenol	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
98-86-2	Acetophenone		
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-di-n-propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
105-60-2	Caprolactam	330	U
59-50-7	4-Chloro-3-methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene		
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	830	U
92-52-4	1,1 Biphenyl	330	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	830	U
131-11-3	Dimethylphthalate	330	U
606-20-2	2,6-Dinitrotoluene	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline		
83-32-9	Acenaphthene	330	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __MBS0202_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___MBS0202A1_____

Level: (low/med) ____LOW_____ Date Received: _____

% Moisture: not dec. ____0_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	830	U
100-02-7	4-Nitrophenol	830	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	100	J
86-73-7	Fluorene	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
100-01-6	4-Nitroaniline	830	U
534-52-1	4,6-Dinitro-2-methylphenol	90	J
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
1912-24-9	Atrazine	330	U
87-86-5	Pentachlorophenol	830	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene		
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	350	
117-84-0	Di-n-octylphthalate	270	J
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene		
53-70-3	Dibenz(a,h)anthracene	330	U
191-24-2	Benzo(g,h,I)perylene	330	U

(1) Cannot be separated from Diphenylamine

1G

EPA SAMPLE NO.

SBLKS1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __MBS0202_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___MBS0202A1_____

Level: (low/med) ____LOW_____ Date Received: _____

% Moisture: not dec. ____0_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y__ pH: _____ Extraction: (Type) ____SONC_____
Number TICs found: ___3_____ CONCENTRATION UNITS
(lg/L or lg/Kg) _lg/Kg __

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown (BC)	7.05	1000	J
2.	Unknown (BC)	8.35	340	J
3.	Unknown (BC)	9.37	68	J
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30.				

FORM I SV-TIC

OLM04.2

Modified Quant Report for SBLKS1

Compound	RT	Response	On col ng	Final ug/kg
1,4 Dichlorobenzene-d4	8.286	356995	40.00	
Naphthalene-d8	11.157	987636	40.00	
Acenaphthene-d10	14.670	514455	40.00	
Phenanthrene-d10	19.010	852570	40.00	
Chrysene-d12	24.635	730186	40.00	
Perylene-d12	27.236	601951	40.00	
2-Fluorophenol	5.803	1010812	111.769	1863
Phenol-d5	7.830	1296582	91.841	1531
2-Chlorophenol-d4	7.914	1135356	103.402	1723
1,2 Dichlorobenzene-d4	8.691	491852	59.791	996.5
Nitrobenzene-d5	9.671	879892	63.326	1055
2-Fluorobiphenyl	13.217	1174792	69.470	1158
2,4,6 Tribromophenol	17.220	287568	97.849	1631
Terphenyl-d14	22.659	1226140	72.240	1204
Benzaldehyde				
Phenol				
bis(2-Chloroethyl)ether				
2-Chlorophenol				
Acetophenone	9.315	46076		
N-Nitroso-di-n-propylamine				
Isophorone				
Naphthalene				
4-Chloroaniline				
Hexachlorobutadiene				
4-Chloro-3-methylphenol				
2-Methylnaphthalene				
Hexachlorocyclopentadiene	12.844	31965		
2,4,5-Trichlorophenol				
2-Chloronaphthalene				
2-Nitroaniline				
2,6-Dinitrotoluene				
3-Nitroaniline	14.806	32855	9.09	151.52
Acenaphthene				
4-Nitrophenol				
2,4-Dinitrotoluene				
Diethylphthalate	16.393	125404	5.98	99.64
4,6-Dinitro-2-methylphenol	16.898	17800	5.42	90.38
Hexachlorobenzene				
Pentachlorophenol				
Di-n-butylphthalate				
Pyrene	22.220	414254		
Butylbenzylphthalate				
bis(2-Ethylhexyl)phthalate	24.822	452565	21.28	354.67
Di-n-octylphthalate	25.886	513547	16.41	273.44
Benzo(b)fluoranthene				
Benzo(k)fluoranthene				
Indeno(1,2,3-cd)pyrene	29.720	153548		
Benzo(g,h,i)perylene				

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKW1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __MBW0130_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ___MBW0130A1_____

Level: (low/med) _____LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ___1000____(lL) Date Analyzed: __01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ____7.5___ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ____lg/L ___	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether		
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	8	J
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	22	
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene		
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKW1

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __MBW0130_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ___MBW0130A1_____

Level: (low/med) _____LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ___1000____(lL) Date Analyzed: __01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ____7.5___ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L ___	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate		
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	15	
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate		
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,I)perylene	10	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SBLKW1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: __MBW0130_____

Sample wt/vol: ____1000_____(g/mL) ___ML_____ Lab File ID: ___MBW0130A1_____

Level: (low/med) _____LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: ___1000____(lL) Date Analyzed: __01/30/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ____7.5___ Extraction: (Type) ____SONC_____
Number TICs found: ____0_____ CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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29.				
30.				

Modified Quant Report for SBLKW1

Compound	RT	Response	On col ng	Final ug/l
1,4 Dichlorobenzene-d4	8.333	295213	40.00	
Naphthalene-d8	11.204	829078	40.00	
Acenaphthene-d10	14.717	470766	40.00	
Phenanthrene-d10	19.058	816435	40.00	
Chrysene-d12	24.665	771890	40.00	
Perylene-d12	27.300	697863	40.00	
2-Fluorophenol	5.799	984346	114.095	57.05
Phenol-d5	7.843	1293856	124.960	62.48
2-Chlorophenol-d4	7.944	1188192	124.631	62.32
1,2 Dichlorobenzene-d4	8.755	441034	64.3972	32.20
Nitrobenzene-d5	9.735	890179	77.683	38.84
2-Fluorobiphenyl	13.265	1187483	75.982	37.99
2,4,6 Tribromophenol	17.267	358894	111.346	55.67
Terphenyl-d14	22.689	1434577	77.901	38.95
Benzaldehyde				
Phenol				
bis(2-Chloroethyl)ether	7.911	64328		
2-Chlorophenol				
Acetophenone				
N-Nitroso-di-n-propylamine				
Isophorone				
Naphthalene				
4-Chloroaniline				
Hexachlorobutadiene	11.541	72321	16.78	8.39
4-Chloro-3-methylphenol				
2-Methylnaphthalene				
Hexachlorocyclopentadiene				
2,4,5-Trichlorophenol	13.266	241428	44.89	22.44
2-Chloronaphthalene				
2-Nitroaniline				
2,6-Dinitrotoluene	14.485	45254		
3-Nitroaniline				
Acenaphthene				
4-Nitrophenol				
2,4-Dinitrotoluene				
Diethylphthalate				
4,6-Dinitro-2-methylphenol				
Hexachlorobenzene				
Pentachlorophenol				
Di-n-butylphthalate	20.780	1285457		
Pyrene				
Butylbenzylphthalate	23.738	455878	30.68	15.34
bis(2-Ethylhexyl)phthalate	24.869	1375478		
Di-n-octylphthalate				
Benzo(b)fluoranthene				
Benzo(k)fluoranthene				
Indeno(1,2,3-cd)pyrene				
Benzo(g,h,i)perylene				

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB21MS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: ___BBB00-2____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-2A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L ___	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol		
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol		
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine		
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	20	
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol		
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	15	J
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene		

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB21MS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: ___BBB00-2____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-2A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L ___	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol		
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene		
84-66-2	Diethylphthalate	30	
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene		
85-68-7	Butylbenzylphthalate	20	
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	50	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,I)perylene	10	U

(1) Cannot be separated from Diphenylamine

Compound	RT	Response	On col ng	Final ug/l
1,4 Dichlorobenzene-d4	8.331	357053	40.00	
Naphthalene-d8	11.202	1028111	40.00	
Acenaphthene-d10	14.732	103621	40.00	
Phenanthrene-d10	19.056	979688	40.00	
Chrysene-d12	24.663	969101	40.00	
Perylene-d12	27.298	268953	40.00	
2-Fluorophenol	5.814	990850	94.957	47.48
Phenol-d5	7.858	1222097	97.587	48.79
2-Chlorophenol-d4	7.943	1192746	103.441	51.72
1,2 Dichlorobenzene-d4	8.753	499915	60.352	30.18
Nitrobenzene-d5	9.733	944663	66.479	33.24
2-Fluorobiphenyl	13.263	132771	38.59	19.29
2,4,6 Tribromophenol	17.266	401135	103.712	51.86
Terphenyl-d14	22.687	1414796	61.193	30.60
Benzaldehyde				
Phenol	7.875	1365572		
bis(2-Chloroethyl)ether				
2-Chlorophenol	7.976	1187847		
Acetophenone				
N-Nitroso-di-n-propylamine	9.463	490727		
Isophorone				
Naphthalene				
4-Chloroaniline				
Hexachlorobutadiene	11.47	219019	40.97	20.48
4-Chloro-3-methylphenol	12.368	776732		
2-Methylnaphthalene				
Hexachlorocyclopentadiene				
2,4,5-Trichlorophenol				
2-Chloronaphthalene				
2-Nitroaniline	13.813	38875	30.94	15.47
2,6-Dinitrotoluene				
3-Nitroaniline				
Acenaphthene	14.817	227544		
4-Nitrophenol	15.644	30291		
2,4-Dinitrotoluene	15.593	102642		
Diethylphthalate	16.451	249708	60.06	30.03
4,6-Dinitro-2-methylphenol				
Hexachlorobenzene				
Pentachlorophenol	18.853	429157		
Di-n-butylphthalate	20.771	872508	20.74	10.38
Pyrene	22.265	2445739		
Butylbenzylphthalate	23.730	764452	40.98	20.49
bis(2-Ethylhexyl)phthalate	24.860	2856547	100.52	50.26
Di-n-octylphthalate				
Benzo(b)fluoranthene				
Benzo(k)fluoranthene				
Indeno(1,2,3-cd)pyrene				
Benzo(g,h,i)perylene				

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB21MSD

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: ___BBB00-3____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-3A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: __5.3_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L ___	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol		
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol		
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine		
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	30	
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol		
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	5	J
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene		

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB21MSD

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) _____WATER_____ Lab Sample ID: ___BBB00-3____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-3A1_____

Level: (low/med) __LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/28/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: ___01/30/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: __5.3_____ Extraction: (Type) ____CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____lg/L ___	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol		
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene		
84-66-2	Diethylphthalate	100	
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	80	
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	33	
85-68-7	Butylbenzylphthalate	120	
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	500	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,I)perylene	10	U

(1) Cannot be separated from Diphenylamine

Compound	RT	Response	On col ng	Final ug/l
1,4 Dichlorobenzene-d4	8.331	327896	40.00	
Naphthalene-d8	11.202	959488	40.00	
Acenaphthene-d10	14.715	108123	40.00	
Phenanthrene-d10	19.056	919067	40.00	
Chrysene-d12	24.663	881574	40.00	
Perylene-d12	27.298	804134	40.00	
2-Fluorophenol	5.815	677653	70.717	35.36
Phenol-d5	7.858	989072	86.003	43.00
2-Chlorophenol-d4	7.943	959927	90.652	45.33
1,2 Dichlorobenzene-d4	8.753	405415	53.296	26.65
Nitrobenzene-d5	9.733	671607	50.643	25.32
2-Fluorobiphenyl	13.263	256853	71.55	35.77
2,4,6 Tribromophenol	17.266	328265	90.470	45.24
Terphenyl-d14	22.687	1138475	54.130	27.07
Benzaldehyde				
Phenol	7.875	1137594		
bis(2-Chloroethyl)ether				
2-Chlorophenol	7.976	981098		
Acetophenone				
N-Nitroso-di-n-propylamine	9.463	405575		
Isophorone				
Naphthalene				
4-Chloroaniline				
Hexachlorobutadiene	11.472	303365	60.80	30.40
4-Chloro-3-methylphenol	12.368	689771		
2-Methylnaphthalene				
Hexachlorocyclopentadiene				
2,4,5-Trichlorophenol				
2-Chloronaphthalene				
2-Nitroaniline	13.811	13167	10.04	5.02
2,6-Dinitrotoluene				
3-Nitroaniline				
Acenaphthene	14.800	212699		
4-Nitrophenol	15.661	24774		
2,4-Dinitrotoluene	15.594	84257		
Diethylphthalate	16.448	880872	203.04	101.52
4,6-Dinitro-2-methylphenol				
Hexachlorobenzene				
Pentachlorophenol	18.853	353753		
Di-n-butylphthalate	20.768	6340562	160.63	80.31
Pyrene	22.265	2008113	38.00	34.00
Butylbenzylphthalate	23.728	4150873	244.60	122.30
bis(2-Ethylhexyl)phthalate	24.855	26046250	1007.51	503.75
Di-n-octylphthalate				
Benzo(b)fluoranthene				
Benzo(k)fluoranthene				
Indeno(1,2,3-cd)pyrene				
Benzo(g,h,i)perylene				

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB25MS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-8_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-8A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
100-52-7	Benzaldehyde	400	U
108-95-2	Phenol		
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol		
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
98-86-2	Acetophenone	420	
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine		
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
105-60-2	Caprolactam	400	U
59-50-7	4-Chloro-3-methylphenol		
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
92-52-4	1,1 Biphenyl	400	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
606-20-2	2,6-Dinitrotoluene	400	U
208-96-8	Acenaphthylene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene		

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB25MS

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-8_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-8A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol		
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene		
84-66-2	Diethylphthalate	1300	
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
1912-24-9	Atrazine	400	U
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	1100	
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene		
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	3000	
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	1400	
207-08-9	Benzo(k)fluoranthene	1500	
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,I)perylene	400	U

(1) Cannot be separated from Diphenylamine

Compound	RT	Response	On col ug	Final ug/kg
1,4 Dichlorobenzene-d4	8.280	393671	40.00	
Naphthalene-d8	11.168	133583	40.00	
Acenaphthene-d10	14.681	597106	40.00	
Phenanthrene-d10	19.022	1026534	40.00	
Chrysene-d12	24.629	900489	40.00	
Perylene-d12	27.247	756055	40.00	
2-Fluorophenol	5.814	664300	66.610	1338
Phenol-d5	7.824	809704	52.011	1044
2-Chlorophenol-d4	7.909	743029	61.366	1232
1,2 Dichlorobenzene-d4	8.702	238630	26.306	528.2
Nitrobenzene-d5	9.682	54532	29.00	582.40
2-Fluorobiphenyl	13.229	726332	37.006	743.1
2,4,6 Tribromophenol	17.232	211383	59.737	1200
Terphenyl-d14	22.653	919286	43.918	881.9
Benzaldehyde				
Phenol	7.858	968466		
bis(2-Chloroethyl)ether				
2-Chlorophenol	7.942	762349		
Acetophenone	9.318	415856	21.02	422.13
N-Nitroso-di-n-propylamine	9.412	329638		
Isophorone				
Naphthalene				
4-Chloroaniline				
Hexachlorobutadiene				
4-Chloro-3-methylphenol	12.334	64355		
2-Methylnaphthalene				
Hexachlorocyclopentadiene				
2,4,5-Trichlorophenol				
2-Chloronaphthalene				
2-Nitroaniline				
2,6-Dinitrotoluene				
3-Nitroaniline				
Acenaphthene	14.766	765101		
4-Nitrophenol	15.627	129020		
2,4-Dinitrotoluene	15.543	296371		
Diethylphthalate	16.413	1556972	63.95	1284.12
4,6-Dinitro-2-methylphenol				
Hexachlorobenzene				
Pentachlorophenol	18.819	210478		
Di-n-butylphthalate	20.740	2423652	55.91	1122.79
Pyrene	22.231	1538821		
Butylbenzylphthalate				
bis(2-Ethylhexyl)phthalate	24.822	3920603	149.49	3001.78
Di-n-octylphthalate				
Benzo(b)fluoranthene	26.531	2165351	71.96	1444.98
Benzo(k)fluoranthene	26.583	2025487	75.52	1516.44
Indeno(1,2,3-cd)pyrene				
Benzo(g,h,i)perylene				

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB25MSD

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-9_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-9A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
100-52-7	Benzaldehyde	400	U
108-95-2	Phenol		
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol		
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
98-86-2	Acetophenone	600	
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine		
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
105-60-2	Caprolactam	400	U
59-50-7	4-Chloro-3-methylphenol		
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
92-52-4	1,1 Biphenyl	400	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
606-20-2	2,6-Dinitrotoluene	400	U
208-96-8	Acenaphthylene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene		

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB25MSD

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBB00-9_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: ___BBB00-9A1_____

Level: (low/med) ____LOW_____ Date Received: ___01/25/01_____

% Moisture: not dec. ____17_____ Decant: (Y/N) __N_____ Date Extracted: ___01/27/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: ___02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_ pH: ____7.8__ Extraction: (Type) ____SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol		
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene		
84-66-2	Diethylphthalate	1200	
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
1912-24-9	Atrazine	400	U
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	1500	
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene		
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	5000	
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	1400	
207-08-9	Benzo(k)fluoranthene	1800	
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,I)perylene	400	U

(1) Cannot be separated from Diphenylamine

Modified Quant Report for BBB25MSD

Compound	RT	Response	On col ng	Final ug/kg
1,4 Dichlorobenzene-d4	8.285	58761	40.00	
Naphthalene-d8	11.157	1215261	40.00	
Acenaphthene-d10	14.687	641498	40.00	
Phenanthrene-d10	19.027	1081924	40.00	
Chrysene-d12	24.635	123974	40.00	
Perylene-d12	27.252	755692	40.00	
2-Fluorophenol	5.820	95166	63.95	1284
Phenol-d5	7.829	240199	103.36	2075
2-Chlorophenol-d4	7.914	127958	70.82	1422
1,2 Dichlorobenzene-d4	8.708	100402	68.90	1383
Nitrobenzene-d5	9.670	686020	40.125	805.7
2-Fluorobiphenyl	13.217	916599	43.468	872.9
2,4,6 Tribromophenol	17.220	262867	70.483	1415
Terphenyl-d14	22.658	175120	60.76	1220
Benzaldehyde				
Phenol	7.863	178784		
bis(2-Chloroethyl)ether				
2-Chlorophenol	7.948	137363		
Acetophenone	9.315	88814	30.08	603.99
N-Nitroso-di-n-propylamine	9.417	64048		
Isophorone				
Naphthalene				
4-Chloroaniline				
Hexachlorobutadiene				
4-Chloro-3-methylphenol	12.339	644164		
2-Methylnaphthalene				
Hexachlorocyclopentadiene				
2,4,5-Trichlorophenol				
2-Chloronaphthalene				
2-Nitroaniline				
2,6-Dinitrotoluene				
3-Nitroaniline				
Acenaphthene	14.771	984742		
4-Nitrophenol	15.599	141664		
2,4-Dinitrotoluene	15.548	427323		
Diethylphthalate	16.409	1572236	60.11	1206.98
4,6-Dinitro-2-methylphenol				
Hexachlorobenzene				
Pentachlorophenol	18.825	284646		
Di-n-butylphthalate	20.736	3419965	74.86	1503.23
Pyrene	22.236	254303		
Butylbenzylphthalate				
bis(2-Ethylhexyl)phthalate	24.819	905854	250.88	5037.70
Di-n-octylphthalate				
Benzo(b)fluoranthene	26.530	2123654	70.61	1417.84
Benzo(k)fluoranthene	26.582	2412254	89.98	1806.87
Indeno(1,2,3-cd)pyrene				
Benzo(g,h,i)perylene				

Appendix G

Answers

VOA Final Quiz

Final VOA Quiz

- Note: value in **()** is the original on column value based on the calculations.
- All answers are highlighted as bold text.
- Only pages that need answers/qualifiers/corrections are available in the answer section.

Validators taking this test should be careful writing up the calibration criteria answers. Remember that you need to write the analyte and associated samples once either under RRF criteria, % RSD criteria or % D criteria.

Rules for writing calibration criteria.

- If the analyte and associated samples would be qualified "J" for %RSD and %D, then write it up under the %D criteria. No need to write it up under the %RSD criteria. Samples are quantitated using continuing calibration values, so %D is more important than %RSD for the same qualification.

- If the analyte and associated samples would be qualified "R" for %RSD and "J" for %D, then write it up under the %RSD criteria. No need to write it up under the %D criteria. "R" qualifiers have higher concerns than "J" qualifiers.

- If the analyte and associated samples would be qualified "J" for %RSD and "R" for %D, then write it up under the %D criteria. No need to write it up under the %RSD criteria. "R" qualifiers have higher concerns than "J" qualifiers.

- RRF qualifiers have higher concerns than %RSD and %D. If the analyte and associated samples would be qualified "R" for %RRF and "J" for %RSD and/or %D, then write it up under the RRF criteria. No need to write it up under the %RSD or %D criteria.

CASE No.: 12345 **SDG No.:** BBB00

LABORATORY: NewLab **SITE:** Somewhere

DATA ASSESSMENT

The current SOP No. HW-6 (Revision 12), January 2000 for CLP Organics Review and Preliminary Review has been applied.

All data were found to be valid and acceptable except those analytes which have been rejected, "R" (unusable). Due to various QC problems some analytes may have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detect), or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's

Signature: My Name Date: Date assessment is completed

Verified By: _____ Date: _____

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

The low-level soil samples were not preserved or analyzed within 2 days VTSR.

The following samples were analyzed > 7 days date of collection, aromatic analytes (Benzene, Toluene, chlorobenzene, ethylbenzene, xylenes (Total), styrene, Isopropylbenzene, 1,3 Dichlorobenzene, 1,4 Dichlorobenzene, 1,2 Dichlorobenzene, 1,2,4 Trichlorobenzene) were qualified as "J" for non-detects and detects: BPH62, BXZ26, BXZ26MS, BXZ26MSD.

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

BXZ26MSD did not meet SMC criterion for the third surrogate, all analytes were qualified as "J" for detects and non-detects for this sample.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

No action was taken on MS/MSD data. Only one analyte did not meet % recovery criterion.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

Methylene Chloride- BNR68, BNR68MS, BNR68MSD, BPJ51MS, BPJ51MSD, BXZ26MS, BXZ26MSD

Acetone- BNR68, BNR68MS, BNR68MSD, BPH62, BPJ51, BPJ51MS, BPJ51MSD, BXZ26MS, BXZ26MSD

2-Butanone- BNR68MS, BNR68MSD

Toluene- BPJ51

Chlorobenzene- BPH62

Ethylbenzene- BXZ26MSD

B) Field or rinse blank contamination:

Methylene Chloride- BPH62

Benzene- BPH62

Ethylbenzene- BPH62, BPJ51

C) Trip blank contamination:

4-methyl-2-pentanone- BPJ51,

1,2 Dibromo-3-chloropropane- BPJ51,

D) Storage Blank contamination:

Chloromethane- BPH62

2-Butanone- BPJ51,

Carbon Tetrachloride- BPJ51,

Toluene- BPH62

2-hexanone- BPJ51,

E) TICs

ADOL- BDR43, BNR68, BPJ51, BXZ26,
Unknown- BDR43, BPJ51, BXZ26

Laboratory Artifact- BDR43, BNR68, BPJ51, BXZ26

Siloxane- BDR43, BNR68, BPJ51, BXZ26

Unknown Siloxane- BDR43, BNR68, BPJ51, BXZ26

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organic is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

VHBLK01 analyzed after 12-hour clock. All non-detect analytes in sample are "R" and "J" for detects.

Tune analyzed 02/11/01 at 0617 on instrument AA did not pass Instrument Performance criterion for ion abundance 75. All non-detects are "R" and detects are "J" for analytes in the following associated samples: VBLKSD, BNR68, BNR68MS, BNR68MSD.

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

Initial Calibration
2-hexanone- BDR43, BPH71, BPH71RE, BPJ51, BPJ51MS, BPJ51MSD, BPL01, BPL04, VHBLK01, VBLKJH

Continuing Calibration
4-methyl-2-pentanone, 1,2 Dibromo-3-chloropropane- BDR43*, BPH71, BPH71RE, BPJ51, BPJ51MS, BPJ51MSD, BPL01, BPL04, VBLKJH, VHBLK01*,

2-hexanone- BNR68MS*, BNR68MSD, VBLKSD*

*** may have different qualifier due to another criterion.**

7. CALIBRATION:

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

The following analytes in the sample shown were qualified for %RSD and %D:

%RSD
Methylene Chloride- BNR68, BNR68MS, BNR68MSD, VBLKSD

%D "J" positive hits and non-detects
Dichlorofluoromethane, Chloromethane, Acetone, 1,1-Dichloroethane, 2-Butanone, 1,2-Dichloroethane, Trichloroethene, Trans-1,3-Dichloropropene,
- BDR43, BPH71, BPH71RE, BPJ51, BPJ51MS, BPJ51MSD, BPL01, BPL04, VBLKJH, VHBLK01,

Acetone, 2-Butanone, Trichloroethene, 1,3 Dichlorobenzene- BNR68, BNR68MS*, BNR68MSD, VBLKSD*

Vinyl Chloride, Acetone, Methyl acetate, methyl-tert-butyl ether, 2-Butanone- BPH62, BXZ26, BXZ26MS, BXZ26MSD, VBLKDS

%D > 90% "R" non-detects and "J" positive hits
Methylene Chloride- BDR43, BPH71, BPH71RE, BPJ51, BPJ51MS, BPJ51MSD, BPL01, BPL04, VBLKJH, VHBLK01
***** may have different qualifier due to another criterion.**

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.

Above upper limit- "J" positive hits only, no action for non-detects:
IS1- BNR68*, BXZ26 IS2- BPL04, BXZ26* IS3- BXZ26

Below lower limit but >25% of lower limit, "J" all analytes:
IS1- BNR68MSD IS2- BPH71

<25% of lower limit, "J" positive hits and "R" non-detects
IS2- BNR68MSD

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

BPL01- TIC Dichloromethane was "R". It is another name for methylene chloride.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

Low-level soil samples were not preserved within 2 days VTSR. Analysis of unpreserved samples must be performed within 2 days of VTSR.

Trichloroethene in continuing calibration did not meet the minimum RRF contract requirements.

The lab failed to reanalyze sample BPL04 that failed criteria (Internal Standards).
Note to test takers: BNR68 and BXZ26 have MS/MSD analyses which count as reanalysis of samples that failed criteria.

Storage blank VHBLK01 was not analyzed at the end of all sample analyses in the SDG.

Sample VHBLK01 was analyzed after 12-hour clock. Sample should have been reanalyzed as per the SOW.

Samples analyzed after failing tune should have been reanalyzed as per the SOW.

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

BDR43- all three vials contained air bubbles. All non-detects are "R" and detects are qualified as "J".

BNR68*- jar is cracked with no loss of sample, professional judgement to qualify all analytes as estimated "J".

*** may have different qualifier due to another criterion.**

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.

BPH71

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
8.	VBLKJH	97	102	96		0
9.	BDR43	**107**	**112**	**105**		**0**
10.	BPH71	107	113	107		0
11.	BPJ51	101	106	107		0
12.	BPJ51MS	97	103	107		0
13.	BPJ51MSD	**103**	**108**	**102**		**0**
14.	BPL01	101	107	105		0
15.	BPL04	102	110	109		0
16.	BPH71RE	**105**	**103**	**106**		**0**
17.	VHBLK01	91	108	77		0

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) __LOW_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKDS	99	83	113		0
2.	BPH62	107	99	95		0
3.	BXZ26	95	83	119		0
4.	BXZ26MS	108	99	100		0
5.	BXZ26MSD	**106**	**103**	**68 ***		**1**

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) __MED_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKSD	97	99	101		0
2.	BNR68	**99**	**100**	**101**		**0**
3.	BNR68MS	90	91	92		0
4.	BNR68MSD	**95**	**98**	**96**		**0**

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix Spike - EPA Sample No.: __BPJ51_____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	**50.0**	**0.0**	**48.43**	**97**	61-145
Trichloroethene	**50.0**	**0.0**	**48.31**	**97**	71-120
Benzene	**50.0**	**0.0**	**51.67**	**103**	76-127
Toluene	**50.0**	**8.26**	**49.72**	**83**	76-125
Chlorobenzene	**50.0**	**0.0**	**49.83**	**100**	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	**50.0**	**49.82**	**100**	**3**	14	61-145
Trichloroethene	**50.0**	**48.95**	**98**	**1**	14	71-120
Benzene	**50.0**	**52.84**	**106**	**3**	11	76-127
Toluene	**50.0**	**53.71**	**91**	**9**	13	76-125
Chlorobenzene	**50.0**	**48.58**	**97**	**3**	13	75-130

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix Spike - EPA Sample No.: __BXZ26_____ Level: (low/med) _____LOW_____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	55.88	0.0	51.26	**92**	59-172
Trichloroethene	55.88	0.0	51.50	**92**	62-137
Benzene	55.88	0.0	54.57	**98**	66-142
Toluene	55.88	0.0	58.88	**105**	59-139
Chlorobenzene	55.88	0.0	59.38	**106**	60-133

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	**56.08**	**45.51**	**81**	**13**	22	59-172
Trichloroethene	**56.08**	**47.52**	**85**	**8**	24	62-137
Benzene	**56.08**	**49.53**	**89**	**10**	21	66-142
Toluene	**56.08**	**52.47**	**94**	**11**	21	59-139
Chlorobenzene	**56.08**	**51.87**	**93**	**13**	21	60-133

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) _____MED_____

Matrix Spike - EPA Sample No.: __ BNR68_____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	10760	0.0	9444	**88**	59-172
Trichloroethene	10760	0.0	8608	**80**	62-137
Benzene	10760	0.0	8677	**81**	66-142
Toluene	10760	0.0	8495	**79**	59-139
Chlorobenzene	10760	0.0	8312	**77**	60-133

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	**10760**	**10136**	**94**	**7**	22	59-172
Trichloroethene	**10760**	**9476**	**88**	**10**	24	62-137
Benzene	**10760**	**9842**	**91**	**11**	21	66-142
Toluene	**10760**	**9641**	**90**	**13**	21	59-139
Chlorobenzene	**10760**	**9412**	**87**	**12**	21	60-133

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: _AA010210_____ BFB Injection Date: ___02/10/01_____

Instrument ID: __AA_____ BFB Injection Time: ___0827_____

GC Column: Equity 624__ ID: __0.53___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	**15.2**
75	30.0- 66.0% of mass 95	**40.3**
95	Base peak, 100% relative abundance	**100.0**
96	5.0- 9.0% of mass 95	**6.7**
173	Less than 2.0% mass 174	**0.3 (0.5)1**
174	50.0- 120.0% of mass 95	**62.4**
175	4.0- 9.0% of mass 174	**4.4 (7.1)1**
176	93.0- 101.0% of mass 174	**59.4 (95.2)1**
177	5.0- 9.0% of mass 176	**3.8 (6.3)2**

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD050GB	VSTD050GB	CCA03	02/10/01	0849
2.	VBLKJH	MB6	BBB00-6MB	02/10/01	0923
3.	BDR43	BBB00-15	BBB00-15DI	02/10/01	1337
4.	BPH71	BBB00-16	BBB00-16RB	02/10/01	1433
5.	BPJ51	BBB00-17	BBB00-17AA	02/10/01	1530
6.	BPJ51MS	BBB00-18	BBB00-18AA	02/10/01	1559
7.	BPJ51MSD	BBB00-19	BBB00-19AA	02/10/01	1724
8.	BPL01	BBB00-20	BBB00-20TB	02/10/01	1754
9.	BPL04	BBB00-21	BBB00-21RB	02/10/01	1826
10.	BPH71RE	BBB00-16RE	BBB00-16RE	02/10/01	1903
11.	VHBLK01	BBB00-22	BBB00-22SB	02/10/01	2030

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: _AA010211_____ BFB Injection Date: ___02/11/01_____

Instrument ID: __AA_____ BFB Injection Time: ___0617_____

GC Column: Equity 624__ ID: __0.53___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	**14.7**
75	30.0- 66.0% of mass 95	**67.2**
95	Base peak, 100% relative abundance	**100.0**
96	5.0- 9.0% of mass 95	**6.8**
173	Less than 2.0% mass 174	**0.0 (0.0)1**
174	50.0- 120.0% of mass 95	**62.5**
175	4.0- 9.0% of mass 174	**2.5 (4.0)1**
176	93.0- 101.0% of mass 174	**60.0 (96.0)1**
177	5.0- 9.0% of mass 176	**3.7 (6.2)2**

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VST050GJ	VST050GJ	CCB04	02/11/01	0639
2.	VBLKSD	MB7	BBB00-7MB	02/11/01	0713
3.	BNR68	BBB00-24	BBB00-24AA	02/11/01	1158
4.	BNR68MS	BBB00-26	BBB00-26AA	02/11/01	1223
5.	BNR68MSD	BBB00-27	BBB00-27AA	02/11/01	1320

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: _BB010205_____ BFB Injection Date: ___02/09/01_____

Instrument ID: __BB_____ BFB Injection Time: ___1429_____

GC Column: J&W DB-624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	22.0
75	30.0- 66.0% of mass 95	51.7
95	Base peak, 100% relative abundance	100.0
96	5.0- 9.0% of mass 95	6.6
173	Less than 2.0% mass 174	0.0 (0.0)1
174	50.0- 120.0% of mass 95	77.7
175	4.0- 9.0% of mass 174	5.7 (7.4)1
176	93.0- 101.0% of mass 174	73.4 (94.5)1
177	5.0- 9.0% of mass 176	5.1 (7.0)2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD050KL	VSTD050KL	CCT03	02/09/01	1523
2.	VBLKDS	MB5	BBB00-5MB	02/09/01	1559
3.	BPH62	BBB00-10	BBB00-10BB	02/09/01	1638
4.	BXZ26	BBB00-11	BBB00-11BB	02/09/01	1708
5.	BXZ26MS	BBB00-12	BBB00-12BB	02/09/01	1738
6.	BXZ26MSD	BBB00-13	BBB00-13BB	02/09/01	1810

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD050GB_____ Date Analyzed: __02/10/01_____

Lab File ID: ___CCA03_____ Time Analyzed: __0849_____

Instrument ID: _AA_____ Heated Purge: (Y/N) ___N_____

GC Column: Equity 624_____ ID: ___0.53_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	**1975181**	8.71	9410690	9.99	7602547	13.28
	UPPER LIMIT	3950362	9.21	**18821380**	10.49	15205094	13.78
	LOWER LIMIT	987590	8.21	4705345	9.49	**3801274**	12.78
	EPA SAMPLE						
1.	VBLKJH	**1660064**	**8.72**	**7543107**	**10.00**	**5979831**	**13.28**
2.	BDR43	1868546	8.75	8354968	10.04	6414794	13.35
3.	BPH71	1833643	8.75	**4369362***	10.05	6394398	13.35
4.	BPJ51	1733643	8.76	8208520	10.05	6712370	13.36
5.	BPJ51MS	1710824	8.76	8105650	10.06	7073084	13.37
6.	BPJ51MSD	1802595	8.74	7989070	10.03	6216760	13.34
7.	BPL01	1715283	8.76	7681124	10.05	6086404	13.55
8.	BPL04	1684919	8.75	**19513332***	10.04	6078780	13.34
9.	BPH71RE	1969721	8.75	9320666	10.05	8325699	13.35
10.	VHBLK01	2417277	8.73	11434662	10.019	9444473	13.32

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50GJ_____ Date Analyzed: __02/11/01_____

Lab File ID: ___CCB04_____ Time Analyzed: __0639_____

Instrument ID: ___AA_____ Heated Purge: (Y/N) ___N_____

GC Column: Equity 624_____ ID: ___0.53_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	2053996	8.71	9662137	9.99	7833905	**13.29**
	UPPER LIMIT	4107992	9.21	19324274	**10.49**	15667810	13.79
	LOWER LIMIT	1026998	**8.21**	4831068	9.49	3916952	12.79
	EPA SAMPLE						
1.	VBLKSD	2180370	8.71	10645744	10.00	8771656	13.30
2.	BNR68	**4187293***	**8.71**	**10478395**	**9.98**	**8678186**	**13.28**
3.	BNR68MS	2783007	8.71	13501830	9.986	10995743	13.28
4.	BNR68MSD	**955423***	8.72	**2335467***	9.99	8570860	13.30

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50KL_____ Date Analyzed: __02/09/01_____

Lab File ID: __CCT03_____ Time Analyzed: __1523_____

Instrument ID: __BB_____ Heated Purge: (Y/N) ___Y_____

GC Column: J7W DB-624__ ID: _0.32_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	42716	7.91	211480	8.96	215712	11.90
	UPPER LIMIT	85432	8.41	422960	9.46	**431424**	**12.40**
	LOWER LIMIT	**21358**	**7.41**	105740	8.46	107856	11.40
	EPA SAMPLE						
1.	VBLKDS	51955	7.90	263474	8.94	243044	11.88
2.	BPH62	40502	7.91	187854	8.96	177417	11.90
3.	BXZ26	**90301***	7.88	**431663***	8.93	**447852***	11.87
4.	BXZ26MS	42616	7.93	186765	8.96	165043	11.89
5.	BXZ26MSD	**37177**	**7.91**	**156950**	**8.96**	**149188**	**11.89**

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	**R**
74-87-3	Chloromethane	10	**R**
75-01-4	Vinyl Chloride	10	**R**
74-83-9	Bromomethane	10	**R**
75-00-3	Chloroethane	10	**R**
75-69-4	Trichlorofluoromethane	10	**R**
75-35-4	1,1 Dichloroethene	10	**R**
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	**R**
67-64-1	Acetone	10	**R**
75-15-0	Carbon Disulfide	10	**R**
79-20-9	Methyl Acetate	10	**R**
75-09-2	Methylene Chloride	10	**R**
156-60-5	Trans-1,2-Dichloroethene	10	**R**
1634-04-4	Methyl-tert-Butyl Ether	10	**R**
75-34-3	1,1 Dichloroethane	10	**R**
156-59-2	Cis- Dichloroethene	10	**R**
78-93-3	2-Butanone	10	**R**
67-99-3	Chloroform	10	**R**
71-55-6	1,1,1-Trichloroethane	10	**R**
110-82-7	Cyclohexane	10	**R**
56-23-5	Carbon Tetrachloride	10	**R**
71-43-2	Benzene	10	**R**
107-06-2	1,2 Dichloroethane	10	**R**

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	**R**
108-87-2	Methylcyclohexane	10	**R**
78-87-5	1,2-Dichloropropane	10	**R**
75-27-4	Bromodichloromethane	10	**R**
10061-01-5	Cis-1,3-Dichloropropene	10	**R**
108-10-1	4-Methyl-2-pentanone	10	**R**
108-88-3	Toluene	10	**R**
10061-02-6	Trans-1,3 Dichloropropene	10	**R**
79-00-5	1,1,2 Trichloroethane	10	**R**
127-18-4	Tetrachloroethene	10	**R**
591-78-6	2-Hexanone	10	**R**
124-48-1	Dibromochloromethane	10	**R**
106-93-4	1,2-Dibromoethane	10	**R**
108-90-7	Chlorobenzene	10	**R**
100-41-4	Ethylbenzene	10	**R**
1330-20-7	Xylene (total)	10	**R**
100-42-5	Styrene	10	**R**
75-25-2	Bromoform	10	**R**
98-82-8	Isopropylbenzene	10	**R**
79-34-5	1,1,2,2-Tetrachloroethane	10	**R**
541-73-1	1,3-Dichlorobenzene	10	**R**
106-46-7	1,4- Dichlorobenzene	10	**R**
95-50-1	1,2 Dichlorobenzene	10	**R**
96-12-8	1,2-Dibromo-3-chloropropane	10	**R**
120-82-1	1,2,4-Trichlorobenzene	10	**R**

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(ul) Soil Aliquot Volume: _____(ul)

Number TICs found: ___7_____ CONCENTRATION UNITS
(ug/L or ug/Kg) __ug/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	5	**R**
2.	Unknown	7.87	7	**R**
3.	Laboratory Artifact	12.21	2	**R**
4. 1330-20-7	1,2 Dimethylbenzene	13.529	6	**R**
5. 556-67-2	Cyclotetrasiloxane, octameth	14.48	8	**R**
6.	Unknown	17.09	12	**R**
7.	Unknown siloxane	18.21	11	**R**
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
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30.				

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	**R**
74-87-3	Chloromethane	2200	**R**
75-01-4	Vinyl Chloride	2200	**R**
74-83-9	Bromomethane	2200	**R**
75-00-3	Chloroethane	2200	**R**
75-69-4	Trichlorofluoromethane	2200	**R**
75-35-4	1,1 Dichloroethene	2200	**R**
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	**R**
67-64-1	Acetone	**(3800.57) 3800**	**UJ**
75-15-0	Carbon Disulfide	2200	**R**
79-20-9	Methyl Acetate	690	**J**
75-09-2	Methylene Chloride	**(482.32) 480**	**UJ**
156-60-5	Trans-1,2-Dichloroethene	2200	**R**
1634-04-4	Methyl-tert-Butyl Ether	2200	**R**
75-34-3	1,1 Dichloroethane	2200	**R**
156-59-2	Cis- Dichloroethene	2200	**R**
78-93-3	2-Butanone	2200	**R**
67-99-3	Chloroform	2200	**R**
71-55-6	1,1,1-Trichloroethane	2200	**R**
12200-82-7	Cyclohexane	2200	**R**
56-23-5	Carbon Tetrachloride	2200	**R**
71-43-2	Benzene	2200	**R**
22007-06-2	1,2 Dichloroethane	2200	**R**

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	2200	**R**
22008-87-2	Methylcyclohexane	2200	**R**
78-87-5	1,2-Dichloropropane	2200	**R**
75-27-4	Bromodichloromethane	2200	**R**
2200061-01-5	Cis-1,3-Dichloropropene	2200	**R**
22008-2200-1	4-Methyl-2-pentanone	2200	**R**
22008-88-3	Toluene	2200	**R**
2200061-02-6	Trans-1,3 Dichloropropene	2200	**R**
79-00-5	1,1,2 Trichloroethane	2200	**R**
127-18-4	Tetrachloroethene	2200	**R**
591-78-6	2-Hexanone	2200	**R**
124-48-1	Dibromochloromethane	2200	**R**
22006-93-4	1,2-Dibromoethane	2200	**R**
22008-90-7	Chlorobenzene	2200	**R**
22000-41-4	Ethylbenzene	2200	**R**
1330-20-7	Xylene (total)	2200	**R**
22000-42-5	Styrene	2200	**R**
75-25-2	Bromoform	2200	**R**
98-82-8	Isopropylbenzene	2200	**R**
79-34-5	1,1,2,2-Tetrachloroethane	2200	**R**
541-73-1	1,3-Dichlorobenzene	2200	**R**
22006-46-7	1,4- Dichlorobenzene	2200	**R**
95-50-1	1,2 Dichlorobenzene	2200	**R**
96-12-8	1,2-Dibromo-3-chloropropane	2200	**R**
120-82-1	1,2,4-Trichlorobenzene	2200	**R**

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100____(lL)

Number TICs found: ___6_____ CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	470	**R**
2.	Unknown	7.87	230	**R**
3.	Laboratory Artifact	12.21	240	**R**
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	160	**R**
5.	Unknown	17.09	260	**R**
6.	Unknown siloxane	18.21	150	**R**
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1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBB00-10_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBB00-10BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	**(22.28) 22**	**U**
75-01-4	Vinyl Chloride	10	U**J**
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	83	**UJ**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U**J**
75-09-2	Methylene Chloride	54	**UJ**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	6	**J**
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U**J**
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	**(19.52) 20**	**UJ**
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBB00-10_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBB00-10BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	11	**UJ**
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	**10**	**UJ**
100-41-4	Ethylbenzene	14	**UJ**
1330-20-7	Xylene (total)	10	U**J**
100-42-5	Styrene	10	U**J**
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U**J**
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U**J**
106-46-7	1,4- Dichlorobenzene	10	U**J**
95-50-1	1,2 Dichlorobenzene	10	U**J**
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	**(24.64) 25**	**J**

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPH71

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RB_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U**J**
74-87-3	Chloromethane	10	U**J**
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	78	**J**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	4	**J**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U**J**
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	5	**J**
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U**J**
110-82-7	Cyclohexane	10	U**J**
56-23-5	Carbon Tetrachloride	10	U**J**
71-43-2	Benzene	10	U**J**
107-06-2	1,2 Dichloroethane	10	U**J**

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH71

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RB_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U**J**
108-87-2	Methylcyclohexane	10	U**J**
78-87-5	1,2-Dichloropropane	10	U**J**
75-27-4	Bromodichloromethane	10	U**J**
10061-01-5	Cis-1,3-Dichloropropene	10	U**J**
108-10-1	4-Methyl-2-pentanone	10	**R**
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U**J**
79-00-5	1,1,2 Trichloroethane	10	U**J**
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	**R**
124-48-1	Dibromochloromethane	10	U**J**
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	3	**J**
100-41-4	Ethylbenzene	1	**J**
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U**J**
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	**R**
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPH71RE

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16RE_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RE_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U**J**
74-87-3	Chloromethane	10	U**J**
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	50	**J**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	3	**J**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U**J**
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	8	**J**
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U**J**

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH71RE

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16RE_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RE_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U**J**
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	**R**
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U**J**
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	**R**
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	5	J
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	**R**
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U**J**
74-87-3	Chloromethane	10	U**J**
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	**(85.11) 85**	**UJ**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	52	**J**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U**J**
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	23	**UJ**
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	**(33.27) 33**	
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	**10**	**U**
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U**J**

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
79-01-6	Trichloroethene	10	U**J**
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	14	**UJ**
108-88-3	Toluene	**(8) 10**	**U**
10061-02-6	Trans-1,3 Dichloropropene	10	U**J**
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	17	**UJ**
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	**10**	**U**
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	**(57.37) 57**	**UJ**
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BPJ51

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(ul) Soil Aliquot Volume: _____(ul)

Number TICs found: ___6_____ CONCENTRATION UNITS
(ug/L or ug/Kg) __ug/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	3	**R**
2.	Unknown	7.87	5	**R**
3.	Laboratory Artifact	12.21	9	**R**
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	12	**R**
5.	Unknown	17.09	13	**R**
6.	Unknown siloxane	18.21	8	**R**
7.				
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-20_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-20TB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U**J**
74-87-3	Chloromethane	10	U**J**
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	5	**J**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	**(2.03) 2**	**J**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U**J**
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U**J**
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	**(5.06) 5**	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U**J**

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-20_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-20TB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U**J**
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	**J**
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U**J**
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	**R**
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	**(12.19) 12**	**J**
120-82-1	1,2,4-Trichlorobenzene	10	U

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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-20_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-20TB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(ul) Soil Aliquot Volume: _____(ul)

Number TICs found: ___7_____ CONCENTRATION UNITS
(ug/L or ug/Kg) __ug/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	4	ANJB
2. 75-09-2	Dichloroethane	6.250	2	**R**
3.	Unknown	7.87	3	JB
4.	Laboratory Artifact	12.21	6	JB
5. 556-67-2	Cyclotetrasiloxane, octameth	14.48	16	NJB
6.	Unknown	17.09	10	JB
7.	Unknown siloxane	18.21	15	JB
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U**J**
74-87-3	Chloromethane	10	U**J**
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	7	**J**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	**J**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U**J**
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U**J**
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	5	**J**
107-06-2	1,2 Dichloroethane	10	U**J**

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U**J**
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	**J**
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U**J**
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	**(1.03) 1**	**J**
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	3	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	**R**
120-82-1	1,2,4-Trichlorobenzene	1	J

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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ___4_____ CONCENTRATION UNITS
(lg/L or lg/Kg) ___lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	7	ANJB
2.	Unknown	7.87	3	JB
3.	Laboratory Artifact	12.21	4	JB
4.	Unknown siloxane	18.21	5	JB
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/09/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	**19**	U
74-87-3	Chloromethane	**19**	U
75-01-4	Vinyl Chloride	**19**	U**J**
74-83-9	Bromomethane	**19**	U
75-00-3	Chloroethane	**19**	U
75-69-4	Trichlorofluoromethane	**19**	U
75-35-4	1,1 Dichloroethene	**19**	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	**19**	U
67-64-1	Acetone	**19**	U**J**
75-15-0	Carbon Disulfide	**19**	U
79-20-9	Methyl Acetate	**19**	U**J**
75-09-2	Methylene Chloride	**19**	U**J**
156-60-5	Trans-1,2-Dichloroethene	**19**	U
1634-04-4	Methyl-tert-Butyl Ether	**19**	U**J**
75-34-3	1,1 Dichloroethane	**19**	U
156-59-2	Cis- Dichloroethene	**19**	U
78-93-3	2-Butanone	**19**	U**J**
67-99-3	Chloroform	**19**	U
71-55-6	1,1,1-Trichloroethane	**19**	U
110-82-7	Cyclohexane	**19**	U
56-23-5	Carbon Tetrachloride	**19**	U
71-43-2	Benzene	**19**	U**J**
107-06-2	1,2 Dichloroethane	**19**	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/09/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
79-01-6	Trichloroethene	**19**	U
108-87-2	Methylcyclohexane	**19**	U
78-87-5	1,2-Dichloropropane	**19**	U
75-27-4	Bromodichloromethane	**19**	U
10061-01-5	Cis-1,3-Dichloropropene	**19**	U
108-10-1	4-Methyl-2-pentanone	**19**	U
108-88-3	Toluene	**19**	U**J**
10061-02-6	Trans-1,3 Dichloropropene	**19**	U
79-00-5	1,1,2 Trichloroethane	**19**	U
127-18-4	Tetrachloroethene	**19**	U
591-78-6	2-Hexanone	**19**	U
124-48-1	Dibromochloromethane	**19**	U
106-93-4	1,2-Dibromoethane	**19**	U
108-90-7	Chlorobenzene	**19**	U**J**
100-41-4	Ethylbenzene	**19**	U**J**
1330-20-7	Xylene (total)	**19**	U**J**
100-42-5	Styrene	**19**	U**J**
75-25-2	Bromoform	**19**	U
98-82-8	Isopropylbenzene	**19**	U**J**
79-34-5	1,1,2,2-Tetrachloroethane	**19**	U
541-73-1	1,3-Dichlorobenzene	**19**	U**J**
106-46-7	1,4- Dichlorobenzene	**19**	U**J**
95-50-1	1,2 Dichlorobenzene	**19**	U**J**
96-12-8	1,2-Dibromo-3-chloropropane	**19**	U
120-82-1	1,2,4-Trichlorobenzene	**19**	U**J**

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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/09/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ____7_____ CONCENTRATION UNITS
(lg/L or lg/Kg) _ lg/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	47	**R**
2. 75-09-2	Dichloroethane	6.250	15	**R**
3.	Unknown	7.87	23	**R**
4.	Laboratory Artifact	12.21	24	**R**
5. 556-67-2	Cyclotetrasiloxane, octameth	14.48	16	**R**
6.	Unknown	17.09	26	**R**
7.	Unknown siloxane	18.21	15	**R**
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VHBLK01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-22SB_____

Level: (low/med) _____ Date Received: __02/05/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	**R**
74-87-3	Chloromethane	5	**J**
75-01-4	Vinyl Chloride	10	**R**
74-83-9	Bromomethane	10	**R**
75-00-3	Chloroethane	10	**R**
75-69-4	Trichlorofluoromethane	10	**R**
75-35-4	1,1 Dichloroethene	10	**R**
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	**R**
67-64-1	Acetone	4	**J**
75-15-0	Carbon Disulfide	10	**R**
79-20-9	Methyl Acetate	10	**R**
75-09-2	Methylene Chloride	10	**R**
156-60-5	Trans-1,2-Dichloroethene	10	**R**
1634-04-4	Methyl-tert-Butyl Ether	10	**R**
75-34-3	1,1 Dichloroethane	10	**R**
156-59-2	Cis- Dichloroethene	10	**R**
78-93-3	2-Butanone	**(3.07) 3**	**J**
67-99-3	Chloroform	10	**R**
71-55-6	1,1,1-Trichloroethane	10	**R**
110-82-7	Cyclohexane	10	**R**
56-23-5	Carbon Tetrachloride	2	**J**
71-43-2	Benzene	10	**R**
107-06-2	1,2 Dichloroethane	10	**R**

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLK01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-22SB_____

Level: (low/med) _____ Date Received: __02/05/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
79-01-6	Trichloroethene	10	**R**
108-87-2	Methylcyclohexane	10	**R**
78-87-5	1,2-Dichloropropane	10	**R**
75-27-4	Bromodichloromethane	10	**R**
10061-01-5	Cis-1,3-Dichloropropene	10	**R**
108-10-1	4-Methyl-2-pentanone	10	**R**
108-88-3	Toluene	**(2.00) 2**	**J**
10061-02-6	Trans-1,3 Dichloropropene	10	**R**
79-00-5	1,1,2 Trichloroethane	10	**R**
127-18-4	Tetrachloroethene	10	**R**
591-78-6	2-Hexanone	5	**J**
124-48-1	Dibromochloromethane	10	**R**
106-93-4	1,2-Dibromoethane	10	**R**
108-90-7	Chlorobenzene	10	**R**
100-41-4	Ethylbenzene	10	**R**
1330-20-7	Xylene (total)	10	**R**
100-42-5	Styrene	10	**R**
75-25-2	Bromoform	10	**R**
98-82-8	Isopropylbenzene	10	**R**
79-34-5	1,1,2,2-Tetrachloroethane	10	**R**
541-73-1	1,3-Dichlorobenzene	10	**R**
106-46-7	1,4- Dichlorobenzene	10	**R**
95-50-1	1,2 Dichlorobenzene	10	**R**
96-12-8	1,2-Dibromo-3-chloropropane	10	**R**
120-82-1	1,2,4-Trichlorobenzene	10	**R**

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VHBLK01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-22SB_____

Level: (low/med) _____ Date Received: __02/05/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ____6_____ CONCENTRATION UNITS
(lg/L or lg/Kg) ___lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	4	**R**
2.	Unknown	7.87	2	JB
3.	Laboratory Artifact	12.21	2	JB
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	5	NJB
5.	Unknown	17.09	2	JB
6.	Unknown siloxane	18.21	5	JB
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VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _AA_____ Calibration Date: _02/07/00____ __02/07/00____

Heated Purge: (Y/N) __N_____ Calibration Times: __0949_____ __1156_____

GC Column: _Equity 624____ ID: ___0.53_____(mm)

LAB FILE ID: RRF10 = __ICA010_____ RRF20 = ___ ICA020_____
RRF50 = ____ ICA050___ RRF100 = _ ICA100_____ RRF200 = ___ ICA200_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
Dichlorodifluoromethane	**2.908**	**2.486**	**2.198**	**2.018**	**1.809**	**2.284**	**18.8**
Chloromethane	2.003	1.744	1.537	1.413	1.226	1.585	19.0
Vinyl Chloride *	2.039	1.766	1.542	1.449	1.349	1.629	*17.0
Bromomethane *	1.757	1.486	1.389	1.279	1.196	1.421	*15.3
Chloroethane	1.148	1.026	0.822	0.722	0.607	0.865	25.5
Trichlorofluoromethane	3.532	3.085	2.767	2.552	2.327	2.853	16.5
1,1 Dichloroethene *	1.599	1.502	1.356	1.277	1.189	1.385	*12.0
1,1,2-trichloro-1,2,2-trifluoroethane	3.376	3.166	2.801	2.686	2.457	2.897	12.8
Acetone	0.307	0.244	0.230	0.218	0.191	0.238	18.1
Carbon Disulfide	4.632	4.255	3.705	3.591	3.352	3.907	13.4
Methyl Acetate	1.164	0.852	0.838	0.794	0.699	0.869	20.1
Methylene Chloride	**2.377**	**1.990**	**1.653**	**1.511**	**1.325**	**1.771**	**23.5**
Trans-1,2-Dichloroethene	2.107	1.969	1.797	1.771	1.544	1.838	11.6
Methyl-tert-Butyl Ether	4.730	4.576	4.183	4.137	3.500	4.225	11.3
1,1 Dichloroethane *	4.374	4.037	3.607	3.512	3.099	3.726	*13.2
Cis- Dichloroethene	2.052	1.951	1.761	1.768	1.589	1.824	9.9
2-Butanone	0.418	0.362	0.340	0.338	0.272	0.346	15.2
Chloroform *	4.344	3.965	3.590	3.462	3.071	3.686	*13.2
1,1,1-Trichloroethane *	0.605	0.560	0.537	0.539	0.504	0.549	*6.8
Cyclohexane	0.677	0.609	0.552	0.553	0.515	0.581	10.9
Carbon Tetrachloride *	0.544	0.511	0.472	0.469	0.438	0.487	*8.4
Benzene *	**1.215**	**1.122**	**1.042**	**1.048**	**0.957**	**1.077**	***9.0**
1,2 Dichloroethane *	1.912	1.823	1.660	1.641	1.441	1.695	*10.7
Trichloroethene *	0.468	0.439	0.420	0.421	0.399	0.429	*6.0
Methylcyclohexane	0.614	0.555	0.508	0.517	0.496	0.538	8.9

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

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _AA_____ Calibration Date: _02/07/00____ __02/07/00____

Heated Purge: (Y/N) __N_____ Calibration Times: __0949_____ __1156_____

GC Column: _Equity 624____ ID: ___0.53_____(mm)

LAB FILE ID: RRF10 = __ICA010_____ RRF20 = ___ ICA020_____
RRF50 = ____ ICA050___ RRF100 = _ ICA100_____ RRF200 = ___ ICA200_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
1,2-Dichloropropane	0.634	0.583	0.540	0.528	0.480	0.553	10.5
Bromodichloromethane *	0.867	0.804	0.748	0.743	0.684	0.769	*9.0
Cis-1,3-Dichloropropene *	0.524	0.494	0.470	0.472	0.445	0.481	*6.2
4-Methyl-2-pentanone	**0.174**	**0.205**	**0.203**	**0.204**	**0.188**	**0.195**	**7.0**
Toluene *	1.608	1.485	1.369	1.334	1.200	1.399	*11.1
Trans-1,3 Dichloropropene *	0.297	0.295	0.290	0.311	0.301	0.299	*2.7
1,1,2 Trichloroethane *	0.339	0.314	0.291	0.298	0.281	0.305	*7.5
Tetrachloroethene *	0.486	0.456	0.432	0.457	0.445	0.455	*4.4
2-Hexanone	**0.022**	**0.046**	**0.066**	**0.051**	**0.045**	**0.046**	**34.4**
Dibromochloromethane *	0.582	0.562	0.546	0.564	0.520	0.555	*4.2
1,2-Dibromoethane	0.570	0.552	0.525	0.534	0.502	0.537	4.9
Chlorobenzene *	1.153	1.084	1.032	1.020	0.888	1.035	*9.4
Ethylbenzene *	0.526	0.498	0.469	0.474	0.456	0.485	*5.7
Xylene (total) *	0.647	0.616	0.572	0.565	0.505	0.581	*9.3
Styrene *	1.020	0.982	0.950	0.928	0.775	0.931	*10.1
Bromoform *	0.322	0.319	0.317	0.343	0.302	0.321	*4.6
Isopropylbenzene	1.760	1.674	1.542	1.525	1.102	1.521	16.7
1,1,2,2-Tetrachloroethane *	0.688	0.638	0.586	0.593	0.544	0.610	*9.0
1,3-Dichlorobenzene *	0.859	0.813	0.759	0.776	0.642	0.770	*10.5
1,4- Dichlorobenzene *	**0.919**	**0.935**	**0.840**	**0.893**	**0.751**	**0.868**	***8.6**
1,2 Dichlorobenzene *	0.759	0.763	0.699	0.721	0.631	0.715	*7.5
1,2-Dibromo-3-chloropropane	0.124	0.120	0.108	0.103	0.083	0.108	14.9
1,2,4-Trichlorobenzene *	0.607	0.597	0.475	0.475	0.372	0.505	*19.4
Toluene -d8	1.094	1.097	1.179	1.097	1.099	1.113	3.3
Bromofluorobenzene *	**0.927**	**0.968**	**1.030**	**0.975**	**0.827**	**0.945**	***8.0**
1,2 Dichloroethane -d4	1.309	1.216	1.240	1.190	1.132	1.217	5.4

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

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____

Instrument ID: _BB_____ Calibration Date: _02/02/00____ __02/02/00____

Heated Purge: (Y/N) __Y_____ Calibration Times: __1820_____ __2018_____

GC Column: _J&W DB- 624____ ID: ___0.32_____(mm)

LAB FILE ID: RRF10 = __ICS010_____ RRF20 = ___ ICS020_____
RRF50 = ____ ICS050___ RRF100 = _ ICS100_____ RRF200 = ___ ICS200_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
Dichlorodifluoromethane	**5.963**	5.738	5.240	4.642	4.458	5.208	12.6
Chloromethane	1.491	1.716	1.887	1.579	2.248	1.784	16.8
Vinyl Chloride *	1.842	2.069	2.048	1.710	1.700	1.874	9.5
Bromomethane *	1.335	**1.582**	1.720	1.396	1.273	1.461	12.7
Chloroethane	0.962	1.072	1.115	0.853	0.908	0.982	11.2
Trichlorofluoromethane	5.930	5.973	5.663	4.921	4.747	5.447	10.6
1,1 Dichloroethene *	1.458	1.578	1.533	1.315	1.234	1.424	10.2
1,1,2-trichloro-1,2,2-trifluoroethane	2.159	2.104	2.134	**1.915**	1.760	2.014	8.5
Acetone	1.140	1.080	0.759	0.648	0.577	0.841	**30.3**
Carbon Disulfide	4.628	5.287	5.084	4.315	4.205	4.704	10.0
Methyl Acetate	1.229	1.227	1.088	0.906	0.828	**1.056**	17.4
Methylene Chloride	3.693	2.810	1.955	1.660	1.431	2.310	**40.4**
Trans-1,2-Dichloroethene	1.821	1.766	1.671	1.513	1.372	1.629	11.4
Methyl-tert-Butyl Ether	12.144	12.513	12.175	10.881	10.361	11.615	8.1
1,1 Dichloroethane *	3.829	3.265	3.345	2.940	2.742	3.224	**12.9**
Cis- Dichloroethene	1.949	1.905	1.784	1.617	1.582	1.767	9.4
2-Butanone	1.266	1.329	1.236	1.089	**0.860**	1.156	16.2
Chloroform *	4.176	4.102	3.976	3.732	3.376	3.872	8.4
1,1,1-Trichloroethane *	0.820	0.815	**0.744**	0.718	0.663	0.752	8.8
Cyclohexane	0.582	0.610	0.533	0.554	0.501	0.556	7.6
Carbon Tetrachloride *	**0.712**	0.743	0.674	0.675	0.621	0.685	6.7
Benzene *	1.424	1.359	1.247	1.227	1.139	1.279	8.8
1,2 Dichloroethane *	3.565	3.466	3.479	3.176	2.972	3.332	7.5
Trichloroethene *	0.434	0.370	0.357	0.348	0.315	0.365	12.0
Methylcyclohexane	0.566	0.550	0.513	0.498	0.468	0.519	7.6

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

6B
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _BB_____ Calibration Date: _02/02/00____ __02/02/00____

Heated Purge: (Y/N) __Y_____ Calibration Times: __1820_____ __2018_____

GC Column: _J&W DB- 624____ ID: ___0.32_____(mm)

LAB FILE ID: RRF10 = __ICS010_____ RRF20 = ___ ICS020_____
RRF50 = ____ ICS050___ RRF100 = _ ICS100_____ RRF200 = ___ ICS200_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
1,2-Dichloropropane	0.348	0.374	**0.350**	0.333	0.314	0.344	6.4
Bromodichloromethane *	0.673	0.645	0.601	0.609	0.555	0.617	7.3
Cis-1,3-Dichloropropene *	0.541	0.562	0.542	0.537	0.499	0.536	4.3
4-Methyl-2-pentanone	0.627	0.600	0.527	0.531	0.486	0.554	10.4
Toluene *	1.558	1.520	1.368	1.365	1.231	1.408	9.4
Trans-1,3 Dichloropropene *	0.644	**0.663**	0.627	0.648	0.603	0.637	3.6
1,1,2 Trichloroethane *	0.331	0.348	0.317	0.313	0.300	0.322	5.8
Tetrachloroethene *	0.372	0.361	0.315	**0.301**	0.271	0.324	13.1
2-Hexanone	0.523	0.477	0.415	0.419	0.386	0.444	12.4
Dibromochloromethane *	0.498	0.532	0.479	0.491	0.467	0.493	5.0
1,2-Dibromoethane	**0.500**	0.466	0.413	0.420	0.380	**0.436**	10.8
Chlorobenzene *	1.090	1.085	0.964	0.956	0.884	0.996	9.0
Ethylbenzene *	0.541	0.521	0.502	0.496	0.448	0.502	6.9
Xylene (total) *	**0.663**	0.638	0.632	0.644	0.568	0.629	**5.7**
Styrene *	1.309	1.249	1.144	1.128	1.017	1.169	9.7
Bromoform *	0.396	0.382	0.395	0.416	0.389	0.396	3.2
Isopropylbenzene	**2.001**	1.899	1.869	1.892	1.696	1.871	5.9
1,1,2,2-Tetrachloroethane *	0.686	0.664	0.618	0.622	0.565	0.631	7.4
1,3-Dichlorobenzene *	1.009	1.021	0.955	0.977	0.868	0.966	6.3
1,4- Dichlorobenzene *							
1,2 Dichlorobenzene *	1.022	0.977	0.916	0.948	0.846	0.942	7.0
1,2-Dibromo-3-chloropropane	0.204	0.186	0.172	0.163	0.152	0.175	11.5
1,2,4-Trichlorobenzene *	**0.832**	0.832	0.769	0.760	0.667	0.772	**8.8**
Toluene -d8	1.148	1.221	1.169	1.149	1.077	1.153	4.5
Bromofluorobenzene *	0.712	0.694	0.716	0.704	0.651	0.695	3.8
1,2 Dichloroethane -d4	2.488	2.695	**2.573**	2.423	2.289	2.494	6.1

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

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA_____ Calibration Date: __02/10/01_____ Time: __0849_____

Lab File ID: ___CCA03_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _VSTD050GB_____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	____ RRF	RRF50	MIN RRF	% D	MAX % D
Dichlorodifluoromethane	**2.284**	**0.722**		**-68.4**	
Chloromethane	1.585	**0.963**		**-39.2**	
Vinyl Chloride	1.629	1.236	0.100	-24.1	25.0
Bromomethane	1.421	1.183	0.100	-16.7	25.0
Chloroethane	0.865	0.714		-17.5	
Trichlorofluoromethane	2.853	2.461		-13.7	
1,1 Dichloroethene	1.385	1.507	0.100	8.8	25.0
1,1,2-trichloro-1,2,2-trifluoroethane	2.897	2.922		0.9	
Acetone	0.238	0.167		**-29.8**	
Carbon Disulfide	3.907	4.687		20.0	
Methyl Acetate	0.869	0.671		-22.8	
Methylene Chloride	**1.771**	**3.488**		**-97.0**	
Trans-1,2-Dichloroethene	1.838	1.666		-9.4	
Methyl-tert-Butyl Ether	4.225	3.220		-23.8	
1,1 Dichloroethane	3.726	**5.525**	0.200	**-48.3**	25.0
Cis- Dichloroethene	1.824	1.638		-10.2	
2-Butanone	0.346	**0.239**		**-30.9**	
Chloroform	3.686	3.019	0.200	-18.1	25.0
1,1,1-Trichloroethane	0.549	0.450	0.100	-18.0	25.0
Cyclohexane	0.581	0.498		-14.3	
Carbon Tetrachloride	0.487	0.415	0.100	-14.8	25.0
Benzene	**1.077**	0.922	0.500	-14.4	25.0
1,2 Dichloroethane	1.695	1.247	0.100	**-26.4**	25.0
Trichloroethene	0.429	**0.254**	0.300	**-40.8**	25.0
Methylcyclohexane	0.538	0.493		-8.4	

All other compounds must meet a minimum RRF of 0.010.

7B
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA_____ Calibration Date: __02/10/01_____ Time: __0849_____

Lab File ID: ___CCA03_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _VSTD050GB_____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND		_____ RRF	RRF50	MIN RRF	% D	MAX % D
1,2-Dichloropropane		0.553	0.435		-21.3	
Bromodichloromethane	*	0.769	0.610	0.200	**-20.7**	25.0
Cis-1,3-Dichloropropene	*	0.481	0.362	0.200	-24.7	25.0
4-Methyl-2-pentanone		**0.195**	**0.009**		**-95.4**	
Toluene	*	1.399	1.170	0.400	-16.4	25.0
Trans-1,3 Dichloropropene	*	0.299	**0.199**	0.100	**-33.4**	25.0
1,1,2 Trichloroethane	*	0.305	0.256	0.100	-16.1	25.0
Tetrachloroethene	*	0.455	0.479	0.200	5.3	25.0
2-Hexanone		0.046	**0.076**		**65.2**	
Dibromochloromethane	*	0.555	0.486	0.100	-12.4	25.0
1,2-Dibromoethane		0.537	0.435		-19.0	
Chlorobenzene	*	1.035	0.932	0.500	-10.0	25.0
Ethylbenzene	*	0.485	0.397	0.100	-18.1	25.0
Xylene (total)	*	0.581	0.479	0.300	-17.6	25.0
Styrene	*	0.931	0.734	0.300	**-21.2**	25.0
Bromoform	*	0.321	0.287	0.100	-10.6	25.0
Isopropylbenzene		1.521	1.303		-14.3	
1,1,2,2-Tetrachloroethane	*	0.610	0.505	0.300	-17.2	25.0
1,3-Dichlorobenzene	*	0.770	0.751	0.600	-2.5	25.0
1,4- Dichlorobenzene	*	**0.868**	0.892	0.500	2.8	25.0
1,2 Dichlorobenzene	*	0.715	0.721	0.400	0.8	25.0
1,2-Dibromo-3-chloropropane		0.108	**0.046**		**-57.4**	
1,2,4-Trichlorobenzene	*	0.505	0.426	0.200	-15.6	25.0
Toluene -d8		1.113	1.095		-1.6	
Bromofluorobenzene	*	**0.945**	0.858	0.200	-9.2	25.0
1,2 Dichloroethane -d4		1.217	0.964		**-20.8**	

All other compounds must meet a minimum RRF of 0.010.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA_____ Calibration Date: __02/11/01_____ Time: __0639_____

Lab File ID: ___CCB04_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _VSTD050GJ_____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	____ RRF	RRF50	MIN RRF	% D	MAX % D
Dichlorodifluoromethane	**2.284**	2.367		3.6	
Chloromethane	1.585	1.510		-4.7	
Vinyl Chloride	1.629	**1.603**	0.100	**-1.6**	25.0
Bromomethane	1.421	1.345	0.100	-5.3	25.0
Chloroethane	0.865	0.749		-13.4	
Trichlorofluoromethane	2.853	**2.497**		**-12.5**	
1,1 Dichloroethene	1.385	1.567	0.100	13.1	25.0
1,1,2-trichloro-1,2,2-trifluoroethane	2.897	3.009		3.9	
Acetone	0.238	0.143		**-39.9**	
Carbon Disulfide	3.907	4.764		21.9	
Methyl Acetate	0.869	0.677		**-22.1**	
Methylene Chloride	**1.771**	1.643		-7.2	
Trans-1,2-Dichloroethene	1.838	1.823		-0.8	
Methyl-tert-Butyl Ether	4.225	3.769		-10.8	
1,1 Dichloroethane	3.726	3.275	0.200	-12.1	25.0
Cis- Dichloroethene	1.824	1.866		2.3	
2-Butanone	0.346	**0.235**		**-32.1**	
Chloroform	3.686	3.385	0.200	-8.2	25.0
1,1,1-Trichloroethane	0.549	0.514	0.100	-6.4	25.0
Cyclohexane	0.581	0.520		-10.5	
Carbon Tetrachloride	0.487	0.488	0.100	0.2	25.0
Benzene	**1.077**	1.025	0.500	-4.8	25.0
1,2 Dichloroethane	1.695	1.225	0.100	-21.2	25.0
Trichloroethene	0.429	**0.266**	0.300	**-38.0**	25.0
Methylcyclohexane	0.538	0.557		3.5	

All other compounds must meet a minimum RRF of 0.010.

7B

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA_____ Calibration Date: __02/11/01_____ Time: __0639_____

Lab File ID: ___CCB04_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _VSTD050GJ_____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	____ RRF	RRF50	MIN RRF	% D	MAX % D
1,2-Dichloropropane	0.553	0.484		-12.5	
Bromodichloromethane *	0.769	0.699	0.200	-9.1	25.0
Cis-1,3-Dichloropropene *	0.481	0.413	0.200	-14.1	25.0
4-Methyl-2-pentanone	**0.195**	0.161		**-17.4**	
Toluene *	1.399	1.339	0.400	-4.3	25.0
Trans-1,3 Dichloropropene *	0.299	0.236	0.100	-21.1	25.0
1,1,2 Trichloroethane *	0.305	0.304	0.100	-0.3	25.0
Tetrachloroethene *	0.455	**0.586**	0.200	**28.8**	25.0
2-Hexanone	0.046	**0.091**		**97.83**	
Dibromochloromethane *	0.555	0.584	0.100	5.2	25.0
1,2-Dibromoethane	0.537	0.508		-5.4	
Chlorobenzene *	1.035	1.130	0.500	9.2	25.0
Ethylbenzene *	0.485	0.465	0.100	-4.1	25.0
Xylene (total) *	0.581	0.559	0.300	-3.8	25.0
Styrene *	0.931	0.897	0.300	-3.7	25.0
Bromoform *	0.321	0.356	0.100	10.9	25.0
Isopropylbenzene	1.521	1.473		-3.2	
1,1,2,2-Tetrachloroethane *	0.610	0.580	0.300	-4.9	25.0
1,3-Dichlorobenzene *	0.770	**0.965**	0.600	**25.3**	25.0
1,4- Dichlorobenzene *	**0.868**	1.015	0.500	16.9	25.0
1,2 Dichlorobenzene *	0.715	0.852	0.400	19.2	25.0
1,2-Dibromo-3-chloropropane	0.108	**0.082**		**-24.1**	
1,2,4-Trichlorobenzene *	0.505	0.574	0.200	13.7	25.0
Toluene -d8	1.113	1.110		-0.3	
Bromofluorobenzene *	**0.945**	0.876	0.200	-7.3	25.0
1,2 Dichloroethane -d4	1.217	**0.891**		**-26.8**	

All other compounds must meet a minimum RRF of 0.010.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __BB_____ Calibration Date: __02/09/01_____ Time: __1523_____

Lab File ID: ___CCT03_____ Init. Calib Date(s): __02/02/01__ __02/02/01__

EPA Sample N0. (VSTD50##): _VSTD050KL_____ Init. Calib Times: __1820__ __2018___

Heated Purge: (Y/N) ____Y_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
Dichlorodifluoromethane	5.208	5.595		7.4	
Chloromethane	1.784	1.987		11.4	
Vinyl Chloride	1.874	2.364	0.100	**26.1**	25.0
Bromomethane	1.461	1.588	0.100	8.7	25.0
Chloroethane	0.982	1.202		**22.4**	
Trichlorofluoromethane	5.447	6.303		15.7	
1,1 Dichloroethene	1.424	1.717	0.100	20.6	25.0
1,1,2-trichloro-1,2,2-trifluoroethane	2.014	2.446		21.4	
Acetone	0.841	1.055		**25.4**	
Carbon Disulfide	4.704	5.676		20.7	
Methyl Acetate	**1.056**	1.908		**80.7**	
Methylene Chloride	2.310	2.601		12.6	
Trans-1,2-Dichloroethene	1.629	1.808		11.0	
Methyl-tert-Butyl Ether	11.615	15.110		**30.1**	
1,1 Dichloroethane	3.224	3.774	0.200	17.1	25.0
Cis- Dichloroethene	1.767	1.980		12.1	
2-Butanone	1.156	**1.757**		**52.0**	
Chloroform	3.872	4.359	0.200	12.6	25.0
1,1,1-Trichloroethane	0.752	0.797	0.100	6.0	25.0
Cyclohexane	0.556	0.551		-0.9	
Carbon Tetrachloride	0.685	0.758	0.100	10.7	25.0
Benzene	1.279	1.289	0.500	0.8	25.0
1,2 Dichloroethane	3.332	4.005	0.100	20.2	25.0
Trichloroethene	0.365	0.342	0.300	-6.3	25.0
Methylcyclohexane	0.519	0.496		-4.4	

All other compounds must meet a minimum RRF of 0.010.

7B
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __BB_____ Calibration Date: __02/09/01_____ Time: __1523_____

Lab File ID: ___CCT03_____ Init. Calib Date(s): __02/02/01__ __02/02/01__

EPA Sample N0. (VSTD50##): _VSTD050KL_____ Init. Calib Times: __1820__ __2018___

Heated Purge: (Y/N) ____Y_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
1,2-Dichloropropane	0.344	0.359		4.4	
Bromodichloromethane *	0.617	0.682	0.200	10.5	25.0
Cis-1,3-Dichloropropene *	0.536	0.565	0.200	5.4	25.0
4-Methyl-2-pentanone	0.554	0.674		21.7	
Toluene *	1.408	1.247	0.400	-11.4	25.0
Trans-1,3 Dichloropropene *	0.637	0.757	0.100	18.8	25.0
1,1,2 Trichloroethane *	0.322	0.346	0.100	7.5	25.0
Tetrachloroethene *	0.324	**0.279**	0.200	-13.9	25.0
2-Hexanone	0.444	0.517		**16.4**	
Dibromochloromethane *	0.493	0.556	0.100	12.8	25.0
1,2-Dibromoethane	**0.436**	0.440		0.9	
Chlorobenzene *	0.996	0.878	0.500	-11.8	25.0
Ethylbenzene *	0.502	0.432	0.100	-13.9	25.0
Xylene (total) *	0.629	0.595	0.300	-5.4	25.0
Styrene *	1.169	1.057	0.300	-9.6	25.0
Bromoform *	0.396	0.460	0.100	16.2	25.0
Isopropylbenzene	1.871	1.674		-10.5	
1,1,2,2-Tetrachloroethane *	0.631	0.681	0.300	7.9	25.0
1,3-Dichlorobenzene *	0.966	0.885	0.600	-8.4	25.0
1,4- Dichlorobenzene *	1.007	0.936	0.500	-7.1	25.0
1,2 Dichlorobenzene *	0.942	0.893	0.400	-5.2	25.0
1,2-Dibromo-3-chloropropane	0.175	0.211		**20.6**	
1,2,4-Trichlorobenzene *	0.772	0.705	0.200	-8.7	25.0
Toluene -d8	1.153	1.071		-7.1	
Bromofluorobenzene *	0.695	0.626	0.200	-9.9	25.0
1,2 Dichloroethane -d4	2.494	3.137		**25.8**	

All other compounds must meet a minimum RRF of 0.010.

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB5_____

Sample wt/vol: _____5.00_____(g/mL) ___g_____ Lab File ID: ____ BBB00-5BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U**J**
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	**(9.32) 9**	**J**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U**J**
75-09-2	Methylene Chloride	3	**J**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U**J**
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	5	**J**
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB5_____

Sample wt/vol: _____5.00_____(g/mL) ___g_____ Lab File ID: ____ BBB00-5BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	3	J
100-41-4	Ethylbenzene	1	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB5_____

Sample wt/vol: _____5.00_____(g/mL) ___g_____ Lab File ID: ____ BBB00-5BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: _____6____ CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	470	ANJB
2.	Unknown	7.87	230	JB
3.	Laboratory Artifact	12.21	240	JB
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	160	NJB
5.	Unknown	17.09	260	JB
6.	Unknown siloxane	18.21	150	JB
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1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _MB6_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBB00-6MB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U**J**
74-87-3	Chloromethane	10	U**J**
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	**J**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	**(2.59) 3**	**J**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U**J**
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	1	**J**
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U**J**

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _MB6_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBB00-6MB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U**J**
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	**R**
108-88-3	Toluene	**(2.38) 2**	J
10061-02-6	Trans-1,3 Dichloropropene	10	U**J**
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	**R**
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	**R**
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00_

Matrix: (soil/water) ___water_____ Lab Sample ID: _MB6_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBB00-6MB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(ul) Soil Aliquot Volume: _____(ul)

Number TICs found: ___6_____ CONCENTRATION UNITS
(ug/L or ug/Kg) __ug/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	47	ANJB
2.	Unknown	7.87	23	JB
3.	Laboratory Artifact	12.21	24	JB
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	16	NJB
5.	Unknown	17.09	26	JB
6.	Unknown siloxane	18.21	15	JB
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1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKSD

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB7_____

Sample wt/vol: _____4_____(g/mL) ___g_____ Lab File ID: ____ BBB00-7MB_____

Level: (low/med) __Med_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____0_____ Date Analyzed: ___02/11/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	1300	**R**
74-87-3	Chloromethane	1300	**R**
75-01-4	Vinyl Chloride	1300	**R**
74-83-9	Bromomethane	1300	**R**
75-00-3	Chloroethane	1300	**R**
75-69-4	Trichlorofluoromethane	1300	**R**
75-35-4	1,1 Dichloroethene	1300	**R**
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	1300	**R**
67-64-1	Acetone	**850**	**J**
75-15-0	Carbon Disulfide	1300	**R**
79-20-9	Methyl Acetate	1300	**R**
75-09-2	Methylene Chloride	500	**J**
156-60-5	Trans-1,2-Dichloroethene	1300	**R**
1634-04-4	Methyl-tert-Butyl Ether	1300	**R**
75-34-3	1,1 Dichloroethane	1300	**R**
156-59-2	Cis- Dichloroethene	1300	**R**
78-93-3	2-Butanone	650	**J**
67-99-3	Chloroform	1300	**R**
71-55-6	1,1,1-Trichloroethane	1300	**R**
110-82-7	Cyclohexane	1300	**R**
56-23-5	Carbon Tetrachloride	1300	**R**
71-43-2	Benzene	1300	**R**
107-06-2	1,2 Dichloroethane	1300	**R**

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKSD

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB_____

Sample wt/vol: _____4_____(g/mL) ___g_____ Lab File ID: ____ BBB00-7MB_____

Level: (low/med) __Med_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____0_____ Date Analyzed: ___02/11/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
79-01-6	Trichloroethene	1300	**R**
108-87-2	Methylcyclohexane	1300	**R**
78-87-5	1,2-Dichloropropane	1300	**R**
75-27-4	Bromodichloromethane	1300	**R**
10061-01-5	Cis-1,3-Dichloropropene	1300	**R**
108-10-1	4-Methyl-2-pentanone	1300	**R**
108-88-3	Toluene	1300	**R**
10061-02-6	Trans-1,3 Dichloropropene	1300	**R**
79-00-5	1,1,2 Trichloroethane	1300	**R**
127-18-4	Tetrachloroethene	1300	**R**
591-78-6	2-Hexanone	1300	**R**
124-48-1	Dibromochloromethane	1300	**R**
106-93-4	1,2-Dibromoethane	1300	**R**
108-90-7	Chlorobenzene	290	**J**
100-41-4	Ethylbenzene	150	**J**
1330-20-7	Xylene (total)	1300	**R**
100-42-5	Styrene	1300	**R**
75-25-2	Bromoform	1300	**R**
98-82-8	Isopropylbenzene	1300	**R**
79-34-5	1,1,2,2-Tetrachloroethane	1300	**R**
541-73-1	1,3-Dichlorobenzene	1300	**R**
106-46-7	1,4- Dichlorobenzene	1300	**R**
95-50-1	1,2 Dichlorobenzene	1300	**R**
96-12-8	1,2-Dibromo-3-chloropropane	1300	**R**
120-82-1	1,2,4-Trichlorobenzene	1300	**R**

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BNR68MS

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-26_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-26AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	**R**
74-87-3	Chloromethane	2200	**R**
75-01-4	Vinyl Chloride	2200	**R**
74-83-9	Bromomethane	2200	**R**
75-00-3	Chloroethane	2200	**R**
75-69-4	Trichlorofluoromethane	2200	**R**
75-35-4	1,1 Dichloroethene	9400	**J**
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	**R**
67-64-1	Acetone	2900	**UJ**
75-15-0	Carbon Disulfide	2200	**R**
79-20-9	Methyl Acetate	450	**J**
75-09-2	Methylene Chloride	**(510) 2200**	**UJ**
156-60-5	Trans-1,2-Dichloroethene	2200	**R**
1634-04-4	Methyl-tert-Butyl Ether	2200	**R**
75-34-3	1,1 Dichloroethane	2200	**R**
156-59-2	Cis- Dichloroethene	2200	**R**
78-93-3	2-Butanone	2200	**UJ**
67-99-3	Chloroform	2200	**R**
71-55-6	1,1,1-Trichloroethane	2200	**R**
110-82-7	Cyclohexane	2200	**R**
56-23-5	Carbon Tetrachloride	2200	**R**
71-43-2	Benzene	8700	**J**
107-06-2	1,2 Dichloroethane	2200	**R**

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MS

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-26_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-26AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	8600	**J**
108-87-2	Methylcyclohexane	2200	**R**
78-87-5	1,2-Dichloropropane	2200	**R**
75-27-4	Bromodichloromethane	2200	**R**
10061-01-5	Cis-1,3-Dichloropropene	2200	**R**
108-10-1	4-Methyl-2-pentanone	2200	**R**
108-88-3	Toluene	8500	**J**
10061-02-6	Trans-1,3 Dichloropropene	2200	**R**
79-00-5	1,1,2 Trichloroethane	2200	**R**
127-18-4	Tetrachloroethene	2200	**R**
591-78-6	2-Hexanone	**(1235.38) 1200**	**J**
124-48-1	Dibromochloromethane	2200	**R**
106-93-4	1,2-Dibromoethane	2200	**R**
108-90-7	Chlorobenzene	8300	**J**
100-41-4	Ethylbenzene	2200	**R**
1330-20-7	Xylene (total)	2200	**R**
100-42-5	Styrene	2200	**R**
75-25-2	Bromoform	2200	**R**
98-82-8	Isopropylbenzene	2200	**R**
79-34-5	1,1,2,2-Tetrachloroethane	2200	**R**
541-73-1	1,3-Dichlorobenzene	7600	**J**
106-46-7	1,4- Dichlorobenzene	**(9608.61) 9600**	**J**
95-50-1	1,2 Dichlorobenzene	12000	**J**
96-12-8	1,2-Dibromo-3-chloropropane	2200	**R**
120-82-1	1,2,4-Trichlorobenzene	10000	**J**

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-27_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-27AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	**R**
74-87-3	Chloromethane	2200	**R**
75-01-4	Vinyl Chloride	2200	**R**
74-83-9	Bromomethane	2200	**R**
75-00-3	Chloroethane	2200	**R**
75-69-4	Trichlorofluoromethane	2200	**R**
75-35-4	1,1 Dichloroethene	**(10135.64) 10000**	**J**
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	**R**
67-64-1	Acetone	**(4118.14) 4100**	**UJ**
75-15-0	Carbon Disulfide	2200	**R**
79-20-9	Methyl Acetate	740	**J**
75-09-2	Methylene Chloride	**(440) 2200**	**UJ**
156-60-5	Trans-1,2-Dichloroethene	2200	**R**
1634-04-4	Methyl-tert-Butyl Ether	2200	**R**
75-34-3	1,1 Dichloroethane	2200	**R**
156-59-2	Cis- Dichloroethene	2200	**R**
78-93-3	2-Butanone	**(1200) 2200**	**UJ**
67-99-3	Chloroform	2200	**R**
71-55-6	1,1,1-Trichloroethane	2200	**R**
110-82-7	Cyclohexane	2200	**R**
56-23-5	Carbon Tetrachloride	2200	**R**
71-43-2	Benzene	**(9841.93) 9900**	**J**
107-06-2	1,2 Dichloroethane	2200	**R**

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-27_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-27AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	**(9476.38) 9500**	**J**
108-87-2	Methylcyclohexane	2200	**R**
78-87-5	1,2-Dichloropropane	2200	**R**
75-27-4	Bromodichloromethane	2200	**R**
10061-01-5	Cis-1,3-Dichloropropene	2200	**R**
108-10-1	4-Methyl-2-pentanone	2200	**R**
108-88-3	Toluene	**(9640.68) 9600**	**J**
10061-02-6	Trans-1,3 Dichloropropene	2200	**R**
79-00-5	1,1,2 Trichloroethane	2200	**R**
127-18-4	Tetrachloroethene	2200	**R**
591-78-6	2-Hexanone	**(1209.07) 1200**	**J**
124-48-1	Dibromochloromethane	2200	**R**
106-93-4	1,2-Dibromoethane	2200	**R**
108-90-7	Chlorobenzene	**(9411.69) 9400**	**J**
100-41-4	Ethylbenzene	2200	**R**
1330-20-7	Xylene (total)	2200	**R**
100-42-5	Styrene	2200	**R**
75-25-2	Bromoform	2200	**R**
98-82-8	Isopropylbenzene	2200	**R**
79-34-5	1,1,2,2-Tetrachloroethane	2200	**R**
541-73-1	1,3-Dichlorobenzene	**(7111.50) 7100**	**J**
106-46-7	1,4- Dichlorobenzene	**(9036.69) 9000**	**J**
95-50-1	1,2 Dichlorobenzene	**(14677.14) 15000**	**J**
96-12-8	1,2-Dibromo-3-chloropropane	2200	**R**
120-82-1	1,2,4-Trichlorobenzene	**(10627.85) 11000**	**J**

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPJ51MS

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Water_____ Lab Sample ID: _BBB00-18_____

Sample wt/vol: _____5_____(g/mL) ___mL_____ Lab File ID: __ BBB00-18AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U**J**
74-87-3	Chloromethane	10	U**J**
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	**(48.43) 48**	
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	**(40.35) 40**	**UJ**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	J
75-09-2	Methylene Chloride	10	**UJ**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U**J**
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U**J**
67-99-3	Chloroform	15	
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	**(51.67) 52**	
107-06-2	1,2 Dichloroethane	10	U**J**

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51MS

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Water_____ Lab Sample ID: _BBB00-18_____

Sample wt/vol: _____5_____(g/Ml) ___Ml_____ Lab File ID: __ BBB00-18AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	**(48.31) 48**	**J**
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	**R**
108-88-3	Toluene	**(49.72) 50**	
10061-02-6	Trans-1,3 Dichloropropene	10	U**J**
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	**R**
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	**(49.83) 50**	
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	**(43.43) 43**	
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	**R**
120-82-1	1,2,4-Trichlorobenzene	10	U

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPJ51MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Water_____ Lab Sample ID: _BBB00-19_____

Sample wt/vol: _____5_____(g/mL) ___mL_____ Lab File ID: __ BBB00-19AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U**J**
74-87-3	Chloromethane	10	U**J**
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	**(49.82) 50**	
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	**(40.01) 40**	**UJ**
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	7	**J**
75-09-2	Methylene Chloride	10	**UJ**
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U**J**
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U**J**
67-99-3	Chloroform	**(15.22) 15**	
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	**(52.84) 53**	
107-06-2	1,2 Dichloroethane	10	U**J**

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Water_____ Lab Sample ID: _BBB00-19_____

Sample wt/vol: _____5_____(g/Ml) ___Ml_____ Lab File ID: __ BBB00-19AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	**(48.95) 49**	**J**
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	**R**
108-88-3	Toluene	**(53.71) 54**	
10061-02-6	Trans-1,3 Dichloropropene	10	U**J**
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	**R**
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	**(48.55) 49**	
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	**(43.41) 43**	
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	**R**
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26MS

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-12_____

Sample wt/vol: ____5.81_____(g/mL) _____g_____ Lab File ID: __ BBB00-12BB_____

Level: (low/med) ___low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____23_____ Date Analyzed: __02/09/01_____

GC Column: J&W DB-624_____ ID: ___0.32_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	11	U
74-87-3	Chloromethane	11	U
75-01-4	Vinyl Chloride	11	U**J**
74-83-9	Bromomethane	11	U
75-00-3	Chloroethane	11	U
75-69-4	Trichlorofluoromethane	11	U
75-35-4	1,1 Dichloroethene	51	
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	11	U
67-64-1	Acetone	40	**UJ**
75-15-0	Carbon Disulfide	11	U
79-20-9	Methyl Acetate	11	U**J**
75-09-2	Methylene Chloride	11	**UJ**
156-60-5	Trans-1,2-Dichloroethene	11	U
1634-04-4	Methyl-tert-Butyl Ether	11	U**J**
75-34-3	1,1 Dichloroethane	11	U
156-59-2	Cis- Dichloroethene	11	U
78-93-3	2-Butanone	11	U**J**
67-99-3	Chloroform	11	U
71-55-6	1,1,1-Trichloroethane	11	U
110-82-7	Cyclohexane	11	U
56-23-5	Carbon Tetrachloride	11	U
71-43-2	Benzene	55	**J**
107-06-2	1,2 Dichloroethane	11	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26MS

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-12_____

Sample wt/vol: ____5.81_____(g/mL) _____g_____ Lab File ID: __ BBB00-12BB_____

Level: (low/med) ___low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____23_____ Date Analyzed: __02/09/01_____

GC Column: J&W DB-624_____ ID: ___0.32_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	50	
108-87-2	Methylcyclohexane	11	U
78-87-5	1,2-Dichloropropane	11	U
75-27-4	Bromodichloromethane	11	U
10061-01-5	Cis-1,3-Dichloropropene	11	U
108-10-1	4-Methyl-2-pentanone	11	U
108-88-3	Toluene	59	**J**
10061-02-6	Trans-1,3 Dichloropropene	11	U
79-00-5	1,1,2 Trichloroethane	11	U
127-18-4	Tetrachloroethene	11	U
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	11	U
106-93-4	1,2-Dibromoethane	11	U
108-90-7	Chlorobenzene	59	**J**
100-41-4	Ethylbenzene	11	U**J**
1330-20-7	Xylene (total)	11	U**J**
100-42-5	Styrene	11	U**J**
75-25-2	Bromoform	11	U
98-82-8	Isopropylbenzene	11	U**J**
79-34-5	1,1,2,2-Tetrachloroethane	11	U
541-73-1	1,3-Dichlorobenzene	11	U**J**
106-46-7	1,4- Dichlorobenzene	11	U**J**
95-50-1	1,2 Dichlorobenzene	11	U**J**
96-12-8	1,2-Dibromo-3-chloropropane	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U**J**

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26MSD

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-13_____

Sample wt/vol: ____5.79_____(g/mL) _____g_____ Lab File ID: __ BBB00-13BB_____

Level: (low/med) ___low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____23_____ Date Analyzed: __02/09/01_____

GC Column: J&W DB-624_____ ID: ___0.32_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	11	**UJ**
74-87-3	Chloromethane	11	**UJ**
75-01-4	Vinyl Chloride	11	**UJ**
74-83-9	Bromomethane	11	**UJ**
75-00-3	Chloroethane	11	**UJ**
75-69-4	Trichlorofluoromethane	11	**UJ**
75-35-4	1,1 Dichloroethene	**(45.51) 46**	**J**
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	11	**UJ**
67-64-1	Acetone	**(7.22) 11**	**UJ**
75-15-0	Carbon Disulfide	11	**UJ**
79-20-9	Methyl Acetate	11	**UJ**
75-09-2	Methylene Chloride	**(4.17) 11**	**UJ**
156-60-5	Trans-1,2-Dichloroethene	11	**UJ**
1634-04-4	Methyl-tert-Butyl Ether	11	**UJ**
75-34-3	1,1 Dichloroethane	11	**UJ**
156-59-2	Cis- Dichloroethene	11	**UJ**
78-93-3	2-Butanone	11	**UJ**
67-99-3	Chloroform	11	**UJ**
71-55-6	1,1,1-Trichloroethane	11	**UJ**
110-82-7	Cyclohexane	11	**UJ**
56-23-5	Carbon Tetrachloride	11	**UJ**
71-43-2	Benzene	**(49.53) 50**	**J**
107-06-2	1,2 Dichloroethane	11	**UJ**

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26MSD

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-13_____

Sample wt/vol: ____5.79_____(g/mL) _____g_____ Lab File ID: __ BBB00-13BB_____

Level: (low/med) ___low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____23_____ Date Analyzed: __02/09/01_____

GC Column: J&W DB-624_____ ID: ___0.32_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg _____	Q
79-01-6	Trichloroethene	**(47.52) 48**	**J**
108-87-2	Methylcyclohexane	11	**UJ**
78-87-5	1,2-Dichloropropane	11	**UJ**
75-27-4	Bromodichloromethane	11	**UJ**
10061-01-5	Cis-1,3-Dichloropropene	11	**UJ**
108-10-1	4-Methyl-2-pentanone	11	**UJ**
108-88-3	Toluene	**(52.47) 52**	**J**
10061-02-6	Trans-1,3 Dichloropropene	11	**UJ**
79-00-5	1,1,2 Trichloroethane	11	**UJ**
127-18-4	Tetrachloroethene	11	**UJ**
591-78-6	2-Hexanone	11	**UJ**
124-48-1	Dibromochloromethane	11	**UJ**
106-93-4	1,2-Dibromoethane	11	**UJ**
108-90-7	Chlorobenzene	**(51.87) 52**	**J**
100-41-4	Ethylbenzene	**(5.97) 11**	**UJ**
1330-20-7	Xylene (total)	11	**UJ**
100-42-5	Styrene	11	**UJ**
75-25-2	Bromoform	11	**UJ**
98-82-8	Isopropylbenzene	11	**UJ**
79-34-5	1,1,2,2-Tetrachloroethane	11	**UJ**
541-73-1	1,3-Dichlorobenzene	11	**UJ**
106-46-7	1,4- Dichlorobenzene	11	**UJ**
95-50-1	1,2 Dichlorobenzene	11	**UJ**
96-12-8	1,2-Dibromo-3-chloropropane	11	**UJ**
120-82-1	1,2,4-Trichlorobenzene	11	**UJ**

Appendix F

VOA Final Quiz

VOA Final Quiz

Instruction:

- Perform all necessary calculations to fill in the missing information on the forms.
- Qualify the Form 1s for all criteria discussed in Learning Modules 1-10
- Write the qualifications on the Form 1s.
- Write the required qualification statements in the Data Assessment found at the beginning of the test. Don't forget contractual problems.
- Sampling Trip Report and SDG Narrative are located at the beginning of the quiz. A modified Quant report for each sample is placed after the Form 1s for each sample.
- All data is located in the same order as specified in the SOW. See Learning Module 2 for additional information.

CLP Data Assessment

CASE No.: **SDG No.: _____**

LABORATORY: **SITE:**

DATA ASSESSMENT

The current SOP No. HW-6 (Revision 12), January 2000 for CLP Organics Review and Preliminary Review has been applied.

All data were found to be valid and acceptable except those analytes which have been rejected, "R" (unusable). Due to various QC problems some analytes may have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detect), or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's

Signature: _____ Date: _____

Verified By: _____ Date: _____

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

B) Field or rinse blank contamination:

C) Trip blank contamination:

D) Storage Blank contamination:

E) TICs

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be $\geq$ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

7. CALIBRATION:

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

The following analytes in the sample shown were qualified for %RSD and %D:

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.

Sampling Trip Report
February 05, 2001
Any Site
New Jersey

Samples	Sampling Date	Shipping Date	Airbill No.	Description
BDR43	01/31/01	01/31/01	VFT5348762	DI Blank
BNR68	02/01/01	02/01/01	HYR7652037	4"-8" depth of soil from location GRD12
BPH62	02/01/01	02/01/01	HYR7652037	1'-2' depth of soil from location GRD17
BPH71	01/31/01	01/31/01	VFT5348762	Rinse Blank for bucket
BPJ51	01/31/01	01/31/01	VFT5348762	Ground water from on sight spigot GRD15
BPL01	01/31/01	01/31/01	VFT5348762	Trip blank
BPL04	02/01/01	02/01/01	HYR7652037	Rinse blank for bowl and trowel
BXZ26	02/01/01	02/01/01	HYR7652037	1'-2' depth of soil from location GRD19

NEWLAB
Nowhere, NJ, USA

SDG Narrative
Case # 12345
SDG BBB00
Contract # 123456

Sample Identifications: BDR43, BNR68, BPH62, BPH71, BPJ51, BPL01, BPL04, and BXZ26.

The ten samples listed above were received on February 03, 2001 in good conditions except as noted below, with proper documentation. The cooler temperatures were measured at 3°C for cooler with airbill no. VFT5348762 and at 5°C for cooler with airbill No. HYR7652037.

All samples were scheduled for volatile, semivolatile and pesticide/PCB analyses except for BPL01, which was submitted for volatile only analysis. All water and medium level soil samples were analyzed following SOW OLM04.2. The low level soil samples were preserved on 02/06/01 and analyzed using Modified Method 5035 as per SOW OLM04.2.

This portion of the SDG narrative pertains to the Volatile fraction only. Analysis holding times were met for all samples and the sample pH values were <2 for all water samples. The pH values are tabulated below.

All 3 VOA vials for sample BDR43 contained air bubbles. The container for sample BNR68 was cracked but no loss of sample occurred.

Sample	pH
BDR43	< 2
BPH71	< 2
BPJ51	< 2
BPL01	< 2
BPL04	< 2

The associated method blanks met all quality control criteria and did not contain any target analytes above the CRQL. The associated storage blank met all quality control criteria and did not contain any target analytes above the CRQL.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

John S. Jones
Laboratory Manager
February 17, 2001

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKJH	97	102	96		0
2.	BDR43					
3.	BPH71	107	113	107		0
4.	BPJ51	101	106	107		0
5.	BPJ51MS	97	103	107		0
6.	BPJ51MSD					
7.	BPL01	101	107	105		0
8.	BPL04	102	110	109		0
9.	BPH71RE					
10.	VHBLK01	91	108	77		0
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12.						
13.						
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29.						
30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(88-110)
SMC2	(BFB) = Bromofluorobenzene	(86-115)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) __LOW_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKDS	99	83	113		0
2.	BPH62	107	99	95		0
3.	BXZ26	95	83	119		0
4.	BXZ26MS	108	99	100		0
5.	BXZ26MSD					
6.						
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		QC LIMITS
SMC1	(TOL) = Toluene-d8	(84-138)
SMC2	(BFB) = Bromofluorobenzene	(59-113)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) __MED_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKSD	97	99	101		0
2.	BNR68					
3.	BNR68MS	90	91	92		0
4.	BNR68MSD					
5.						
6.						
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		QC LIMITS
SMC1	(TOL) = Toluene-d8	(84-138)
SMC2	(BFB) = Bromofluorobenzene	(59-113)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix Spike - EPA Sample No.: __BPJ51_____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene					61-145
Trichloroethene					71-120
Benzene					76-127
Toluene					76-125
Chlorobenzene					75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene					14	61-145
Trichloroethene					14	71-120
Benzene					11	76-127
Toluene					13	76-125
Chlorobenzene					13	75-130

Column to be used to flag recovery and RPD values with asterisk

* Values outside of QC limits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix Spike - EPA Sample No.: __BXZ26_____ Level: (low/med) _____LOW_____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	55.88	0.0	51.26		59-172
Trichloroethene	55.88	0.0	51.50		62-137
Benzene	55.88	0.0	54.57		66-142
Toluene	55.88	0.0	58.88		59-139
Chlorobenzene	55.88	0.0	59.38		60-133

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene					22	59-172
Trichloroethene					24	62-137
Benzene					21	66-142
Toluene					21	59-139
Chlorobenzene					21	60-133

Column to be used to flag recovery and RPD values with asterisk

* Values outside of QC limits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix Spike - EPA Sample No.: __ BNR68_____ Level: (low/med) _____MED_____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	10760	0.0	9444		59-172
Trichloroethene	10760	0.0	8608		62-137
Benzene	10760	0.0	8677		66-142
Toluene	10760	0.0	8495		59-139
Chlorobenzene	10760	0.0	8312		60-133

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene					22	59-172
Trichloroethene					24	62-137
Benzene					21	66-142
Toluene					21	59-139
Chlorobenzene					21	60-133

Column to be used to flag recovery and RPD values with asterisk

* Values outside of QC limits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKDS

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: _NLB_____ Case No.: __12345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: ___BBB00-5MB_____ Lab Sample ID: ____MB5_____

Date Analyzed: ____02/09/01_____ Time Analyzed: ___1559_____

GC Column: _J&W DB-624_ ID: _0.32_____ (mm) Heated Purge: (Y/N) ___Y_____

Instrument ID : ____BB_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.	BPH62	BBB00-10	BBB00-10BB	1638
2.	BXZ26	BBB00-11	BBB00-11BB	1708
3.	BXZ26MS	BBB00-12	BBB00-12BB	1738
4.	BXZ26MSD	BBB00-13	BBB00-13BB	1810
5.				
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COMMENTS: _____

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKJH

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: _NLB_____ Case No.: __12345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: ___BBB00-6MB_____ Lab Sample ID: ____MB6_____

Date Analyzed: ____02/10/01_____ Time Analyzed: ___0923_____

GC Column: _Equity 624_ ID: _0.53_____ (mm) Heated Purge: (Y/N) ___N_____

Instrument ID : ____AA_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.	BDR43	BBB00-15	BBB00-15DI	1337
2.	BPH71	BBB00-16	BBB00-16RB	1443
3.	BPJ51	BBB00-17	BBB00-17AA	1530
4.	BPJ51MS	BBB00-18	BBB00-18AA	1559
5.	BPJ51MSD	BBB00-19	BBB00-19AA	1724
6.	BPL01	BBB00-20	BBB00-20TB	1754
7.	BPL04	BBB00-21	BBB00-21RB	1826
8.	BPH71RE	BBB00-16RE	BBB00-16RE	1903
9.	VHBL01	BBB00-22	BBB00-22SB	2030
10.				
11.				
12.				
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COMMENTS: _____

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

VBLKSD

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: _NLB____ Case No.: __12345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: ___BBB00-7MB_____ Lab Sample ID: ____MB7_____

Date Analyzed: ____02/11/01_____ Time Analyzed: ___0713_____

GC Column: _Equity 624_ ID: _0.53_____ (mm) Heated Purge: (Y/N) ___N_____

Instrument ID : ____AA_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.	BNR68	BBB00-24	BBB00-24AA	1158
2.	BNR68MS	BBB00-26	BBB00-26AA	1223
3.	BNR68MSD	BBB00-27	BBB00-27AA	1320
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COMMENTS: _____

_____

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: _AA010207_____ BFB Injection Date: ___02/07/01_____

Instrument ID: __AA_____ BFB Injection Time: ___0843_____

GC Column: Equity 624__ ID: __0.53___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	13.7
75	30.0- 66.0% of mass 95	37.5
95	Base peak, 100% relative abundance	100.0
96	5.0- 9.0% of mass 95	6.6
173	Less than 2.0% mass 174	1.1 (1.5)1
174	50.0- 120.0% of mass 95	70.9
175	4.0- 9.0% of mass 174	4.9 (6.8)1
176	93.0- 101.0% of mass 174	68.8 (97.0)1
177	5.0- 9.0% of mass 176	4.3 (6.2)2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD010AA	VSTD010AA	ICA010	02/07/01	0949
2.	VSTD020AA	VSTD020AA	ICA020	02/07/01	1024
3.	VSTD050AA	VSTD050AA	ICA050	02/07/01	1054
4.	VSTD100AA	VSTD100AA	ICA100	02/07/01	1126
5.	VSTD200AA	VSTD200AA	ICA200	02/07/01	1156
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COMMENTS: _____

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: _BB010202_____ BFB Injection Date: ___02/02/01_____

Instrument ID: __BB_____ BFB Injection Time: ___1754

GC Column: J&W DB-624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	19.9
75	30.0- 66.0% of mass 95	50.3
95	Base peak, 100% relative abundance	100.0
96	5.0- 9.0% of mass 95	6.2
173	Less than 2.0% mass 174	0.0 (0.0)1
174	50.0- 120.0% of mass 95	82.8
175	4.0- 9.0% of mass 174	6.2 (7.4)1
176	93.0- 101.0% of mass 174	82.6 (99.7)1
177	5.0- 9.0% of mass 176	5.5 (6.6)2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD010 BB	VSTD010 BB	ICS010	02/02/01	1820
2.	VSTD020BB	VSTD020BB	ICS020	02/02/01	1850
3.	VSTD050 BB	VSTD050 BB	ICS050	02/02/01	1919
4.	VSTD100 BB	VSTD100 BB	ICS100	02/02/01	1949
5.	VSTD200 BB	VSTD200 BB	ICS200	02/02/01	2018
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COMMENTS: _____

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: _AA010210_____ BFB Injection Date: ___02/10/01_____

Instrument ID: __AA_____ BFB Injection Time: ___0827_____

GC Column: Equity 624__ ID: __0.53___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	
75	30.0- 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0- 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0- 120.0% of mass 95	
175	4.0- 9.0% of mass 174	( )1
176	93.0- 101.0% of mass 174	( )1
177	5.0- 9.0% of mass 176	( )2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD050AA	VSTD050AA	CCA03	02/10/01	0849
2.	VBLKJH	MB6	BBB00-6MB	02/10/01	0923
3.	BDR43	BBB00-15	BBB00-15DI	02/10/01	1337
4.	BPH71	BBB00-16	BBB00-16RB	02/10/01	1433
5.	BPJ51	BBB00-17	BBB00-17AA	02/10/01	1530
6.	BPJ51MS	BBB00-18	BBB00-18AA	02/10/01	1559
7.	BPJ51MSD	BBB00-19	BBB00-19AA	02/10/01	1724
8.	BPL01	BBB00-20	BBB00-20TB	02/10/01	1754
9.	BPL04	BBB00-21	BBB00-21RB	02/10/01	1826
10.	BPH71RE	BBB00-16RE	BBB00-16RE	02/10/01	1903
11.	VHBLK01	BBB00-22	BBB00-22SB	02/10/01	2030
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COMMENTS: _____

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: _AA010211_____ BFB Injection Date: ___02/11/01_____

Instrument ID: __AA_____ BFB Injection Time: ___0617_____

GC Column: Equity 624__ ID: __0.53___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	
75	30.0- 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0- 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0- 120.0% of mass 95	
175	4.0- 9.0% of mass 174	( )1
176	93.0- 101.0% of mass 174	( )1
177	5.0- 9.0% of mass 176	( )2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VST050AA	VST050AA	CCB04	02/11/01	0639
2.	VBLKSD	MB7	BBB00-7MB	02/11/01	0713
3.	BNR68	BBB00-24	BBB00-24AA	02/11/01	1158
4.	BNR68MS	BBB00-26	BBB00-26AA	02/11/01	1223
5.	BNR68MSD	BBB00-27	BBB00-27AA	02/11/01	1320
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COMMENTS: _____

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: _BB010205_____ BFB Injection Date: ___02/09/01_____

Instrument ID: __BB_____ BFB Injection Time: ___1429_____

GC Column: J&W DB-624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	
75	30.0- 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0- 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0- 120.0% of mass 95	
175	4.0- 9.0% of mass 174	( )1
176	93.0- 101.0% of mass 174	( )1
177	5.0- 9.0% of mass 176	( )2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD050KL	VSTD050KL	CCT03	02/09/01	1523
2.	VBLKDS	MB5	BBB00-5MB	02/09/01	1559
3.	BPH62	BBB00-10	BBB00-10BB	02/09/01	1638
4.	BXZ26	BBB00-11	BBB00-11BB	02/09/01	1708
5.	BXZ26MS	BBB00-12	BBB00-12BB	02/09/01	1738
6.	BXZ26MSD	BBB00-13	BBB00-13BB	02/09/01	1810
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COMMENTS: _____

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD050GB_____ Date Analyzed: __02/10/01_____

Lab File ID: ___CCA03_____ Time Analyzed: __0849_____

Instrument ID: _AA_____ Heated Purge: (Y/N) ___N_____

GC Column: Equity 624_____ ID: ___0.53_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD		8.71	9410690	9.99	7602547	13.28
	UPPER LIMIT	3950362	9.21		10.49	15205094	13.78
	LOWER LIMIT	987590	8.21	4705345	9.49		12.78
	EPA SAMPLE						
1.	VBLKJH						
2.	BDR43	1868546	8.75	8354968	10.04	6414794	13.35
3.	BPH71	1833643	8.75	4369362	10.05	6394398	13.35
4.	BPJ51	1733643	8.76	8208520	10.05	6712370	13.36
5.	BPJ51MS	1710824	8.76	8105650	10.06	7073084	13.37
6.	BPJ51MSD	1802595	8.74	7989070	10.03	6216760	13.34
7.	BPL01	1715283	8.76	7681124	10.05	6086404	13.55
8.	BPL04	1684919	8.75	19513332	10.04	6078780	13.34
9.	BPH71RE	1969721	8.75	9320666	10.05	8325699	13.35
10.	VHBLK01	2417277	8.73	11434662	10.019	9444473	13.32
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50GJ_____ Date Analyzed: __02/11/01_____

Lab File ID: ___CCB04_____ Time Analyzed: __0639_____

Instrument ID: ___AA_____ Heated Purge: (Y/N) ___N_____

GC Column: Equity 624_____ ID: ___0.53_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	2053996	8.71	9662137	9.99	7833905	
	UPPER LIMIT	4107992	9.21	19324274		15667810	13.79
	LOWER LIMIT	1026998		4831068	9.49	3916952	12.79
	EPA SAMPLE						
1.	VBLKSD	2180370	8.71	10645744	10.00	8771656	13.30
2.	BNR68						
3.	BNR68MS	2783007	8.71	13501830	9.986	10995743	13.28
4.	BNR68MSD	2155423	8.72	2335467	9.99	8570860	13.30
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50KL_____ Date Analyzed: __02/09/01_____

Lab File ID: __CCT03_____ Time Analyzed: __1523_____

Instrument ID: __BB_____ Heated Purge: (Y/N) ___Y_____

GC Column: J7W DB-624__ ID: _0.32_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	42716	7.91	211480	8.96	215712	11.90
	UPPER LIMIT	85432	8.41	422960	9.46		
	LOWER LIMIT			105740	8.46	107856	11.40
	EPA SAMPLE						
1.	VBLKDS	51955	7.90	263474	8.94	243044	11.88
2.	BPH62	40502	7.91	187854	8.96	177417	11.90
3.	BXZ26	90301	7.88	431663	8.93	447852	11.87
4.	BXZ26MS	42616	7.93	186765	8.96	165043	11.89
5.	BXZ26MSD						
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

3DR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

3DR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ___7_____

CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/L _____

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	691-383	4-methyl-2pentene-2-one	6.32	5	ANJB
2.		Unknown	7.87	7	JB
3.		Laboratory Artifact	12.21	2	JB
4.	1330-20-7	1,2 Dimethylbenzene	13.529	6	NJ
5.	556-67-2	Cyclotetrasiloxane, octameth	14.48	8	NJB
6.		Unknown	17.09	12	JB
7.		Unknown siloxane	18.21	11	JB
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FORM I VOA-TIC

OLM04.2

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.755	8.711	1868546	250	
* 1,4 Difluorobenzene	114	10.041	9.986	8354968	250	
* Chlorobenzene-d5	117	13.355	13.278	6414794	250	
$ 1,2 Dichloroethane-d4	65	9.463	9.419	1884206		
$ Tolune-d8	98	11.872	11.796	7481335		
$ Bromofluorobenzene	95	14.369	14.281	6177427		
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43					
Methyl acetate	43					
Methylene chloride	84					
Methyl-tert-Butyl Ether	73					
2-butanone	43					
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91					
2-hexanone	43					
Chlorobenzene	112					
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	U
74-87-3	Chloromethane	2200	U
75-01-4	Vinyl Chloride	2200	U
74-83-9	Bromomethane	2200	U
75-00-3	Chloroethane	2200	U
75-69-4	Trichlorofluoromethane	2200	U
75-35-4	1,1 Dichloroethene	2200	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	U
67-64-1	Acetone		
75-15-0	Carbon Disulfide	2200	U
79-20-9	Methyl Acetate	690	J
75-09-2	Methylene Chloride		J
156-60-5	Trans-1,2-Dichloroethene	2200	U
1634-04-4	Methyl-tert-Butyl Ether	2200	U
75-34-3	1,1 Dichloroethane	2200	U
156-59-2	Cis- Dichloroethene	2200	U
78-93-3	2-Butanone	2200	U
67-99-3	Chloroform	2200	U
71-55-6	1,1,1-Trichloroethane	2200	U
12200-82-7	Cyclohexane	2200	U
56-23-5	Carbon Tetrachloride	2200	U
71-43-2	Benzene	2200	U
22007-06-2	1,2 Dichloroethane	2200	U

EPA SAMPLE NO.
BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	2200	U
22008-87-2	Methylcyclohexane	2200	U
78-87-5	1,2-Dichloropropane	2200	U
75-27-4	Bromodichloromethane	2200	U
2200061-01-5	Cis-1,3-Dichloropropene	2200	U
22008-2200-1	4-Methyl-2-pentanone	2200	U
22008-88-3	Toluene	2200	U
2200061-02-6	Trans-1,3 Dichloropropene	2200	U
79-00-5	1,1,2 Trichloroethane	2200	U
127-18-4	Tetrachloroethene	2200	U
591-78-6	2-Hexanone	2200	U
124-48-1	Dibromochloromethane	2200	U
22006-93-4	1,2-Dibromoethane	2200	U
22008-90-7	Chlorobenzene	2200	U
22000-41-4	Ethylbenzene	2200	U
1330-20-7	Xylene (total)	2200	U
22000-42-5	Styrene	2200	U
75-25-2	Bromoform	2200	U
98-82-8	Isopropylbenzene	2200	U
79-34-5	1,1,2,2-Tetrachloroethane	2200	U
541-73-1	1,3-Dichlorobenzene	2200	U
22006-46-7	1,4- Dichlorobenzene	2200	U
95-50-1	1,2 Dichlorobenzene	2200	U
96-12-8	1,2-Dibromo-3-chloropropane	2200	U
120-82-1	1,2,4-Trichlorobenzene	2200	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(ul) Soil Aliquot Volume: ___100____(ul)

Number TICs found: ___6_____ CONCENTRATION UNITS (ug/L or ug/Kg) __ug/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	470	ANJ
2.	Unknown	7.87	230	J
3.	Laboratory Artifact	12.21	240	J
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	160	NJ
5.	Unknown	17.09	260	J
6.	Unknown siloxane	18.21	150	J
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.71	8.711	4187293	250	
* 1,4 Difluorobenzene	114	9.986	9.986	10478395	250	
* Chlorobenzene-d5	117	13.289	13.278	8678186	250	
$ 1,2 Dichloroethane-d4	65	9.420	9.419	3771566		
$ Tolune-d8	98	11.807	11.796	9496540		
$ Bromofluorobenzene	95	14.303	14.281	7655982		
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43	6.075	6.073	211478		
Methyl acetate	43	6.625	6.629	182478	1609.27	692.69
Methylene chloride	84	6.723	6.716	308358		
Methyl-tert-Butyl Ether	73					
2-butanone	43					
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91					
2-hexanone	43					
Chlorobenzene	112					
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBB00-10_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBB00-10BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane		
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	83	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	54	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	6	J
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene		
107-06-2	1,2 Dichloroethane	10	U

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBB00-10_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBB00-10BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	11	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	4	J
100-41-4	Ethylbenzene	14	
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene		

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BPH62

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: _NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:BBB00_

Matrix: (soil/water) ____Soil_____ Lab Sample ID: _BBB00-10_____

Sample wt/vol: ____5.70_____(g/mL) _____g_____ Lab File ID: _BBB00-10BB_____

Level: (low/med) ____Low_____ Date Received: __02/03/01_____

% Moisture: not dec. ___7_____ Date Analyzed: _02/09/01_____

GC Column: J&W DB-624___ ID: ____0.32_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ___0_____ CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
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23.				
24.				
25.				

FORM I VOA-TIC

OLM04.2

Modified Quant Report for BPH62

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	7.918	7.909	40502	250	
* 1,4 Difluorobenzene	114	8.963	8.964	187854	250	
* Chlorobenzene-d5	117	11.902	11.903	177417	250	
$ 1,2 Dichloroethane-d4	65	8.529	8.521	121108	238.336	44.96
$ Tolune-d8	98	10.541	10.532	204187	268.666	50.68
$ Bromofluorobenzene	95	12.880	12.879	109616	246.724	46.54
Chloromethane	64	3.812	3.837	38026		
1,1 Dichloroethene	96					
Acetone	43	5.718	5.720	75542	441.98	83.38
Methyl acetate	43					
Methylene chloride	84	6.283	6.253	121634	288.65	54.45
Methyl-tert-Butyl Ether	73	6.543	6.538	81634	33.35	6.29
2-butanone	43					
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78	8.632	8.629	100214		
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91	10.598	10.601	55135	58.91	11.11
2-hexanone	43					
Chlorobenzene	112	11.913	11.933	13345	21.42	4.04
Ethylbenzene	106	11.991	11.992	224501	73.23	13.81
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180	15.259	15.374	65346		

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH71

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RB_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	78	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	4	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	5	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH71

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RB_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	3	J
100-41-4	Ethylbenzene	1	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

EPA SAMPLE NO.

BPH71

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RB_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ___0_____ CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
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16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.754	8.711	1833643	250	
* 1,4 Difluorobenzene	114	10.052	9.986	4369362	250	
* Chlorobenzene-d5	117	13.355	13.278	6394398	250	
$ 1,2 Dichloroethane-d4	65	9.474	9.419	1883831	266.335	53.27
$ Tolune-d8	98	11.883	11.796	7475701	267.006	53.40
$ Bromofluorobenzene	95	14.380	14.281	6172749	281.274	56.25
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43	6.083	6.073	477664	389.97	77.99
Methyl acetate	43					
Methylene chloride	84	6.753	6.716	221012	20.37	4.07
Methyl-tert-Butyl Ether	73					
2-butanone	43	8.500	8.325	45236	25.81	5.16
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91					
2-hexanone	43					
Chlorobenzene	112	13.010	13.300	352365	14.78	2.96
Ethylbenzene	106	13.419	13.409	51632	5.08	1.02
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH71RE

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16RE_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RE_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	50	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	3	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	8	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH71RE

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16RE_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RE_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	5	J
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

EPA SAMPLE NO.

BPH71RE

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: __BBB00-16RE_____

Sample wt/vol: _____5 _____(g/mL) ___mL_____ Lab File ID: ____ BBB00-16RE_____

Level: (low/med) _____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/10/01_____

GC Column: _Equity 624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ___0_____ CONCENTRATION UNITS
(lg/L or lg/Kg) ___lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
25.				
26.				
27.				
28.				
29.				
30.				
31.				
32.				
33.				
34.				
35.				
36.				
37.				
38.				
39.				
40.				
41.				
42.				
43.				
44.				
45.				

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.754	8.711	1969721	250	
* 1,4 Difluorobenzene	114	10.052	9.986	9320666	250	
* Chlorobenzene-d5	117	13.355	13.278	8325699	250	
$ 1,2 Dichloroethane-d4	65	9.474	9.419	1987231	261.64	52.33
$ Tolune-d8	98	11.883	11.796	9354801	256.53	51.31
$ Bromofluorobenzene	95	14.380	14.281	7561249	264.62	52.92
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43	6.083	6.073	330664	251.31	50.26
Methyl acetate	43					
Methylene chloride	84	6.753	6.716	465423	16.94	3.39
Methyl-tert-Butyl Ether	73					
2-butanone	43	8.500	8.325	75637	40.17	8.03
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91					
2-hexanone	43					
Chlorobenzene	112	13.010	13.300	753665	24.28	4.86
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone		
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	52	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	23	
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane		
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	5	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	14	
108-88-3	Toluene		
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	17	
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	5	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane		
120-82-1	1,2,4-Trichlorobenzene	10	U

EPA SAMPLE NO.

BPJ51

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ___6_____ CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	3	ANJB
2.	Unknown	7.87	5	JB
3.	Laboratory Artifact	12.21	9	JB
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	12	NJB
5.	Unknown	17.09	13	JB
6.	Unknown siloxane	18.21	8	JB
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
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16.				
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22.				
23.				
24.				
25.				

FORM I VOA-TIC

OLM04.2

Modified Quant Report for BPJ51

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.765	8.711	1733643	250	
* 1,4 Difluorobenzene	114	10.052	9.986	8208520	250	
* Chlorobenzene-d5	117	13.366	13.278	6712370	250	
$ 1,2 Dichloroethane-d4	65	9.474	9.419	1794749	268.377	53.68
$ Tolune-d8	98	11.883	11.796	7421088	252.499	50.50
$ Bromofluorobenzene	95	14.380	14.281	6106810	265.087	53.02
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43	6.103	6.073	492844		
Methyl acetate	43					
Methylene chloride	84	6.597	6.716	6276834	259.5	51.90
Methyl-tert-Butyl Ether	73					
2-butanone	43	8.320	8.325	186831	112.73	22.55
Chloroform	83					
1,1,1, Trichloroethane	97	9.003	9.082	2457802		
Carbon tetrachloride	117	9.312	9.300	325438	23.88	4.78
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43	11.666	11.632	264681	72.29	14.46
Toluene	91	11.763	11.883	1298136		
2-hexanone	43	12.532	12.570	174736	85.63	17.13
Chlorobenzene	112					
Ethylbenzene	106	13.412	13.409	258524	24.25	4.85
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75	15.963	15.960	354268		
1,2,4 trichlorobenzene	180					

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-20_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-20TB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride		J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride		J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-20_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-20TB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	J
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane		J
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-20_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-20TB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ___7_____

CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	4	ANJB
2. 75-09-2	Dichloromethane	6.250	2	NJ
3.	Unknown	7.87	3	JB
4.	Laboratory Artifact	12.21	6	JB
5. 556-67-2	Cyclotetrasiloxane, octameth	14.48	16	NJB
6.	Unknown	17.09	10	JB
7.	Unknown siloxane	18.21	15	JB
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

FORM I VOA-TIC

OLM04.2

Modified Quant Report for BPL01

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.765	8.711	1715283	250	
* 1,4 Difluorobenzene	114	10.052	9.986	7681124	250	
* Chlorobenzene-d5	117	13.550	13.278	6086404	250	
$ 1,2 Dichloroethane-d4	65	9.474	9.419	1731615	261.708	52.34
$ Tolune-d8	98	11.883	11.796	6756999	253.548	50.71
$ Bromofluorobenzene	95	14.369	14.281	5573499	266.819	53.36
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43	6.074	6.073	29632	25.86	5.17
Methyl acetate	43					
Methylene chloride	84	6.726	6.716	243230		
Methyl-tert-Butyl Ether	73					
2-butanone	43					
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117	9.310	9.300	322345		
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43	11.630	11.632	4452	20.32	4.06
Toluene	91					
2-hexanone	43					
Chlorobenzene	112					
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75	15.969	15.960	68234		
1,2,4 trichlorobenzene	180					

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	5	J
107-06-2	1,2 Dichloroethane	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	J
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone		J
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	3	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	1	J

EPA SAMPLE NO.

BPL04

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ___4_____

CONCENTRATION UNITS
(lg/L or lg/Kg) ___lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	7	ANJB
2.	Unknown	7.87	3	JB
3.	Laboratory Artifact	12.21	4	JB
4.	Unknown siloxane	18.21	5	JB
5.				
6.				
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FORM I VOA-TIC

OLM04.2

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.754	8.711	1684919	250	
* 1,4 Difluorobenzene	114	10.041	9.986	19513332	250	
* Chlorobenzene-d5	117	13.344	13.278	6078780	250	
$ 1,2 Dichloroethane-d4	65	9.463	9.419	1768344		
$ Tolune-d8	98	11.872	11.796	6783809		
$ Bromofluorobenzene	95	14.358	14.281	5752323		
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43	6.070	6.073	42053	37.36	7.47
Methyl acetate	43					
Methylene chloride	84	6.710	6.716	713685	30.36	6.07
Methyl-tert-Butyl Ether	73					
2-butanone	43					
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78	9.516	9.528	1832145	25.46	5.09
Trichloroethene	130					
4-methyl-2-pentanone	43	11.612	11.632	4746	21.69	4.34
Toluene	91					
2-hexanone	43	12.575	12.570	9526		
Chlorobenzene	112					
Ethylbenzene	106	13.419	13.409	152456	15.79	3.16
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180	16.530	16.527	72331	6.98	1.4

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00 ___NLB_____

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/09/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane		U
74-87-3	Chloromethane		U
75-01-4	Vinyl Chloride		U
74-83-9	Bromomethane		U
75-00-3	Chloroethane		U
75-69-4	Trichlorofluoromethane		U
75-35-4	1,1 Dichloroethene		U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane		U
67-64-1	Acetone		U
75-15-0	Carbon Disulfide		U
79-20-9	Methyl Acetate		U
75-09-2	Methylene Chloride		U
156-60-5	Trans-1,2-Dichloroethene		U
1634-04-4	Methyl-tert-Butyl Ether		U
75-34-3	1,1 Dichloroethane		U
156-59-2	Cis- Dichloroethene		U
78-93-3	2-Butanone		U
67-99-3	Chloroform		U
71-55-6	1,1,1-Trichloroethane		U
110-82-7	Cyclohexane		U
56-23-5	Carbon Tetrachloride		U
71-43-2	Benzene		U
107-06-2	1,2 Dichloroethane		U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/09/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
79-01-6	Trichloroethene		U
108-87-2	Methylcyclohexane		U
78-87-5	1,2-Dichloropropane		U
75-27-4	Bromodichloromethane		U
10061-01-5	Cis-1,3-Dichloropropene		U
108-10-1	4-Methyl-2-pentanone		U
108-88-3	Toluene		U
10061-02-6	Trans-1,3 Dichloropropene		U
79-00-5	1,1,2 Trichloroethane		U
127-18-4	Tetrachloroethene		U
591-78-6	2-Hexanone		U
124-48-1	Dibromochloromethane		U
106-93-4	1,2-Dibromoethane		U
108-90-7	Chlorobenzene		U
100-41-4	Ethylbenzene		U
1330-20-7	Xylene (total)		U
100-42-5	Styrene		U
75-25-2	Bromoform		U
98-82-8	Isopropylbenzene		U
79-34-5	1,1,2,2-Tetrachloroethane		U
541-73-1	1,3-Dichlorobenzene		U
106-46-7	1,4- Dichlorobenzene		U
95-50-1	1,2 Dichlorobenzene		U
96-12-8	1,2-Dibromo-3-chloropropane		U
120-82-1	1,2,4-Trichlorobenzene		U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/09/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(ul) Soil Aliquot Volume: _____(ul)

Number TICs found: ____7_____ CONCENTRATION UNITS (ug/L or ug/Kg) _ ug/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	47	ANJB
2. 75-09-2	Dichloromethane	6.250	15	NJ
3.	Unknown	7.87	23	JB
4.	Laboratory Artifact	12.21	24	JB
5. 556-67-2	Cyclotetrasiloxane, octameth	14.48	16	NJB
6.	Unknown	17.09	26	JB
7.	Unknown siloxane	18.21	15	JB
8.				
9.				
10.				
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25.				

Modified Quant Report for BXZ26

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	7.882	7.909	90301	250	
* 1,4 Difluorobenzene	114	8.938	8.964	431663	250	
* Chlorobenzene-d5	117	11.876	11.903	447852	250	
$ 1,2 Dichloroethane-d4	65	8.494	8.521	229917		
$ Tolune-d8	98	10.515	10.532	310670		
$ Bromofluorobenzene	95	12.862	12.879	158258		
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43					
Methyl acetate	43					
Methylene chloride	84					
Methyl-tert-Butyl Ether	73					
2-butanone	43					
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91					
2-hexanone	43					
Chlorobenzene	112					
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLK01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-22SB_____

Level: (low/med) _____ Date Received: __02/05/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	5	J
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone		J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	2	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLK01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-22SB_____

Level: (low/med) _____ Date Received: __02/05/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene		
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	5	J
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VHBLK01

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-22SB_____

Level: (low/med) _____ Date Received: __02/05/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ____6_____

CONCENTRATION UNITS
(lg/L or lg/Kg) ___lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	4	ANJB
2.	Unknown	7.87	2	JB
3.	Laboratory Artifact	12.21	2	JB
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	5	NJB
5.	Unknown	17.09	2	JB
6.	Unknown siloxane	18.21	5	JB
7.				
8.				
9.				
10.				
11.				
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24.				
25.				

FORM I VOA-TIC

OLM04.2

Modified Quant Report for VHBLK01

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.733	8.711	2417277	250	
* 1,4 Difluorobenzene	114	10.019	9.986	11434662	250	
* Chlorobenzene-d5	117	13.322	13.278	9444473	250	
$ 1,2 Dichloroethane-d4	65	9.441	9.419	1787132	239.394	47.88
$ Tolune-d8	98	11.839	11.796	9389332	242.689	48.54
$ Bromofluorobenzene	95	14.336	14.281	8749418	255.948	51.19
Chloromethane	64	3.159	3.173	252366	27.10	5.42
1,1 Dichloroethene	96					
Acetone	43	6.070	6.073	35236	21.82	4.36
Methyl acetate	43					
Methylene chloride	84					
Methyl-tert-Butyl Ether	73					
2-butanone	43	8.400	8.325	35465		
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117	9.305	9.300	225553	11.88	2.38
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91	11.880	11.883	441125		
2-hexanone	43	12.560	12.570	71935	25.05	5.01
Chlorobenzene	112					
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _AA_____ Calibration Date: _02/07/00____ __02/07/00____

Heated Purge: (Y/N) __N_____ Calibration Times: __0949_____ __1156_____

GC Column: _Equity 624____ ID: ___0.53_____(mm)

LAB FILE ID: RRF10 = __ICA010_____ RRF20 = ___ ICA020_____
RRF50 = ____ ICA050___ RRF100 = _ ICA100_____ RRF200 = ___ ICA200_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
Dichlorodifluoromethane							
Chloromethane	2.003	1.744	1.537	1.413	1.226	1.585	19.0
Vinyl Chloride *	2.039	1.766	1.542	1.449	1.349	1.629	*17.0
Bromomethane *	1.757	1.486	1.389	1.279	1.196	1.421	*15.3
Chloroethane	1.148	1.026	0.822	0.722	0.607	0.865	25.5
Trichlorofluoromethane	3.532	3.085	2.767	2.552	2.327	2.853	16.5
1,1 Dichloroethene *	1.599	1.502	1.356	1.277	1.189	1.385	*12.0
1,1,2-trichloro-1,2,2-trifluoroethane	3.376	3.166	2.801	2.686	2.457	2.897	12.8
Acetone	0.307	0.244	0.230	0.218	0.191	0.238	18.1
Carbon Disulfide	4.632	4.255	3.705	3.591	3.352	3.907	13.4
Methyl Acetate	1.164	0.852	0.838	0.794	0.699	0.869	20.1
Methylene Chloride							
Trans-1,2-Dichloroethene	2.107	1.969	1.797	1.771	1.544	1.838	11.6
Methyl-tert-Butyl Ether	4.730	4.576	4.183	4.137	3.500	4.225	11.3
1,1 Dichloroethane *	4.374	4.037	3.607	3.512	3.099	3.726	*13.2
Cis- Dichloroethene	2.052	1.951	1.761	1.768	1.589	1.824	9.9
2-Butanone	0.418	0.362	0.340	0.338	0.272	0.346	15.2
Chloroform *	4.344	3.965	3.590	3.462	3.071	3.686	*13.2
1,1,1-Trichloroethane *	0.605	0.560	0.537	0.539	0.504	0.549	*6.8
Cyclohexane	0.677	0.609	0.552	0.553	0.515	0.581	10.9
Carbon Tetrachloride *	0.544	0.511	0.472	0.469	0.438	0.487	*8.4
Benzene *							
1,2 Dichloroethane *	1.912	1.823	1.660	1.641	1.441	1.695	*10.7
Trichloroethene *	0.468	0.439	0.420	0.421	0.399	0.429	*6.0
Methylcyclohexane	0.614	0.555	0.508	0.517	0.496	0.538	8.9

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

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _AA_____ Calibration Date: _02/07/00____ __02/07/00____

Heated Purge: (Y/N) __N_____ Calibration Times: __0949_____ __1156_____

GC Column: _Equity 624____ ID: ___0.53_____(mm)

LAB FILE ID: RRF10 = RRF20 = ___ ICA020_____
RRF50 = ____ ICA050___ __ICA010_____ RRF200 = ___ ICA200_____
RRF100 = _ ICA100_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
1,2-Dichloropropane	0.634	0.583	0.540	0.528	0.480	0.553	10.5
Bromodichloromethane *	0.867	0.804	0.748	0.743	0.684	0.769	*9.0
Cis-1,3-Dichloropropene *	0.524	0.494	0.470	0.472	0.445	0.481	*6.2
4-Methyl-2-pentanone							
Toluene *	1.608	1.485	1.369	1.334	1.200	1.399	*11.1
Trans-1,3 Dichloropropene *	0.297	0.295	0.290	0.311	0.301	0.299	*2.7
1,1,2 Trichloroethane *	0.339	0.314	0.291	0.298	0.281	0.305	*7.5
Tetrachloroethene *	0.486	0.456	0.432	0.457	0.445	0.455	*4.4
2-Hexanone							
Dibromochloromethane *	0.582	0.562	0.546	0.564	0.520	0.555	*4.2
1,2-Dibromoethane	0.570	0.552	0.525	0.534	0.502	0.537	4.9
Chlorobenzene *	1.153	1.084	1.032	1.020	0.888	1.035	*9.4
Ethylbenzene *	0.526	0.498	0.469	0.474	0.456	0.485	*5.7
Xylene (total) *	0.647	0.616	0.572	0.565	0.505	0.581	*9.3
Styrene *	1.020	0.982	0.950	0.928	0.775	0.931	*10.1
Bromoform *	0.322	0.319	0.317	0.343	0.302	0.321	*4.6
Isopropylbenzene	1.760	1.674	1.542	1.525	1.102	1.521	16.7
1,1,2,2-Tetrachloroethane *	0.688	0.638	0.586	0.593	0.544	0.610	*9.0
1,3-Dichlorobenzene *	0.859	0.813	0.759	0.776	0.642	0.770	*10.5
1,4- Dichlorobenzene *							
1,2 Dichlorobenzene *	0.759	0.763	0.699	0.721	0.631	0.715	*7.5
1,2-Dibromo-3-chloropropane	0.124	0.120	0.108	0.103	0.083	0.108	14.9
1,2,4-Trichlorobenzene *	0.607	0.597	0.475	0.475	0.372	0.505	*19.4
Toluene -d8	1.094	1.097	1.179	1.097	1.099	1.113	3.3
Bromofluorobenzene *							
1,2 Dichloroethane -d4	1.309	1.216	1.240	1.190	1.132	1.217	5.4

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

Analyte	ICA010	ICA020	ICA050	ICA100	ICA200
Bromochloromethane	1044651	1070449	1143611	1204961	1341516
1,4 Difluorobenzene	4957106	5152521	5364949	5628863	6088307
Chlorobenzene-d5	4094002	4197350	4291897	4615845	4920107
1,2 Dichloroethane -d4	273514	520679	1418264	2866711	6072579
Toluene -d8	895546	1841986	5058301	10131353	21623119
Bromofluorobenzene	758629	1624632	4418668	9001043	16265954
Dichlorodifluoromethane	607541	1064330	2513709	4862092	9709261
Chloromethane	418512	746936	1758017	3405039	6578492
Vinyl Chloride	426099	756020	1763347	3491930	7238677
Bromomethane	367025	636320	1588426	3082217	6415615
Chloroethane	239859	439326	940486	1739759	3257488
Trichlorofluoromethane	737870	1321113	3164201	6149405	12487820
1,1 Dichloroethene	334006	643161	1550417	3077468	6378720
1,1,2-trichloro- 1,2,2-trifluoroethane	705383	1355481	3203331	6474000	13183065
Acetone	64063	104433	262556	524487	1027065
Carbon Disulfide	967729	1822012	4237617	8653084	17987719
Methyl Acetate	243133	364678	958308	1912542	3751381
Methylene Chloride	496608	852072	1890363	3640516	7112421
Trans-1,2-Dichloroethene	440134	843153	2054794	4268695	8284605
Methyl-tert-Butyl Ether	988190	1959446	4783348	9969800	18781251
1,1 Dichloroethane	913868	1728753	4124513	8464415	16631088
Cis- Dichloroethene	428779	835301	2013999	4261742	8526260
2-Butanone	87329	154818	389161	815072	1458990
Chloroform	907689	1697755	4105108	8342463	16477161
1,1,1-Trichloroethane	600233	1153665	2882525	6063482	12265327
Cyclohexane	671216	1255644	2963084	62257744	12541236
Carbon Tetrachloride	538844	1052472	2533229	5279677	10670709
Benzene	1204443	2312975	5588700	11801895	23296408
1,2 Dichloroethane	399428	780674	1898411	3953542	7733940
Trichloroethene	464039	905374	2250704	4739334	9719524
Methylcyclohexane	608930	1143492	2726651	5825400	12068094
1,2-Dichloropropane	628617	1202569	2895343	5939158	11698116
Bromodichloromethane	859175	1656482	4012255	8368982	16647967
Cis-1,3-Dichloropropene	519329	1018390	2522244	5311618	10838183
4-Methyl-2-pentanone	142560	343703	871677	1886802	3693262
Toluene	1316503	2493107	5877147	12312606	23617206
Trans-1,3 Dichloropropene	294031	608482	1555585	3502728	7325019
1,1,2 Trichloroethane	336172	646638	1559168	3354393	6843974
Tetrachloroethene	398098	765031	1853248	4215952	8764165
2-Hexanone	18080	77604	284770	474383	907510
Dibromochloromethane	577083	1158339	2926972	6343876	12663426
1,2-Dibromoethane	466541	927341	2253754	4926341	9872766
Chlorobenzene	944160	1819240	4430967	9418707	17476911
Ethylbenzene	430592	836290	2013934	4377437	8980001
Xylene (total)	1666380	3230099	7705553	16440223	29088446
Styrene	835059	1649461	4079404	8569514	15260113
Bromoform	319420	656973	1698749	3865977	7358026
Isopropylbenzene	1441436	2809826	6619708	14075530	21690089
1,1,2,2-Tetrachloroethane	562988	1070448	2515936	5469812	10696759
1,3-Dichlorobenzene	703674	1365542	3258953	7167592	12638551
1,4- Dichlorobenzene	752287	1569343	3605511	8247428	14787082
1,2 Dichlorobenzene	621463	1281205	3002112	6660124	12414352
1,2-Dibromo-3-chloropropane	101301	201862	465129	950753	1639717
1,2,4-Trichlorobenzene	496987	1002609	2037106	4380744	7318233

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Contract : _123456_____

Lab Name: __NewLab_____

Lab Code: _NLB_____ Case No.: ___12345_____

Instrument ID: _BB_____ Calibration Date: _02/02/00____ __02/02/00____

Heated Purge: (Y/N) __Y_____ Calibration Times: __1820_____ __2018_____

GC Column: _J&W DB- 624____ ID: ___0.32_____(mm)

LAB FILE ID: RRF10 = __ICS010_____ RRF20 = ___ ICS020_____

RRF50 = ____ ICS050___ RRF100 = _ ICS100_____ RRF200 = ___ ICS200_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
Dichlorodifluoromethane		5.738	5.240	4.642	4.458	5.208	12.6
Chloromethane	1.491	1.716	1.887	1.579	2.248	1.784	16.8
Vinyl Chloride *	1.842	2.069	2.048	1.710	1.700	1.874	9.5
Bromomethane *	1.335		1.720	1.396	1.273	1.461	12.7
Chloroethane	0.962	1.072	1.115	0.853	0.908	0.982	11.2
Trichlorofluoromethane	5.930	5.973	5.663	4.921	4.747	5.447	10.6
1,1 Dichloroethene *	1.458	1.578	1.533	1.315	1.234	1.424	10.2
1,1,2-trichloro-1,2,2-trifluoroethane	2.159	2.104	2.134		1.760	2.014	8.5
Acetone	1.140	1.080	0.759	0.648	0.577	0.841	30.3
Carbon Disulfide	4.628	5.287	5.084	4.315	4.205	4.704	10.0
Methyl Acetate	1.229	1.227	1.088	0.906	0.828		17.4
Methylene Chloride	3.693	2.810	1.955	1.660	1.431	2.310	40.4
Trans-1,2-Dichloroethene	1.821	1.766	1.671	1.513	1.372	1.629	11.4
Methyl-tert-Butyl Ether	12.144	12.513	12.175	10.881	10.361	11.615	8.1
1,1 Dichloroethane *	3.829	3.265	3.345	2.940	2.742	3.224	
Cis- Dichloroethene	1.949	1.905	1.784	1.617	1.582	1.767	9.4
2-Butanone	1.266	1.329	1.236	1.089		1.156	16.2
Chloroform *	4.176	4.102	3.976	3.732	3.376	3.872	8.4
1,1,1-Trichloroethane *	0.820	0.815		0.718	0.663	0.752	8.8
Cyclohexane	0.582	0.610	0.533	0.554	0.501	0.556	7.6
Carbon Tetrachloride *		0.743	0.674	0.675	0.621	0.685	6.7
Benzene *	1.424	1.359	1.247	1.227	1.139	1.279	8.8
1,2 Dichloroethane *	3.565	3.466	3.479	3.176	2.972	3.332	7.5
Trichloroethene *	0.434	0.370	0.357	0.348	0.315	0.365	12.0
Methylcyclohexane	0.566	0.550	0.513	0.498	0.468	0.519	

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _BB_____ Calibration Date: _02/02/00____ __02/02/00____

Heated Purge: (Y/N) __Y_____ Calibration Times: __1820_____ __2018_____

GC Column: _J&W DB- 624____ ID: ___0.32_____(mm)

LAB FILE ID: RRF10 = RRF20 = ___ ICS020_____
RRF50 = ____ ICS050___ __ICS010_____ RRF200 = ___ ICS200_____
RRF100 = _ ICS100_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	____ RRF	% RSD
1,2-Dichloropropane	0.348	0.374		0.333	0.314	0.344	6.4
Bromodichloromethane *	0.673	0.645	0.601	0.609	0.555	0.617	7.3
Cis-1,3-Dichloropropene *	0.541	0.562	0.542	0.537	0.499	0.536	4.3
4-Methyl-2-pentanone	0.627	0.600	0.527	0.531	0.486	0.554	10.4
Toluene *	1.558	1.520	1.368	1.365	1.231	1.408	9.4
Trans-1,3 Dichloropropene *	0.644		0.627	0.648	0.603	0.637	3.6
1,1,2 Trichloroethane *	0.331	0.348	0.317	0.313	0.300	0.322	5.8
Tetrachloroethene *	0.372	0.361	0.315		0.271	0.324	13.1
2-Hexanone	0.523	0.477	0.415	0.419	0.386	0.444	12.4
Dibromochloromethane *	0.498	0.532	0.479	0.491	0.467	0.493	5.0
1,2-Dibromoethane		0.466	0.413	0.420	0.380		10.8
Chlorobenzene *	1.090	1.085	0.964	0.956	0.884	0.996	9.0
Ethylbenzene *	0.541	0.521	0.502	0.496	0.448	0.502	6.9
Xylene (total) *		0.638	0.632	0.644	0.568	0.629	
Styrene *	1.309	1.249	1.144	1.128	1.017	1.169	9.7
Bromoform *	0.396	0.382	0.395	0.416	0.389	0.396	3.2
Isopropylbenzene		1.899	1.869	1.892	1.696	1.871	5.9
1,1,2,2-Tetrachloroethane *	0.686	0.664	0.618	0.622	0.565	0.631	7.4
1,3-Dichlorobenzene *	1.009	1.021	0.955	0.977	0.868	0.966	6.3
1,4- Dichlorobenzene *							
1,2 Dichlorobenzene *	1.022	0.977	0.916	0.948	0.846	0.942	7.0
1,2-Dibromo-3-chloropropane	0.204	0.186	0.172	0.163	0.152	0.175	11.5
1,2,4-Trichlorobenzene *		0.832	0.769	0.760	0.667	0.772	
Toluene -d8	1.148	1.221	1.169	1.149	1.077	1.153	4.5
Bromofluorobenzene *	0.712	0.694	0.716	0.704	0.651	0.695	3.8
1,2 Dichloroethane -d4	2.488	2.695		2.423	2.289	2.494	6.1

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

Modified Initial Calibration Report for Instrument BB, 02/02/01

Analyte	ICS010	ICS020	ICS050	ICS100	ICS200
Bromochloromethane	74988	65642	64368	66140	72818
1,4 Difluorobenzene	368261	311589	321894	308048	340060
Chlorobenzene-d5	331182	285182	306349	299381	341362
1,2 Dichloroethane -d4	37317	70770	165622	320452	666696
Toluene -d8	76072	139320	358187	688258	1470696
Bromofluorobenzene	47173	79183	219399	421524	888572
Dichlorodifluoromethane	89432	150670	337296	614074	1298529
Chloromethane	22360	45048	121439	208900	654865
Vinyl Chloride	27625	54322	131815	22611	495166
Bromomethane	20024	41548	110691	184685	370924
Chloroethane	14431	28145	71801	112829	264435
Trichlorofluoromethane	88940	156841	364534	650887	1382635
1,1 Dichloroethene	21871	41445	98694	173893	359456
1,1,2-trichloro- 1,2,2-trifluoroethane	32387	55236	137351	253326	512760
Acetone	17098	28349	48853	85729	168068
Carbon Disulfide	69406	138817	327248	570740	1224714
Methyl Acetate	18435	32219	70003	119898	241129
Methylene Chloride	55384	73794	125811	219607	416884
Trans-1,2-Dichloroethene	27317	46366	107566	200123	399511
Methyl-tert-Butyl Ether	182131	328551	783670	1439284	3017779
1,1 Dichloroethane	57424	85726	215303	388866	798554
Cis- Dichloroethene	29224	50030	114859	213862	460728
2-Butanone	18983	34897	79567	143991	250526
Chloroform	62575	107693	255917	493725	983526
1,1,1-Trichloroethane	60359	101516	239620	442303	902153
Cyclohexane	42843	76026	171424	341328	681722
Carbon Tetrachloride	52406	92665	216808	416107	844159
Benzene	104885	169391	401271	756144	1548979
1,2 Dichloroethane	53467	90996	223922	420116	865659
Trichloroethene	31980	46057	114773	214131	428972
Methylcyclohexane	41676	68568	164971	306853	636487
1,2-Dichloropropane	25656	46617	112767	205468	427257
Bromodichloromethane	49595	80396	193505	375337	755610
Cis-1,3-Dichloropropene	39838	70065	174433	331099	678601
4-Methyl-2-pentanone	41512	68434	161322	317789	663748
Toluene	103184	173374	419220	817141	1680287
Trans-1,3 Dichloropropene	47422	82602	201728	399428	820652
1,1,2 Trichloroethane	24343	43421	102155	192580	407680
Tetrachloroethene	24666	41221	96398	180223	370004
2-Hexanone	34632	54412	127074	250671	526676
Dibromochloromethane	36652	66328	154105	302673	635395
1,2-Dibromoethane	33114	53174	126659	251715	519479
Chlorobenzene	72217	123717	295415	572547	1207100
Ethylbenzene	35833	59469	153907	296962	611891
Xylene (total)	141231	227359	581004	1142946	2329823
Styrene	86724	142428	350443	675590	1388819
Bromoform	29201	47619	127176	256435	529032
Isopropylbenzene	132547	216611	572543	1132610	2316060
1,1,2,2-Tetrachloroethane	45415	75758	189190	372459	772119
1,3-Dichlorobenzene	66843	116473	292682	585253	1185782
1,4- Dichlorobenzene	74063	119957	294683	601713	1228970
1,2 Dichlorobenzene	67696	111408	280733	567758	1154586
1,2-Dibromo-3-chloropropane	13527	21240	52676	97759	208188
1,2,4-Trichlorobenzene	55135	94940	235466	455178	910530

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA_____ Calibration Date: __02/10/01_____ Time: __0849_____

Lab File ID: ___CCA03_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _VSTD050GB_____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
Dichlorodifluoromethane					
Chloromethane	1.585				
Vinyl Chloride	1.629	1.236	0.100	-24.1	25.0
Bromomethane	1.421	1.183	0.100	-16.7	25.0
Chloroethane	0.865	0.714		-17.5	
Trichlorofluoromethane	2.853	2.461		-13.7	
1,1 Dichloroethene	1.385	1.507	0.100	8.8	25.0
1,1,2-trichloro-1,2,2-trifluoroethane	2.897	2.922		0.9	
Acetone	0.238	0.167			
Carbon Disulfide	3.907	4.687		20.0	
Methyl Acetate	0.869	0.671		-22.8	
Methylene Chloride					
Trans-1,2-Dichloroethene	1.838	1.666		-9.4	
Methyl-tert-Butyl Ether	4.225	3.220		-23.8	
1,1 Dichloroethane	3.726		0.200		25.0
Cis- Dichloroethene	1.824	1.638		-10.2	
2-Butanone	0.346				
Chloroform	3.686	3.019	0.200	-18.1	25.0
1,1,1-Trichloroethane	0.549	0.450	0.100	-18.0	25.0
Cyclohexane	0.581	0.498		-14.3	
Carbon Tetrachloride	0.487	0.415	0.100	-14.8	25.0
Benzene		0.922	0.500	-14.4	25.0
1,2 Dichloroethane	1.695	1.247	0.100		25.0
Trichloroethene	0.429		0.300		25.0
Methylcyclohexane	0.538	0.493		-8.4	

All other compounds must meet a minimum RRF of 0.010.

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA_____ Calibration Date: __02/10/01_____ Time: __0849_____

Lab File ID: ___CCA03_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _VSTD050GB_____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
1,2-Dichloropropane	0.553	0.435		-21.3	
Bromodichloromethane *	0.769	0.610	0.200		25.0
Cis-1,3-Dichloropropene *	0.481	0.362	0.200	-24.7	25.0
4-Methyl-2-pentanone					
Toluene *	1.399	1.170	0.400	-16.4	25.0
Trans-1,3 Dichloropropene *	0.299		0.100		25.0
1,1,2 Trichloroethane *	0.305	0.256	0.100	-16.1	25.0
Tetrachloroethene *	0.455	0.479	0.200	5.3	25.0
2-Hexanone	0.046				
Dibromochloromethane *	0.555	0.486	0.100	-12.4	25.0
1,2-Dibromoethane	0.537	0.435		-19.0	
Chlorobenzene *	1.035	0.932	0.500	-10.0	25.0
Ethylbenzene *	0.485	0.397	0.100	-18.1	25.0
Xylene (total) *	0.581	0.479	0.300	-17.6	25.0
Styrene *	0.931	0.734	0.300		25.0
Bromoform *	0.321	0.287	0.100	-10.6	25.0
Isopropylbenzene	1.521	1.303		-14.3	
1,1,2,2-Tetrachloroethane *	0.610	0.505	0.300	-17.2	25.0
1,3-Dichlorobenzene *	0.770	0.751	0.600	-2.5	25.0
1,4- Dichlorobenzene *		0.892	0.500	2.8	25.0
1,2 Dichlorobenzene *	0.715	0.721	0.400	0.8	25.0
1,2-Dibromo-3-chloropropane	0.108				
1,2,4-Trichlorobenzene *	0.505	0.426	0.200	-15.6	25.0
Toluene -d8	1.113	1.095		-1.6	
Bromofluorobenzene *		0.858	0.200	-9.2	25.0
1,2 Dichloroethane -d4	1.217	0.964			

All other compounds must meet a minimum RRF of 0.010.

Modified Continuing Calibration Quant Report for Instrument AA, 02/10/01, 0849

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.765	8.711	1975181	250	
* 1,4 Difluorobenzene	114	10.052	9.986	9410690	250	
* Chlorobenzene-d5	117	13.366	13.278	7602547	250	
$ 1,2 Dichloroethane-d4	65	9.474	9.419	1904782	250	198.1
$ Tolune-d8	98	11.883	11.796	8322066	250	245.9
$ Bromofluorobenzene	95	14.380	14.281	6523023	250	227.0
Dichlorodifluoromethane	85	2.671	2.671	1425755	250	79.02
Chloromethane	50	3.173	3.173	1901154	250	151.8
Vinyl Chloride	62	3.456	3.456	2440726	250	189.6
Bromomethane	94	4.230	4.230	2336671	250	208.1
Chloroethane	64	4.492	4.492	1411126	250	206.5
Trichlorofluoromethane	101	5.059	5.059	4860888	250	215.7
1,1 Dichloroethene	96	5.964	5.964	2976766	250	272.1
1,1,2-trichloro- 1,2,2-trifluoroethane	101	6.062	6.062	5771041	250	252.1
Acetone	43	6.073	6.073	329324	250	175.3
Carbon Disulfide	76	6.225	6.225	9257100	250	299.9
Methyl Acetate	43	6.629	6.629	1325376	250	193.0
Methylene Chloride	84	6.716	6.716	2938345	250	210.0
Trans-1,2-Dichloroethene	96	7.130	7.130	3290914	250	226.7
Methyl-tert-Butyl Ether	73	7.185	7.185	6360389	250	190.5
1,1 Dichloroethane	63	7.686	7.686	5975162	250	203.0
Cis- Dichloroethene	96	8.427	8.427	3234508	250	224.4
2-Butanone	43	8.460	8.460	472255	250	172.8
Chloroform	83	8.831	8.831	5963845	250	204.8
1,1,1-Trichloroethane	97	9.082	9.082	4236678	250	205.0
Cyclohexane	56	9.180	9.180	4686058	250	214.1
Carbon Tetrachloride	117	9.300	9.300	3907856	250	213.3
Benzene	78	9.528	9.528	8674519	250	214.0
1,2 Dichloroethane	62	9.518	9.518	2462779	250	183.9
Trichloroethene	130	10.313	10.313	4005559	250	247.8
Methylcyclohexane	83	10.597	10.597	4637559	250	229.0
1,2-Dichloropropane	63	10.553	10.553	4097014	250	196.8
Bromodichloromethane	83	10.880	10.880	5744245	250	198.4
Cis-1,3-Dichloropropene	75	11.447	11.447	3408163	250	188.2
4-Methyl-2-pentanone	43	11.632	11.632	1044882	250	176.4
Toluene	91	11.883	11.883	8897223	250	209.1
Trans-1,3 Dichloropropene	75	12.090	12.090	1873110	250	166.6
1,1,2 Trichloroethane	97	12.276	12.276	2411729	250	210.4
Tetrachloroethene	164	12.494	12.494	3639289	250	262.9
2-Hexanone	43	12.570	12.570	581259	250	192.3
Dibromochloromethane	129	12.690	12.690	4575397	250	219.1
1,2-Dibromoethane	107	12.821	12.821	3305999	250	202.6
Chlorobenzene	112	13.300	13.300	7082288	250	224.9
Ethylbenzene	106	13.409	13.409	3017426	250	204.7
Xylene (total)	106	13.518	13.518	11417181	250	646.2
Styrene	104	13.867	13.867	5582677	250	197.1
Bromoform	173	13.998	13.998	2699297	250	223.7
Isopropylbenzene	105	14.161	14.161	9909461	250	214.3
1,1,2,2-Tetrachloroethane	83	14.357	14.357	3837192	250	207.0
1,3-Dichlorobenzene	146	15.121	15.121	5706456	250	243.7
1,4- Dichlorobenzene	146	15.175	15.175	6784404	250	257.1
1,2 Dichlorobenzene	146	15.437	15.437	5480410	250	252.1
1,2-Dibromo-3-chloropropane	75	15.960	15.960	555100	250	169.4
1,2,4-Trichlorobenzene	180	16.527	16.527	3237739	250	210.8

* = Internal Standard $ = SMC

Note- Some labs report the IS concentration as 50 ng/mL instead of 250 ng/ 5 mL. If the lab reports 50 as the IS amount, then use 1mL as the sample volume amount (V_o).

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA_____ Calibration Date: __02/11/01_____ Time: __0639_____

Lab File ID: ___CCB04_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _VSTD050GJ_____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
Dichlorodifluoromethane		2.367		3.6	
Chloromethane	1.585	1.510		-4.7	
Vinyl Chloride	1.629		0.100		25.0
Bromomethane	1.421	1.345	0.100	-5.3	25.0
Chloroethane	0.865	0.749		-13.4	
Trichlorofluoromethane	2.853				
1,1 Dichloroethene	1.385	1.567	0.100	13.1	25.0
1,1,2-trichloro-1,2,2-trifluoroethane	2.897	3.009		3.9	
Acetone	0.238	0.143			
Carbon Disulfide	3.907	4.764		21.9	
Methyl Acetate	0.869	0.677			
Methylene Chloride		1.643		-7.2	
Trans-1,2-Dichloroethene	1.838	1.823		-0.8	
Methyl-tert-Butyl Ether	4.225	3.769		-10.8	
1,1 Dichloroethane	3.726	3.275	0.200	-12.1	25.0
Cis- Dichloroethene	1.824	1.866		2.3	
2-Butanone	0.346				
Chloroform	3.686	3.385	0.200	-8.2	25.0
1,1,1-Trichloroethane	0.549	0.514	0.100	-6.4	25.0
Cyclohexane	0.581	0.520		-10.5	
Carbon Tetrachloride	0.487	0.488	0.100	0.2	25.0
Benzene		1.025	0.500	-4.8	25.0
1,2 Dichloroethane	1.695	1.225	0.100	-21.2	25.0
Trichloroethene	0.429	0.266	0.300		25.0
Methylcyclohexane	0.538	0.557		3.5	

All other compounds must meet a minimum RRF of 0.010.

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00
Instrument ID: __AA_____ Calibration Date: __02/11/01_____ Time: __0639_____

Lab File ID: ___CCB04_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _VSTD050GJ_____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
1,2-Dichloropropane	0.553	0.484		-12.5	
Bromodichloromethane *	0.769	0.699	0.200	-9.1	25.0
Cis-1,3-Dichloropropene *	0.481	0.413	0.200	-14.1	25.0
4-Methyl-2-pentanone		0.161			
Toluene *	1.399	1.339	0.400	-4.3	25.0
Trans-1,3 Dichloropropene *	0.299	0.236	0.100	-21.1	25.0
1,1,2 Trichloroethane *	0.305	0.304	0.100	-0.3	25.0
Tetrachloroethene *	0.455		0.200		25.0
2-Hexanone	0.046				
Dibromochloromethane *	0.555	0.584	0.100	5.2	25.0
1,2-Dibromoethane	0.537	0.508		-5.4	
Chlorobenzene *	1.035	1.130	0.500	9.2	25.0
Ethylbenzene *	0.485	0.465	0.100	-4.1	25.0
Xylene (total) *	0.581	0.559	0.300	-3.8	25.0
Styrene *	0.931	0.897	0.300	-3.7	25.0
Bromoform *	0.321	0.356	0.100	10.9	25.0
Isopropylbenzene	1.521	1.473		-3.2	
1,1,2,2-Tetrachloroethane *	0.610	0.580	0.300	-4.9	25.0
1,3-Dichlorobenzene *	0.770		0.600		25.0
1,4- Dichlorobenzene *		1.015	0.500	16.9	25.0
1,2 Dichlorobenzene *	0.715	0.852	0.400	19.2	25.0
1,2-Dibromo-3-chloropropane	0.108				
1,2,4-Trichlorobenzene *	0.505	0.574	0.200	13.7	25.0
Toluene -d8	1.113	1.110		-0.3	
Bromofluorobenzene *		0.876	0.200	-7.3	25.0
1,2 Dichloroethane -d4	1.217				

All other compounds must meet a minimum RRF of 0.010.

Modified Continuing Calibration Quant Report for Instrument AA, 02/11/01, 0639

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.765	8.711	2053996	250	
* 1,4 Difluorobenzene	114	10.052	9.986	9662137	250	
* Chlorobenzene-d5	117	13.366	13.278	7833905	250	
$ 1,2 Dichloroethane-d4	65	9.474	9.419	1830334	250	183.0
$ Tolune-d8	98	11.883	11.796	8692527	250	249.2
$ Bromofluorobenzene	95	14.380	14.281	6861822	250	231.7
Dichlorodifluoromethane	85	2.671	2.671	4862118	250	259.1
Chloromethane	50	3.173	3.173	3101021	250	238.2
Vinyl Chloride	62	3.456	3.456	3292694	250	246.0
Bromomethane	94	4.230	4.230	2763050	250	236.6
Chloroethane	64	4.492	4.492	1538026	250	216.4
Trichlorofluoromethane	101	5.059	5.059	5128127	250	218.8
1,1 Dichloroethene	96	5.964	5.964	3219373	250	283.0
1,1,2-trichloro- 1,2,2-trifluoroethane	101	6.062	6.062	6180348	250	259.6
Acetone	43	6.073	6.073	294474	250	150.7
Carbon Disulfide	76	6.225	6.225	9784673	250	304.8
Methyl Acetate	43	6.629	6.629	1390784	250	194.7
Methylene Chloride	84	6.716	6.716	3373691	250	231.8
Trans-1,2-Dichloroethene	96	7.130	7.130	3743832	250	248.0
Methyl-tert-Butyl Ether	73	7.185	7.185	7741797	250	223.0
1,1 Dichloroethane	63	7.686	7.686	6727195	250	219.8
Cis- Dichloroethene	96	8.427	8.427	3833644	250	255.8
2-Butanone	43	8.460	8.460	482080	250	169.6
Chloroform	83	8.831	8.831	6951818	250	229.5
1,1,1-Trichloroethane	97	9.082	9.082	4965244	250	234.0
Cyclohexane	56	9.180	9.180	5021154	250	223.5
Carbon Tetrachloride	117	9.300	9.300	4716086	250	250.7
Benzene	78	9.528	9.528	9899474	250	237.9
1,2 Dichloroethane	62	9.518	9.518	2741625	250	196.8
Trichloroethene	130	10.313	10.313	2571282	250	155.0
Methylcyclohexane	83	10.597	10.597	5385299	250	259.0
1,2-Dichloropropane	63	10.553	10.553	4680600	250	219.0
Bromodichloromethane	83	10.880	10.880	6754056	250	227.2
Cis-1,3-Dichloropropene	75	11.447	11.447	3987212	250	214.5
4-Methyl-2-pentanone	43	11.632	11.632	1264520	250	207.2
Toluene	91	11.883	11.883	10488458	250	239.2
Trans-1,3 Dichloropropene	75	12.090	12.090	2276284	250	197.2
1,1,2 Trichloroethane	97	12.276	12.276	2941438	250	250.0
Tetrachloroethene	164	12.494	12.494	4587676	250	321.7
2-Hexanone	43	12.570	12.570	712018	250	228.6
Dibromochloromethane	129	12.690	12.690	5647186	250	263.4
1,2-Dibromoethane	107	12.821	12.821	3978921	250	236.7
Chlorobenzene	112	13.300	13.300	8851967	250	272.8
Ethylbenzene	106	13.409	13.409	3645273	250	240.0
Xylene (total)	106	13.518	13.518	13701459	250	752.6
Styrene	104	13.867	13.867	7030210	250	240.9
Bromoform	173	13.998	13.998	3441576	250	277.7
Isopropylbenzene	105	14.161	14.161	11538115	250	242.1
1,1,2,2-Tetrachloroethane	83	14.357	14.357	4544817	250	238.0
1,3-Dichlorobenzene	146	15.121	15.121	7561968	250	313.4
1,4- Dichlorobenzene	146	15.175	15.175	7955189	250	292.6
1,2 Dichlorobenzene	146	15.437	15.437	6674925	250	298.0
1,2-Dibromo-3-chloropropane	75	15.960	15.960	643777	250	190.7
1,2,4-Trichlorobenzene	180	16.527	16.527	4493496	250	283.9

* = Internal Standard $ = SMC

Note- Some labs report the IS concentration as 50 ng/mL instead of 250 ng/ 5 mL. If the lab reports 50 as the IS amount, then use 1mL as the sample volume amount (V_o)

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __BB_____ Calibration Date: __02/09/01_____ Time: __1523_____

Lab File ID: ___CCT03_____ Init. Calib Date(s): __02/02/01__ __02/02/01__

EPA Sample N0. (VSTD50##): _VSTD050KL_____ Init. Calib Times: __1820__ __2018___

Heated Purge: (Y/N) ____Y_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
Dichlorodifluoromethane	5.208	5.595		7.4	
Chloromethane	1.784	1.987		11.4	
Vinyl Chloride	1.874	2.364	0.100		25.0
Bromomethane	1.461	1.588	0.100	8.7	25.0
Chloroethane	0.982	1.202			
Trichlorofluoromethane	5.447	6.303		15.7	
1,1 Dichloroethene	1.424	1.717	0.100	20.6	25.0
1,1,2-trichloro-1,2,2-trifluoroethane	2.014	2.446		21.4	
Acetone	0.841	1.055		25.4	
Carbon Disulfide	4.704	5.676		20.7	
Methyl Acetate		1.908			
Methylene Chloride	2.310	2.601		12.6	
Trans-1,2-Dichloroethene	1.629	1.808		11.0	
Methyl-tert-Butyl Ether	11.615	15.110			
1,1 Dichloroethane	3.224	3.774	0.200	17.1	25.0
Cis- Dichloroethene	1.767	1.980		12.1	
2-Butanone	1.156				
Chloroform	3.872	4.359	0.200	12.6	25.0
1,1,1-Trichloroethane	0.752	0.797	0.100	6.0	25.0
Cyclohexane	0.556	0.551		-0.9	
Carbon Tetrachloride	0.685	0.758	0.100	10.7	25.0
Benzene	1.279	1.289	0.500	0.8	25.0
1,2 Dichloroethane	3.332	4.005	0.100	20.2	25.0
Trichloroethene	0.365	0.342	0.300	-6.3	25.0
Methylcyclohexane	0.519	0.496		-4.4	

All other compounds must meet a minimum RRF of 0.010.

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __BB_____ Calibration Date: __02/09/01_____ Time: __1523_____

Lab File ID: ___CCT03_____ Init. Calib Date(s): __02/02/01__ __02/02/01__

EPA Sample N0. (VSTD50##): _VSTD050KL_____ Init. Calib Times: __1820__ __2018___

Heated Purge: (Y/N) ____Y_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm)

COMPOUND		_____ RRF	RRF50	MIN RRF	% D	MAX % D
1,2-Dichloropropane		0.344	0.359		4.4	
Bromodichloromethane	*	0.617	0.682	0.200	10.5	25.0
Cis-1,3-Dichloropropene	*	0.536	0.565	0.200	5.4	25.0
4-Methyl-2-pentanone		0.554	0.674		21.7	
Toluene	*	1.408	1.247	0.400	-11.4	25.0
Trans-1,3 Dichloropropene	*	0.637	0.757	0.100	18.8	25.0
1,1,2 Trichloroethane	*	0.322	0.346	0.100	7.5	25.0
Tetrachloroethene	*	0.324		0.200	-13.9	25.0
2-Hexanone		0.444	0.517			
Dibromochloromethane	*	0.493	0.556	0.100	12.8	25.0
1,2-Dibromoethane			0.440		0.9	
Chlorobenzene	*	0.996	0.878	0.500	-11.8	25.0
Ethylbenzene	*	0.502	0.432	0.100	-13.9	25.0
Xylene (total)	*	0.629	0.595	0.300	-5.4	25.0
Styrene	*	1.169	1.057	0.300	-9.6	25.0
Bromoform	*	0.396	0.460	0.100	16.2	25.0
Isopropylbenzene		1.871	1.674		-10.5	
1,1,2,2-Tetrachloroethane	*	0.631	0.681	0.300	7.9	25.0
1,3-Dichlorobenzene	*	0.966	0.885	0.600	-8.4	25.0
1,4- Dichlorobenzene	*	1.007	0.936	0.500	-7.1	25.0
1,2 Dichlorobenzene	*	0.942	0.893	0.400	-5.2	25.0
1,2-Dibromo-3-chloropropane		0.175	0.211			
1,2,4-Trichlorobenzene	*	0.772	0.705	0.200	-8.7	25.0
Toluene -d8		1.153	1.071		-7.1	
Bromofluorobenzene	*	0.695	0.626	0.200	-9.9	25.0
1,2 Dichloroethane -d4		2.494	3.137			

All other compounds must meet a minimum RRF of 0.010.

Modified Continuing Calibration Quant Report for Instrument BB 02/09/01, 1523

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	7.909	7.909	42716	250	
* 1,4 Difluorobenzene	114	8.964	8.964	211480	250	
* Chlorobenzene-d5	117	11.903	11.903	215712	250	
$ 1,2 Dichloroethane-d4	65	8.521	8.521	133979	250	314.5
$ Tolune-d8	98	10.532	10.532	231012	250	232.2
$ Bromofluorobenzene	95	12.879	12.879	135046	250	225.1
Dichlorodifluoromethane	85	3.511	3.511	238998	250	268.6
Chloromethane	50	3.837	3.837	84888	250	278.5
Vinyl Chloride	62	4.024	4.024	100965	250	315.4
Bromomethane	94	4.556	4.556	67813	250	271.6
Chloroethane	64	4.694	4.694	51332	250	305.9
Trichlorofluoromethane	101	5.059	5.059	269258	250	289.3
1,1 Dichloroethene	96	5.720	5.720	73359	250	301.6
1,1,2-trichloro- 1,2,2-trifluoroethane	101	5.681	5.681	104464	250	303.5
Acetone	43	5.720	5.720	45082	250	313.8
Carbon Disulfide	76	6.045	6.045	242435	250	301.7
Methyl Acetate	43	6.085	6.085	81520	250	452.0
Methylene Chloride	84	6.253	6.253	111118	250	281.5
Trans-1,2-Dichloroethene	96	6.578	6.578	77239	250	277.6
Methyl-tert-Butyl Ether	73	6.538	6.538	645451	250	325.2
1,1 Dichloroethane	63	7.032	7.032	161209	250	292.6
Cis- Dichloroethene	96	7.643	7.643	84599	250	280.1
2-Butanone	43	7.603	7.603	75050	250	380.0
Chloroform	83	7.958	7.958	186213	250	281.5
1,1,1-Trichloroethane	97	8.225	8.225	168497	250	264.9
Cyclohexane	56	8.313	8.313	116448	250	247.6
Carbon Tetrachloride	117	8.412	8.412	160294	250	276.7
Benzene	78	8.629	8.629	272514	250	251.8
1,2 Dichloroethane	62	8.609	8.609	171070	250	300.5
Trichloroethene	130	9.309	9.309	72321	250	234.5
Methylcyclohexane	83	9.556	9.556	104881	250	238.9
1,2-Dichloropropane	63	9.546	9.546	75897	250	260.8
Bromodichloromethane	83	9.793	9.793	144247	250	276.4
Cis-1,3-Dichloropropene	75	10.236	10.236	119409	250	263.2
4-Methyl-2-pentanone	43	10.335	10.335	145317	250	304.0
Toluene	91	10.601	10.601	268991	250	221.4
Trans-1,3 Dichloropropene	75	10.749	10.749	160042	250	297.0
1,1,2 Trichloroethane	97	10.946	10.946	73183	250	268.9
Tetrachloroethene	164	11.154	11.154	60231	250	215.4
2-Hexanone	43	11.124	11.124	111417	250	291.0
Dibromochloromethane	129	11.361	11.361	117682	250	282.0
1,2-Dibromoethane	107	11.499	11.499	94937	250	252.3
Chlorobenzene	112	11.933	11.933	189307	250	220.3
Ethylbenzene	106	11.992	11.992	93240	250	215.4
Xylene (total)	106	12.080	12.080	374798	250	690.7
Styrene	104	12.445	12.445	228037	250	226.0
Bromoform	173	12.643	12.643	97243	250	290.5
Isopropylbenzene	105	12.731	12.731	361126	250	223.7
1,1,2,2-Tetrachloroethane	83	12.948	12.948	146886	250	269.8
1,3-Dichlorobenzene	146	13.777	13.777	190889	250	228.9
1,4- Dichlorobenzene	146	13.846	13.846	201980	250	232.4
1,2 Dichlorobenzene	146	14.151	14.151	192673	250	237.1
1,2-Dibromo-3-chloropropane	75	14.723	14.723	45456	250	300.0
1,2,4-Trichlorobenzene	180	15.374	15.374	152118	250	228.3

* = Internal Standard $ = SMC

Note- Some labs report the IS concentration as 50 ng/mL instead of 250 ng/ 5 mL. If the lab reports 50 as the IS amount, then use 1mL as the sample volume amount (V_o).

Raw data for BFB tune 02-07-01 0843 Instrument AA AA010207

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	5049	60.00	3325	79.00	7771	117.00	887
37.00	30760	61.00	20624	80.00	2327	118.00	162
38.00	25088	62.00	19416	81.00	7708	119.00	1386
39.00	10607	63.00	14966	82.00	1617	130.00	282
41.00	196	64.00	235	87.00	43408	141.00	575
43.00	456	67.00	816	88.00	39336	143.00	778
44.00	2454	68.00	51104	89.00	439	146.00	570
45.00	4114	69.00	51136	91.00	823	147.00	306
47.00	11937	70.00	3595	92.00	9891	148.00	578
48.00	1773	71.00	93	93.00	17520	169.00	433
49.00	20120	72.00	1531	94.00	63520	173.00	8281
50.00	105360	73.00	20336	95.00	766784	174.00	543552
51.00	32008	74.00	77800	96.00	50256	175.00	37116
52.00	273	75.00	287872	97.00	726	176.00	527232
55.00	1328	76.00	23352	104.00	378	177.00	32936
56.00	5263	77.00	3706	106.00	254	207.00	4
57.00	12380	78.00	3034	116.00	88		

Raw data for BFB tune 02-10-01 0827 Instrument AA AA010110

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	4731	56.00	5967	77.00	3886	104.00	418
37.00	32488	57.00	12412	78.00	3841	106.00	287
38.00	27544	60.00	2871	79.00	8089	116.00	152
39.00	10827	61.00	20456	80.00	2428	117.00	887
40.00	303	62.00	19264	81.00	7985	119.00	549
42.00	255	63.00	13815	82.00	1918	128.00	101
43.00	147	64.00	265	83.00	137	130.00	255
44.00	2339	67.00	1067	87.00	34504	141.00	781
45.00	4439	68.00	51608	88.00	31184	143.00	732
47.00	12047	69.00	51120	91.00	535	173.00	2404
48.00	1727	70.00	4096	92.00	9396	174.00	441024
49.00	19584	72.00	1614	93.00	17056	175.00	31208
50.00	107632	73.00	19432	94.00	59984	176.00	419776
51.00	32456	74.00	77584	95.00	706496	177.00	26656
52.00	511	75.00	284544	96.00	47608	207.00	474
55.00	1279	76.00	11912	97.00	493		

Raw data for BFB tune 02-11-01 0617 Instrument AA AA010111

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	3323	52.00	178	75.00	326604	95.00	485696
37.00	20528	55.00	49	76.00	14864	96.00	33112
38.00	17696	56.00	3416	77.00	1775	97.00	366
39.00	7295	57.00	7248	78.00	2041	117.00	405
40.00	534	60.00	1477	79.00	5030	119.00	133
41.00	118	61.00	12763	80.00	1174	143.00	202
42.00	114	62.00	11196	81.00	4859	171.00	101
43.00	4	63.00	8422	82.00	753	174.00	303296
44.00	894	67.00	607	83.00	104	175.00	11992
45.00	2207	68.00	33776	87.00	23704	176.00	291200
47.00	7735	69.00	34976	88.00	22408	177.00	18048
48.00	862	70.00	2671	91.00	494	207.00	276
49.00	12967	72.00	893	92.00	5964		
50.00	71240	73.00	13358	93.00	11152		
51.00	19704	74.00	52080	94.00	41448		

Raw data for BFB tune 02-02-01 1754 Instrument BB BB010202

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1071	63.00	4415	92.00	3311	141.00	1386
37.00	6786	64.00	365	93.00	5114	143.00	1600
38.00	6497	67.00	160	94.00	14284	148.00	419
39.00	2097	68.00	13350	95.00	116528	149.00	106
40.00	256	69.00	13199	96.00	7112	150.00	102
44.00	1427	70.00	1114	97.00	104	157.00	114
45.00	1063	72.00	685	104.00	841	171.00	117
47.00	965	73.00	5396	105.00	340	172.00	457
48.00	971	74.00	19504	106.00	640	174.00	96504
49.00	5898	75.00	58560	107.00	107	175.00	7178
50.00	23152	76.00	3914	116.00	560	176.00	96248
51.00	7138	77.00	465	117.00	768	177.00	6372
52.00	311	79.00	4895	118.00	389	193.00	151
55.00	289	80.00	1520	119.00	665	207.00	206
56.00	1120	81.00	5150	128.00	407	208.00	282
57.00	3500	82.00	1224	129.00	129	209.00	236
60.00	1112	87.00	4998	130.00	704	268.00	123
61.00	5487	88.00	4338	131.00	100		
62.00	5734	91.00	754	137.00	130		

Raw data for BFB tune 02-09-01 1429 Instrument BB BB010209

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1143	62.00	5415	88.00	4225	129.00	150
37.00	7343	63.00	4095	89.00	256	130.00	502
38.00	6109	64.00	447	91.00	788	135.00	233
39.00	2246	67.00	162	92.00	3068	141.00	1642
40.00	280	68.00	14098	93.00	4951	142.00	171
41.00	335	69.00	12742	94.00	13379	143.00	1159
43.00	225	70.00	1036	95.00	110432	144.00	108
44.00	885	72.00	656	96.00	7264	147.00	155
45.00	1233	73.00	5379	97.00	252	157.00	257
47.00	1223	74.00	19880	104.00	807	172.00	761
48.00	766	75.00	57088	105.00	134	174.00	85760
49.00	5129	76.00	4582	106.00	588	175.00	6331
50.00	24328	77.00	852	107.00	105	176.00	81040
51.00	7566	78.00	442	111.00	225	177.00	5638
52.00	353	79.00	5752	113.00	131	178.00	157
55.00	617	80.00	1534	116.00	531	207.00	347
56.00	1914	81.00	6116	117.00	822	239.00	107
57.00	4145	82.00	1223	118.00	666	281.00	211
60.00	1145	86.00	106	119.00	666		
61.00	5979	87.00	4361	128.00	602		

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB5_____

Sample wt/vol: _____5.00_____(g/mL) ___g_____ Lab File ID: ____ BBB00-5BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone		
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	3	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	5	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB5_____

Sample wt/vol: _____5.00_____(g/mL) ___g_____ Lab File ID: ____ BBB00-5BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	3	J
100-41-4	Ethylbenzene	1	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VBLKDS

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB5_____

Sample wt/vol: _____5.00_____(g/mL) ___g_____ Lab File ID: ____ BBB00-5BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. _____ Date Analyzed: ___02/09/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: _____6____ CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	470	ANJB
2.	Unknown	7.87	230	JB
3.	Laboratory Artifact	12.21	240	JB
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	160	NJB
5.	Unknown	17.09	260	JB
6.	Unknown siloxane	18.21	150	JB
7.				
8.				
9.				
10.				
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25.				

FORM I VOA-TIC

OLM04.2

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	7.903	7.909	51955	250	
* 1,4 Difluorobenzene	114	8.948	8.964	263474	250	
* Chlorobenzene-d5	117	11.887	11.903	243044	250	
$ 1,2 Dichloroethane-d4	65	8.504	8.521	151614	238.336	44.96
$ Tolune-d8	98	10.526	10.532	282484	268.666	50.68
$ Bromofluorobenzene	95	12.873	12.879	143889	246.724	46.54
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43	5.715	5.720	10221		
Methyl acetate	43					
Methylene chloride	84	6.255	6.253	6988	12.93	2.59
Methyl-tert-Butyl Ether	73					
2-butanone	43	7.613	7.603	9235	25.29	5.06
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91					
2-hexanone	43					
Chlorobenzene	112	11.940	11.933	13235	15.51	3.10
Ethylbenzene	106	11.999	11.992	2236	5.32	1.06
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _MB6_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBB00-6MB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride		J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	1	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _MB6_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBB00-6MB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene		J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VBLKJH

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00_

Matrix: (soil/water) ___water_____ Lab Sample ID: _MB6_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBB00-6MB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ___6_____

CONCENTRATION UNITS
(lg/L or lg/Kg) __lg/L _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 691-383	4-methyl-2pentene-2-one	6.32	47	ANJB
2.	Unknown	7.87	23	JB
3.	Laboratory Artifact	12.21	24	JB
4. 556-67-2	Cyclotetrasiloxane, octameth	14.48	16	NJB
5.	Unknown	17.09	26	JB
6.	Unknown siloxane	18.21	15	JB
7.				
8.				
9.				
10.				
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FORM I VOA-TIC

OLM04.2

Modified Quant Report for VBLKJH

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.722	8.711	1660064	250	
* 1,4 Difluorobenzene	114	10.008	9.986	7543107	250	
* Chlorobenzene-d5	117	13.289	13.278	5979831	250	
$ 1,2 Dichloroethane-d4	65	9.430	9.419	1714244		
$ Tolune-d8	98	11.818	11.796	6745069		
$ Bromofluorobenzene	95	14.292	14.281	5776250		
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43	6.071	6.073	52232	47.10	9.42
Methyl acetate	43					
Methylene chloride	84	6.714	6.716	300256		
Methyl-tert-Butyl Ether	73					
2-butanone	43	8.466	8.325	8025	5.06	1.01
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91	11.888	11.883	333236		
2-hexanone	43					
Chlorobenzene	112					
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKSD

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB7_____

Sample wt/vol: _____4_____(g/mL) ___g_____ Lab File ID: ____ BBB00-7MB_____

Level: (low/med) __Med_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____0_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity-624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: __100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg	Q
75-71-8	Dichlorodifluoromethane	1300	U
74-87-3	Chloromethane	1300	U
75-01-4	Vinyl Chloride	1300	U
74-83-9	Bromomethane	1300	U
75-00-3	Chloroethane	1300	U
75-69-4	Trichlorofluoromethane	1300	U
75-35-4	1,1 Dichloroethene	1300	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	1300	U
67-64-1	Acetone		J
75-15-0	Carbon Disulfide	1300	U
79-20-9	Methyl Acetate	1300	U
75-09-2	Methylene Chloride	500	J
156-60-5	Trans-1,2-Dichloroethene	1300	U
1634-04-4	Methyl-tert-Butyl Ether	1300	U
75-34-3	1,1 Dichloroethane	1300	U
156-59-2	Cis- Dichloroethene	1300	U
78-93-3	2-Butanone	650	J
67-99-3	Chloroform	1300	U
71-55-6	1,1,1-Trichloroethane	1300	U
110-82-7	Cyclohexane	1300	U
56-23-5	Carbon Tetrachloride	1300	U
71-43-2	Benzene	1300	U
107-06-2	1,2 Dichloroethane	1300	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKSD

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB7_____

Sample wt/vol: _____4_____(g/mL) ___g_____ Lab File ID: ____ BBB00-7MB_____

Level: (low/med) __Med_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____0_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity-624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: __100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
79-01-6	Trichloroethene	1300	U
108-87-2	Methylcyclohexane	1300	U
78-87-5	1,2-Dichloropropane	1300	U
75-27-4	Bromodichloromethane	1300	U
10061-01-5	Cis-1,3-Dichloropropene	1300	U
108-10-1	4-Methyl-2-pentanone	1300	U
108-88-3	Toluene	1300	U
10061-02-6	Trans-1,3 Dichloropropene	1300	U
79-00-5	1,1,2 Trichloroethane	1300	U
127-18-4	Tetrachloroethene	1300	U
591-78-6	2-Hexanone	1300	U
124-48-1	Dibromochloromethane	1300	U
106-93-4	1,2-Dibromoethane	1300	U
108-90-7	Chlorobenzene	290	J
100-41-4	Ethylbenzene	150	J
1330-20-7	Xylene (total)	1300	U
100-42-5	Styrene	1300	U
75-25-2	Bromoform	1300	U
98-82-8	Isopropylbenzene	1300	U
79-34-5	1,1,2,2-Tetrachloroethane	1300	U
541-73-1	1,3-Dichlorobenzene	1300	U
106-46-7	1,4- Dichlorobenzene	1300	U
95-50-1	1,2 Dichlorobenzene	1300	U
96-12-8	1,2-Dibromo-3-chloropropane	1300	U
120-82-1	1,2,4-Trichlorobenzene	1300	U

1F

EPA SAMPLE NO.

VBLKSD

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __MB7_____

Sample wt/vol: _____4_____(g/mL) ___g_____ Lab File ID: ____ BBB00-7MB_____

Level: (low/med) __Med_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____0_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity-624__ ID: ___0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(ul) Soil Aliquot Volume: __100_____(ul)

Number TICs found: ____0_____ CONCENTRATION UNITS
(ug/L or ug/Kg) _ ug/Kg _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

FORM I VOA-TIC

OLM04.2

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.711	7.909	2180370	250	
* 1,4 Difluorobenzene	114	10.008	8.964	10645744	250	
* Chlorobenzene-d5	117	13.300	11.903	8771656	250	
$ 1,2 Dichloroethane-d4	65	9.430	8.521	1962812	238.336	44.96
$ Tolune-d8	98	11.818	10.532	9472205	268.666	50.68
$ Bromofluorobenzene	95	14.314	12.879	7578140	246.724	46.54
Chloromethane	64					
1,1 Dichloroethene	96					
Acetone	43	6.088	5.720	42365	3396.89	849.22
Methyl acetate	43					
Methylene chloride	84	6.712	6.253	285236	1990.57	497.64
Methyl-tert-Butyl Ether	73					
2-butanone	43	8.470	7.603	53225	2596.91	649.23
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78					
Trichloroethene	130					
4-methyl-2-pentanone	43					
Toluene	91					
2-hexanone	43					
Chlorobenzene	112	13.200	11.933	452560	1141.45	285.36
Ethylbenzene	106	13.430	11.992	96458	591.21	147.80
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MS

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-26_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-26AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	U
74-87-3	Chloromethane	2200	U
75-01-4	Vinyl Chloride	2200	U
74-83-9	Bromomethane	2200	U
75-00-3	Chloroethane	2200	U
75-69-4	Trichlorofluoromethane	2200	U
75-35-4	1,1 Dichloroethene	9400	
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	U
67-64-1	Acetone	2900	
75-15-0	Carbon Disulfide	2200	U
79-20-9	Methyl Acetate	450	J
75-09-2	Methylene Chloride		J
156-60-5	Trans-1,2-Dichloroethene	2200	U
1634-04-4	Methyl-tert-Butyl Ether	2200	U
75-34-3	1,1 Dichloroethane	2200	U
156-59-2	Cis- Dichloroethene	2200	U
78-93-3	2-Butanone	750	J
67-99-3	Chloroform	2200	U
71-55-6	1,1,1-Trichloroethane	2200	U
110-82-7	Cyclohexane	2200	U
56-23-5	Carbon Tetrachloride	2200	U
71-43-2	Benzene	8700	
107-06-2	1,2 Dichloroethane	2200	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MS

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-26_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-26AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	8600	
108-87-2	Methylcyclohexane	2200	U
78-87-5	1,2-Dichloropropane	2200	U
75-27-4	Bromodichloromethane	2200	U
10061-01-5	Cis-1,3-Dichloropropene	2200	U
108-10-1	4-Methyl-2-pentanone	2200	U
108-88-3	Toluene	8500	
10061-02-6	Trans-1,3 Dichloropropene	2200	U
79-00-5	1,1,2 Trichloroethane	2200	U
127-18-4	Tetrachloroethene	2200	U
591-78-6	2-Hexanone	1200	J
124-48-1	Dibromochloromethane	2200	U
106-93-4	1,2-Dibromoethane	2200	U
108-90-7	Chlorobenzene	8300	
100-41-4	Ethylbenzene	2200	U
1330-20-7	Xylene (total)	2200	U
100-42-5	Styrene	2200	U
75-25-2	Bromoform	2200	U
98-82-8	Isopropylbenzene	2200	U
79-34-5	1,1,2,2-Tetrachloroethane	2200	U
541-73-1	1,3-Dichlorobenzene	7600	
106-46-7	1,4- Dichlorobenzene		
95-50-1	1,2 Dichlorobenzene	12000	
96-12-8	1,2-Dibromo-3-chloropropane	2200	U
120-82-1	1,2,4-Trichlorobenzene	10000	

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.711	8.711	2783007	250	
* 1,4 Difluorobenzene	114	9.986	9.986	13501830	250	
* Chlorobenzene-d5	117	13.289	13.278	10995743	250	
$ 1,2 Dichloroethane-d4	65	9.419	9.419	2281777		
$ Tolune-d8	98	11.807	11.796	11009157		
$ Bromofluorobenzene	95	14.303	14.281	8809699		
Chloromethane	64					
1,1 Dichloroethene	96	5.953	5.964	3827435	21941.41	9444.48
Acetone	43	6.149	6.073	108929	6842.79	2945.42
Methyl acetate	43	6.694	6.629	78743	1044.84	449.74
Methylene chloride	84	6.716	6.716	218234		
Methyl-tert-Butyl Ether	73					
2-butanone	43	8.493	8.325	45348	1733.47	746.16
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78	9.518	9.528	11158836	20157.77	8676.72
Trichloroethene	130	10.313	10.313	5529601	19997.29	8607.65
4-methyl-2-pentanone	43					
Toluene	91	11.883	11.883	11623167	19736.01	8495.18
2-hexanone	43	12.590	12.570	114872		
Chlorobenzene	112	13.322	13.300	9597232	19310.03	8311.82
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146	15.150	15.121	7525685	17731.04	7632.16
1,4 Dichlorobenzene	146	15.210	15.175	9965474		
1,2 Dichlorobenzene	146	15.485	15.437	10596366	28276.96	12171.56
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180	16.630	16.527	6022356	23854.48	10267.94

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-27_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-27AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	U
74-87-3	Chloromethane	2200	U
75-01-4	Vinyl Chloride	2200	U
74-83-9	Bromomethane	2200	U
75-00-3	Chloroethane	2200	U
75-69-4	Trichlorofluoromethane	2200	U
75-35-4	1,1 Dichloroethene		
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	U
67-64-1	Acetone		
75-15-0	Carbon Disulfide	2200	U
79-20-9	Methyl Acetate	740	J
75-09-2	Methylene Chloride		J
156-60-5	Trans-1,2-Dichloroethene	2200	U
1634-04-4	Methyl-tert-Butyl Ether	2200	U
75-34-3	1,1 Dichloroethane	2200	U
156-59-2	Cis- Dichloroethene	2200	U
78-93-3	2-Butanone		J
67-99-3	Chloroform	2200	U
71-55-6	1,1,1-Trichloroethane	2200	U
110-82-7	Cyclohexane	2200	U
56-23-5	Carbon Tetrachloride	2200	U
71-43-2	Benzene		
107-06-2	1,2 Dichloroethane	2200	

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-27_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-27AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene		
108-87-2	Methylcyclohexane	2200	U
78-87-5	1,2-Dichloropropane	2200	U
75-27-4	Bromodichloromethane	2200	U
10061-01-5	Cis-1,3-Dichloropropene	2200	U
108-10-1	4-Methyl-2-pentanone	2200	U
108-88-3	Toluene		
10061-02-6	Trans-1,3 Dichloropropene	2200	U
79-00-5	1,1,2 Trichloroethane	2200	U
127-18-4	Tetrachloroethene	2200	U
591-78-6	2-Hexanone		J
124-48-1	Dibromochloromethane	2200	U
106-93-4	1,2-Dibromoethane	2200	U
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene	2200	U
1330-20-7	Xylene (total)	2200	U
100-42-5	Styrene	2200	U
75-25-2	Bromoform	2200	U
98-82-8	Isopropylbenzene	2200	U
79-34-5	1,1,2,2-Tetrachloroethane	2200	U
541-73-1	1,3-Dichlorobenzene		
106-46-7	1,4- Dichlorobenzene		
95-50-1	1,2 Dichlorobenzene		
96-12-8	1,2-Dibromo-3-chloropropane	2200	U
120-82-1	1,2,4-Trichlorobenzene		

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.722	8.711	2155423	250	
* 1,4 Difluorobenzene	114	9.997	9.986	2335467	250	
* Chlorobenzene-d5	117	13.300	13.278	8570860	250	
$ 1,2 Dichloroethane-d4	65	9.430	9.419	1835491		
$ Tolune-d8	98	11.818	11.796	9030996		
$ Bromofluorobenzene	95	14.314	14.281	7350425		
Chloromethane	64					
1,1 Dichloroethene	96	5.964	5.964	3181262		
Acetone	43	6.160	6.073	117955		
Methyl acetate	43	6.683	6.629	99814	1710.06	736.08
Methylene chloride	84	6.727	6.716	143553		
Methyl-tert-Butyl Ether	73					
2-butanone	43	8.493	8.325	56858		
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78	9.539	9.528	2189397		
Trichloroethene	130	10.324	10.313	1060035		
4-methyl-2-pentanone	43					
Toluene	91	11.894	11.883	10281560		
2-hexanone	43	12.588	12.570	87632		
Chlorobenzene	112	13.333	13.300	8470660		
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146	15.155	15.121	5465874		
1,4 Dichlorobenzene	146	15.212	15.175	7305444		
1,2 Dichlorobenzene	146	15.485	15.437	8199999		
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180			4858792		

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51MS

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Water_____ Lab Sample ID: _BBB00-18_____

Sample wt/vol: _____5_____(g/mL) ___mL_____ Lab File ID: __ BBB00-18AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene		
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone		
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	J
75-09-2	Methylene Chloride	5	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	15	
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene		
107-06-2	1,2 Dichloroethane	10	U

EPA SAMPLE NO.
BPJ51MS

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Water_____ Lab Sample ID: _BBB00-18_____

Sample wt/vol: _____5_____(g/Ml) ___Ml_____ Lab File ID: __ BBB00-18AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene		
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene		
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane		
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.765	8.711	1710824	250	
* 1,4 Difluorobenzene	114	10.063	9.986	8105650	250	
* Chlorobenzene-d5	117	13.377	13.278	7073084	250	
$ 1,2 Dichloroethane-d4	65	9.474	9.419	1757356		
$ Tolune-d8	98	11.883	11.796	7516821		
$ Bromofluorobenzene	95	14.391	14.281	6244639		
Chloromethane	64					
1,1 Dichloroethene	96	5.996	5.964	2497369		
Acetone	43	6.077	6.073	230568		
Methyl acetate	43	6.635	6.629	229677	50.02	10.00
Methylene chloride	84	6.749	6.716	271258	23.93	4.79
Methyl-tert-Butyl Ether	73					
2-butanone	43					
Chloroform	83	8.835	8.831	1552325	75.14	15.03
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78	9.594	9.528	7722382		
Trichloroethene	130	10.390	10.313	1989429		
4-methyl-2-pentanone	43					
Toluene	91	11.960	11.883	8229802		
2-hexanone	43					
Chlorobenzene	112	13.399	13.300	6570124		
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83	14.355	14.357	3102545		
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Water_____ Lab Sample ID: _BBB00-19_____

Sample wt/vol: _____5_____(g/mL) ___mL_____ Lab File ID: __ BBB00-19AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene		
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone		
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	7	J
75-09-2	Methylene Chloride	5	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform		
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene		
107-06-2	1,2 Dichloroethane	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Water_____ Lab Sample ID: _BBB00-19_____

Sample wt/vol: _____5_____(g/Ml) ___Ml_____ Lab File ID: __ BBB00-19AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene		
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene		
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane		
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	8.744	8.711	1802595	250	
* 1,4 Difluorobenzene	114	10.030	9.986	7989070	250	
* Chlorobenzene-d5	117	13.344	13.278	6216760	250	
$ 1,2 Dichloroethane-d4	65	90463	9.419	1780921		
$ Tolune-d8	98	11.872	11.796	7038170		
$ Bromofluorobenzene	95	14.358	14.281	5782067		
Chloromethane	64					
1,1 Dichloroethene	96	5.975	5.964	2706742		
Acetone	43	6.070	6.073	240872		
Methyl acetate	43	6.633	6.629	176565	36.49	7.30
Methylene chloride	84	6.727	6.716	582562	23.16	4.63
Methyl-tert-Butyl Ether	73					
2-butanone	43					
Chloroform	83	8.835	8.831	1656356	76.09	15.22
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78	9.572	9.528	7785846		
Trichloroethene	130	10.368	10.313	1986602		
4-methyl-2-pentanone	43					
Toluene	91	11.949	11.883	7813007		
2-hexanone	43					
Chlorobenzene	112	13.377	13.300	5626321		
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83	14.360	14.357	2725655		
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BXZ26MS

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-12_____

Sample wt/vol: ____5.81_____(g/mL) _____g_____ Lab File ID: __ BBB00-12BB_____

Level: (low/med) ___low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____23_____ Date Analyzed: __02/09/01_____

GC Column: J&W DB-624_____ ID: ___0.32_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	11	U
74-87-3	Chloromethane	11	U
75-01-4	Vinyl Chloride	11	U
74-83-9	Bromomethane	11	U
75-00-3	Chloroethane	11	U
75-69-4	Trichlorofluoromethane	11	U
75-35-4	1,1 Dichloroethene	51	
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	11	U
67-64-1	Acetone	40	
75-15-0	Carbon Disulfide	11	U
79-20-9	Methyl Acetate	11	U
75-09-2	Methylene Chloride	4	J
156-60-5	Trans-1,2-Dichloroethene	11	U
1634-04-4	Methyl-tert-Butyl Ether	11	U
75-34-3	1,1 Dichloroethane	11	U
156-59-2	Cis- Dichloroethene	11	U
78-93-3	2-Butanone	11	U
67-99-3	Chloroform	11	U
71-55-6	1,1,1-Trichloroethane	11	U
110-82-7	Cyclohexane	11	U
56-23-5	Carbon Tetrachloride	11	U
71-43-2	Benzene	55	
107-06-2	1,2 Dichloroethane	11	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26MS

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-12_____

Sample wt/vol: ____5.81_____(g/mL) _____g_____ Lab File ID: __ BBB00-12BB_____

Level: (low/med) ___low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____23_____ Date Analyzed: __02/09/01_____

GC Column: J&W DB-624_____ ID: ___0.32_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	52	
108-87-2	Methylcyclohexane	11	U
78-87-5	1,2-Dichloropropane	11	U
75-27-4	Bromodichloromethane	11	U
10061-01-5	Cis-1,3-Dichloropropene	11	U
108-10-1	4-Methyl-2-pentanone	11	U
108-88-3	Toluene	59	
10061-02-6	Trans-1,3 Dichloropropene	11	U
79-00-5	1,1,2 Trichloroethane	11	U
127-18-4	Tetrachloroethene	11	U
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	11	U
106-93-4	1,2-Dibromoethane	11	U
108-90-7	Chlorobenzene	59	
100-41-4	Ethylbenzene	11	U
1330-20-7	Xylene (total)	11	U
100-42-5	Styrene	11	U
75-25-2	Bromoform	11	U
98-82-8	Isopropylbenzene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4- Dichlorobenzene	11	U
95-50-1	1,2 Dichlorobenzene	11	U
96-12-8	1,2-Dibromo-3-chloropropane	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U

Modified Quant Report for BXZ26MS

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	7.930	7.909	42616	250	
* 1,4 Difluorobenzene	114	8.968	8.964	186765	250	
* Chlorobenzene-d5	117	11.897	11.903	165043	250	
$ 1,2 Dichloroethane-d4	65	80514	8.521	133182	238.336	44.96
$ Tolune-d8	98	10.536	10.532	191697	268.666	50.68
$ Bromofluorobenzene	95	12.883	12.879	102170	246.724	46.54
Chloromethane	64					
1,1 Dichloroethene	96	5.714	5.720	67113	229.30	51.26
Acetone	43	5.716	5.720	31912	177.45	39.66
Methyl acetate	43					
Methylene chloride	84	6.246	6.253	8476	19.12	4.27
Methyl-tert-Butyl Ether	73					
2-butanone	43					
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78	8.623	8.629	235074	244.12	54.57
Trichloroethene	130	9.303	9.309	58861	230.38	51.50
4-methyl-2-pentanone	43					
Toluene	91	10.595	10.601	216863	263.43	58.88
2-hexanone	43					
Chlorobenzene	112	11.926	11.933	153972	265.64	59.38
Ethylbenzene	106					
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26MSD

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00 ___NLB_____

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-13_____

Sample wt/vol: ____5.79_____(g/mL) _____g_____ Lab File ID: __ BBB00-13BB_____

Level: (low/med) ___low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____23_____ Date Analyzed: __02/09/01_____

GC Column: J&W DB-624_____ ID: ___0.32_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	11	U
74-87-3	Chloromethane	11	U
75-01-4	Vinyl Chloride	11	U
74-83-9	Bromomethane	11	U
75-00-3	Chloroethane	11	U
75-69-4	Trichlorofluoromethane	11	U
75-35-4	1,1 Dichloroethene		
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	11	U
67-64-1	Acetone		J
75-15-0	Carbon Disulfide	11	U
79-20-9	Methyl Acetate	11	U
75-09-2	Methylene Chloride		J
156-60-5	Trans-1,2-Dichloroethene	11	U
1634-04-4	Methyl-tert-Butyl Ether	11	U
75-34-3	1,1 Dichloroethane	11	U
156-59-2	Cis- Dichloroethene	11	U
78-93-3	2-Butanone	11	U
67-99-3	Chloroform	11	U
71-55-6	1,1,1-Trichloroethane	11	U
110-82-7	Cyclohexane	11	U
56-23-5	Carbon Tetrachloride	11	U
71-43-2	Benzene		
107-06-2	1,2 Dichloroethane	11	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26MSD

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-13_____

Sample wt/vol: ____5.79_____(g/mL) _____g_____ Lab File ID: __ BBB00-13BB_____

Level: (low/med) ___low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____23_____ Date Analyzed: __02/09/01_____

GC Column: J&W DB-624_____ ID: ___0.32_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg _____	Q
79-01-6	Trichloroethene		
108-87-2	Methylcyclohexane	11	U
78-87-5	1,2-Dichloropropane	11	U
75-27-4	Bromodichloromethane	11	U
10061-01-5	Cis-1,3-Dichloropropene	11	U
108-10-1	4-Methyl-2-pentanone	11	U
108-88-3	Toluene		
10061-02-6	Trans-1,3 Dichloropropene	11	U
79-00-5	1,1,2 Trichloroethane	11	U
127-18-4	Tetrachloroethene	11	U
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	11	U
106-93-4	1,2-Dibromoethane	11	U
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene	6	J
1330-20-7	Xylene (total)	11	U
100-42-5	Styrene	11	U
75-25-2	Bromoform	11	U
98-82-8	Isopropylbenzene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4- Dichlorobenzene	11	U
95-50-1	1,2 Dichlorobenzene	11	U
96-12-8	1,2-Dibromo-3-chloropropane	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	7.913	7.909	37177	250	
* 1,4 Difluorobenzene	114	8.968	8.964	156950	250	
* Chlorobenzene-d5	117	11.897	11.903	149188	250	
$ 1,2 Dichloroethane-d4	65	8.524	8.521	79753	238.336	44.96
$ Tolune-d8	98	10.536	10.532	170076	268.666	50.68
$ Bromofluorobenzene	95	12.883	12.879	96325	246.724	46.54
Chloromethane	64					
1,1 Dichloroethene	96	5.714	5.720	51802		
Acetone	43	5.718	5.720	5047		
Methyl acetate	43					
Methylene chloride	84	6.246	6.253	7186		
Methyl-tert-Butyl Ether	73					
2-butanone	43					
Chloroform	83					
1,1,1, Trichloroethane	97					
Carbon tetrachloride	117					
Benzene	78	8.623	8.629	178694		
Trichloroethene	130	9.303	9.309	45492		
4-methyl-2-pentanone	43					
Toluene	91	10.605	10.601	174077		
2-hexanone	43					
Chlorobenzene	112	11.926	11.933	121157		
Ethylbenzene	106	11.985	11.992	6859		
1,1,2,2 Tetrachloroethane	83					
1,3 Dichlorobenzene	146					
1,4 Dichlorobenzene	146					
1,2 Dichlorobenzene	146					
1,2 dibromo-3-chloropropane	75					
1,2,4 trichlorobenzene	180					

Appendix E

Answers to Quizzes

Answers to VOA Quizzes

Learning Module 1				Learning Module 2
Quiz 1	Quiz 2	Quiz 3	Quiz 4	Quiz 1
G	e	X,Y,Z	C	g
J	b	N	T	h
H	j	B	F	f
I	g	U	F	b
A	i	D	F	j
D	h	A	F	k
C	k	R		i
F	a	E		a
B	d	C		c
E	c	J		d
-	f	P		e

#	Learning Module 2 Quiz 2
1	C
2	B
3	C
4	A
5	Both document problems and provide information about the case. The lab provides the Case narrative. The validator provides the Data Assessment.
6	Both reports provide sample information. The Traffic Report travels with the samples and documents Chain of Custody. The sampler supplies the Trip Report.
7	VOA and BNA- Form 1 (TCL and TIC), Form 2 for each matrix, Form 3 for each matrix and level, Form 4 for each method blank for each matrix, Form 5 for each Tune, Form 6 for each initial calibration, Form 7 for each continuing calibration, Form 8 for internal standards Pest- - Form 1 (TCL), Form 2 for each matrix, Form 3 for each matrix, Form 4 for each method blank for each matrix, Form 6 for each initial calibration, resolutions, PEMs, Form 7 for each continuing calibration, % Breakdown and Form 8 for sequence on each column, Form 9 for Florisil clean-up for waters and soils and GPC clean-up for soils, Form 10 for % Difference between columns for positive hits
8	General Information- Sampling Trip Report, SDG Cover Sheet, Case narrative, Forms- Form 2, Form 3, Form 4, Form 5, Form 8, sample Form 1s, Form 6, , initial calibration raw data, Form 7, continuing calibration raw data, raw data for Tune, method blanks Form 1s, ,MS/MSD Form 1s, Supporting Documents- Sample Log-in Sheet, Communication logs, GC/MS instrument logs.
9	T
10	F

#	Learning Module 3 Quiz 1 Preservation, Cooler Temperature, Sample Size and Percent Moisture
1	No action needed.
2	All analytes in the sample are qualified "J" for cooler temperature.
3	No action needed.
4	No action needed.
5	Sample qualified for percent moisture. All positive hits are qualified "J" and non-detects are qualified "R".
6	Sample qualified for cooler temperature. All positive hits and non-detects are qualified "J". Under Contract/Non-Compliance section write the Sample weight does not meet SOW requirements.
7	Sample qualified for percent moisture. All positive hits and non-detects are qualified "J".
8	Sample qualified for percent moisture. All positive hits and non-detects are qualified "J".
9	Sample qualified for cooler temperature. All positive hits and non-detects are qualified "J".
10	No action needed.

#	Learning Module 3 Quiz 2 Holding Times
1	Sample met technical and contractual holding time.
2	Technical holding time was not met for sample, all analytes were qualified as "J" for detects and non-detects. Contractual holding times were met
3	The sample was not preserved and analysis exceeded technical holding time for aromatic compounds. The following aromatic compounds were qualified as "J" for detects and non-detects: Benzene, Toluene, Chlorobenzene, Ethylbenzene, Xylene, Styrene, Isopropylbenzene, 1,3- dichlorobenzene, 1,2 - dichlorobenzene, 1,4- dichlorobenzene, and 1,2,4 –trichlorobenzene.
4	Technical and contractual holding time was not met for sample, all analytes were qualified as "J" for detects and non-detects.
5	Sample met technical and contractual holding time
6	Technical holding time was not met for sample, all analytes were qualified as "J" for detects and non-detects. Contractual holding times were met

7 Technical and contractual holding time was not met for sample, all analytes were qualified as “J” for detects and non-detects.

OR

Technical and contractual holding time was not met for sample, all analytes were qualified as “J” for detects and using professional judgement, non-detects were qualified as “R”.

8 Technical and contractual holding times were met.

9 Technical and contractual holding time was not met for sample, all analytes were qualified as “J” for detects and non-detects.

10 Technical and contractual holding time was not met for sample, all analytes were qualified as “J” for detects and non-detects were qualified as “R”.

Learning Module 3 Quiz 3

% Moisture - "J" all analytes
Holding time- "J" detects, change non-detects to "R"

Learning Module 3 Quiz 4-

Preservation/holding time- "J" aromatics only, Benzene, toluene, chlorobenzene, ethylbenzene, , xylenes, styrene, Isopropylbenzene, 1,3 dichlorobenzene, 1,2 dichlorobenzene, 1,4 dichlorobenzene, 1,2,4 trichlorobenzene,

Learning Module 3 Quiz 5

Not preserved within 2 days, holding times- "J" aromatics only, Benzene, toluene, chlorobenzene, ethylbenzene, , xylenes, styrene, Isopropylbenzene, 1,3 dichlorobenzene, 1,2 dichlorobenzene, 1,4 dichlorobenzene, 1,2,4 trichlorobenzene,

Learning Module 4 Quiz 1

Sample BBJ60	
SMC compound	Concentration
Toluene-d8	24.46
Bromofluorobenzene	48.23
1,2 Dichloroethane –d4	57.91

Sample BPH71	
SMC compound	Concentration
Toluene-d8	45.12
Bromofluorobenzene	29.29
1,2 Dichloroethane	160.96

–d4

Sample BPH62	
SMC compound	Concentration
Toluene-d8	42.96
Bromofluorobenzene	97.38
1,2 Dichloroethane –d4	24.66

Sample BNR68	
SMC compound	Concentration
Toluene-d8	24.71
Bromofluorobenzene	46.93

1,2 Dichloroethane –d4	4.29

EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOTAL OUT
VBLKJH	97	102	96		0
BBJ60	49	96	115		2
BPH71	90	59	322		2
BPH62	86	195	49		3
BNR68	49	94	8.6		2

Learning Module 4 Quiz 2

Sample 1	low level soil	qualify all analytes "J"
Sample 2	Water	qualify all analytes "J"
Sample 3	medium level soil	qualify all analytes "J"
Sample 4	low level soil	qualify all positive hits as "J" and non-detects as "R"

Learning Module 4 Quiz 3

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: __NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00__

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKJH	97	102	96		0
2.	BDR43	80	112	105		1

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: __NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00_

Level: (low/med) __LOW_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKDS	99	83	113		0
2.	BPH62	107	99	95		0

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: __NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BPH50__

Level: (low/med) __MED_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKSD	97	99	101		0
2.	BNR68	99	101	93		0

ACTION:

BNR43- SMC1 below limits but >10%, qualify all analytes as "J" for detects and "UJ" for non-detects.

BPH62 and BNR68- All surrogates passed, no action.

Learning Module 5 Quiz 1

1. Water sample

compound	Spike added	Sample Conc.	MS Conc.	MS % Rec.	MSD Conc.	MSD % Rec.	% RPD	RPD Limits	Rec. limits
1,1 Dichloroethene	50	0	34	68	45	90	28	14	61-145
Trichloroethene	50	20	45	50	45	50	0	14	71-120
Benzene	50	0	57	114	59	118	3.4	11	76-127
toluene	50	0	68	136	70	140	3.0	13	76-125
Chlorobenzene	50	10	55	90	45	70	25	13	75-130

No action needed,RPD is out but within % Rec. limits and vice versa.

2. Low level Soil sample

compound	Spike added	Sample Conc.	MS Conc.	MS % Rec.	MSD Conc.	MSD % Rec.	% RPD	RPD Limits	Rec. limits
1,1 Dichloroethene	50	0	48	96	24	48	67	22	59-172
Trichloroethene	50	0	55	110	53	106	3.7	24	62-137
Benzene	50	15	76	122	68	106	14	21	66-142
toluene	50	40	110	140	92	104	30	21	59-139
Chlorobenzene	50	0	65	130	60	120	8	21	60-133

No Action needed. % Rec > limits except for Dichloroethene. Possible hot spot in the sample. Check chromatogram for problems. At the most Using professional judgement, qualify Dichloroethene as "J" in unspiked sample only.

3. Med level soil sample

compound	Spike added	Sample Conc.	MS Conc.	MS % Rec.	MSD Conc.	MSD % Rec.	% RPD	RPD Limits	Rec. limits
1,1 Dichloroethene	42	0	26	62	30	71	14	22	59-172
Trichloroethene	42	0	35	83	35	83	0	24	62-137
Benzene	42	0	23	55	25	60	8.7	21	66-142
toluene	42	0	75	179	70	167	6.9	21	59-139
Chlorobenzene	42	0	52	123	55	131	6.3	21	60-133

No action, RPDs are good, any % Rec values are > Upper limits. At the most, Use professional judgement to qualify positive hits as "J".

4. Low level soil sample

compound	Spike added	Sample Conc.	MS Conc.	MS % Rec.	MSD Conc.	MSD % Rec.	% RPD	RPD Limits	Rec. limits
1,1 Dichloroethene	71	0	45	63	40	56	12	14	61-145
Trichloroethene	71	0	56	79	50	70	12	14	71-120
Benzene	71	0	51	72	43	61	17	11	76-127
toluene	71	0	63	89	54	76	16	13	76-125
Chlorobenzene	71	0	10	20	4	8	86	13	75-130

Except for chlorobenzene RPDs are close and % Rec are close to lower limits and > 10%. Chlorobenzene as a MSD % Rec value <10%. This analyte is not detected in the unspiked sample and would be qualified as "R". Check chromatogram for matrix problem at the same retention time as chlorobenzene. If there is a problem, check chromatograms of other samples. If same problem is present in the other samples, use professional judgement to qualify non-detects as "R" and positive hits as "J" in the samples that show the same matrix spike problem in the chromatogram.

Module 6 Quiz 1

1.	Sample CRQL	10
	Qualified result	10U
2.	Sample CRQL	10
	Qualified result	50U
3.	Sample CRQL	10
	Qualified result	65
4.	Sample CRQL	10
	Qualified result	12U
5.	Sample CRQL	10
	Qualified result	23
6.	Sample CRQL	30
	Qualified result	30U
7.	Sample CRQL	12
	Qualified result	12U
8.	Sample CRQL	36
	Qualified result	160
9.	Sample CRQL	15
	Qualified result	38U
10.	Sample CRQL	38
	Qualified result	40U
11.	Sample CRQL	22
	Qualified result	25
12.	Sample CRQL	12
	Qualified result	12U

Module 6 Quiz 2

Sample BBJ60 is associated with method blank VBLKJH. The following method blank contaminants were qualified in the sample:
Acetone 85U, Methylene chloride 52U, Toluene 14U.
No action taken on 2-butanone since concentration is > 10 x MB.

Sample BBH62 is associated with method blank VBLKDS. The following method blank contaminants were qualified in the sample:
Acetone 83U, ethylbenzene 10U, Xylene 14U
No action taken on methylene chloride since concentration is > 10 x MB.

Sample BBJ60 is associated with method blank VBLKJH, storage blank VHBLK01 and trip blank BPL01.

The following method blank contaminants were qualified in the sample:
Acetone 85U, Methylene chloride 52U, Toluene 14U.

The following storage blank contaminants were qualified in the sample:
2-butanone 23U, carbon tetrachloride 10U, 2-hexanone 23U

The following trip blank contaminants were qualified in the sample:
4-methyl-2-pentanone 14U, 1,2 dichlorobenzene 36U.

Sample BPH62 is associated with method blank VBLKDS, storage blank VHBLK01 and rinse blank BPL04.

The following method blank contaminants were qualified in the sample:
Acetone 83U, ethylbenzene 10U, Xylene 14U

The following storage blank contaminants were qualified in the sample:
Chloromethane 22U, Toluene 11U

The following rinse blank contaminants were qualified in the sample:
Methylene chloride 54U, Benzene 20U.

Module 7 Quiz 1

Using the raw data provided for each of the three samples, fill in the % Relative abundance for each m/e.

Tune 1

M/e	Ion abundance criteria	% Relative abundance	
50	8.0 - 40.0% of mass 95	36.8	
75	30.0 - 66.0% of mass 95	55.6	
95	Base peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	4.9	
173	Less than 2.0% of mass 174	0.29	(0.29)1
174	50.0 - 120.0% of mass 95	99.9	
175	4.0 - 9.0% of mass 174	9.3	(9.3)1
176	93.0 - 101.0% of mass 174	99.0	(98.9)1
177	5.0 - 9.0% of mass 176	5.1	(5.1)2

1-Value is % mass 174 2-Value is % mass 176

Tune 2

M/e	Ion abundance criteria	% Relative abundance	
50	8.0 - 40.0% of mass 95	4.7	
75	30.0 - 66.0% of mass 95	23.1	
95	Base peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	2.6	
173	Less than 2.0% of mass 174	0.06	(0.31)1
174	50.0 - 120.0% of mass 95	36.4	
175	4.0 - 9.0% of mass 174	8.4	(23.1)1
176	93.0 - 101.0% of mass 174	20.6	(56.6)1
177	5.0 - 9.0% of mass 176	6.6	(31.8)2

1-Value is % mass 174 2-Value is % mass 176

Tune 3

M/e	Ion abundance criteria	% Relative abundance	
50	8.0 - 40.0% of mass 95	19.0	
75	30.0 - 66.0% of mass 95	50.0	
95	Base peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	3.8	
173	Less than 2.0% of mass 174	0.07	(0.07)1
174	50.0 - 120.0% of mass 95	82.3	
175	4.0 - 9.0% of mass 174	5.8	(7.1)1
176	93.0 - 101.0% of mass 174	103	(125.3)1
177	5.0 - 9.0% of mass 176	3.7	(3.6)2

1-Value is % mass 174 2-Value is % mass 176

Module 7 Quiz 2

Sequence 1- Last sample was analyzed outside 12-hour clock.

Sequence 2- Mid level standard was analyzed before the tune was analyzed.

Sequence 3- Method Blank must be analyzed after all standards and before all samples are analyzed.

Sequence 4- Wrong standard level.

Module 7 Quiz 3

The actual Form 1s for the samples are not present in the answer section. All actions are detailed below and must be added to the forms.

Data Assessment

Instrument Performance (Tune)

Tune injected on 02/02/01 at 17.54 failed criteria. Samples VBLKLX, BPH50, BPH51 and initial calibration associated with this tune are not acceptable. All analytes are qualified as "R"*.
*The "R" action is the current Region 2 policy. There is a trend to reconsider the samples on an individual basis used the Internal Standards results and chromatograms as guidance to accept the samples.

Note: Continuing calibration analyzed 02/05/01 at 15.23 that passed tune criteria, is associated with the initial calibration analyzed on 02/02/01 that is associated with an invalid tune. Since the tune for the continuing calibration passed criteria, professional judgement not to take additional action against samples associated with the continuing calibration.

Sample BPH51 was analyzed outside 12 hours of injection of the tune. Sample should have been reanalyzed within 12-hour window. Sample was already rejected for invalid tune.

VHBLKTT was not analyzed at the end after analysis of all samples in the SDG. Last sample in the SDG was analyzed 02/10/01. Samples analyzed after 02/05/01 could possibly contain laboratory contaminants that can not be verified and used to qualify low level analytes in samples.

VBLKLL was not analyzed after the continuing calibration and before any sample analysis. Professional judgement the effect on the data was considered to be negligible, therefore no action taken on sample analyzed before this method blank.

Contract Non-Compliance

Tune injected on 02/02/01 at 17.54 failed criteria. The lab did not reanalyze the samples with a valid tune as required by the SOW.

Sample BPH51 was analyzed outside 12 hours of injection of the tune. Sample should have been reanalyzed within 12-hour window.

VHBLKTT was not analyzed at the end after analysis of all samples in the SDG. Last sample in the SDG was analyzed 02/10/01.

VBLKLL was not analyzed after the continuing calibration and before any sample analysis.

BFB Injection Date: __02/02/01_____ BFB Injection Time: __1754

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	19.9
75	30.0- 66.0% of mass 95	50.3
95	Base peak, 100% relative abundance	100.0
96	5.0- 9.0% of mass 95	6.2
173	Less than 2.0% mass 174	0.0(0.0)1
174	50.0- 120.0% of mass 95	41.4
175	4.0- 9.0% of mass 174	6.2 (14.9)1
176	93.0- 101.0% of mass 174	82.6(199.5)1
177	5.0- 9.0% of mass 176	5.5(6.6)2

1- Value is % mass 174 2- Value is % mass 176

BFB Injection Date: __02/05/01_____ BFB Injection Time: __1429_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	22.0
75	30.0- 66.0% of mass 95	51.7
95	Base peak, 100% relative abundance	100.00
96	5.0- 9.0% of mass 95	6.6
173	Less than 2.0% mass 174	0.0 (0.0)1
174	50.0- 120.0% of mass 95	77.6
175	4.0- 9.0% of mass 174	5.7 (7.4)1
176	93.0- 101.0% of mass 174	73.4 (94.5)1
177	5.0- 9.0% of mass 176	5.1 (6.95)2

1- Value is % mass 174 2- Value is % mass 176

BFB Injection Date: __02/07/01_____ BFB Injection Time: __0843_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	13.7
75	30.0- 66.0% of mass 95	37.5
95	Base peak, 100% relative abundance	100.00
96	5.0- 9.0% of mass 95	6.5
173	Less than 2.0% mass 174	1.08 (1.57)1
174	50.0- 120.0% of mass 95	70.9
175	4.0- 9.0% of mass 174	4.85 (6.85)1
176	93.0- 101.0% of mass 174	68.8 (97.0)1
177	5.0- 9.0% of mass 176	4.3 (6.2)2

1- Value is % mass 174 2- Value is % mass 176

BFB Injection Date: __02/10/01_____ BFB Injection Time: __0827_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	15.2
75	30.0- 66.0% of mass 95	40.3
95	Base peak, 100% relative abundance	100.00
96	5.0- 9.0% of mass 95	6.7
173	Less than 2.0% mass 174	0.34 (0.57)1
174	50.0- 120.0% of mass 95	62.4
175	4.0- 9.0% of mass 174	4.4 (7.07)1
176	93.0- 101.0% of mass 174	59.4 (95.2)1
177	5.0- 9.0% of mass 176	3.77 (6.35)2

1- Value is % mass 174 2- Value is % mass 176

Module 7 Quiz 4

Sample	1	2	3
Matrix	water	water	water
volume	5	3	2.5
DF	2	1	1
adjusted CRQL	20	16.67	20
Reported CRQL	20	17	20

Sample	4	5	6
Matrix	Low level soil	Low level soil	Low level soil
Weight	3.5	0.9	5.9
DF	2	1	1
% moisture	57	23	14
adjusted CRQL	66.44	9.4	9.8
Reported CRQL	66	10	10

Sample	7	8	9
Matrix	Low level soil	water	Low level soil
Vol/wt	5.0	4	6.3
DF	5	3	2
% moisture	72		45
adjusted CRQL	178.6	37.5	28.86
Reported CRQL	180	38	29

Sample	10	11	12
Matrix	medium level soil	medium level soil	medium level soil
Weight	2.0	4.0	0.5
aliquot	50	100	75
DF	1	2	1
% moisture	33	25	72
adjusted CRQL	7761	3466	49523
Reported CRQL	7800	3500	50000

Sample	13	14	15
Matrix	medium level soil	medium level soil	medium level soil
Weight	3.0	1.0	2.5
aliquot	100	100	10
DF	1	1	1
% moisture	15	25	5
adjusted CRQL	2039	6933	21895
Reported CRQL	2000	6900	22000

Module 7 Quiz 5

Top number is the actual concentration. The bottom number is the reported concentration based on rounding and significant figures rules.

compounds	BGT67	MHY43	VGT23	NBG21	BXZ00	CFR99
Vinyl Chloride (actual conc.) (reported conc.)	43.1 43	86.05 86	26.97 27	91968 92000	36.06 36	11419 11000
Acetone	32.5 33	64.8 65	20.32 20	69281 69000	27.17 27	8602 8600
Methylene chloride	5.61 5.6	11.18 11	3.5 3.5	11950 12000	4.68 4.7	1483 1500
Carbon Tetrachloride	245.68 250	489.8 490	153.5 150	523478 520000	205.28 210	64996 65000
Benzene	12.02 12	23.96 24	7.52 7.5	25610 26000	10.04 10	3179 3200
toluene	110.6 110	220.44 220	69.10 69	235602 240000	92.39 92	29252 29000
2-Hexanone	204 200	406.78 410	127.5 128	434747 430000	170.48 170	53979 54000
Bromoform	349.41 350	696.7 700	218.4 220	744616 740000	292.00 292	92453 92000
1,2 dichlorobenzene	27.7 28	55.23 55	17.31 17	59028 59000	23.1 23	7329 7300

Module 8 Quiz 1,2,3

compounds	**RRF 10**	**RRF 20**	**RRF 50**	**RRF 100**	**RRF 200**	**Ave RRF**	**%RSD**
*Bromomethane	1.959	1.088	1.093	1.279	1.996	1.483	30.9
Acetone	0.076	0.084	0.060	0.058	0.041	0.064	26.3
*Chloroform	4.344	3.965	3.590	3.462	3.071	3.686	13.2
*Benzene	0.615	0.522	0.542	0.548	0.489	0.543	8.5
Cyclohexane	0.009	0.012	0.015	0.005	0.006	0.009	44.2
*Bromoform	0.322	0.522	0.627	1.048	0.492	0.602	45.2
*toluene	0.401	0.422	0.304	0.442	0.412	0.396	13.7
2-Hexanone	0.022	0.096	0.118	0.133	0.128	0.099	45.8
*1,2,4 Trichlorobenzene	0.303	0.298	0.235	0.212	0.187	0.247	20.9
Toluene-d8	1.094	1.097	1.179	1.097	1.099	1.113	3.3
*Bromofluorobenzene	0.927	0.968	1.030	0.975	0.827	0.945	8.0
1,2 Dichloroethane-d4	1.309	1.216	1.240	1.190	1.132	1.217	5.4

Module 8 Quiz 4

Technical Assessment

Samples associated with this initial calibration are qualified "J" for detects and no action for non-detects for the following analytes: Bromomethane, Cyclohexane*, Bromoform, 2-hexanone.
* Analyte qualified "R" for another criterion.

Cyclohexane failed RRF criteria (<0.05). Samples associated with this initial calibration are qualified "R" for non-detects and "J" for detects.

Contract Non-Compliance

Bromoform, a required analyte had a %RSD that failed SOW requirement of <40%.

Benzene, level 5 (0.489) did not meet SOW required minimum RRF of 0.500.

Toluene, level 3 (0.304) and average RRF (0.396) did not meet SOW required minimum RRF of 0.400.

Module 8 Quiz 5

Compounds	$\overline{RRF}$ 50	RRF 50	%D
*Bromomethane	1.483	0.782	-47.27
Acetone	0.064	0.04	-32.81
*Chloroform	3.686	3.98	8.03
*Benzene	0.543	0.578	6.45
Cyclohexane	0.009	0.010	11.11
*Bromoform	0.602	0.842	39.87
*Toluene	0.396	0.542	36.87
2-Hexanone	0.099	0.125	26.26
*1,2,4 Trichlorobenzene	0.247	0.258	4.45
Toluene-d8	1.113	1.128	1.35
*Bromofluorobenzene	0.945	1.652	74.81
1,2 Dichloroethane-d4	1.217	1.011	-16.93

Module 8 Quiz 6

Technical Problems

Samples associated with continuing calibration were qualified "J" for detects and "UJ for non-detects for the following analytes: Bromomethane, acetone*, Bromoform, Toluene and 2-hexanone. (Bromofluorobenzene is an IS and no action is required).
* Analyte qualified "R" for another criterion.

Samples associated with continuing calibration and RRF value < 0.05, were qualified "J" for detects and "R for non-detects for the following analytes: acetone and Cyclohexane.

Contract Non-Compliance

Bromomethane and Bromofluorobenzene failed required maximum %D of < 40.0%.

Module 8 Quiz 7

Technical Problems

Initial Calibration

2- hexanone- %RSD > 30%, RRF < 0.05, analyte in all samples associated with this calibration (including continuing calibrations) would be "R" for non-detects and "J" for detects. (RRF with a "R" which affects all analytes takes precedent over %RSD that affects detects only with a "J".)

Continuing Calibration

4-methyl-2-pentanone- RRF < 0.05 and %RSD >90%, "R" for non-detects and "J" for detects for all samples associated with this continuing calibration.

1,2 dibromo-3-chloropropane- RRF < 0.05, "R" for non-detects and "J" for detects, %RSD >30% would be "J" for all samples for all samples associated with this continuing calibration. (RRF with a "R" which affects all analytes takes precedent over %RSD with a "J".)

Methylene chloride %D > 90%, "R" all non-detects and "J" detects for all samples associated with this continuing calibration.

Dichlorodifluoromethane, Chloromethane, acetone, 1,1 Dichloroethane, 2-butanone, 2-hexanone,- %D >30%, "J" detects and non-detects for all samples associated with this continuing calibration.

Contract Problems

Continuing Calibration
Trichloroethene- RRF < than contract required minimum RRF of 0.300.

1,1 Dichloroethane, Trichloroethene- %D > 40% for an analyte with a contract required %D of <40.0 and RRF >0.010.

BBJ60- The following analytes associated with IS 1 were qualified "R" for non-detects and detects were qualified as "J":
"R"- Dichlorodifluoromethane, Chloromethane, Vinyl Chloride, Bromomethane, Chloroethane, Trichlorofluoromethane, 1,1 Dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, Carbon Disulfide, Methyl Acetate, Trans-1,2-Dichloroethene, Methyl-tert-Butyl Ether, 1,1 Dichloroethane, Cis- Dichloroethene, Chloroform, 1,2 Dichloroethane

"J"- Acetone, Methylene Chloride, 2-Butanone.

The following analytes associated with IS 2 and 3 were qualified as **"J"** for non-detects and detects:
IS-2
1,1,1-Trichloroethane, Cyclohexane, Carbon Tetrachloride, Benzene, Trichloroethene, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane, Cis-1,3-Dichloropropene, Trans-1,3 Dichloropropene, 1,1,2 Trichloroethane, Dibromochloromethane, Bromoform

IS-3
4-Methyl-2-pentanone, Toluene, Tetrachloroethene, 2-Hexanone, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, Xylene (total), Styrene, Isopropylbenzene, 1,1,2,2-Tetrachloroethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2 Dichlorobenzene,
1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene

BPL04- The following analytes associated with IS 2 were qualified as "J" for detects only:
Benzene

BXZ26- The following analytes associated with IS 1 were qualified "R" for non-detects and detects were qualified as "J":

"R"- Dichlorodifluoromethane, Chloromethane, Vinyl Chloride, Bromomethane, Chloroethane, Trichlorofluoromethane, 1,1 Dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, Carbon Disulfide, Methyl Acetate, Trans-1,2-Dichloroethene, Methyl-tert-Butyl Ether, 1,1 Dichloroethane, Cis- Dichloroethene, 2-Butanone, Chloroform, 1,2 Dichloroethane

"J"- Acetone, Methylene Chloride,

The following analytes associated with IS 2 and 3 were qualified as "J" for detects only:
IS-2- Benzene,
IS-3- 4-Methyl-2-pentanone, 2-Hexanone, Ethylbenzene, 1,2,4-Trichlorobenzene

BNR68- The following analytes associated with IS 1 were qualified as "J" for detects only:
Acetone, Methyl Acetate, Methylene Chloride.

BNR68MSD- The following analytes associated with IS 1 and 2 were qualified as **"J"** for non-detects and detects:
IS 1
Dichlorodifluoromethane, Chloromethane, Vinyl Chloride, Bromomethane, Chloroethane, Trichlorofluoromethane, 1,1 Dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, Acetone, Carbon Disulfide, Methyl Acetate, Methylene Chloride, Trans-1,2-Dichloroethene, Methyl-tert-Butyl Ether, 1,1 Dichloroethane, Cis- Dichloroethene, 2-Butanone, Chloroform, 1,2 Dichloroethane

IS-2
1,1,1-Trichloroethane, Cyclohexane, Carbon Tetrachloride, Benzene, Trichloroethene, Methylcyclohexane, 1,2-Dichloropropane,
Bromodichloromethane, Cis-1,3-Dichloropropene, Trans-1,3 Dichloropropene, 1,1,2 Trichloroethane, Dibromochloromethane, Bromoform

Module 10 Quiz 1

1. Bromoform	Sample 1 = 34	Sample 2 = 15	RPD = 77.5
2. Acetone	Sample 1 = 23	Sample 2 = 12	RPD = 62.8
3. Chloromethane	Sample 1 = 45	Sample 2 = 15	RPD = 100
4. Toluene	Sample 1 = 5	Sample 2 = 20	RPD = 120
5. Methylene chloride	Sample 1 = 145	Sample 2 = 167	RPD = 14.1
6. Benzene	Sample 1 = 85	Sample 2 = 63	RPD = 29.7
7. 2-hexanone	Sample 1 = 220	Sample 2 = 345	RPD = 44.2
8. xylenes	Sample 1 = 63	Sample 2 = 24	RPD = 89.6
9. 2-butanone	Sample 1 = 72	Sample 2 = 58	RPD = 21.5
10. Trichloroethene	Sample 1 = 91	Sample 2 = 79	RPD = 14.1

Module 11 Quiz 1

1. No action, cooler temperature is < 10 ˚C.

2. All analytes are qualified as "J" for detects and "UJ" for non-detects due to cooler temperature > 10 ˚C.

3. No action, cooler temperature is < 10 ˚C.

4. All analytes are qualified as "J" for detects and "UJ" for non-detects due to Percent moisture > 50%.

5. All analytes are qualified as "J" for detects and "UJ" for non-detects due to cooler temperature > 10 ˚C.

Module 11 Quiz 2

1. Extraction and analysis holding times for technical and contractual requirements were met.

2. Extraction holding time was exceeded by 2 days. All analytes are qualified as "J" for detects and "UJ" for non-detects. Extraction holding time for contractual requirements was met. Analysis holding times for technical and contractual requirements were met.

3. Extraction and analysis holding times for technical and contractual requirements were met. Analysis holding times for technical and contractual requirements were met (analyzed on 33rd day).

4. Extraction holding time was exceeded by 5 days. All analytes are qualified as "J" for detects and "UJ" for non-detects. Extraction holding time for contractual requirements was met. Analysis holding times for technical and contractual requirements were met.

5. Extraction holding time was exceeded by 2 days. All analytes are qualified as "J" for detects and "UJ" for non-detects. Extraction holding time for contractual requirements was met. Analysis holding times for technical and contractual requirements were met.

Module 11 Quiz 3

BXD01 met extraction holding time for technical and contract criteria. Analysis holding time (40 days) for technical and contractual* was exceeded by 5 days. All analytes were qualified as "J" for detects and "UJ" for non-detects.

Module 11 Quiz 4

Sample BDR40 met extraction and analysis holding times for technical and contract criteria.

Module 11 Quiz 5

Sample BXZ20 did not meet technical and contractual* criteria for extraction holding times. All analytes were qualified as "J" for detects and "UJ" for non-detects. Analysis holding time for technical and contract requirements was met.

*All contractual problems must also be documented in the Contract Non-Compliance section of the Data Assessment.

Sample BBJ60	Concentration
2-Fluorophenol	38.52
Phenol-d_5	44.74
2-Chlorophenol- d_4	44.42
1,2-Dichlorobenzene- d_4	23.96
Nitrobenzene-d_5	25.42
2-Fluorobiphenyl	28.53
2,4,6 Tribromophenol	41.16
Terphenyl- d_{14}	31.03

Sample BPH71	Concentration
2-Fluorophenol	661.3
Phenol-d_5	645.3
2-Chlorophenol- d_4	693.1
1,2-Dichlorobenzene- d_4	321.6
Nitrobenzene-d_5	440.3
2-Fluorobiphenyl	401.4
2,4,6 Tribromophenol	633.3
Terphenyl- d_{14}	577.8

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKMR	78	76	78	83	76	74	83	64	0
2.	BBJ60	56	63	68	66	56	60	65	53	0

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKAM	39	40	46	40	44	39	41	39	0
2.	BPH71	25	22	32	24	25	24	26	18	2

Module 12 Quiz 2

Sample 1

Two base-neutral SMC are above the upper limits, positive hits for base-neutral analytes are qualified as "J". No action for non-detects.

One advisory acid SMC is below 10%. Using professional judgement, all acid analytes are qualified as "J" for detects and "R" for non-detects.

OR

One advisory acid SMC is below 10%. Using professional judgement, no action was taken on acid fraction analytes.

Sample 2

Three acid SMC are above the upper limits, positive hits for acid analytes are qualified as "J". No action for non-detects.

Only one base-neutral SMC is above upper limits therefore no action is required.

Sample 3

Only one base-neutral SMC is above upper limits therefore no action is required.

Module 12 Quiz 3

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKWA	85	75	95	78	65	88	93	69	0
2.	BBJ60	58	**30 ***	**37 ***	72	66	74	71	58	2

S1 (NBZ) = Nitrobenzene-d5
S2 (FBP) = 2-Fluorobiphenyl
S3 (TPH) = Terphenyl-d14
S4 (PHL) = Phenol-d5
S5 (2FP) = 2-Fluorophenol
S6 (TBP) = 2,4,6 Tribromophenol
S7 (2CP) = 2-Chlorophenol-d4
S8 (DCB) = 1,2 Dichlorobenzene-d4

BBJ60-Actual values calculated for the quant report and used to obtain SMC recovery values

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.33	8.332	321408	40.0	
* Naphthalene-d_8	136	11.20	11.203	921571	40.0	
* Acenaphthene-d_{10}	164	14.71	14.733	491806	40.0	
* Phenanthrene-d_{10}	188	19.05	19.057	853004	40.0	
* Chrysene-d_{12}	240	24.66	24.681	827565	40.0	
* Perylene- d_{12}	264	27.29	27.299	746961	40.0	
$ 2-Fluorophenol	112	5.81	5.849	934000	99.44	46.04
$ Phenol-d_5	99	7.85	7.859	1209257	107.27	49.66
$ 2-Chlorophenol- d_4	132	7.95	7.960	1110790	107.02	49.54
$ 1,2-Dichlorobenzene- d_4	152	8.75	8.754	429290	57.57	26.65
$ Nitrobenzene-d_5	82	9.732	9.734	744602	58.46	27.06
$ 2-Fluorobiphenyl	172	13.26	13.264	534140	32.71	15.14
$ 2,4,6 Tribromophenol	330	17.28	17.283	371731	110.38	51.10
$ Terphenyl- d_{14}	244	22.68	22.688	788225	39.94	18.49

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

low

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKSA	77	75	64	57	67	84	66	57	0
2.	BPH62	**122 ***	50	65	**117 ***	48	54	54	49	2

BPH62- Actual values calculated for the quant report and used to obtain SMC recovery values

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.33	8.982	58056	40.0	
* Naphthalene-d_8	136	11.20	11.283	177486	40.0	
* Acenaphthene-d_{10}	164	14.71	14.582	120412	40.0	
* Phenanthrene-d_{10}	188	19.05	18.084	207492	40.0	
* Chrysene-d_{12}	240	24.66	23.430	234347	40.0	
* Perylene- d_{12}	264	27.29	26.103	213267	40.0	
$ 2-Fluorophenol	112	5.81	6.732	108125	72.52	1300
$ Phenol-d_5	99	7.85	8.339	309754	175.08	3138
$ 2-Chlorophenol- d_4	132	7.95	8.593	129964	81.65	1463
$ 1,2-Dichlorobenzene- d_4	152	8.75	9.253	62306	49.17	881.2
$ Nitrobenzene-d_5	82	9.73	9.980	238533	121.90	2185

$ 2-Fluorobiphenyl	172	13.26	13.313	203555	49.55	888.0
$ 2,4,6 Tribromophenol	330	17.28	16.138	122853	81.42	1459
$ Terphenyl- d_{14}	244	22.68	21.620	329678	65.42	1172

med

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKSB	74	54	38	44	45	35	50	51	0
2.	BNR68	**21 ***	**26 ***	70	47	42	**6 ***	50	34	3

S1 (NBZ) = Nitrobenzene-d5 S2 (FBP) = 2-Fluorobiphenyl
S3 (TPH) = Terphenyl-d14 S4 (PHL) = Phenol-d5
S5 (2FP) = 2-Fluorophenol S6 (TBP) = 2,4,6 Tribromophenol
S7 (2CP) = 2-Chlorophenol-d4 S8 (DCB) = 1,2 Dichlorobenzene-d4

BNR68- Actual values calculated for the quant report and used to obtain SMC recovery values

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.98	8.982	61430	40.0	
* Naphthalene-d_8	136	11.28	11.283	184227	40.0	
* Acenaphthene-d_{10}	164	14.56	14.582	125771	40.0	
* Phenanthrene-d_{10}	188	18.06	18.084	218345	40.0	
* Chrysene-d_{12}	240	23.41	23.430	231657	40.0	
* Perylene- d_{12}	264	26.10	26.103	208092	40.0	
$ 2-Fluorophenol	112	6.73	6.732	98998	62.75	33717
$ Phenol-d_5	99	8.33	8.339	132402	70.73	38035
$ 2-Chlorophenol- d_4	132	8.57	8.593	126486	75.10	40385
$ 1,2-Dichlorobenzene- d_4	152	9.25	9.253	45270	33.76	18155
$ Nitrobenzene-d_5	82	9.96	9.980	42033	20.69	11126
$ 2-Fluorobiphenyl	172	13.31	13.313	112034	26.10	14034
$ 2,4,6 Tribromophenol	330	16.13	16.138	13657	8.60	4622
$ Terphenyl- d_{14}	244	21.61	21.620	348030	69.87	37573

Module 13 Quiz 1

1. Water sample, 1000 mL

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
Phenol	**75.00**	0	46.94	**63**	42.58	**57**	**10**	42	12-110
2-chlorophenol	**75.00**	0	48.99	**65**	44.06	**59**	**10**	40	27-123
N-Nitroso-di-n-propylamine	**50.00**	0	36.09	**72**	32.48	**65**	**10**	38	41-116
4-Chloro-3-methylphenol	**75.00**	0	53.25	**71**	50.67	**68**	**4**	42	23-97
Acenaphthene	**50.00**	0	36.13	**72**	32.81	**66**	**9**	31	46-118
4-Nitrophenol	**75.00**	0	50.44	**67**	40.45	**54**	**21**	50	10-80
2,4-Dinitrotoluene	**50.00**	0	44.34	**89**	35.36	**71**	**23**	38	24-96
Pentachlorophenol	**75.00**	0	60.72	**81**	53.35	**71**	**13**	50	9-103
Pyrene	**50.00**	0	37.66	**75**	33.99	**68**	**10**	31	26-127

2. Low level soil sample, 30 g, 23% moisture

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
Phenol	**3247**	0	1519	**47**	1722	**53**	**12**	35	26-90
2-chlorophenol	**3247**	0	1621	**50**	1814	**56**	**11**	50	25-102
N-Nitroso-di-n-propylamine	**2165**	0	1224	**57**	1215	**56**	**2**	38	41-126
4-Chloro-3-methylphenol	**3247**	0	1686	**52**	1542	**47**	**10**	33	26-103
Acenaphthene	**2165**	0	1175	**54**	1211	**56**	**4**	19	31-137
4-Nitrophenol	**3247**	0	1613	**50**	1794	**55**	**10**	50	11-114
2,4-Dinitrotoluene	**2165**	0	1018	**47**	1187	**55**	**16**	47	28-89
Pentachlorophenol	**3247**	0	1977	**61**	2168	**67**	**9**	47	17-109
Pyrene	**2165**	0	1325	**61**	1339	**62**	**2**	36	35-142

Module 14 Quiz 1

(Value in parenthesis is actual CRQL before rounding)

1. Matrix water 1000 mL
   Butylbenzylphthalate
   Sample CRQL 10
   Qualified Result 10U

2. Matrix water 650 mL
   2-chlorophenol
   Sample CRQL 15
   Qualified Result 50U

3. Matrix water 970 mL
   4-chloroaniline
   Sample CRQL 10
   Qualified Result 65

4. Matrix water 890 mL
   2,4,5 Trichlorophenol
   Sample CRQL 28
   Qualified Result 28U

5. Matrix water 1000 mL
   Bis (2-ethyl-hexyl) phthalate
   Sample CRQL 10
   Qualified Result 23U

6. Matrix water 990 mL
   Pentachlorophenol
   Sample CRQL 75
   Qualified Result 75U

7. Matrix soil 30 g
   Isophorone
   Sample CRQL 390 (388)
   Qualified Result 420u

8. Matrix soil 30 g
   Benzo (g,h,i) perylene
   Sample CRQL 1200
   Qualified Result 7600

9. Matrix soil 30 g
   Benzo (b) fluoranthene
   Sample CRQL 510 (507)
   Qualified Result 510U

10. Matrix soil 30 g
    Di-n-octylphthalate
    Sample CRQL 2100 (2062)
    Qualified Result 2100U

11. Matrix soil 30 g
    4,6 dinitro-2-methylphenol
    Sample CRQL 1800 (1804)
    Qualified Result 1800U

12. Matrix soil 30 g
    Carbazole
    Sample CRQL 390 (388)
    Qualified Result 390U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ66

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: ___1080_____(g/mL) __mL_____ Lab File ID: _BBB00-15AB_____

Level: (low/med) ___Low_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: _02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: __1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	2	J
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	**10**	**U**
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	20	**U**
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	50	
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	**10**	**U**

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ66

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: ___1080_____(g/mL) __mL_____ Lab File ID: _BBB00-15AB_____

Level: (low/med) ___Low_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: _02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: __1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	**180**	**U**
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	**65**	**U**
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	**28**	**U**
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.
BPH62

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __SOIL_____ Lab Sample ID: _BBBOO-10_____

Sample wt/vol: ___30.0_____(g/mL) ____G_____ Lab File ID: _BBB00-10AB_____

Level: (low/med) ____LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) ___N____ Date Extracted: _02/12/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: _02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N) __Y_____ pH: __6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
100-52-7	Benzaldehyde	350	U
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)ether	350	U
95-57-8	2-Chlorophenol	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
98-86-2	Acetophenone	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	350	U
67-72-1	Hexachloroethane	**500**	**U**
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	**330**	**U**
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
105-60-2	Caprolactam	3800	
59-50-7	4-Chloro-3-methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	890	U
92-52-4	1,1 Biphenyl	350	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	890	U
131-11-3	Dimethylphthalate	350	U
606-20-2	2,6-Dinitrotoluene	350	U
208-96-8	Acenaphthylene	350	U
99-09-2	3-Nitroaniline	890	U
83-32-9	Acenaphthene	350	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPH62

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __SOIL_____ Lab Sample ID: _BBBOO-10_____

Sample wt/vol: ___30.0_____(g/mL) ____G_____ Lab File ID: _BBB00-10AB_____

Level: (low/med) ____LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) ___N____ Date Extracted: _02/12/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: _02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N) __Y_____ pH: __6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _____	Q
51-28-5	2,4-Dinitrophenol	890	U
100-02-7	4-Nitrophenol	890	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	2500	
86-73-7	Fluorene	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
100-01-6	4-Nitroaniline	890	U
534-52-1	4,6-Dinitro-2-methylphenol	890	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
1912-24-9	Atrazine	350	U
87-86-5	Pentachlorophenol	640	J
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	330	J
84-74-2	Di-n-butylphthalate	4000	
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	2000	
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenz(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1) Cannot be separated from Diphenylamine

Module 14 Quiz 3

1G

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
BBJ66

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00_

Matrix: (soil/water) __water_____ Lab Sample ID: __BBB00-15_____

Sample wt/vol: ____1000_____(g/mL) __mL_____ Lab File ID: __BBB00-15AB_____

Level: (low/med) ___LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: ___1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) __N_____ pH: _____ Extraction: (Type) ____CONT_____
Number TICs found: ___4_____ CONCENTRATION UNITS
(lg/L or lg/Kg) __UG/L_____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	14.54	11	NJ
2.	Unknown	15.88	14	**R**
3.	Unknown Amide	17.13	10	**R**
4. 57-10-3	Hexadecanoic acid	18.52	25	NJ
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

FORM I SV-TIC OLM04.2

Module 15 Quiz 1

Tune 1

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	41.9
68	Less than 2.0% of mass 69	3.3 (12.2)1
69	Mass 69 relative abundance	27.2
70	Less than 2.0% of mass 69	0.3 (1.2)1
127	25.0-75.0% of mass 198	41.8
197	Less than 1.0% of mass 198	0.5
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	8.2
275	10.0-30.0% of mass 198	25.6
365	Greater than 0.75% of mass 198	1.1
441	Present, but less than mass 443	9.0
442	40.0-110.0% of mass 198	119.8
443	15.0-24.0% of mass 442	12.6 (10.5)2

1-value is % mass 69 2-Value is % mass 442

Tune -2

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	31.4
68	Less than 2.0% of mass 69	0.6 (1.2)1
69	Mass 69 relative abundance	48.0
70	Less than 2.0% of mass 69	0.6 (1.3)1
127	25.0-75.0% of mass 198	66.1
197	Less than 1.0% of mass 198	0.7
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	8.6
275	10.0-30.0% of mass 198	23.1
365	Greater than 0.75% of mass 198	1.2
441	Present, but less than mass 443	16.7
442	40.0-110.0% of mass 198	103.5
443	15.0-24.0% of mass 442	29.1 (28.1)2

1-value is % mass 69 2-Value is % mass 442

Tune 3

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	20.1
68	Less than 2.0% of mass 69	0.3 (0.7)1
69	Mass 69 relative abundance	33.9
70	Less than 2.0% of mass 69	0.4 (1.2)1
127	25.0-75.0% of mass 198	73.4
197	Less than 1.0% of mass 198	0.9
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	6.4
275	10.0-30.0% of mass 198	25.8
365	Greater than 0.75% of mass 198	0.9
441	Present, but less than mass 443	12
442	40.0-110.0% of mass 198	82.8
443	15.0-24.0% of mass 442	17.3 (20.9)2

1-value is % mass 69 2-Value is % mass 442

Module 15 Quiz 2

Sequence 1

DFTPP injection Date: 02-14-01 DFTPP injection time 1224

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0501B	02-14-01	1319
SSTD0201B	02-14-01	1355
SSTD0801B	02-14-01	1435
SSTD1201B	02-14-01	1510
SSTD1601B	02-14-01	1550
SBLK85	02-14-01	1620
BFG65	02-14-01	1824
KJY34	02-15-01	0124

Sample KJY34 was analyzed 1 hour passed 12 hour clock (0024)

Sequence 2

DFTPP injection Date: 02-14-01 DFTPP injection time 0854

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0501B	02-14-01	0814
SLK22	02-14-01	1015
KJI76	02-14-01	1055
KJY66	02-14-01	1955

Standard injected before tune.

Sequence 3

DFTPP injection Date: 02-04-01 DFTPP injection time 1544

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0501B	02-04-01	1620
SSTD0101B	02-04-01	1700
SSTD0201B	02-04-01	1735
SSTD1001B	02-04-01	1845
SSTD2001B	02-04-01	2045
GTR56	02-05-01	0023
SBLK76	02-05-01	0340

No problems.

Sequence 4

DFTPP injection Date: 02-22-01 DFTPP injection time 1824

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0201B	02-22-01	1800
GFD54	02-22-01	1837
GFT56	02-22-01	1905
GTY78	02-22-01	1940

Standard injected before tune. Need to check other sequence to verify a method blank for these samples was analyzed.

Module 15 Quiz 3

Data Assessment

Instrument Performance section

Tune analyzed on 02/08 at 1448 failed ion abundance criterion for m/e 197. Associated samples SBLKSA and SBLKWA were "R" for non-detects analytes and "J" for detects.

BPL04 was analyzed outside the 12-hour clock window. Analytes were "R" for non-detects analytes and "J" for detects.

Contract-Non-Compliance section

Tune analyzed on 02/08 at 1448 failed ion abundance criterion for m/e 197. Associated samples should have been re-analyzed on a passing tune.

BPL04 was analyzed outside the 12-hour clock window. Sample should have been re-analyzed within acceptable 12-hour clock window.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: ____1080_____(g/mL) __ML_____ Lab File ID: __BBB00-21RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
100-52-7	Benzaldehyde	10	**R**
108-95-2	Phenol	10	**R**
111-44-4	bis(2-Chloroethyl)ether	10	**R**
95-57-8	2-Chlorophenol	10	**R**
95-48-7	2-Methylphenol	10	**R**
108-60-1	2,2'-oxybis(1-Chloropropane)	10	**R**
98-86-2	Acetophenone	10	**R**
106-44-5	4-Methylphenol	10	**R**
621-64-7	N-Nitroso-di-n-propylamine	10	**R**
67-72-1	Hexachloroethane	10	**R**
98-95-3	Nitrobenzene	10	**R**
78-59-1	Isophorone	100	**J**
88-75-5	2-Nitrophenol	10	**R**
105-67-9	2,4-Dimethylphenol	10	**R**
111-91-1	bis(2-Chloroethoxy)methane	10	**R**
120-83-2	2,4-Dichlorophenol	10	**R**
91-20-3	Naphthalene	10	**R**
106-47-8	4-Chloroaniline	10	**R**
87-68-3	Hexachlorobutadiene	10	**R**
105-60-2	Caprolactam	10	**R**
59-50-7	4-Chloro-3-methylphenol	10	**R**
91-57-6	2-Methylnaphthalene	10	**R**
77-47-4	Hexachlorocyclopentadiene	10	**R**
88-06-2	2,4,6-Trichlorophenol	10	**R**
95-95-4	2,4,5-Trichlorophenol	25	**R**
92-52-4	1,1 Biphenyl	10	**R**
91-58-7	2-Chloronaphthalene	10	**R**
88-74-4	2-Nitroaniline	25	**R**
131-11-3	Dimethylphthalate	10	**R**
606-20-2	2,6-Dinitrotoluene	10	**R**
208-96-8	Acenaphthylene	10	**R**
99-09-2	3-Nitroaniline	25	**R**
83-32-9	Acenaphthene	10	**R**

EPA SAMPLE NO.
BPL04

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: ____1080_____(g/mL) __ML_____ Lab File ID: __BBB00-21RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	**R**
100-02-7	4-Nitrophenol	25	**R**
132-64-9	Dibenzofuran	10	**R**
121-14-2	2,4-Dinitrotoluene	10	**R**
84-66-2	Diethylphthalate	10	**R**
86-73-7	Fluorene	10	**R**
7005-72-3	4-Chlorophenyl-phenylether	10	**R**
100-01-6	4-Nitroaniline	25	**R**
534-52-1	4,6-Dinitro-2-methylphenol	25	**R**
86-30-6	N-Nitrosodiphenylamine (1)	10	**R**
101-55-3	4-Bromophenyl-phenylether	10	**R**
118-74-1	Hexachlorobenzene	10	**R**
1912-24-9	Atrazine	10	**R**
87-86-5	Pentachlorophenol	20	**J**
85-01-8	Phenanthrene	10	**R**
120-12-7	Anthracene	10	**R**
86-74-8	Carbazole	10	**R**
84-74-2	Di-n-butylphthalate	10	**R**
206-44-0	Fluoranthene	10	**R**
129-00-0	Pyrene	10	**R**
85-68-7	Butylbenzylphthalate	10	**R**
91-94-1	3,3'-Dichlorobenzidine	10	**R**
56-55-3	Benzo(a)anthracene	10	**R**
218-01-9	Chrysene	10	**R**
117-81-7	bis(2-Ethylhexyl)phthalate	120	**J**
117-84-0	Di-n-octylphthalate	10	**R**
205-99-2	Benzo(b)fluoranthene	10	**R**
207-08-9	Benzo(k)fluoranthene	10	**R**
50-32-8	Benzo(a)pyrene	10	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	10	**R**
53-70-3	Dibenz(a,h)anthracene	10	**R**
191-24-2	Benzo(g,h,i)perylene	10	**R**

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.
SBLKSA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: _BBB00-MB1_____

Sample wt/vol: ____30_____(g/mL) __G_____ Lab File ID: __BBB00-MB1_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. __0_____ Decant: (Y/N) ___N____ Date Extracted: __02/12/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
100-52-7	Benzaldehyde	330	**R**
108-95-2	Phenol	330	**R**
111-44-4	bis(2-Chloroethyl)ether	330	**R**
95-57-8	2-Chlorophenol	330	**R**
95-48-7	2-Methylphenol	330	**R**
108-60-1	2,2'-oxybis(1-Chloropropane)	330	**R**
98-86-2	Acetophenone	330	**R**
106-44-5	4-Methylphenol	330	**R**
621-64-7	N-Nitroso-di-n-propylamine	330	**R**
67-72-1	Hexachloroethane	100	**J**
98-95-3	Nitrobenzene	330	**R**
78-59-1	Isophorone	330	**R**
88-75-5	2-Nitrophenol	330	**R**
105-67-9	2,4-Dimethylphenol	330	**R**
111-91-1	bis(2-Chloroethoxy)methane	330	**R**
120-83-2	2,4-Dichlorophenol	330	**R**
91-20-3	Naphthalene	330	**R**
106-47-8	4-Chloroaniline	330	**R**
87-68-3	Hexachlorobutadiene	330	**R**
105-60-2	Caprolactam	310	**J**
59-50-7	4-Chloro-3-methylphenol	330	**R**
91-57-6	2-Methylnaphthalene	330	**R**
77-47-4	Hexachlorocyclopentadiene	330	**R**
88-06-2	2,4,6-Trichlorophenol	330	**R**
95-95-4	2,4,5-Trichlorophenol	830	**R**
92-52-4	1,1 Biphenyl	330	**R**
91-58-7	2-Chloronaphthalene	330	**R**
88-74-4	2-Nitroaniline	830	**R**
131-11-3	Dimethylphthalate	330	**R**
606-20-2	2,6-Dinitrotoluene	330	**R**
208-96-8	Acenaphthylene	330	**R**
99-09-2	3-Nitroaniline	830	**R**
83-32-9	Acenaphthene	330	**R**

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLKSA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: _BBB00-MB1_____

Sample wt/vol: ____30_____(g/mL) __G_____ Lab File ID: __BBB00-MB1_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. __0_____ Decant: (Y/N) ___N____ Date Extracted: __02/12/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	830	**R**
100-02-7	4-Nitrophenol	830	**R**
132-64-9	Dibenzofuran	330	**R**
121-14-2	2,4-Dinitrotoluene	330	**R**
84-66-2	Diethylphthalate	200	**J**
86-73-7	Fluorene	330	**R**
7005-72-3	4-Chlorophenyl-phenylether	330	**R**
100-01-6	4-Nitroaniline	830	**R**
534-52-1	4,6-Dinitro-2-methylphenol	830	**R**
86-30-6	N-Nitrosodiphenylamine (1)	330	**R**
101-55-3	4-Bromophenyl-phenylether	330	**R**
118-74-1	Hexachlorobenzene	330	**R**
1912-24-9	Atrazine	330	**R**
87-86-5	Pentachlorophenol	830	**R**
85-01-8	Phenanthrene	330	**R**
120-12-7	Anthracene	330	**R**
86-74-8	Carbazole	50	**J**
84-74-2	Di-n-butylphthalate	100	**J**
206-44-0	Fluoranthene	330	**R**
129-00-0	Pyrene	330	**R**
85-68-7	Butylbenzylphthalate	330	**R**
91-94-1	3,3'-Dichlorobenzidine	330	**R**
56-55-3	Benzo(a)anthracene	330	**R**
218-01-9	Chrysene	330	**R**
117-81-7	bis(2-Ethylhexyl)phthalate	330	**R**
117-84-0	Di-n-octylphthalate	400	**J**
205-99-2	Benzo(b)fluoranthene	330	**R**
207-08-9	Benzo(k)fluoranthene	330	**R**
50-32-8	Benzo(a)pyrene	330	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	330	**R**
53-70-3	Dibenz(a,h)anthracene	330	**R**
191-24-2	Benzo(g,h,i)perylene	330	**R**

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.
SBLKWA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-MB2_____

Sample wt/vol: ____1000_____(g/mL) __ML_____ Lab File ID: __BBB00-MB2_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _____	Q
100-52-7	Benzaldehyde	10	**R**
108-95-2	Phenol	10	**R**
111-44-4	bis(2-Chloroethyl)ether	10	**R**
95-57-8	2-Chlorophenol	10	**R**
95-48-7	2-Methylphenol	10	**R**
108-60-1	2,2'-oxybis(1-Chloropropane)	10	**R**
98-86-2	Acetophenone	10	**R**
106-44-5	4-Methylphenol	10	**R**
621-64-7	N-Nitroso-di-n-propylamine	10	**R**
67-72-1	Hexachloroethane	10	**R**
98-95-3	Nitrobenzene	10	**R**
78-59-1	Isophorone	10	**R**
88-75-5	2-Nitrophenol	10	**R**
105-67-9	2,4-Dimethylphenol	10	**R**
111-91-1	bis(2-Chloroethoxy)methane	10	**R**
120-83-2	2,4-Dichlorophenol	10	**R**
91-20-3	Naphthalene	5	**J**
106-47-8	4-Chloroaniline	10	**R**
87-68-3	Hexachlorobutadiene	10	**R**
105-60-2	Caprolactam	10	**R**
59-50-7	4-Chloro-3-methylphenol	10	**R**
91-57-6	2-Methylnaphthalene	10	**R**
77-47-4	Hexachlorocyclopentadiene	10	**R**
88-06-2	2,4,6-Trichlorophenol	10	**R**
95-95-4	2,4,5-Trichlorophenol	25	**R**
92-52-4	1,1 Biphenyl	8	**J**
91-58-7	2-Chloronaphthalene	10	**R**
88-74-4	2-Nitroaniline	25	**R**
131-11-3	Dimethylphthalate	10	**R**
606-20-2	2,6-Dinitrotoluene	10	**R**
208-96-8	Acenaphthylene	10	**R**
99-09-2	3-Nitroaniline	25	**R**
83-32-9	Acenaphthene	10	**R**

EPA SAMPLE NO.
SBLKWA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-MB2_____

Sample wt/vol: ____1000_____(g/mL) __ML_____ Lab File ID: __BBB00-MB2_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	**R**
100-02-7	4-Nitrophenol	25	**R**
132-64-9	Dibenzofuran	10	**R**
121-14-2	2,4-Dinitrotoluene	10	**R**
84-66-2	Diethylphthalate	10	**R**
86-73-7	Fluorene	10	**R**
7005-72-3	4-Chlorophenyl-phenylether	10	**R**
100-01-6	4-Nitroaniline	25	**R**
534-52-1	4,6-Dinitro-2-methylphenol	25	**R**
86-30-6	N-Nitrosodiphenylamine (1)	10	**R**
101-55-3	4-Bromophenyl-phenylether	10	**R**
118-74-1	Hexachlorobenzene	10	**R**
1912-24-9	Atrazine	10	**R**
87-86-5	Pentachlorophenol	12	**J**
85-01-8	Phenanthrene	10	**R**
120-12-7	Anthracene	10	**R**
86-74-8	Carbazole	10	**R**
84-74-2	Di-n-butylphthalate	10	**R**
206-44-0	Fluoranthene	10	**R**
129-00-0	Pyrene	10	**R**
85-68-7	Butylbenzylphthalate	10	**R**
91-94-1	3,3'-Dichlorobenzidine	10	**R**
56-55-3	Benzo(a)anthracene	10	**R**
218-01-9	Chrysene	10	**R**
117-81-7	bis(2-Ethylhexyl)phthalate	30	**J**
117-84-0	Di-n-octylphthalate	10	**R**
205-99-2	Benzo(b)fluoranthene	10	**R**
207-08-9	Benzo(k)fluoranthene	10	**R**
50-32-8	Benzo(a)pyrene	10	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	10	**R**
53-70-3	Dibenz(a,h)anthracene	10	**R**
191-24-2	Benzo(g,h,i)perylene	10	**R**

(1) Cannot be separated from Diphenylamine

Lab File ID: __DF00207B11_____ DFTPP Injection Date: __02/07/01_____

Instrument ID: __5972HP11_____ DFTPP Injection Time: __2107_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	50.4
68	Less than 2.0% of mass 69	0.2(0.3)1
69	Mass 69 relative abundance	58.3
70	Less than 2.0% of mass 69	0.4(0.7)1
127	25.0-75.0% of mass 198	38.4
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	6.6
275	10.0-30.0% of mass 198	23.7
365	Greater than 0.75% of mass 198	3.6
441	Present, but less than mass 443	13.1
442	40.0-110.0% of mass 198	84.5
443	15.0-24.0% of mass 442	16.4(19.4)2

1- Value is % mass 69 2- Value is % mass 442

Lab File ID: __DF00208B11_____ DFTPP Injection Date: __02/08/01_____

Instrument ID: __5972HP11_____ DFTPP Injection Time: __1448_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	43.9
68	Less than 2.0% of mass 69	0.5(1.2)1
69	Mass 69 relative abundance	39.0
70	Less than 2.0% of mass 69	0.2(0.4)1
127	25.0-75.0% of mass 198	29.0
197	Less than 1.0% of mass 198	2.5
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	6.5
275	10.0-30.0% of mass 198	27.3
365	Greater than 0.75% of mass 198	4.9
441	Present, but less than mass 443	9.8
442	40.0-110.0% of mass 198	64.6
443	15.0-24.0% of mass 442	13.0(20.1)2

1- Value is % mass 69 2- Value is % mass 442

Lab File ID: __DF00213B11_____ DFTPP Injection Date: __02/13/01_____

Instrument ID: __5972HP11_____ DFTPP Injection Time: __0815_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	44.4
68	Less than 2.0% of mass 69	0.4(1.1)1
69	Mass 69 relative abundance	40.9
70	Less than 2.0% of mass 69	0.3(0.7)1
127	25.0-75.0% of mass 198	29.5
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	6.8
275	10.0-30.0% of mass 198	24.9
365	Greater than 0.75% of mass 198	4.6
441	Present, but less than mass 443	10.8

442	40.0-110.0% of mass 198	68.4
443	15.0-24.0% of mass 442	13.4(19.6)2

1- Value is % mass 69 2- Value is % mass 442

Module 15 Quiz 4

Sample	1	2	3
Adjusted CRQL	18.18	10.53	26.66
Reported CRQL	18	11	27

Sample	4	5	6
Adjusted CRQL	730.89	459.18	383.7
Reported CRQL	730	460	380

Sample	7	8	9
Adjusted CRQL	59701.5	266667	35714.3
Reported CRQL	60000	270000	36000

Module 15 Quiz 5

Fill in the concentration of each compound for each sample. Value in () is the actual concentration.

Compounds	BGT67	MHY43	VGT23	CFR99
Hexachloroethane	34 (34.44)	2500 (2524.70)	20 (19.87)	61000 (60771.07)
4-chloroaniline	33 (33.31)	2400 (2441.73)	19 (19.21)	59000 (58773.94)
4-nitrophenol	33 (32.66	2400 (2394.72)	19 (18.84)	58000 (57642.21)
Carbazole	35 (34.83)	2600 (2553.22)	20 (20.09)	61000 (61457.42)
Pyrene	35 (35.37)	2600 (2592.99)	20 (20.40)	62000 (62414.85)
Benzo (b) fluoranthene	35 (35.06)	2600 (2570.67)	20 (20.23)	62000 (61877.47)

Module 16 Quiz 1, 2, 3

Compounds	RRF 20	RRF 50	RRF 80	RRF 120	RRF 160	Ave RRF	%RSD
*bis(2-Chloroethyl)ether	1.558	1.643	1.569	1.578	1.549	1.579	2.3
Acetophenone	1.971	1.918	2.029	4.012	1.974	2.381	38.3
*Hexachloroethane	0.775	0.759	0.735	0.738	0.718	0.745	3.0
*Nitrobenzene	0.574	0.566	0.554	0.558	0.565	0.563	1.4
4-Chloroaniline	0.410	0.424	0.424	0.400	0.413	0.414	2.5
Hexachlorobutadiene	0.078	0.060	0.055	0.040	0.004	0.048	58.4
*2,6-Dinitrotoluene	0.363	0.377	0.371	0.379	0.342	0.366	4.1
3-Nitroaniline	**	0.399	0.376	0.368	0.341	0.371	6.4
2,4-Dinitrotoluene	0.512	0.527	0.509	0.529	0.500	0.515	2.4
*4-Bromophenyl-phenylether	0.217	0.221	0.220	0.225	0.235	0.224	3.2
Di-n-butylphthalate	1.838	1.860	1.814	1.891	1.844	1.849	1.5
*Fluoranthene	1.323	1.366	1.268	1.279	1.269	1.301	3.3
*Benzo(a)anthracene	1.419	1.436	1.391	1.430	1.451	1.425	1.6
*Chrysene	1.405	1.384	1.322	1.325	1.289	1.345	3.6
bis(2-Ethylhexyl)phthalate	1.479	1.476	1.436	1.433	1.448	1.454	1.5
*Indeno(1,2,3-cd)pyrene	1.275	0.501	1.259	1.253	1.376	1.133	31.5
*Dibenz(a,h)anthracene	1.192	1.242	1.188	1.234	1.273	1.226	2.9
*Benzo(g,h,i)perylene	1.246	1.281	1.205	1.205	1.211	1.230	2.7

**Although this analyte may be reported in the Quant report for this level, the SOW stipulates a four point calibration range and a higher CRQL value. This value is not reported or used in the calculations.

Module 16 Quiz 4

Contractual Requirements

Hexachlorobutadiene- standard level 5 (160 ng) did not meet minimum SOW requirements of RRF > 0.010.

Indeno (1,2,3-cd) Pyrene exceeded SOW required maximum %RSD of 20.5.

Technical Requirements

Hexachlorobutadiene- average RRF <0.05, "J" positive hits only, "R" non-detects for all samples associated with this calibration.

Acetophenone, Hexachlorobutadiene*, Indeno (1,2,3-cd) Pyrene have %RSD > 30%, "J" positive analytes only, no action for non-detects for all samples associated with this calibration.

*Some samples may reflect different qualifications due to RRF criteria.

Table 2 Modified Form 7C/D Continuing Calibration

Compounds	____ RRF	RRF50	MIN RRF	%D	MA %D
bis(2-Chloroethyl)ether	1.579	1.421	0.700	-10.0	25.0
Acetophenone	1.981	2.046		3.3	
Hexachloroethane	0.745	0.671	0.300	-9.9	25.0
Nitrobenzene	0.563	0.531	0.200	-5.7	25.0
4-Chloroaniline	0.414	0.390		-5.8	
Hexachlorobutadiene	0.201	0.208		3.5	
2,6-Dinitrotoluene	0.366	0.366	0.200	0.0	25.0
3-Nitroaniline	0.371	0.313		-15.6	
2,4-Dinitrotoluene	0.515	0.446	0.200	-13.4	25.0
4-Bromophenyl-phenylether	0.224	0.244	0.100	8.9	25.0
Di-n-butylphthalate	1.849	1.718		-7.1	
Fluoranthene	1.301	1.299	0.600	-0.2	25.0
Benzo(a)Anthracene	1.425	1.235	0.800	-13.3	25.0
Chrysene	1.345	1.221	0.700	-9.2	25.0
bis(2-Ethylhexyl)phthalate	1.454	1.173		-19.3	
Indeno(1,2,3-cd)Pyrene	1.293	1.340	0.500	3.6	25.0
Dibenzo(a,h)Anthracene	1.226	1.115	0.400	-9.1	25.0
Benzo(g,h,i)perylene	1.230	1.160	0.500	-5.7	25.0
Nitrobenzene-d_5	0.560	0.553	0.200	-1.3	25.0
2-Fluorobiphenyl	1.431	1.328	0.700	-7.2	25.0
2-Fluorophenol	1.102	0.954	0.500	-13.4	25.0
Terphenyl- d_{14}	1.698	1.403	0.800	-17.4	25.0
Phenol-d_5	1.330	1.169	0.600	-12.1	25.0
2,4,6 Tribromophenol	0.145	0.158		9.0	
2-Chlorophenol- d_4	1.520	1.292	0.800	-15.0	25.0
1,2-Dichlorobenzene- d_4	0.963	0.928	0.400	-3.6	25.0

Technical Problems

%D > 25% and >90% for Hexachlorobutadiene. "J" all detects and "R" all non-detects for samples associated with this continuing calibration.

Contractual Problems

There were no contractual problems.

Module 16 Quiz 7

(Refer to this page for the analytes that should be circled on the Forms)

Technical Problems

Initial Calibration

Caprolactam- average RRF <0.05 all positive hits in samples associated with this initial calibration are qualified, as "J" and non-detects are qualified as "R".

Continuing Calibration

% D >25%, "J" all positive and non-detects in samples associated with this continuing calibration for the following analytes: N-Nitroso-di-n-propylamine, Isophorone, Hexachlorobutadiene, 2,6 Dinitrotoluene, Acenaphthene, 2,4 Dinitrophenol, Hexachlorobenzene, Atrazine, Pyrene, Benzo (g,h,i) perylene.

%D >90%, "R" all non-detects and "J" all positive hits in samples associated with this continuing calibration for Caprolactam.

Contractual Problems

Initial Calibration

2,6 Dinitrotoluene RRF < 0.200, which is SOW minimum requirement.

Anthracene %RSD >20.5, which is SOW maximum requirement.

Dibenzo (a,h) Anthracene %RSD >40%, which fails allowable requirements that up to 4 analytes may fail SOW requirements provided the %RSD is < 40%.

Continuing Calibration

N-Nitroso-di-n-propylamine RRF <0.500, which is SOW minimum requirement.

Seven of the SOW required analytes failed %D requirements. The SOW only allows four analytes to fail SOW requirements.

Two of the seven analytes %D values were >40%. The SOW allows four analytes to fail SOW requirements provided the %D is < 40%.

Module 17 Quiz 1

(Refer to this page for the samples/analytes that should be qualified on the Forms)

Sample BPJ04

IS1 exceeded the upper limits. Positive hits are qualified "J" and non-detects are not qualified for the following analytes:

Benzaldehyde, Phenol, bis(2-Chloroethyl)ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane.

IS4 did not meet lower limits. Positive hits and non-detects are qualified "J" for the following analytes:

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 4-Bromophenyl-phenylether, Hexachlorobenzene, Atrazine, Pentachlorophenol, Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate, Fluoranthene.

IS6 did not meet lower limits and was < 25% of the 12 hour standard. Positive hits are qualified "J" and non-detects are qualified "R" for the following analytes:

Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)Pyrene, Indeno(1,2,3-cd)Pyrene, Dibenzo(a,h)Anthracene, Benzo(g,h,i)perylene.

Sample BPJ51

IS1 did not meet lower limits. Positive hits and non-detects are qualified "J" for the following analytes:

Benzaldehyde, Phenol, bis(2-Chloroethyl)ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane.

IS2 exceeded the upper limits. Positive hits are qualified "J" and non-detects are not qualified for the following analytes:

Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane, 2,4-Dichlorophenol, Naphthalene, 4-Chloroaniline, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene.

IS3 did not meet lower limits and was < 25% of the 12 hour standard. Positive hits are qualified "J" and non-detects are qualified "R" for the following analytes:

Hexachlorocyclopentadiene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,1 Biphenyl, 2-Chloronaphthalene, 2-Nitroaniline, Dimethylphthalate, 2,6-Dinitrotoluene, Acenaphthylene, 3-Nitroaniline, Acenaphthene, 2,4-Dinitrophenol, 4-Nitrophenol, Dibenzofuran, 2,4-Dinitrotoluene, Diethylphthalate, Fluorene, 4-Chlorophenyl-phenylether, 4-Nitroaniline.

IS5 did not meet lower limits. Positive hits and non-detects are qualified "J" for the following analytes:

Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)Anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

Sample BPJ52

IS2 did not meet lower limits. Positive hits and non-detects are qualified "J" for the following analytes:

Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane, 2,4-Dichlorophenol, Naphthalene, 4-Chloroaniline, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene.

IS5 exceeded the upper limits. Positive hits are qualified "J" and non-detects are not qualified for the following analytes:

Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)Anthracene, Chrysene, bis(2-Ethylhexyl)phthalate.

IS6 did not meet lower limits and was < 25% of the 12 hour standard. Positive hits are qualified "J" and non-detects are qualified "R" for the following analytes:

Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)Pyrene, Indeno(1,2,3-cd)Pyrene, Dibenzo(a,h)Anthracene, Benzo(g,h,i)perylene.

Module 18 Quiz 1

1. Hexachloroethane RPD = 57.5

2. N-Nitroso-di-n-propylamine RPD = 115.8

3. 4-Methylphenol RPD = 11.5

4. Acetophenone RPD = 28.6

5. 2,2'-oxybis (1-Chloropropane) RPD = 48.3

6. 2-Methylphenol RPD = 43.3

7. 2-Chlorophenol RPD = 40

8. bis(2-Chloroethyl)ether RPD = 72.5

9. Phenol RPD = 17.9

10. Benzaldehyde RPD = 46.2

Module 19 Quiz 1

1. No action required
2. All detects and non-detect analytes are qualified "J" for cooler temperature criterion.
3. All detect analytes are qualified "J" and non-detects are qualified "R" for percent moisture criterion.
4. All detects and non-detect analytes are qualified "J" for cooler temperature criterion.
5. All detects and non-detect analytes are qualified "J" for cooler temperature and percent moisture criteria.

Module 19 Quiz 2

1. Technical and contractual holding times were met for this sample.
2. All detects and non-detect analytes are qualified "J" for extraction holding time criterion.
   Contract Non-Compliance: Sample was analyzed after five days from VTSR.
3. Technical and contractual holding times were met for this sample.
4. All detect analytes are qualified "J" and non-detects are qualified "R" for extraction holding time criterion.
   Contract Non-Compliance: Sample was analyzed after ten days from VTSR.
5. All detects and non-detect analytes are qualified "J" for extraction holding time criterion.

Module 19 Quiz 3

All analytes are qualified "J" for failing extraction holding time.

Module 19 Quiz 4

All analytes are qualified "J" for failing analysis holding time. Technical extraction holding time was met, but a contractual holding time was not met.

Module 19 Quiz 5

All analytes are qualified "J" for not meeting preservation and % moisture criteria.

Contract non-compliance- GPC cleanup was not performed on the sample. GPC clean-up is required to be performed on all soil samples.

Module 20 Quiz 1

2E
WATER PESTICIDE SURROGATE RECOVERY

	EPA SAMPLE NO.	TCX 1 %REC #	DCB 1 %REC #	TCX 1 %REC #	DCB 1 %REC #	TOT OUT
1.	BBJ60	106	63	118	73	0
2.	BPH71	56	75	72	78	0

2F
SOIL PESTICIDE SURROGATE RECOVERY

	EPA SAMPLE NO.	TCX 1 %REC #	DCB 1 %REC #	TCX 1 %REC #	DCB 1 %REC #	TOT OUT
1.	BPH62	38	86	48	92	0
2.	BNR68	33	41	37	51	0

Module 20 Quiz 2

Sample 1-

Qualify positive results and non-detects as "J" (estimated).

Sample 2-

Qualify all non-detects as "R" and detects as "J".

Sample 3-

Qualify positive hits as "J", no action on non-detects.

Sample 4-

No action.

Module 20 Quiz 3

2E

WATER PESTICIDE SURROGATE RECOVERY

EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
BGH67	**60**	**60**	**28**	**26**			**2**

2F

SOIL PESTICIDE SURROGATE RECOVERY

EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
BZZ89	**9**	**57**	**82**	**71**			**1**

Modified Quant Report for Sample BGH67

GCAA COLUMN: CLPPEST1

RT	RT window		Response	Compounds	On column ng	Final ug/L
5.25	5.20	5.30	7593	Tetrachloro-m-xylene	0.016	**0.12**
19.36	19.26	19.46	3625	Decachlorobiphenyl	0.0055	**0.055**

GCAA COLUMN: CLPPEST2

RT	RT window		Response	Compounds	On column ng	Final ug/L
3.99	3.97	4.07	8831	Tetrachloro-m-xylene	0.015	**0.12**
16.56	16.50	16.70	4011	Decachlorobiphenyl	0.0052	**0.052**

Modified Quant Report for Sample BZZ89

Compounds	RT 1	RT 2	Response 1	Response 2	Col. 1 ng	Col. 2 ng	column 1 ug/kg	column 2 ug/kg
Tetrachloro-m-xylene	5.25	3.99	2312	17589	**0.0035**	0.0229	**1.493**	**9.67**
Decachlorobiphenyl	19.36	16.56	19258	21167	0.033	0.0284	**13.97**	**12.02**

Module 21

Water sample

Compound	MS % Rec	MSD % Rec	% RPD
gamma BHC:	58	84	37*
Heptachlor:	56	80	35*
Aldrin:	58	82	34*
Dieldrin:	61	85	33*
Endrin:	60	85	34*
4,4'DDT:	56	79	34*

Low level Soil sample

Compound	MS % Rec	MSD % Rec	% RPD
gamma BHC:	43*	44*	1.2
Heptachlor:	60	70	15
Aldrin:	85	85	0
Dieldrin:	58	58	0
Endrin:	78	75	3.3
4,4'DDT:	63	63	0

water sample

Compound	MS % Rec	MSD % Rec	% RPD
gamma BHC:	60	68	13
Heptachlor:	90	98	8.5
Aldrin:	94	110	16
Dieldrin:	74	81	9.0
Endrin:	92	100	8.3
4,4'DDT:	81	87	7.4

Low level soil sample

Compound	MS % Rec	MSD % Rec	% RPD
gamma BHC:	73	115	45
Heptachlor:	62	108	55*
Aldrin:	58	65	13
Dieldrin:	86	90	4.4
Endrin:	78	86	9.5
4,4'DDT:	61	78	25

Module 22 Quiz 1

Matrix	water	Matrix	water
Sample CRQL	gamma BHC 0.10	Sample CRQL	Endrin 0.10
Qualified Result	1.0	Qualified Result	2.0U
Matrix	water	Matrix	water
Sample CRQL	DDT 0.10	Sample CRQL	Aroclor 1254 1.0
Qualified Result	0.32U	Qualified Result	1.8U
Matrix	water	Matrix	soil
Sample CRQL	Methoxychlor 0.50	Sample CRQL	Aroclor 1221 240
Qualified Result	1.6	Qualified Result	160
Matrix	soil	Matrix	soil
Sample CRQL	Methoxychlor 26	Sample CRQL	Toxaphene 210
Qualified Result	38U	Qualified Result	40
Matrix	soil	Matrix	soil
Sample CRQL	DDE 7.2	Sample CRQL	Heptachlor 2.0
Qualified Result	25U	Qualified Result	10U

Module 22 Quiz 2

Sample	Analyte	Reported Value
BPH62	Endrin	6.6U
	Gamma Chlordane	2.2U
BBJ60	Aldrin	0.08U
	DDE	0.21U
	Methoxychlor	0.82U

Module 22 Quiz 3

Sample	Analyte	Reported Value
BPJ28	Endrin	5.3U - method blank
	Alpha chlordane	2.6U- method blank
	Gamma Chlordane	2.6U - method blank

BBJ68 is a trip blank that can only be associated with aqueous samples shipped together in the same cooler. Sample potentially affected is BPL04, a rinse blank. Blanks are not qualified for contamination by other blanks. A QC blank is not used to eliminate contamination found in another blank. Therefore no action is taken for contamination for these two samples.

Contamination in rinse blank, BPL04 does not affect sample BPJ28.

Module 23 Quiz 1

		Sample ID	Concentration
1.		BBB20	0.212
2.		BBB21	7.915
3.		BBB22	1.88
4.		BBB23	13.029
5.		BBB24	1.483
6.		BBB25	7.269
7.		BBB26	3.313
8.		BBB27	44.745
9.		BBB28	0.2119
10.		BBB29	18.653

Module 23 Quiz 2

1 2 3

Aroclor 1016	**Conc.**	Aroclor 1221	**Conc.**	Aroclor 1260	**Conc.**
1	**1.10**	1	**345.074**	1	**4.03**
2	**0.92**	2	**324.046**	2	**4.10**
3	**1.37**	3	**346.279**	3	**4.41**
4	**0.97**	4	**501.546**	4	**4.40**
5	**1.01**	5		5	**4.01**
Final	**1.10 (1.07)**	Final	**380 (379.236)**	Final	**4.2 (4.19)**

4 5 6

Aroclor 1242	**Conc.**	Aroclor 1254	**Conc.**	1248	**Conc.**
1	**341.022**	1	**14.1**	1	**35.554**
2	**355.178**	2	**13.55**	2	**51.181**
3	**539.178**	3	**14.78**	3	**66.350**
4	**519.457**	4	**17.99**	4	**56.810**
5	**575.376**	5	**17.01**	5	**41.700**
Final	**470 (466.042)**	Final	**15 (15.486)**	Final	**50 (50.319)**

Module 23 Quiz 3, 4, 5

Modified Form 6E

Column RTX-35

Compounds	RT of Standards			Mean RT	RT window	
	low	med	high		From	TO
alpha-BHC	**6.88**	**6.88**	**6.88**	**6.88**	**6.83**	**6.93**
Heptachlor	**8.87**	**8.87**	**8.87**	**8.87**	**8.82**	**8.92**
4,4'DDE	**12.39**	**12.39**	**12.39**	**12.39**	**12.32**	**12.46**
4,4'DDT	**14.43**	**14.43**	**14.43**	**14.43**	**14.36**	**14.50**
alpha-Chlordane	**11.87**	**11.87**	**11.87**	**11.87**	**11.80**	**11.94**
Tetrachloro-m-xylene	**5.25**	**5.25**	**5.25**	**5.25**	**5.20**	**5.30**

Modified Form 6F

Compounds	low	med	high	mean	%RSD
alpha-BHC	**805600**	**1027750**	**1384950**	**1072767**	**27.2**
delta-BHC	**599800**	**898650**	**1018263**	**838904**	**25.7**
Aldrin	**786600**	**876050**	**834025**	**832225**	**5.4**
Endrin	**302000**	**460025**	**412831**	**391619**	**20.7**
Methoxychlor	**241060**	**155280**	**212946**	**203095**	**21.5**
Decachlorobiphenyl	**546700**	**881675**	**506881**	**645085**	**31.9**

Modified Form 6E

DB-5

Compounds	RT of Standards			Mean RT	RT window	
	low	med	high		From	TO
delta-BHC	**6.65**	**6.65**	**6.65**	**6.65**	**6.60**	**6.70**
Endrin	**11.12**	**11.12**	**11.12**	**11.12**	**11.05**	**11.19**
alpha-Chlordane	**9.82**	**9.82**	**9.82**	**9.82**	**9.75**	**9.89**

Modified Form 6F

Compounds	low	med	high	mean	%RSD
alpha-BHC	**810400**	**1040150**	**1390975**	**1080508**	**27.1**
delta-BHC	**693800**	**905900**	**1011500**	**870400**	**18.6**
4,4'DDE	**501500**	**726425**	**767569**	**665165**	**21.5**
Methoxychlor	**303240**	**310750**	**464526**	**359505**	**25.3**
gamma-Chlordane	**796000**	**1157400**	**842113**	**931838**	**21.1**
Tetrachloro-m-xylene	**645000**	**767450**	**754425**	**722292**	**9.3**
Decachlorobiphenyl	**772100**	**742775**	**646275**	**720383**	**9.1**

Module 23 Quiz 6

Technical

Action required based on Forms: Positive hits for analytes failing %RSD are qualified "J". Failing analytes are: alpha BHC, delta BHC, DDE, Endrin, Methoxychlor, gamma chlordane.

Positive analytes qualified "J" for sample BRR65 are delta BHC, Endrin, Methoxychlor. Alpha BHC, DDE, Methoxychlor, gamma chlordane were not detected and are qualified “UJ” for %RSD.

Contractual

More than 2 analytes and 1 surrogate failed %RSD criterion.

Module 23 Quiz 7

Technical

No action.

(Only positive hits for Endosulfan I and beta BHC are qualified "J" for resolution criterion. Both analytes are non-detects in Sample BRR65).

Contractual

Lab did not immediately re-injected Resolution and PEM Standards that did not meet criterion. If the re-injected standard failed, then data collection must be stopped and a new sequence started after correcting the problem. Lab failed to follow requirements.

Module 23 Quiz 8

Table 1 Modified Quant report for PEM standard
RTX35DB5

Compound	**Calc Amt. On-Col. ng**	**Calc Amt. On-Col. ng**
TCMX	**0.01959**	**0.019176**
alpha-BHC	**0.00959**	**0.009148**
gamma BHC	**0.00997**	**0.009386**
beta BHC	**0.01145**	**0.011211**
Endrin	**0.05297**	**0.052490**
4,4'DDD	**0.00057**	**0.000563**
4,4'DDT	**0.09709**	**0.095561**
Endrin Aldehyde	**0.00174**	**0.001860**
Methoxychlor	**0.23070**	**0.223064**
Endrin Ketone	**0.00194**	**0.008889**
DBC	**0.02099**	**0.020403**

Table 2 Form 7E

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	%D
		From	TO		
alpha-BHC	**6.88**	**6.83**	**6.93**	**0.0096**	**-4.0**
beta BHC	**8.06**	**8.02**	**8.12**	**0.011**	**10.0**
gamma BHC	**7.80**	**7.75**	**7.85**	**0.0100**	**0.0**
Endrin	**13.28**	**13.21**	**13.35**	**0.053**	**6.0**
4,4'DDT	**14.43**	**14.36**	**14.50**	**0.097**	**-3.0**
Methoxychlor	**16.10**	**16.03**	**16.17**	**0.231**	**-7.6**

4,4'DDT % Breakdown (1): __0.57___ Endrin % Breakdown (1): _7.37___ Combined % Breakdown (1): _7.95___

Table 2 Form 7E (DB5)

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	%D
		From	TO		
alpha-BHC	**5.28**	**5.23**	**5.33**	**0.0092**	**-8.0**
beta BHC	**6.17**	**6.12**	**6.22**	**0.011**	**10.0**
gamma BHC	**6.01**	**5.96**	**6.06**	**0.0094**	**-6.0**
Endrin	**11.12**	**11.05**	**11.19**	**0.052**	**4.0**
4,4'DDT	**12.14**	**12.07**	**12.21**	**0.096**	**-4.0**
Methoxychlor	**13.38**	**13.31**	**13.45**	**0.223**	**-10.8**

4,4'DDT % Breakdown (1): _0.56__ Endrin % Breakdown (1): _21.5_ Combined % Breakdown (1): _22.06

Module 23 Quiz 9 part 1 and part 2

1

Compound	Calc Amt. On-Col. ng	%D
TCMX	**0.0185**	**-7.5**
alpha-BHC	**0.0111**	**11.0**
gamma BHC	**0.0086**	**-14.4**
beta BHC	**0.0118**	**18.2**
4,4'DDE	**0.0439**	**NA**
Endrin	**0.0159**	**-68.16**
4,4'DDD	**0.0382**	**NA**
4,4'DDT	**0.0037**	**-96.29**
Endrin Aldehyde	**0.0379**	**NA**
Methoxychlor	**0.1887**	**-24.5**
Endrin Ketone	**0.0379**	**NA**
DBC	**0.0212**	**6.1**

% Breakdown

DDT: _82.1
Endrin: __151.6
Combined: ___233.7

2

Compound	Calc Amt. On-Col. ng	%D
TCMX	**0.0237**	**18.5**
alpha-BHC	**0.0096**	**-4.0**
gamma BHC	**0.0105**	**5.0**
beta BHC	**0.0142**	**42.0**
4,4'DDE	**0.0166**	**NA**
Endrin	**0.0694**	**38.8**
4,4'DDD	**0.0065**	**NA**
4,4'DDT	**0.1121**	**12.1**
Endrin Aldehyde	0.0217	NA
Methoxychlor	0.2785	11.4
Endrin Ketone	0.0023	NA
DBC	0.0276	38.0

% Breakdown

DDT: ___23.1
Endrin: __48
Combined: __71.1

3

Compound	Calc Amt. On-Col. ng	%D
TCMX	0.0225	12.5
alpha-BHC	0.0093	-7.5
gamma BHC	0.0101	1.4
beta BHC	0.0138	38.2
4,4'DDE	0.0091	NA
Endrin	0.0678	35.6
4,4'DDD	0.0060	NA
4,4'DDT	0.1075	7.5
Endrin Aldehyde	0.0203	NA
Methoxychlor	0.2715	8.6
Endrin Ketone	0.0018	NA
DBC	0.0261	30.3

% Breakdown

DDT: ___15.1
Endrin: ___44.2
Combined: ___59.3

Module 23 Quiz 10

Technical Problems

Resolution Standard < 60%, positive hits for Endosulfan 1 are qualified as "J". Both analytes are non-detected in the sample, therefore no action is needed for this criteria.

PEM resolution <90%, positive hits for gamma BHC are qualified as "J". Both analytes are non-detected in the sample, therefore no action is needed for this criteria.

% breakdown for Endrin- If Endrin is present qualify "J", if Endrin was not detected and Endrin aldehyde and Endrin ketone are detected, qualify Endrin as "R". Qualify detected Endrin aldehyde and Endrin ketone as "JN". Since Endrin, Endrin aldehyde and Endrin ketone were not detected in the sample, no action is taken for this criterion.

%RSD- Hits for alpha BHC, delta BHC, DDE, Endrin, Methoxychlor and gamma chlordane are qualified "J" and “UJ”.

%D- detects and non-detects are qualified "J" for Endrin and delta BHC.

Contract Non-Compliance

Lab did not immediately re-injected Resolution and PEM Standards that did not meet criterion. If the re-injected standard failed, then data collection must be stopped and a new sequence started after correcting the problem. Lab failed to follow requirements.

More than 2 analytes and 1 surrogate failed %RSD criterion.

Module 24 Quiz 1

1. Initial sequence is incorrect for Individual A and B standards.
2. Ending instrument blank and PEM for initial calibration is missing.
3. Line 31,32 page 7: Standards must be preceded by the analysis of an instrument blank. This 12-hour sequence ends at 1211. Samples BBB28, 29, 30, 31, 32, 33, 34, 35, 36 were analyzed outside acceptable analysis time.
4. Line 15, page 8: valid calibration verification was not analyzed (see #3), therefore this 12-hour sequence ends at 1211. Samples BBB37, 36dl, 39, 40, 41, 42, 43, 44, 28dl, 29dl, 40dl, 41dl, 43dl, 38 were analyzed outside acceptable analysis time.
5. Line 17, 18 PAGE 8: Incorrect concentration of standards analyzed.
6. Line 19, 20, 21 page 8: More than 12 hours has passed since the last analysis. This 12-hour sequence must start with analysis of instrument blank and PEM standards. These standards would be acceptable If the lab provided all of the standards analyzed between analysis dates on line 18 and 19 AND line 18-21 standards followed the sequence.
7. Line 31, 32: The second PEM was analyzed almost 3 hours after the failing PEM. Assuming the first PEM (line 31) failed, the second PEM (line 32) must be injected immediately after the previous analysis.
8. Aroclor standards found in the samples were not analyzed within 72 hours of detection in sample. This affects all samples on page 8 from line 5 to 27 for Aroclor 1260 and line 10 to 27 for Aroclor 1248.
9. Line 29, page 8: Invalid Aroclor analyzed. Aroclors 1660 and 1248 should have been analyzed instead.
10. Line 24-27, page 8: samples did not meet retention time criteria. Samples should have been reanalyzed.

Module 24 Quiz 2

9A
PESTICIDE FLORISIL CARTRIDGE CHECK

COMPOUND	% REC #
Alpha-BHC	98
Gamma BHC	120
Heptachlor	70
Endosulfan I	130
Dieldrin	140
Endrin	125
4,4'DDD	75
4,4'DDT	0
Methoxychlor	110
Tetrachloro-m-xylene	120
Decachlorobiphenyl	85
2,4,5-Trichlorophenol	3.8

9B
PESTICIDE GPC CALIBRATION VERIFICATION

COMPOUND	% REC #
Gamma BHC (Lindane)	90
Heptachlor	76
Aldrin	96
Dieldrin	88
Endrin	84
4,4'DDT	0

Module 24 Quiz 3

1. DDT RPD = 33 (32.65)
2. Endrin RPD = 38 (37.84)
3. Methoxychlor RPD = 100
4. Aroclor 1254 RPD = 35 (34.59)
5. Gamma BHC RPD = 55 (54.55)
6. Dieldrin RPD = 65 (64.71)
7. Endosulfan I RPD = 46 (45.61)
8. Endosulfan sulfate RPD = 46 (46.15)
9. Endrin aldehyde RPD = 66 (65.65)
10. Toxaphene RPD = 21 (21.05)

Module 25 Quiz 1

Instruction: For each problem, calculate the adjusted CRQL and state the CRQL value that should be reported on the Form 1.

Sample-analyte	1 - DDT	2 - Alpha BHC	3 - Heptachlor
Matrix	water	water	water
Adjusted CRQL	0.20	0.048	0.038
Reported CRQL	0.20	0.05	0.050

Sample-analyte	4 - Methoxychlor	5 - Endosulfan I	6 - DDE
Matrix	soil	soil	soil
Adjusted CRQL	94.88	2.08	3.36
Reported CRQL	95	2.2	3.8

Sample-analyte	7 - gamma BHC	8 - Aldrin	9 - Endrin
Matrix	soil	water	soil
Adjusted CRQL	28.5	0.168	13.68
Reported CRQL	30	0.17	14

Module 25 Quiz 2

Aroclor 1248 and 1254 are in sample BBB00.

Appendix D

Copy of Quizzes

Module 1 Quiz 1

Instruction:

- Write the letter of the correct meaning next to the acronym.

B.	Contract Laboratory Program	____RAS
C.	Standard Operation Procedures	____BNA
D.	Statement of Work	____TCL
E.	Aroclor	____VOA
F.	Comprehensive Environmental Response, Compensation and Liability Act of 1980	____CLP
G.	Superfund Amendments and Reauthorization Act of 1986	____PCB
H.	Routine analytical services	____SOW
I.	Target Compound List	____SARA
J.	Volatile Organic Analytes	____SOP
K.	Base-Neutral/Acid	____CERCLA

Module 1 Quiz 2

Instruction:

- Write the letter of the correct meaning next to the acronym.

a)	Quality Assurance Project Plan	____SMC
b)	Chain of Custody	____CoC
c)	Data Quality Objectives	____GC/MS
d)	National Functional Guidelines	____PRP
e)	Surrogates	____PE
f)	Internal Standards	____TICs
g)	Potentially Responsible Party	____CAS#
h)	Tentatively Identified Compounds	____QAPP
i)	Performance Evaluation	____NFG
j)	Gas Chromatography/Mass Spectrometer	____DQOs
k)	Chemical Abstracts Service Registry Number	____IS

Module 1 Quiz 3

Instruction:

- Write the qualifier next to the correct meaning.

Qualifiers

D	B	J	E	U	P
A	C	X,Y,Z		N	R

Meaning of Qualifier

____ Laboratory defined flags. The data reviewer must change these qualifiers during validation so that the data user may understand their impact on the data.

____ Analyte cannot be positively identified, but believe that it is present in a sample. Referred to as presumptively present.

____ Analyte is present in the associated method blank as well as in the sample.

____ Material was analyzed for, but not detected. The associated numerical value is the CRQL.

____ Positive value is the result of an analysis at a secondary dilution factor.

____ Indicates a Tentatively Identified Compound (TIC) is a suspected adol-condensation product.

____ Reported result is not valid. Based on the raw data, a judgement can not be made if the analyte is present or not present and the data is considered unusable.

____ Concentration of this analyte exceeds the calibration range of the instrument.

____ Applies to Pesticide results where the identification of the analyte has been confirmed by GC/MS.

____ Associated numerical value is an estimated quantity because it is below the CRQL

____ Pesticide/Aroclor target analytes when the % Difference between the analyte concentrations obtained from the two dissimilar GC columns is greater than 25%.

Module 1 Quiz 4

Instruction:

- Write the letter of the correct meaning next to the acronym.

1. Which of the following sets does not have a validator's qualifier?

a. A,J,N,U
b. R,U,E,C
c. Y,P,A,C
d. U,N,J,R

1. T F The qualifier J can be combined with the qualifier N.

2. T F Air bubbles in VOA vials are acceptable.

3. T F Qualifiers A, C, P and E are limited to the Pesticide fraction.

4. T F The qualifier D can be combined with the qualifier JN.

5. T F The qualifier U can be combined with the qualifier N

Module 2 Quiz 1

Instruction:

- Write the letter of the correct meaning next to the acronym.

a)	Technical Direction Form	____ RSCC
b)	Sample Delivery Group	____ TOPO
c)	Percent Relative Percent Difference	____ RIC
d)	Percent Relative Standard Deviation	____ SDG
e)	Relative Response Factor	____ CLASS
f)	Reconstructed Ion Chromatograms	____ BFB
g)	Regional Sample Control Center	____%D
h)	Task Order Project Officer	____ TDF
i)	Percent Difference	____%RPD
j)	Contract Laboratory Analytical Services Support	____%RSD
k)	Bromofluorobenzene	____ RRF

Module 2 Quiz 2

Instruction:

- Circle the correct answer for each question..

1. Surrogates are added to the sample to measure

   a. Instrument sensitivity
   b. Matrix interference
   c. Extraction efficiency
   d. Marker to show beginning and ending of chromatogram

2. What are Surrogates in VOAs called?

   a. SOP
   b. SMC
   c. SMM

3. The date and time samples arrive in the lab is called

   a. TR
   b. CoC
   c. VTSR
   d. Trip report

4. The file extension for Lotus is

   a. wk4
   b. wpd
   c. doc

5. Explain the difference between a case narrative and a data assessment.

6. Explain the difference between a Traffic Report and a Trip Report.

7. List the Forms for each fraction that the labs are required to submit.

8. Assemble the case for the VOA fraction in the proper order using the following terms:

SDG Cover Sheet, Sample Log-in Sheet, Form 8, continuing calibration raw data, raw data for Tune, Form 5, Form 7, Communication logs, Form 6, initial calibration raw data, method blanks, Case narrative, GC/MS instrument logs, General Information, Sampling Trip Report, Form 2, sample Form 1s, MS/MSD Form 1s, Supporting Documents, Form 3, raw data for samples, Form 4, Forms.

9. T F Internal Standards are added to samples to measure instrument sensitivity

10. T F A SDG may have more than 20 samples assigned to it.

Module 3 Quiz 1

Instructions:

- Validate for **cooler temperature, sample size and percent moisture** criteria only.
- Specify what qualifications are needed if any.

1. Sample BJK90 is an aqueous matrix, the pH is < 2, cooler temperature is <10°C, sample volume is 5mL, dilution factor is 100, date of collection is 03-04-2000, VTSR is 03-06-2000 and date of analysis is 03-09-2000.

2. Sample BNG65 is an aqueous matrix, the pH is < 2, cooler temperature is >10°C, sample volume is 5mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000 and date of analysis is 03-19-2000.

3. Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, sample volume is 5mL, dilution factor is 1, aliquot amount is 100µL, date of collection is 03-04-2000, VTSR is 03-07-2000 and date of analysis is 03-12-2000.

4. Sample BSD43 is an aqueous matrix, the pH is 7, cooler temperature is < 10°C, sample volume is 5mL, dilution factor is 5, date of collection is 03-04-2000, VTSR is 03-09-2000 and date of analysis is 03-20-2000.

5. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 91%, sample weight is 0.9g, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-07-2000 and date of analysis is 03-14-2000.

6. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 0.4g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000 and date of analysis is 03-14-2000.

7. Sample BXD16 is a soil matrix, the cooler temperature <10°C, the percent moisture is 55%, sample weight is 5.2g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000 and date of analysis is 03-31-2000.

8. Sample BKJ73 is an EnCore sample, preserved 03-07-2000, the cooler temperature <10°C, the percent moisture is 75%, sample weight is 4.7g, dilution factor is 5, date of collection is 03-02-2000, VTSR is 03-05-2000 and date of analysis is 03-13-2000.

9. Sample BFG38 is an EnCore sample, preserved 03-05-2000, the cooler temperature >10°C, the percent moisture is 15%, sample weight is 5.5g, dilution factor is 10, date of collection is 03-02-2000, VTSR is 03-03-2000 and date of analysis is 03-14-2000.

10. Sample BXZ26 is an EnCore sample, the pH is 7, the cooler temperature <10°C, the percent moisture is 5%, sample weight is 3.4g, dilution factor is 2, date of collection is 03-02-2000, VTSR is 03-03-2000 and date of analysis is 03-13-2000.

Module 3 Quiz 2

Instructions:

- Write the qualification statement as it would appear in the data assessment.
- Validate for holding time criteria only.
- Specify which holding time: technical or Contractual or both.
- Example: Contract holding times were met. The sample BGH65 did not meet technical requirements. Sample BGH65 was analyzed 30 days after date of collection, all non-detects were qualified "R" and detects were qualified "J".

1. Sample BJK90 is an aqueous matrix, the pH is < 2, cooler temperature is <10°C, sample volume is 5mL, dilution factor is 100, date of collection is 03-04-2000, VTSR is 03-06-2000 and date of analysis is 03-09-2000.

2. Sample BNG65 is an aqueous matrix, the pH is < 2, cooler temperature is >10°C, sample volume is 5mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000 and date of analysis is 03-19-2000.

3. Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, sample volume is 5mL, dilution factor is 1, aliquot amount is 100µL, date of collection is 03-04-2000, VTSR is 03-07-2000 and date of analysis is 03-12-2000.

4. Sample BSD43 is an aqueous matrix, the pH is 7, cooler temperature is < 10°C, sample volume is 5mL, dilution factor is 5, date of collection is 03-04-2000, VTSR is 03-09-2000 and date of analysis is 03-20-2000.

5. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 91%, sample weight is 0.9g, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-07-2000 and date of analysis is 03-14-2000.

6. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 0.4g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000 and date of analysis is 03-14-2000.

7. Sample BXD16 is a soil matrix, the cooler temperature <10°C, the percent moisture is 55%, sample weight is 5.2g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000 and date of analysis is 03-31-2000.

8. Sample BKJ73 is an EnCore sample, preserved 03-07-2000, the cooler temperature <10°C, the percent moisture is 75%, sample weight is 4.7g, dilution factor is 5, date of collection is 03-02-2000, VTSR is 03-05-2000 and date of analysis is 03-13-2000.

9. Sample BFG38 is an EnCore sample, preserved 03-05-2000, the cooler temperature >10°C, the percent moisture is 15%, sample weight is 5.5g, dilution factor is 10, date of collection is 03-02-2000, VTSR is 03-03-2000 and date of analysis is 03-14-2000.

10. Sample BXZ26 is an EnCore sample, the pH is 7, the cooler temperature <10°C, the percent moisture is 5%, sample weight is 3.4g, dilution factor is 2, date of collection is 03-02-2000, VTSR is 03-03-2000 and date of analysis is 03-13-2000.

Module 3 Quiz 3, 4, 5

When you work on Quizzes 3, 4, 5, you will apply the qualifiers directly to a copy of the form 1. You will follow the sample conditions and holding time criteria for each sample given for the quizzes.

Each quiz has 2 Form1's that together make up the full TCL list for VOA. Use the sample information provided below for each quiz. Make your marks on the Form 1 using a pencil so you can erase any changes. Answers are in Appendix G.

Quiz 3

Sample BXD16 is a soil matrix, the cooler temperature <10°C, date of collection is 03-02-2001.

Quiz 4

Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, and date of collection is 03-04-2001.

Quiz 5

Sample BXZ26 is an EnCore sample, the pH is 7, the cooler temperature <10°C, date of collection is 03-02-2001.

Module 3 Quiz 3

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXD16

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345__ SAS No.: _____ SDG No.:_BXD10_

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXD10-8___

Sample wt/vol: ____5.2_____(g/mL) _____g_____ Lab File ID: __BXD10-8AA____

Level: (low/med) ___low_____ Date Received: __03/07/2001___

% Moisture: not dec. ____55_____ Date Analyzed: __03/31/2001____

GC Column: J&D DB-624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	21	U
74-87-3	Chloromethane	21	U
75-01-4	Vinyl Chloride	21	U
74-83-9	Bromomethane	21	U
75-00-3	Chloroethane	21	U
75-69-4	Trichlorofluoromethane	21	U
75-35-4	1,1 Dichloroethene	21	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	21	U
67-64-1	Acetone	21	U
75-15-0	Carbon Disulfide	21	U
79-20-9	Methyl Acetate	21	U
75-09-2	Methylene Chloride	21	U
156-60-5	Trans-1,2-Dichloroethene	21	U
1634-04-4	Methyl-tert-Butyl Ether	21	U
75-34-3	1,1 Dichloroethane	21	U
156-59-2	Cis- Dichloroethene	21	U
78-93-3	2-Butanone	21	U
67-99-3	Chloroform	21	U
71-55-6	1,1,1-Trichloroethane	21	U
110-82-7	Cyclohexane	21	U
56-23-5	Carbon Tetrachloride	21	U
71-43-2	Benzene	21	U
107-06-2	1,2 Dichloroethane	21	U

FORM I VOA-1 OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXD16

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: __12345___ SAS No.: _____ SDG No.:_BXD10

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXD10-8____

Sample wt/vol: ____5.2_____(g/mL) _____g_____ Lab File ID: __BXD10-8AA____

Level: (low/med) ___low_____ Date Received: __03/07/2001___

% Moisture: not dec. ____55_____ Date Analyzed: __03/31/2001___

GC Column: J&D DB-624_____ ID: ___0.53___(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	21	U
108-87-2	Methylcyclohexane	21	U
78-87-5	1,2-Dichloropropane	21	U
75-27-4	Bromodichloromethane	21	U
10061-01-5	Cis-1,3-Dichloropropene	21	U
108-10-1	4-Methyl-2-pentanone	21	U
108-88-3	Toluene	21	U
10061-02-6	Trans-1,3 Dichloropropene	21	U
79-00-5	1,1,2 Trichloroethane	21	U
127-18-4	Tetrachloroethene	21	U
591-78-6	2-Hexanone	21	U
124-48-1	Dibromochloromethane	21	U
106-93-4	1,2-Dibromoethane	21	U
108-90-7	Chlorobenzene	21	U
100-41-4	Ethylbenzene	21	U
1330-20-7	Xylene (total)	21	U
100-42-5	Styrene	21	U
75-25-2	Bromoform	21	U
98-82-8	Isopropylbenzene	21	U
79-34-5	1,1,2,2-Tetrachloroethane	21	U
541-73-1	1,3-Dichlorobenzene	21	U
106-46-7	1,4- Dichlorobenzene	21	U
95-50-1	1,2 Dichlorobenzene	21	U
96-12-8	1,2-Dibromo-3-chloropropane	21	U
120-82-1	1,2,4-Trichlorobenzene	21	U

Module 3 Quiz 4

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345__ SAS No.: _____ SDG No.:_BDR40

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BDR40-3_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _BDR40-3BB_____

Level: (low/med) ____Low_____ Date Received: _03/07/2001_____

% Moisture: not dec. _____ Date Analyzed: _03/12/2001_____

GC Column: _Equity 624_____ ID: ___0.23_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345____ SAS No.: _____ SDG No.:_BDR40

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BDR40-3_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _BDR40-3BB_____

Level: (low/med) ____Low_____ Date Received: _03/07/2001_____

% Moisture: not dec. _____ Date Analyzed: _03/12/2001_____

GC Column: _Equity 624_____ ID: ___0.23___(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

Module 3 Quiz 5

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345___ SAS No.: _____ SDG No.:_BXZ26

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXZ26-1_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _BXZ26-1AA____

Level: (low/med) ____Low_____ Date Received: _03/03/2001_____

% Moisture: not dec. _____5_____ Date Analyzed: _03/13/2001_____

GC Column: _J&D DB-624_____ ID: ____0.53____(mm) Dilution Factor: _____2_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ____	Q
75-71-8	Dichlorodifluoromethane	31	U
74-87-3	Chloromethane	31	U
75-01-4	Vinyl Chloride	31	U
74-83-9	Bromomethane	31	U
75-00-3	Chloroethane	31	U
75-69-4	Trichlorofluoromethane	31	U
75-35-4	1,1 Dichloroethene	31	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	31	U
67-64-1	Acetone	31	U
75-15-0	Carbon Disulfide	31	U
79-20-9	Methyl Acetate	31	U
75-09-2	Methylene Chloride	31	U
156-60-5	Trans-1,2-Dichloroethene	31	U
1634-04-4	Methyl-tert-Butyl Ether	31	U
75-34-3	1,1 Dichloroethane	31	U
156-59-2	Cis- Dichloroethene	31	U
78-93-3	2-Butanone	31	U
67-99-3	Chloroform	31	U
71-55-6	1,1,1-Trichloroethane	31	U
110-82-7	Cyclohexane	31	U
56-23-5	Carbon Tetrachloride	31	U
71-43-2	Benzene	31	U
107-06-2	1,2 Dichloroethane	31	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345__ SAS No.: _____ SDG No.:_BXZ26

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXZ26-1_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _BXZ26-1AA_____

Level: (low/med) ____Low_____ Date Received: _03/03/2001_____

% Moisture: not dec. _____5_____ Date Analyzed: _03/13/2001_____

GC Column: _J&D DB-624_____ ID: ____0.53_____(mm) Dilution Factor: _____2_____

Soil Extract Volume: _____(IL) Soil Aliquot Volume: _____(IL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	31	U
108-87-2	Methylcyclohexane	31	U
78-87-5	1,2-Dichloropropane	31	U
75-27-4	Bromodichloromethane	31	U
10061-01-5	Cis-1,3-Dichloropropene	31	U
108-10-1	4-Methyl-2-pentanone	31	U
108-88-3	Toluene	31	U
10061-02-6	Trans-1,3 Dichloropropene	31	U
79-00-5	1,1,2 Trichloroethane	31	U
127-18-4	Tetrachloroethene	31	U
591-78-6	2-Hexanone	31	U
124-48-1	Dibromochloromethane	31	U
106-93-4	1,2-Dibromoethane	31	U
108-90-7	Chlorobenzene	31	U
100-41-4	Ethylbenzene	31	U
1330-20-7	Xylene (total)	31	U
100-42-5	Styrene	31	U
75-25-2	Bromoform	31	U
98-82-8	Isopropylbenzene	31	U
79-34-5	1,1,2,2-Tetrachloroethane	31	U
541-73-1	1,3-Dichlorobenzene	31	U
106-46-7	1,4- Dichlorobenzene	31	U
95-50-1	1,2 Dichlorobenzene	31	U
96-12-8	1,2-Dibromo-3-chloropropane	31	U
120-82-1	1,2,4-Trichlorobenzene	31	U

Module 4 Quiz 1

Instruction:

- For each of the 4 water samples, calculate and report the concentration for each surrogate.
- Write your answers in the empty spaces provided for each SMC.
- Calculate the % Recovery of each surrogate in the samples and report the values on the Form 2, which can be found, on the next page.

Sample BBJ60	Area responses	Concentration
Toluene-d8	269364	
Bromofluorobenzene	262549	
1,2 Dichloroethane –d4	192501	
Bromochloromethane	83645	
1,4 Difluorobenzene	216308	
Chlorobenzene –d5	298770	
RRF- Toluene-d8	1.843	
RRF- Bromofluorobenzene	0.911	
RRF- 1,2 Dichloroethane –d4	1.987	

Sample BPH71	**Area responses**	**Concentration**
Toluene-d8	292745	
Bromofluorobenzene	200982	
1,2 Dichloroethane –d4	182375	
Bromochloromethane	45910	
1,4 Difluorobenzene	246502	
Chlorobenzene –d5	283302	
RRF- Toluene-d8	1.145	
RRF- Bromofluorobenzene	1.211	
RRF- 1,2 Dichloroethane –d4	1.234	

Sample BPH62	**Area responses**	**Concentration**
Toluene-d8	200983	
Bromofluorobenzene	398712	
1,2 Dichloroethane –d4	209870	
Bromochloromethane	87254	
1,4 Difluorobenzene	229343	
Chlorobenzene –d5	233433	
RRF- Toluene-d8	1.002	
RRF- Bromofluorobenzene	0.877	
RRF- 1,2 Dichloroethane –d4	4.876	

Sample BNR68	**Area responses**	**Concentration**
Toluene-d8	200234	
Bromofluorobenzene	287560	
1,2 Dichloroethane –d4	15005	
Bromochloromethane	61224	
1,4 Difluorobenzene	212118	
Chlorobenzene –d5	229850	
RRF- Toluene-d8	1.763	
RRF- Bromofluorobenzene	1.333	
RRF- 1,2 Dichloroethane –d4	2.857	

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKJH	97	102	96		0
2.	BBJ60					
3.	BPH71					
4.	BPH62					
5.	BNR68					
6.						
7.						
8.						
9.						
10.						
11.						
12.						
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19.						
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21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(88-110)
SMC2	(BFB) = Bromofluorobenzene	(86-115)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

Module 4 Quiz 2

Instruction:

- On the line under each table, write the final qualifications you would take for the sample based on the SMC recoveries.

Sample 1- low level soil	
SMC compound	% Recovery
Toluene-d8	49
Bromofluorobenzene	96
1,2 Dichloroethane –d4	116

Sample 2 water	
SMC compound	% Recovery
Toluene-d8	90
Bromofluorobenzene	59
1,2 Dichloroethane –d4	322

Sample 3 medium level soil	
SMC compound	% Recovery
Toluene-d8	86
Bromofluorobenzene	195
1,2 Dichloroethane –d4	49

Sample 4 low level soil	
SMC compound	% Recovery
Toluene-d8	49
Bromofluorobenzene	94
1,2 Dichloroethane –d4	8.6

Module 4 Quiz 3

Instructions:

- Calculate the Surrogate Recoveries that are missing from each Form 2. Apply the qualifications to the Form 1's for each sample.
- Modified Quant Reports for each sample and the RRF values are located after each form 1's for the sample.
- Write a detailed assessment of the action taken on this page.

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB__ Case No.: __12345____ SAS No.: _____ SDG No.:_BBB00

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKJH	97	102	96		0
2.	BDR43		112			
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
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22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(88-110)
SMC2	(BFB) = Bromofluorobenzene	(86-115)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

Page _1____ of _1____

FORM II VOA-1

OLM04.2

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) __LOW_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKDS	99	83	113		0
2.	BPH62	107				
3.						
4.						
5.						
6.						
7.						
8.						
9.						
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27.						
28.						
29.						
30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(84-138)
SMC2	(BFB) = Bromofluorobenzene	(59-113)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) __MED_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKSD	97	99	101		0
2.	BNR68	99				
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
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28.						
29.						
30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(84-138)
SMC2	(BFB) = Bromofluorobenzene	(59-113)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

Modified Quant Report for Sample BDR43

Compound	RT	EXP RT	Response	On-column	Final
* Bromochloromethane	8.755	8.792	1868546	250.00	
* 1,4 Difluorobenzene	10.041	10.189	8354968	250.00	
* Chlorobenzene-d5	13.355	13.388	6414794	250.00	
$ 1,2 Dichloroethane-d4	9.463	9.477	1884206	???	???
$ Tolune-d8	11.872	11.878	5611001	???	???
$ Bromofluorobenzene	14.369	14.375	6177427	???	???
Acetone	Compound Not Detected				
Methylene chloride	Compound Not Detected				
2-butanone	Compound Not Detected				
Benzene	Compound Not Detected				
2-hexanone	Compound Not Detected				

* Internal Standard
$ Surrogates

7 (Modified)
VOLATILE CONTINUING CALIBRATION CHECK

Date: 02/10/01 Injection time: 0849 Instrument: AA Heated Purge: N

Compound	RRF	RRF50	MIN RRF	%D	Max %D
Acetone	0.841	0.759		-9.8	
Methylene chloride	2.310	1.955		-15.4	
2-butanone	1.156	1.236		6.9	
Benzene	1.279	1.247	0.500	-2.5	25.0
2-hexanone	0.444	0.415		-6.5	
Toluene-d8	1.153	1.095		-5.03	
Bromofluorobenzene	0.895	0.858	0.200	-4.13	25.0
1,2 Dichloroethane-d4	1.001	0.964		-3.69	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	U
74-87-3	Chloromethane	2200	U
75-01-4	Vinyl Chloride	2200	U
74-83-9	Bromomethane	2200	U
75-00-3	Chloroethane	2200	U
75-69-4	Trichlorofluoromethane	2200	U
75-35-4	1,1 Dichloroethene	2200	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	U
67-64-1	Acetone		
75-15-0	Carbon Disulfide	2200	U
79-20-9	Methyl Acetate	690	J
75-09-2	Methylene Chloride		J
156-60-5	Trans-1,2-Dichloroethene	2200	U
1634-04-4	Methyl-tert-Butyl Ether	2200	U
75-34-3	1,1 Dichloroethane	2200	U
156-59-2	Cis- Dichloroethene	2200	U
78-93-3	2-Butanone	2200	U
67-99-3	Chloroform	2200	U
71-55-6	1,1,1-Trichloroethane	2200	U
12200-82-7	Cyclohexane	2200	U
56-23-5	Carbon Tetrachloride	2200	U
71-43-2	Benzene	2200	U
22007-06-2	1,2 Dichloroethane	2200	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	2200	U
22008-87-2	Methylcyclohexane	2200	U
78-87-5	1,2-Dichloropropane	2200	U
75-27-4	Bromodichloromethane	2200	U
2200061-01-5	Cis-1,3-Dichloropropene	2200	U
22008-2200-1	4-Methyl-2-pentanone	2200	U
22008-88-3	Toluene	2200	U
2200061-02-6	Trans-1,3 Dichloropropene	2200	U
79-00-5	1,1,2 Trichloroethane	2200	U
127-18-4	Tetrachloroethene	2200	U
591-78-6	2-Hexanone	2200	U
124-48-1	Dibromochloromethane	2200	U
22006-93-4	1,2-Dibromoethane	2200	U
22008-90-7	Chlorobenzene	2200	U
22000-41-4	Ethylbenzene	2200	U
1330-20-7	Xylene (total)	2200	U
22000-42-5	Styrene	2200	U
75-25-2	Bromoform	2200	U
98-82-8	Isopropylbenzene	2200	U
79-34-5	1,1,2,2-Tetrachloroethane	2200	U
541-73-1	1,3-Dichlorobenzene	2200	U
22006-46-7	1,4- Dichlorobenzene	2200	U
95-50-1	1,2 Dichlorobenzene	2200	U
96-12-8	1,2-Dibromo-3-chloropropane	2200	U
120-82-1	1,2,4-Trichlorobenzene	2200	U

FORM I VOA-2

OLM04.2

Modified Quant Report for Sample BNR68

Compound	RT	EXP RT	Response	On-column	Final
* Bromochloromethane	8.71	8.792	2187293	250.00	
* 1,4 Difluorobenzene	9.986	10.189	10478395	250.00	
* Chlorobenzene-d5	13.289	13.388	8678186	250.00	
$ 1,2 Dichloroethane-d4	9.420	9.477	1804457	???	???
$ Tolune-d8	11.807	11.878	9496540	???	???
$ Bromofluorobenzene	14.303	14.375	7655982	???	???
Acetone	Compound Not Detected				
Methylene chloride	Compound Not Detected				
2-butanone	Compound Not Detected				
Benzene	Compound Not Detected				
2-hexanone	Compound Not Detected				

* Internal Standard
$ Surrogates

7 (Modified)
VOLATILE CONTINUING CALIBRATION CHECK

Date: 02/10/01 Injection Time: 0849 Instrument: AA Heated Purge: N

Compound	RRF	RRF50	MIN RRF	%D	Max %D
Acetone	0.841	0.759		-9.8	
Methylene chloride	2.310	1.955		-15.4	
2-butanone	1.156	1.236		6.9	
Benzene	1.279	1.247	0.500	-2.5	25.0
2-hexanone	0.444	0.415		-6.5	
Toluene-d8	1.153	1.110		-3.73	
Bromofluorobenzene	0.895	0.876	0.200	-2.12	25.0
1,2 Dichloroethane-d4	1.001	0.891		-10.9	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBB00-10_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBB00-10BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane		
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	83	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	54	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	6	J
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene		
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBB00-10_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBB00-10BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	11	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	4	J
100-41-4	Ethylbenzene	14	
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene		

Modified Quant Report for Sample BPH62

Compound	RT	EXP RT	Response	On-column	Final
* Bromochloromethane	7.918	8.292	40502	250.00	
* 1,4 Difluorobenzene	8.963	9.189	187854	250.00	
* Chlorobenzene-d5	11.902	12.388	177417	250.00	
$ 1,2 Dichloroethane-d4	8.529	8.477	121108	???	???
$ Tolune-d8	10.541	10.878	204187	???	???
$ Bromofluorobenzene	12.880	13.375	109616	???	???
Acetone	Compound Not Detected				
Methylene chloride	Compound Not Detected				
2-butanone	Compound Not Detected				
Benzene	Compound Not Detected				
2-hexanone	Compound Not Detected				

* Internal Standard
$ Surrogates

7 (Modified)
VOLATILE CONTINUING CALIBRATION CHECK

Date: 02/05/01 Injection Time: 1523 Instrument: BB Heated Purge: Y

Compound	RRF	RRF50	MIN RRF	%D	Max %D
Acetone	0.841	0.759		-9.75	
Methylene chloride	2.310	1.955		-15.37	
2-butanone	1.756	1.236		-29.61	
Benzene	1.279	1.247	0.500	-2.50	25.0
2-hexanone	0.444	0.415		-6.53	
Toluene-d8	1.153	1.071		-7.11	
Bromofluorobenzene	0.895	0.626	0.200	-30.06	25.0
1,2 Dichloroethane-d4	2.001	3.137		56.77	

Module 5 Quiz 1

Instruction:

- Fill in the Recovery and RPD values for each problem.
- Decide a possible course of action to qualify the data.

1. Water sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
1,1 Dichloroethene	50	0	34		45			14	61-145
Trichloroethene	50	20	45		45			14	71-120
Benzene	50	0	57		59			11	76-127
Toluene	50	0	68		70			13	76-125
Chlorobenzene	50	10	55		45			13	75-130

2. Low level Soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
1,1 Dichloroethene	50	0	48		24			22	59-172
Trichloroethene	50	0	55		53			24	62-137
Benzene	50	15	76		68			21	66-142
Toluene	50	40	110		92			21	59-139
Chlorobenzene	50	0	65		60			21	60-133

3. Med level soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
1,1 Dichloroethene	42	0	26		30			22	59-172
Trichloroethene	42	0	35		35			24	62-137
Benzene	42	0	23		25			21	66-142
Toluene	42	0	75		70			21	59-139
Chlorobenzene	42	0	52		55			21	60-133

4. Low level soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
1,1 Dichloroethene	71	0	45		40			14	61-145
Trichloroethene	71	0	56		50			14	71-120
Benzene	71	0	51		43			11	76-127
Toluene	71	0	63		54			13	76-125
Chlorobenzene	71	0	10		4			13	75-130

Module 6 Quiz 1

Instruction:

- Use Figure 6.1 from page 5 or from the checklist in section 6.2 to qualify the each problem.
- Calculate and write in the correct CRQL for the sample if dilution factor (DF) or % moisture is involved. Assume the SOW CRQL of 10 for your base value.
- Write in the Qualified Result. This is the correct value and qualifier to be reported on the sample Form 1. Remember the significant figures and rounding rules.

1.

Matrix	water	
Blank Contaminant	4	acetone
Sample CRQL		
Sample Result		8
Qualified Result		

2.

Matrix	water	
Blank Contaminant	12	methylene chloride
Sample CRQL		
Sample Result		50
Qualified Result		

3.

Matrix	water	
Blank Contaminant	3	toluene
Sample CRQL		
Sample Result		65
Qualified Result		

4.

Matrix	water	
Blank Contaminant	2	benzene
Sample CRQL		
Sample Result		8
Qualified Result		

5.

Matrix	water	
Blank Contaminant	3	chloroform
Sample CRQL		
Sample Result		23
Qualified Result		

6.

Matrix	water	
Blank Contaminant	3	2-hexanone
Sample CRQL		
Sample DF	3	
Sample Result		25
Qualified Result		

7. Matrix soil

Blank Contaminant	2	2-butanone
Sample CRQL		
% Moisture	15	
Sample Result		5
Qualified Result		

8. Matrix soil

Blank Contaminant	4	Cyclohexane
Sample CRQL		
Sample DF	2	
% Moisture	45	
Sample Result		160
Qualified Result		

9. Matrix soil

Blank Contaminant	15	methylene chloride
Sample CRQL		
% Moisture	35	
Sample Result		38
Qualified Result		

10. Matrix soil

Blank Contaminant	3	1,2,4 trichlorobenzene
Sample CRQL		
Sample DF	5	
% Moisture	20	
Sample Result		40
Qualified Result		

11. Matrix soil

Blank Contaminant	8	ethylbenzene
Sample CRQL		
Sample DF	2	
% Moisture	8	
Sample Result		25
Qualified Result		

12. Matrix soil

Blank Contaminant	3	Trichloroethene
Sample CRQL		
Sample DF		
% Moisture	15	
Sample Result		10
Qualified Result		

Module 6 Quiz 2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-10_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	85	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	52	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	23	
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	33	
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	5	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-10_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	41	
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	14	
108-88-3	Toluene	14	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	23	
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	5	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	36	
120-82-1	1,2,4-Trichlorobenzene	10	U

FORM I VOA-2

OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBJ50-13_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBJ50-13BB_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	22	
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	83	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	54	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	6	J
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	20	
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-3_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BPH50-3BB_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	11	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	4	J
1330-20-7	Xylene (total)	14	
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	25	

FORM I VOA-2

OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-MB1_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	1	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-MB1_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	2	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

FORM I VOA-2

OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-MB2_____

Sample wt/vol: _____5.42_____(g/mL) ___g_____ Lab File ID: ____ BPH50-MBS_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	3	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	5	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-MB2_____

Sample wt/vol: _____5.42_____(g/mL) ___g_____ Lab File ID: ____ BPH50-MBS_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	1	J
1330-20-7	Xylene (total)	3	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

Module 6 Quiz 3

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKDS

Lab Name: __NewLab_____ Contract : __123456___

Lab Code: __NLB____ Case No.: __12345___ SAS No.: _____ SDG No.:_BBJ50

Lab File ID: _BPH50-MBS_____ Lab Sample ID: ___BPH50-MB2_____

Instrument ID : __HP12_____ Date Extracted: __01/26/01_____

Matrix: (soil/water) ____SOIL_____ Date Analyzed: ___02/05/01_____

Level: (low/med) _____LOW_____ Time Analyzed: ___0935_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.	BPH62	BBJ50-13	BBJ50-13BB	1005
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

COMMENTS:

page _1____ of __1_____

FORM IV SV

OLM04.2

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKJH

Lab Name: __NewLab_____ _____

Contract : __123456___

Lab Code: __NLB____ Case No.: __12345___

SAS No.: _____

SDG No.:_BBJ50

Lab File ID: _BPH50-MBW_____

Lab Sample ID: ___BPH50-MB1_____

Instrument ID : __HP14_____

Matrix: (soil/water) ____WATER_____

Date Extracted: __01/24/01_____

Date Analyzed: ___01/30/01

Level: (low/med) _____ _____

Time Analyzed: ___1015_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.	BBJ60	BBJ50-10	BBJ50-10AA	1045
2.	BPL01	BBJ50-30	BBJ50-30AA	1115
3.	BPL04	BBJ50-33	BBJ50-33AA	1145
4.	VHBLK01	SB01	BBJ50-SB01	1215
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
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18.				
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22.				
23.				
24.				
25.				
26.				
27.				
28.				

COMMENTS:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-10_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	85	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	52	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	23	
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	33	
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	5	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-10_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	41	
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	14	
108-88-3	Toluene	14	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	23	
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	5	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	36	
120-82-1	1,2,4-Trichlorobenzene	10	U

FORM I VOA-2

OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBJ50-13_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBJ50-13BB_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	22	
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	83	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	54	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	6	J
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	20	
107-06-2	1,2 Dichloroethane	10	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-3_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BPH50-3BB_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	11	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	4	J
1330-20-7	Xylene (total)	14	
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	25	

FORM I VOA-2

OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-30_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-30AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	2	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	5	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-30_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-30AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	J
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	8	J
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-33_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-33AA_____

Level: (low/med) _____ Date Received: __01/26/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	5	J
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-33_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-33AA_____

Level: (low/med) _____ Date Received: __01/26/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	J
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	1	J
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	3	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	1	J

FORM I VOA-2

OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLK01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _SB01_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-SB01_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	5	J
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	3	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	2	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLK01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _SB01_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-SB01_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	2	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	5	J
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-MB1_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	1	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-MB1_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	2	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

FORM I VOA-2

OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-MB2_____

Sample wt/vol: _____5_____(g/mL) ___g_____ Lab File ID: ____ BPH50-MBS_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____0_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	3	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	5	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-MB2_____

Sample wt/vol: _____5_____(g/mL) ___g_____ Lab File ID: ____ BPH50-MBS_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____0_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	1	J
1330-20-7	Xylene (total)	3	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

FORM I VOA-2

OLM04.2

Case Narrative

The following samples were received in good condition and containers intact.

Airbill Number: 10976520, cooler temp 6˚C, received 01-24-2001

BBJ60
BPL01

Airbill Number: 28765941, cooler temp 3˚C, received 01-26-2001

BPH62
BPL04

Sampling Trip Report

Sample	Date of Collection	Shipped	Description
BBJ60	01-22-2001	01-22-2001	Surface water
BPH62	01-25-2001	01-25-2001	Soil, 2" to 6" deep
BPL01	01-22-2001	01-22-2001	Trip Blank
BPL04	01-25-2001	01-25-2001	Rinse Blank for bowel and trowel

Module 6 Quiz 4

Instruction:

- Write the correct qualification for the TICs in the sample for contamination. The method blank TICs are on the next page.

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
BBJ60

Lab Name: __NewLab_____ Contract : __123456_____
Lab Code: ___NLB__ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) __water_____ Lab Sample ID: __BBJ50-10_____

Sample wt/vol: ____5_____(g/mL) __mL_____ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: _01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)
Number TICs found: ___4_____ CONCENTRATION UNITS
(lg/L or lg/Kg) _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75-09-2	Dichloromethane	6.52	25	NJ
2. 556-67-2	Cyclotetrasiloxane, Ocatameth	14.54	11	NJ
3.	Laboratory Artifact	15.88	14	JB
4.	Laboratory Artifact	17.13	10	JB
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

FORM I VOA-TIC OLM04.2

1F EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

VBLKJH

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: ___NLB__ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) __water_____ Lab Sample ID: __BBJ50-MB1____

Sample wt/vol: ____5_____(g/mL) __mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: _01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: ____2_____ CONCENTRATION UNITS (lg/L or lg/Kg)_____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Laboratory Artifact	15.88	4	J
2.	Laboratory Artifact	17.13	10	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Module 7 Quiz 1

Instruction:

- Using the raw data provided for each of the three samples, fill in the % Relative abundance for each m/e.

Tune 7-1

M/e	Ion Abundance criteria	% Relative Abundance
50	8.0 - 40.0% of mass 95	
75	30.0 - 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0 - 9.0% of mass 95	
173	Less than 2.0% of mass 174	( )1
174	50.0 - 120.0% of mass 95	
175	4.0 - 9.0% of mass 174	( )1
176	93.0 - 101.0% of mass 174	( )1
177	5.0 - 9.0% of mass 176	( )2

1-value is % mass 174 2-Value is % mass 176

Raw data for BFB tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	291	65.00	146	96.00	987	142.00	26
37.00	1457	66.00	61	97.00	47	143.00	391
38.00	1307	67.00	96	103.00	51	145.00	24
39.00	371	68.00	3061	104.00	153	146.00	43
40.00	132	69.00	2754	105.00	100	147.00	21
42.00	17	70.00	294	106.00	182	148.00	84
43.00	44	72.00	160	108.00	18	149.00	23
44.00	110	73.00	1186	111.00	25	154.00	19
45.00	239	74.00	4501	112.00	19	155.00	71
46.00	48	75.00	11258	113.00	27	156.00	17
47.00	122	76.00	912	115.00	7	157.00	68
48.00	242	77.00	84	116.00	189	161.00	58
49.00	1012	79.00	888	117.00	159	170.00	17
50.00	7458	80.00	291	118.00	83	172.00	234
51.00	1439	81.00	833	119.00	217	173.00	58
52.00	64	82.00	143	123.00	18	174.00	2021
53.00	44	84.00	18	127.00	38	175.00	2
55.00	62	85.00	19	128.00	94	176.00	1875
56.00	491	87.00	504	129.00	75	177.00	2000
57.00	709	88.00	518	130.00	75	207.00	6
							102235
60.00	360	91.00	127	134.00	22	208.00	17
61.00	1564	92.00	722	135.00	64	282.00	17
62.00	1139	93.00	1088	136.00	34		
63.00	847	94.00	2885	137.00	23		
64.00	116	95.00	20236	141.00	294		

Tune 7-2

M/e	Ion Abundance criteria	% Relative Abundance
50	8.0 - 40.0% of mass 95	
75	30.0 - 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0 - 9.0% of mass 95	
173	Less than 2.0% of mass 174	( )1
174	50.0 - 120.0% of mass 95	
175	4.0 - 9.0% of mass 174	( )1
176	93.0 - 101.0% of mass 174	( )1
177	5.0 - 9.0% of mass 176	( )2

1-value is % mass 174 2-Value is % mass 176

Raw data for BFB tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	291	65.00	146	96.00	1440	142.00	26
37.00	1457	66.00	61	97.00	47	143.00	391
38.00	1307	67.00	96	103.00	51	145.00	24
39.00	371	68.00	3061	104.00	153	146.00	43
40.00	132	69.00	2754	105.00	100	147.00	21
42.00	17	70.00	294	106.00	182	148.00	84
43.00	44	72.00	160	108.00	18	149.00	23
44.00	110	73.00	1186	111.00	25	154.00	19
45.00	239	74.00	4501	112.00	19	155.00	71
46.00	48	75.00	12544	113.00	27	156.00	17
47.00	122	76.00	912	115.00	7	157.00	68
48.00	242	77.00	84	116.00	189	161.00	58
49.00	1012	79.00	888	117.00	159	170.00	17
50.00	2557	80.00	291	118.00	83	172.00	234
51.00	1439	81.00	833	119.00	217	173.00	35
52.00	64	82.00	143	123.00	18	174.00	1982
53.00	44	84.00	18	127.00	38	175.00	7
55.00	62	85.00	19	128.00	94	176.00	4578
56.00	491	87.00	504	129.00	75	177.00	1122
57.00	709	88.00	518	130.00	75	207.00	5
							356835
60.00	360	91.00	127	134.00	22	208.00	17
61.00	1564	92.00	722	135.00	64	282.00	17
62.00	1139	93.00	1088	136.00	34		
63.00	847	94.00	2885	137.00	23		
64.00	116	95.00	54414	141.00	294		

Tune 7-3

M/e	Ion Abundance criteria	% Relative Abundance
50	8.0 - 40.0% of mass 95	
75	30.0 - 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0 - 9.0% of mass 95	
173	Less than 2.0% of mass 174	( )1
174	50.0 - 120.0% of mass 95	
175	4.0 - 9.0% of mass 174	( )1
176	93.0 - 101.0% of mass 174	( )1
177	5.0 - 9.0% of mass 176	( )2

1-value is % mass 174 2-Value is % mass 176

Raw data for BFB tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	291	65.00	146	96.00	1042	142.00	26
37.00	1457	66.00	61	97.00	47	143.00	391
38.00	1307	67.00	96	103.00	51	145.00	24
39.00	371	68.00	3061	104.00	153	146.00	43
40.00	132	69.00	2754	105.00	100	147.00	21
42.00	17	70.00	294	106.00	182	148.00	84
43.00	44	72.00	160	108.00	18	149.00	23
44.00	110	73.00	1186	111.00	25	154.00	19
45.00	239	74.00	4501	112.00	19	155.00	71
46.00	48	75.00	13757	113.00	27	156.00	17
47.00	122	76.00	912	115.00	7	157.00	68
48.00	242	77.00	84	116.00	189	161.00	58
49.00	1012	79.00	888	117.00	159	170.00	17
50.00	5232	80.00	291	118.00	83	172.00	234
51.00	1439	81.00	833	119.00	217	173.00	19
52.00	64	82.00	143	123.00	18	174.00	2265
53.00	44	84.00	18	127.00	38	175.00	4
55.00	62	85.00	19	128.00	94	176.00	1604
56.00	491	87.00	504	129.00	75	177.00	2837
57.00	709	88.00	518	130.00	75	207.00	7
							1026
							35
60.00	360	91.00	127	134.00	22	208.00	17
61.00	1564	92.00	722	135.00	64	282.00	17
62.00	1139	93.00	1088	136.00	34		
63.00	847	94.00	2885	137.00	23		
64.00	116	95.00	27537	141.00	294		

Module 7 Quiz 2

Instruction:

- Using the tune criteria, write on the line any problems with the sequence.

Sequence 1

BFB injection Date: 02-14-01 BFB injection time 1224

EPA sample No.	Date Analyzed	Time Analyzed	
VSTD0101B	02-14-01	1319	
VSTD0201B	02-14-01	1355	
VSTD0501B	02-14-01	1435	
VSTD1001B	02-14-01	1510	
VSTD2001B	02-14-01	1550	
VBLK85	02-14-01	1620	
BFG65	02-14-01	1824	
KJY34	02-15-01	0124	

Sequence 2

BFB injection Date: 02-14-01 BFB injection time 0854

EPA sample No.	Date Analyzed	Time Analyzed	
VSTD0501B	02-14-01	0814	
VLK22	02-14-01	1015	
KJI76	02-14-01	1055	
KJY66	02-14-01	1955	

Sequence 3

BFB injection Date: 02-04-01 BFB injection time 1544

EPA sample No.	Date Analyzed	Time Analyzed	
VSTD0501B	02-04-01	1620	
VSTD0101B	02-04-01	1700	
VSTD0201B	02-04-01	1735	
VSTD1001B	02-04-01	1845	
VSTD2001B	02-04-01	2045	
GTR56	02-05-01	0023	
VBLK76	02-05-01	0340	

Sequence 4

BFB injection Date: 02-22-01 BFB injection time 1824

EPA sample No.	Date Analyzed	Time Analyzed	
VSTD0201B	02-22-01	1800	
VBLK76	02-22-01	1837	
GFD54	02-22-01	1905	
GFT56	02-22-01	1940	
GTY78	02-22-01	2015	

Module 7 Quiz 3

Instruction:

- Calculate the ion abundance using the Quant reports at the end of the quiz.
- Using the checklist in this unit, apply the qualifications to each of the samples. Form 5s have been included after the Form 1s.
- Write the qualifications on the Forms. Any remarks that should be added to the DA about all samples, write up on this page.

Data Assessment

Instrument Performance section

Contract-Non-Compliance section

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BPH50-3_____

Sample wt/vol: _____7.2_____(g/mL) ___g_____ Lab File ID: __BPH50-3-AA_____

Level: (low/med) __Low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____15_____ Date Analyzed: __02/05/01_____

GC Column: _J&W DB-624____ ID: _____0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	25	
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	15	
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	8	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	4	J
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BPH50-3_____

Sample wt/vol: _____7.2_____(g/mL) ___g_____ Lab File ID: __BPH50-3-AA_____

Level: (low/med) __Low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____15_____ Date Analyzed: __02/05/01_____

GC Column: _J&W DB-624____ ID: _____0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	6	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	2	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1A EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPJ05

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BPJ03-3

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BPJ03-3_____

Sample wt/vol: _____4_____(g/mL) ___g_____ Lab File ID: __BPJ03-3-FF_____

Level: (low/med) __Med_____ Date Received: __02/09/01_____

% Moisture: not dec. ____63_____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___50_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	6900	U
74-87-3	Chloromethane	6900	U
75-01-4	Vinyl Chloride	6900	U
74-83-9	Bromomethane	6900	U
75-00-3	Chloroethane	6900	U
75-69-4	Trichlorofluoromethane	6900	U
75-35-4	1,1 Dichloroethene	6900	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	6900	U
67-64-1	Acetone	100	J
75-15-0	Carbon Disulfide	6900	U
79-20-9	Methyl Acetate	6900	U
75-09-2	Methylene Chloride	2000	J
156-60-5	Trans-1,2-Dichloroethene	6900	U
1634-04-4	Methyl-tert-Butyl Ether	6900	U
75-34-3	1,1 Dichloroethane	6900	U
156-59-2	Cis- Dichloroethene	6900	U
78-93-3	2-Butanone	3200	J
67-99-3	Chloroform	6900	U
71-55-6	1,1,1-Trichloroethane	6900	U
110-82-7	Cyclohexane	6900	U
56-23-5	Carbon Tetrachloride	6900	U
71-43-2	Benzene	8200	
107-06-2	1,2 Dichloroethane	6900	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ05

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPJ03

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BPJ03-3_____

Sample wt/vol: _____4_____(g/mL) ___g_____ Lab File ID: __BPJ03-3-FF_____

Level: (low/med) __Med_____ Date Received: __02/09/01_____

% Moisture: not dec. ____63_____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___50_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	5000	J
108-87-2	Methylcyclohexane	6900	U
78-87-5	1,2-Dichloropropane	6900	U
75-27-4	Bromodichloromethane	6900	U
10061-01-5	Cis-1,3-Dichloropropene	6900	U
108-10-1	4-Methyl-2-pentanone	6900	U
108-88-3	Toluene	600	J
10061-02-6	Trans-1,3 Dichloropropene	6900	U
79-00-5	1,1,2 Trichloroethane	6900	U
127-18-4	Tetrachloroethene	6900	U
591-78-6	2-Hexanone	1200	J
124-48-1	Dibromochloromethane	6900	U
106-93-4	1,2-Dibromoethane	6900	U
108-90-7	Chlorobenzene	6900	U
100-41-4	Ethylbenzene	6900	U
1330-20-7	Xylene (total)	6900	U
100-42-5	Styrene	6900	U
75-25-2	Bromoform	6900	U
98-82-8	Isopropylbenzene	6900	U
79-34-5	1,1,2,2-Tetrachloroethane	6900	U
541-73-1	1,3-Dichlorobenzene	7600	
106-46-7	1,4- Dichlorobenzene	9600	
95-50-1	1,2 Dichlorobenzene	12000	
96-12-8	1,2-Dibromo-3-chloropropane	6900	U
120-82-1	1,2,4-Trichlorobenzene	10000	U

1A EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPJ51

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPJ03

Matrix: (soil/water) __Water_____ Lab Sample ID: _BPJ03-5_____

Sample wt/vol: _____5_____(g/mL) ___mL_____ Lab File ID: __BPJ03-5-BB_____

Level: (low/med) _____ Date Received: __02/08/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	40	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	J
75-09-2	Methylene Chloride	5	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	15	
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPJ03

Matrix: (soil/water) __Water_____ Lab Sample ID: _BPJ03-5_____

Sample wt/vol: _____5_____(g/Ml) ___Ml_____ Lab File ID: __BPJ03-5-BB_____

Level: (low/med) _____ Date Received: __02/08/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	6	J
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	3	J
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	43	
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345____ SAS No.: _____ SDG No.:_BPJ03

Lab File ID: _AA010202_____ BFB Injection Date: ___02/02/01_____

Instrument ID: __AA_____ BFB Injection Time: ___1754

GC Column: J&W DB-624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	
75	30.0- 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0- 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0- 120.0% of mass 95	
175	4.0- 9.0% of mass 174	( )1
176	93.0- 101.0% of mass 174	( )1
177	5.0- 9.0% of mass 176	( )2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD010AA	VSTD010AA	ICS010	02/02/01	1820
2.	VSTD020AA	VSTD020AA	ICS020	02/02/01	1850
3.	VSTD050AA	VSTD050AA	ICS050	02/02/01	1919
4.	VSTD100AA	VSTD100AA	ICS100	02/02/01	1949
5.	VSTD200AA	VSTD200AA	ICS200	02/02/01	2018
6.	VBLKLX	MB2	BPH50-MBS	02/02/01	2129
7.	BPH50	BPH50-1	BPH50-1AA	02/03/01	0411
8.	BPH51	BPH50-2	BPH50-2AA	02/03/01	0555
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BPH50

Lab File ID: _AA010205_____ BFB Injection Date: ___02/05/01_____

Instrument ID: __AA_____ BFB Injection Time: ___1429_____

GC Column: J&W DB/624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0/ 40.0% of mass 95	
75	30.0/ 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0/ 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0/ 120.0% of mass 95	
175	4.0/ 9.0% of mass 174	( )1
176	93.0/ 101.0% of mass 174	( )1
177	5.0/ 9.0% of mass 176	( )2

1/ Value is % mass 174 2/ Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD050KL	VSTD050KL	CCT03	02/05/01	1523
2.	VBLKOB	MB3	BPH50-MBS	02/05/01	1559
3.	BPH62	BPH50-3	BPH50-3AA	02/05/01	1638
4.	VHBLKTT	SB1	BPH50-SB1	02/05/01	2340
5.	BPH71	BPH50-4	BPH50-4RB	02/05/01	1708
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BPJ03

Lab File ID: _FF010207_____ BFB Injection Date: ___02/07/01_____

Instrument ID: __FF_____ BFB Injection Time: ___0843_____

GC Column: Equity DB624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0/ 40.0% of mass 95	
75	30.0/ 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0/ 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0/ 120.0% of mass 95	
175	4.0/ 9.0% of mass 174	( )1
176	93.0/ 101.0% of mass 174	( )1
177	5.0/ 9.0% of mass 176	( )2

1/ Value is % mass 174 2/ Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD010FF	VSTD010FF	ICA010	02/07/01	0949
2.	VSTD020FF	VSTD020FF	ICA020	02/07/01	1024
3.	VSTD050FF	VSTD050FF	ICA050	02/07/01	1054
4.	VSTD100FF	VSTD100FF	ICA100	02/07/01	1126
5.	VSTD200FF	VSTD200FF	ICA200	02/07/01	1156
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_____

Lab File ID: _AA010210_____ BFB Injection Date: ___02/10/01_____

Instrument ID: __AA_____ BFB Injection Time: ___0827_____

GC Column: Equity DB624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0/ 40.0% of mass 95	
75	30.0/ 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0/ 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0/ 120.0% of mass 95	
175	4.0/ 9.0% of mass 174	( )1
176	93.0/ 101.0% of mass 174	( )1
177	5.0/ 9.0% of mass 176	( )2

1/ Value is % mass 174 2/ Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VST050BB	VST050BB	CCB03	02/10/01	0849
2.	BPJ03	BPJ03-1	BPJ03-1FF	02/10/01	1433
3.	VBLKLL	MB1	BPJ03-MBW	02/10/01	0923
4.	BPJ51	BPJ03-5	BPJ03-5FF	02/10/01	1308
5.	BPJ52	BPJ03-7	BPJ03-7FF	02/10/01	1337
6.	VBLKMM	MB4	BPJ03-MBS	02/10/01	1530
7.	BPJ04	BPJ03-3	BPJ03-3FF	02/10/01	1559
8.	BPJ05	BPJ03-4	BPJ03-4FF	02/10/01	1724
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

COMMENTS:

Raw data for BFB tune 02-07-01 0843 File ID FF010207

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	5049	60.00	3325	79.00	7771	117.00	887
37.00	30760	61.00	20624	80.00	2327	118.00	162
38.00	25088	62.00	19416	81.00	7708	119.00	1386
39.00	10607	63.00	14966	82.00	1617	130.00	282
41.00	196	64.00	235	87.00	43408	141.00	575
43.00	456	67.00	816	88.00	39336	143.00	778
44.00	2454	68.00	51104	89.00	439	146.00	570
45.00	4114	69.00	51136	91.00	823	147.00	306
47.00	11937	70.00	3595	92.00	9891	148.00	578
48.00	1773	71.00	93	93.00	17520	169.00	433
49.00	20120	72.00	1531	94.00	63520	173.00	8281
50.00	10536	73.00	20336	95.00	76678	174.00	54355
51.00	0	74.00	77800	96.00	4	175.00	2
52.00	32008	75.00	28787	97.00	50256	176.00	37216
55.00	273	76.00	2	104.00	726	177.00	52723
	1328		23352		378		2
							32936
56.00	5263	77.00	3706	106.00	254	207.00	4
57.00	12380	78.00	3034	116.00	88		

Raw data for BFB tune 02-10-01 0827 File ID AA010210

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	4731	56.00	5967	77.00	3886	104.00	418
37.00	32488	57.00	12412	78.00	3841	106.00	287
38.00	27544	60.00	2871	79.00	8089	116.00	152
39.00	10827	61.00	20456	80.00	2428	117.00	887
40.00	303	62.00	19264	81.00	7985	119.00	549
42.00	255	63.00	13815	82.00	1918	128.00	101
43.00	147	64.00	265	83.00	137	130.00	255
44.00	2339	67.00	1067	87.00	34504	141.00	781
45.00	4439	68.00	51608	88.00	32184	143.00	732
47.00	12047	69.00	52120	91.00	535	173.00	2404
48.00	1727	70.00	4096	92.00	9396	174.00	44102
49.00	19584	72.00	1614	93.00	17056	175.00	4
50.00	10763	73.00	19432	94.00	59984	176.00	31208
51.00	2	74.00	77584	95.00	70649	177.00	41977
52.00	32456	75.00	28454	96.00	6	207.00	6
	521		4		47608		26656
							474
55.00	1279	76.00	21912	97.00	493		

Raw data for BFB tune 02-02-01 1754 File ID AA010202

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1071	63.00	4415	92.00	3321	141.00	1386
37.00	6786	64.00	365	93.00	5114	143.00	1600
38.00	6497	67.00	160	94.00	14284	148.00	419
39.00	2097	68.00	1335	95.00	11652	149.00	106
40.00	256	69.00	0	96.00	8	150.00	102
			13199		7212		
44.00	1427	70.00	1214	97.00	104	157.00	114
45.00	1063	72.00	685	104.00	841	171.00	117
47.00	965	73.00	5396	105.00	340	172.00	457
48.00	971	74.00	1950	106.00	640	174.00	4825
49.00	5898	75.00	4	107.00	107	175.00	2
			58560				7178
50.00	23152	76.00	3914	116.00	560	176.00	9624
51.00	7138	77.00	465	117.00	768	177.00	8
52.00	311	79.00	4895	118.00	389	193.00	6372
55.00	289	80.00	1520	119.00	665	207.00	151
56.00	2120	81.00	5150	128.00	407	208.00	206
							282
57.00	3500	82.00	1224	129.00	129	209.00	236
60.00	1212	87.00	4998	130.00	704	268.00	123
61.00	5487	88.00	4338	131.00	100		
62.00	5734	91.00	754	137.00	130		

Raw data for BFB tune 02-05-01 1429 File ID AA010205

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1143	62.00	5415	88.00	4225	129.00	150
37.00	7343	63.00	4095	89.00	256	130.00	502
38.00	6109	64.00	447	91.00	788	135.00	233
39.00	2246	67.00	162	92.00	3068	141.00	1642
40.00	280	68.00	14098	93.00	4951	142.00	171
41.00	335	69.00	1274	94.00	13379	143.00	1159
43.00	225	70.00	2	95.00	11043	144.00	108
44.00	885	72.00	1036	96.00	2	147.00	155
45.00	1233	73.00	656	97.00	7264	157.00	257
47.00	1223	74.00	5379	104.00	252	172.00	761
			19880		807		
48.00	766	75.00	5708	105.00	134	174.00	8576
49.00	5129	76.00	8	106.00	588	175.00	0
50.00	24328	77.00	4582	107.00	105	176.00	6331
51.00	7566	78.00	852	111.00	225	177.00	8104
52.00	353	79.00	442	113.00	131	178.00	0
			57520				5638
							157
55.00	617	80.00	1534	116.00	531	207.00	347
56.00	1914	81.00	6116	117.00	822	239.00	107
57.00	4145	82.00	1223	118.00	666	281.00	221
60.00	1145	86.00	106	119.00	666		
61.00	5979	87.00	4361	128.00	602		

Module 7 Quiz 4

Instruction:

- For each problem, calculate the adjusted CRQL and state the CRQL value that should be reported on the Form 1.

Sample	1	2	3
Matrix	water	water	water
Volume	5	3	2.5
DF	2	1	1
Adjusted CRQL			
Reported CRQL			

Sample	4	5	6
Matrix	Low level soil	Low level soil	Low level soil
Weight	3.5	0.9	5.9
DF	2	1	1
% Moisture	57	23	14
Adjusted CRQL			
Reported CRQL			

Sample	7	8	9
Matrix	Low level soil	water	Low level soil
Vol/wt	5.0	4	6.3
DF	5	3	2
% Moisture	72		45
Adjusted CRQL			
Reported CRQL			

Sample	10	11	12
Matrix	Medium level soil	Medium level soil	Medium level soil
Weight	2.0	4.0	0.5
aliquot	50	100	75
DF	1	2	1
% Moisture	33	25	72
Adjusted CRQL			
Reported CRQL			

Sample	13	14	15
Matrix	Medium level soil	Medium level soil	Medium level soil
Weight	3.0	1.0	2.5
aliquot	100	100	10
DF	1	1	1
% Moisture	15	25	5
Adjusted CRQL			
Reported CRQL			

Module 7 Quiz 5

Instruction:

- Using the Quant reports given below:
- Calculate concentration for all TCL analytes using the parameters specified in each sample.
- Write the concentration following the rounding and significant figures criteria in the table on the next page.

Table of Sample Parameters

Sample	Matrix	Parameters
BGT67	water	2.5 mL
MHY43	Soil low	3.8 g, 34%, dilution = 2
VGT23	water	4 mL
NBG21	Soil medium	4 g, 10uL, 12%, dilution = 3,
BXZ00	Soil low	6.8 g, 56%
CFR99	Soil medium	2 g, 75uL, 37%

Modified Form 7A/B Continuing Calibration

Compounds	**____ RRF**	**RRF50**	**MIN RRF**	**%D**	**MA %D**
Vinyl Chloride	1.633	1.638	0.100	0.31	25.0
Acetone	1.748	1.743		-0.29	
Methylene chloride	1.938	1.796		-7.3	
Carbon Tetrachloride	0.450	0.461	0.100	2.4	25.0
Benzene	1.352	1.338	0.500	-1.0	25.0
Bromoform	0.200	0.238	0.100	19.0	25.0
Toluene	1.389	1.523	0.400	9.6	25.0
2-Hexanone	0.352	0.301		-14.4	
1,2 dichlorobenzene	0.777	0.785	0.400	1.0	25.0
Toluene-d8	2.312	2.026		-12.4	
Bromofluorobenzene	1.475	1.269	0.200	-14.0	25.0
1,2 Dichloroethane-d4	0.538	0.467		-13.2	

Modified Quant Report of samples

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	7.902	9.18	927498	250	
Vinyl Chloride	61	4.016	3.25	655765		
Acetone	43	5.703	6.18	525662		
Methylene chloride	84	6.235	6.87	93428		
$ 1,2 Dichloroethane-d4	65	8.513	10.12	821870		
* 1,4 Difluorobenzene	114	8.957	10.52	474277	250	
Carbon Tetrachloride	117	8.405	9.87	537172		
Benzene	78	8.612	10.05	76275		
Bromoform	173	12.635	16.03	394478		
* Chlorobenzene-d5	117	11.886	14.69	420317	250	
$ Toluene-d8	98	10.525	12.58	1346464		
Toluene	92	10.594	12.62	707844		
2-Hexanone	43	11.116	13.75	258144		
$ Bromofluorobenzene	95	12.872	16.60	212267		
1,2 dichlorobenzene	146	14.144	18.58	91409		

* = Internal Standard

$ = SMC

Note- Some labs report the IS concentration as 50 ng/mL instead of 250 ng/ 5 mL. If the lab reports 50 as the IS amount, then use 1mL as the sample volume amount (V_o).

Fill in the concentration of each compound for each sample.

Compounds	BGT67	MHY43	VGT23	NBG21	BXZ00	CFR99
Vinyl Chloride						
Acetone						
Methylene chloride						
Carbon Tetrachloride						
Benzene						
Toluene						
2-Hexanone						
Bromoform						
1,2 dichlorobenzene						

Module 8 Quiz 1

Instruction:

- Table 1 is the area responses for all of the analytes of interest.
- Calculate the RRF for each level and analyte on Table 2.
- Fill in the RRF values only, leave the average RRF and %RSD fields empty. They will be filled in from later quizzes.

Table 1

Compounds	RRF 10	RRF 20	RRF 50	RRF 100	RRF 200
*Bromomethane	409350	466020	1249926	3082217	6415615
Acetone	15963	35935	68625	140328	221827
*Chloroform	907689	1697755	4105108	8342463	16477161
*Benzene	610201	1075699	2907350	6170945	11899904
Cyclohexane	9354	25524	79987	58987	225412
*Bromoform	319420	1075977	3365977	11799977	11996977
*Toluene	328502	510323	1305147	4079869	8114578
2-Hexanone	18080	160804	504770	1228383	2527510
*1,2,4 Trichlorobenzene	248478	499833	1008233	1958233	3688233
Toluene-d8	895546	1841986	5058301	10131353	21623119
*Bromofluorobenzene	758629	1624632	4418668	9001043	16265954
1,2 Dichloroethane-d4	273514	520679	1418264	2866711	6072579
Bromochloromethane	1044651	1070449	1143611	1204961	1341516
1,4 Difluorobenzene	4957106	5152521	5364949	5628863	6088307
Chlorobenzene-d5	4094002	4197350	4291897	4615845	4920107

* Analytes required to passed minimum RRF and maximum %RSD.

Table 2

Compounds	RRF 10	RRF 20	RRF 50	RRF 100	RRF 200	Ave RRF	%RSD
*Bromomethane							
Acetone							
*Chloroform							
*Benzene							
Cyclohexane							
*Bromoform							
*Toluene							
2-Hexanone							
*1,2,4 Trichlorobenzene							
Toluene-d8							
*Bromofluorobenzene							
1,2 Dichloroethane-d4							

* Analytes required to passed minimum RRF and maximum %RSD.

Module 8 Quiz 2

Instruction:

- Go back to Table 2 in Quiz 1 and fill in the average RRF values.

Module 8 Quiz 3

Instruction:

- Go back to Table 2 from Quiz 1.
- Write in the %RSD for each analyte.
- The answers for %RSD are in Appendix G.

Module 8 Quiz 4

Instruction:

- Use the completed Table 2 from the previous quizzes and the checklist to determine which analytes failed criteria.
- Write on this page the analytes that failed Contract criterion and which criterion failed. For example: Sample X- methylene chloride failed %RSD criteria.
- Write on this page the analytes that failed Technical criterion and which criterion failed. For example: Sample X- methylene chloride failed RRF criteria.
- For analytes failing technical requirements, write the action/qualifiers that must be applied to the data.

Contract Requirements

Technical Requirements

Module 8 Quiz 5

Instruction:

- Calculate the RRF and %D from the area responses given in Table 1. Refer to Module 9, Table 9-1 or SOW OLM04.2 D-59/VOA, Table 3 for the list of analytes associated with each Internal Standard.
- Write the RRF and %D in Table 2.

Table 1 Modified Quant report for continuing calibration level

Compounds	RRF 50
Bromochloromethane	1975181
*Bromomethane	1545387
Acetone	85473
*Chloroform	7865473
1,2 Dichloroethane-d4	1996987
1,4 Difluorobenzene	9410690
*Benzene	5439473
Cyclohexane	95473
*Bromoform	7925473
Chlorobenzene-d5	7602547
Toluene-d8	8577587
*Toluene	4123478
2-Hexanone	9534587
*1,2,4 Trichlorobenzene	19634587
*Bromofluorobenzene	12559587

Table 2 Modified Form 7A/B

Compounds	[redacted] RRF 50	RRF 50	%D
*Bromomethane	1.483		
Acetone	0.064		
*Chloroform	3.686		
*Benzene	0.543		
Cyclohexane	0.009		
*Bromoform	0.602		
*Toluene	0.396		
2-Hexanone	0.099		
*1,2,4 Trichlorobenzene	0.247		
Toluene-d8	1.113		
*Bromofluorobenzene	0.945		
1,2 Dichloroethane-d4	1.217		

Module 8 Quiz 6

Instruction:

- Using Table 2 from Quiz 5 and the checklist, write out the qualifications that are needed for the failing RRF and %RSD values.
- ⓾ Don't forget to identify and describe Contract Non-Compliance.

Technical Problems

Contract Non-Compliance

Module 8 Quiz 7

Instruction:

- Circle all values that fail criteria for the Initial and Continuing Calibration forms on the next 4 pages. Form 6 is for initial calibration and Form 7 is for continuing calibration.
- ⓾ On this page write the action/qualifications that must be applied to samples.

Technical Problems

Contract Non-Compliance

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _AA_____ Calibration Date: _02/07/00____ __02/07/00____

Heated Purge: (Y/N) __N_____ Calibration Times: __0949_____ __1156_____

GC Column: _Equity 624____ ID: ___0.53____(mm)

LAB FILE ID: RRF10 = __ICA010_____ RRF20 = ___ ICA020_____
RRF50 = ____ ICA050___ RRF100 = __ICA100_____ RRF200 = ___ ICA200_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
Dichlorodifluoromethane	2.908	2.486	2.198	2.018	1.809	2.284	18.8
Chloromethane	2.003	1.744	1.537	1.413	1.226	1.585	19.0
Vinyl Chloride *	2.039	1.766	1.542	1.449	1.349	1.629	*17.0
Bromomethane *	1.757	1.486	1.389	1.279	1.196	1.421	*15.3
Chloroethane	1.148	1.026	0.822	0.722	0.607	0.865	25.5
Trichlorofluoromethane	3.532	3.085	2.767	2.552	2.327	2.853	16.5
1,1 Dichloroethene *	1.599	1.502	1.356	1.277	1.189	1.385	*12.0
1,1,2-trichloro-1,2,2-trifluoroethane	3.376	3.166	2.801	2.686	2.457	2.897	12.8
Acetone	0.307	0.244	0.230	0.218	0.191	0.238	18.1
Carbon Disulfide	4.632	4.255	3.705	3.591	3.352	3.907	13.4
Methyl Acetate	1.164	0.852	0.838	0.794	0.699	0.869	20.1
Methylene Chloride	2.377	1.990	1.653	1.511	1.325	1.771	23.5
Trans-1,2-Dichloroethene	2.107	1.969	1.797	1.771	1.544	1.838	11.6
Methyl-tert-Butyl Ether	4.730	4.576	4.183	4.137	3.500	4.225	11.3
1,1 Dichloroethane *	4.374	4.037	3.607	3.512	3.099	3.726	*13.2
Cis- Dichloroethene	2.052	1.951	1.761	1.768	1.589	1.824	9.9
2-Butanone	0.418	0.362	0.340	0.338	0.272	0.346	15.2
Chloroform *	4.344	3.965	3.590	3.462	3.071	3.686	*13.2
1,1,1-Trichloroethane *	0.605	0.560	0.537	0.539	0.504	0.549	*6.8
Cyclohexane	0.677	0.609	0.552	0.553	0.515	0.581	10.9
Carbon Tetrachloride *	0.544	0.511	0.472	0.469	0.438	0.487	*8.4
Benzene *	1.215	1.122	1.042	1.048	0.957	1.077	*9.0
1,2 Dichloroethane *	1.912	1.823	1.660	1.641	1.441	1.695	*10.7
Trichloroethene *	0.468	0.439	0.420	0.421	0.399	0.429	*6.0
Methylcyclohexane	0.614	0.555	0.508	0.517	0.496	0.538	8.9

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

FORM VI VOA-1 OLM04.2

6B
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _AA_____ Calibration Date: _02/07/00____ __02/07/00____

Heated Purge: (Y/N) __N_____ Calibration Times: __0949_____ __1156_____

GC Column: _Equity 624____ ID: ___0.53_____(mm)

LAB FILE ID: RRF10 = __ICA010_____ RRF20 = ___ ICA020_____
RRF50 = ____ ICA050___ RRF100 = __ICA100_____ RRF200 = ____ ICA200_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
1,2-Dichloropropane	0.634	0.583	0.540	0.528	0.480	0.553	10.5
Bromodichloromethane *	0.867	0.804	0.748	0.743	0.684	0.769	*9.0
Cis-1,3-Dichloropropene *	0.524	0.494	0.470	0.472	0.445	0.481	*6.2
4-Methyl-2-pentanone	0.174	0.205	0.203	0.204	0.188	0.195	7.0
Toluene *	1.608	1.485	1.369	1.334	1.200	1.399	*11.1
Trans-1,3 Dichloropropene *	0.297	0.295	0.290	0.311	0.301	0.299	*2.7
1,1,2 Trichloroethane *	0.339	0.314	0.291	0.298	0.281	0.305	*7.5
Tetrachloroethene *	0.486	0.456	0.432	0.457	0.445	0.455	*4.4
2-Hexanone	0.022	0.046	0.066	0.051	0.045	0.046	34.4
Dibromochloromethane *	0.582	0.562	0.546	0.564	0.520	0.555	*4.2
1,2-Dibromoethane	0.570	0.552	0.525	0.534	0.502	0.537	4.9
Chlorobenzene *	1.153	1.084	1.032	1.020	0.888	1.035	*9.4
Ethylbenzene *	0.526	0.498	0.469	0.474	0.456	0.485	*5.7
Xylene (total) *	0.647	0.616	0.572	0.565	0.505	0.581	*9.3
Styrene *	1.020	0.982	0.950	0.928	0.775	0.931	*10.1
Bromoform *	0.322	0.319	0.317	0.343	0.302	0.321	*4.6
Isopropylbenzene	1.760	1.674	1.542	1.525	1.102	1.521	16.7
1,1,2,2-Tetrachloroethane *	0.688	0.638	0.586	0.593	0.544	0.610	*9.0
1,3-Dichlorobenzene *	0.859	0.813	0.759	0.776	0.642	0.770	*10.5
1,4- Dichlorobenzene *	0.919	0.935	0.840	0.893	0.751	0.868	*8.6
1,2 Dichlorobenzene *	0.759	0.763	0.699	0.721	0.631	0.715	*7.5
1,2-Dibromo-3-chloropropane	0.124	0.120	0.108	0.103	0.083	0.108	14.9
1,2,4-Trichlorobenzene *	0.607	0.597	0.475	0.475	0.372	0.505	*19.4
Toluene -d8	1.094	1.097	1.179	1.097	1.099	1.113	3.3
Bromofluorobenzene *	0.927	0.968	1.030	0.975	0.827	0.945	*8.0
1,2 Dichloroethane -d4	1.309	1.216	1.240	1.190	1.132	1.217	5.4

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

FORM VI VOA-2 OLM04.2

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345___ SAS No.: _____ SDG No.:_BBB00

Calibration Date: Time: __0849_____

Instrument ID: __AA_____ __02/10/01_____

Lab File ID: ___CCA03_____

Init. Calib Date(s): __02/07/01__ __02/07/01

EPA Sample N0. (VSTD50##): _____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
Dichlorodifluoromethane	2.284	0.722		-68.4	
Chloromethane	1.585	0.963		-39.2	
Vinyl Chloride	1.629	1.236	0.100	-24.1	25.0
Bromomethane	1.421	1.183	0.100	-16.7	25.0
Chloroethane	0.865	0.714		-17.5	
Trichlorofluoromethane	2.853	2.461		-13.7	
1,1 Dichloroethene	1.385	1.507	0.100	8.8	25.0
1,1,2-trichloro-1,2,2-trifluoroethane	2.897	2.922		0.9	
Acetone	0.238	0.167		-29.8	
Carbon Disulfide	3.907	4.687		20.0	
Methyl Acetate	0.869	0.671		-22.8	
Methylene Chloride	1.771	3.488		-97.0	
Trans-1,2-Dichloroethene	1.838	1.666		-9.4	
Methyl-tert-Butyl Ether	4.225	3.220		-23.8	
1,1 Dichloroethane	3.726	5.525	0.200	-48.3	25.0
Cis- Dichloroethene	1.824	1.638		-10.2	
2-Butanone	0.346	0.239		-30.9	
Chloroform	3.686	3.019	0.200	-18.1	25.0
1,1,1-Trichloroethane	0.549	0.450	0.100	-18.0	25.0
Cyclohexane	0.581	0.498		-14.3	
Carbon Tetrachloride	0.487	0.415	0.100	-14.8	25.0
Benzene	1.077	0.922	0.500	-14.4	25.0
1,2 Dichloroethane	1.695	1.247	0.100	-26.4	25.0
Trichloroethene	0.429	0.254	0.300	-40.8	25.0
Methylcyclohexane	0.538	0.493		-8.4	

All other compounds must meet a minimum RRF of 0.010.

7B

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA___ Calibration Date: __02/10/01_____ Time: __0849_____

Lab File ID: ___CCA03_____ Init. Calib Date(s): __02/07/01__ __02/07/01

EPA Sample N0. (VSTD50##): _____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
1,2-Dichloropropane	0.553	0.435		-21.3	
Bromodichloromethane *	0.769	0.610	0.200	-20.7	25.0
Cis-1,3-Dichloropropene *	0.481	0.362	0.200	-24.7	25.0
4-Methyl-2-pentanone	0.195	0.009		-95.4	
Toluene *	1.399	1.170	0.400	-16.4	25.0
Trans-1,3 Dichloropropene *	0.299	0.199	0.100	-33.4	25.0
1,1,2 Trichloroethane *	0.305	0.256	0.100	-16.1	25.0
Tetrachloroethene *	0.455	0.479	0.200	5.3	25.0
2-Hexanone	0.046	0.076		65.2	
Dibromochloromethane *	0.555	0.486	0.100	-12.4	25.0
1,2-Dibromoethane	0.537	0.435		-19.0	
Chlorobenzene *	1.035	0.932	0.500	-10.0	25.0
Ethylbenzene *	0.485	0.397	0.100	-18.1	25.0
Xylene (total) *	0.581	0.479	0.300	-17.6	25.0
Styrene *	0.931	0.734	0.300	-21.2	25.0
Bromoform *	0.321	0.287	0.100	-10.6	25.0
Isopropylbenzene	1.521	1.303		-14.3	
1,1,2,2-Tetrachloroethane *	0.610	0.505	0.300	-17.2	25.0
1,3-Dichlorobenzene *	0.770	0.751	0.600	-2.5	25.0
1,4- Dichlorobenzene *	0.868	0.892	0.500	2.8	25.0
1,2 Dichlorobenzene *	0.715	0.721	0.400	0.8	25.0
1,2-Dibromo-3-chloropropane	0.108	0.046		-57.4	
1,2,4-Trichlorobenzene *	0.505	0.426	0.200	-15.6	25.0
Toluene -d8	1.113	1.095		-1.6	
Bromofluorobenzene *	0.945	0.858	0.200	-9.2	25.0
1,2 Dichloroethane -d4	1.217	0.964		-20.8	

All other compounds must meet a minimum RRF of 0.010.

FORM VII VOA-2

OLM04.2

Module 9 Quiz 1

Instruction:

- Use the checklist to qualify the samples on Form VIII located on the next page.
- Apply the qualifications to the correct sample Form 1's that are located after all of the internal standard forms.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____
Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00
EPA Sample N0. (VSTD50##): _VSTD050GB_____ Date Analyzed: __02/10/01_____
Lab File ID: ___CCA03_____ Time Analyzed: __0849_____
Instrument ID: _AA_____ Heated Purge: (Y/N) ___N_____
GC Column: Equity 624_____ ID: ___0.53_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	1975181	8.71	9410690	9.99	7602547	13.28
	UPPER LIMIT	3950362	9.21	18821380	10.49	15205094	13.78
	LOWER LIMIT	987590	8.21	4705345	9.49	3801274	12.78
	EPA SAMPLE						
1.	VBLKJH	1660064	8.72	7543107	10.00	5979831	13.28
2.	BBJ60	468546	8.75	4354968	10.04	3414794	13.35
3.	BDR43	1868546	8.75	8354968	10.04	6414794	13.35
4.	BPH71	1833643	8.75	8369362	10.05	6394398	13.35
5.	BPJ51	1756578	8.70	1023445	10.08	7036555	13.39
6.	BPJ51MS	1710824	8.76	8105650	10.06	7073084	13.37
7.	BPJ51MSD	1802595	8.74	7989070	10.03	6216760	13.34
8.	BPL01	1715283	8.76	7681124	10.05	6086404	13.55
9.	BPL04	1684919	8.75	19513332	10.04	6078780	13.34
10.	VHBLK01	2417277	8.73	11434662	10.019	9444473	13.32
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT= - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page _____ of _____ FORM VIII VOA OLM04.2

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50GJ____ Date Analyzed: __02/11/01_____

Lab File ID: ___CCB04_____ Time Analyzed: __0639_____

Instrument ID: ___AA_____ Heated Purge: (Y/N) ___N_____

GC Column: Equity 624_____ ID: ___0.53_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	2053996	8.71	9662137	9.99	7833905	13.29
	UPPER LIMIT	4107992	9.21	19324274	10.49	15667810	13.79
	LOWER LIMIT	1026998	8.21	4831068	9.49	3916952	12.79
	EPA SAMPLE						
1.	VBLKSD	2180370	8.71	10645744	10.00	8771656	13.30
2.	BNR68	4187293	8.71	10478395	9.98	8678186	13.28
3.	BNR68MS	2783007	8.71	13501830	9.986	10995743	13.28
4.	BNR68MSD	955423	8.72	3335467	9.99	8570860	13.30
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT= - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page _____ of _____

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50KL_____ Date Analyzed: __02/05/01_____

Lab File ID: __CCT03_____ Time Analyzed: __1523_____

Instrument ID: __BB_____ Heated Purge: (Y/N) ___Y_____

GC Column: J7W DB-624__ ID: _0.32_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	42176	7.91	211480	8.96	215712	11.90
	UPPER LIMIT	85432	8.41	422960	9.46	431424	12.40
	LOWER LIMIT	21358	7.41	105740	8.46	107856	11.40
	EPA SAMPLE						
1.	VBLKDS	51955	7.90	263474	8.94	243044	11.88
2.	BPH62	40502	7.91	187854	8.96	177417	11.90
3.	BXZ26	9030	7.88	431663	8.93	447852	11.87
4.	BXZ26MS	42616	7.93	186765	8.96	165043	11.89
5.	BXZ26MSD	37177	7.91	156950	8.96	149188	11.89
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT= - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page _____ of _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	85	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	52	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	23	
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	33	
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	5	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	14	
108-88-3	Toluene	8	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	17	
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	5	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	36	
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	U
74-87-3	Chloromethane	2200	U
75-01-4	Vinyl Chloride	2200	U
74-83-9	Bromomethane	2200	U
75-00-3	Chloroethane	2200	U
75-69-4	Trichlorofluoromethane	2200	U
75-35-4	1,1 Dichloroethene	2200	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	U
67-64-1	Acetone	3800	
75-15-0	Carbon Disulfide	2200	U
79-20-9	Methyl Acetate	690	J
75-09-2	Methylene Chloride	480	J
156-60-5	Trans-1,2-Dichloroethene	2200	U
1634-04-4	Methyl-tert-Butyl Ether	2200	U
75-34-3	1,1 Dichloroethane	2200	U
156-59-2	Cis- Dichloroethene	2200	U
78-93-3	2-Butanone	2200	U
67-99-3	Chloroform	2200	U
71-55-6	1,1,1-Trichloroethane	2200	U
12200-82-7	Cyclohexane	2200	U
56-23-5	Carbon Tetrachloride	2200	U
71-43-2	Benzene	2200	U
22007-06-2	1,2 Dichloroethane	2200	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	2200	U
22008-87-2	Methylcyclohexane	2200	U
78-87-5	1,2-Dichloropropane	2200	U
75-27-4	Bromodichloromethane	2200	U
2200061-01-5	Cis-1,3-Dichloropropene	2200	U
22008-2200-1	4-Methyl-2-pentanone	2200	U
22008-88-3	Toluene	2200	U
2200061-02-6	Trans-1,3 Dichloropropene	2200	U
79-00-5	1,1,2 Trichloroethane	2200	U
127-18-4	Tetrachloroethene	2200	U
591-78-6	2-Hexanone	2200	U
124-48-1	Dibromochloromethane	2200	U
22006-93-4	1,2-Dibromoethane	2200	U
22008-90-7	Chlorobenzene	2200	U
22000-41-4	Ethylbenzene	2200	U
1330-20-7	Xylene (total)	2200	U
22000-42-5	Styrene	2200	U
75-25-2	Bromoform	2200	U
98-82-8	Isopropylbenzene	2200	U
79-34-5	1,1,2,2-Tetrachloroethane	2200	U
541-73-1	1,3-Dichlorobenzene	2200	U
22006-46-7	1,4- Dichlorobenzene	2200	U
95-50-1	1,2 Dichlorobenzene	2200	U
96-12-8	1,2-Dibromo-3-chloropropane	2200	U
120-82-1	1,2,4-Trichlorobenzene	2200	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	5	J
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	J
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	1	J
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	3	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	1	J

1A EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/05/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	19	U
74-87-3	Chloromethane	19	U
75-01-4	Vinyl Chloride	19	U
74-83-9	Bromomethane	19	U
75-00-3	Chloroethane	19	U
75-69-4	Trichlorofluoromethane	19	U
75-35-4	1,1 Dichloroethene	19	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	19	U
67-64-1	Acetone	19	U
75-15-0	Carbon Disulfide	19	U
79-20-9	Methyl Acetate	19	U
75-09-2	Methylene Chloride	19	U
156-60-5	Trans-1,2-Dichloroethene	19	U
1634-04-4	Methyl-tert-Butyl Ether	19	U
75-34-3	1,1 Dichloroethane	19	U
156-59-2	Cis- Dichloroethene	19	U
78-93-3	2-Butanone	19	U
67-99-3	Chloroform	19	U
71-55-6	1,1,1-Trichloroethane	19	U
110-82-7	Cyclohexane	19	U
56-23-5	Carbon Tetrachloride	19	U
71-43-2	Benzene	19	U
107-06-2	1,2 Dichloroethane	19	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/05/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
79-01-6	Trichloroethene	19	U
108-87-2	Methylcyclohexane	19	U
78-87-5	1,2-Dichloropropane	19	U
75-27-4	Bromodichloromethane	19	U
10061-01-5	Cis-1,3-Dichloropropene	19	U
108-10-1	4-Methyl-2-pentanone	19	U
108-88-3	Toluene	19	U
10061-02-6	Trans-1,3 Dichloropropene	19	U
79-00-5	1,1,2 Trichloroethane	19	U
127-18-4	Tetrachloroethene	19	U
591-78-6	2-Hexanone	19	U
124-48-1	Dibromochloromethane	19	U
106-93-4	1,2-Dibromoethane	19	U
108-90-7	Chlorobenzene	19	U
100-41-4	Ethylbenzene	19	U
1330-20-7	Xylene (total)	19	U
100-42-5	Styrene	19	U
75-25-2	Bromoform	19	U
98-82-8	Isopropylbenzene	19	U
79-34-5	1,1,2,2-Tetrachloroethane	19	U
541-73-1	1,3-Dichlorobenzene	19	U
106-46-7	1,4- Dichlorobenzene	19	U
95-50-1	1,2 Dichlorobenzene	19	U
96-12-8	1,2-Dibromo-3-chloropropane	19	U
120-82-1	1,2,4-Trichlorobenzene	19	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-27_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-27AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	U
74-87-3	Chloromethane	2200	U
75-01-4	Vinyl Chloride	2200	U
74-83-9	Bromomethane	2200	U
75-00-3	Chloroethane	2200	U
75-69-4	Trichlorofluoromethane	2200	U
75-35-4	1,1 Dichloroethene	10000	
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	U
67-64-1	Acetone	4100	
75-15-0	Carbon Disulfide	2200	U
79-20-9	Methyl Acetate	740	J
75-09-2	Methylene Chloride	440	J
156-60-5	Trans-1,2-Dichloroethene	2200	U
1634-04-4	Methyl-tert-Butyl Ether	2200	U
75-34-3	1,1 Dichloroethane	2200	U
156-59-2	Cis- Dichloroethene	2200	U
78-93-3	2-Butanone	1200	J
67-99-3	Chloroform	2200	U
71-55-6	1,1,1-Trichloroethane	2200	U
110-82-7	Cyclohexane	2200	U
56-23-5	Carbon Tetrachloride	2200	U
71-43-2	Benzene	9900	
107-06-2	1,2 Dichloroethane	2200	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-27_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-27AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	9500	
108-87-2	Methylcyclohexane	2200	U
78-87-5	1,2-Dichloropropane	2200	U
75-27-4	Bromodichloromethane	2200	U
10061-01-5	Cis-1,3-Dichloropropene	2200	U
108-10-1	4-Methyl-2-pentanone	2200	U
108-88-3	Toluene	9600	
10061-02-6	Trans-1,3 Dichloropropene	2200	U
79-00-5	1,1,2 Trichloroethane	2200	U
127-18-4	Tetrachloroethene	2200	U
591-78-6	2-Hexanone	1200	J
124-48-1	Dibromochloromethane	2200	U
106-93-4	1,2-Dibromoethane	2200	U
108-90-7	Chlorobenzene	9400	
100-41-4	Ethylbenzene	2200	U
1330-20-7	Xylene (total)	2200	U
100-42-5	Styrene	2200	U
75-25-2	Bromoform	2200	U
98-82-8	Isopropylbenzene	2200	U
79-34-5	1,1,2,2-Tetrachloroethane	2200	U
541-73-1	1,3-Dichlorobenzene	7100	
106-46-7	1,4- Dichlorobenzene	9000	
95-50-1	1,2 Dichlorobenzene	15000	
96-12-8	1,2-Dibromo-3-chloropropane	2200	U
120-82-1	1,2,4-Trichlorobenzene	12000	

Module 10 Quiz 1

Instructions: Calculate the RPD for each of the following problems.

Bromoform	Sample 1 = 34	Sample 2 = 15	RPD =
Acetone	Sample 1 = 23	Sample 2 = 12	RPD =
Chloromethane	Sample 1 = 45	Sample 2 = 15	RPD =
Toluene	Sample 1 = 5	Sample 2 = 20	RPD =
Methylene chloride	Sample 1 = 145	Sample 2 = 167	RPD =
Benzene	Sample 1 = 85	Sample 2 = 63	RPD =
2-hexanone	Sample 1 = 220	Sample 2 = 345	RPD =
xylenes	Sample 1 = 63	Sample 2 = 24	RPD =
2-butanone	Sample 1 = 72	Sample 2 = 58	RPD =
Trichloroethene	Sample 1 = 91	Sample 2 = 79	RPD = 21.

Module 11 Quiz 1

1. No action, cooler temperature is < 10 ˚C.

2. All analytes are qualified as "J" for detects and "UJ" for non-detects due to cooler temperature > 10 ˚C.

3. No action, cooler temperature is < 10 ˚C.

4. All analytes are qualified as "J" for detects and "UJ" for non-detects due to Percent moisture > 50%.

5. All analytes are qualified as "J" for detects and "UJ" for non-detects due to cooler temperature > 10 ˚C.

Module 11 Quiz 2

1. Extraction and analysis holding times for technical and contractual requirements were met.

2. Extraction holding time was exceeded by 2 days. All analytes are qualified as "J" for detects and "UJ" for non-detects. Extraction holding time for contractual requirements was met. Analysis holding times for technical and contractual requirements were met.

3. Extraction and analysis holding times for technical and contractual requirements were met. Analysis holding times for technical and contractual requirements were met (analyzed on 33rd day).

4. Extraction holding time was exceeded by 5 days. All analytes are qualified as "J" for detects and "UJ" for non-detects. Extraction holding time for contractual requirements was met. Analysis holding times for technical and contractual requirements were met.

5. Extraction holding time was exceeded by 2 days. All analytes are qualified as "J" for detects and "UJ" for non-detects. Extraction holding time for contractual requirements was met. Analysis holding times for technical and contractual requirements were met.

Module 11 Quiz 3

BXD01 met extraction holding time for technical and contract criteria. Analysis holding time (40 days) for technical and contractual* was exceeded by 5 days. All analytes were qualified as "J" for detects and "UJ" for non-detects.

Module 11 Quiz 4

Sample BDR40 met extraction and analysis holding times for technical and contract criteria.

Module 11 Quiz 5

Sample BXZ20 did not meet technical and contractual* criteria for extraction holding times. All analytes were qualified as "J" for detects and "UJ" for non-detects. Analysis holding time for technical and contract requirements was met.

*All contractual problems must also be documented in the Contract Non-Compliance section of the Data Assessment.

Sample BBJ60	Concentration
2-Fluorophenol	38.52
Phenol-d_5	44.74
2-Chlorophenol- d_4	44.42
1,2-Dichlorobenzene- d_4	23.96
Nitrobenzene-d_5	25.42
2-Fluorobiphenyl	28.53
2,4,6 Tribromophenol	41.16
Terphenyl- d_{14}	31.03

Sample BPH71	Concentration
2-Fluorophenol	661.3
Phenol-d_5	645.3
2-Chlorophenol- d_4	693.1
1,2-Dichlorobenzene- d_4	321.6
Nitrobenzene-d_5	440.3
2-Fluorobiphenyl	401.4
2,4,6 Tribromophenol	633.3
Terphenyl- d_{14}	577.8

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKMR	78	76	78	83	76	74	83	64	0
2.	BBJ60	56	63	68	66	56	60	65	53	0

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKAM	39	40	46	40	44	39	41	39	0
2.	BPH71	25	22	32	24	25	24	26	18	2

Module 12 Quiz 2

Sample 1

Two base-neutral SMC are above the upper limits, positive hits for base-neutral analytes are qualified as "J". No action for non-detects.

One advisory acid SMC is below 10%. Using professional judgement, all acid analytes are qualified as "J" for detects and "R" for non-detects.

OR

One advisory acid SMC is below 10%. Using professional judgement, no action was taken on acid fraction analytes.

Sample 2

Three acid SMC are above the upper limits, positive hits for acid analytes are qualified as "J". No action for non-detects.

Only one base-neutral SMC is above upper limits therefore no action is required.

Sample 3

Only one base-neutral SMC is above upper limits therefore no action is required.

Module 12 Quiz 3

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKWA	85	75	95	78	65	88	93	69	0
2.	BBJ60	58	**30 ***	**37 ***	72	66	74	71	58	2

S1 (NBZ) = Nitrobenzene-d5
S2 (FBP) = 2-Fluorobiphenyl
S3 (TPH) = Terphenyl-d14
S4 (PHL) = Phenol-d5
S5 (2FP) = 2-Fluorophenol
S6 (TBP) = 2,4,6 Tribromophenol
S7 (2CP) = 2-Chlorophenol-d4
S8 (DCB) = 1,2 Dichlorobenzene-d4

BBJ60-Actual values calculated for the quant report and used to obtain SMC recovery values

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.33	8.332	321408	40.0	
* Naphthalene-d_8	136	11.20	11.203	921571	40.0	
* Acenaphthene-d_{10}	164	14.71	14.733	491806	40.0	
* Phenanthrene-d_{10}	188	19.05	19.057	853004	40.0	
* Chrysene-d_{12}	240	24.66	24.681	827565	40.0	
* Perylene- d_{12}	264	27.29	27.299	746961	40.0	
$ 2-Fluorophenol	112	5.81	5.849	934000	99.44	46.04
$ Phenol-d_5	99	7.85	7.859	1209257	107.27	49.66
$ 2-Chlorophenol- d_4	132	7.95	7.960	1110790	107.02	49.54
$ 1,2-Dichlorobenzene- d_4	152	8.75	8.754	429290	57.57	26.65
$ Nitrobenzene-d_5	82	9.732	9.734	744602	58.46	27.06
$ 2-Fluorobiphenyl	172	13.26	13.264	534140	32.71	15.14
$ 2,4,6 Tribromophenol	330	17.28	17.283	371731	110.38	51.10
$ Terphenyl- d_{14}	244	22.68	22.688	788225	39.94	18.49

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

low

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKSA	77	75	64	57	67	84	66	57	0
2.	BPH62	**122 ***	50	65	**117 ***	48	54	54	49	2

BPH62- Actual values calculated for the quant report and used to obtain SMC recovery values

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.33	8.982	58056	40.0	
* Naphthalene-d_8	136	11.20	11.283	177486	40.0	
* Acenaphthene-d_{10}	164	14.71	14.582	120412	40.0	
* Phenanthrene-d_{10}	188	19.05	18.084	207492	40.0	
* Chrysene-d_{12}	240	24.66	23.430	234347	40.0	
* Perylene- d_{12}	264	27.29	26.103	213267	40.0	
$ 2-Fluorophenol	112	5.81	6.732	108125	72.52	1300
$ Phenol-d_5	99	7.85	8.339	309754	175.08	3138
$ 2-Chlorophenol- d_4	132	7.95	8.593	129964	81.65	1463
$ 1,2-Dichlorobenzene- d_4	152	8.75	9.253	62306	49.17	881.2
$ Nitrobenzene-d_5	82	9.73	9.980	238533	121.90	2185

$ 2-Fluorobiphenyl	172	13.26	13.313	203555	49.55	888.0
$ 2,4,6 Tribromophenol	330	17.28	16.138	122853	81.42	1459
$ Terphenyl- d_{14}	244	22.68	21.620	329678	65.42	1172

med

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKSB	74	54	38	44	45	35	50	51	0
2.	BNR68	**21 ***	**26 ***	70	47	42	**6 ***	50	34	3

S1 (NBZ) = Nitrobenzene-d5 S2 (FBP) = 2-Fluorobiphenyl
S3 (TPH) = Terphenyl-d14 S4 (PHL) = Phenol-d5
S5 (2FP) = 2-Fluorophenol S6 (TBP) = 2,4,6 Tribromophenol
S7 (2CP) = 2-Chlorophenol-d4 S8 (DCB) = 1,2 Dichlorobenzene-d4

BNR68- Actual values calculated for the quant report and used to obtain SMC recovery values

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.98	8.982	61430	40.0	
* Naphthalene-d_8	136	11.28	11.283	184227	40.0	
* Acenaphthene-d_{10}	164	14.56	14.582	125771	40.0	
* Phenanthrene-d_{10}	188	18.06	18.084	218345	40.0	
* Chrysene-d_{12}	240	23.41	23.430	231657	40.0	
* Perylene- d_{12}	264	26.10	26.103	208092	40.0	
$ 2-Fluorophenol	112	6.73	6.732	98998	62.75	33717
$ Phenol-d_5	99	8.33	8.339	132402	70.73	38035
$ 2-Chlorophenol- d_4	132	8.57	8.593	126486	75.10	40385
$ 1,2-Dichlorobenzene- d_4	152	9.25	9.253	45270	33.76	18155
$ Nitrobenzene-d_5	82	9.96	9.980	42033	20.69	11126
$ 2-Fluorobiphenyl	172	13.31	13.313	112034	26.10	14034
$ 2,4,6 Tribromophenol	330	16.13	16.138	13657	8.60	4622
$ Terphenyl- d_{14}	244	21.61	21.620	348030	69.87	37573

Module 13 Quiz 1

1. Water sample, 1000 mL

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
Phenol	**75.00**	0	46.94	**63**	42.58	**57**	**10**	42	12-110
2-chlorophenol	**75.00**	0	48.99	**65**	44.06	**59**	**10**	40	27-123
N-Nitroso-di-n-propylamine	**50.00**	0	36.09	**72**	32.48	**65**	**10**	38	41-116
4-Chloro-3-methylphenol	**75.00**	0	53.25	**71**	50.67	**68**	**4**	42	23-97
Acenaphthene	**50.00**	0	36.13	**72**	32.81	**66**	**9**	31	46-118
4-Nitrophenol	**75.00**	0	50.44	**67**	40.45	**54**	**21**	50	10-80
2,4-Dinitrotoluene	**50.00**	0	44.34	**89**	35.36	**71**	**23**	38	24-96
Pentachlorophenol	**75.00**	0	60.72	**81**	53.35	**71**	**13**	50	9-103
Pyrene	**50.00**	0	37.66	**75**	33.99	**68**	**10**	31	26-127

2. Low level soil sample, 30 g, 23% moisture

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
Phenol	**3247**	0	1519	**47**	1722	**53**	**12**	35	26-90
2-chlorophenol	**3247**	0	1621	**50**	1814	**56**	**11**	50	25-102
N-Nitroso-di-n-propylamine	**2165**	0	1224	**57**	1215	**56**	**2**	38	41-126
4-Chloro-3-methylphenol	**3247**	0	1686	**52**	1542	**47**	**10**	33	26-103
Acenaphthene	**2165**	0	1175	**54**	1211	**56**	**4**	19	31-137
4-Nitrophenol	**3247**	0	1613	**50**	1794	**55**	**10**	50	11-114
2,4-Dinitrotoluene	**2165**	0	1018	**47**	1187	**55**	**16**	47	28-89
Pentachlorophenol	**3247**	0	1977	**61**	2168	**67**	**9**	47	17-109
Pyrene	**2165**	0	1325	**61**	1339	**62**	**2**	36	35-142

Module 14 Quiz 1

(Value in parenthesis is actual CRQL before rounding)

1. Matrix water 1000 mL
   Butylbenzylphthalate
   Sample CRQL 10
   Qualified Result 10U

2. Matrix water 650 mL
   2-chlorophenol
   Sample CRQL 15
   Qualified Result 50U

3. Matrix water 970 mL
   4-chloroaniline
   Sample CRQL 10
   Qualified Result 65

4. Matrix water 890 mL
   2,4,5 Trichlorophenol
   Sample CRQL 28
   Qualified Result 28U

5. Matrix water 1000 mL
   Bis (2-ethyl-hexyl) phthalate
   Sample CRQL 10
   Qualified Result 23U

6. Matrix water 990 mL
   Pentachlorophenol
   Sample CRQL 75
   Qualified Result 75U

7. Matrix soil 30 g
   Isophorone
   Sample CRQL 390 (388)
   Qualified Result 420u

8. Matrix soil 30 g
   Benzo (g,h,i) perylene
   Sample CRQL 1200
   Qualified Result 7600

9. Matrix soil 30 g
   Benzo (b) fluoranthene
   Sample CRQL 510 (507)
   Qualified Result 510U

10. Matrix soil 30 g
    Di-n-octylphthalate
    Sample CRQL 2100 (2062)
    Qualified Result 2100U

11. Matrix soil 30 g
    4,6 dinitro-2-methylphenol
    Sample CRQL 1800 (1804)
    Qualified Result 1800U

12. Matrix soil 30 g
    Carbazole
    Sample CRQL 390 (388)
    Qualified Result 390U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ66

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: ___1080_____(g/mL) __mL_____ Lab File ID: _BBB00-15AB_____

Level: (low/med) ___Low_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: _02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: __1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	2	J
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	**10**	**U**
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	20	**U**
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	50	
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	**10**	**U**

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ66

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: ___1080_____(g/mL) __mL_____ Lab File ID: _BBB00-15AB_____

Level: (low/med) ___Low_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: _02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: __1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	**180**	**U**
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	**65**	**U**
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	**28**	**U**
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.
BPH62

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __SOIL_____ Lab Sample ID: _BBBOO-10_____

Sample wt/vol: ___30.0_____(g/mL) ____G_____ Lab File ID: _BBB00-10AB_____

Level: (low/med) ____LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) ___N____ Date Extracted: _02/12/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: _02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N) __Y_____ pH: __6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
100-52-7	Benzaldehyde	350	U
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)ether	350	U
95-57-8	2-Chlorophenol	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
98-86-2	Acetophenone	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	350	U
67-72-1	Hexachloroethane	**500**	**U**
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	**330**	**U**
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
105-60-2	Caprolactam	3800	
59-50-7	4-Chloro-3-methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	890	U
92-52-4	1,1 Biphenyl	350	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	890	U
131-11-3	Dimethylphthalate	350	U
606-20-2	2,6-Dinitrotoluene	350	U
208-96-8	Acenaphthylene	350	U
99-09-2	3-Nitroaniline	890	U
83-32-9	Acenaphthene	350	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPH62

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __SOIL_____ Lab Sample ID: _BBBOO-10_____

Sample wt/vol: ___30.0_____(g/mL) ____G_____ Lab File ID: _BBB00-10AB_____

Level: (low/med) ____LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) ___N____ Date Extracted: _02/12/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: _02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N) __Y_____ pH: __6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _____	Q
51-28-5	2,4-Dinitrophenol	890	U
100-02-7	4-Nitrophenol	890	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	2500	
86-73-7	Fluorene	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
100-01-6	4-Nitroaniline	890	U
534-52-1	4,6-Dinitro-2-methylphenol	890	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
1912-24-9	Atrazine	350	U
87-86-5	Pentachlorophenol	640	J
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	330	J
84-74-2	Di-n-butylphthalate	4000	
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	2000	
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenz(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1) Cannot be separated from Diphenylamine

Module 14 Quiz 3

1G

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
BBJ66

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00_

Matrix: (soil/water) __water_____ Lab Sample ID: __BBB00-15_____

Sample wt/vol: ____1000_____(g/mL) __mL_____ Lab File ID: __BBB00-15AB_____

Level: (low/med) ___LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: ___1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) __N_____ pH: _____ Extraction: (Type) ____CONT_____
Number TICs found: ___4_____ CONCENTRATION UNITS
(lg/L or lg/Kg) __UG/L_____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	14.54	11	NJ
2.	Unknown	15.88	14	**R**
3.	Unknown Amide	17.13	10	**R**
4. 57-10-3	Hexadecanoic acid	18.52	25	NJ
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

FORM I SV-TIC OLM04.2

Module 15 Quiz 1

Tune 1

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	41.9
68	Less than 2.0% of mass 69	3.3 (12.2)1
69	Mass 69 relative abundance	27.2
70	Less than 2.0% of mass 69	0.3 (1.2)1
127	25.0-75.0% of mass 198	41.8
197	Less than 1.0% of mass 198	0.5
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	8.2
275	10.0-30.0% of mass 198	25.6
365	Greater than 0.75% of mass 198	1.1
441	Present, but less than mass 443	9.0
442	40.0-110.0% of mass 198	119.8
443	15.0-24.0% of mass 442	12.6 (10.5)2

1-value is % mass 69 2-Value is % mass 442

Tune -2

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	31.4
68	Less than 2.0% of mass 69	0.6 (1.2)1
69	Mass 69 relative abundance	48.0
70	Less than 2.0% of mass 69	0.6 (1.3)1
127	25.0-75.0% of mass 198	66.1
197	Less than 1.0% of mass 198	0.7
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	8.6
275	10.0-30.0% of mass 198	23.1
365	Greater than 0.75% of mass 198	1.2
441	Present, but less than mass 443	16.7
442	40.0-110.0% of mass 198	103.5
443	15.0-24.0% of mass 442	29.1 (28.1)2

1-value is % mass 69 2-Value is % mass 442

Tune 3

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	20.1
68	Less than 2.0% of mass 69	0.3 (0.7)1
69	Mass 69 relative abundance	33.9
70	Less than 2.0% of mass 69	0.4 (1.2)1
127	25.0-75.0% of mass 198	73.4
197	Less than 1.0% of mass 198	0.9
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	6.4
275	10.0-30.0% of mass 198	25.8
365	Greater than 0.75% of mass 198	0.9
441	Present, but less than mass 443	12
442	40.0-110.0% of mass 198	82.8
443	15.0-24.0% of mass 442	17.3 (20.9)2

1-value is % mass 69 2-Value is % mass 442

Module 15 Quiz 2

Sequence 1

DFTPP injection Date: 02-14-01 DFTPP injection time 1224

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0501B	02-14-01	1319
SSTD0201B	02-14-01	1355
SSTD0801B	02-14-01	1435
SSTD1201B	02-14-01	1510
SSTD1601B	02-14-01	1550
SBLK85	02-14-01	1620
BFG65	02-14-01	1824
KJY34	02-15-01	0124

Sample KJY34 was analyzed 1 hour passed 12 hour clock (0024)

Sequence 2

DFTPP injection Date: 02-14-01 DFTPP injection time 0854

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0501B	02-14-01	0814
SLK22	02-14-01	1015
KJI76	02-14-01	1055
KJY66	02-14-01	1955

Standard injected before tune.

Sequence 3

DFTPP injection Date: 02-04-01 DFTPP injection time 1544

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0501B	02-04-01	1620
SSTD0101B	02-04-01	1700
SSTD0201B	02-04-01	1735
SSTD1001B	02-04-01	1845
SSTD2001B	02-04-01	2045
GTR56	02-05-01	0023
SBLK76	02-05-01	0340

No problems.

Sequence 4

DFTPP injection Date: 02-22-01 DFTPP injection time 1824

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0201B	02-22-01	1800
GFD54	02-22-01	1837
GFT56	02-22-01	1905
GTY78	02-22-01	1940

Standard injected before tune. Need to check other sequence to verify a method blank for these samples was analyzed.

Module 15 Quiz 3

Data Assessment

Instrument Performance section

Tune analyzed on 02/08 at 1448 failed ion abundance criterion for m/e 197. Associated samples SBLKSA and SBLKWA were "R" for non-detects analytes and "J" for detects.

BPL04 was analyzed outside the 12-hour clock window. Analytes were "R" for non-detects analytes and "J" for detects.

Contract-Non-Compliance section

Tune analyzed on 02/08 at 1448 failed ion abundance criterion for m/e 197. Associated samples should have been re-analyzed on a passing tune.

BPL04 was analyzed outside the 12-hour clock window. Sample should have been re-analyzed within acceptable 12-hour clock window.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: ____1080_____(g/mL) __ML_____ Lab File ID: __BBB00-21RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
100-52-7	Benzaldehyde	10	**R**
108-95-2	Phenol	10	**R**
111-44-4	bis(2-Chloroethyl)ether	10	**R**
95-57-8	2-Chlorophenol	10	**R**
95-48-7	2-Methylphenol	10	**R**
108-60-1	2,2'-oxybis(1-Chloropropane)	10	**R**
98-86-2	Acetophenone	10	**R**
106-44-5	4-Methylphenol	10	**R**
621-64-7	N-Nitroso-di-n-propylamine	10	**R**
67-72-1	Hexachloroethane	10	**R**
98-95-3	Nitrobenzene	10	**R**
78-59-1	Isophorone	100	**J**
88-75-5	2-Nitrophenol	10	**R**
105-67-9	2,4-Dimethylphenol	10	**R**
111-91-1	bis(2-Chloroethoxy)methane	10	**R**
120-83-2	2,4-Dichlorophenol	10	**R**
91-20-3	Naphthalene	10	**R**
106-47-8	4-Chloroaniline	10	**R**
87-68-3	Hexachlorobutadiene	10	**R**
105-60-2	Caprolactam	10	**R**
59-50-7	4-Chloro-3-methylphenol	10	**R**
91-57-6	2-Methylnaphthalene	10	**R**
77-47-4	Hexachlorocyclopentadiene	10	**R**
88-06-2	2,4,6-Trichlorophenol	10	**R**
95-95-4	2,4,5-Trichlorophenol	25	**R**
92-52-4	1,1 Biphenyl	10	**R**
91-58-7	2-Chloronaphthalene	10	**R**
88-74-4	2-Nitroaniline	25	**R**
131-11-3	Dimethylphthalate	10	**R**
606-20-2	2,6-Dinitrotoluene	10	**R**
208-96-8	Acenaphthylene	10	**R**
99-09-2	3-Nitroaniline	25	**R**
83-32-9	Acenaphthene	10	**R**

EPA SAMPLE NO.
BPL04

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: ____1080_____(g/mL) __ML_____ Lab File ID: __BBB00-21RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	**R**
100-02-7	4-Nitrophenol	25	**R**
132-64-9	Dibenzofuran	10	**R**
121-14-2	2,4-Dinitrotoluene	10	**R**
84-66-2	Diethylphthalate	10	**R**
86-73-7	Fluorene	10	**R**
7005-72-3	4-Chlorophenyl-phenylether	10	**R**
100-01-6	4-Nitroaniline	25	**R**
534-52-1	4,6-Dinitro-2-methylphenol	25	**R**
86-30-6	N-Nitrosodiphenylamine (1)	10	**R**
101-55-3	4-Bromophenyl-phenylether	10	**R**
118-74-1	Hexachlorobenzene	10	**R**
1912-24-9	Atrazine	10	**R**
87-86-5	Pentachlorophenol	20	**J**
85-01-8	Phenanthrene	10	**R**
120-12-7	Anthracene	10	**R**
86-74-8	Carbazole	10	**R**
84-74-2	Di-n-butylphthalate	10	**R**
206-44-0	Fluoranthene	10	**R**
129-00-0	Pyrene	10	**R**
85-68-7	Butylbenzylphthalate	10	**R**
91-94-1	3,3'-Dichlorobenzidine	10	**R**
56-55-3	Benzo(a)anthracene	10	**R**
218-01-9	Chrysene	10	**R**
117-81-7	bis(2-Ethylhexyl)phthalate	120	**J**
117-84-0	Di-n-octylphthalate	10	**R**
205-99-2	Benzo(b)fluoranthene	10	**R**
207-08-9	Benzo(k)fluoranthene	10	**R**
50-32-8	Benzo(a)pyrene	10	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	10	**R**
53-70-3	Dibenz(a,h)anthracene	10	**R**
191-24-2	Benzo(g,h,i)perylene	10	**R**

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.
SBLKSA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: _BBB00-MB1_____

Sample wt/vol: ____30_____(g/mL) __G_____ Lab File ID: __BBB00-MB1_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. __0_____ Decant: (Y/N) ___N____ Date Extracted: __02/12/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
100-52-7	Benzaldehyde	330	**R**
108-95-2	Phenol	330	**R**
111-44-4	bis(2-Chloroethyl)ether	330	**R**
95-57-8	2-Chlorophenol	330	**R**
95-48-7	2-Methylphenol	330	**R**
108-60-1	2,2'-oxybis(1-Chloropropane)	330	**R**
98-86-2	Acetophenone	330	**R**
106-44-5	4-Methylphenol	330	**R**
621-64-7	N-Nitroso-di-n-propylamine	330	**R**
67-72-1	Hexachloroethane	100	**J**
98-95-3	Nitrobenzene	330	**R**
78-59-1	Isophorone	330	**R**
88-75-5	2-Nitrophenol	330	**R**
105-67-9	2,4-Dimethylphenol	330	**R**
111-91-1	bis(2-Chloroethoxy)methane	330	**R**
120-83-2	2,4-Dichlorophenol	330	**R**
91-20-3	Naphthalene	330	**R**
106-47-8	4-Chloroaniline	330	**R**
87-68-3	Hexachlorobutadiene	330	**R**
105-60-2	Caprolactam	310	**J**
59-50-7	4-Chloro-3-methylphenol	330	**R**
91-57-6	2-Methylnaphthalene	330	**R**
77-47-4	Hexachlorocyclopentadiene	330	**R**
88-06-2	2,4,6-Trichlorophenol	330	**R**
95-95-4	2,4,5-Trichlorophenol	830	**R**
92-52-4	1,1 Biphenyl	330	**R**
91-58-7	2-Chloronaphthalene	330	**R**
88-74-4	2-Nitroaniline	830	**R**
131-11-3	Dimethylphthalate	330	**R**
606-20-2	2,6-Dinitrotoluene	330	**R**
208-96-8	Acenaphthylene	330	**R**
99-09-2	3-Nitroaniline	830	**R**
83-32-9	Acenaphthene	330	**R**

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKSA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: _BBB00-MB1_____

Sample wt/vol: ____30_____(g/mL) __G_____ Lab File ID: __BBB00-MB1_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. __0_____ Decant: (Y/N) ___N____ Date Extracted: __02/12/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	830	**R**
100-02-7	4-Nitrophenol	830	**R**
132-64-9	Dibenzofuran	330	**R**
121-14-2	2,4-Dinitrotoluene	330	**R**
84-66-2	Diethylphthalate	200	**J**
86-73-7	Fluorene	330	**R**
7005-72-3	4-Chlorophenyl-phenylether	330	**R**
100-01-6	4-Nitroaniline	830	**R**
534-52-1	4,6-Dinitro-2-methylphenol	830	**R**
86-30-6	N-Nitrosodiphenylamine (1)	330	**R**
101-55-3	4-Bromophenyl-phenylether	330	**R**
118-74-1	Hexachlorobenzene	330	**R**
1912-24-9	Atrazine	330	**R**
87-86-5	Pentachlorophenol	830	**R**
85-01-8	Phenanthrene	330	**R**
120-12-7	Anthracene	330	**R**
86-74-8	Carbazole	50	**J**
84-74-2	Di-n-butylphthalate	100	**J**
206-44-0	Fluoranthene	330	**R**
129-00-0	Pyrene	330	**R**
85-68-7	Butylbenzylphthalate	330	**R**
91-94-1	3,3'-Dichlorobenzidine	330	**R**
56-55-3	Benzo(a)anthracene	330	**R**
218-01-9	Chrysene	330	**R**
117-81-7	bis(2-Ethylhexyl)phthalate	330	**R**
117-84-0	Di-n-octylphthalate	400	**J**
205-99-2	Benzo(b)fluoranthene	330	**R**
207-08-9	Benzo(k)fluoranthene	330	**R**
50-32-8	Benzo(a)pyrene	330	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	330	**R**
53-70-3	Dibenz(a,h)anthracene	330	**R**
191-24-2	Benzo(g,h,i)perylene	330	**R**

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.
SBLKWA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-MB2_____

Sample wt/vol: ____1000_____(g/mL) __ML_____ Lab File ID: __BBB00-MB2_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _____	Q
100-52-7	Benzaldehyde	10	**R**
108-95-2	Phenol	10	**R**
111-44-4	bis(2-Chloroethyl)ether	10	**R**
95-57-8	2-Chlorophenol	10	**R**
95-48-7	2-Methylphenol	10	**R**
108-60-1	2,2'-oxybis(1-Chloropropane)	10	**R**
98-86-2	Acetophenone	10	**R**
106-44-5	4-Methylphenol	10	**R**
621-64-7	N-Nitroso-di-n-propylamine	10	**R**
67-72-1	Hexachloroethane	10	**R**
98-95-3	Nitrobenzene	10	**R**
78-59-1	Isophorone	10	**R**
88-75-5	2-Nitrophenol	10	**R**
105-67-9	2,4-Dimethylphenol	10	**R**
111-91-1	bis(2-Chloroethoxy)methane	10	**R**
120-83-2	2,4-Dichlorophenol	10	**R**
91-20-3	Naphthalene	5	**J**
106-47-8	4-Chloroaniline	10	**R**
87-68-3	Hexachlorobutadiene	10	**R**
105-60-2	Caprolactam	10	**R**
59-50-7	4-Chloro-3-methylphenol	10	**R**
91-57-6	2-Methylnaphthalene	10	**R**
77-47-4	Hexachlorocyclopentadiene	10	**R**
88-06-2	2,4,6-Trichlorophenol	10	**R**
95-95-4	2,4,5-Trichlorophenol	25	**R**
92-52-4	1,1 Biphenyl	8	**J**
91-58-7	2-Chloronaphthalene	10	**R**
88-74-4	2-Nitroaniline	25	**R**
131-11-3	Dimethylphthalate	10	**R**
606-20-2	2,6-Dinitrotoluene	10	**R**
208-96-8	Acenaphthylene	10	**R**
99-09-2	3-Nitroaniline	25	**R**
83-32-9	Acenaphthene	10	**R**

EPA SAMPLE NO.
SBLKWA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-MB2_____

Sample wt/vol: ____1000_____(g/mL) __ML_____ Lab File ID: __BBB00-MB2_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	**R**
100-02-7	4-Nitrophenol	25	**R**
132-64-9	Dibenzofuran	10	**R**
121-14-2	2,4-Dinitrotoluene	10	**R**
84-66-2	Diethylphthalate	10	**R**
86-73-7	Fluorene	10	**R**
7005-72-3	4-Chlorophenyl-phenylether	10	**R**
100-01-6	4-Nitroaniline	25	**R**
534-52-1	4,6-Dinitro-2-methylphenol	25	**R**
86-30-6	N-Nitrosodiphenylamine (1)	10	**R**
101-55-3	4-Bromophenyl-phenylether	10	**R**
118-74-1	Hexachlorobenzene	10	**R**
1912-24-9	Atrazine	10	**R**
87-86-5	Pentachlorophenol	12	**J**
85-01-8	Phenanthrene	10	**R**
120-12-7	Anthracene	10	**R**
86-74-8	Carbazole	10	**R**
84-74-2	Di-n-butylphthalate	10	**R**
206-44-0	Fluoranthene	10	**R**
129-00-0	Pyrene	10	**R**
85-68-7	Butylbenzylphthalate	10	**R**
91-94-1	3,3'-Dichlorobenzidine	10	**R**
56-55-3	Benzo(a)anthracene	10	**R**
218-01-9	Chrysene	10	**R**
117-81-7	bis(2-Ethylhexyl)phthalate	30	**J**
117-84-0	Di-n-octylphthalate	10	**R**
205-99-2	Benzo(b)fluoranthene	10	**R**
207-08-9	Benzo(k)fluoranthene	10	**R**
50-32-8	Benzo(a)pyrene	10	**R**
193-39-5	Indeno(1,2,3-cd)pyrene	10	**R**
53-70-3	Dibenz(a,h)anthracene	10	**R**
191-24-2	Benzo(g,h,i)perylene	10	**R**

(1) Cannot be separated from Diphenylamine

Lab File ID: __DF00207B11_____ DFTPP Injection Date: __02/07/01_____

Instrument ID: __5972HP11_____ DFTPP Injection Time: __2107_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	50.4
68	Less than 2.0% of mass 69	0.2(0.3)1
69	Mass 69 relative abundance	58.3
70	Less than 2.0% of mass 69	0.4(0.7)1
127	25.0-75.0% of mass 198	38.4
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	6.6
275	10.0-30.0% of mass 198	23.7
365	Greater than 0.75% of mass 198	3.6
441	Present, but less than mass 443	13.1
442	40.0-110.0% of mass 198	84.5
443	15.0-24.0% of mass 442	16.4(19.4)2

1- Value is % mass 69 2- Value is % mass 442

Lab File ID: __DF00208B11_____ DFTPP Injection Date: __02/08/01_____

Instrument ID: __5972HP11_____ DFTPP Injection Time: __1448_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	43.9
68	Less than 2.0% of mass 69	0.5(1.2)1
69	Mass 69 relative abundance	39.0
70	Less than 2.0% of mass 69	0.2(0.4)1
127	25.0-75.0% of mass 198	29.0
197	Less than 1.0% of mass 198	2.5
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	6.5
275	10.0-30.0% of mass 198	27.3
365	Greater than 0.75% of mass 198	4.9
441	Present, but less than mass 443	9.8
442	40.0-110.0% of mass 198	64.6
443	15.0-24.0% of mass 442	13.0(20.1)2

1- Value is % mass 69 2- Value is % mass 442

Lab File ID: __DF00213B11_____ DFTPP Injection Date: __02/13/01_____

Instrument ID: __5972HP11_____ DFTPP Injection Time: __0815_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	44.4
68	Less than 2.0% of mass 69	0.4(1.1)1
69	Mass 69 relative abundance	40.9
70	Less than 2.0% of mass 69	0.3(0.7)1
127	25.0-75.0% of mass 198	29.5
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	6.8
275	10.0-30.0% of mass 198	24.9
365	Greater than 0.75% of mass 198	4.6
441	Present, but less than mass 443	10.8

442	40.0-110.0% of mass 198	68.4
443	15.0-24.0% of mass 442	13.4(19.6)2

1- Value is % mass 69 2- Value is % mass 442

Module 15 Quiz 4

Sample	1	2	3
Adjusted CRQL	18.18	10.53	26.66
Reported CRQL	18	11	27

Sample	4	5	6
Adjusted CRQL	730.89	459.18	383.7
Reported CRQL	730	460	380

Sample	7	8	9
Adjusted CRQL	59701.5	266667	35714.3
Reported CRQL	60000	270000	36000

Module 15 Quiz 5

Fill in the concentration of each compound for each sample. Value in () is the actual concentration.

Compounds	BGT67	MHY43	VGT23	CFR99
Hexachloroethane	34 (34.44)	2500 (2524.70)	20 (19.87)	61000 (60771.07)
4-chloroaniline	33 (33.31)	2400 (2441.73)	19 (19.21)	59000 (58773.94)
4-nitrophenol	33 (32.66	2400 (2394.72)	19 (18.84)	58000 (57642.21)
Carbazole	35 (34.83)	2600 (2553.22)	20 (20.09)	61000 (61457.42)
Pyrene	35 (35.37)	2600 (2592.99)	20 (20.40)	62000 (62414.85)
Benzo (b) fluoranthene	35 (35.06)	2600 (2570.67)	20 (20.23)	62000 (61877.47)

Module 16 Quiz 1, 2, 3

Compounds	RRF 20	RRF 50	RRF 80	RRF 120	RRF 160	Ave RRF	%RSD
*bis(2-Chloroethyl)ether	1.558	1.643	1.569	1.578	1.549	1.579	2.3
Acetophenone	1.971	1.918	2.029	4.012	1.974	2.381	38.3
*Hexachloroethane	0.775	0.759	0.735	0.738	0.718	0.745	3.0
*Nitrobenzene	0.574	0.566	0.554	0.558	0.565	0.563	1.4
4-Chloroaniline	0.410	0.424	0.424	0.400	0.413	0.414	2.5
Hexachlorobutadiene	0.078	0.060	0.055	0.040	0.004	0.048	58.4
*2,6-Dinitrotoluene	0.363	0.377	0.371	0.379	0.342	0.366	4.1
3-Nitroaniline	**	0.399	0.376	0.368	0.341	0.371	6.4
2,4-Dinitrotoluene	0.512	0.527	0.509	0.529	0.500	0.515	2.4
*4-Bromophenyl-phenylether	0.217	0.221	0.220	0.225	0.235	0.224	3.2
Di-n-butylphthalate	1.838	1.860	1.814	1.891	1.844	1.849	1.5
*Fluoranthene	1.323	1.366	1.268	1.279	1.269	1.301	3.3
*Benzo(a)anthracene	1.419	1.436	1.391	1.430	1.451	1.425	1.6
*Chrysene	1.405	1.384	1.322	1.325	1.289	1.345	3.6
bis(2-Ethylhexyl)phthalate	1.479	1.476	1.436	1.433	1.448	1.454	1.5
*Indeno(1,2,3-cd)pyrene	1.275	0.501	1.259	1.253	1.376	1.133	31.5
*Dibenz(a,h)anthracene	1.192	1.242	1.188	1.234	1.273	1.226	2.9
*Benzo(g,h,i)perylene	1.246	1.281	1.205	1.205	1.211	1.230	2.7

**Although this analyte may be reported in the Quant report for this level, the SOW stipulates a four point calibration range and a higher CRQL value. This value is not reported or used in the calculations.

Module 16 Quiz 4

Contractual Requirements

Hexachlorobutadiene- standard level 5 (160 ng) did not meet minimum SOW requirements of RRF > 0.010.

Indeno (1,2,3-cd) Pyrene exceeded SOW required maximum %RSD of 20.5.

Technical Requirements

Hexachlorobutadiene- average RRF <0.05, "J" positive hits only, "R" non-detects for all samples associated with this calibration.

Acetophenone, Hexachlorobutadiene*, Indeno (1,2,3-cd) Pyrene have %RSD > 30%, "J" positive analytes only, no action for non-detects for all samples associated with this calibration.

*Some samples may reflect different qualifications due to RRF criteria.

Table 2 Modified Form 7C/D Continuing Calibration

Compounds	____ RRF	RRF50	MIN RRF	%D	MA %D
bis(2-Chloroethyl)ether	1.579	1.421	0.700	-10.0	25.0
Acetophenone	1.981	2.046		3.3	
Hexachloroethane	0.745	0.671	0.300	-9.9	25.0
Nitrobenzene	0.563	0.531	0.200	-5.7	25.0
4-Chloroaniline	0.414	0.390		-5.8	
Hexachlorobutadiene	0.201	0.208		3.5	
2,6-Dinitrotoluene	0.366	0.366	0.200	0.0	25.0
3-Nitroaniline	0.371	0.313		-15.6	
2,4-Dinitrotoluene	0.515	0.446	0.200	-13.4	25.0
4-Bromophenyl-phenylether	0.224	0.244	0.100	8.9	25.0
Di-n-butylphthalate	1.849	1.718		-7.1	
Fluoranthene	1.301	1.299	0.600	-0.2	25.0
Benzo(a)Anthracene	1.425	1.235	0.800	-13.3	25.0
Chrysene	1.345	1.221	0.700	-9.2	25.0
bis(2-Ethylhexyl)phthalate	1.454	1.173		-19.3	
Indeno(1,2,3-cd)Pyrene	1.293	1.340	0.500	3.6	25.0
Dibenzo(a,h)Anthracene	1.226	1.115	0.400	-9.1	25.0
Benzo(g,h,i)perylene	1.230	1.160	0.500	-5.7	25.0
Nitrobenzene-d_5	0.560	0.553	0.200	-1.3	25.0
2-Fluorobiphenyl	1.431	1.328	0.700	-7.2	25.0
2-Fluorophenol	1.102	0.954	0.500	-13.4	25.0
Terphenyl- d_{14}	1.698	1.403	0.800	-17.4	25.0
Phenol-d_5	1.330	1.169	0.600	-12.1	25.0
2,4,6 Tribromophenol	0.145	0.158		9.0	
2-Chlorophenol- d_4	1.520	1.292	0.800	-15.0	25.0
1,2-Dichlorobenzene- d_4	0.963	0.928	0.400	-3.6	25.0

Technical Problems

%D > 25% and >90% for Hexachlorobutadiene. "J" all detects and "R" all non-detects for samples associated with this continuing calibration.

Contractual Problems

There were no contractual problems.

Module 16 Quiz 7

(Refer to this page for the analytes that should be circled on the Forms)

Technical Problems

Initial Calibration

Caprolactam- average RRF <0.05 all positive hits in samples associated with this initial calibration are qualified, as "J" and non-detects are qualified as "R".

Continuing Calibration

% D >25%, "J" all positive and non-detects in samples associated with this continuing calibration for the following analytes: N-Nitroso-di-n-propylamine, Isophorone, Hexachlorobutadiene, 2,6 Dinitrotoluene, Acenaphthene, 2,4 Dinitrophenol, Hexachlorobenzene, Atrazine, Pyrene, Benzo (g,h,i) perylene.

%D >90%, "R" all non-detects and "J" all positive hits in samples associated with this continuing calibration for Caprolactam.

Contractual Problems

Initial Calibration

2,6 Dinitrotoluene RRF < 0.200, which is SOW minimum requirement.

Anthracene %RSD >20.5, which is SOW maximum requirement.

Dibenzo (a,h) Anthracene %RSD >40%, which fails allowable requirements that up to 4 analytes may fail SOW requirements provided the %RSD is < 40%.

Continuing Calibration

N-Nitroso-di-n-propylamine RRF <0.500, which is SOW minimum requirement.

Seven of the SOW required analytes failed %D requirements. The SOW only allows four analytes to fail SOW requirements.

Two of the seven analytes %D values were >40%. The SOW allows four analytes to fail SOW requirements provided the %D is < 40%.

Module 17 Quiz 1

(Refer to this page for the samples/analytes that should be qualified on the Forms)

Sample BPJ04

IS1 exceeded the upper limits. Positive hits are qualified "J" and non-detects are not qualified for the following analytes:

Benzaldehyde, Phenol, bis(2-Chloroethyl)ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane.

IS4 did not meet lower limits. Positive hits and non-detects are qualified "J" for the following analytes:

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 4-Bromophenyl-phenylether, Hexachlorobenzene, Atrazine, Pentachlorophenol, Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate, Fluoranthene.

IS6 did not meet lower limits and was < 25% of the 12 hour standard. Positive hits are qualified "J" and non-detects are qualified "R" for the following analytes:

Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)Pyrene, Indeno(1,2,3-cd)Pyrene, Dibenzo(a,h)Anthracene, Benzo(g,h,i)perylene.

Sample BPJ51

IS1 did not meet lower limits. Positive hits and non-detects are qualified "J" for the following analytes:

Benzaldehyde, Phenol, bis(2-Chloroethyl)ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane.

IS2 exceeded the upper limits. Positive hits are qualified "J" and non-detects are not qualified for the following analytes:

Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane, 2,4-Dichlorophenol, Naphthalene, 4-Chloroaniline, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene.

IS3 did not meet lower limits and was < 25% of the 12 hour standard. Positive hits are qualified "J" and non-detects are qualified "R" for the following analytes:

Hexachlorocyclopentadiene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,1 Biphenyl, 2-Chloronaphthalene, 2-Nitroaniline, Dimethylphthalate, 2,6-Dinitrotoluene, Acenaphthylene, 3-Nitroaniline, Acenaphthene, 2,4-Dinitrophenol, 4-Nitrophenol, Dibenzofuran, 2,4-Dinitrotoluene, Diethylphthalate, Fluorene, 4-Chlorophenyl-phenylether, 4-Nitroaniline.

IS5 did not meet lower limits. Positive hits and non-detects are qualified "J" for the following analytes:

Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)Anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

Sample BPJ52

IS2 did not meet lower limits. Positive hits and non-detects are qualified "J" for the following analytes:

Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane, 2,4-Dichlorophenol, Naphthalene, 4-Chloroaniline, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene.

IS5 exceeded the upper limits. Positive hits are qualified "J" and non-detects are not qualified for the following analytes:

Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)Anthracene, Chrysene, bis(2-Ethylhexyl)phthalate.

IS6 did not meet lower limits and was < 25% of the 12 hour standard. Positive hits are qualified "J" and non-detects are qualified "R" for the following analytes:

Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)Pyrene, Indeno(1,2,3-cd)Pyrene, Dibenzo(a,h)Anthracene, Benzo(g,h,i)perylene.

Module 18 Quiz 1

1. Hexachloroethane RPD = 57.5

2. N-Nitroso-di-n-propylamine RPD = 115.8

3. 4-Methylphenol RPD = 11.5

4. Acetophenone RPD = 28.6

5. 2,2'-oxybis (1-Chloropropane) RPD = 48.3

6. 2-Methylphenol RPD = 43.3

7. 2-Chlorophenol RPD = 40

8. bis(2-Chloroethyl)ether RPD = 72.5

9. Phenol RPD = 17.9

10. Benzaldehyde RPD = 46.2

Module 19 Quiz 1

Instructions:

- Validate for **cooler temperature and percent moisture** criteria only.
- Specify what qualifications are needed if any.
- Example: The sample BGH65 did not meet cooler temperature criteria. All non-detects were qualified "UJ" and detects were qualified "J".

1. Sample BJK90 is an aqueous matrix, cooler temperature is <10°C, sample volume is 950mL, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-06-2000, extraction date is 03-08-2000 and date of analysis is 03-09-2000.

2. Sample BNG65 is an aqueous matrix, cooler temperature is >10°C, sample volume is 1000mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000, extraction date is 03-15-2000 and date of analysis is 03-19-2000.

3. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 91%, sample weight is 30 g, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-07-2000, extraction date is 03-08-2000 and date of analysis is 03-10-2000.

4. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 30 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-19-2000 and date of analysis is 03-24-2000.

5. Sample BXD16 is a soil matrix, the cooler temperature >10°C, the percent moisture is 55%, sample weight is 31 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-10-2000 and date of analysis is 03-11-2000.

Module 19 Quiz 2

Instructions:

- Write the qualification statement as it would appear in the data assessment
- Validate for **holding time criteria only**
- Specify which holding time: technical or contractual or both
- Specify what qualifications are needed if any.
- Example: Contractual holding times were met. The sample BGH65 did not meet technical requirements. Sample BGH65 was analyzed 30 days after date of collection, all non-detects were qualified "R" and detects were qualified "J".

1. Sample BJK90 is an aqueous matrix, cooler temperature is <10°C, sample volume is 950mL, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-06-2000, extraction date is 03-08-2000 and date of analysis is 03-09-2000.

2. Sample BNG65 is an aqueous matrix, cooler temperature is >10°C, sample volume is 1000mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000, extraction date is 03-15-2000 and date of analysis is 03-19-2000.

3. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 91%, sample weight is 30 g, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-07-2000, extraction date is 03-08-2000 and date of analysis is 03-10-2000.

4. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 30 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-19-2000 and date of analysis is 03-24-2000.

5. Sample BXD16 is a soil matrix, the cooler temperature >10°C, the percent moisture is 55%, sample weight is 31 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-10-2000 and date of analysis is 03-11-2000.

Quiz 3

Sample BXD16 is a soil matrix, the cooler temperature <10°C, date of collection is 03-02-2001.

Quiz 4

Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, and date of collection is 03-04-2001.

Quiz 5

Sample BXZ26 is an soil sample, the pH is 7, the cooler temperature <10°C, date of collection is 03-02-2001.

Module 19 Quiz 3

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXD16

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345____ SAS No.: _____ SDG No.:_BXD10

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXD10-8_____

Sample wt/vol: ____30.3_____(g/mL) _____g_____ Lab File ID: __BXD10-8AA_____

% Moisture: _____35_____ Decanted: (Y/N) _____ Date Received: __03/05/2001____

Extraction : (Type) __SONC_____ Date Extracted: __03/10/2001_____

Concentrated Extract Volume: ___5000_____(lL) Date Analyzed: ___03/20/2001_____

Injection Volume: ____1.0_____(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)__Y____ pH ___6.7_____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
319-84-6	alpha-BHC		
319-85-7	beta BHC		
319-86-8	delta-BHC		
58-89-9	gamma BHC		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide		
959-98-8	Endosulfan I		
60-57-1	Dieldrin		
72-55-9	4,4'DDE		
72-20-8	Endrin		
33213-65-9	Endosulfan II		
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate		
50-29-3	4,4'DDT		
72-43-5	Methoxychlor		
53494-70-5	Endrin ketone		
7421-93-4	Endrin aldehyde		
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene		
12674-11-2	Aroclor 1016		
11104-28-2	Aroclor 1221		
11141-16-5	Aroclor 1232		
53469-21-9	Aroclor 1242		
12672-29-6	Aroclor 1248		
11097-69-1	Aroclor 1254		
11096-82-5	Aroclor 1260		

Module 19 Quiz 4

1E

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BDR40

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BDR40-3_____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: _BDR40-3BB_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _03/05/2001_____

Extraction : (Type) ____SEPF_____ Date Extracted: __03/11/2001__

Concentrated Extract Volume: ___10000_____(lL) Date Analyzed: __04/25/2001_____

Injection Volume: _1.0_____(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)___N___

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
319-84-6	alpha-BHC		
319-85-7	beta BHC		
319-86-8	delta-BHC		
58-89-9	gamma BHC		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide		
959-98-8	Endosulfan I		
60-57-1	Dieldrin		
72-55-9	4,4'DDE		
72-20-8	Endrin		
33213-65-9	Endosulfan II		
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate		
50-29-3	4,4'DDT		
72-43-5	Methoxychlor		
53494-70-5	Endrin ketone		
7421-93-4	Endrin aldehyde		
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene		
12674-11-2	Aroclor 1016		
11104-28-2	Aroclor 1221		
11141-16-5	Aroclor 1232		
53469-21-9	Aroclor 1242		
12672-29-6	Aroclor 1248		
11097-69-1	Aroclor 1254		
11096-82-5	Aroclor 1260		

Module 19 Quiz 5

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345___ SAS No.: _____ SDG No.:_BXZ26

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXZ26-1__

Sample wt/vol: ____30.4_____(g/mL) _____g_____ Lab File ID: _BXZ26-1AA_____

% Moisture: _____55_____ Decanted: (Y/N) __N_____ Date Received: _03/03/2001___

Extraction : (Type) __SONC_____ Date Extracted: _03/05/2001_____

Concentrated Extract Volume: ___5000_____(lL) Date Analyzed: __03/10/2001_____

Injection Volume: ___1.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N)__N____ pH __5.8_____ Sulfur Cleanup: (Y/N)___N___

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
319-84-6	alpha-BHC		
319-85-7	beta BHC		
319-86-8	delta-BHC		
58-89-9	gamma BHC		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide		
959-98-8	Endosulfan I		
60-57-1	Dieldrin		
72-55-9	4,4'DDE		
72-20-8	Endrin		
33213-65-9	Endosulfan II		
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate		
50-29-3	4,4'DDT		
72-43-5	Methoxychlor		
53494-70-5	Endrin ketone		
7421-93-4	Endrin aldehyde		
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene		
12674-11-2	Aroclor 1016		
11104-28-2	Aroclor 1221		
11141-16-5	Aroclor 1232		
53469-21-9	Aroclor 1242		
12672-29-6	Aroclor 1248		
11097-69-1	Aroclor 1254		
11096-82-5	Aroclor 1260		

Module 20 Quiz 1

Instruction:

- Calculate the % Recovery of each surrogate in the samples and report the values on the Form 2, which can be found on next 2 pages.

Use 1.0 uL injection
Don't forget GPC value

Sample BBJ60, 1000mL,	Concentration
TCX	0.21258
DBC	0.12587
TCX	0.23540
DBC	0.14454

Sample BPH71, 500 mL,	Concentration
TCX	0.22548
DBC	0.30145
TCX	0.28754
DBC	0.31112

Sample BPH62, 30g, 12%,	Concentration
TCX	5.8
DBC	13
TCX	7.2
DBC	14

Sample BNR68, 31.8, 15%, DF=2	Concentration
TCX	9.8
DBC	12
TCX	11
	15

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: __NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345___ SAS No.: _____ SDG No.:_____

GC Column (1) : _CLPPEST____ ID: _0.53_ (mm) GC Column (2) : __CLPPEST2__ ID: _0.53_ (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
1.	BBJ60							
2.	BPH71							
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)

DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

page __1___ of __1_____

FORM II PEST-1

OLM04.2

2F

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: __NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345___ SAS No.: _____ SDG No.:__BBB00___

GC Column (1) : _CLPPEST____ ID: _0.53_ (mm) GC Column (2) : __CLPPEST2__ ID: _0.53_ (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
1.	BPH62							
2.	BNR68							
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)

DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

Module 20 Quiz 2

Instruction:

- Write the final qualifications you would take for the sample based on the SMC recoveries.

Sample 1-	
SMC compound	% Recovery
TCX-1	49
TCX-2	96
DBC-1	25
DBC-2	20

Sample 2	
SMC compound	% Recovery
TCX-1	09
TCX-2	20
DBC-1	45
DBC-2	50

Sample 3	
SMC compound	% Recovery
TCX-1	78
TCX-2	75
DBC-1	165
DBC-2	225

Sample 4	
SMC compound	% Recovery
TCX-1	26
TCX-2	40
DBC-1	85
DBC-2	160

Module 20 Quiz 3

Instructions:

- Calculate the Surrogate Recoveries that are missing from each Form 2. Apply the Regional checklist qualifications to the Form 1's for each sample.
- Modified Quant Reports for each sample and the RF values are located after each Form 1 for the sample.
- Write a detailed assessment of the qualification action for each sample on this page.

Module 21 Quiz 1

Instruction:

- Fill in the Recovery and RPD values for each problem.

1. Water sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
gamma BHC:	0.50	0.0	0.29		0.42			15	56-123
Heptachlor:	0.50	0.0	0.28		0.40			20	40-131
Aldrin:	0.50	0.0	0.29		0.41			22	40-120
Dieldrin:	1.0	0.0	0.61		0.85			18	52-126
Endrin:	1.0	0.0	0.60		0.85			21	56-121
4,4'DDT:	1.0	0.0	0.56		0.79			27	38-127

2. Low level Soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
gamma BHC:	20	0.0	8.6		8.7			50	46-127
Heptachlor:	20	0.0	12		14			31	35-130
Aldrin:	20	0.0	17		17			43	34-132
Dieldrin:	40	0.0	23		23			38	31-134
Endrin:	40	0.0	31		30			45	42-139
4,4'DDT:	40	0.0	25		25			50	23-134

3. water sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
gamma BHC:	0.50	0.0	0.30		0.34			15	56-123
Heptachlor:	0.50	0.0	0.45		0.49			20	40-131
Aldrin:	0.50	0.0	0.47		0.55			22	40-120
Dieldrin:	1.0	0.0	0.74		0.81			18	52-126
Endrin:	1.0	0.0	0.92		1.0			21	56-121
4,4'DDT:	1.0	0.0	0.81		0.87			27	38-127

4. Low level soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
gamma BHC:	26	0.0	19		30			50	46-127
Heptachlor:	26	0.0	16		28			31	35-130
Aldrin:	26	0.0	15		17			43	34-132
Dieldrin:	51	0.0	44		46			38	31-134
Endrin:	51	0.0	40		44			45	42-139
4,4'DDT:	51	5.0	36		45			50	23-134

Module 22 Quiz 1

Instruction:

- Use Figure 22.1 from page 5 or from the checklist in section 6.2 to qualify the each problem.
- Calculate and write in the correct CRQL for the sample if dilution factor (DF) or % moisture is involved. (use SOW required sample amount)
- Write in the Qualified Result. This is the correct value and qualifier to be reported on the sample Form 1. Remember the significant figures and rounding rules.

1. Matrix water

Blank Contaminant	0.008	gamma BHC
Sample CRQL		
Sample DF	2	
Sample Result		1.0
Qualified Result		

2. Matrix water

Blank Contaminant	0.50	Endrin
Sample CRQL		
Sample Result		2.0
Qualified Result		

3. Matrix water

Blank Contaminant	0.10	DDT
Sample CRQL		
Sample Result		0.32
Qualified Result		

4. Matrix water

Blank Contaminant	0.50	Aroclor 1254
Sample CRQL		
Sample Result		1.8
Qualified Result		

5. Matrix water

Blank Contaminant	0.25	Methoxychlor
Sample CRQL		
Sample Result		1.55
Qualified Result		

6. Matrix soil

Blank Contaminant	4	Aroclor 1221
Sample CRQL		
Sample DF	2	
% Moisture	45	
Sample Result		160
Qualified Result		

7.	Matrix soil		
	Blank Contaminant	15	Methoxychlor
	Sample CRQL		
	% Moisture	35	
	Sample Result		38
	Qualified Result		
8.	Matrix soil		
	Blank Contaminant	3	Toxaphene
	Sample CRQL		
	% Moisture	20	
	Sample Result		40
	Qualified Result		
9.	Matrix soil		
	Blank Contaminant	8	DDE
	Sample CRQL		
	Sample DF	2	
	% Moisture	8	
	Sample Result		25
	Qualified Result		
10.	Matrix soil		
	Blank Contaminant	3	Heptachlor
	Sample CRQL		
	% Moisture	15	
	Sample Result		10
	Qualified Result		

Module 22 Quiz 2

4C

EPA SAMPLE NO.

PESTICIDE METHOD BLANK SUMMARY

PBLKS1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50_

Lab Sample ID: ___BBJ50-MBS_____ Lab File ID: ___BBJ50-MB2_____

Matrix: (soil/water) ___SOIL_____ Extraction: (Type) ___SONC_____

Sulfur Cleanup: (Y/N) ____N_____ Date Extracted: ____02/01/01_____

Date Analyzed (1): ___02/03/01_____ Date Analyzed (2): ___02/03/01_____

Time Analyzed (1): ____0825_____ Time Analyzed (2): ___0825_____

Instrument ID (1): ___ HP5890AA _____ Instrument ID (2): ___HP5890AB_____

GC Column (1): __RTX-35_ ID: __0.32___ (mm) GC Column (2): _DB-5__ ID: __0.53___ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BPH62	BBJ50-13	02/03/01	02/03/01
2.				
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COMMENTS:

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FORM IV PEST

OLM04.2

4C

EPA SAMPLE NO.

PESTICIDE METHOD BLANK SUMMARY

PBLKW1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50_

Lab Sample ID: ___BBJ50-MBW_____ Lab File ID: ___BBJ50-MB1_____

Matrix: (soil/water) ___WATER_____ Extraction: (Type) ___SEPF_____

Sulfur Cleanup: (Y/N) ____N_____ Date Extracted: ____02/01/01_____

Date Analyzed (1): ___01/27/01_____ Date Analyzed (2): ___01/27/01_____

Time Analyzed (1): ____1252_____ Time Analyzed (2): ___1252

Instrument ID (1): ___ HP5890CA _____ Instrument ID (2): ___HP5890CB_____

GC Column (1): __RTX-35_ ID: __0.32___ (mm) GC Column (2): _DB-5__ ID: __0.53___ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BBJ60	BBJ50-18	01/27/01	01/27/01
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COMMENTS:

page ___1__ of ____1____

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-10_____

Sample wt/vol: __1000_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-10C_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___01/24/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

Sulfur Cleanup: (Y/N)__N____

GPC Cleanup: (Y/N)__N____ pH _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.08	J
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.21	
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.36	
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.24	
72-43-5	Methoxychlor	0.82	
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBJ50-13_____

Sample wt/vol: __30_____(g/mL) ___G_____ Lab File ID: ___BBJ50-13A_____

% Moisture: _____21_____ Decanted: (Y/N) ___N____ Date Received: ___01/26/01_____

Extraction : (Type) ___SONC____ Date Extracted: ___02/01/01_____

Concentrated Extract Volume: __5000____(lL) Date Analyzed: ___02/03/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__Y____ pH ____6.8____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg_	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma BHC	1.5	J
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'DDE	4.2	U
72-20-8	Endrin	6.6	
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'DDT	8.2	
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	1.3	J
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor 1016	42	U
11104-28-2	Aroclor 1221	85	U
11141-16-5	Aroclor 1232	42	U
53469-21-9	Aroclor 1242	42	U
12672-29-6	Aroclor 1248	42	U
11097-69-1	Aroclor 1254	42	U
11096-82-5	Aroclor 1260	42	U

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKS1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBJ50-MB2_____

Sample wt/vol: __30_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-MBS_____

% Moisture: _____0_____ Decanted: (Y/N) __N_____ Date Received: _____

Extraction : (Type) ___SONC____ Date Extracted: ___02/01/01_____

Concentrated Extract Volume: __5000____(lL) Date Analyzed: ___02/03/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__Y____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma BHC	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'DDE	4.2	U
72-20-8	Endrin	2.2	J
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'DDT	4.2	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	1.4	J
5103-74-2	gamma-Chlordane	1.1	J
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor 1016	42	U
11104-28-2	Aroclor 1221	85	U
11141-16-5	Aroclor 1232	42	U
53469-21-9	Aroclor 1242	42	U
12672-29-6	Aroclor 1248	42	U
11097-69-1	Aroclor 1254	42	U
11096-82-5	Aroclor 1260	42	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKW1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-MB1_____

Sample wt/vol: __1000_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-MBW_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.04	J
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.06	J
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.47	J
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

Module 22 Quiz 3

4C

EPA SAMPLE NO.

PESTICIDE METHOD BLANK SUMMARY

PBLKS1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50_

Lab Sample ID: ___BBJ50-MBS_____ Lab File ID: ___BBJ50-MB2_____

Matrix: (soil/water) ___SOIL_____ Extraction: (Type) ___SONC_____

Sulfur Cleanup: (Y/N) ____N_____ Date Extracted: ____02/01/01_____

Date Analyzed (1): ___02/03/01_____ Date Analyzed (2): ___02/03/01_____

Time Analyzed (1): ____0825_____ Time Analyzed (2): ___0825_____

Instrument ID (1): ___ HP5890AA _____ Instrument ID (2): ___HP5890AB_____

GC Column (1): __RTX-35_ ID: __0.32___ (mm) GC Column (2): _DB-5__ ID: __0.53___ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BBJ28	BBJ50-11	02/03/01	02/03/01
2.				
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COMMENTS:

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FORM IV PEST

OLM04.2

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PBLKW1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50_

Lab Sample ID: ___BBJ50-MBW_____ Lab File ID: ___BBJ50-MB1_____

Matrix: (soil/water) ___WATER_____ Extraction: (Type) ___SEPF_____

Sulfur Cleanup: (Y/N) ____N_____ Date Extracted: ____02/01/01_____

Date Analyzed (1): ___01/27/01_____ Date Analyzed (2): ___01/27/01_____

Time Analyzed (1): ____1252_____ Time Analyzed (2): ___1252_____

Instrument ID (1): ___ HP5890CA _____

Instrument ID (2): ___HP5890CB_____

GC Column (1): __RTX-35_ ID: __0.32___ (mm) GC Column (2): _DB-5__ ID: __0.53___ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BBJ68	BBJ50-18	01/27/01	01/27/01
2.	BPL04	BBJ50-33	01/27/01	01/27/01
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COMMENTS:

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1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ28

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBJ50-11_____

Sample wt/vol: __30_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-11A_____

% Moisture: _____25_____ Decanted: (Y/N) __N_____ Date Received: ___01/26/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___02/01/01_____

Concentrated Extract Volume: __5000____(lL) Date Analyzed: ___02/03/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH ___5.3____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg __	Q
319-84-6	alpha-BHC	2.6	U
319-85-7	beta BHC	2.6	U
319-86-8	delta-BHC	2.6	U
58-89-9	gamma BHC	3.3	
76-44-8	Heptachlor	2.6	U
309-00-2	Aldrin	2.6	U
1024-57-3	Heptachlor epoxide	1.1	J
959-98-8	Endosulfan I	2.6	U
60-57-1	Dieldrin	5.2	U
72-55-9	4,4'DDE	5.2	U
72-20-8	Endrin	5.3	
33213-65-9	Endosulfan II	5.2	U
72-54-8	4,4'DDD	5.2	U
1031-07-8	Endosulfan sulfate	5.2	U
50-29-3	4,4'DDT	7.9	
72-43-5	Methoxychlor	26	U
53494-70-5	Endrin ketone	5.2	U
7421-93-4	Endrin aldehyde	5.2	U
5103-71-9	alpha-Chlordane	1.8	J
5103-74-2	gamma-Chlordane	1.2	J
8001-35-2	Toxaphene	260	U
12674-11-2	Aroclor 1016	51	U
11104-28-2	Aroclor 1221	100	U
11141-16-5	Aroclor 1232	51	U
53469-21-9	Aroclor 1242	51	U
12672-29-6	Aroclor 1248	51	U
11097-69-1	Aroclor 1254	51	U
11096-82-5	Aroclor 1260	51	U

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BBJ68

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-18_____

Sample wt/vol: __800_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-18C_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___01/24/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.063	U
319-85-7	beta BHC	0.063	U
319-86-8	delta-BHC	0.063	U
58-89-9	gamma BHC	0.063	U
76-44-8	Heptachlor	0.063	U
309-00-2	Aldrin	1.0	
1024-57-3	Heptachlor epoxide	0.063	U
959-98-8	Endosulfan I	0.063	U
60-57-1	Dieldrin	0.13	U
72-55-9	4,4'DDE	0.23	
72-20-8	Endrin	0.13	U
33213-65-9	Endosulfan II	0.13	U
72-54-8	4,4'DDD	0.25	
1031-07-8	Endosulfan sulfate	0.13	U
50-29-3	4,4'DDT	0.36	
72-43-5	Methoxychlor	0.88	
53494-70-5	Endrin ketone	0.13	U
7421-93-4	Endrin aldehyde	0.13	U
5103-71-9	alpha-Chlordane	0.063	U
5103-74-2	gamma-Chlordane	0.063	U
8001-35-2	Toxaphene	6.3	U
12674-11-2	Aroclor 1016	1.3	U
11104-28-2	Aroclor 1221	2.6	U
11141-16-5	Aroclor 1232	1.3	U
53469-21-9	Aroclor 1242	1.3	U
12672-29-6	Aroclor 1248	1.3	U
11097-69-1	Aroclor 1254	1.3	U
11096-82-5	Aroclor 1260	1.3	U

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-33_____

Sample wt/vol: __900_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-33C_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___01/24/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L _	Q
319-84-6	alpha-BHC	0.056	U
319-85-7	beta BHC	0.056	U
319-86-8	delta-BHC	0.056	U
58-89-9	gamma BHC	0.040	J
76-44-8	Heptachlor	0.056	U
309-00-2	Aldrin	0.056	U
1024-57-3	Heptachlor epoxide	0.130	
959-98-8	Endosulfan I	0.056	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'DDT	0.21	
72-43-5	Methoxychlor	0.44	J
53494-70-5	Endrin ketone	0.11	U
7421-93-4	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.056	U
5103-74-2	gamma-Chlordane	0.056	U
8001-35-2	Toxaphene	5.6	U
12674-11-2	Aroclor 1016	1.1	U
11104-28-2	Aroclor 1221	2.2	U
11141-16-5	Aroclor 1232	1.1	U
53469-21-9	Aroclor 1242	1.1	U
12672-29-6	Aroclor 1248	1.1	U
11097-69-1	Aroclor 1254	1.1	U
11096-82-5	Aroclor 1260	1.1	U

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKS1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBJ50-MB2_____

Sample wt/vol: __30_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-MBS_____

% Moisture: _____0_____ Decanted: (Y/N) __N_____ Date Received: _____

Extraction : (Type) ___SONC____ Date Extracted: ___02/01/01_____

Concentrated Extract Volume: __5000____(lL) Date Analyzed: ___02/03/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__Y____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/Kg _	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma BHC	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'DDE	4.2	U
72-20-8	Endrin	2.2	J
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'DDT	4.2	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	1.4	J
5103-74-2	gamma-Chlordane	1.1	J
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor 1016	42	U
11104-28-2	Aroclor 1221	85	U
11141-16-5	Aroclor 1232	42	U
53469-21-9	Aroclor 1242	42	U
12672-29-6	Aroclor 1248	42	U
11097-69-1	Aroclor 1254	42	U
11096-82-5	Aroclor 1260	42	U

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKW1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-MB1_____

Sample wt/vol: __1000_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-MBW_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L __	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.04	J
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.06	J
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.47	J
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

Module 23 Quiz 1

- Calculate the concentration of the analytes in each sample using the appropriate equation, (Equation 23-1 or 23-2).
- Use the values in Table 1 and write the concentration for each problem in Table 2.

Table 1

	Sample ID	Matrix/ %M	Vol/Wt	Inj vol	Final Vol	CF	Analyte
1.	BBB20	water	950	1 uL	10000	1026840	Alpha BHC
2.	BBB21	Soil / 15%	30.5	1 uL	5000	912750	Delta BHC
3.	BBB22	water	800	1 uL	10000	368880	Heptachlor
4.	BBB23	Soil / 25%	31.4	1 uL	5000	736100	Dieldrin
5.	BBB24	water	980	1 uL	10000	456425	Endrin
6.	BBB25	Soil / 5%	30.8	1 uL	5000	528675	DDE
7.	BBB26	water	1000	1 uL	10000	569800	DDT
8.	BBB27	Soil / 55%	30.0	1 uL	5000	462450	Methoxychlor
9.	BBB28	water	500	1 uL	5000	246080	TCX
10.	BBB29	Soil / 45%	15.0	1 uL	5000	575675	DBC

Table 2 Answers

	Sample ID	response	Concentration
1.	BBB20	20658	
2.	BBB21	18731	
3.	BBB22	55563	
4.	BBB23	22587	
5.	BBB24	66358	
6.	BBB25	11245	
7.	BBB26	188794	
8.	BBB27	27935	
9.	BBB28	5215	
10.	BBB29	8859	

Module 23 Quiz 2

- Calculate the concentration of each Aroclor in the samples on the next page. Refer to Form 6G for Calibration Factors.

Modified 6G
PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

COMPOUND	AMOUNT (NG)	PEAK[1]	RT	CALIBRATION FACTOR
Aroclor 1016:	0.10	1	6.55	10330
		2	7.58	22580
		3	8.69	54450
		4	9.01	23190
		5	10.15	17870
Aroclor 1221:	0.20	1	4.38	2835
		2	6.05	4195
		3	6.40	3435
		4	6.55	13535
		5		
Aroclor 1232:	0.10	1	6.55	13610
		2	7.58	8480
		3	8.69	23450
		4	9.02	9540
		5	10.15	6380
Aroclor 1242:	0.10	1	6.55	8960
		2	7.58	15360
		3	8.69	40720
		4	11.15	16630
		5	11.67	17080
Aroclor 1248:	0.10	1	10.15	23080
		2	10.43	25630
		3	11.05	32670
		4	11.67	28850
		5	12.66	19590
Aroclor 1254:	0.10	1	11.60	45910
		2	12.65	51350
		3	13.18	56260
		4	13.97	33550
		5	14.41	61860
Aroclor 1260:	0.10	1	13.60	67750
		2	15.29	35050
		3	15.87	84200
		4	16.69	55660
		5	18.00	15650

[1]At least 3 peaks for each column are required for identification of multi-component analytes.

1.

Sample Info	Aroclor 1016 Peaks	Response	Conc.
Water	1	555	
980 mL	2	1023	
1.0 uL injection	3	3657	
DF = 2	4	1097	
F.V = 10000	5	887	
	Final		

2.

Sample Info	Aroclor 1221 Peaks	Response	Conc.
Soil 38%	1	1856	
30.6g	2	2579	
1.0 uL injection	3	2256	
DF = 1	4	12879	
F.V = 5000	5		
	Final		

3.

Sample Info	Aroclor 1260 Peaks	Response	Conc.
Water	1	5456	
1000 mL	2	2874	
1.0 uL injection	3	7432	
DF = 5	4	4897	
F.V = 10000	5	1254	
	Final		

4.

Sample Info	Aroclor 1242 Peaks	Response	Conc.
Soil 28%	1	5896	
26.8g	2	10527	
1.0 uL injection	3	42365	
DF = 1	4	16669	
F.V = 5000	5	18963	
	Final		

5.

Sample Info	Aroclor 1254 Peaks	Response	Conc.
Water	1	48564	
750 mL	2	52178	
1.0 uL injection	3	62370	
DF = 1	4	45268	
F.V = 10000	5	78935	
	Final		

6.

Sample Info	Aroclor 1248 Peaks	Response	Conc.
Soil 15%	1	2232	
32.0g	2	3568	
1.0 uL injection	3	5896	
DF = 1	4	4458	
F.V = 5000	5	2222	
	Final		

Module 23 Quiz 3

Instruction:

- Fill in the missing RT and Calculate the CF for each level and analyte on the appropriate forms.
- Fill in the CF values only, leave the average CF and %RSD fields empty.

Column RTX-35 Modified Quant Reports for initial calibration standards

INDAL24

RT	area	Compounds	On-column amt. ng
5.25	2764	TCMX	0.005
6.88	4028	alpha-BHC	0.005
7.80	3692	gamma BHC	0.005
8.87	4225	Heptachlor	0.005
11.95	3461	Endosulfan I	0.005
12.60	6175	Dieldrin	0.010
13.28	3020	Endrin	0.010
13.73	4477	4,4'DDD	0.010
14.43	4618	4,4'DDT	0.010
16.10	12053	Methoxychlor	0.05
19.36	5467	DBC	0.010

INDBL24

RT	area	Compounds	On-column amt. ng
5.25	2894	TCMX	0.005
8.07	1741	beta BHC	0.005
8.79	2999	delta-BHC	0.005
9.63	3933	Aldrin	0.005
11.06	3464	Heptachlor epoxide	0.005
11.51	3706	gamma-Chlordane	0.005
11.87	4026	alpha-Chlordane	0.005
12.40	6925	4,4'DDE	0.010
13.79	5883	Endosulfan II	0.010
14.60	4385	Endrin aldehyde	0.010
15.23	5307	Endosulfan sulfate	0.010
16.38	5295	Endrin ketone	0.010
19.36	5464	DBC	0.010

INDAM24

RT	area	Compounds	On-column amt. ng
5.25	13068	TCMX	0.020
6.88	20556	alpha-BHC	0.020
7.80	18437	gamma BHC	0.020
8.87	19543	Heptachlor	0.020
11.95	15892	Endosulfan I	0.020
12.60	28577	Dieldrin	0.040
13.28	18401	Endrin	0.040
13.73	21495	4,4'DDD	0.040
14.43	22309	4,4'DDT	0.040
16.10	31056	Methoxychlor	0.20
19.36	35267	DBC	0.040

INDBM24

RT	area	Compounds	On-column amt. ng
5.25	12737	TCMX	0.020
8.07	7398	beta BHC	0.020
8.79	17973	delta-BHC	0.020
9.63	17522	Aldrin	0.020
11.06	15570	Heptachlor epoxide	0.020
11.51	16619	gamma-Chlordane	0.020
11.87	15589	alpha-Chlordane	0.020
12.39	29808	4,4'DDE	0.040
13.79	24898	Endosulfan II	0.040
14.60	18498	Endrin aldehyde	0.040
15.23	22285	Endosulfan sulfate	0.040
16.39	21572	Endrin ketone	0.040
19.37	21955	DBC	0.040

INDAH24

RT	area	Compounds	On-column amt. ng
5.25	49939	TCMX	0.080
6.88	110796	alpha-BHC	0.080
7.80	77069	gamma BHC	0.080
8.87	74557	Heptachlor	0.080
11.95	56751	Endosulfan I	0.080
12.60	105738	Dieldrin	0.160
13.28	66054	Endrin	0.160
13.73	83680	4,4'DDD	0.160
14.43	86454	4,4'DDT	0.160
16.10	170358	Methoxychlor	0.800
19.37	81102	DBC	0.160

INDBH24

RT	area	Compounds	On-column amt. ng
5.25	48476	TCMX	0.080
8.07	28551	beta BHC	0.080
8.79	81461	delta-BHC	0.080
9.63	66722	Aldrin	0.080
11.06	57020	Heptachlor epoxide	0.080
11.51	62439	gamma-Chlordane	0.080
11.87	57736	alpha-Chlordane	0.080
12.40	109303	4,4'DDE	0.160
13.79	89362	Endosulfan II	0.160
14.60	67405	Endrin aldehyde	0.160
15.23	81827	Endosulfan sulfate	0.160
16.38	81199	Endrin ketone	0.160

19.37	76188	DBC	0.160

Column DB-5 Modified Quant Reports for initial calibration standards

INDAL24

RT	area	Compounds	On-column amt. ng
4.01	3225	TCMX	0.005
5.28	4052	alpha-BHC	0.005
6.01	4002	gamma BHC	0.005
7.10	4766	Heptachlor	0.005
10.08	3899	Endosulfan I	0.005
10.64	6715	Dieldrin	0.010
11.12	5213	Endrin	0.010
11.52	4924	4,4'DDD	0.010
12.14	5421	4,4'DDT	0.010
13.38	15163	Methoxychlor	0.05
16.60	7722	DBC	0.010

INDBL24

RT	area	Compounds	On-column amt. ng
4.02	3507	TCMX	0.005
6.27	2260	beta BHC	0.005
6.65	3469	delta-BHC	0.005
7.77	4075	Aldrin	0.005
9.22	4152	Heptachlor epoxide	0.005
9.51	3980	gamma-Chlordane	0.005
9.82	4112	alpha-Chlordane	0.005
10.17	5015	4,4'DDE	0.010
11.64	6866	Endosulfan II	0.010
12.61	5814	Endrin aldehyde	0.010
13.58	6656	Endosulfan sulfate	0.010
14.14	6683	Endrin ketone	0.010
16.60	7724	DBC	0.010

INDAM24

RT	area	Compounds	On-column amt. ng
4.02	15350	TCMX	0.020
5.28	20804	alpha-BHC	0.020
6.01	19936	gamma BHC	0.020
7.11	20801	Heptachlor	0.020
10.08	16641	Endosulfan I	0.020
10.64	30831	Dieldrin	0.040
11.12	23755	Endrin	0.040
11.52	23155	4,4'DDD	0.040
12.14	25104	4,4'DDT	0.040
13.38	62151	Methoxychlor	0.20
16.60	29712	DBC	0.040

INDBM24

RT	area	Compounds	On-column amt. ng
4.02	15127	TCMX	0.020
6.27	9117	beta BHC	0.020
6.65	18119	delta-BHC	0.020
7.78	17461	Aldrin	0.020
9.22	16962	Heptachlor epoxide	0.020
9.51	23148	gamma-Chlordane	0.020
9.82	16704	alpha-Chlordane	0.020
10.17	29057	4,4'DDE	0.040
11.64	28130	Endosulfan II	0.040
12.61	22483	Endrin aldehyde	0.040
13.58	26473	Endosulfan sulfate	0.040
14.14	26860	Endrin ketone	0.040
16.60	28021	DBC	0.040

INDAH24

RT	area	Compounds	On-column amt. ng
4.01	60354	TCMX	0.080
5.28	111278	alpha-BHC	0.080
6.02	87805	gamma BHC	0.080
7.11	82930	Heptachlor	0.080
10.08	63642	Endosulfan I	0.080
10.64	125799	Dieldrin	0.160
11.12	94007	Endrin	0.160
11.52	97734	4,4'DDD	0.160
12.14	104194	4,4'DDT	0.160
13.38	371621	Methoxychlor	0.800
16.60	103404	DBC	0.160

INDBH24

RT	area	Compounds	On-column amt. ng
4.02	57997	TCMX	0.080
6.27	33784	beta BHC	0.080
6.65	80920	delta-BHC	0.080
7.77	70798	Aldrin	0.080
9.22	64425	Heptachlor epoxide	0.080
9.51	67370	gamma-Chlordane	0.080
9.82	64377	alpha-Chlordane	0.080
10.17	122812	4,4'DDE	0.160
11.64	106600	Endosulfan II	0.160
12.61	82398	Endrin aldehyde	0.160
13.58	98438	Endosulfan sulfate	0.160
14.14	104335	Endrin ketone	0.160
16.60	97144	DBC	0.160

Column RTX-35 Modified Form 6E

Compounds	RT of Standards			Mean RT	RT window	
	low	med	high		From	TO
alpha-BHC						
beta BHC	8.07	8.07	8.07	8.07	8.02	8.12
delta-BHC	8.79	8.79	8.79	8.79	8.74	8.84
gamma BHC	7.80	7.80	7.80	7.80	7.75	7.85
Heptachlor						
Aldrin	9.63	9.63	9.63	9.63	9.58	9.68
Heptachlor epoxide	11.06	11.06	11.06	11.06	10.99	11.10
Endosulfan I	11.95	11.95	11.95	11.95	11.88	12.00
Dieldrin	12.60	12.60	12.60	12.60	12.53	12.70
4,4'DDE						
Endrin	13.28	13.28	13.28	13.28	13.21	13.40
Endosulfan II	13.79	13.79	13.79	13.79	13.72	13.90
4,4'DDD	13.73	13.73	13.73	13.73	13.66	13.80
Endosulfan sulfate	15.23	15.23	15.23	15.23	15.16	15.30
4,4'DDT						
Methoxychlor	16.10	16.10	16.10	16.10	16.03	16.20
Endrin ketone	16.39	16.39	16.39	16.39	16.32	16.50
Endrin aldehyde	14.60	14.60	14.60	14.60	14.53	14.70
alpha-Chlordane						
gamma-Chlordane	11.51	11.51	11.51	11.51	11.44	11.60
Tetrachloro-m-xylene						
Decachlorobiphenyl	19.36	19.36	19.37	19.36	19.26	19.50

Modified Form 6F

Compounds	low	med	high	mean	%RSD
alpha-BHC					
beta BHC	348200	369900	356888	358329	3.0
delta-BHC					
gamma BHC	738200	921850	963350	874467	13.7
Heptachlor	845000	977100	931950	918017	7.3
Aldrin					
Heptachlor epoxide	692800	778450	712750	728000	6.2
Endosulfan I	692000	794600	709375	731992	7.5
Dieldrin	617400	714400	660863	664221	7.3
4,4'DDE	692400	745200	683144	706915	4.7
Endrin					
Endosulfan II	588300	622450	558506	589752	5.4
4,4'DDD	447700	537375	522994	502690	9.6
Endosulfan sulfate	530600	557125	511413	533046	4.3
4,4'DDT	461700	557700	540331	519910	9.8
Methoxychlor					
Endrin ketone	529400	539275	507488	525388	3.1
Endrin aldehyde	438400	462450	421275	440708	4.7
alpha-Chlordane	805200	779400	721688	768763	5.6
gamma-Chlordane	741200	830900	780475	784192	5.7
Tetrachloro-m-xylene	552800	653350	624238	610129	8.5
Decachlorobiphenyl					

DB-5 Modified Form 6E

Compounds	RT of Standards			Mean RT	RT window	
	low	med	high		From	TO
alpha-BHC	5.28	5.28	5.28	5.28	5.23	5.33
beta BHC	6.27	6.27	6.27	6.27	6.22	6.32
delta-BHC						
gamma BHC	6.01	6.01	6.02	6.01	5.96	6.06
Heptachlor	7.11	7.11	7.11	7.11	7.06	7.16
Aldrin	7.77	7.78	7.77	7.77	7.72	7.82
Heptachlor epoxide	9.22	9.22	9.22	9.22	9.15	9.29
Endosulfan I	10.08	10.08	10.08	10.08	10.01	10.20
Dieldrin	10.63	10.63	10.64	10.63	10.56	10.70
4,4'DDE	10.17	10.17	10.17	10.17	10.10	10.20
Endrin						
Endosulfan II	11.64	11.64	11.64	11.64	11.57	11.70
4,4'DDD	11.52	11.52	11.52	11.52	11.45	11.60
Endosulfan sulfate	13.58	13.58	13.58	13.58	13.51	13.70
4,4'DDT	12.14	12.14	12.14	12.14	12.07	12.20
Methoxychlor	13.38	13.38	13.38	13.38	13.31	13.50
Endrin ketone	14.14	14.14	14.14	14.14	14.07	14.20
Endrin aldehyde	12.61	12.61	12.61	12.61	12.54	12.70
alpha-Chlordane						
gamma-Chlordane	9.51	9.51	9.51	9.51	9.44	9.58
Tetrachloro-m-xylene	4.01	4.02	4.02	4.02	3.97	4.07
Decachlorobiphenyl						

Modified Form 6F

Compounds	low	med	high	mean	%RSD
alpha-BHC					
beta BHC	451800	455800	422300	443300	4.1
delta-BHC					
gamma BHC	800400	996750	1097563	964904	15.7
Heptachlor	953200	1040000	1036613	1009938	4.9
Aldrin	814800	873050	884963	857604	4.4
Heptachlor epoxide	830200	848100	805300	827867	2.6
Endosulfan I	779600	832000	795513	802371	3.3
Dieldrin	671400	770775	786244	742806	8.4
4,4'DDE					
Endrin	521300	593850	587544	567564	7.1
Endosulfan II	686500	703225	666250	685325	2.7
4,4'DDD	492300	578875	610838	560671	10.9
Endosulfan sulfate	665600	661800	515231	647544	4.3
4,4'DDT	542100	627575	651213	606963	9.5
Methoxychlor					
Endrin ketone	668300	671475	652094	663956	1.6
Endrin aldehyde	581300	562050	514988	552779	6.2
alpha-Chlordane	822400	835150	804700	820750	1.9
gamma-Chlordane					
Tetrachloro-m-xylene					
Decachlorobiphenyl					

Module 23 Quiz 4

Instruction: Go back to Table 2 in Quiz 1 and fill in the mean CF values.

Module 23 Quiz 5

Instruction: Go back to Table 2 from Quiz 1. Write in the %RSD for each analyte.
The answers for %RSD are in Appendix E.

Module 23 Quiz 6

Instruction: Using the above portion of the checklist and the completed Forms 6E and 6F, qualify the sample on the next page. Write out the statements you would write in the data assessment on this page.

Data Assessment

Technical

Contractual

Lab Name: ____NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BRR34

Matrix: (soil/water) ___water_____ Lab Sample ID: __BRR34-22_____

Sample wt/vol: ____1000_____(g/mL) ___mL_____ Lab File ID: __BRR34-22AA_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: __05/17/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___05/26/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: __05/29/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH __6.7___ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L __	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.03	J
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.58	
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.55	
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	5.4	
11096-82-5	Aroclor 1260	1.0	U

Module 23 Quiz 7

- Using sections 7.7 to 7.10 of the checklist and the forms on the next 4 pages, qualify the sample at the end of the quiz.
- Write the statements for the Data Assessment on this page.

Technical

Contractual

PESTICIDE ANALYTE RESOLUTION SUMMARY

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: __12345_ SAS No.: _____ SDG No.:_BRR34

GC Column (1): _RTX-35_ ID: _0.32__(mm) Instrument ID (1): ___8290AA_____

EPA Sample No. (RESC##) : _RESC24_____ Lab Sample ID (1): ___ RESC24_____

Date Analyzed (1) : ___05/30/01_____ Time Analyzed (1): ___1813_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	gamma-Chlordane	11.51	97.0
3	Endosulfan I	11.95	100.0
4	4,4'DDE	12.39	100.0
5	Dieldrin	12.60	100.0
6	Endosulfan sulfate	15.22	100.0
7	Methoxychlor	16.10	100.0
8	Endrin ketone	16.38	100.0
9	DBC	19.36	

GC Column (2): _DB-5__ ID: __0.53__(mm) Instrument ID (2): __8290AB_____

EPA Sample No. (RESC##) : _RESC24_____ Lab Sample ID (1): ___ RESC24_____

Date Analyzed (1) : ___05/30/01_____ Time Analyzed (1): ___1813_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	gamma-Chlordane	9.51	100.0
3	Endosulfan I	10.08	58.0
4	4,4'DDE	10.17	100.0
5	Dieldrin	10.63	100.0
6	Endosulfan sulfate	13.38	100.0
7	Methoxychlor	13.57	100.0
8	Endrin ketone	14.13	100.0
9	DBC	16.60	

PERFORMANCE EVALUATION MIXTURE (PEM)

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: __12345_ SAS No.: _____ SDG No.:_BRR34

GC Column (1): _RTX-35_ ID: _0.32___(mm) Instrument ID (1): ___8290AA_____

EPA Sample No. (PEM##) : __PEM24_____ Lab Sample ID (1): ___PEM24_____

Date Analyzed (1) : ____05/30/01_____ Time Analyzed (1): ____1837_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	alpha-BHC	6.88	100.0
3	gamma BHC	7.80	100.0
4	beta BHC	8.07	100.0
5	Endrin	13.28	100.0
6	4,4'DDT	14.43	100.0
7	Methoxychlor	16.10	100.0
8	DBC	19.36	

GC Column (2): _DB-5__ ID: __0.53___(mm) Instrument ID (2): __8290AB_____

EPA Sample No. (PEM##) : __PEM24_____ Lab Sample ID (1): ___PEM24_____

Date Analyzed (1) : ____05/30/01_____ Time Analyzed (1): ____1837_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	alpha-BHC	5.28	100.0
3	gamma BHC	6.01	88.0
1.	beta BHC	6.17	100.0
1	Endrin	11.12	100.0
2	4,4'DDT	12.14	100.0
3	Methoxychlor	13.38	100.0
4	DBC	16.60	

J

INDIVIDUAL STANDARD MIXTURE A

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: __12345_ SAS No.: _____ SDG No.:_BRR34

GC Column (1): _RTX-35_ ID: _0.32___(mm) Instrument ID (1): ___8290AA_____

EPA Sample No. (INDAM##) : __INDAM24_____ Lab Sample ID (1): _____INDAM24_____

Date Analyzed (1) : ___05/30/01_____ Time Analyzed (1): ____2235_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	alpha-BHC	6.88	100.0
3	gamma BHC	7.80	100.0
4	Heptachlor	8.87	100.0
5	Endosulfan I	11.95	100.0
6	Dieldrin	12.60	100.0
7	Endrin	13.28	100.0
8	4,4'DDD	13.73	100.0
9	4,4'DDT	14.43	100.0
10	Methoxychlor	16.10	100.0
11	DBC	19.36	

GC Column (2): _DB-5__ ID: _0.53___(mm) Instrument ID (2): __8290AB_____

EPA Sample No. (INDAM##) : __INDAM24_____ Lab Sample ID (1): _____INDAM24_____

Date Analyzed (1) : ___05/30/01_____ Time Analyzed (1): ____2235_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	alpha-BHC	5.28	100.0
3	gamma BHC	6.01	100.0
4	Heptachlor	7.11	100.0
5	Endosulfan I	10.08	100.0
6	Dieldrin	10.63	100.0
7	Endrin	11.12	100.0
8	4,4'DDD	11.52	100.0
9	4,4'DDT	12.14	100.0
10	Methoxychlor	13.38	100.0
11	DBC	16.60	

6K
INDIVIDUAL STANDARD MIXTURE B

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: __12345_ SAS No.: _____ SDG No.:_BRR34

GC Column (1): _RTX-35_ ID: __0.32___(mm) Instrument ID (1): ___8290AA_____

EPA Sample No. (INDBM##) : __INDBM24_____ Lab Sample ID (2): ___ INDBM24_____

Date Analyzed (2) : _____05/30/01_____ Time Analyzed (2): ____2259_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	beta BHC	8.07	100.0
3	delta-BHC	8.79	100.0
4	Aldrin	9.63	100.0
5	Heptachlor epoxide	11.06	100.0
6	gamma-Chlordane	11.51	100.0
7	alpha-Chlordane	11.87	100.0
8	4,4'DDE	12.39	100.0
9	Endosulfan II	13.79	100.0
10	Endrin aldehyde	14.60	100.0
11	Endosulfan sulfate	15.23	100.0
12	Endrin ketone	16.39	100.0
13	DBC	19.37	

GC Column (2): _DB-5__ ID: _0.53___(mm) Instrument ID (2): __8290AB_____

EPA Sample No. (INDBM##) : __INDBM24_____ Lab Sample ID (2): ___ INDBM24_____

Date Analyzed (2) : _____05/30/01_____ Time Analyzed (2): ____2259_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	beta BHC	6.27	100.0
3	delta-BHC	6.65	100.0
4	Aldrin	7.78	100.0
5	Heptachlor epoxide	9.22	100.0
6	gamma-Chlordane	9.51	100.0
7	alpha-Chlordane	9.82	100.0
8	4,4'DDE	10.17	100.0
9	Endosulfan II	11.64	100.0
10	Endrin aldehyde	12.61	100.0
11	Endosulfan sulfate	13.58	100.0
12	Endrin ketone	14.14	100.0
13	DBC	16.60	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BRR65

Lab Name: ____NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BRR34

Matrix: (soil/water) ___water_____ Lab Sample ID: __BRR34-22_____

Sample wt/vol: ____1000_____(g/mL) ___mL_____ Lab File ID: __BRR34-22AA_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: __05/17/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___05/26/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: __05/29/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH __6.7___ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L __	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.03	J
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.58	
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.55	
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	5.4	
11096-82-5	Aroclor 1260	1.0	U

Module 23 Quiz 8

Instruction:

- Use Table 23-7 and equation 23-4 to calculate the %D from the values given in Table 1.
- Write the %D in Table 2.
- Don't forget rounding rules and significant figures for reporting results.
- Keep quiz available for % breakdown calculations.

First column = RTX35 Second column = DB5 Table 1 Modified Quant report for PEM standard

RT	RT window		Area	Quant RF	Compound	Std Amt. On-Col. ng	Calc Amt. On-Col. ng
5.25	5.20	5.30	12806	653350	TCMX	0.020	
4.02	3.97	4.07	14717	767450			
6.88	6.83	6.93	9863	1027750	alpha-BHC	0.010	
5.25	5.23	5.33	9516	1040150			
7.80	7.75	7.85	9194	921850	gamma BHC	0.010	
6.01	5.96	6.06	9355	996750			
8.06	8.02	8.12	4237	369900	beta BHC	0.010	
6.17	6.12	6.22	5111	455800			
13.28	13.21	13.35	24368	460025	Endrin	0.050	
11.10	11.05	11.20	31171	593850			
13.74	13.66	13.80	307	537375	4,4'DDD	000	
11.52	11.45	11.60	326	578875			
14.43	14.36	14.50	54151	557700	4,4'DDT	0.100	
12.09	12.07	12.20	59973	627575			
14.60	14.53	14.67	809	462450	Endrin Aldehyde	000	
12.58	12.54	12.70	1046	562050			
16.10	16.03	16.17	58894	255280	Methoxychlor	0.250	
13.35	13.31	13.50	69318	310750			
16.38	16.32	16.46	1046	539275	Endrin Ketone	000	
14.10	14.07	14.20	5969	671475			
19.36	19.26	19.46	12214	581675	DBC	0.020	
16.55	16.50	16.70	15156	742775			

Table 2 Form 7E (RTX35)

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT(ng)	%D
		From	TO			
alpha-BHC					0.010	
beta BHC					0.010	
gamma BHC					0.010	
Endrin					0.050	
4,4'DDT					0.100	
Methoxychlor					0.250	

4,4'DDT % Breakdown (1): ____ Endrin % Breakdown (1): _____ Combined % Breakdown (1): _____

Table 2 Form 7E (DB5)

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC					0.010	
beta BHC					0.010	
gamma BHC					0.010	
Endrin					0.050	
4,4'DDT					0.100	
Methoxychlor					0.250	

4,4'DDT % Breakdown (1): _____ Endrin % Breakdown (1): _____ Combined % Breakdown (1): _____

Module 23 Quiz 9

Part 1

Instruction: Use tables 1 and 2 from Quiz 8, fill in the DDT % Breakdown and calculate the % Breakdown for Endrin and the combined % Breakdown.

Part 2

Instruction: Fill in the missing values and Calculate %D and % Breakdown for the following problems.

1.

RT	RT window		Area	Quant RF	Compound	Std Amt. On-Col. ng	Calc Amt. On-Col. ng	%D
5.25	5.20	5.30	12111	653350	TCMX	0.020		
6.88	6.83	6.93	11378	1027750	alpha-BHC	0.010		
7.80	7.75	7.85	7895	921850	gamma BHC	0.010		
8.06	8.02	8.12	4371	369900	beta BHC	0.010		
12.39	12.32	12.50	32755	745200	4,4'DDE	000		
13.28	13.21	13.35	7327	460025	Endrin	0.050		
13.74	13.66	13.80	20508	537375	4,4'DDD	000		
14.43	14.36	14.50	2069	557700	4,4'DDT	0.100		
14.60	14.53	14.67	17525	462450	Endrin Aldehyde	000		
16.10	16.03	16.17	48183	255280	Methoxychlor	0.250		
16.38	16.32	16.46	20431	539275	Endrin Ketone	000		
19.36	19.26	19.46	12346	581675	DBC	0.020		

% Breakdown- DDT: _____ Endrin: _____ Combined: _____

2.

RT	RT window		Area	Quant RF	Compound	Std Amt. On-Col. ng	Calc Amt. On-Col. ng	%D
5.25	5.20	5.30	15498	653350	TCMX	0.020		
6.88	6.83	6.93	9908	1027750	alpha-BHC	0.010		
7.80	7.75	7.85	9683	921850	gamma BHC	0.010		
8.06	8.02	8.12	5254	369900	beta BHC	0.010		
12.39	12.32	12.50	12406	745200	4,4'DDE	000		
13.28	13.21	13.35	31939	460025	Endrin	0.050		
13.74	13.66	13.80	352	537375	4,4'DDD	000		
14.43	14.36	14.50	62493	557700	4,4'DDT	0.100		
14.60	14.53	14.67	1001	462450	Endrin Aldehyde	000		
16.10	16.03	16.17	71112	255280	Methoxychlor	0.250		
16.38	16.32	16.46	1214	539275	Endrin Ketone	000		
19.36	19.26	19.46	16067	581675	DBC	0.020		

% Breakdown- DDT: _____ Endrin: _____ Combined: _____

3.

RT	RT window		Area	Quant RF	Compound	Std Amt. On-Col. ng	Calc Amt. On-Col. ng	%D
5.25	5.20	5.30	14717	653350	TCMX	0.020		
6.88	6.83	6.93	9516	1027750	alpha-BHC	0.010		
7.80	7.75	7.85	9355	921850	gamma BHC	0.010		
8.06	8.02	8.12	5111	369900	beta BHC	0.010		
12.39	12.32	12.50	6778	745200	4,4'DDE	000		
13.28	13.21	13.35	31171	460025	Endrin	0.050		
13.74	13.66	13.80	3206	537375	4,4'DDD	000		
14.43	14.36	14.50	59973	557700	4,4'DDT	0.100		
14.60	14.53	14.67	9406	462450	Endrin Aldehyde	000		
16.10	16.03	16.17	69318	255280	Methoxychlor	0.250		
16.38	16.32	16.46	969	539275	Endrin Ketone	000		
19.36	19.26	19.46	15156	581675	DBC	0.020		

% Breakdown- DDT: _____ Endrin: _____ Combined: _____

Module 23 Quiz 10

Instruction:

- Using the information and forms found in Quizzes, apply the qualifications to the sample on the next page using the checklist section 7. Ignore any references to sequence.
- On this page write the action/qualifications that must be applied to the sample.
- Use Forms 6E and 6F from Quiz 5, Forms 6H, 6I, 6J, 6K from Quiz 7, Form 7E from Quiz 8 and Forms included in this quiz after this page.

Technical Problems

Contract Non-Compliance

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB30

GC Column (1): _RTX-35__ ID: _0.32__(mm) Initial Calib. Date(s) : _05/30/01__ _05/30/01_

EPA Sample No. (PIBLK##) : __PIBLKUZ_____ Date Analyzed : ___05/31/01_____

Lab Sample ID (PIBLK##) : ___ PIBLKUZ _____ Time Analyzed : ___0918_____

EPA Sample No. (INDAM##) : ___INDAMUZ_____ Date Analyzed : __05/31/01_____

Lab Sample ID (INDA) : __ INDAMUZ __ Time Analyzed : ___0942_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	6.88	6.83	6.93	0.019	0.020	-5.0
Gamma BHC	7.80	7.75	7.85	0.019	0.020	-5.0
Heptachlor	8.87	8.82	8.92	0.019	0.020	-5.0
Endosulfan I	11.95	11.88	12.02	0.019	0.020	-5.0
Dieldrin	12.59	12.53	12.67	0.039	0.040	-2.5
Endrin	13.28	13.21	13.35	0.030	0.040	-25.0
4,4'DDD	13.72	13.66	13.80	0.038	0.040	-5.0
4,4'DDT	14.43	14.36	14.50	0.037	0.040	-7.5
Methoxychlor	16.10	16.03	16.17	0.189	0.200	-5.0
Tetrachloro-m-xylene	5.25	5.20	5.30	0.018	0.020	-10.0
Decachlorobiphenyl	19.36	19.26	19.46	0.038	0.040	-5.0

EPA Sample No. (INDBM##) : __ INDBMUZ ____ Date Analyzed : ___05/31/01_____

Lab Sample ID (INDB) : _ INDBMUZ _____ Time Analyzed : ___1006_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	8.06	8.02	8.12	0.019	0.020	-5.0
Delta-BHC	8.78	8.74	8.84	0.014	0.020	-30.0
Aldrin	9.63	9.58	9.68	0.019	0.020	-5.0
Heptachlor epoxide	11.06	10.99	11.13	0.019	0.020	-5.0
4,4'DDE	12.39	12.32	12.50	0.039	0.040	-2.5
Endosulfan II	13.78	13.72	13.86	0.038	0.040	-5.0
Endosulfan sulfate	15.22	15.16	15.30	0.039	0.040	-2.5
Endrin ketone	16.38	16.32	16.46	0.038	0.040	-5.0
Endrin aldehyde	14.59	14.53	14.67	0.038	0.040	-5.0
Alpha-Chlordane	11.86	11.80	11.94	0.019	0.020	-5.0
Gamma-Chlordane	11.51	11.44	11.58	0.019	0.020	-5.0
Tetrachloro-m-xylene	5.25	5.20	5.30	0.019	0.020	-5.0
Decachlorobiphenyl	19.36	19.26	19.46	0.036	0.040	-10.0

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB30

GC Column (1): _DB5__ ID: _0.53__(mm) Initial Calib. Date(s) : _05/30/01__ _05/30/01_

EPA Sample No. (PIBLK##) : __PIBLKVZ_____ Date Analyzed : ___05/31/01_____

Lab Sample ID (PIBLK##) : ___ PIBLKVZ _____ Time Analyzed : ___0918_____

EPA Sample No. (INDAM##) : ___INDAMVZ_____ Date Analyzed : __05/31/01_____

Lab Sample ID (INDA) : __ INDAMVZ __ Time Analyzed : ___0942_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	5.25	5.23	5.33	0.020	0.020	0.0
Gamma BHC	5.98	5.96	6.06	0.020	0.020	0.0
Heptachlor	7.07	7.06	7.16	0.020	0.020	0.0
Endosulfan I	10.04	10.01	10.15	0.020	0.020	0.0
Dieldrin	10.60	10.56	10.70	0.040	0.040	0.0
Endrin	11.09	11.05	11.19	0.040	0.040	0.0
4,4'DDD	11.48	11.45	11.59	0.040	0.040	0.0
4,4'DDT	12.10	12.07	12.21	0.040	0.040	0.0
Methoxychlor	13.34	13.31	13.45	0.204	0.200	2.0
Tetrachloro-m-xylene	3.99	3.97	4.07	0.020	0.020	0.0
Decachlorobiphenyl	16.57	16.50	16.70	0.042	0.040	5.0

EPA Sample No. (INDBM##) : __ INDBMVZ ____ Date Analyzed : ___05/31/01_____

Lab Sample ID (INDB) : _ INDBMVZ _____ Time Analyzed : ___1006_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	6.17	6.12	6.22	0.020	0.020	0.0
Delta-BHC	6.61	6.60	6.70	0.020	0.020	0.0
Aldrin	7.73	7.72	7.82	0.020	0.020	0.0
Heptachlor epoxide	9.18	9.15	9.29	0.020	0.020	0.0
4,4'DDE	10.13	10.10	10.24	0.040	0.040	0.0
Endosulfan II	11.60	11.57	11.71	0.041	0.040	2.5
Endosulfan sulfate	13.54	13.51	13.65	0.041	0.040	2.5
Endrin ketone	14.10	14.07	14.21	0.041	0.040	2.5
Endrin aldehyde	12.57	12.54	12.68	0.040	0.040	0.0
Alpha-Chlordane	9.78	9.75	9.89	0.020	0.020	0.0
Gamma-Chlordane	9.47	9.44	9.58	0.020	0.020	0.0
Tetrachloro-m-xylene	3.99	3.97	4.07	0.020	0.020	0.0
Decachlorobiphenyl	16.56	16.50	16.70	0.039	0.040	-2.5

FORM VII PEST-2 OLM04.2

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBB34

Lab Name: ____NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BRR34

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB30-11_____

Sample wt/vol: ____1000_____(g/mL) ___mL_____ Lab File ID: __BBB30-11AA_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: __05/17/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___05/26/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: __05/29/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH __6.7___ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L __	Q
319-84-6	alpha-BHC	0.25	
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.03	J
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.58	
72-43-5	Methoxychlor	0.55	
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	2.5	

Module 24 Quiz 1

Instruction: Write Data Assessment statements about any sequence problems on this page. The sequence (Form 8) is detailed on two pages.

8D

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NewLab_____ Contract : ___123456____

Lab Code: __NLB_____ Case No.: __12345__ SAS No.: _____ SDG No.:_BBB34

GC Column (1): _RTX-35_ ID: __0.53__(mm) Init. Calib. Date(s) : _05/01/01__ __05/01/01_

Instrument ID (1): __5890AA_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION

TCX: _____5.25_____ DCB: _____19.36_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT	#	DCB RT	#
1	RESC24	RESC24	05/01/01	1813	5.25		19.36	
2	PEM24	PEM24	05/01/01	1837	5.25		19.36	
3	AR166024	AR166024	05/01/01	1901	5.25		19.36	
4	AR122124	AR122124	05/01/01	1925	5.25		19.36	
5	AR123224	AR123224	05/01/01	1949	5.25		19.36	
6	AR124224	AR124224	05/01/01	2013	5.25		19.36	
7	AR124824	AR124824	05/01/01	2036	5.25		19.36	
8	AR125424	AR125424	05/01/01	2100	5.25		19.36	
9	TOXAPH24	TOXAPH24	05/01/01	2124	5.25		19.37	
10	INDAL24	INDAL24	05/01/01	2148	5.25		19.36	
11	INDAM24	INDAM24	05/01/01	2212	5.25		19.36	
12	INDAH24	INDAH24	05/01/01	2235	5.25		19.36	
13	INDBL24	INDBL24	05/01/01	2259	5.25		19.37	
14	INDBM24	INDBM24	05/01/01	2323	5.25		19.37	
15	INDBH24	INDBH24	05/01/01	2347	5.25		19.37	
16	PIBLK25	PIBLK25	05/04/01	0011	5.25		19.36	
17	PEM26	PEM26	05/04/01	0034	5.25		19.36	
18	PBLKME	MB25	05/04/01	1058	5.25		19.37	
19	BBB25	BBB34-1	05/04/01	1122	5.25		19.37	
20	BBB26	BBB34-2	05/04/01	1146	5.25		19.36	
21	BBB27	BBB34-3	05/04/01	1210	5.25		19.37	
22	BBB28	BBB34-4	05/04/01	1233	5.25		19.36	
23	BBB29	BBB34-5	05/04/01	1257	5.25		19.37	
24	BBB30	BBB34-6	05/04/01	1321	5.25		19.36	
25	BBB31	BBB34-7	05/04/01	1345	5.25		19.36	
26	BBB32	BBB34-8	05/04/01	1409	5.25		19.36	
27	BBB33	BBB34-9	05/04/01	1432	5.25		19.37	
28	BBB34	BBB34-10	05/04/01	1456	5.25		19.36	
29	BBB35	BBB34-11	05/04/01	1520	5.25		19.37	
30	BBB36	BBB34-12	05/04/01	1544	5.25		19.36	
31	INDAM26	INDAM26	05/04/01	1608	5.25		19.36	
32	INDBM26	INDBM26	05/04/01	1631	5.25		19.36	

QC LIMITS

TCX = Tetrachloro-m-xylene (± 0.05 MINUTES)

DCB = Decachlorobiphenyl (± 0.10 MINUTES)

Column used to flag retention time values with an asterisk

* Values outside of QC limits.

Page __1____ of __2_____

FORM VIII PEST OLM04.2

8D

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NewLab_____ Contract : ___123456____

Lab Code: __NLB_____ Case No.: __12345__ SAS No.: _____ SDG No.:_BBB34

Init. Calib. Date(s) : _05/01/01__ __05/01/01_

GC Column (1): _RTX-35_ ID: __0.53__(mm)

Instrument ID (1): __5890AA_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION

TCX: _____5.25_____ DCB: ____19.36_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT	#	DCB RT	#
1	BBB37	BBB34-13	05/04/01	1655	5.25		19.36	
2	BBB36	BBB34-12DL	05/04/01	1719	5.25		19.36	
3	BBB39	BBB34-15	05/04/01	1743	5.25		19.36	
4	BBB40	BBB34-16	05/04/01	1807	5.25		19.36	
5	BBB41	BBB34-17	05/04/01	1918	5.25		19.36	
6	BBB42	BBB34-18	05/04/01	1942	5.25		19.36	
7	BBB43	BBB34-19	05/04/01	2006	5.25		19.36	
8	BBB44	BBB34-20	05/04/01	2030	5.25		19.36	
9	ZZZZZZZZZ	HEXANE	05/04/01	2053				
10	BBB28	BBB34-4DL	05/04/01	2117	5.25		19.36	
11	BBB29	BBB34-5DL	05/04/01	2141	5.25		19.36	
12	BBB40	BBB34-16DL	05/04/01	2205	5.25		19.36	
13	BBB41	BBB34-17DL	05/04/01	2229	5.25		19.36	
14	BBB43	BBB34-19DL	05/04/01	2252	5.25		19.36	
15	BBB38	BBB34-14	05/04/01	2316	5.25		19.36	
16	PIBLKUY	PIBLKUY	05/04/01	0001	5.25		19.36	
17	INDALUZ	INDALUZ	05/04/01	0025	5.25		19.36	
18	INDBLUZ	INDBLUZ	05/04/01	0049	5.25		19.36	
19	PIBLKVZ	PIBLKVZ	05/06/01	2013	5.25		19.36	
20	INDAMAA	INDAMAA	05/06/01	2036	5.25		19.36	
21	INDBMAA	INDBMAA	05/06/01	2100	5.25		19.36	
22	BBB34MS	BBB34-10MS	05/06/01	2124	5.25		19.36	
23	BBB34MSD	BBB34-10MSD	05/06/01	2148	5.25		19.36	
24	BBB34	BBB34-10DL	05/06/01	2212	5.18		19.24	
25	ZZZZZZZZZ	ZZZZZZZZZ	05/06/01	2235	5.18		19.24	
26	BBB42	BBB34-18DL	05/06/01	2259	5.18		19.24	
27	BBB43	BBB34-19DL	05/06/01	2323	5.18		19.24	
28	ZZZZZZZZZ	ZZZZZZZZZ	05/06/01	2347	5.18		19.24	
29	AR125425	AR125425	05/06/01	0011	5.25		19.36	
30	PIBLKVZ	PIBLKVZ	05/06/01	0034	5.25		19.36	
31	PEMVA	PEMVA	05/06/01	0058	5.25		19.36	
32	PEMVB	PEMVB	05/06/01	0345	5.25		19.36	

QC LIMITS

TCX = Tetrachloro-m-xylene (± 0.05 MINUTES)

DCB = Decachlorobiphenyl (± 0.10 MINUTES)

Column used to flag retention time values with an asterisk

* Values outside of QC limits.

Page __2____ of ___2____

FORM VIII PEST

OLM04.2

Module 24 Quiz 2

Instruction: Calculate the % Recovery for each analyte on Form 9A and 9B.

9A
PESTICIDE FLORISIL CARTRIDGE CHECK

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BBB34
Florisil Cartridge Lot Number: ___W1234AA____

Date of Analysis : ___01/05/01_____

GC Column (1): __RTX-35__ ID: _0.53__(mm) GC Column (2): _DB-5__ ID: _0.32__(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC	#	QC LIMITS
Alpha-BHC	10	9.8			80-120
Gamma BHC	10	12			80-120
Heptachlor	10	7			80-120
Endosulfan I	10	13			80-120
Dieldrin	20	14			80-120
Endrin	20	25			80-120
4,4'DDD	20	15			80-120
4,4'DDT	20	0			80-120
Methoxychlor	100	110			80-120
Tetrachloro-m-xylene	10	12			80-120
Decachlorobiphenyl	20	17			80-120
2,4,5-Trichlorophenol	50	1.9			< 5

Column used to flag retention time values with an asterisk
* Values outside of QC limits.

9B
PESTICIDE GPC CALIBRATION VERIFICATION

Lab Name: ____NEWLAB_____ Contract : ___123456____

Lab Code: __NLB___ Case No.: __12345__ SAS No.: _____ SDG No.:_BBB34

GPC Column: __GPCABC1_____ Calibration Verification Date : ___05/03/01_____

GC Column (1): _RTX-35__ ID: _0.53__(mm) GC Column (2): _DB-5__ ID: _0.32_(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC	#	QC LIMITS
Gamma BHC (Lindane)	0.050	0.045			80-110
Heptachlor	0.050	0.038			80-110
Aldrin	0.050	0.048			80-110
Dieldrin	0.10	0.088			80-110
Endrin	0.10	0.084			80-110
4,4'DDT	0.10	0.000			80-110

Column used to flag retention time values with an asterisk
* Values outside of QC limits.

Module 24 Quiz 3

Instructions: Calculate the RPD for each of the following problems.

1.	DDT	Sample 1 = 5.7	Sample 2 = 4.1	RPD =
2.	Endrin	Sample 1 = 1.5	Sample 2 = 2.2	RPD =
3.	Methoxychlor	Sample 1 = 45	Sample 2 = 15	RPD =
4.	Aroclor 1254	Sample 1 = 550	Sample 2 = 780	RPD =
5.	Gamma BHC	Sample 1 = 0.07	Sample 2 = 0.04	RPD =
6.	Dieldrin	Sample 1 = 0.045	Sample 2 = 0.023	RPD =
7.	Endosulfan I	Sample 1 = 22	Sample 2 = 35	RPD =
8.	Endosulfan sulfate	Sample 1 = 15	Sample 2 = 24	RPD =
9.	Endrin aldehyde	Sample 1 = 8.7	Sample 2 = 4.4	RPD =
10.	Toxaphene	Sample 1 = 17	Sample 2 = 21	RPD =

Module 25 Quiz 1

Instruction: For each problem, calculate the adjusted CRQL and state the CRQL value that should be reported on the Form 1.

Sample-analyte	1 - DDT	2 - Alpha BHC	3 - Heptachlor
Matrix	water	water	water
Volume	950	1050	1300
DF	2	1	1
Adjusted CRQL			
Reported CRQL			

Sample-analyte	4 - Methoxychlor	5 - Endosulfan I	6 - DDE
Matrix	soil	soil	soil
Weight	25.0	31.8	34.2
DF	2	1	1
% Moisture	57	23	14
Adjusted CRQL			
Reported CRQL			

Sample-analyte	7 - gamma BHC	8 - Aldrin	9 - Endrin
Matrix	soil	water	soil
Vol/wt	32.0	890	26.3
DF	5	3	2
% Moisture	72		45
Adjusted CRQL			
Reported CRQL			

- Identify the Aroclor(s) in sample BBB00.

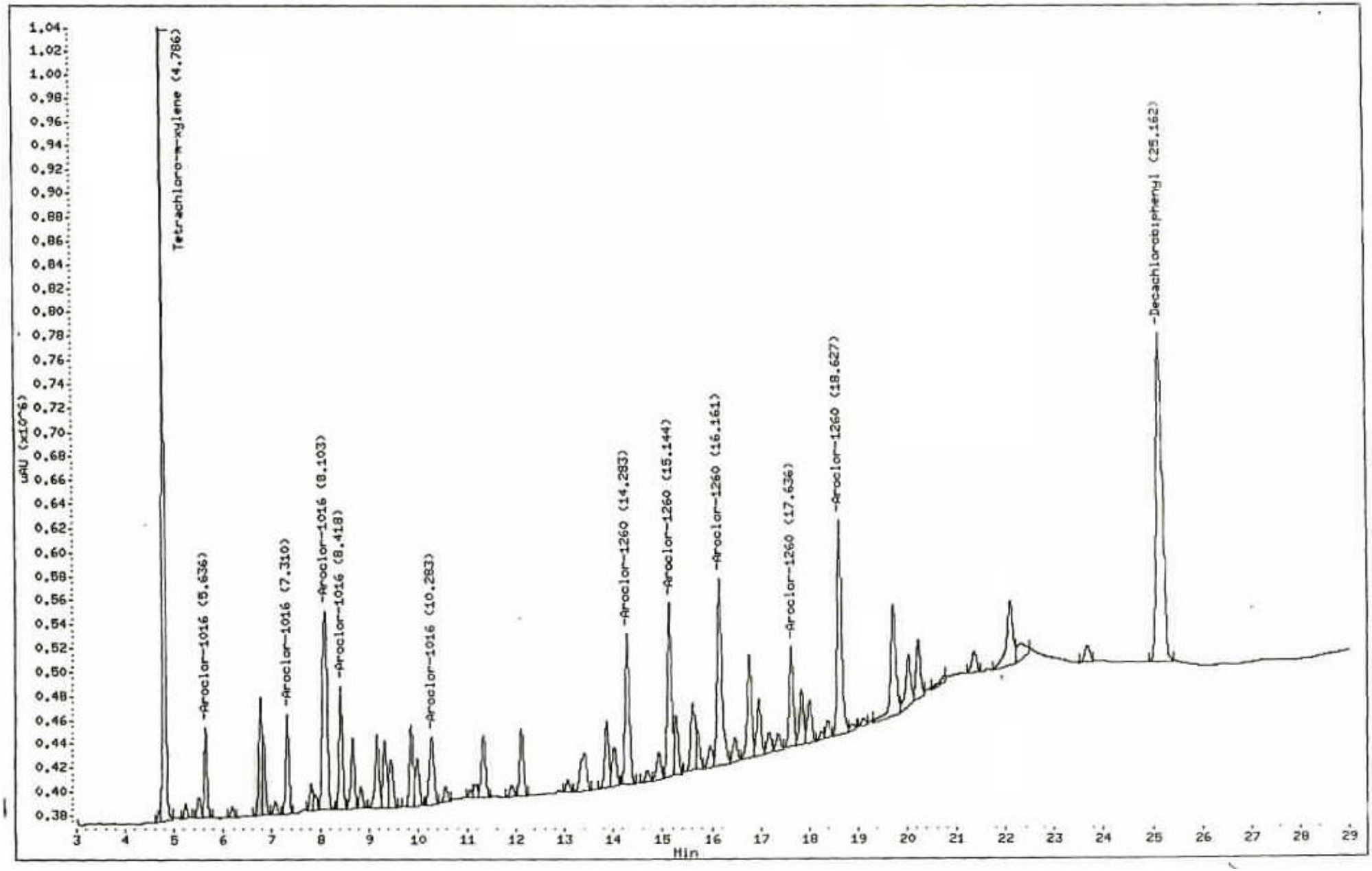
Module 25 Quiz 2

Use the standards provided on the 7 pages* to identify the Aroclor(s) in sample BBB00. (Last chromatogram after the standards).

*(chromatograms are located in a separate file named pest chromatograms.)

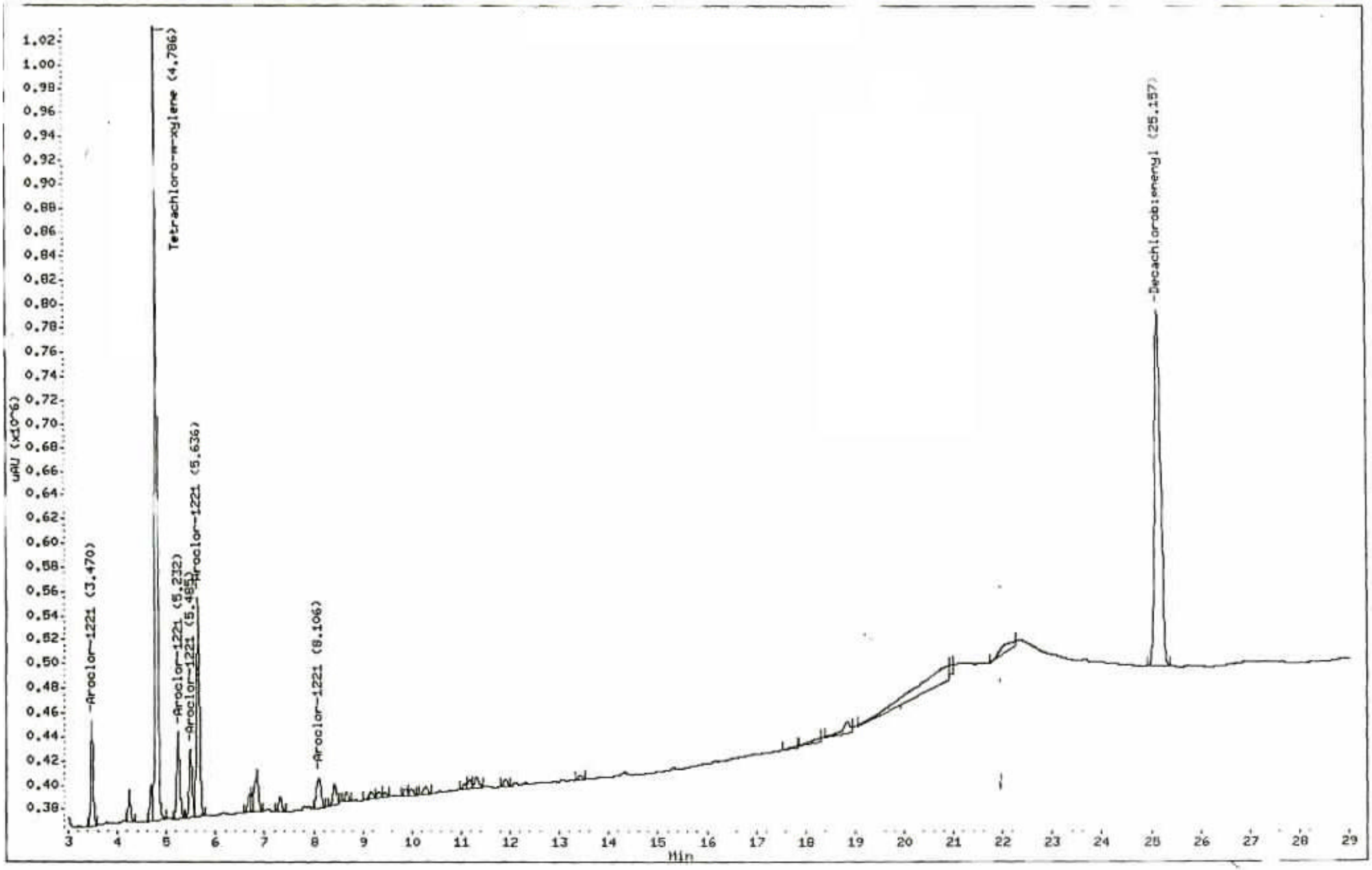
Data File:
Date :
Client ID: AR16600A
Sample Info: AR16600A,0714
Volume Injected (uL): 1.0
Column phase: DB5

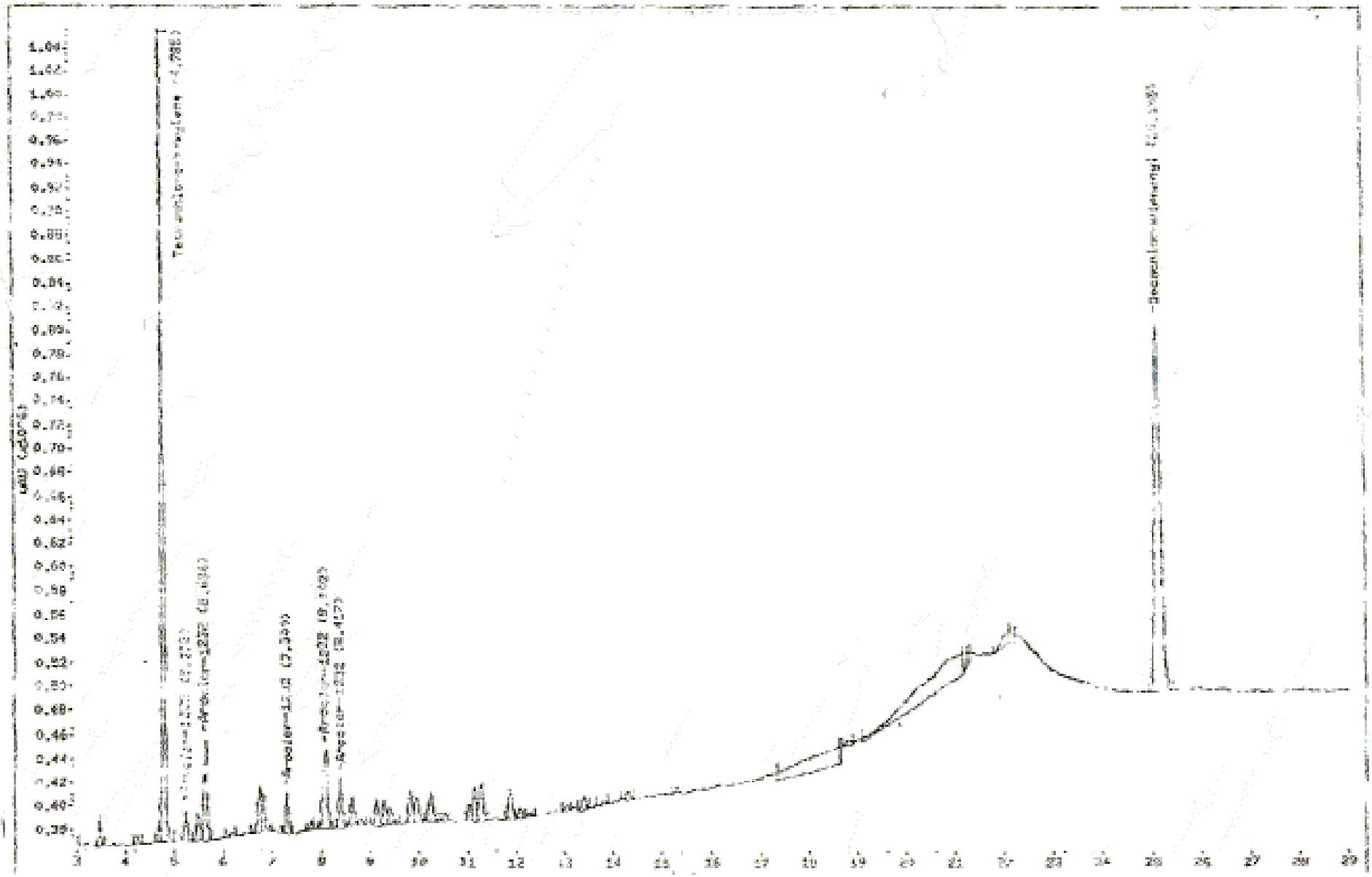
Instrument:
Operator:
Column diameter: 0.53



Data File:
Date :
Client ID: AR12210A
Sample Info: AR12210A,0714
Volume Injected (uL): 1.0
Column phase: DB5

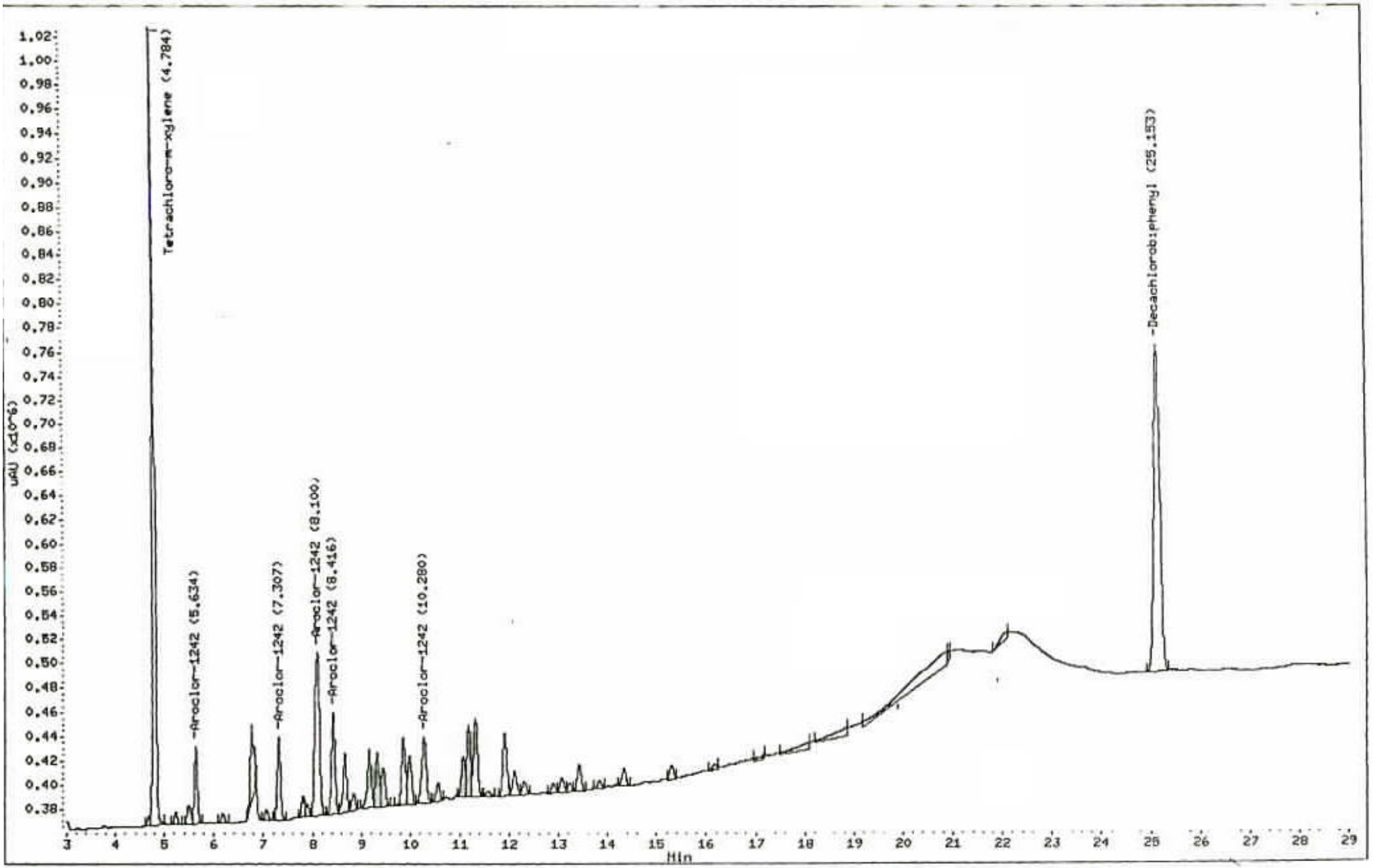
Instrument:
Operator:
Column diameter: 0.53




Volume Injected (uL): 1.0
Column phase: RP1
Operator
Column diameter: 0.32

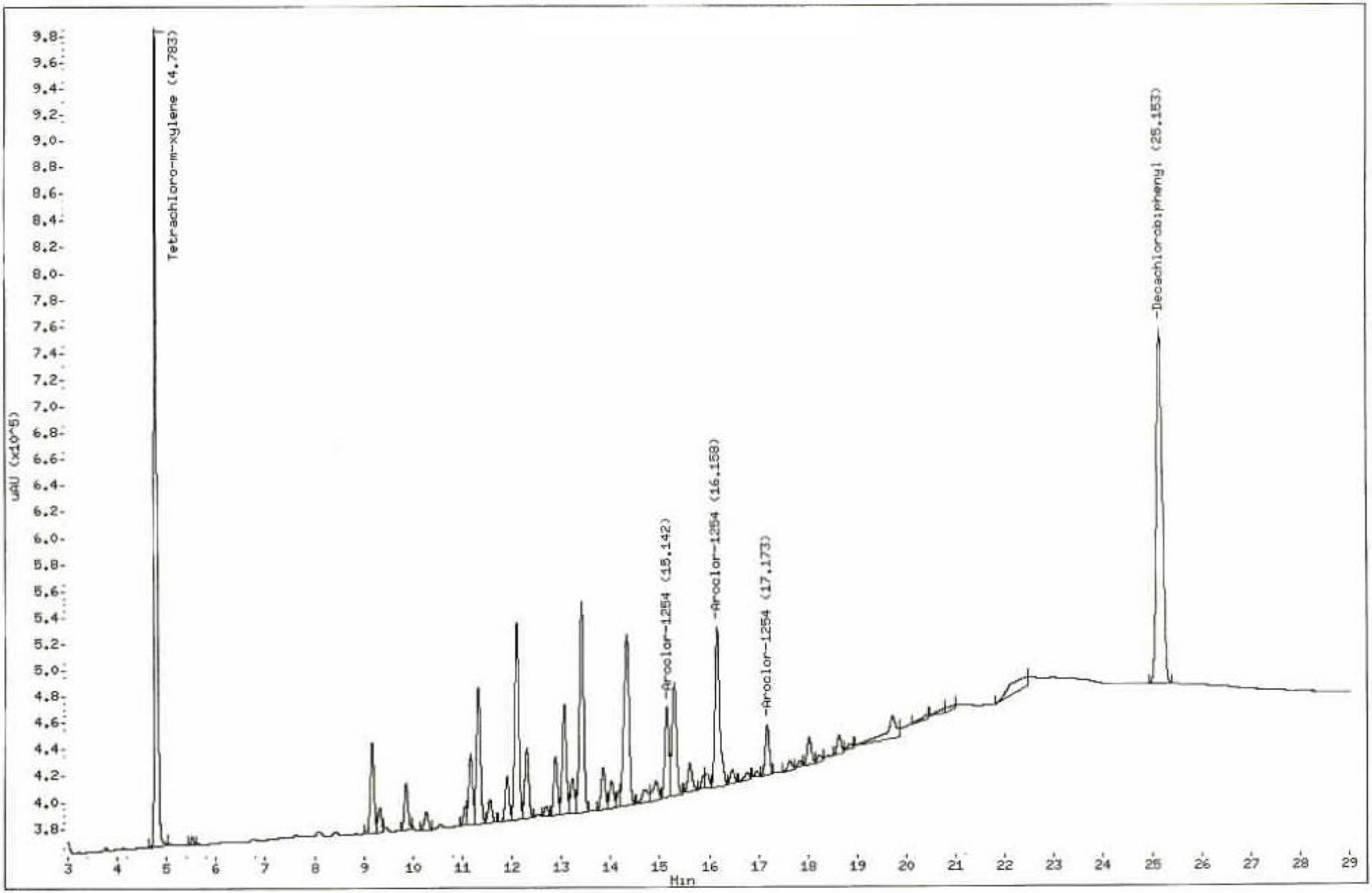
Data File:
Date :
Client ID: AR12420A
Sample Info: AR12420A,0714
Volume Injected (uL): 1.0
Column phase: DB5

Instrument:
Operator:
Column diameter: 0.53



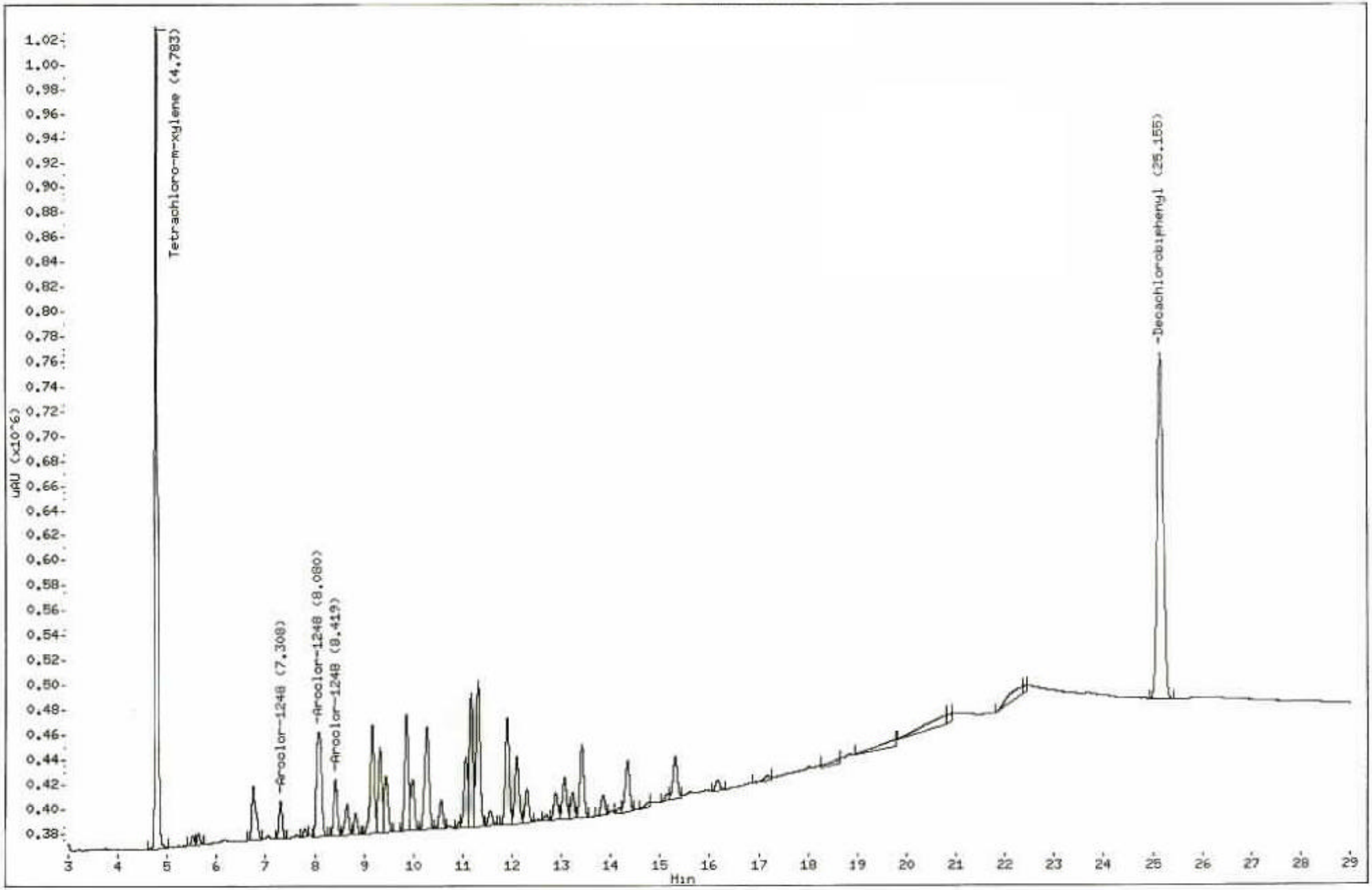
Data File:
Date :
Client ID: AR12540A
Sample Info: AR12540A,0714
Volume Injected (uL): 1.0
Column phase: DB5

Instrument:
Operator:
Column diameter: 0.53



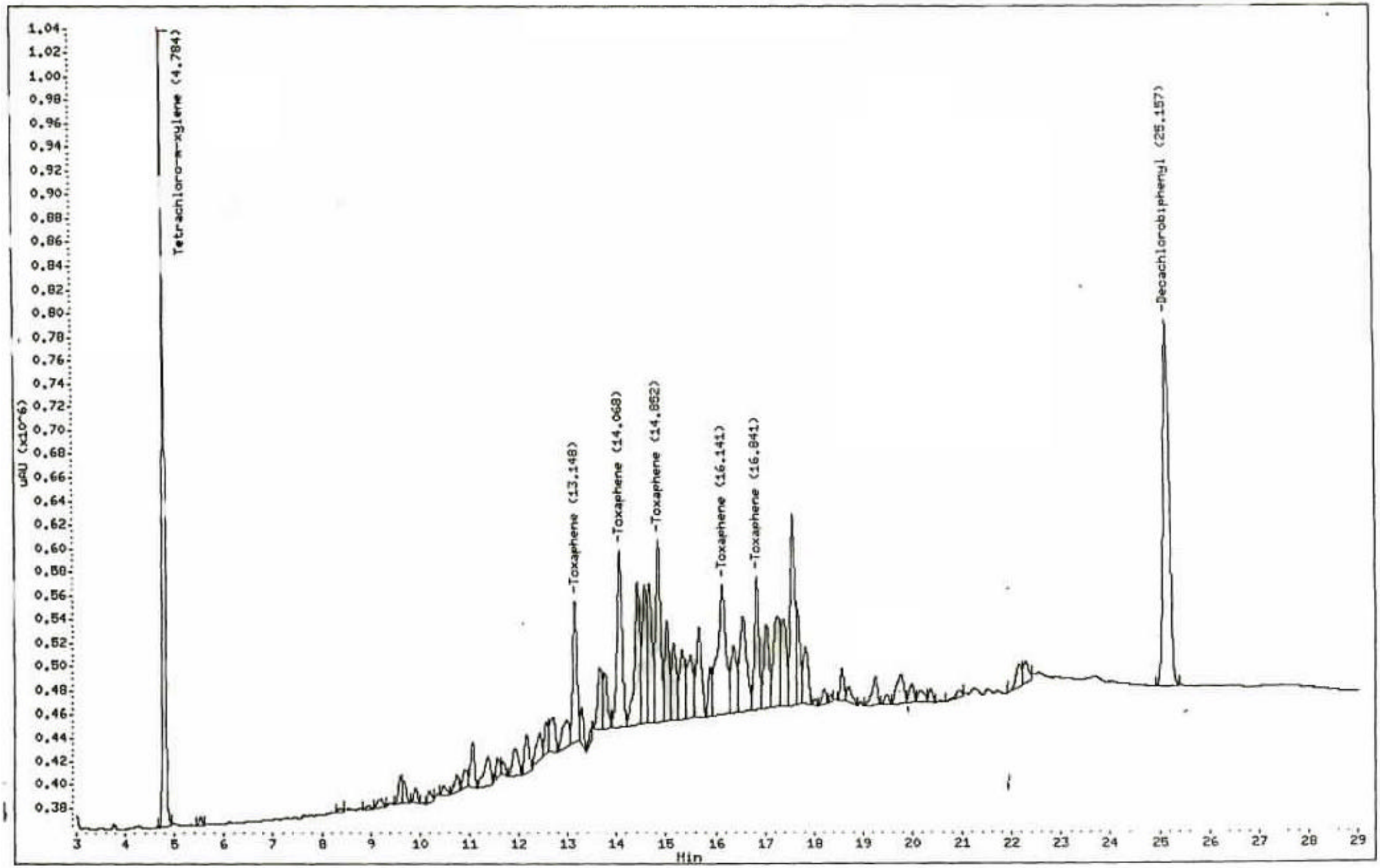
Data File:
Date :
Client ID: AR12480A
Sample Info: AR12480A,0714
Volume Injected (uL): 1.0
Column phase: DB5

Instrument:
Operator:
Column diameter: 0.53



Data File:
Date :
Client ID: TOXAPHOA
Sample Info: TOXAPHOA,0714
Volume Injected (uL): 1.0
Column phase: DB5

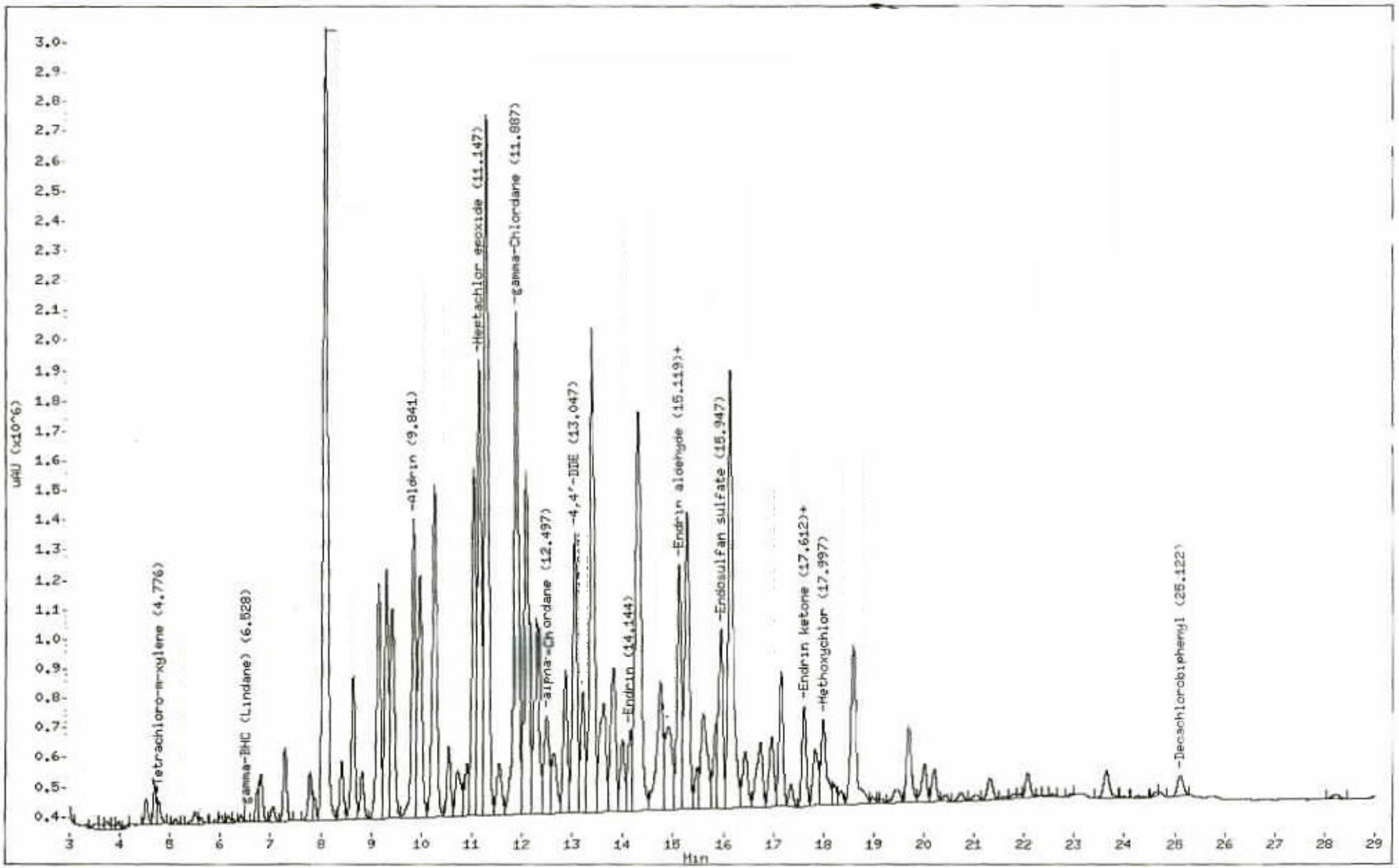
Instrument:
Operator:
Column diameter: 0.53



BBB00

Data File:
Date :
Client ID:
Sample Info:
Volume Injected (uL): 1.0
Column phase: DB5

Instrument:
Operator:
Column diameter: 0.53



Appendix C

Data Assessment

SOW OLM04.2

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: **SDG No.:**
LABORATORY: **SITE:**

DATA ASSESSMENT

The current SOP HW-6 (Revision 11) June 1996, USEPA Region II Data Validation SOP for Statement of Work OLMO 4.2. for evaluating organic data have been applied.

All data are valid and acceptable except those analytes rejected "R"(unusable). Due to the detection of QC problems,
some analytes may have the "J" (estimated), "N"(presumptive
evidence for the presence of the material, "U" (non-detect) or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's
Signature: _____Date: ___/___/2001_

Verified By: _____ Date: ___/___/2001_

CLP DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

2. SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

No qualification based on MS/MSD data.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

CLP DATA ASSESSMENT

B) Field or rinse blank contamination:

C) Trip blank contamination for VOA aqueous samples:

D) Storage Blank associated with VOA samples only

E) Tics "R" rejected

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

CLP DATA ASSESSMENT

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be $ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes except for the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the sample shown were qualified for %RSD and %D:

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than "30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.

CLP DATA ASSESSMENT

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within " 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.

Appendix B

CLP Forms

SOW OLM04.2

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix: (soil/water) _____ Lab Sample ID: _____

Sample wt/vol: _____(g/mL) _____ Lab File ID: _____

Level: (low/med) _____ Date Received: _____

% Moisture: not dec. _____ Date Analyzed: _____

GC Column: _____ ID: _____(mm) Dilution Factor: _____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane		
74-87-3	Chloromethane		
75-01-4	Vinyl Chloride		
74-83-9	Bromomethane		
75-00-3	Chloroethane		
75-69-4	Trichlorofluoromethane		
75-35-4	1,1 Dichloroethene		
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane		
67-64-1	Acetone		
75-15-0	Carbon Disulfide		
79-20-9	Methyl Acetate		
75-09-2	Methylene Chloride		
156-60-5	Trans-1,2-Dichloroethene		
1634-04-4	Methyl-tert-Butyl Ether		
75-34-3	1,1 Dichloroethane		
156-59-2	Cis- Dichloroethene		
78-93-3	2-Butanone		
67-99-3	Chloroform		
71-55-6	1,1,1-Trichloroethane		
110-82-7	Cyclohexane		
56-23-5	Carbon Tetrachloride		
71-43-2	Benzene		
107-06-2	1,2 Dichloroethane		

1B

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix: (soil/water) _____ Lab Sample ID: _____

Sample wt/vol: _____(g/mL) _____ Lab File ID: _____

Level: (low/med) _____ Date Received: _____

% Moisture: not dec. _____ Date Analyzed: _____

GC Column: _____ ID: _____(mm) Dilution Factor: _____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene		
108-87-2	Methylcyclohexane		
78-87-5	1,2-Dichloropropane		
75-27-4	Bromodichloromethane		
10061-01-5	Cis-1,3-Dichloropropene		
108-10-1	4-Methyl-2-pentanone		
108-88-3	Toluene		
10061-02-6	Trans-1,3 Dichloropropene		
79-00-5	1,1,2 Trichloroethane		
127-18-4	Tetrachloroethene		
591-78-6	2-Hexanone		
124-48-1	Dibromochloromethane		
106-93-4	1,2-Dibromoethane		
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene		
1330-20-7	Xylene (total)		
100-42-5	Styrene		
75-25-2	Bromoform		
98-82-8	Isopropylbenzene		
79-34-5	1,1,2,2-Tetrachloroethane		
541-73-1	1,3-Dichlorobenzene		
106-46-7	1,4- Dichlorobenzene		
95-50-1	1,2 Dichlorobenzene		
96-12-8	1,2-Dibromo-3-chloropropane		
120-82-1	1,2,4-Trichlorobenzene		

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix: (soil/water) _____ Lab Sample ID: _____

Sample wt/vol: _____(g/mL) _____ Lab File ID: _____

Level: (low/med) _____ Date Received: _____

% Moisture: not dec. _____ Date Analyzed: _____

GC Column: _____ ID: _____(mm) Dilution Factor: _____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: _____ CONCENTRATION UNITS (lg/L or lg/Kg) _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
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30.				

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
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27.						
28.						
29.						
30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(88-110)
SMC2	(BFB) = Bromofluorobenzene	(86-115)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Level: (low/med) _____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
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30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(84-138)
SMC2	(BFB) = Bromofluorobenzene	(59-113)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix Spike - EPA Sample No.: _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene					61-145
Trichloroethene					71-120
Benzene					76-127
Toluene					76-125
Chlorobenzene					75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene					14	61-145
Trichloroethene					14	71-120
Benzene					11	76-127
Toluene					13	76-125
Chlorobenzene					13	75-130

#Column to be used to flag recovery and RPD values with asterisk

· Values outside of QC lmits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

_____

_____

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix Spike - EPA Sample No.: _____ Level: (low/med) _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene					59-172
Trichloroethene					62-137
Benzene					66-142
Toluene					59-139
Chlorobenzene					60-133

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene					22	59-172
Trichloroethene					24	62-137
Benzene					21	66-142
Toluene					21	59-139
Chlorobenzene					21	60-133

#Column to be used to flag recovery and RPD values with asterisk

. Values outside of QC lmits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

_____

_____

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Lab File ID: _____ Lab Sample ID: _____

Date Analyzed: _____ Time Analyzed: _____

GC Column: _____ ID: _____ (mm) Heated Purge: (Y/N) _____

Instrument ID : _____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.				
2.				
3.				
4.				
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6.				
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29.				
30.				

COMMENTS: _____

_____

_____

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Lab File ID: _____ BFB Injection Date: _____

Instrument ID: _____ BFB Injection Time: _____

GC Column: _____ ID: _____ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	
75	30.0- 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0- 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0- 120.0% of mass 95	
175	4.0- 9.0% of mass 174	( )1
176	93.0- 101.0% of mass 174	( )1
177	5.0- 9.0% of mass 176	( )2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.					
2.					
3.					
4.					
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6.					
7.					
8.					
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22.					

COMMENTS: _____

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Calibration Date: _____ _____

Heated Purge: (Y/N) _____ Calibration Times: _____ _____

GC Column: _____ ID: _____(mm)

LAB FILE ID: RRF10 = _____ RRF20 = _____
RRF50 = _____ RRF100 = _____ RRF200 = _____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
Dichlorodifluoromethane							
Chloromethane							
Vinyl Chloride *							*
Bromomethane *							*
Chloroethane							
Trichlorofluoromethane							
1,1 Dichloroethene *							*
1,1,2-trichloro- 1,2,2-trifluoroethane							
Acetone							
Carbon Disulfide							
Methyl Acetate							
Methylene Chloride							
Trans-1,2-Dichloroethene							
Methyl-tert-Butyl Ether							
1,1 Dichloroethane *							*
Cis- Dichloroethene							
2-Butanone							
Chloroform *							*
1,1,1-Trichloroethane *							*
Cyclohexane							
Carbon Tetrachloride *							*
Benzene *							*
1,2 Dichloroethane *							*
Trichloroethene *							*
Methylcyclohexane							

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

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Calibration Date: _____ _____

Heated Purge: (Y/N) _____ Calibration Times: _____ _____

GC Column: _____ ID: _____(mm)

LAB FILE ID: RRF10 = _____ RRF20 = _____
RRF50 = _____ RRF100 = _____ RRF200 = _____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
1,2-Dichloropropane							
Bromodichloromethane *							*
Cis-1,3-Dichloropropene *							*
4-Methyl-2-pentanone							
Toluene *							*
Trans-1,3 Dichloropropene *							*
1,1,2 Trichloroethane *							*
Tetrachloroethene *							*
2-Hexanone							
Dibromochloromethane *							*
1,2-Dibromoethane							
Chlorobenzene *							*
Ethylbenzene *							*
Xylene (total) *							*
Styrene *							*
Bromoform *							*
Isopropylbenzene							
1,1,2,2-Tetrachloroethane *							*
1,3-Dichlorobenzene *							*
1,4- Dichlorobenzene *							*
1,2 Dichlorobenzene *							*
1,2-Dibromo-3-chloropropane							
1,2,4-Trichlorobenzene *							*
Toluene -d8							
Bromofluorobenzene *							*
1,2 Dichloroethane -d4							

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

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Calibration Date: _____ Time: _____

Lab File ID: _____ Init. Calib Date(s): _____ _____

EPA Sample N0. (VSTD50##): _____ Init. Calib Times: _____ _____

Heated Purge: (Y/N) _____

GC Column: _____ ID: _____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
Dichlorodifluoromethane					
Chloromethane					
Vinyl Chloride			0.100		25.0
Bromomethane			0.100		25.0
Chloroethane					
Trichlorofluoromethane					
1,1 Dichloroethene			0.100		25.0
1,1,2-trichloro-1,2,2-trifluoroethane					
Acetone					
Carbon Disulfide					
Methyl Acetate					
Methylene Chloride					
Trans-1,2-Dichloroethene					
Methyl-tert-Butyl Ether					
1,1 Dichloroethane			0.200		25.0
Cis- Dichloroethene					
2-Butanone					
Chloroform			0.200		25.0
1,1,1-Trichloroethane			0.100		25.0
Cyclohexane					
Carbon Tetrachloride			0.100		25.0
Benzene			0.500		25.0
1,2 Dichloroethane			0.100		25.0
Trichloroethene			0.300		25.0
Methylcyclohexane					

All other compounds must meet a minimum RRF of 0.010.

7B
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Calibration Date: _____ Time: _____

Lab File ID: _____ Init. Calib Date(s): _____ _____

EPA Sample N0. (VSTD50##): _____ Init. Calib Times: _____ _____

Heated Purge: (Y/N) _____

GC Column: _____ ID: _____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
1,2-Dichloropropane					
Bromodichloromethane *			0.200		25.0
Cis-1,3-Dichloropropene *			0.200		25.0
4-Methyl-2-pentanone					
Toluene *			0.400		25.0
Trans-1,3 Dichloropropene *			0.100		25.0
1,1,2 Trichloroethane *			0.100		25.0
Tetrachloroethene *			0.200		25.0
2-Hexanone					
Dibromochloromethane *			0.100		25.0
1,2-Dibromoethane					
Chlorobenzene *			0.500		25.0
Ethylbenzene *			0.100		25.0
Xylene (total) *			0.300		25.0
Styrene *			0.300		25.0
Bromoform *			0.100		25.0
Isopropylbenzene					
1,1,2,2-Tetrachloroethane *			0.300		25.0
1,3-Dichlorobenzene *			0.600		25.0
1,4- Dichlorobenzene *			0.500		25.0
1,2 Dichlorobenzene *			0.400		25.0
1,2-Dibromo-3-chloropropane					
1,2,4-Trichlorobenzene *			0.200		25.0
Toluene -d8					
Bromofluorobenzene *			0.200		25.0
1,2 Dichloroethane -d4					

All other compounds must meet a minimum RRF of 0.010.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

EPA Sample N0. (VSTD50##): _____ Date Analyzed: _____

Lab File ID: _____ Time Analyzed: _____

Instrument ID: _____ Heated Purge: (Y/N) _____

GC Column: _____ ID: _____(mm)

	IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
12 HOUR STD						
UPPER LIMIT						
LOWER LIMIT						
EPA SAMPLE						
1.						
2.						
3.						
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20.						
21.						
22.						

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page _____ of _____

SAMPLE LOG-IN SHEET

Lab Name				Page __ of __
Received By (Print Name)				Log in Date
Received By (Signature)				
Case Number	Sample Delivery Group No.			SAS Number

Remarks:		Corresponding		
	EPA Sample #	Sample Tag #	Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1. Custody Seal (s) — Present/Absent* Intact/Broken				
2. Custody Seal Nos. _____ _____				
3. Chain of Custody Records — Present/Absent*				
4. Traffic Reports or Packing Lists — Present/Absent*				
5. Airbill — Airbill/Sticker Present/Absent*				
6. Airbill No. _____ _____				
7. Sample Tags Sample Tag Numbers — Present/Absent* Listed/Not Listed on Chain-of-Custody				
8.				
9. Sample Condition — Intact/Broken/ Leaking				
10. Cooler Temperature _____				
11. Does information on custody records, traffic reports, and sample tags agree? — Yes/No*				
12. Date Received at Lab _____				
13.				
14. Time Received _____				
15.				
Sample Transfer				
Fraction / Fraction				
Area # / Area #				
By / By				
On / On				

*Contact SMO and attach record of resolution

Reviewed By	Logbook No.
Date	Lookbook Page No.

Organics Complete SDG File (CSF) Inventory Sheet

FORM DC-2-1

LABORATORY NAME

CITY/STATE

CASE NO. SDG NO. SDG NOS TO FOLLOW
_ SAS NO.

All documents delivered in the Complete SDG File must be original documents where possible.

	Page Nos		CHECK	
	FROM	TO	LAB	EPA
1. **Inventory Sheet** (Form dc-2) Do not Number	_____	_____	_____	_____
2. **SDG Case Narrative**	_____	_____	_____	_____
3. **SDG Cover Sheet/Traffic Report**	_____	_____	_____	_____
4. **Volatiles Data**				
a QC Summary				
System Monitoring Compound Summary (Form II VOA)	_____	_____	_____	_____
Matrix Spike/Matrix Spike Duplicate Summary (Form III VOA)	_____	_____	_____	_____
Method Blank Summary (Form IV VOA)	_____	_____	_____	_____
GC/MS Instrument Performance Check (Form V VOA)	_____	_____	_____	_____
Internal Standard Area and RT Summary (Form VIII VOA)	_____	_____	_____	_____
b Sample Data	_____	_____		
TCL Results - (Form 1 VOA-1, VOA-2)			_____	_____
Tentatively Identified Compounds (Form I VOA-TIC)			_____	_____
Reconstructed total ion chromatograms (RIC) for each sample			_____	_____
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified			_____	_____
Quantitation reports			_____	_____
Mass spectra of all reported TICs with three best library matches			_____	_____
c Standards Data (All Instruments)	_____	_____		
Initial Calibration Data (Form VI VOA-1, VOA-2)			_____	_____
RICs and Quant Reports for all standards			_____	_____
Continuing Calibration Data (Form VII VOA-1, VOA-2)			_____	_____
RICs and quantitation reports for all standards			_____	_____
d Raw QC Data			_____	_____
BFB	_____	_____	_____	_____
Blank Data	_____	_____	_____	_____
Matrix Spike/Matrix Spike Duplicate Data	_____	_____	_____	_____

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (cont.)

CASE NO.	SDG NO.	SDG NOS TO FOLLOW
	_	SAS NO.

	Page Nos		CHECK	
	FROM	TO	LAB	EPA
5. **Semivolatiles Data**				
a QC Summary				
Surrogate Percent Recovery Summary (Form II SV)	_____	_____	_____	_____
Matrix Spike/Matrix Spike Duplicate Summary (Form III SV)	_____	_____	_____	_____
Method Blank Summary (Form IV SV)	_____	_____	_____	_____
GC/MS Instrument Performance Check (Form V SV)	_____	_____	_____	_____
Internal Standard Area and RT Summary (Form VIII SV)	_____	_____	_____	_____
b Sample Data	_____	_____		
TCL Results - (Form 1 SV-1, SV-2)			_____	_____
Tentatively Identified Compounds (Form I SV-TIC)			_____	_____
Reconstructed total ion chromatograms (RIC) for each sample			_____	_____
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified			_____	_____
Quantitation reports			_____	_____
Mass spectra of all reported TICs with three best library matches			_____	_____
GPC chromatograms (if GPC is required)			_____	_____
c Standards Data (All Instruments)				
Initial Calibration Data (Form VI SV -1, SV -2)	_____	_____		
RICs and Quant Reports for all standards			_____	_____
Continuing Calibration Data (Form VII SV -1, SV -2)			_____	_____
RICs and quantitation reports for all standards			_____	_____
			_____	_____
d Raw QC Data				
BFB			_____	_____
Blank Data	_____	_____	_____	_____
Matrix Spike/Matrix Spike Duplicate Data	_____	_____	_____	_____
	_____	_____	_____	_____
e Raw GPC Data				
	_____	_____	_____	_____
6. **Pesticides Data**				
a QC Summary				
Surrogate Percent Recovery Summary (Form II PEST)				
Matrix Spike/Matrix Spike Duplicate Summary (Form III PEST)	_____	_____	_____	_____
Method Blank Summary (Form IV PEST)	_____	_____	_____	_____
	_____	_____	_____	_____

CASE NO.	SDG NO.	SDG NOS TO FOLLOW
		SAS NO.

	Page Nos		CHECK	
	FROM	TO	LAB	EPA
6. **Pesticides Data** (Cont.)				
b Sample Data	_____	_____		
TCL Results - Organic Analysis Data Sheet (Form 1 PEST)			_____	_____
Chromatograms (Primary Column)			_____	_____
Chromatograms from second GC column confirmation			_____	_____
GC Integration report or data system printout			_____	_____
Manual work sheets			_____	_____
For pesticides/Aroclors by GC/MS, Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples and standards)			_____	_____
c Standards Data	_____	_____		
Initial Calibration of Single Component Analytes (Form VI PEST -1, and PEST-2)			_____	_____
Initial Calibration of Multicomponent Analytes (Form VI PEST-3)			_____	_____
Analyte Resolution Summary (Form VI PEST-4)			_____	_____
Performance Evaluation Mixture (Form VI PEST-4)			_____	_____
Individual Standard Mixture A (Form VI PEST-6)			_____	_____
Individual Standard Mixture B (Form VI PEST-7)			_____	_____
Calibration Verification Summary (Form VII PEST-1)			_____	_____
Calibration Verification Summary (Form VII PEST-2)			_____	_____
Analytical Sequence (Form VIII PEST)			_____	_____
Florisil Cartridge Check (Form IX PEST-1)			_____	_____
Pesticide GPC Calibration (Form IX PEST-2)			_____	_____
Pesticide Identification Summary for Single Component Analytes (Form X PEST-1)			_____	_____
Pesticide Identification Summary for Multicomponent Analytes (Form X PEST-2)			_____	_____
Chromatograms and data system printouts A printout of retention times and corresponding peak areas or peak heights			_____	_____
d Raw QC Data				
Blank Data	_____	_____	_____	_____
Matrix Spike/Matrix Spike Duplicate Data	_____	_____	_____	_____

CASE NO.	SDG NO.	SDG NOS TO FOLLOW
	_	SAS NO.

	Page Nos		CHECK	
	FROM	TO	LAB	EPA
6. **Pesticides Data** (Cont.)				
e Raw GPC Data	_____	_____	_____	_____
f Raw Florisil Data	_____	_____	_____	_____
7. **Miscellaneous Data**				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	_____	_____	_____	_____
Internal sample and sample extract transfer chain of custody records				
Screening records	_____	_____	_____	_____
All instrument output, including stripcharts from screening activities (describe or list)	_____	_____	_____	_____
_____				
_____	_____	_____	_____	_____
	_____	_____	_____	_____
8. **EPA Shipping/Receiving Documents**				
Airbills (No. of shipments _____)				
Chain of Custody Records	_____	_____	_____	_____
Sample Tags	_____	_____	_____	_____
Sample Log-in Sheet (Lab & DC1)			_____	_____
Miscellaneous Shipping/Receiving Records (describe or list)	_____	_____	_____	_____
_____				
_____	_____	_____	_____	_____
	_____	_____	_____	_____
9. **Internal Lab Sample Transfer Records and Tracking Sheets** (describe or list)				
_____				
_____	_____	_____	_____	_____
	_____	_____	_____	_____
10. **Other Records** (describe or list)				
Telephone Communication Log				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
	_____	_____	_____	_____

11. **Comments** _____

_____

_____

_____

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET (cont.)

CASE NO.	SDG NO.	SDG NOS TO FOLLOW
	_	SAS NO.

Completed by:
(CLP Lab)

(signature)	(Printed Name/Title)	(Date)

Verified by:
(CLP Lab)

(signature)	(Printed Name/Title)	(Date)

Audited by:
(EPA)

(signature)	(Printed Name/Title)	(Date)

1C

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix: (soil/water) _____ Lab Sample ID: _____

Sample wt/vol: _____(g/mL) _____ Lab File ID: _____

Level: (low/med) _____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: _____

Concentrated Extract Volume: _____(lL) Date Analyzed: _____

Injection Volume: _____(lL) Dilution Factor: _____

GPC Cleanup: (Y/N) _____ pH: _____ Extraction: (Type) _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
100-52-7	Benzaldehyde		
108-95-2	Phenol		
111-44-4	bis(2-Chloroethyl)ether		
95-57-8	2-Chlorophenol		
95-48-7	2-Methylphenol		
108-60-1	2,2'-oxybis(1-Chloropropane)		
98-86-2	Acetophenone		
106-44-5	4-Methylphenol		
621-64-7	N-Nitroso-di-n-propylamine		
67-72-1	Hexachloroethane		
98-95-3	Nitrobenzene		
78-59-1	Isophorone		
88-75-5	2-Nitrophenol		
105-67-9	2,4-Dimethylphenol		
111-91-1	bis(2-Chloroethoxy)methane		
120-83-2	2,4-Dichlorophenol		
91-20-3	Naphthalene		
106-47-8	4-Chloroaniline		
87-68-3	Hexachlorobutadiene		
105-60-2	Caprolactam		
59-50-7	4-Chloro-3-methylphenol		
91-57-6	2-Methylnaphthalene		
77-47-4	Hexachlorocyclopentadiene		
88-06-2	2,4,6-Trichlorophenol		
95-95-4	2,4,5-Trichlorophenol		
92-52-4	1,1 Biphenyl		
91-58-7	2-Chloronaphthalene		
88-74-4	2-Nitroaniline		
131-11-3	Dimethylphthalate		
606-20-2	2,6-Dinitrotoluene		
208-96-8	Acenaphthylene		
99-09-2	3-Nitroaniline		
83-32-9	Acenaphthene		

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix: (soil/water) _____ Lab Sample ID: _____

Sample wt/vol: _____(g/mL) _____ Lab File ID: _____

Level: (low/med) _____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: _____

Concentrated Extract Volume: _____(lL) Date Analyzed: _____

Injection Volume: _____(lL) Dilution Factor: _____

GPC Cleanup: (Y/N) _____ pH: _____ Extraction: (Type) _____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
51-28-5	2,4-Dinitrophenol		
100-02-7	4-Nitrophenol		
132-64-9	Dibenzofuran		
121-14-2	2,4-Dinitrotoluene		
84-66-2	Diethylphthalate		
86-73-7	Fluorene		
7005-72-3	4-Chlorophenyl-phenylether		
100-01-6	4-Nitroaniline		
534-52-1	4,6-Dinitro-2-methylphenol		
86-30-6	N-Nitrosodiphenylamine (1)		
101-55-3	4-Bromophenyl-phenylether		
118-74-1	Hexachlorobenzene		
1912-24-9	Atrazine		
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene		
120-12-7	Anthracene		
86-74-8	Carbazole		
84-74-2	Di-n-butylphthalate		
206-44-0	Fluoranthene		
129-00-0	Pyrene		
85-68-7	Butylbenzylphthalate		
91-94-1	3,3'-Dichlorobenzidine		
56-55-3	Benzo(a)anthracene		
218-01-9	Chrysene		
117-81-7	bis(2-Ethylhexyl)phthalate		
117-84-0	Di-n-octylphthalate		
205-99-2	Benzo(b)fluoranthene		
207-08-9	Benzo(k)fluoranthene		
50-32-8	Benzo(a)pyrene		
193-39-5	Indeno(1,2,3-cd)pyrene		
53-70-3	Dibenz(a,h)anthracene		
191-24-2	Benzo(g,h,i)perylene		

(1) Cannot be separated from Diphenylamine

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix: (soil/water) _____ Lab Sample ID: _____

Sample wt/vol: _____(g/mL) _____ Lab File ID: _____

Level: (low/med) _____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: _____

Concentrated Extract Volume: _____(lL) Date Analyzed: _____

Injection Volume: _____(lL) Dilution Factor: _____

GPC Cleanup: (Y/N) _____ pH: _____ Extraction: (Type) _____

Number TICs found: _____ CONCENTRATION UNITS (lg/L or lg/Kg) _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
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22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										
21.										
22.										
23.										
24.										
25.										
26.										
27.										
28.										
29.										
30.										

		QC LIMITS
S1	(NBZ) = Nitrobenzene-d5	(35-114)
S2	(FBP) = 2-Fluorobiphenyl	(43-116)
S3	(TPH) = Terphenyl-d14	(33-141)
S4	(PHL) = Phenol-d5	(10-110)
S5	(2FP) = 2-Fluorophenol	(21-110)
S6	(TBP) = 2,4,6 Tribromophenol	(10-123)
S7	(2CP) = 2-Chlorophenol-d4	(33-110) (advisory)
S8	(DCB) = 1,2 Dichlorobenzene-d4	(16-110) (advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Level: (low/med) _____

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										
21.										
22.										
23.										
24.										
25.										
26.										
27.										
28.										
29.										
30.										

		QC LIMITS	
S1	(NBZ) = Nitrobenzene-d5	(23-120)	
S2	(FBP) = 2-Fluorobiphenyl	(30-115)	
S3	(TPH) = Terphenyl-d14	(18-137)	
S4	(PHL) = Phenol-d5	(24-113)	
S5	(2FP) = 2-Fluorophenol	(25-121)	
S6	(TBP) = 2,4,6 Tribromophenol	(19-122)	
S7	(2CP) = 2-Chlorophenol-d4	(20-130)	(advisory)
S8	(DCB) = 1,2 Dichlorobenzene-d4	(20-130)	(advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix Spike - EPA Sample No.: _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol					12-110
2-chlorophenol					27-123
N-Nitrosodi-n-prop. (1)					41-116
4-Chloro-3-methylphenol					23-97
Acenaphthene					46-118
4-Nitrophenol					10-80
2,4-Dinitrotoluene					24-96
Pentachlorophenol					9-103
Pyrene					26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Phenol					42	12-110
2-chlorophenol					40	27-123
N-Nitrosodi-n-prop. (1)					38	41-116
4-Chloro-3-methylphenol					42	23-97
Acenaphthene					31	46-118
4-Nitrophenol					50	10-80
2,4-Dinitrotoluene					38	24-96
Pentachlorophenol					50	9-103
Pyrene					31	26-127

(1) N- Nitrosodiphenylamine

Column to be used to flag recovery and RPD values with asterisk

* Values outside of QC lmits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

_____

_____

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix Spike - EPA Sample No.: _____ Level: (low/med) _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol					26-90
2-chlorophenol					25-102
N-Nitrosodi-n-prop. (1)					41-126
4-Chloro-3-methylphenol					26-103
Acenaphthene					31-137
4-Nitrophenol					11-114
2,4-Dinitrotoluene					28-89
Pentachlorophenol					17-109
Pyrene					35-142

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Phenol					35	26-90
2-chlorophenol					50	25-102
N-Nitrosodi-n-prop. (1)					38	41-126
4-Chloro-3-methylphenol					33	26-103
Acenaphthene					19	31-137
4-Nitrophenol					50	11-114
2,4-Dinitrotoluene					47	28-89
Pentachlorophenol					47	17-109
Pyrene					36	35-142

(1) N- Nitrosodiphenylamine

Column to be used to flag recovery and RPD values with asterisk

* Values outside of QC lmits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

_____

_____

4B

EPA SAMPLE NO.

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Lab File ID: _____ Lab Sample ID: _____

Instrument ID : _____ Date Extracted: _____

Matrix: (soil/water) _____ Date Analyzed: _____

Level: (low/med) _____ Time Analyzed: _____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
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18.				
19.				
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21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

COMMENTS: _____

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Lab File ID: _____ DFTPP Injection Date: _____

Instrument ID: _____ DFTPP Injection Time: _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1- Value is % mass 69 2- Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
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18.					
19.					
20.					
21.					
22.					

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Calibration Date: _____ _____

Calibration Times: _____ _____

LAB FILE ID: RRF20 = _____ RRF50 = _____

RRF80 = _____ RRF120 = _____ RRF160 = _____

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	_____ RRF	% RSD
Benzaldehyde							
Phenol *							*
bis(2-Chloroethyl)ether *							*
2-Chlorophenol *							*
2-Methylphenol *							*
2,2'-oxybis(1-Chloropropane)							
Acetophenone							
4-Methylphenol *							*
N-Nitroso-di-n-propylamine *							*
Hexachloroethane *							*
Nitrobenzene *							*
Isophorone *							*
2-Nitrophenol *							*
2,4-Dimethylphenol *							*
bis(2-Chloroethoxy)methane *							*
2,4-Dichlorophenol *							*
Naphthalene *							*
4-Chloroaniline							
Hexachlorobutadiene							
Caprolactam							
4-Chloro-3-methylphenol *							*
2-Methylnaphthalene *							*
Hexachlorocyclopentadiene							
2,4,6-Trichlorophenol *							*
2,4,5-Trichlorophenol *							*
1,1 Biphenyl							
2-Chloronaphthalene *							*
2-Nitroaniline							
Dimethylphthalate							
2,6-Dinitrotoluene *							*
Acenaphthylene *							*
3-Nitroaniline							
Acenaphthene *							*
2,4-Dinitrophenol							
4-Nitrophenol							
Dibenzofuran *							*

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

1E

EPA SAMPLE NO

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:____

Matrix: (soil/water) _____ Lab Sample ID: _____

Sample wt/vol: _____(g/mL) _____ Lab File ID: _____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) _____ Date Extracted: _____

Concentrated Extract Volume: _____(lL) Date Analyzed: _____

Injection Volume: _____(lL) Dilution Factor: _____

GPC Cleanup: (Y/N)_____ pH _____ Sulfur Cleanup: (Y/N)_____

CAS NO.	COMPOUND	CONC (lg/L or lg/Kg)	Q
319-84-6	alpha-BHC		
319-85-7	beta BHC		
319-86-8	delta-BHC		
58-89-9	gamma BHC		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide		
959-98-8	Endosulfan I		
60-57-1	Dieldrin		
72-55-9	4,4'DDE		
72-20-8	Endrin		
33213-65-9	Endosulfan II		
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate		
50-29-3	4,4'DDT		
72-43-5	Methoxychlor		
53494-70-5	Endrin ketone		
7421-93-4	Endrin aldehyde		
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene		
12674-11-2	Aroclor 1016		
11104-28-2	Aroclor 1221		
11141-16-5	Aroclor 1232		
53469-21-9	Aroclor 1242		
12672-29-6	Aroclor 1248		
11097-69-1	Aroclor 1254		
11096-82-5	Aroclor 1260		

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GC Column (1) : _____ ID: _____ (mm) GC Column (2) : _____ ID: _____ (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)
DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GC Column (1) : _____ ID: _____ (mm) GC Column (2) : _____ ID: _____ (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)
DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix Spike - EPA Sample No.: _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma BHC:					56-123
Heptachlor:					40-131
Aldrin:					40-120
Dieldrin:					52-126
Endrin:					56-121
4,4'DDT:					38-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
gamma BHC:					15	56-123
Heptachlor:					20	40-131
Aldrin:					22	40-120
Dieldrin:					18	52-126
Endrin:					21	56-121
4,4'DDT:					27	38-127

Column to be used to flag recovery and RPD values with asterisk

* Values outside of QC lmits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

_____

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Matrix Spike - EPA Sample No.: _____ Level: (low/med) _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma BHC:					46-127
Heptachlor:					35-130
Aldrin:					34-132
Dieldrin:					31-134
Endrin:					42-139
4,4'DDT:					23-134

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MS % REC #	% RPD #	QC LIMITS	
					RPD	REC.
gamma BHC:					50	46-127
Heptachlor:					31	35-130
Aldrin:					43	34-132
Dieldrin:					38	31-134
Endrin:					45	42-139
4,4'DDT:					50	23-134

#Column to be used to flag recovery and RPD values with asterisk

· Values outside of QC lmits

RPD: _____ out of _____ outside limits
Spike Recovery: _____ out of _____ outside limits

COMMENTS: _____

_____

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Lab Sample ID: _____ Lab File ID: _____

Matrix: (soil/water) _____ Extraction: (Type) _____

Sulfur Cleanup: (Y/N) _____ Date Extracted: _____

Date Analyzed (1): _____ Date Analyzed (2): _____

Time Analyzed (1): _____ Time Analyzed (2): _____

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): _____ ID: _____ (mm) GC Column (2): _____ ID: _____ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

COMMENTS: _____

6E

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Level (x low): low _____ mid _____ high _____

GC Column: _____ ID: _____(mm) Date(s) Analyzed: _____ _____

COMPOUND	RT OF STANDARD				RT WINDOW	
	LOW	MID	HIGH	MEAN RT	FROM	TO
alpha-BHC:						
beta BHC:						
delta-BHC:						
gamma BHC:						
Heptachlor:						
Aldrin:						
Heptachlor epoxide:						
Endosulfan I:						
Dieldrin:						
4,4'DDE:						
Endrin:						
Endosulfan II:						
4,4'DDD:						
Endosulfan sulfate:						
4,4'DDT:						
Methoxychlor:						
Endrin ketone:						
Endrin aldehyde:						
alpha-Chlordane:						
gamma-Chlordane:						
Tetrachloro-m-xylene						
Decachlorobiphenyl						

*Surrogate retention times are measured from Standard Mix A analyses

Retention time windows are ± 0.05 minutes for all compounds that elute before Heptachlor epoxide, ± 0.07 minutes for all other compounds, except ± 0.10 minutes for Decachlorobiphenyl.

6F

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Level (x low): low _____ mid _____ high _____

GC Column: _____ ID: _____(mm) Date(s) Analyzed: _____ _____

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
alpha-BHC:					
beta BHC:					
delta-BHC:					
gamma BHC:					
Heptachlor:					
Aldrin:					
Heptachlor epoxide:					
Endosulfan I:					
Dieldrin:					
4,4'DDE:					
Endrin:					
Endosulfan II:					
4,4'DDD:					
Endosulfan sulfate:					
4,4'DDT:					
Methoxychlor:					
Endrin ketone:					
Endrin aldehyde:					
alpha-Chlordane:					
gamma-Chlordane:					
Tetrachloro-m-xylene					
Decachlorobiphenyl					

*Surrogate calibration factors are measured from Standard Mix A analyses.

6G

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: _____- Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Date(s) Analyzed: _____ _____

GC Column: _____ ID: _____(mm)

COMPOUND	AMOUNT (NG)	PEAK[1]	RT	RT WINDOW		CALIBRATION FACTOR
				FROM	TO	
Toxaphene:		1				
		2				
		3				
		4				
		5				
Aroclor 1016:		1				
		2				
		3				
		4				
		5				
Aroclor 1221:		1				
		2				
		3				
		4				
		5				
Aroclor 1232:		1				
		2				
		3				
		4				
		5				
Aroclor 1242:		1				
		2				
		3				
		4				
		5				

Aroclor 1248:		1				
		2				
		3				
		4				
		5				
Aroclor 1254:		1				
		2				
		3				
		4				
		5				
Aroclor 1260:		1				
		2				
		3				
		4				
		5				

[1]At least 3 peaks for each column are required for identification of multi-component analytes.

6H

PESTICIDE ANALYTE RESOLUTION SUMMARY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GC Column (1): _____ ID: _____(mm) Instrument ID (1): _____

EPA Sample No. (RESC##) : _____ Lab Sample ID (1): _____

Date Analyzed (1) : _____ Time Analyzed (1): _____

	ANALYTE	RT	RESOLUTION (%)
1			
2			
3			
4			
5			
6			

GC Column (2): _____ ID: _____(mm) Instrument ID (2): _____

EPA Sample No. (RESC##) : _____ Lab Sample ID (2): _____

Date Analyzed (2) : _____ Time Analyzed (2): _____

	ANALYTE	RT	RESOLUTION (%)
1			
2			
3			
4			
5			

PERFORMANCE EVALUATION MIXTURE (PEM)

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GC Column (1): _____ ID: _____(mm) Instrument ID (1): _____

EPA Sample No. (PEM##) : _____ Lab Sample ID (1): _____

Date Analyzed (1) : _____ Time Analyzed (1): _____

	ANALYTE	RT	RESOLUTION (%)
1			
2			
3			
4			
5			
6			
7			
8			

GC Column (2): _____ ID: _____(mm) Instrument ID (2): _____

EPA Sample No. (PEM##) : _____ Lab Sample ID (2): _____

Date Analyzed (2) : _____ Time Analyzed (2): _____

	ANALYTE	RT	RESOLUTION (%)
1			
2			
3			
4			
5			

6J

INDIVIDUAL STANDARD MIXTURE A

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GC Column (1): _____ ID: _____(mm) Instrument ID (1): _____

EPA Sample No. (INDAM##) : _____ Lab Sample ID (1): _____

Date Analyzed (1) : _____ Time Analyzed (1): _____

	ANALYTE	RT	RESOLUTION (%)
1			
2			
3			
4			
5			
6			
7			

GC Column (2): _____ ID: _____(mm) Instrument ID (2): _____

EPA Sample No. (INDAM##) : _____ Lab Sample ID (2): _____

Date Analyzed (2) : _____ Time Analyzed (2): _____

	ANALYTE	RT	RESOLUTION (%)
1			
2			
3			
4			

6K

INDIVIDUAL STANDARD MIXTURE B

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GC Column (1): _____ ID: _____(mm) Instrument ID (1): _____

EPA Sample No. (INDBM##) : _____ Lab Sample ID (1): _____

Date Analyzed (1) : _____ Time Analyzed (1): _____

	ANALYTE	RT	RESOLUTION (%)
1			
2			
3			
4			
5			
6			
7			
8			

GC Column (2): _____ ID: _____(mm) Instrument ID (2): _____

EPA Sample No. (INDBM##) : _____ Lab Sample ID (2): _____

Date Analyzed (2) : _____ Time Analyzed (2): _____

	ANALYTE	RT	RESOLUTION (%)
1			
2			
3			
4			

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: _____

Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GC Column (1): _____ ID: _____(mm)

Initial Calib. Date(s) : _____ _____

EPA Sample No. (PIBLK##) : _____

Date Analyzed : _____

Lab Sample ID (PIBLK##) : _____

Time Analyzed : _____

EPA Sample No. (PEM##) : _____

Date Analyzed : _____

Lab Sample ID (PEM##) : _____

Time Analyzed : _____

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC						
beta BHC						
gamma BHC						
Endrin						
4,4'DDT						
Methoxychlor						

4,4'DDT % Breakdown (1): _____

Endrin % Breakdown (1): _____

Combined % Breakdown (1): _____

7F

CALIBRATION VERIFICATION SUMMARY

Lab Name: _____

Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GC Column (1): _____ ID: _____(mm)

Initial Calib. Date(s) : _____ _____

EPA Sample No. (PIBLK##) : _____

Date Analyzed : _____

Lab Sample ID (PIBLK##) : _____

Time Analyzed : _____

EPA Sample No. (INDAM##) : _____

Date Analyzed : _____

Lab Sample ID (INDA) : _____

Time Analyzed : _____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC						
Gamma BHC						
Heptachlor						
Endosulfan I						
Dieldrin						
Endrin						
4,4'DDD						
4,4'DDT						
Methoxychlor						
Tetrachloro-m-xylene						
Decachlorobiphenyl						

EPA Sample No. (INDBM##) : _____

Date Analyzed : _____

Lab Sample ID (INDB) : _____

Time Analyzed : _____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC						
Delta-BHC						
Aldrin						
Heptachlor epoxide						
Endosulfan II						
4,4'DDE						
Endosulfan sulfate						
Endrin ketone						
Endrin aldehyde						
Alpha-Chlordane						
Gamma-Chlordane						
Tetrachloro-m-xylene						
Decachlorobiphenyl						

8D

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GC Column (1): _____ ID: _____(mm) Init. Calib. Date(s) : _____ _____

Instrument ID (1): _____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: _____ DCB: _____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

QC LIMITS

TCX = Tetrachloro-m-xylene (± 0.05 MINUTES)
DCB = Decachlorobiphenyl (± 0.10 MINUTES)

Column used to flag retention time values with an asterisk
* Values outside of QC limits.

Page _____ of _____

9A

PESTICIDE FLORISIL CARTRIDGE CHECK

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Florisil Cartridge Lot Number: _____ Date of Analysis : _____

GC Column (1): _____ ID: _____(mm) GC Column (2): _____ ID: _____(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC #	QC LIMITS
Alpha-BHC				80-120
Gamma BHC				80-120
Heptachlor				80-120
Endosulfan I				80-120
Dieldrin				80-120
Endrin				80-120
4,4'DDD				80-120
4,4'DDT				80-120
Methoxychlor				80-120
Tetrachloro-m-xylene				80-120
Decachlorobiphenyl				80-120
2,4,5-Trichlorophenol				< 5

\# Column used to flag retention time values with an asterisk
* Values outside of QC limits.

THIS CARTRIDGE LOT APPLIES TO THE FOLLOWING SAMPLES, BLANKS, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1				
2				
3				
4				
5				
6				
7				
8				
9				

9B

PESTICIDE GPC CALIBRATION VERIFICATION

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

GPC Column: _____ Calibration Verification Date : _____

GC Column (1): _____ ID: _____(mm) GC Column (2): _____ ID: _____(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC #	QC LIMITS
Gamma BHC (Lindane)				80-110
Heptachlor				80-110
Aldrin				80-110
Dieldrin				80-110
Endrin				80-110
4,4'DDT				80-110

\# Column used to flag retention time values with an asterisk

* Values outside of QC limits.

THIS GPC CALIBRATION VERIFICATION APPLIES TO THE FOLLOWING SAMPLES, BLANKS, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

Lab Name: _____

Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Lab Sample ID (1): _____

Date(s) Analyzed : _____

Instrument ID (1): _____

Instrument ID (2): _____

GC Column (1): _____ ID: _____(mm)

GC Column (2): _____ ID: _____(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	% D
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Lab Sample ID (1): _____ Date(s) Analyzed : _____ _____

Instrument ID (1): _____ Instrument ID (2): _____

GC Column (1): _____ ID: _____(mm) GC Column (2): _____ ID: _____(mm)

ANALYTE	PEAK	RT	RT WINDOW		CONCENTRATION	MEAN CONCENTRATION	% D
			FROM	TO			
_____	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						
_____	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks for each column are required for identification of multicomponent analytes

6D

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Calibration Date: _____ _____

Calibration Times: _____ _____

LAB FILE ID: RRF20 = _____ RRF50 = _____

RRF80 = _____ RRF120 = _____ RRF160 = _____

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	_____ RRF	% RSD
2,4-Dinitrotoluene *							*
Diethylphthalate							
Fluorene *							*
4-Chlorophenyl-phenylether *							*
4-Nitroaniline							
4,6-Dinitro-2-methylphenol							
N-Nitrosodiphenylamine (1)							
4-Bromophenyl-phenylether *							*
Hexachlorobenzene *							*
Atrazine							
Pentachlorophenol *							*
Phenanthrene *							*
Anthracene *							*
Carbazole							
Di-n-butylphthalate							
Fluoranthene *							*
Pyrene *							*
Butylbenzylphthalate							
3,3'-Dichlorobenzidine							
Benzo(a)anthracene *							*
Chrysene *							*
bis(2-Ethylhexyl)phthalate							
Di-n-octylphthalate							
Benzo(b)fluoranthene *							*
Benzo(k)fluoranthene *							*
Benzo(a)pyrene *							*
Indeno(1,2,3-cd)pyrene *							*
Dibenz(a,h)anthracene *							*
Benzo(g,h,i)perylene *							*
Nitrobenzene-d5 *							*
2-Fluorobiphenyl *							*
Terphenyl-d14 *							*
Phenol-d5 *							*
2-Fluorophenol							*
2,4,6 Tribromophenol							
2-Chlorophenol-d4 *							*
1,2 Dichlorobenzene-d4 *							*

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Calibration Date: _____ Time: _____

Lab File ID: _____ Init. Calib Date(s): _____ _____

EPA Sample N0. (SSTD50##): _____ Init. Calib Times: _____ _____

GC Column: _____ ID: _____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
Benzaldehyde					
Phenol*			0.800		25.0
bis(2-Chloroethyl)ether *			0.700		25.0
2-Chlorophenol *			0.800		25.0
2-Methylphenol *			0.700		25.0
2,2'-oxybis(1-Chloropropane)					
Acetophenone					
4-Methylphenol *			0.600		25.0
N-Nitroso-di-n-propylamine *			0.500		25.0
Hexachloroethane *			0.300		25.0
Nitrobenzene *			0.200		25.0
Isophorone *			0.400		25.0
2-Nitrophenol *			0.100		25.0
2,4-Dimethylphenol *			0.200		25.0
bis(2-Chloroethoxy)methane *			0.300		25.0
2,4-Dichlorophenol *			0.200		25.0
Naphthalene *			0.700		25.0
4-Chloroaniline					
Hexachlorobutadiene					
Caprolactam					
4-Chloro-3-methylphenol *			0.200		25.0
2-Methylnaphthalene *			0.400		25.0
Hexachlorocyclopentadiene					
2,4,6-Trichlorophenol *			0.200		25.0
2,4,5-Trichlorophenol *			0.200		25.0
1,1 Biphenyl					
2-Chloronaphthalene *			0.800		25.0
2-Nitroaniline					
Dimethylphthalate					
2,6-Dinitrotoluene *			0.200		25.0
Acenaphthylene *			0.900		25.0
3-Nitroaniline					
Acenaphthene *			0.900		25.0
2,4-Dinitrophenol					
4-Nitrophenol					
Dibenzofuran *			0.800		25.0

All other compounds must meet a minimum RRF of 0.010.

7D

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

Instrument ID: _____ Calibration Date: _____ Time: _____

Lab File ID: _____ Init. Calib Date(s): _____ _____

EPA Sample N0. (SSTD50##): _____ Init. Calib Times: _____ _____

GC Column: _____ ID: _____(mm)

COMPOUND	_____ RRF	RRF50	MIN RRF	% D	MAX % D
2,4-Dinitrotoluene *			0.200		25.0
Diethylphthalate					
Fluorene *			0.900		25.0
4-Chlorophenyl-phenylether *			0.400		25.0
4-Nitroaniline					
4,6-Dinitro-2-methylphenol					
N-Nitrosodiphenylamine (1)					
4-Bromophenyl-phenylether *			0.100		25.0
Hexachlorobenzene *			0.100		25.0
Atrazine					
Pentachlorophenol *			0.050		25.0
Phenanthrene *			0.700		25.0
Anthracene *			0.700		25.0
Carbazole					
Di-n-butylphthalate					
Fluoranthene *			0.600		25.0
Pyrene *			0.600		25.0
Butylbenzylphthalate					
3,3'-Dichlorobenzidine					
Benzo(a)anthracene *			0.800		25.0
Chrysene *			0.700		25.0
bis(2-Ethylhexyl)phthalate					
Di-n-octylphthalate					
Benzo(b)fluoranthene *			0.700		25.0
Benzo(k)fluoranthene *			0.700		25.0
Benzo(a)pyrene *			0.700		25.0
Indeno(1,2,3-cd)pyrene *			0.500		25.0
Dibenzo(a,h)anthracene *			0.400		25.0
Benzo(g,h,i)perylene *			0.500		25.0
Nitrobenzene-d5 *			0.200		25.0
2-Fluorobiphenyl *			0.700		25.0
Terphenyl-d14 *			0.500		25.0
Phenol-d5 *			0.800		25.0
2-Fluorophenol *			0.600		25.0
2,4,6 Tribromophenol					
2-Chlorophenol-d4 *			0.800		25.0
1,2 Dichlorobenzene-d4 *			0.400		25.0

All other compounds must meet a minimum RRF of 0.010.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

EPA Sample N0. (SSTD50##): _____ Date Analyzed: _____

Lab File ID: (Standard) _____ Time Analyzed: _____

Instrument ID: _____ GC Column: _____ ID: _____(mm)

	IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
12 HOUR STD						
UPPER LIMIT						
LOWER LIMIT						
EPA SAMPLE						
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						

IS1 (DCB) = 1,4 Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: _____ Contract : _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.:_____

EPA Sample N0. (SSTD50##): _____ Date Analyzed: _____

Lab File ID: (Standard) _____ Time Analyzed: _____

Instrument ID: _____ GC Column: _____ ID: _____(mm)

	IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
12 HOUR STD						
UPPER LIMIT						
LOWER LIMIT						
EPA SAMPLE						
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21						
22						

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

Appendix A

OLM04.2 Checklist

SOP HW-6, Rev 12

2001

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CLP Data Assessment Attachment 1

BFB ION ABUNDANCE CRITERIA Attachment 2

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INTRODUCTION

Scope and Applicability

This SOP offers detailed guidance in evaluating laboratory data generated according to the methods in the "USEPA Contract Laboratory Program Statement of Work for Organics Analysis OLM04.2," May 1999. The validation methods and actions discussed in this document are based on the requirements set forth in the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," October 1999. This document attempts to cover technical as well as contractual problems specific to each fraction and sample matrix; however, situations may arise where data limitations must be assessed based on the reviewer's professional judgement.

In addition to technical requirements, contractual requirements are also covered in this document. While it is important that instances of contract non-compliance be addressed in the Data Assessment, the technical criteria are always used to qualify the analytical data.

Summary of Method

To ensure a thorough evaluation of each result in a data case, the reviewer must complete the checklist within this SOP, answering specific questions while performing the prescribed "ACTIONS" in each section. Qualifiers (or flags) are applied to questionable or unusable results as instructed. The data qualifiers discussed in this document are defined on page 3.

The reviewer must prepare a detailed data assessment to be submitted along with the completed SOP checklist. The Data Assessment must list all data qualifications, reasons for qualifications, instances of missing data and contract non-compliance. This information is further summarized on the Organic Regional Data Assessment Summary and Data Rejection Summary forms (see attached).

CADRE reports, when available, may be incorporated into the Data Assessment.

Reviewer Qualifications

Data reviewers must possess a working knowledge of the USEPA Statement of Work and National Functional Guidelines mentioned above.

DEFINITIONS

Acronyms

BFB - bromofluorobenzene
BHC - benzene hexachloride
BNA - base neutral acid(another name for Semi Volatiles)
CADRE - Computer Aided Data Review and Evaluation
CARD - CLP Analytical Results Database
CCS - contract compliance screening
CLASS - Contract Laboratory Analytical Services Support
CLP - Contract Laboratory Program
CRQL - Contract Required Quantitation Limit
%D - percent difference
DCB -decachlorobiphenyl
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenylethane
DDT - dichlorodiphenyltrichloroethane
DoC - Date of Collection
GC - gas chromatography
GC/ECD - gas chromatograph/electron capture detector
GC/MS - gas chromatograph/mass spectrometer
GPC - gel permeation chromatography
IS - internal standard
kg - kilogram
µg - microgram
MAGIC - Mainframe Access Graphical Interface with CARD
MS - matrix spike
MSD - matrix spike duplicate
ℓ - liter
mℓ - milliliter
PCB - Polychlorinated biphenyl
PE - performance evaluation
PEM - Performance Evaluation Mixture
QC - quality control
RAS - Routine Analytical Services
RIC - reconstructed ion chromatogram
RPD - relative percent difference
RRF - relative response factor
$\overline{RRF}$ - average relative response factor (from initial calibration)
RRT - relative retention time
RSD - relative standard deviation
RT - retention time
RSCC - Regional Sample Control Center
SDG - sample delivery group
SMC - system monitoring compound
SOP - standard operating procedure

SOW - Statement of Work
SVOA - semivolatile organic acid
TCL - Target Compound List
TCLP - Toxicity Characteristics Leachate Procedure
TCX -tetrachloro-m-xylene
TIC - tentatively identified compound

Acronyms (cont'd.)

TOPO - Task Order Project Officer
TPO - Technical Project Officer
VOA - Volatile organic
VTSR - Validated Time of Sample Receipt

Data Qualifiers

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

LAB QUALIFIERS:

D - The positive value is the result of an analysis at a secondary dilution factor.

B - The analyte is present in the associated method blank as well as in the sample. This qualifier has a different meaning when validating inorganic data.

E - The concentration of this analyte exceeds the calibration range of the instrument.

P - Pesticide/Aroclor target analytes when the % Difference between the analyte concentrations obtained from the two dissimilar GC columns is greater than 25%.

A - Indicates a Tentatively Identified Compound (TIC) is a suspected adol-condensation product.

C - Applies to Pesticide results where the identification of the analyte has been confirmed by GC/MS.

X,Y,Z Laboratory defined flags. The data reviewer must change these qualifiers during validation so that the data user may understand their impact on the data.

YESNO N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: _____ **LABORATORY:** _____

SITE NAME: _____ **SDG Number(s):** _____

1.0 Chain of Custody and Sampling Trip Reports

1.1 Are the Traffic Reports/Chain-of-Custody Records present for all samples? [ ] ___ ___

ACTION: If no, contact RSCC, or contact the TOPO to obtain replacement of missing or illegible copies from the lab.

1.2 Is the Sampling Trip Report present for all samples and all fractions? [ ] ___ ___

ACTION: If no, contact either RSCC or ask the TOPO to obtain this information from the prime contractor.

2.0 Data Completeness and Deliverables

2.1 Have any missing deliverables been received and added to the data package? [ ] ___ ___

NOTE: The lab is required to submit data for only two analyses, for each fraction. (i.e., the original sample and one dilution, or the most concentrated dilution analyzed and one further dilution.)

ACTION: Contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the lab. If lab cannot provide them, note the effect

YESNO N/A

on the review of the package in the Contract Problems/Non-compliance section of the Data Assessment.

2.2 Was CLASS CCS checklist included with package? [ ] ___ ___

2.3 Are there any discrepancies between the Traffic Reports/Chain-of-Custody Records, Sampling Report and Sample Tags? [ ] ___ ___

ACTION: If yes, contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the laboratory.

3.0 Cover Letter SDG Narrative

3.1 Is the Narrative or Cover Letter Present? [ ] ___ ___

3.2 Are case number, SDG number and contract number contained in the SDG Narrative or cover letter (see SOW, Exhibit B, section 2.6.1)?
EPA sample numbers in the SDG, detailed documentation of any quality control, sample, shipment, and/or analytical problems encountered in processing the samples? Corrective action taken? [ ] ___ ___

3.3 Does the narrative contain the following information:

VOA: description of trap and columns used **for** sample analyses? [ ] ___ ___

VOA: a NOTE stating whether Volatile low level soil samples prepared according to the modified SW-846 Method 5035?(p. B-9/VOA, sec 2.6.1)

		YES	NO	N/A
VOA:	any discrepancies between low level soil weights determined in the field and in the Laboratory? (p. B-10/VOA, sec. 2.6.1)	[ ]	___	___
BNA:	description of columns used for sample analyses?	[ ]	___	___
Pest:	description of columns used for sample analyses?	[ ]	___	___
NOTE:	As per section 6.23.3.1 SOW/p. D-11/Pest, Packed columns are not permitted.	[ ]	___	___
3.4	Does the narrative, VOA and BNA sections, contain a list of all TIC's identified as alkanes and their estimated concentrations?			
3.5	Is the temperature indicator bottle present in the cooler? If not, did the Laboratory document in the SDG Narrative the alternative technique used to determine the cooler temperature?(Exhibit A/ p. A-5 sec. 4.2.1.2.3.3)	[ ]	___	___
3.6	Does the narrative contain a record of all cooler temperatures? If the temperature of a cooler was exceeded, > 10° C, the lab must list by fraction and sample number, all affected samples.	[ ]	___	___
3.7	Does the Narrative contain a list of sample reanalyses submitted? Did the Lab distinguish whether the reanalysis is billable, and if so why?	[ ]	___	___
3.**8**	Does the narrative contain a list of the pH values determined for each water sample submitted for volatile analysis (SOW Exhibit B, section 2.6.1.2)?	[ ]	___	___
3.**9**	Does the Case Narrative contain the statement, "verbatim", as required in Section B of the SOW?	[ ]	___	___

YESNO N/A

ACTION: If "No", to any question in this section, contact the TOPO to obtain all necessary resubmittals. If information is not available, document in the Data Assessment under Contract Problems/Non-Compliance section.

4.0 Data Validation Checklist

4.1 Check the package for the following discrepancies:

a. Is the package paginated in ascending order starting from the SDG narrative?

[ ] ___ ___

b. Are all forms and copies legible?

[ ] ___ ___

c. Is each fraction assembled in the order set forth in the SOW?

[ ] ___ ___

The following checklist is divided into three parts. Part A is for any VOA analyses, Part B is for BNA's and Part C is Pesticide/PCB's.

Does this package contain:

VOA Data?

[ ] ___ ___

BNA Data?

[ ] ___ ___

Pesticide/PCB data?

[ ] ___ ___

ACTION: Complete corresponding parts of checklist.

YESNO N/A

PART A: VOA ANALYSES

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody Records, Sampling Report or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data? [ ] ___ ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data shall be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, then qualify positive results “J”, and non-detects “R”.

ACTION: If samples were not iced or the ice was melted upon arrival at the laboratory and the cooler temperature was elevated (> 10° C), then flag all positive results with a "J" and all non-detects "UJ".

ACTION: If both VOA vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, flag all positive results "J" and all non-detects "R".

ACTION: The smallest soil size permitted is 0.5g. If any soil sample is smaller than 0.5g, document in the Data Assessment under Contract Problems/Non-Compliance.

2.0 Holding Times

2.1 Have any VOA technical holding times, determined from date of collection to date of analysis, been

YESNO N/A

exceeded? [ ] [ ] ___

Technical Holding Times for AQUEOUS AND SOIL NON-ENCORE SAMPLES: If unpreserved, aqueous samples, maintained at 4° C for aromatic hydrocarbons analysis must be analyzed within 7 days of collection. If preserved with HCl (pH < 2) and stored at 4° C, then aqueous samples must be analyzed within 14 days of collection. If uncertain about preservation, contact sampler to determine whether or not samples were preserved. The holding time for non-Encore soils is 10 days from date of collection.

ACTION: If technical holding times for aqueous samples and soil non-Encore samples are exceeded, flag all positive results as estimated "J" and sample quantitation limits as estimated "UJ", and document in the Data Assessment that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results must be qualified "J", but the reviewer may determine that non-detect data are unusable "R". If holding times are exceeded by more than 28 days, all non detect data are unusable "R".

NOTE: Contractual Holding Times: Analysis of water samples must be completed within 10 days of Validated Time of Sample Receipt (VTSR). This requirement does not apply to Performance Evaluation (PE) samples.

Technical Holding Times for soils Encore samples:

i) If sample was preserved $\leq$ 2 days of VTSR:

YESNO N/A

1. and analyzed ≤ 14 days from DoC, NO action needed.
2. and analyzed > 14 days from DoC, qualify positive results "J" and non-detects "UJ".
3. and analyzed > 28 days from DoC, qualify positive results "J" and non-detects "R".

ii) If sample was NOT preserved, or preserved > 2 days of VTSR

1. and analyzed ≤ 7 days from DoC, No action needed.
2. and analyzed > 7 days from DoC, qualify AROMATIC analytes only, both positive and non-detects, as estimated "J".
3. and analyzed > 10 days from DoC, qualify ALL positive analytes "J" and ALL non-detects as "UJ".
4. and analyzed ≥ 20 days from DoC, qualify positive results "J" and non-detects "R".

Note: CONTRACT holding times for soil Encore samples are:

1. Samples must be preserved within two (2) days of VTSR and must be analyzed within ten (10) days of VTSR.

2. Samples NOT preserved within two (2) days of VTSR must be analyzed within two (2) days of VTSR.

ACTION: If contractual holding times are exceeded, document in the Data Assessment.

NOTE:The data reviewer must note in the Data Assessment <u>whether or not</u> technical and contractual holding times were met.

<u>Table of Holding Time Violations</u>

(See Chain-of-Custody Records)

YESNO N/A

Sample ID	Sample Matrix	Was Sample Preserved?	Date Sampled	Date Lab Received	Date Analyzed

3.0 System Monitoring Compound (SMC) Recovery (Form II)

3.1 Are the VOA SMC Recovery Summaries (Form II) present for each of the following matrices:

a.Low Water? [ ] ___ ___

b.Low Soil? [ ] ___ ___

c.Med Soil? [ ] ___ ___

3.2 Are all the VOA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices:

a.Low Water? [ ] ___ ___

b.Low Soil? [ ] ___ ___

c.Med Soil? [ ] ___ ___

YESNO N/A

ACTION: Contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3 Were outliers marked correctly with an asterisk? [ ] ___ ___

ACTION: Circle all outliers with red pencil.

3.4 Was one or more VOA system monitoring compound recovery outside of contract specifications for any sample or method blank? [ ] ___ ___

If yes, were samples re-analyzed? [ ] ___ ___

Were method blanks re-analyzed? [ ] ___ ___

ACTION: If recoveries are ≥ 10%, but 1 or more compounds fail to meet SOW specifications:

1. All positive results are qualified as estimated "J".

2. Flag all non-detects as estimated detection limits "UJ" where recovery is less than the lower acceptance limit.

3. If SMC recoveries are above allowable levels, qualify positive results “J” and do not qualify non-detects.

ACTION: If any system monitoring compound recovery is < 10%:

1. Flag all positive results as estimated "J".

2. Flag all non-detects as unusable "R".

YESNO N/A

Professional judgement should be used to qualify data that only have method blank SMC recoveries out of specification in both original and re-analyses. Check the internal standard areas.

NOTE: Contractual requirements state that if any SMC fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

NOTE: The laboratory must submit the following data:

1. If SMC recoveries and internal standard responses meet the acceptance criteria in the re-analyzed sample, then the laboratory must submit only the re-analysis.

2. If an SMC recovery and/or internal standard response fails to meet the acceptance criteria upon re-analysis, then submit data from both analyses.

(Refer to section 11.4.3.2, page D-45/VOA of the SOW for more information.)

3.5 Are there any transcription/calculation errors between raw data and Form II?

ACTION: If large errors exist, contact the TOPO to obtain an explanation or resubmittal of corrected deliverables from the laboratory. Make any necessary corrections and note the effect in the Data Assessment. [ ] ___ ___

YESNO N/A

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [ ] ___ ___

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices: [ ] ___ ___

a.Low Water? [ ] ___ ___

b.Low Soil? [ ] ___ ___

c.Med Soil?

ACTION: If any matrix spike data are missing, take the action specified in section 3.2 above.

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.

ACTION: Circle all outliers with red pencil.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?

5.2 Frequency of Analysis: for the analysis of VOA TCL compounds, has a reagent/method blank been analyzed during every 12-hour time period on each GC/MS system, before any samples, and for each matrix?(water, low soil or medium soil)

5.3 Has a VOA method blank been analyzed at least once every twelve hours for each matrix/concentration and GC/MS system used?

YESNO N/A

5.4 Was a VOA instrument blank analyzed after each sample/dilution which contained a target compound that exceeded the initial calibration range?

5.5 Was a VOA storage blank analyzed at the end of all samples for each SDG in a case?

ACTION: If any method/instrument blank data are missing, contact the TOPO to obtain any missing deliverables from the laboratory. If method blank data are not available, reject "R" all associated positive data. However, using professional judgement, the data reviewer may substitute field blank or trip blank data for missing method blank data.

If the instrument blank was not analyzed after a sample with high concentration of reported values, inspect the chromatogram of the sample analyzed immediately after this analysis for possible carryover. Use professional judgement to determine if any contamination occurred and qualify analyte(s) accordingly.

If storage blank data is missing, contact the TOPO to obtain any missing deliverables from the laboratory. If unavailable, note in the Contract Problems/Non-Compliance section of the Data Assessment. [ ] ___ ___

Note: A storage blank shall be analyzed and reported as a water sample unless the SDG contains only soil samples. Then, the storage blank may be analyzed and reported as a soil sample. (p. D-49/VOA sec. 12.1.3.5) [ ] ___ ___

[ ] ___ ___

YESNO N/A

5.6 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-30, section 3.3.7.3 of the SOW for further information.

Was the correct identification scheme used for all VOA blanks?

[ ] ___ ___

ACTION: Contact the TOPO to obtain missing deliverables from the lab, or make the required corrections on the forms. Document in the Data Assessment under Contract Problems/Non-compliance if corrections were made by the validator.

5.7 Chromatography: review the blank raw data-chromatograms (RICs), quant. reports or data system printouts and spectra. Is the chromatographic performance (baseline stability) for each instrument acceptable for VOA's?

[ ] ___ ___

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

5.8 Are all detected hits for target compounds in method, instrument and storage blanks less than the CRQL for that analyte?

[ ] ___ ___

Exception: Acetone and 2-butanone must be less than 5 times the CRQL, and methylene chloride and Cyclohexane must be less than 2.5 times its CRQL. (p. D-50/VOA sec. 12.1.4.6)

ACTION: If no, an explanation and laboratory's corrective

YESNO N/A

actions must be addressed in the case narrative. If the narrative contains no explanation, then make a note in the Contract Problems/Non-Compliance section of the Data Assessment.

6.0 Contamination

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

6.1 Do any method/instrument/reagent/storage blanks have positive results (TCL and/or TIC) for VOA's?

NOTE: When applied as directed in the table below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for %moisture when necessary. [ ] ___ ___

NOTE: A contaminated instrument blank is not allowable under this SOW. The instrument blank must meet the technical acceptance criteria for blank analyses(sec. 12.1.4). See page D-48/VOA, section 12.1.2.4 for additional information. Document in the Data Assessment under Contract Problems/Non-Compliance if contaminated instrument blank was submitted.

6.2 Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)?

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.) [ ] ___ ___

NOTE: All field blank results associated with a particular group of samples (may exceed one per case) must be used to qualify data. Trip blanks are used to

YESNO N/A

qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Blanks may not be qualified because of contamination in another blank. Field Blanks & Trip Blanks must be qualified for system monitoring compound, instrument performance criteria, spectral or calibration, and Internal standard QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If any blanks are grossly contaminated, all associated data should be qualified as unusable "R".

NOTE: Analytes qualified "U" for blank contamination are till consider as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R".

For:	Flag sample result with a "U" when:	Report CRQL & qualify "U" when:	No qualification is needed when:
TCL COMPOUNDS			
Methylene Chloride Acetone Toluene 2-Butanone **Cyclohexane**	Sample conc. is > CRQL, but ≤ 10× blank value.	Sample conc. is < CRQL and ≤ 10× blank value.	Sample conc. is > CRQL and > 10× blank value.
Other Conta-minants	Sample conc. is > CRQL, but ≤ 5× blank value.	Sample conc. is < CRQL and ≤ 5× blank value.	Sample conc. is > CRQL and > 5× blank value.

YESNO N/A

6.3 Are there field/rinse/equipment blanks associated with every sample? [ ] ___ ___

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For samples with high concentrations of suspected blank contaminants, use professional judgement to qualify these values and make a note in the Data Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 GC/MS Instrument Performance Check (Form V)

7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Bromofluorobenzene (BFB)? [ ] ___ ___

7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve hour shift? [ ] ___ ___

7.3 Is the mass spectrum of BFB acquired according to sec. 9.2.4.1 D-23/VOA? [ ] ___ ___

Note: Sec. 9.2.4.1 states that “the mass spectrum of BFB MUST be acquired in the following manner. Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged. Background subtraction is required, and MUST be accomplished using a single scan no more than 20 scans prior to the elution of BFB. DO NOT background subtract part of the BFB peak.” See

YESNO N/A

Attachment 2 for BFB criteria.

Action: If not, reject "R" all samples associated with that particular BFB.

7.4 Has an instrument performance check been analyzed for every analytical sequence on each instrument? [ ] ___ ___

ACTION: List date, time, instrument ID, and sample numbers for which associated GC/MS tuning data are unavailable.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

ACTION: Notify the TOPO to obtain missing data, if possible. If the lab cannot provide the missing data, reject, "R", all data generated outside an acceptable twelve hour calibration interval.

7.5 Have the ion abundances been normalized to m/z 95 as specified in Exhibit D, page D-56/VOA?

NOTE: All ion abundance ratios must be normalized to m/z 95, the nominal base peak, even though the ion abundance of m/z 174 may be up to 120% that of m/z 95. [ ] ___ ___

ACTION: If mass assignment is in error, qualify all associated data as unusable "R".

7.6 Have the ion abundance criteria been met for each instrument used?

YESNO N/A

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet). [ ] ___ ___

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

7.7 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values, but if errors are found check more.)

7.8 Is the number of significant figures for the reported relative abundances consistent with the number given for each ion in the ion abundance criteria column? [ ] ___ ___

[ ] ___ ___

ACTION: If large errors exist, take action as specified in section 3.5 above.

7.9 Are the spectra of the mass calibration compound acceptable? [ ] ___ ___

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

8.0 Target Compound List (TCL) Analytes (FORM I VOA)

8.1 Are the Organic Analysis Data Sheets (Form I VOA) present with required header information on each page, for each of the following:

a.Samples and/or fractions as appropriate? [ ] ___ ___

b.Matrix spikes and matrix spike duplicates? [ ] ___ ___

c.Blanks? [ ] ___ ___

YESNO N/A

8.2 Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (quant. reports) included in the sample package for each of the following:

a. Samples and/or fractions as appropriate? [ ] ___ ___

b. Matrix spikes and matrix spike duplicates (mass spectra not required)? [ ] ___ ___

c.Blanks? [ ] ___ ___

ACTION: If any data are missing, take action specified in 3.2 above.

8.**3** Is chromatographic performance acceptable with respect to:

a.Baseline stability? [ ] ___ ___

b.Resolution? [ ] ___ ___

c.Peak shape? [ ] ___ ___

d.Full-scale graph (attenuation)? [ ] ___ ___

e.Other: _____? [ ] ___ ___

ACTION: Use professional judgement to determine the acceptability of the data.

8.4 Are the lab-generated standard mass spectra of the identified VOA compounds present for each sample? [ ] ___ ___

ACTION: If any mass spectra are missing, take action as specified in 3.2 above. If the lab does not generate its own standard spectra, document in the Contract Problems/Non-compliance section of

YESNO N/A

the Data Assessment.

8.5 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration? [ ] ___ ___

8.6 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum? [ ] ___ ___

8.7 Do sample and standard relative ion intensities agree within ±20%? [ ] ___ ___

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected "R", flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected "U" at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.5, 8.6, and 8.7.

ACTION: When sample carry-over is suspected, use professional judgement determine if instrument cross-contamination has affected positive compound identifications.

9.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TIC's include scan number or retention time, estimated concentration and "JN" qualifier? [ ] ___ ___

9.2 Are the mass spectra for the TIC's and associated "best match" spectra included in the sample package for each of the following:

YESNO N/A

a. Samples and/or fractions as appropriate? [ ] ___ ___

b. Blanks? [ ] ___ ___

c. Are Alkanes listed in/or part of the Case Narrative? [ ] ___ ___

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "JN" qualifier to all chemically named TIC's, if missing.

9.3 Are any TCL compounds (from any fraction including all PCB congeners) listed as TIC compounds? (Example: 1,2- dimethylbenzene is xylene, a VOA TCL analyte, and should not be reported as a TIC.)

[ ] ___ ___

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are any TIC's reported earlier than 30 sec before the first purgeable compound, or three (3) min. after the last purgeable compound listed in Exhibit C (Volatiles)?

[ ] ___ ___

ACTION: Flag with "R" any TIC compound reported. (p. D38-VOA, sec. 11.1.2.2)

9.5 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?

[ ] ___ ___

9.6 Do TIC and "best match" standard relative ion intensities agree within ±20%?

[ ] ___ ___

ACTION: Use professional judgement to determine the acceptability of TIC identifications. If it is

YESNO N/A

determined an incorrect identification was made, change the identification to "unknown," or to some less specific identification as appropriate. (Example: "C3 substituted benzene.")

Also, when a compound is not found in any blank, but is detected in a sample and is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable "R". (E.g., Common Lab Contaminants: CO_2 (M/E 44), Siloxanes (M/E 73) hexane, aldol condensation products, solvent preservatives, and related by-products.

9.7 Are TIC's with responses < 10% of the internal standard (as determined by inspection of the peak areas or height) reported?

[ ] ___ ___

ACTION: If yes, cross out questionable TIC's.

10.0 Compound Quantitation and Reported Detection Limits

10.1 Are there any transcription/calculation errors in Form I results? (Check at least two positive values. Verify that the correct internal standards, quantitation ions, and RRF were used to calculate Form I results.)

10.2 Are the CRQL's adjusted to reflect sample dilutions and, for soils, sample moisture?

[ ] ___ ___

ACTION: If errors are large, take action as specified in section 3.2 above.

[ ] ___ ___

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQL's are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample). Replace

YESNO N/A

concentrations that exceeded the calibration range in the original analysis by crossing out the "E" and its corresponding value on the original Form I and substituting the data from the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form Is not to be used, including any in the data summary package.

11.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (quant. reports) present for each initial and continuing calibration? [ ] ___ ___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete at concentrations of 10, 20, 50, 100, 200ng for separate calibrations of low water/med soils (unheated purge) and low soils (heated purge)? [ ] ___ ___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Were all low level soil standards, blanks and samples analyzed by heated purge? [ ] ___ ___

ACTION: If low level soil samples were not heated during purge, qualify positive hits "J" (estimated) and non-detects "R".

12.3 Are the % relative standard deviation (%RSD) values for VOA's $\leq$ 30% over the concentration range of the calibration?

YESNO N/A

NOTE: Although 23 VOA compounds have a contractual minimum RRF and no maximum %RSD, the technical acceptance criteria are the same for all analytes. [ ] ___ ___

ACTION: Circle all outliers with red pencil.

ACTION: If %RSD is > 30.0%, qualify associated positive results for that analyte "J" (estimated). Do not qualify non-detects. When %RSD is > 90%, flag all non-detects for that analyte "R" (unusable) and positive hits "J" .

NOTE: Analytes previously qualified "U" for blank contamination are still considered as "hits" when qualifying for initial calibration criteria.

12.4 Are any average RRFs < 0.05? [ ] ___ ___

ACTION: Circle all outliers with red pencil.

ACTION: If the average RRF is < 0.05, then qualify associated non-detects with an "R" and flag associated positive data as estimated "J".

NOTE: Contract Requirement: The SOW allows up to two of the required analytes to fail contractual %RSD or RRF criteria, provided the %RSD is ≤ 40% and RRF is ≥ 0.010. (See Table 5, page D-61/VOA and analytes marked with a "*" on Form VI for required analytes and contractual criteria.) Technical criteria, however, are the same for all analytes.

ACTION: If more than two analytes failed %RSD or RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance.

12.5 Are there any transcription/calculation errors in the reporting of average relative response factors

YESNO N/A

(RRF) or %RSD? (Check at least 2 values, but if errors are found, check more.)

[ ] ___ ___

ACTION: Circle errors with red pencil.

ACTION: If errors are large, contact the TOPO to obtain an explanation/resubmittal from the lab, document in the Data Assessment under Contract Problems/Non-Compliance.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for separate calibration of low water/med soil and low soil samples?

[ ] ___ ___

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? [ ] ___ ___

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, contact the TOPO to request an explanation/resubmittal from the lab. If continuing calibration data are not available, flag all associated sample data as unusable "R".

ACTION: List below all sample(s) that were not analyzed within twelve hours of the previous continuing calibration.

_____

_____

_____

YESNO N/A

13.3 Do any volatile compounds have a percent difference (%D) between the initial and continuing RRF which exceeds the ±25% criteria?

[ ] ___ ___

NOTE: Although **23** VOA compounds have a contractual minimum RRF and no maximum %D, the technical acceptance criteria are the same for all analytes.

ACTION: Circle all outliers with red pencil.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated. When %D is > 90%, qualify all non-detects for that analyte unusable (R) and positive results estimated (J) .

13.4 Are any continuing calibration RRFs < 0.05?

ACTION: Circle all outliers with red pencil.

[ ] ___ ___

ACTION: If the RRF is < 0.05, qualify the associated non-detects as unusable "R" and the associated positive values "J".

NOTE: Contract Requirement: The SOW allows up to two of the required analytes to fail contractual %D and RRF criteria, provided that the %D is ≤ 40% and the RRF is ≥ 0.010. (See Table 5 pg. D-61/VOA or analytes marked with a "*" on Form VI for required analytes.) Technical criteria, however, are the same for all analytes.

ACTION: If more than two analytes failed %D and RRF, criteria document in the Data Assessment under contract Problems/Non-Compliance.

13.5 Are there any transcription/calculation errors in the reporting of RRF or %D between initial and continuing RRFs? (Check at least two values, but if

YESNO N/A

errors are found, check more.) [ ] ___ ___

ACTION: Circle errors with red pencil.

ACTION: If errors are large, contact the TOPO to obtain an explanation/resubmittal from the lab, document in the Data Assessment under Contract Problems/Non-Compliance.

14.0 Internal Standard (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to +100%) for each continuing calibration?

[ ] ___ ___

If no, was the sample re-analyzed?

[ ] ___ ___

ACTION: 1. Circle all outliers with red pencil.

2. List all the outliers below.

Sample #	Internal Std.	Area	Lower/Upper Limit
_____	_____	_____	_____/_____
_____	_____	_____	_____/_____
_____	_____	_____	_____/_____

(Attach additional sheets if necessary, or attach copies of Form VIIIs.)

ACTION: If any sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

ACTION: 1. If the internal standard area count is outside

YESNO N/A

the upper or lower limit, flag with "J" all positive results quantitated with this internal standard.

2. Do not qualify non-detects when associated IS area counts are > 100%.

3. If the IS area in the sample is below the "lower limit," < 50%, qualify all analytes associated with that IS estimated, "J". If the area counts are extremely low, < 25% of the area in the 12 hour standard, or if performance exhibits a major abrupt drop- off, flag all associated non-detects as unusable, "R", and positive hits estimated, "J".

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? [ ] ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

NOTE: Contractual requirements state that if any internal standard fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for VOA analysis? [ ] ___ ___

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

YESNO N/A

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

YESNO N/A

PART B: BNA ANALYSES

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody records or laboratory SDG Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data? [ ] ___ ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be flagged as estimated "J". If a soil sample, other than TCLP, contains more than 90% water, qualify positive hits “J” and non-detects “R”.

ACTION: If samples were not iced or if the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 10° C), flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded? [ ] ___ ___

NOTE: Technical Holding Time: Continuous extraction of water samples for BNA analysis must be started within seven days of the date of collection. Soil/sediment samples must be extracted within 7 days of collection. Extracts must be analyzed within 40 days of the date of extraction.

Table of Holding Time Violations
(See Chain-of-Custody Records)

YESNO N/A

Sample Analyzed	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed

ACTION: If technical holding times were exceeded, flag all positive results as estimated (J) and sample quantitation limits as estimated (UJ), and document in the Data Assessment that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on sample results. At a minimum, all results should be qualified "J", but the reviewer may determine that non-detect data are unusable "R". If holding times were exceeded by more than 28 days, all non-detect data must be qualified "R", unusable.

NOTE: Contractual Holding Times: Extraction of water samples must be started within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Water and soil/sediment extracts must be analyzed within 40 days following extraction.

ACTION: If contractual holding times are exceeded, document in the Data Assessment.

NOTE: The data reviewer must note in the Data Assessment whether or not technical and contractual holding times

YESNO N/A

were met.

3.0 Surrogate Recovery (Form II)

3.1 Are BNA Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a.Low Water? [ ] ___ ___

b.Low Soil? [ ] ___ ___

c.Med Soil? [ ] ___ ___

3.2 Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

a.Low Water? [ ] ___ ___

b.Low Soil? [ ] ___ ___

c.Med Soil? [ ] ___ ___

ACTION: Contact the TOPO to request an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3 Were outliers marked correctly with an asterisk? [ ] ___ ___

ACTION: Circle all outliers with red pencil.

3.4 Were two or more base-neutral OR acid surrogate recoveries out of specification for any sample or method blank? [ ] ___ ___

If yes, were samples reanalysed? [ ] ___ ___

YESNO N/A

Were method blanks reanalysed? [ ] ___ ___

ACTION: If all BNA surrogate recoveries are ≥ 10%, but two within the base-neutral or acid fraction do not meet SOW specifications, for the affected fraction only (i.e. acid or base-neutral compounds):

1. Flag all positive results as estimated (J).

2. Flag all non-detects as estimated detection limits ("UJ") when recoveries are less than the lower acceptance limit.

3. Do not qualify non-detects if recoveries are greater than the upper acceptance limit.

ACTION: If any base-neutral or acid surrogate has a recovery of < 10%:

1. Qualify positive results for that fraction as estimated (J).

2. Qualify non-detects for that fraction as unusable (R).

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and reanalyses. Also check the internal standard areas.

NOTE: Contractual requirements state that if two surrogate fails acceptance criteria,within the same fraction,i.e. Acid or BN, the sample must be re-analyzed. If sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

YESNO N/A

NOTE: The laboratory must submit the following data:

1. If surrogate recoveries and internal standard responses meet the acceptance criteria in the re-analyzed sample, then the laboratory must submit only the re-analysis.

2. If surrogate recoveries and/or internal standard responses fail to meet the acceptance criteria upon re-analysis, then submit data from both analyses.

3.5 Are there any transcription/calculation errors between raw data and Form II?

ACTION: If large errors exist, contact the TOPO to request an explanation or resubmittal of corrected deliverables from the laboratory. Make necessary corrections and note errors in the Data Assessment. [ ] ___ ___

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices: [ ] ___ ___

a. Low Water?

b.Low Soil? [ ] ___ ___

c.Med Soil? [ ] ___ ___

[ ] ___ ___

ACTION: If any matrix spike data are missing, take the

YESNO N/A

action specified in 3.2 above.

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

ACTION: Circle all outliers with red pencil.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present? [ ] ___ ___

5.2 Frequency of Analysis: Has a reagent/method blank analysis been reported per 20 samples of similar matrix, or concentration level, and for each time samples are extracted? [ ] ___ ___

5.3 Has a BNA method blank been analyzed for each GC/MS system used? (See SOW pg. D-55/SVOA, Section 12.1.2.) [ ] ___ ___

ACTION: If any method blank data are missing, contact the TOPO to obtain an explanation/resubmittal from the lab. If resubmittals are unavailable, use professional judgement to determine if the associated sample data should be qualified.

5.4 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-30, sec. 3.3.7.3 of the SOW for further information.

Was the correct identification scheme used for all BNA blanks?

[ ] ___ ___

YESNO N/A

ACTION: Contact the TOPO to obtain resubmittals from the lab or make the required corrections on the forms. Document all corrections made by the validator in the Data Assessment under Contract Problems/Non-Compliance.

5.5 Chromatography: review the blank raw data - chromatograms (RICs), quant. reports or data system printouts and spectra. Is the chromatographic performance (baseline stability) acceptable for each instrument? [ ] ___ ___

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

5.6 Are all detected hits for target compounds less than the CRQL for that analyte in all method blanks? [ ] ___ ___

Exception: Phthalate esters must be less than five times (5×) the CRQL.

6.0 Contamination

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

6.1 Do any method/reagent blanks have positive results (TCL and/or TIC)? [ ] ___ ___

NOTE: Water: When applied as directed in the table below (page 33), the contaminant concentration in method/ instrument/reagent blanks is multiplied by the sample dilution factor, where necessary.

Soil: If the lab has not already done so, the

YESNO N/A

contaminant concentration in soil blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate (1 gram for medium level soils) are used to prepare the soil reagent/method blank as instructed on page D-54/SVOA, section 12.1.3. Contact the TOPO to obtain resubmittals if the soil blanks are not reported in soil units (µg/kg).

6.2 Do any field/rinse blanks have positive BNA results (TCL and/or TIC)? [ ] ___ ___

ACTION: Prepare a list of samples associated with each contaminated blank. (Attach a separate sheet.)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify sample data. Do not convert field blank results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, spectral, instrument performance,calibration and Internal standard QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If gross contamination exists, all data in the associated samples should be qualified as unusable "R".

For:	Flag sample result with a "U" when:	Report CRQL & qualify "U" when:	No qualification is needed when:
Common Phthalate-Esters	Sample conc. is > CRQL, but ≤ 10× blank value.	Sample conc. is < CRQL and ≤ 10× blank value.	Sample conc. is > CRQL and > 10× blank value.

For:	Flag sample result with a "U" when:	Report CRQL & qualify "U" when:	No qualification is needed when:	YESNO	N/A
Other Conta-minants	Sample conc. is > CRQL, but ≤ 5× blank value.	Sample conc. is < CRQL and ≤ 5× blank value.	Sample conc. is > CRQL and > 5× blank value.		

NOTE: Analytes qualified "U" for blank contamination are still treated as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

6.3 Are there field/rinse/equipment blanks associated with every sample? [ ] ___ ___

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For analytes with high concentration, use professional judgement on qualification of these values and make a note in the Data Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 GC/MS Instrument Performance Check

7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)? [ ] ___ ___

7.2 Are the enhanced bar graph spectrum and mass/charge

YESNO N/A

(m/z) listing for the DFTPP provided for each twelve hour shift? [ ] ___ ___

7.3 Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument? [ ] ___ ___

ACTION: List date, time, instrument ID, and sample number for which no associated GC/MS tuning data are valid.

SAMPLE NUMBERS	DATE	TIME	INSTRUMENT ID

ACTION: If the **TOPO** cannot obtain missing data from the lab, reject "R" all data generated outside an acceptable twelve hour calibration interval.

7.4 Have the ion abundances been normalized to m/z 198 (see SOW, page D-62/SVOA)? [ ] ___ ___

NOTE: All ion abundance ratios must be normalized to m/z 198, the nominal base peak, even though the ion abundance of m/z 442 may up to 110% that of m/z 198.

ACTION: If mass assignment is in error, flag all associated sample data as unusable "R".

7.5 Have the ion abundance criteria been met for each instrument used?

[ ] ___ ___

YESNO N/A

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values, but if errors are found check more.) [ ] ___ ___

7.7 Is the number of significant figures for the reported relative abundances consistent with the number given for each ion in the ion abundance criteria column? [ ] ___ ___

ACTION: If large errors exist, take action as specified in section 3.5 above.

7.8 Is the mass spectrum of DFTPP acquired according to sec. 9.2.4.2 p. D-20/SVOA ? [ ] ___ ___

NOTE: Sec. 9.2.4.2 states that “the mass spectrum of DFTPP MUST be acquired in the following manner: Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged. Background subtraction is required, and MUST be accomplished using a single scan acquired no more than 20 scans prior to the elution of DFTPP. Do NOT subtract part of the DFTPP peak.” See Attachment 3 for DFTPP criteria.

ACTION: If not, then reject “R” all data analyzed under that particular tune.

7.9 Are the spectra of the mass calibration compound acceptable? [ ] ___ ___

YESNO N/A

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

8.0 Target Compound List (TCL) Analytes (FORM I SV)

8.1 Are the Organic Analysis Data Sheets (Form I SV) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate? [ ] ___ ___

b. Matrix spikes and matrix spike duplicates? [ ] ___ ___

c. Blanks? [ ] ___ ___

8.2 Has GPC cleanup been performed on all soil/ sediment sample extracts? [ ] ___ ___

Has the Laboratory provided the TWO most recent UV traces of the calibration solution? GPC calibration and GPC CCV?(D-39/SVOA,sec.10.3.4.4) [ ] ___ ___

ACTION: If data suggests that GPC was not performed, use professional judgement. Make note in Contract Problems/Non-Compliance section of the Data Assessment.

8.3 Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (quant. reports) included in the sample package for each of the following:

a. Samples and/or fractions as appropriate? [ ] ___ ___

b. Matrix spikes and matrix spike duplicates (mass spectra not required)? [ ] ___ ___

	YES	NO	N/A
c. Blanks?	[ ]	___	___

ACTION: If any data are missing, take action specified in 3.2 above.

8.**4** Is chromatographic performance acceptable with respect to:

Baseline stability?	[ ]	___	___
Resolution?	[ ]	___	___
Peak shape?	[ ]	___	___
Full-scale graph (attenuation)?	[ ]	___	___
Other:_____?	[ ]	___	___

ACTION: Use professional judgement to determine the acceptability of the data.

8.**5** Are lab-generated standard mass spectra of identified BNA compounds present for each sample?	[ ]	___	___

ACTION: If any mass spectra are missing, take action specified in 3.2 above. Note under Contract Non-compliance if lab does not generate their own standard spectra. If spectra are missing, reject all positive data.

8.6 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[ ]	___	___
8.7 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[ ]	___	___

YESNO N/A

8.8 Do sample and standard relative ion intensities agree within ±20%? [ ] ___ ___

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected "R", flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected "U" at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.6, 8.7, and 8.8.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

NOTE : The maximum dilution factor permitted for low level soils is 30. If a low level soil sample requires a dilution greater than 30, then the medium level method shall be utilized.(p. D-43) SVOA, sec. 10.6.5.4 . Document in the Data Assessment under Contract Problems/Non compliance if any low level soil was analyzed at a dilution factor greater than 30.

9.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present? and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier? [ ] ___ ___

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the

YESNO N/A

following: [ ] ___ ___

a. Samples and/or fractions as appropriate? [ ] ___ ___

b. Blanks? [ ] ___ ___

c. Are Alkanes listed in/or part of the Case Narrative?

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "N" qualifier to all chemically named TIC's, if missing.

9.3 Are any TCL compounds (from any fraction) listed as TIC compounds? (Example: 1,2-dimethylbenzene is xylene - a VOA TCL - and should not be reported as a TIC.) [ ] ___ ___

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are any TICS reported earlier than 30 sec. before the first semivolatile compound, or three (3) minutes after the last semivolatile compound listed in Exhibit C SVOA?(p.D-45/SVOA,11.1.2.2) [ ] ___ ___

ACTION: Flag with "R" any TIC compound reported.

9.5 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum? [ ] ___ ___

9.6 Do TIC and "best match" standard relative ion intensities agree within ±20%? [ ] ___ ___

ACTION: Use professional judgement to determine the acceptability of TIC identifications. If it is

YESNO N/A

determined that an incorrect identification was made, change the identification to "unknown," or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable, "R".

9.7 Are any TICs with responses < 10% of the internal standard (as determined by inspection of the peak areas or height) reported? [ ] ___ ___

ACTION: If yes, cross out questionable TIC(s).

10.0 Compound Quantitation and Reported Detection Limits

10.1 Are there any transcription/calculation errors in Form I results? (Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result.) [ ] ___ ___

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture? [ ] ___ ___

ACTION: If errors are large, take action as specified in section 3.5 above.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and its associated value on the original Form I and substituting the data from the analysis of the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire

YESNO N/A

page of all Form Is that should not be used, including any in the summary package.

11.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (quant. reports) present for initial and continuing calibration? [ ] ___ ___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction? [ ] ___ ___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are the % relative standard deviation (%RSD) values for BNAs ≤ 30% over the concentration range of the calibration? [ ] ___ ___

ACTION: Circle all outliers with red pencil.

NOTE: Although 25 BNA compounds have a contractual minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

NOTE: Eight BNA compounds do not require a 20ng standard. They are 2,4-Dinitrophenol, 2,4,5-Trichlorophenol, 2-Nitroaniline, 3-Nitroaniline, 4-Nitroaniline, 4-Nitrophenol, 4,6-Dinitro-2-methylphenol, and Pentachlorophenol.

ACTION: If the %RSD is > 30.0%, qualify only positive

YESNO N/A

results for that analyte "J" and do not qualify non-detects. When %RSD is > 90%, flag all non-detect results for that analyte "R" (unusable) and all positive results "J" (estimated)for ALL samples analyzed under that particular Initial Calibration.

NOTE: Analytes previously qualified "U" due to blank contamination are still considered as "hits" when qualifying for calibration criteria.

12.3 Are any average RRFs < 0.05? [ ] ___ ___

ACTION: Circle all outliers with red pencil.

ACTION: If the average RRF is < 0.05 then:

1. "R" all non-detects for ALL samples analyzed under that particular Initial Calibration.

2. "J" all positive results for ALL samples analyzed under that particular Initial Calibration.

12.4 Are there any transcription/calculation errors in the reporting of RRFs and/or %RSDs? (Check at least two values; if errors are found check more.)

[ ] ___ ___

ACTION: Circle errors with red pencil.

ACTION: If errors are large, take action as specified in section 3.5 above.

NOTE: Contract Requirement: The SOW allows up to four of the required analytes to fail contractual %RSD or RRF criteria provided the %RSD is ≤ 40% or RRF is ≥ 0.010. (See Table 5, page D-67/SVOA and analytes marked with a "*" on Form VI for a list of required

YESNO N/A

analytes and contractual criteria.) Technical criteria, however, are the same for all analytes.

ACTION: If more than four analytes fail %RSD or RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction? [ ] ___ ___

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? [ ] ___ ___

ACTION: List below all sample analyses that were not analyzed within twelve hours of a continuing calibration standard for each instrument used.

_____

_____

_____

ACTION: If any forms are missing, or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, contact the TOPO to obtain an explanation/resubmittal from the lab. If continuing calibration data are unavailable, flag all associated sample data as unusable "R".

13.3 Does any BNA compound have a percent difference (%D) between the initial and continuing calibration RRFs which exceeds the ±25.0% criteria?

[ ] ___ ___

ACTION: Circle all outliers with red pencil.

YESNO N/A

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated "J". When %D is > 90%, reject all non-detects for that analyte, "R", and qualify positive results "J" (estimated)for ALL samples analyzed under that particular Continuing Calibration.

13.4 Are any continuing RRFs < 0.05? [ ] ___ ___

ACTION: Circle all outliers with red pencil.

ACTION: If the RRF is < 0.05, qualify as unusable (R) associated non-detects and "J" associated positive values for ALL samples analyzed under that particular Continuing Calibration.

NOTE: Contract Requirement: The SOW allows up to four of the required analytes to fail contractual %D and RRF criteria, provided that the %D is ≤ 40% and the RRF is ≥ 0.010. (See Table 5 page D-67/SVOA or analytes marked with a "*" on Form VI for a list of the required analytes.) Technical criteria, however, are the same for all analytes.

ACTION: If more than four analytes failed %D and RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance.

13.5 Are there any transcription/calculation errors in the reporting of average relative response factors (RRF) or %difference (%D) between initial and continuing RRFs? (Check at least two values, but if errors are found, check more.) [ ] ___ ___

ACTION: Circle errors with red pencil.

ACTION: If errors are large, take action as specified in

YESNO N/A

section 3.5 above.

14.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to +100%) for each continuing calibration? [ ] ___ ___

If no, was sample re-analyzed? [ ] ___ ___

ACTION: 1. Circle all outliers with red pencil.

2. List all the outliers below.

ACTION: If sample was not reanalysed, document in Data Assessment in Contract Problems/Non-Compliance.

Sample #	Internal Std.	Area	Lower/Upper Limit
			/
			/
			/
			/

(Attach additional sheets if necessary.)
(or attach copies of Form VIIIs)

ACTION: 1. If the internal standard area count is outside the "upper" or "lower" limit, flag with "J" all positive results and non-detects quantitated with this internal standard with the following exceptions:

A. Do not qualify non-detects associated with IS area > 100%.

YESNO N/A

B. If the IS area in the sample is < 50%, qualify all analytes associated with that IS estimated (J). If area counts are extremely low (< 25% of the area in the 12 hour standard), or if performance exhibits a major abrupt drop-off, flag all associate non-detects as unusable (R) and positive hits estimated (J).

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? [ ] ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

NOTE: Contractual requirements state that if any internal standard fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for BNA analysis?

[ ] ___ ___

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

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

YESNO N/A

PART C: PESTICIDE/PCB ANALYSIS

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody Records or SDG Narrative indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? [ ] ___ ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be qualified as estimated "J". If a soil sample, other than TCLP, contains more than 90% water, qualify positive results “J” and non-detects “R”.

ACTION: If samples were not iced, or if the ice was melted upon arrival at the laboratory, and the temperature of the cooler was elevated > 10^0 C, flag all positive results "J" and all non-detects "UJ".

ACTION: Check aqueous extraction log for sample pH, if adjustment was needed, it should have been noted in the SDG Narrative. If more information is needed, notify the TOPO to contact the lab.

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded?

NOTE: Technical Holding Times: Water and soil samples for PEST/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction. [ ] ___ ___

YESNO N/A

ACTION: If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits "UJ" and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable "R".

Table of Holding Time Violations
(See Chain-of-Custody Records)

Sample Analyzed	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed

NOTE: Contractual Holding Times: Extraction of water samples must be completed within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Extracts of water and soil/sediment samples must be analyzed within 40 days following start of extraction.

ACTION: If contractual holding times are exceeded, document in the Data Assessment.

YESNO N/A

NOTE: The data reviewer must note in the Data Assessment whether or not technical and contractual holding times were met.

3.0 Surrogate Recovery (Form II)

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

a. Low Water?

b. Soil? [ ] ___ ___

[ ] ___ ___

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

a. Low Water? [ ] ___ ___

b. Soil? [ ] ___ ___

ACTION: Contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3 Were outliers marked correctly with an asterisk? [ ] ___ ___

ACTION: Circle all outliers with red pencil.

3.4 Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample, method blank or sulfur clean-up blank (30-150%)? [ ] ___ ___

ACTION: In the absence of matrix interference, qualification

YESNO N/A

of the data is not required in the following three situations:

1. When surrogates on both columns are diluted out.

2. When one surrogate on one column was outside (either above or below) the contract limits but above 10%.

3. When the same surrogate on both columns is above the contract limit.

ACTION: If the same surrogate on both columns is below the contract limit but above 10%, check chromatograms for interference. The reviewer may use professional judgement, and qualify only those analytes which elute in the region of the GC chromatogram where interference was observed.

ACTION: If the same surrogate on both columns is below the contract limit but above 10% (with no interference), qualify non-detects and positive hits "J" (estimated).

ACTION: If recoveries for both surrogates on both columns are below the contract limit but above 10%, flag positive results and non-detects for that sample "J" .

ACTION: If recoveries are above the contract limit for both surrogates on both columns, then qualify positive values "J".

ACTION: If both surrogates on one column are below the contract limit but above 10%, then use the data from the other column, providing both surrogates on that column are within contract limits. The validator must check from which column the concentration is reported for each analyte. If

YESNO N/A

the value is reported from the failed column, then cross it out and use the value from the other column. Document this change in the Data Assessment.

ACTION: If recovery is below 10% for either surrogate on any column, qualify positive results "J" and flag non-detects "R".

3.5 Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of Individual Standard Mixture A (see Form VI Pest-1)? [ ] ___ ___

ACTION: If the RT limits are not met, positive results and non-detects for that sample may be qualified unusable, "R", based on professional judgement.

3.6 Are there any transcription/calculation errors between raw data and Form II?

ACTION: If large errors exist, contact the TOPO to obtain [n] ___ ___ an explanation or resubmittal of corrected deliverables from the laboratory. Make any necessary corrections and document the effect in the Data Assessment.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices (one MS/MSD must be performed for every 20 samples of similar matrix or concentration level): [ ] ___ ___

a. Low Water?

YESNO N/A

b. Soil?

[ ] ___ ___

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above. [ ] ___ ___

ACTION: Circle all outliers with red pencil.

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present? [ ] ___ ___

5.2 Frequency of Analysis: Has a reagent/method blank been analyzed for each SDG, every 20 samples of similar matrix and concentration level or each extraction batch, whichever is more frequent?

ACTION: If any blank data are missing, take action as specified above in section 3.2. If blank data is not available, reject "R" all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.

5.3 A separate Form IV should be present if part of an extraction batch required sulfur removal. In such cases some samples will be listed on two blank summary forms - once under the method blank, and once under the sulfur clean-up blank (PCBLK). Was this additional blank raw data and Form IV submitted when required?

[ ] ___ ___

ACTION: If sulfur clean-up blank data and

YESNO N/A

Form IV are missing, take action as specified in 3.2 above.

5.4 Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following the initial calibration sequence (minimum contract requirement)? [ ] ___ ___

ACTION: If any blank data are missing, take action as specified in section 3.2 above.

5.5 Was the correct identification scheme used for all Pest/PCB blanks? (See page B-30, sec. 3.3.7.3 of the SOW for further information.) [ ] ___ ___

ACTION: Contact the TOPO to obtain resubmittals or make the required corrections on the forms. Document in the Data Assessment under Contract Problems/Non-Compliance all corrections made by the validator.

5.6 Chromatography: review the blank raw data - chromatograms, quant. reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable? [ ] ___ ___

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

6.0 Contamination

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

YESNO N/A

6.1 Do any method/reagent, instrument, or cleanup blanks show positive hits for pest/PCBs? [ ] ___ ___

6.2 If any method blanks and/or sulfur clean-up blanks contain "hits" for target compounds, are these hits greater than the CRQL for that analyte? [ ] ___ ___

6.3 In any instrument blanks, is the concentration of any target hit > 0.5 times CRQL for that analyte (see SOW, section 12.1.4.3.3, page D-73/PEST)? [ ] ___ ___

NOTE: Most labs will report 0.5 times CRQLs on the instrument blank Form I instead of the actual method CRQLs. If the lab reported the actual CRQLs, then check if any detected hits are above 0.5 times the CRQLs reported on the Form I.

ACTION: If yes to any of the above questions: note in the Data Assessment under Contract Problems/Non-Compliance if any method or clean-up blanks contain hits > the CRQL, or of instrument blank contained hits > 0.5 times CRQL for that analyte.

6.4 Do any field/rinse blanks have positive pest/PCB results? [ ] ___ ___

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

NOTE: All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Do not convert field blank results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, and/or calibration QC problems.

YESNO N/A

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

NOTE: When applied as directed in the table below, the contaminant concentration in method/instrument/ reagent/cleanup blanks is multiplied by the sample dilution factor, where necessary.

If the laboratory has not already done so, the contaminant concentration in soil blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate are used to prepare each soil reagent/method blank as instructed on page **D-69**/PEST, section 12.1.2.3.1. Ask the **TOPO** to contact the laboratory if the soil blanks are not reported in soil units (µg/kg).

Flag sample result with a "U":	**Report CRQL & qualify "U":**	**No qualification is needed:**
Sample conc. > CRQL, but ≤ 5× blank.	Sample conc. < CRQL & is ≤ 5× blank value	Sample conc. > CRQL & > 5× blank value.

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as "R", unusable.

6.5 Are there field/rinse/equipment blanks associated with every sample? [ ] ___ ___

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For analytes with high concentrations, use professional judgement to qualify these values and document in the Data

YESNO N/A

Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 Calibration and GC Performance

7.1 Are the following Gas Chromatograms and Data Systems Printouts for both columns present for all samples, blanks and MS/MSD:

a. Peak resolution check? [ ] ___ ___

b. Performance evaluation mixtures? [ ] ___ ___

c. Aroclor 1016/1260? [ ] ___ ___

d. Aroclors 1221, 1232, 1242, 1248, 1254? [ ] ___ ___

e. Toxaphene? [ ] ___ ___

f. Low points individual mixtures A & B? [ ] ___ ___

g. Med points individual mixtures A & B? [ ] ___ ___

h. High points individual mixtures A & B? [ ] ___ ___

I. Instrument blanks? [ ] ___ ___

j.Were the appropriate GC columns used as specified on pg. D-10/PEST, sections 6.23.3 to 6.23.3.7, in the SOW? [ ] ___ ___

7.2 Do the chromatograms for all Individual Standard Mixtures and PEM analyses display single component analytes at > 10% but < 100% of full scale (see sections 9.3.5.8.1 thru 9.3.5.8.4, pages D-30 & 31/PEST)? [ ] ___ ___

YESNO N/A

Have chromatograms for Individual Standard Mixtures and PEM analyses been replotted, showing scaling factor(s), to meet the above requirements when necessary? [ ] ___ ___

NOTE: All standard chromatograms must clearly display all peaks at > 10% but < 100% of full scale, and replotted if necessary to accommodate peaks not properly scaled in the initial chromatogram(s). Both the initial and replotted chromatograms must be submitted with the data package.

ACTION: If all single component peaks are not clearly displayed on chromatograms for all Individual Standard Mixtures and PEM analyses, notify the **TOPO** to obtain resubmittal of the necessary data.

7.3 Are Forms VI PEST 1-7 present and complete for each column and each analytical sequence? [ ] ___ ___

ACTION: If no, take action as specified in 3.2 above.

7.4 Are there any transcription/ calculation errors between raw data and Forms VI? [ ] ___ ___

ACTION: If large errors exist, take action as specified in section 3.2 above.

7.5 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the Initial Calibration (see Form VI PEST-1)? [ ] ___ ___

ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the

YESNO N/A

surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results "JN" and non-detects as unusable (R). For Aroclors, the RT may be outside the window, but the Aroclor may still be identified from its distinctive pattern.

7.6 Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (%RSD must be ≤ 25.0 for alpha and delta BHC, ≤ 30.0 for the two surrogates and ≤ 20% for all other analytes.) [ ] ___ ___

NOTE: Contractual requirements allow up to two single component TCL compounds, but not surrogates, on each column to exceed the criteria provided the %RSD is ≤ 30%. (See page D-26/Pest, sec. 9.2.5.7 in the SOW.) Technical criteria, however, are the same for all analytes.

ACTION: If technical criteria were not met, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects "UJ". When %RSD > 90%, flag all non-detect results for that analyte "R" (unusable), and positive results as "J" estimated.

ACTION: If more than two analytes failed %RSD, document in the Data Assessment Contract Problems/Non-Compliance section.

7.7 Is the resolution between each pair of adjacent peaks in the Resolution Check Mixture ≥ 60.0% for both columns? (See Form VI PEST-4.)(D-25/Pest) [ ] ___ ___

ACTION: If no, qualify positive results for compounds

YESNO N/A

that were not adequately resolved "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable (R).

7.8 Is Form VI PEST-5 present and complete for each Performance Evaluation Mixture (PEM) standard used for both initial and continuing calibrations (see SOW section 3.12.4.4, page B-48)? [ ] ___ ___

ACTION: If no, take action as specified in section 3.2 above.

7.9 For each PEM standard, was the resolution between each pair of adjacent peaks ≥ 90.0% on both columns?

ACTION: Qualify positive results for compounds not adequately resolved estimated (J). Qualify non-detects based on professional judgement. [ ] ___ ___

7.10 Have Forms VI PEST-6 & PEST-7 been completed for all midpoint Individual Standards A and B used for initial calibration?

For each standard, was the resolution between each pair of adjacent peaks ≥ 90.0% on both columns? [ ] ___ ___

ACTION: If no, qualify positive results for compounds that were not adequately resolved estimated (J) Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable "R". [ ] ___ ___

7.11 Is Form VII Pest-1 present and complete for each PEM standard analyzed during the analytical sequence for

YESNO N/A

both columns?

NOTE: If a PEM or Individual std mixture does not meet technical criteria listed on sec. 9.3.5.8.1 through 9.3.5.8.4, it MUST be reinjected immediately. If the second injection meets the criteria, sample analysis may continue. Otherwise, ALL data collection MUST BE STOPPED. Document it in the Data Assessment under Contract Problems/Non compliance.(p. D-31/Pest, sec. 9.3.6.4). [ ] ___ ___

Was the %Breakdown of DDT and Endrin calculated using the equations given on page D-24/PEST, sec. 9.2.4.8 in the SOW?

Were all pesticides and surrogates in each PEM standard within the RT windows established during the Initial Calibration? [ ] ___ ___

[ ] ___ ___

ACTION: If no, take action as specified in 3.2 above.

7.12 Has the individual percent breakdown for DDT/Endrin exceeded 20.0% in any PEM on either column? (See Form VII PEST-1.)

- for 4,4'-DDT? [ ] ___ ___

- for Endrin? [ ] ___ ___

Has the combined percent breakdown for DDT/Endrin exceeded 30.0% in any PEM on either column (required for all PEM analyses)? [ ] ___ ___

ACTION: 1. If any percent breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the

YESNO N/A

initial calibration sequence (page D-21/Pest, sec. 9.2.3.4 in the SOW), qualify all samples in the entire analytical sequence as described in sections 2.a, b and c below.

2. If any percent breakdown failed the QC criteria in a PEM calibration verification analysis, review data beginning with the samples which followed the last in-control standard until the next acceptable PEM and qualify the data as described below.

a. 4,4'-DDT Breakdown: If DDT breakdown was > 20.0%:

I. Qualify all positive results for DDT with "J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT unusable, "R".

ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

b. Endrin Breakdown: If endrin breakdown was > 20.0%:

I. Qualify all positive results for endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for Endrin as unusable "R".

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity "JN".

c. Combined Breakdown: If the combined 4,4'-DDT and endrin breakdown is greater than 30.0%:

YESNO N/A

I. Qualify all positive results for DDT and Endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable "R". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable "R".

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity "JN". Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

7.13 Are all percent difference (%D) values for PEM analytes and surrogates on both columns $\geq$ -25% and $\leq$ +25.0%? (See Form VII PEST-1.) [ ] ___ ___

ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".

NOTE: If the failing PEM is part of the initial calibration, all samples are potentially affected. If the offending standard is a calibration verification, the associated samples are those which followed the last in-control standard until the next passing standard.

7.14 Is Form VII Pest-2 present and complete for each INDA and INDB calibration verification analyzed? [ ] ___ ___

ACTION: If no, take action specified in 3.2 above.

7.15 Are there any transcription/calculation errors between raw data and Form VII Pest-2? [ ] ___ ___

YESNO N/A

ACTION: If large errors exists, take action as specified in section 3.6 above.

7.16 Do all standard retention times for each INDA and INDB calibration verification fall within the RT windows established during the initial calibration sequence? (See Form VII PEST-2.) [ ] ___ ___

ACTION: If no, beginning with the samples which followed the last in-control standard, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable (R).

7.17 Are all %D values for INDA and INDB calibration verification compounds $\geq$ -25.0% and $\leq$ +25.0%? [ ] ___ ___

ACTION: If the %D is outside the ±25.0% range for any compound(s), qualify associated positive results for that compound "J" and non-detects "UJ". The "associated samples" are those which followed the last in-control standard up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses? [ ] ___ ___

ACTION: If no, take action specified in 3.2 above.

YESNO N/A

8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses, and all standards analyzed at the required frequency for each GC/ECD instrument used.? (See SOW pages D-21 & D-55/PEST.) [ ] ___ ___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Generally, the effect is negligible unless the sequence was grossly altered and/or the calibration was out of QC limits.

8.3 Were all samples analyzed within a 12 hour time period beginning with the injection of an instrument blank and bracketed by acceptable analyses of the proper standards? [ ] ___ ___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Document in the Data Assessment under Contract Problems/Non-Compliance.

8.4 If a multi-component analyte was detected in a sample, was a matching multi-component standard analyzed within 72 hours of the injection of the sample and within a valid 12 hour sequence? [ ] ___ ___

NOTE: This additional standard is for identification purposes only. Positive results for Aroclors and Toxaphene are quantitated from the initial calibration.

ACTION: If no, document in the Data Assessment under Contract Problems/Non-Compliance.

9.0 Cleanup Efficiency Verification (Form IX)

	YES	NO	N/A
9.1 Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts.)	[ ]	___	___
Are all samples listed on the Pesticide Florisil Cartridge Check Form?	[ ]	___	___

ACTION: If no, take action specified in 3.2 above. If data suggests florisil clean-up was not performed, document in the Data Assessment under the Contract Non-compliance section.

9.2 Are percent recoveries (%REC) of the pesticide and surrogate compounds used to check the efficiency of the florisil clean-up procedure within QC limits (of 80 - 120%?	[ ]	___	___

ACTION: Qualify only the analyte(s) which failed the recovery criteria as follows:

If %REC is < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 120%.

NOTE: Sample data should be evaluated for potential interferences if recovery of 2,4,5-trichlorophenol was > 5% in the Florisil Cartridge Performance Check analysis. Document any problems found in the Data Assessment under the Contract Problems/Non-Compliance section.

YESNO N/A

9.3 If GPC Cleanup was performed (mandatory for all soil sample extracts), is Form IX Pest-2 present? [ ] ___ ___

Are all soil samples listed on Form IX Pest-2? [ ] ___ ___

ACTION: If no, take action specified in 3.2 above. If data suggests GPC clean-up was not performed when required, document in the Data Assessment under the Contract Problems/Non-Compliance section.

Are the %REC values for all pesticides in the GPC calibration solution between 80 - 110%?

[ ] ___ ___

ACTION: Qualify only those analytes which failed the recovery criteria as follows:

If %REC are < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 110%.

NOTE: An Aroclor mixture containing Aroclors 1016 and 1260 is also analyzed during GPC calibration; however, Aroclor data is not listed on Form IX PEST-2. The raw GPC data for Aroclors 1016/1260 must be evaluated for pattern similarity with previously analyzed Aroclor standards.

9.4 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-30, sec. 3.3.7.2 and 3.3.7.9 of the SOW for further information.

Was the correct identification scheme used for GPC

YESNO N/A

and Florisil blanks? [ ] ___ ___

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected? [ ] ___ ___

ACTION: If no, take action specified in 3.2 above.

10.2 Are all sample chromatograms properly scaled, attenuated, etc. as required for proper identification of single and multi-component analytes? (Refer to SOW sections 11.3.7.1 thru 11.3.7.8, page D-67/Pest for specific details.) [ ] ___ ___

NOTE: Proper verification of Pest/PCB results depends on clear, legible presentation of the raw data. Single component pesticides and all peaks chosen for quantitation of multi-component analytes must appear at less than full scale. Toxaphene and PCB patterns must be clearly visible to enable comparison with standard chromatograms.

ACTION: If retention times or apex of peaks cannot be verified, or if multi-component peak patterns cannot be discerned, contact the TOPO to obtain rescaled chromatograms from the lab.

10.3 Are there any transcription/calculation errors between raw data and Forms 10A and 10B? [ ] ___ ___

ACTION: If large errors exist, take action as specified in section 3.2 above.

10.4 Are RTs of sample compounds within the established RT windows for analyses on both columns? [ ] ___ ___

YESNO N/A

Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/mℓ in the final extract)? [ ] ___ ___

ACTION: Use professional judgement to qualify positive results which were not confirmed by GC/MS analysis. Qualify as unusable (R) all positive results which were not confirmed on a second GC column. Also qualify as unusable (R) all positive results which do not meet RT window criteria, unless associated standard compounds are similarly biased. Use professional judgement to assign an appropriate quantitation limit.

10.5 Is the percent difference (%D) calculated for the positive sample results on both columns > 25.0%? [ ] ___ ___

ACTION: If the reviewer finds neither column shows interference for the positive hits, the Pesticide data should be flagged as follows:

% Difference	Qualifier
0 - 25%	None
26 - 70%	"J"
71 - 100%	"JN"
100 - 200% (No Interference)	"R"
100 - 200% (Interference detected)*	"JN"
> 50% (Pesticide value is < CRQL)**	"U"
> 200%	"R"

* When the reported %D is **100- 200**%, but interference is detected on either column, qualify the data with "**JN**".

When the **reported pesticide value is lower than the CRQL, and the %D is > 50%, raise the value to the CRQL and qualify "U", undetected.

NOTE: For Aroclors, if the %D is > 50%, but the pattern of GC

YESNO N/A

peaks on both columns indicates a specific Aroclor is present, qualify that Aroclor "J".

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher result was more acceptable, the reviewer should replace the value and indicate the reason for the change in the Data Assessment.

10.6 Check chromatograms for false negatives, especially the multiple-peak compounds (Toxaphene and the PCBs). Were there any false negatives? [ ] ___ ___

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed within 72 hrs. of the sample(s) in question, qualify the data unusable "R".

Also note in Data Assessment under Contract Problems/Non-Compliance if the lab failed to analyze Aroclor standards when required.

11.0 Target Compound List (TCL) Analytes

11.1 Are the Organic Analysis Data Sheets (Form I Pest) present with required header information on each page, for each of the following:

a.Samples and/or fractions as appropriate? [ ] ___ ___

b.Matrix spikes and matrix spike duplicates? [ ] ___ ___

c.Blanks? [ ] ___ ___

d.Instrument Blanks (per column & analysis)? [ ] ___ ___

11.2 Are the Pest chromatograms and quant. reports

	YES	NO	N/A
included in the sample data package for each of the following:			
a. Samples and/or fractions as appropriate?	[ ]	___	___
b. Matrix spikes and matrix spike duplicates?	[ ]	___	___
c. Blanks?	[ ]	___	___
d. Instrument Blanks (per column & analysis)?	[ ]	___	___

ACTION: If any data are missing, take action specified in 3.2 above.

11.3 Is chromatographic performance acceptable with respect to:			
a.Baseline stability?	[ ]	___	___
b.Resolution?	[ ]	___	___
c.Peak shape?	[ ]	___	___
d.Full-scale graph attenuation?	[ ]	___	___
e.Other: _____?	[ ]	___	___
11.4 Were any electropositive displacement (negative peaks) or unusual peaks seen?	___	[ ]	___

ACTION: Use professional judgement to determine the acceptability of the data. Address comments under System Performance section of the Data Assessment.

12.0 Compound Quantitation and Reported Detection Limits

YESNO N/A

12.1 Are there any transcription/calculation errors in Form I results? Check at least two positive results. Were any errors found? [ ] ___ ___

NOTE: Single-peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. Use professional judgement to decide whether a large discrepancy indicates the presence of an interfering compound. If an interfering compound is visible on the chromatogram, the lower of the two values should be reported and qualified as presumptively present at an approximated quantity "JN". This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has interfered with the evaluation of the second column confirmation.

12.2 Are the CRQLs adjusted to reflect sample dilutions? [ ] ___ ___

ACTION: If large errors exist, take action as specified in section 3.2 above.

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

ACTION: Quantitation limits affected by large, off-scale peaks should be qualified as unusable (R). If the

YESNO N/A

interference is on-scale, the reviewer may offer an approximated quantitation limit (UJ) for each affected compound.

NOTE: If a sample required greater than a 10 times dilution, then a 10 times more concentrated analysis must also be performed and submitted (see SOW, page D-57/PEST, section 10.2.3.5).

ACTION: If a more concentrated analysis is unavailable, document in the Contract Problems/Non-Compliance section of the Data Assessment. Use professional judgement to qualify non-detects and positive hits below the CRQL.

13.0 Field Duplicates

13.1 Were any field duplicates submitted? [ ] ___ ___

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

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

ATTACHMENT 1

CLP Data Assessment

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: _____ SDG No.: _____ LABORATORY: _____
SITE: _____

DATA ASSESSMENT

The current SOP No. HW-6 (Revision 12), January 2000 for CLP Organics Review and Preliminary Review has been applied.

All data were found to be valid and acceptable except those analytes which have been rejected, "R" (unusable). Due to various QC problems some analytes may have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detect), or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's Signature: _____Date: _____

Verified By: _____Date: _____

CLP DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

CLP DATA ASSESSMENT

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

CLP DATA ASSESSMENT

B) Field or rinse blank contamination:

C) Trip blank contamination:

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

CLP DATA ASSESSMENT

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

7. CALIBRATION:

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes, for alpha and delta BHC 25%, and for the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the sample shown were qualified for %RSD and %D:

CLP DATA ASSESSMENT

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.
If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

CLP DATA ASSESSMENT

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.

CLP DATA ASSESSMENT

ATTACHMENT 2

BFB ION ABUNDANCE CRITERIA

BFB KEY IONS AND ION ABUNDANCE CRITERIA

MASS ION	ABUNDANCE CRITERIA
50	8.0 - 40.0 percent of mass 95
75	30.0 - 66.0 percent of mass 95
95	base peak, 100 percent relative abundance
96	5.0 - 9.0 percent of mass 95 (see note)
173	less than 2.0 percent of mass 95
174	50.0 - 120.0 percent of mass 95
175	4.0 - 9.0 percent of mass 174
176	93.0 - 101.0 percent of mass 174
177	5.0 - 9.0 percent of mass 176

NOTE: All ion abundance must be normalized to m/z 95, the nominal base peak, even though the ion abundance of m/z 174 may be up to 120.0 percent that of m/z 95.

ATTACHMENT 3

DFTPP ION ABUNDANCE CRITERIA

DFTPP KEY IONS AND ION ABUNDANCE CRITERIA

MASS ION	ABUNDANCE CRITERIA
51	30.0 to 80.0 percent of mass 198
68	Less than 2.0 percent of mass 69
69	Mass 69 relative abundance
70	Less than 2.0 percent of mass 69
127	25.0 - 75.0 percent of mass 198
197	Less than 1.0 percent of mass 198
198	Base peak, 100% of relative abundance
199	5.0 to 9.0 percent of mass 198
275	10.0 to 30.0 of mass 198
365	Greater than 0.75% of mass 198
441	Present, but less than mass 443
442	40.0 - 110.0 percent of mass 198
443	15.0 - 24.0 percent of mass 442

NOTE: All ion abundance must be normalized to m/z 198, the nominal base peak, even though the ion abundance of m/z 4 may be up to 120.0 percent that of m/z 198.

Learning Module 25

Learning Objectives for this Module

- **Calculate TCL and CRQL**
- **Pesticide Identification**
- **PCB Identification**

This module covers the TCL and CRQLs criteria for pesticides. Validators should be familiar with these concepts from the VOA and BNA fractions. Extensive time will be devoted to two important validation concerns:

- Pesticide identification and qualification
- PCB identification.

Unit 1 Target Compound List (TCL)

Qualitative criteria for compound identification has been established to minimize the number of false positives (reporting a compound as present when it is not) and false negatives (reporting a compound as not present when it is).

Since this method relies heavily on retention time to identify an analyte, adherence to established RT windows is essential. PCBs and Toxaphene, which are identified by pattern recognition, will be covered in the PCB identification unit.

The TCL is composed of 20 single component pesticides and eight multi-component analytes.

Table 25-1 Single component analytes

Alpha BHC	Heptachlor epoxide	Endosulfan I
Beta BHC	Aldrin	Endosulfan II
Delta BHC	4,4' DDE	Endosulfan sulfate
Gamma BHC (Lindane)	4,4' DDD	Endrin
Alpha chlordane	4,4' DDT	Endrin aldehyde
Gamma chlordane	Dieldrin	Endrin ketone
Heptachlor	Methoxychlor	

Table 25-2 Multi-component analytes

Toxaphene	Aroclor 1232	Aroclor 1254
Aroclor 1016	Aroclor 1242	Aroclor 1260
Aroclor 1221	Aroclor 1248	

Criteria to keep in mind are:

- The retention times of both surrogates, spiked compounds and positively identified analytes must be within the established retention time window.

- Compounds that have a reported concentration of > 10 ng/uL in the final extract must be confirmed by GC/MS and identified by the lab qualifier "C".

- If no analytes were reported for the sample, the chromatogram must use the same scaling factor as the low level standard associated with the samples.

- If an analyte exceeded the calibration range on either column, the sample must be reanalyzed as a dilution.

Good tips to remember:

- Check both sample and dilution/reanalyzed raw data for reporting of analytes and concentrations. It is not unusual to have a compound reported in the dilution analysis but not reported in the straight analysis. Go back and check the raw data for the peak within the retention time window. Chances are the peak of interest was not integrated properly or not picked up by the software.

- A similar problem is the software will pick up peak with an overlapping RT window as one analyte and a different analyte on the other column. This is why validators should be aware of overlapping RT windows (Module 23 Unit 2).

This is a good time to review the qualifiers that a laboratory must add to the form 1s.

Table 25-3 Qualifiers allowed to be used by the Labs

Qualifiers	Meaning for Qualification
D	The positive value is the result of an analysis at a secondary dilution factor.
B	The analyte is present in the associated method blank as well as in the sample.
J	The associated numerical value is an estimated quantity because it is below the CRQL
E	The concentration of this analyte exceeds the calibration range of the instrument.
U	The material was analyzed for, but not detected. The associated numerical value is the CRQL.
P	Pesticide/Aroclor target analytes when the % Difference between the analyte concentrations obtained from the two dissimilar GC columns is greater than 25%.
C	Applies to Pesticide results where the identification of the analyte has been confirmed by GC/MS.
X,Y,Z	Laboratory defined flags. The data reviewer must change these qualifiers during validation so that the data user may understand their impact on the data.

Validation action is required if the lab qualifier added to the concentration is a P, X, Y or Z. The actions will be detailed in the Pesticide Identification unit. C and D qualifiers provide important information to the data user about the reported concentration.

Section 11 of the Regional checklist asks the validator to perform an overview check of the Form 1s and raw data.

11.0 <u>Target Compound List (TCL) Analytes</u>

11.1 Are the Organic Analysis Data Sheets (Form I Pest) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate?

b. Matrix spikes and matrix spike duplicates?

c. Blanks?

d. Instrument Blanks (per column & analysis)?

11.2 Are the Pest chromatograms and quant. reports included in the sample data package for each of the following:

a. Samples and/or fractions as appropriate?

b. Matrix spikes and matrix spike duplicates?

c. Blanks?

d. Instrument Blanks (per column & analysis)?

ACTION: If any data are missing, take action specified in 3.2 above.

11.3 Is chromatographic performance acceptable with respect to:

a. Baseline stability?

b. Resolution?

c. Peak shape?

d. Full-scale graph attenuation?

e. Other: ?

11.4 Were any electropositive displacement (negative peaks) or unusual peaks seen?

ACTION: Use professional judgement to determine the acceptability of the data. Address comments under System Performance section of the Data Assessment.

Dilutions

A dilution analysis is validated as a regular sample. Dilution values are transferred to the straight or lower concentration analysis and the dilution analysis is crossed out and marked DO NOT USE.

There are two important rules regarding pesticide fraction dilutions:

- If any single or multi component peak exceeds the calibration range on either column, a dilution analysis must be performed. If the Form 1 does not indicate an exceedance analyte, check the Quant report.

- If the reported concentration is within the calibration range and the concentration from the other column exceeded the calibration range, the lab is still required to analyze and submit a dilution analysis.

- The dilution factor between a straight and dilution analyses or any two dilution analyses is 10. If a straight analysis requires a dilution, the highest dilution value is 10 times. A less factor of 2x or 5x is acceptable and preferable in most cases. If an analyte requires a higher dilution, the lab must submit a 10 x more concentrated analysis. For example if a 1000x dilution analysis was needed, the lab is required to submit a 100x dilution analysis.

Review Module 23 Unit 1 for calculating the concentrations of the single and multi-component analytes before starting the next unit.

Unit 2 Contract Required Quantitation Limits

Several factors impact analyte instrument sensitivity. These include analyte physical and chemical properties, analyte response factors, and sample matrix. All of these factors may affect the reported CRQL for a sample.

To refresh your memory, aqueous samples are extracted using 1000 mL of sample. Low/level soil samples are extracted using 30 g of sample. The final extract volume is 10 mL or 5 mL depending upon clean-up procedures.

The list of contract required quantitation limits in Table 25-4 are from Exhibit C of the Contact Laboratory Program Statement of Work. Each sample is adjusted for initial volume/weight, dilution factor and % moisture.

Table 25-4 CRQLs

Analyte	water	soil	On-col	Analyte	water	soil	On-col
Alpha BHC	0.050	1.7	5	Endosulfan I	0.050	1.7	5
Beta BHC	0.050	1.7	5	Endosulfan II	0.010	3.3	10
Delta BHC	0.050	1.7	5	Endosulfan sulfate	0.010	3.3	10
Gamma BHC	0.050	1.7	5	Endrin	0.010	3.3	10
Alpha chlordane	0.050	1.7	5	Endrin aldehyde	0.010	3.3	10
Gamma chlordane	0.050	1.7	5	Endrin ketone	0.010	3.3	10
Heptachlor	0.050	1.7	5	Toxaphene	5.0	170	500
Heptachlor epoxide	0.050	1.7	5	Aroclor 1016	1.0	33	100
Aldrin	0.050	1.7	5	Aroclor 1221	2.0	67	200
4,4' DDE	0.010	3.3	10	Aroclor 1232	1.0	33	100
4,4' DDD	0.010	3.3	10	Aroclor 1242	1.0	33	100
4,4' DDT	0.010	3.3	10	Aroclor 1248	1.0	33	100
Dieldrin	0.010	3.3	10	Aroclor 1254	1.0	33	100
Methoxychlor	0.50	17	50	Aroclor 1260	1.0	33	100

The low point concentrations for each analyte corresponds to the contract required quantitation limit (CRQL) for each analyte. Although the language in the CLP SOW for pesticide quantitation below the CRQL may appear ambiguous, **analytes detected below the CRQL are to be reported as present below the CRQL and flagged with "J" (estimated) by the laboratory.** Hits well below the CRQLs (less than 1/2 the CRQL value) may be column/background noise and using discretion may not be reported. PCB peaks that are also within the RT window of pesticide peaks must also be reported as pesticides. The methodology does not provide the tools to distinguish a PCB peak from a pesticide peak. If a lab does not report confirmed analytes detected < CRQL or does not report confirmed analytes detected because it is a PCB peak, contact the lab through the TOPO to request resubmittals. Check Pesticide identification unit for validation tips on qualifying and reporting a peak < CRQLs.

Validators must assure that the reported Contract Required Quantitation Limits (CRQLs) are accurately reported. The CRQLs should be carefully checked because errors are relatively common.

There have been changes in SOW 4.2 on how CRQLs are reported if the sample volume is higher than contract required amount. Simply stated, **if the adjusted CRQL value < than contract CRQL, the CRQL is reported as the contract CRQL.** This calculation takes into

account the % moisture value. Make sure the lab did not use CRQL and adjust the value for % moisture. Use the adjusted equation given in Equation 25-1and 25-2 to calculate the adjusted CRQL for Practice 25-1.

Equation 25- 1 Calculation of adjusted CRQL in a water sample

$$\text{Adjusted CRQL} = \text{Contract CRQL} \times \frac{(V_x)(V_t)(V_y)(DF)}{(V_0)(V_c)(V_i)}$$

Where,

V_x = Contract sample volume (1000 mL).

V_t = Volume of the concentrated extract in microliters (µL) (V_t = 5000 µL if GPC, 10000 µL if GPC not performed).

V_y = Contract injection volume (1 µL or 2 µL).

V_o = volume of sample extracted in milliliters mL.

V_c = Contract concentrated extract volume 10,000 µL if GPC is not performed, and 5,000 µL if GPC was performed.

V_i = Volume of the extract injected in microliters (µL). If a single injection is made onto two columns, use one half the syringe volume as the volume injected onto each column.

DF = dilution factor

Equation 25-2 Calculation of adjusted CRQL in a soil sample

$$\text{Adjusted CRQL} = \text{Contract CRQL} \times \frac{(W_x)(V_t)(V_y)(DF)}{(W_s)(V_c)(V_i)(D)}$$

Where,

W_x = Contract Weight of sample extracted in grams (g). (30 g)

W_s = Weight of sample extracted in grams (g).

V_t = Volume of the concentrated extract in microliters (5,000 µL)

V_y = Contract injection volume (1 µL or 2 µL)

V_c = Contract concentrated extract volume (5,000 µL GPC is required, always check if GPC is performed).

V_i = Volume of the extract injected in microliters (µL). If a single injection is made onto two columns, use one half the syringe volume as the volume injected onto each column.

DF = dilution factor

D = dry weight (100/% moisture value)/100)

Practice 25-3 Soil Sample

Soil sample with a weight of 35g, % moisture of 5, injection volume of 1uL and a dilution factor of 1, would be calculated as:

$$\text{Adjusted CRQL} = 1.7 \times \frac{(30)\,(5000)(1)}{(35)(5000)(1)\,(.95)} = 1.53$$

Answer to Practice 25-3

The adjusted CRQL value of 1.53 should be reported as 1.7 on the Form 1.

If the adjusted CRQL value is greater than the CRQL listed in the SOW (1.7), report the adjusted CRQL to 2 significant figures.

Some labs may report the SOW CRQL then corrects the value for % moisture. This is incorrect and the CRQLs on the Form 1's must be changed.

The Lotus spreadsheets as of this writing, will report the adjusted CRQL even if < SOW CRQL. Hopefully changes in the new CADRE version will address this problem. Until then all lotus spreadsheets must be scrutinized for correct CRQL values.

The next quiz will ask you to calculate the adjusted CRQL and state the CRQL value that should be reported on the Form 1. Remember to use the round off rule and significant figures to report the CRQL correctly on the form. Review Learning Module 4, Unit 1 for round off and significant figures rules. All answers for quizzes are in Appendix E.

Module 25 Quiz 1

Instruction: For each problem, calculate the adjusted CRQL and state the CRQL value that should be reported on the Form 1.

Sample-analyte	1 - DDT	2 - Alpha BHC	3 - Heptachlor
Matrix	water	water	water
Volume	950	1050	1300
DF	2	1	1
Adjusted CRQL			
Reported CRQL			

Sample-analyte	4 - Methoxychlor	5 - Endosulfan I	6 - DDE
Matrix	soil	soil	soil
Weight	25.0	31.8	34.2
DF	2	1	1
% Moisture	57	23	14
Adjusted CRQL			
Reported CRQL			

Sample-analyte	7 - gamma BHC	8 - Aldrin	9 - Endrin
Matrix	soil	water	soil
Vol/wt	32.0	890	26.3
DF	5	3	2
% Moisture	72		45
Adjusted CRQL			
Reported CRQL			

The checklist section for CRQLs is very small and concerned with transcription errors. There is an action for samples with two analyses. The dilution analysis values are transferred to the lower CRQL analysis, usually a non-diluted analysis.

The validator must remember to cross out the Form 1 of the dilution (DL) analysis that should not be used and write on the form "Do Not Use". Keep track of which analyses are not used and document them in the DA under the last section.

The same action is followed for samples identified as re/analysis (RE) samples. Decide based on other criteria such as internal standard and surrogates which analysis is technically better. Cross/out, mark and document the Do Not Use" analysis.

12.0 Compound Quantitation and Reported Detection Limits

12.1 Are there any transcription/calculation errors in Form I results? Check at least two positive results. Were any errors found?

NOTE: Single-peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. Use professional judgement to decide whether a large discrepancy indicates the presence of an interfering compound. If an interfering compound is visible on the chromatogram, the lower of the two values should be reported and qualified as presumptively present at an approximated quantity "JN". This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has interfered with the evaluation of the second column confirmation.

12.2 Are the CRQLs adjusted to reflect sample dilutions?

ACTION: If large errors exist, take action as specified in section 3.2 above.

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

ACTION: Quantitation limits affected by large, off-scale peaks should be qualified as unusable (R). If the interference is on-scale, the reviewer may offer an approximated quantitation limit (UJ) for each affected compound.

NOTE: If a sample required greater than a 10 times dilution, then a 10 times more concentrated analysis must also be performed and submitted (see SOW, page D-57/PEST, section 10.2.3.5).

ACTION: If a more concentrated analysis is unavailable, document in the Contract Problems/Non-Compliance section of the Data Assessment. Use professional judgement to qualify non-detects and positive hits below the CRQL.

Unit 3 Pesticide Identification

Pesticide Identification

Since pesticides at low concentrations are not amenable to GC/MS analysis, a GC analysis on two different columns is required. Identification of single component pesticides by gas chromatography is based primarily on retention time data. Two columns are used to minimize false positive results. In order for pesticide hits to be valid, the analyte peaks in the sample must fall within the retention time windows established during the initial calibration for both first and second column analyses. The apex or maxima of a peak can be verified only from an on-scale chromatogram.

The pesticide identification criteria are:

- If the pesticide concentration is greater than 10 ng/uL in the final extract, the lab is required to perform a GC/MS confirmation.
- Whenever there are positive results for any pesticide or Aroclor, analyte concentrations from both columns must be reported on Form 10.
- A peak is identified and reported as a confirmed hit if the peak elutes within the established retention time window on both columns.
- All confirmed hits, even if below the CRQL or is an Aroclor peak must be reported.

Percent difference (%D) is calculated in order to compare the two concentrations. If the %D is greater than 25%, the lab must qualify the data with a "P" on the Form 1.

Equation 25-1 %Difference

$$\%D = \frac{Conc_H - Conc_L}{Conc_L} \times 100$$

Where,

$Conc_H$ = The higher of the two concentrations for the target compound in question

$Conc_L$ = The lower of the two concentrations for the target compound in question

Note: Percent differences will always be positive due to the arrangement of the above equation.

Example 25-1 A positive result for Dieldrin was reported in sample BHR15. The analyte concentrations were 1.8 and 2.0 ug/Kg on the first and second columns respectively.

$$\%D = \frac{2.0 - 1.8}{1.8} \times 100$$

%D = 11.1

It is possible to have interference elute around the same retention time as target analytes. The percent difference between first and second column quantitation is used to determine if a compound reported as present may be a false positive. If both analytical systems are operating properly, the compound concentrations should not differ to a large extent between columns.

It should be noted that, although chlordane also has a multiple peak chromatogram, only the alpha and gamma isomers of chlordane are used for quantitation.

The checklist provides guidance for the pesticide/Aroclor identification procedure. Review only the questions that refer to pesticides. The Aroclor questions will be reviewed at the end of the next unit.

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?

ACTION: If no, take action specified in 3.2 above.

10.2 Are all sample chromatograms properly scaled, attenuated, etc. as required for proper identification of single and multi-component analytes? (Refer to SOW sections 11.3.7.1 thru 11.3.7.8, page D-67/Pest for specific details.)

NOTE: Proper verification of Pest/PCB results depends on clear, legible presentation of the raw data. Single component pesticides and all peaks chosen for quantitation of multi-component analytes must appear at less than full scale. Toxaphene and PCB patterns must be clearly visible to enable comparison with standard chromatograms.

ACTION: If retention times or apex of peaks cannot be verified, or if multi-component peak patterns cannot be discerned, contact the WAM to obtain rescaled chromatograms from the lab.

10.3 Are there any transcription/calculation errors between raw data and Forms 10A and 10B?

ACTION: If large errors exist, take action as specified in section 3.2 above.

10.4 Are RTs of sample compounds within the established RT windows for analyses on both columns?

Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/mL in the final extract)?

ACTION: Use professional judgement to qualify positive results which were not confirmed by GC/MS analysis. Qualify as unusable (R) all positive results which were not confirmed on a second GC column. Also qualify as unusable (R) all positive results which do not meet RT window criteria, unless associated standard compounds are similarly biased. Use professional judgement to assign an appropriate quantitation limit.

10.5 Is the percent difference (%D) calculated for the positive sample results on both columns > 25.0%?

ACTION: If the reviewer finds neither column shows interference for the positive hits, the Pesticide data should be flagged as follows:

% Difference	*Qualifier*
0 - 25%	*None*
26 - 70%	*"J"*
71 - 100%	*"JN"*
100 - 200% (No Interference)	*"R"*
*100 - 200% (Interference detected)**	*"JN"*
*> 50% (Pesticide value is < CRQL)***	*"U"*
> 200%	*"R"*

* *When the reported %D is 100- 200%, but interference is detected on either column, qualify the data with "JN".*

** *When the reported pesticide value is lower than the CRQL, and the %D is > 50%, raise the value to the CRQL and qualify "U", undetected.*

NOTE: For Aroclors, if the %D is > 50%, but the pattern of GC peaks on both columns indicates a specific Aroclor is present, qualify that Aroclor "J".

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher result was more acceptable, the reviewer should replace the value and indicate the reason for the change in the Data Assessment.

10.6 Check chromatograms for false negatives, especially the multiple-peak compounds (Toxaphene and the PCBs). Were there any false negatives?

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed within 72 hrs. of the sample(s) in question, qualify the data unusable "R".

Also note in Data Assessment under Contract Problems/Non-Compliance if the lab failed to analyze Aroclor standards when required.

Question 10.5 presents a challenge to the validator. It is a set of guidelines and the qualification actions that are applied to positive hits. Review the **Pesticide** criteria in Table 25-5 and match the specific action to the examples in Table 25.6. Don't worry if you are not sure of the answer, it will become easier as you become more familiar with the guideline and work with actual data. An explanation is provided for each example in the answers.

Table 25-1 Table of conditions and qualification actions

% Different	Qualifier
0 - 25%	None
26 - 70%	"J"
71 - 100%	"JN"
100 - 200% (No Interference)	"R"
100 - 200% (Interference detected)*	"JN"
> 50% (Pesticide value is < CRQL)**	"U"
> 200%	"R"
*When the reported %D is 100- 200%, but interference is detected on either column, qualify the analyte	"JN"

Table 25-2 Examples of sample conditions

		Examples	Qualifier
1.		Water sample has some matrix interference, the %D is 170	
2.		A soil sample has a confirmed hit for Methoxychlor, the % D value is 15, no interference present.	
3.		Water sample has no matrix interference, the %D is 170	
4.		Water sample has some matrix interference, the %D is 85	
5.		A soil sample has a confirmed hit for Endrin, the % D value is 45, no interference present and the concentration is < CRQL.	
6.		Water sample has some matrix interference, the %D is 570 and the concentration is > CRQL	
7.		A soil sample has a confirmed hit for Aldrin, the % D value is 60, no interference present and the concentration is < CRQL.	

8.		Water sample has some matrix interference, the %D is 25 and the concentration is <CRQL	
9.		Water sample has some matrix interference, the %D is 570 and the concentration is < CRQL	
10.		Water sample has some matrix interference, the %D is 90 and the concentration is < CRQL	
11.		Water sample has some matrix interference, the %D is 80 and the concentration is > CRQL	

Answer to Practice 25-1

		Qualifier	Explanation
1.		JN	Interference can bias a concentration to be larger than what it may be. Usually the peak interference is present on one column, while the column with no interference has a more accurate concentration. The "JN" is questioning the concentration and expresses doubt about the presence of the analyte because of the interference.
2.		No Action	A %D < 25% is considered a valid number, no action is required since the presence and concentration are not questionable.
3.		R	Since there is no interference, there could be several unknown compounds eluting at the same time. The presence or absence of the analyte can not be determined, so it is rejected.
4.		JN	There is a stronger possibility of an analyte's presence in the sample and the concentration is questionable.
5.		J	The %D is between 26 and 70, therefore it is estimated. It is accepted that this compound is most likely present and must be identified as present in the sample. CRQL does not affect the value or qualification.
6.		R	The %D is so far apart, the presence or absence of an analyte can not be determined. Since the concentration is above CRQL, analyte identification is important.
7.		U, report CRQL	The %D is between 26 and 70, therefore it is estimated. It is accepted that this compound is most likely present and must be identified as present in the sample. Historically, this value may be well below the CRQL and the presence and concentration does not impact the sample.
8.		No Action	A %D < 25% is considered a valid number, no action is required since the presence and concentration are not questionable. CRQL does not affect the value or qualification.

9.		U, report CRQL	Historically, this value may be well below the CRQL and the presence and concentration does not impact the sample. Usually the peak interference is present on one column, while the column with no interference has a more accurate concentration.
10.		U, report CRQL	The %D is between 71 and 100, therefore the presence is presumptively present and is estimated. It is accepted that this compound is may be present. Historically, this value may be well below the CRQL and the presence and concentration does not impact the sample.
11.		JN	The %D is between 71 and 100, therefore the presence is presumptively present and is estimated. It is accepted that this compound may be present.

Remember that these are guidelines to be followed most of the time. Once in awhile validators will encounter a sample with an odd or unusual matrix. It is important to scrutinize the chromatogram and review your qualification actions. Professional judgement is needed to qualify the sample if unusual conditions exist. Use professional judgment and the above qualification guidelines to qualify data flagged by the Lab with X, Y or Z qualifiers

Unit 4 PCB Identification

Toxaphene and Aroclor Identification

Toxaphene and PCBs have multiple peak chromatograms because they are mixtures of compounds. Identification of these compounds is much more difficult than that of single component pesticides. The identification of multi-component analytes is based primarily on pattern recognition. Even if there is a retention time shift, the pattern will not change and can be used to identify the Aroclor.

Polychlorinated Biphenyls (PCBs) are a class of 209 chemical compounds called congeners. Some PCB congeners were manufactured and sold as specific mixtures called Aroclors, used, for example, as transformer oil and high temperature hydraulic oil. An Aroclor is a commercial product that can be identified by a specific ratio of PCB congeners. CLP analytical methodology measures the concentration of specific Aroclors in a waste, not individual congeners or total PCBs. Aroclors are identified on two different gas chromatographic columns by pattern recognition. The chromatographic peak height or peak area pattern of PCB congeners is used to identify the presence of specific Aroclors.

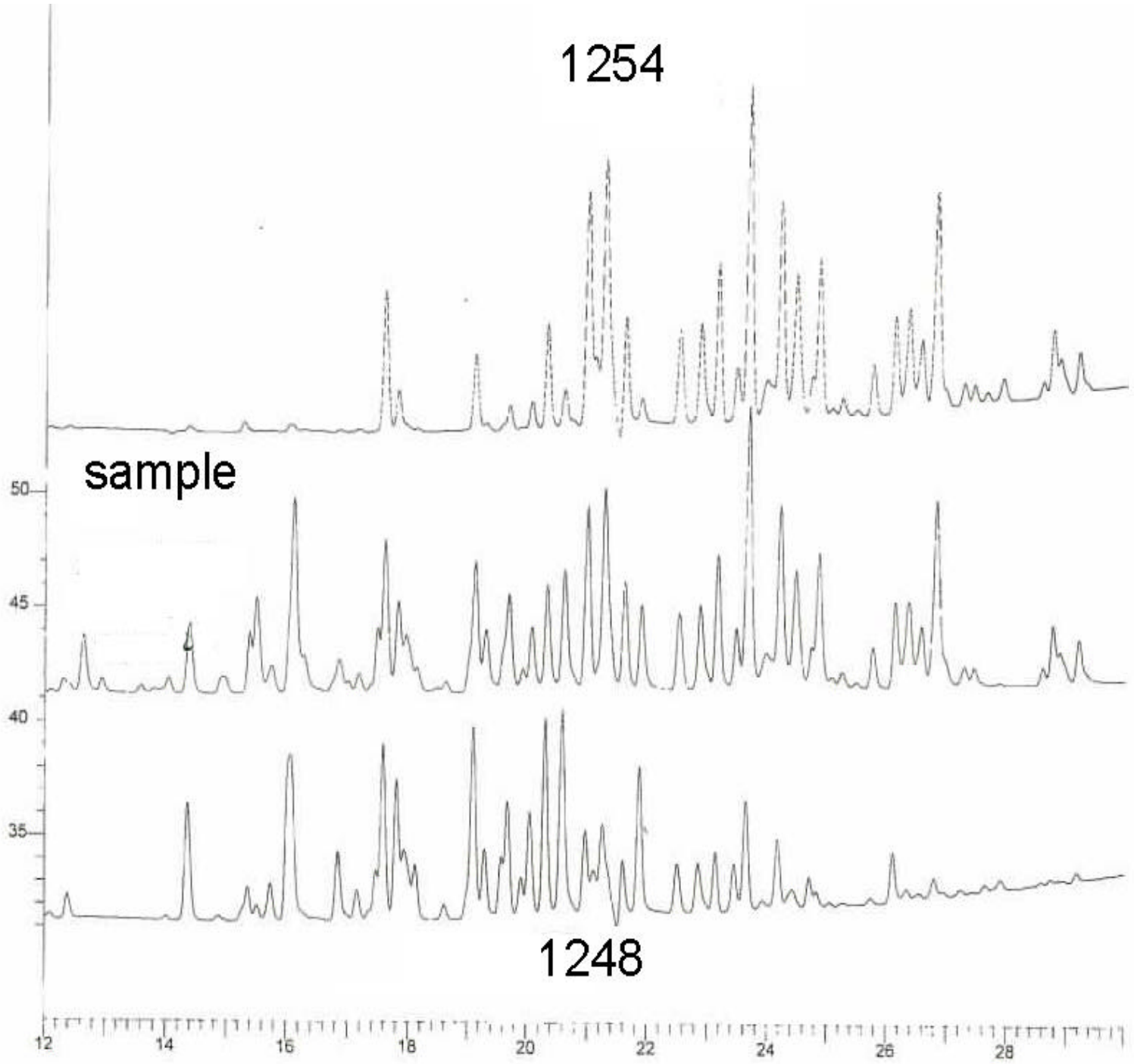
Over periods of time, PCB congeners degrade at different rates. This phenomenon is called "weathering". Weathering changes the ratios of PCB congeners in an Aroclor. Weathering causes the chromatographic pattern of PCBs to change with time. Weathering can make it very difficult to compare the ratios of the sample peak heights or areas to the standard peak heights or areas for identification purposes. Weathering can also interfere with calculation of the PCB concentration.

Until the data reviewer is experienced in identifying multi-component analytes, it would be advisable to consult with someone experienced in the analysis of these compounds if sample chromatograms indicate positive values for Toxaphene or Aroclors.

Special care should be taken when qualifying positive results for Aroclors in a sample. Rejecting data does not mean that an analyte **is** present or not present. Rejecting data indicates that we do not know <u>if</u> an analyte <u>was</u> present or not present. The current Functional Guidelines for validating organic data specifies the criteria for evaluating PCB chromatograms with marginal peak matching patterns. The qualifier for this tentative identification is "N", which means presumptively present. This qualifier signifies that the qualitative identification is probable instead of definite. The data reviewer should be aware of the difference between "R" and "N" and exercise professional judgement when qualifying positive results for Aroclors.

Keep in mind, if an Aroclor pattern is present and has been identified, it is present in the sample even if the %D is >200. Since identification is by pattern recognition and strictly by single peak retention time, validators seldom reject Aroclor identification.

An example of an overlay is given below. The top chromatogram is for the standard Aroclor 1254, the middle chromatogram is a sample and the bottom chromatogram is the standard Aroclor 1248. Can you determine if an Aroclor is present or not in the sample?



Both Aroclors are present in the sample. Can you see where Aroclor 1248 ended and Aroclor 1254 began in the sample? Every experienced validator has his/her own techniques for identifying the pattern. Some general techniques for eliminating Aroclors are:

- Overlay the sample chromatogram with the standard chromatogram. Line up the surrogate peaks and check for similar retention time peaks.
- Hold overlay up to the light and look through the chromatograms.
- Fold the standard chromatogram at the baseline and line up surrogate peaks above the peaks in the sample chromatogram.

At this point, the objective is to eliminate possible Aroclors. Looking at a chromatogram from left to right, Aroclors will elute in the following order: 1221, 1016, 1232, 1242, 1248, 1254, and 1260. Aroclors 1016, 1221 and 1232 elute in the early or beginning part of the chromatogram. Aroclors 1242 and 1248 are middle chromatogram eluters while 1254 and 1260 are late eluters. Once the Aroclor selection has been narrowed down to two or three possibilities, the following techniques are used:

- Compare the height of a major peak to the height of another major peak in the standard. Match this comparison in the sample chromatogram. Do the same for the other possible Aroclor. Look at the sample below and compare with Figures 25-1 on the next page.

Sample

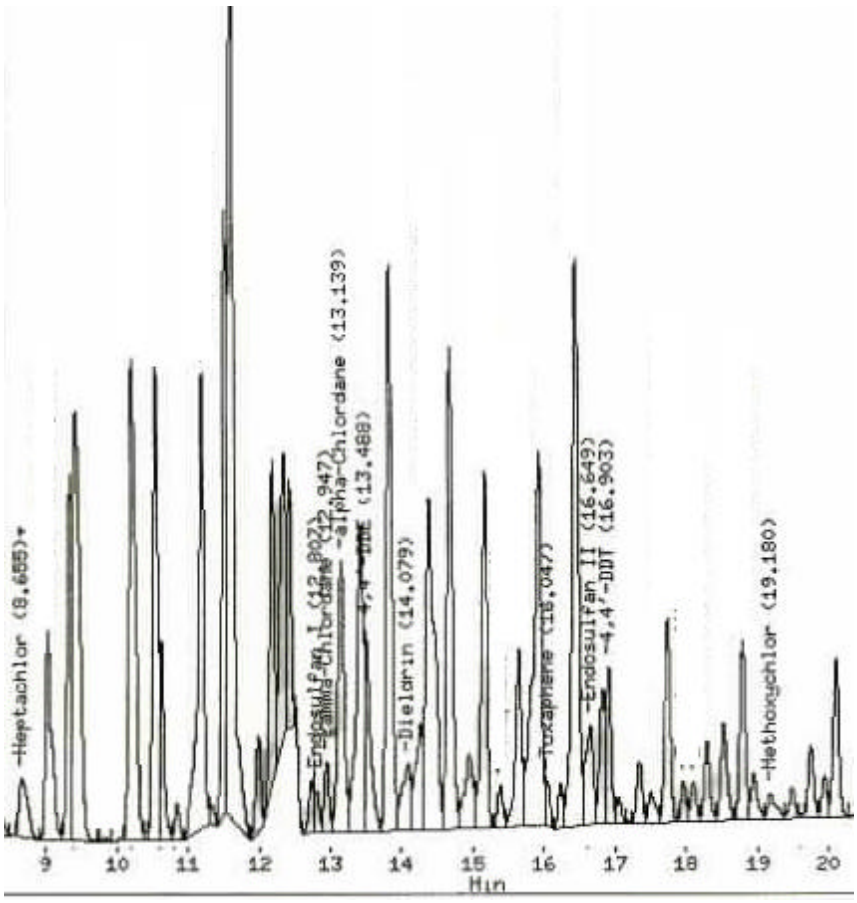
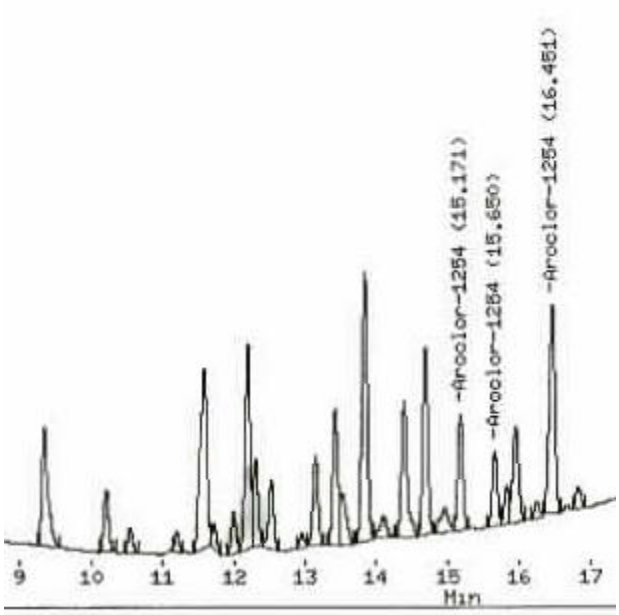
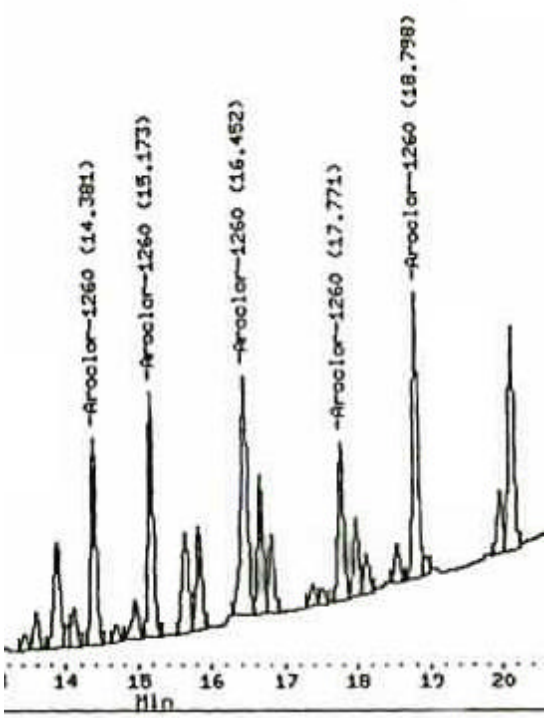


Figure 25-1 section of chromatogram for Aroclor 1254, 1260

1254



1260



- Compare the same peak with an adjacent peak in the standard chromatogram.

Compare similar peaks in sample chromatogram.

- Continue the process until you feel confidant that pattern does or doesn't match.
- Repeat overlay by folding the standard on the baseline and position slightly above the peaks in the sample chromatogram. Check that the peaks have similar height-peak ratios and similar retention time.

TIP: If the scale of the chromatogram is not the same as the sample, the overlay technique will not work well. If there is a noticeable shift in the surrogate retention times, there will be problems using the overlay.

Final technique that usually helps to identify the pattern:

- Looking at two similar peaks in the standards chromatograms determine what is **different** about the peak to an adjacent peak. Look for this difference in the sample chromatogram.

Looking for a difference is a good technique since the peaks of the proceeding Aroclor can be found in the next Aroclor. The responses of the peaks are different for each Aroclor. Follow the same procedure for the second column.

The reviewer should have determined that Aroclor 1254 was present and not 1260. There is another Aroclor (1248) present in the sample.

Spend the time doing the following two assignments. Identifying the Aroclors will be difficult without practice. The chromatograms for the assignments and quiz are from the same column.

Assignment # 1:

- identify five major peaks in each standard (3 peaks for 1016, 12221)
- identify the relationship of these peaks to adjacent peaks
- Compare and state the differences between these peaks in the other standards.
- Compare the elution time for beginning and end of the pattern for each standard.
- Working either forwards or backwards find similar peaks that are shared by the standards.

There are no right or wrong answers for the above assignments. Each reviewer will view a chromatogram differently each time as well. The reviewer will consistently use a toolbox of techniques as he/she gains experience identifying Aroclors.

Use the standard chromatogram of the Aroclors at the end of the unit immediately before the sample for Quiz 2 to do the above assignment. Each chromatogram will be on a separate page. Take the time to study and become comfortable reviewing chromatograms. The presence of Aroclors in a sample is a major and difficult part of data validation.

Assignment #2:

Toxaphene is another compound that requires identification by pattern recognition. It has a very different pattern than the seven Aroclors mentioned here. But the pattern may be similar to other unknown compounds.

- identify five major peaks in the standard
- identify the relationship of these peaks to adjacent peaks
- Compare and state the differences between these peaks in Aroclors 1254 and 1260.
- Compare the elution time for beginning and end of the pattern for Toxaphene.

The next 7 pages are full size chromatograms of Aroclor standards:
1660, 1221, 1232, 1242, 1248, 1254 and Toxaphene. Use these chromatograms to do the assignments mentioned on the previous pages and for Quiz 2.

There are no answers for the assignments, since each answer is dependent upon the reviewer. The answer for Quiz 2 is in Appendix E.

Module 25 Quiz 2

Instructions:

- Use the standards provided in Appendix D (pest chromatograms) to identify the Aroclor(s) in sample BBB00. (Last chromatogram after the standards)

In Appendix J is a copy of the Final Quiz that covers all of the criteria presented in Learning Modules 19-25. Answers for the Final Quiz is in a separate file marked as Final Quiz Answers (Appendix K).

Learning Module 24

Learning Objectives for this Module

- **Identify action taken for Sequence criterion not meeting the requirements stated in the checklist**
- **Identify action taken for Clean-up Efficiency criterion not meeting the requirements stated in the checklist**
- **Identify action taken for Field Duplicates criterion not meeting the requirements stated in the checklist**

Unit 1Analytical Sequence

Before any samples can be analyzed, it is necessary for the laboratory to successfully complete the initial calibration sequence outlined below and reported on Form 8.

Initial Calibration Sequence

1. Resolution Check
2. Performance Evaluation Mixture
3. Aroclor 1016/1260
4. Aroclor 1221
5. Aroclor 1232
6. Aroclor 1242
7. Aroclor 1248
8. Aroclor 1254
9. Toxaphene
10. Low Point Standard A
11. Low Point Standard B
12. Midpoint Standard A
13. Midpoint Standard B
14. High Point Standard A
15. High Point Standard B
16. Instrument Blank
17. Performance Evaluation Mixture

The initial calibration sequence is concluded with an instrument blank and a PEM. The first 12-hour period begins at the injection of the instrument blank at step #16.

After the initial calibration, the analysis sequence may continue as long as acceptable instrument blanks, Performance Evaluation Mixtures, and Individual Standard Mixtures A and B are analyzed at the required frequency.

All samples must be analyzed on two GC columns and the laboratory must adhere to the analysis sequence in both instances.

Continuing calibration and sample sequence

Analysis of pesticide/PCB Standards and samples must follow the sequence outlined in Table 24-1.

Table 24-1 Pesticide/PCB standard and sample sequence

Time	Injection #	Material Injected
	1 - 15	First 15 steps of the Initial Calibration
0 hr.	16	Instrument Blank after Initial Calibration
	17	PEM at end of Initial Calibration
	18	First Sample
		Subsequent Samples
End of 12 hr		Last sample
	1st injection past 12:00 hr.	Instrument Blank
	2nd and 3rd injections past 12:00 hr.	Individual Standard Mixtures A and B
		Sample
		Subsequent Samples
End of 12 hr.		Last Sample
	1st injection past 12:00 hr.	Instrument Blank
	2nd injection past 12:00 hr.	PEM
		Sample
		Subsequent samples
End of 12 hr.		Last sample
	1st injection past 12:00 hr.	Instrument Blank
	2nd and 3rd injections past 12:00 hr.	Individual Standard Mixtures A and B
		Sample
		Subsequent Samples
End of 12 hr.		Last sample

NOTE: The ending Instrument blank and Standard of the previous 12 hour sequence is also the beginning of the next 12-hour sequence.

Sequence Evaluation criteria:

- Every 12 hour sequence must have an Instrument blank and PEM analyses bracketing one end and an Instrument blank and Individual A and B analyses at the other end.

- If more than 12 hours have lapsed since the injection of the last Instrument blank, an Instrument blank and PEM analyses must be analyzed to start the new 12-hour sequence.

- The first 12 hours are counted from the injection time of the instrument blank analyzed immediately after the initial calibration to the injection time of the next instrument blank and then from injection times between subsequent instrument blanks.

- If a PEM or Individual Standard Mixture failed technical acceptance criteria, it must be **immediately** re-injected. If the re-injected standard passes criteria, sample analyses may continue. If the re-injected standard fails criteria, all analyses must stop, a new Initial Calibration run must be analyzed. Samples associated with failing standard must be re-analyzed. Review Example 24-1 to better understand this criteria.

Example 24-1 Analysis of sequence

Instrument blank	pass	
PEM	Pass	
Samples 1-10 analyzed		Samples 1-10 are bracketed beginning and ending with passing standards, therefore are not affected by the failing standard.
Instrument blank	pass	
Individual A	pass	
Individual B	pass	
Samples 11-21analyzed		samples 11-21 must be reanalyzed
Instrument blank	pass	
PEM	failed	
PEM	failed	At this point, no more samples can be analyzed using this calibration data. A new initial calibration sequence must be started

- No more than 1 chromatographic run may separate two analyses.

- If an Aroclor(s) is detected in a sample, an Aroclor standard must be analyzed within 72 hours before or after detection in the sample.

- Surrogates must be within established retention time limits. If RT limits were not met, sample must be reanalyzed.

- All standards analyzed, even analyses not associated with SDG samples should be reported to demonstrate sequence compliance. Otherwise an instrument blank and PEM must be analyzed to start the new 12-hour sequence.

Note: The laboratory may use "ZZZZ" to distinguish all samples that are not part of the sample delivery group being reported.

The section of the checklist below states the action to be taken, if the proper analytical sequence was not followed for each initial calibration and subsequent analyses.

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses?

ACTION: If no, take action specified in 3.2 above.

8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses, and all standards analyzed at the required frequency for each GC/ECD instrument used.? (See SOW pages D-21 & D-55/PEST.)

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Generally, the effect is negligible unless the sequence was grossly altered and/or the calibration was out of QC limits.

8.3 Were all samples analyzed within a 12 hour time period beginning with the injection of an instrument blank and bracketed by acceptable analyses of the proper standards?

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Document in the Data Assessment under Contract Problems/Non-Compliance.

8.4 If a multi-component analyte was detected in a sample, was a matching multi-component standard analyzed within 72 hours of the injection of the sample and within a valid 12 hour sequence?

NOTE: This additional standard is for identification purposes only. Positive results for Aroclors and Toxaphene are quantitated from the initial calibration.

ACTION: If no, document in the Data Assessment under Contract Problems/Non-Compliance.

The next quiz is a copy of Form 8 to practice spotting sequence discrepancies. All of the samples have positive hits for various pesticides and Aroclors 1248 and 1260.

Module 24 Quiz 1

Instruction: Write Data Assessment statements about any sequence problems on this page. The sequence (Form 8) is detailed on two pages.

8D

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NewLab_____ Contract : ___123456____

Lab Code: __NLB_____ Case No.: __12345__ SAS No.: _____ SDG No.:_BBB34

GC Column (1): _RTX-35_ ID: __0.53__(mm) Init. Calib. Date(s) : _05/01/01__ __05/01/01_

Instrument ID (1): __5890AA_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW.

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: _____5.25_____ DCB: _____19.36_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
5	RESC24	RESC24	05/01/01	1813	5.25	19.36
6	PEM24	PEM24	05/01/01	1837	5.25	19.36
7	AR166024	AR166024	05/01/01	1901	5.25	19.36
8	AR122124	AR122124	05/01/01	1925	5.25	19.36
9	AR123224	AR123224	05/01/01	1949	5.25	19.36
10	AR124224	AR124224	05/01/01	2013	5.25	19.36
11	AR124824	AR124824	05/01/01	2036	5.25	19.36
12	AR125424	AR125424	05/01/01	2100	5.25	19.36
13	TOXAPH24	TOXAPH24	05/01/01	2124	5.25	19.37
14	INDAL24	INDAL24	05/01/01	2148	5.25	19.36
15	INDAM24	INDAM24	05/01/01	2212	5.25	19.36
16	INDAH24	INDAH24	05/01/01	2235	5.25	19.36
17	INDBL24	INDBL24	05/01/01	2259	5.25	19.37
18	INDBM24	INDBM24	05/01/01	2323	5.25	19.37
19	INDBH24	INDBH24	05/01/01	2347	5.25	19.37
20	PIBLK25	PIBLK25	05/04/01	0011	5.25	19.36
21	PEM26	PEM26	05/04/01	0034	5.25	19.36
22	PBLKME	MB25	05/04/01	1058	5.25	19.37
23	BBB25	BBB34-1	05/04/01	1122	5.25	19.37
24	BBB26	BBB34-2	05/04/01	1146	5.25	19.36
25	BBB27	BBB34-3	05/04/01	1210	5.25	19.37
26	BBB28	BBB34-4	05/04/01	1233	5.25	19.36
27	BBB29	BBB34-5	05/04/01	1257	5.25	19.37
28	BBB30	BBB34-6	05/04/01	1321	5.25	19.36
29	BBB31	BBB34-7	05/04/01	1345	5.25	19.36
30	BBB32	BBB34-8	05/04/01	1409	5.25	19.36
31	BBB33	BBB34-9	05/04/01	1432	5.25	19.37
32	BBB34	BBB34-10	05/04/01	1456	5.25	19.36
33	BBB35	BBB34-11	05/04/01	1520	5.25	19.37
34	BBB36	BBB34-12	05/04/01	1544	5.25	19.36
35	INDAM26	INDAM26	05/04/01	1608	5.25	19.36
36	INDBM26	INDBM26	05/04/01	1631	5.25	19.36

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with an asterisk
* Values outside of QC limits.

Page __1____ of __2_____

FORM VIII PEST OLM04.2

8D

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: ____NewLab_____ Contract : ___123456____

Lab Code: __NLB_____ Case No.: __12345__ SAS No.: _____ SDG No.:_BBB34

Init. Calib. Date(s) : _05/01/01__ __05/01/01_

GC Column (1): _RTX-35_ ID: __0.53__(mm)

Instrument ID (1): __5890AA_____

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION

TCX: _____5.25_____ DCB: ____19.36_____

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	BBB37	BBB34-13	05/04/01	1655	5.25	19.36
2	BBB36	BBB34-12DL	05/04/01	1719	5.25	19.36
3	BBB39	BBB34-15	05/04/01	1743	5.25	19.36
4	BBB40	BBB34-16	05/04/01	1807	5.25	19.36
5	BBB41	BBB34-17	05/04/01	1918	5.25	19.36
6	BBB42	BBB34-18	05/04/01	1942	5.25	19.36
7	BBB43	BBB34-19	05/04/01	2006	5.25	19.36
8	BBB44	BBB34-20	05/04/01	2030	5.25	19.36
9	ZZZZZZZZZ	HEXANE	05/04/01	2053		
10	BBB28	BBB34-4DL	05/04/01	2117	5.25	19.36
11	BBB29	BBB34-5DL	05/04/01	2141	5.25	19.36
12	BBB40	BBB34-16DL	05/04/01	2205	5.25	19.36
13	BBB41	BBB34-17DL	05/04/01	2229	5.25	19.36
14	BBB43	BBB34-19DL	05/04/01	2252	5.25	19.36
15	BBB38	BBB34-14	05/04/01	2316	5.25	19.36
16	PIBLKUY	PIBLKUY	05/04/01	0001	5.25	19.36
17	INDALUZ	INDALUZ	05/04/01	0025	5.25	19.36
18	INDBLUZ	INDBLUZ	05/04/01	0049	5.25	19.36
19	PIBLKVZ	PIBLKVZ	05/06/01	2013	5.25	19.36
20	INDAMAA	INDAMAA	05/06/01	2036	5.25	19.36
21	INDBMAA	INDBMAA	05/06/01	2100	5.25	19.36
22	BBB34MS	BBB34-10MS	05/06/01	2124	5.25	19.36
23	BBB34MSD	BBB34-10MSD	05/06/01	2148	5.25	19.36
24	BBB34	BBB34-10DL	05/06/01	2212	5.18	19.24
25	ZZZZZZZZZ	ZZZZZZZZZ	05/06/01	2235	5.18	19.24
26	BBB42	BBB34-18DL	05/06/01	2259	5.18	19.24
27	BBB43	BBB34-19DL	05/06/01	2323	5.18	19.24
28	ZZZZZZZZZ	ZZZZZZZZZ	05/06/01	2347	5.18	19.24
29	AR125425	AR125425	05/06/01	0011	5.25	19.36
30	PIBLKVZ	PIBLKVZ	05/06/01	0034	5.25	19.36
31	PEMVA	PEMVA	05/06/01	0058	5.25	19.36
32	PEMVB	PEMVB	05/06/01	0345	5.25	19.36

`QC LIMITS

TCX = Tetrachloro-m-xylene (± 0.05 MINUTES)

DCB = Decachlorobiphenyl (± 0.10 MINUTES)

Column used to flag retention time values with an asterisk

* Values outside of QC limits.

Page __2____ of ___2____

FORM VIII PEST

OLM04.2

Unit 2Clean Up Efficiency

The objective of this section is to determine if data should be qualified because of poor cleanup efficiency, or if samples did not receive the proper cleanup.

Pesticide cleanup procedures are utilized to remove matrix interference from sample extracts prior to analysis. The use of the Florisil cartridge cleanup procedure significantly reduces matrix interference caused by polar compounds. Gel permeation chromatography (GPC) is used to remove high molecular weight contaminants that can interfere with the analysis of target compounds. Spiking the cleanup columns and cartridges, and calculating percent recoveries of spiked compounds after the cleanup procedure verifies the pesticide cleanup procedures.

Florisil Cartridge Cleanup

Florisil is actually a trade name for a magnesium silicate with acidic properties which is registered with the Floridin Co. Florisil is primarily used to separate classes of compounds based on polarity. The polarity of the Florisil is adjusted by either activation, heating at an elevated temperature, or deactivation, a process in which water is added. To cleanup phthalate esters, Florisil is deactivated with water. To cleanup nitrosoamines, pesticides, PCBs, nitroaromatics and haloethers activated Florisil is used.

Florisil cartridge cleanup must be used for the cleanup of all extracts. Every lot number of Florisil used must be checked by spiking with a final volume of 0.5 mL of the midpoint Individual A Standard Mixture and 2,4,5-trichlorophenol. The solution of 2,4,5-trichlorophenol should be prepared at 0.1ug/mL. The lot of Florisil is considered acceptable if the recovery of all pesticides and surrogates is between 80 and 120 percent. The recovery of 2,4,5-trichlorophenol must be less than 5 percent. Also, there can be no extraneous peaks, which interfere with the target analytes.

Gel Permeation Chromatography (GPC)

Gel permeation chromatography (GPC) is a size exclusion cleanup procedure using organic solvents and hydrophobic gels in the separation of synthetic macromolecules. The packing gel is porous and is characterized by the range or uniformity (exclusion range) of that pore size. A cross-linked divinyl benzenestyrene copolymer is specified in the CLP protocol. When selecting a gel, the exclusion range must be larger than the molecular size of the molecules to be separated. GPC is utilized to remove dispersed high molecular weight compounds, which might interfere with the sample analysis.

Because particle size is the controlling factor, GPC is appropriate for both polar and non-polar analytes. A reasonable analogy would be to compare a GPC to filtration system in which undesired components are retained while the solution containing components of interest is allowed to pass through the filter.

GPC is used for the cleanup of all soil sample extracts and for water sample extracts that contain high molecular weight components that interfere with the analysis of the target analytes. The GPC unit should be checked every 7 days with two check mixtures: a 1:5 dilution of the matrix spike solution and a standard comprised of Aroclors 1016 and 1260 each at 0.2 ug/mL. The GPC calibration is within QC limits when the pesticide recoveries are between 80 and 110 percent and the Aroclor patterns correspond to those in the calibration standards.

The data from the Florisil cartridge solution analyses and the GPC calibration check analyses can be found on Form 9A and 9B respectively. Percent recoveries are calculated in the same manner for both Florisil and Gel Permeation Chromatography cartridge checks.

Equation 24-1 Percent Recovery

$$\text{Percent Recovery} = \frac{Q_d}{Q_a} \times 100$$

Where,

Q_d = Quantity/Concentration determined by analysis

Q_a = Quantity/Concentration added to sample/blank

The next quiz will ask you to calculate recoveries on Forms 8 and 9. Answers are in Appendix E.

Module 24 Quiz 2

Instruction: Calculate the % Recovery for each analyte on Form 9A and 9B.

9A
PESTICIDE FLORISIL CARTRIDGE CHECK

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BBB34

Florisil Cartridge Lot Number: ___W1234AA____ Date of Analysis : ___01/05/01_____

GC Column (1): __RTX-35__ ID: _0.53__(mm) GC Column (2): _DB-5_ ID: _0.32__(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC	#	QC LIMITS
Alpha-BHC	10	9.8			80-120
Gamma BHC	10	12			80-120
Heptachlor	10	7			80-120
Endosulfan I	10	13			80-120
Dieldrin	20	14			80-120
Endrin	20	25			80-120
4,4'DDD	20	15			80-120
4,4'DDT	20	0			80-120
Methoxychlor	100	110			80-120
Tetrachloro-m-xylene	10	12			80-120
Decachlorobiphenyl	20	17			80-120
2,4,5-Trichlorophenol	50	1.9			< 5

Column used to flag retention time values with an asterisk
* Values outside of QC limits.

9B
PESTICIDE GPC CALIBRATION VERIFICATION

Lab Name: ____NEWLAB_____ Contract : ___123456____

Lab Code: __NLB___ Case No.: __12345__ SAS No.: _____ SDG No.:_BBB34

GPC Column: __GPCABC1_____ Calibration Verification Date : ___05/03/01_____

GC Column (1): _RTX-35__ ID: _0.53__(mm) GC Column (2): _DB-5__ ID: _0.32_(mm)

COMPOUND	SPIKE ADDED (NG)	SPIKE RECOVERED (NG)	% REC	#	QC LIMITS
Gamma BHC (Lindane)	0.050	0.045			80-110
Heptachlor	0.050	0.038			80-110
Aldrin	0.050	0.048			80-110
Dieldrin	0.10	0.088			80-110
Endrin	0.10	0.084			80-110
4,4'DDT	0.10	0.000			80-110

Column used to flag retention time values with an asterisk
* Values outside of QC limits.

Practice 24-1 Using the results from Quiz 2 and following the checklist below, how would the data be qualified? Assume all samples were reported on the forms correctly for each clean-up procedure.

9.0 <u>Cleanup Efficiency Verification (Form IX)</u>

9.1 Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for <u>all Pest/PCB extracts</u>.)
Are all samples listed on the Pesticide Florisil Cartridge Check Form?

ACTION: If no, take action specified in 3.2 above. If data suggests florisil clean up was not performed, document in the Data Assessment under the Contract Non-compliance section.

9.2

Are percent recoveries (%REC) of the pesticide and surrogate compounds used to check the efficiency of the florisil clean-up procedure within QC limits of 80 - 120%?

ACTION: Qualify only the analyte(s) which failed the recovery criteria as follows:

If %REC is < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 120%.

NOTE: Sample data should be evaluated for potential interferences if recovery of 2,4,5-trichloro-phenol was > 5% in the Florisil Cartridge Performance Check analysis. Document any problems found in the Data Assessment under the Contract Problems/Non-Compliance section.

9.3 If GPC Cleanup was performed (mandatory for all soil sample extracts), is Form IX Pest-2 present?

Are all soil samples listed on Form IX Pest-2?

ACTION: If no, take action specified in 3.2 above. If data suggests GPC clean-up was not performed when required, document in the Data Assessment under the Contract Problems/Non-Compliance section.

Are the %REC values for all pesticides in the GPC calibration solution between 80 - 110%?

ACTION:

Qualify only those analytes which failed the recovery criteria as follows:

If %REC are < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 110%.

NOTE: An Aroclor mixture containing Aroclors 1016 and 1260 is also analyzed during GPC calibration; however, Aroclor data is not listed on Form IX PEST-2. The raw GPC data for Aroclors 1016/1260 must be evaluated for pattern similarity with previously analyzed Aroclor standards.

9.4 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-30, sec. 3.3.7.2 and 3.3.7.9 of the SOW for further information.

Was the correct identification scheme used for GPC and Florisil blanks?

Answer to Practice 24-1 The data must be qualified as followed:

Florisil criteria:

Heptachlor and DDD qualified detects as "J", non-detects as "UJ"
DDT non-detects are qualified as "R", detects as "J".

GPC criteria:

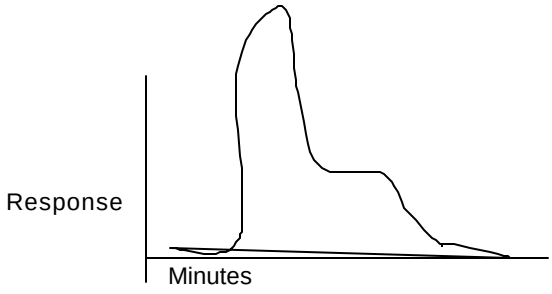
Heptachlor qualified detects as "J", non-detects as "UJ"
DDT non-detects are qualified as "R", detects as "J".

Analytes with % Recovery that exceed the upper limits may be qualified using professional judgement.

Sulfur Clean up

Sulfur removal must be performed on all sample extracts that contain sulfur. Sulfur interference is evident in the chromatogram and interferes with later eluting analytes. The presence of sulfur causes a baseline rise in the shape of an inverted saddle (Diagram 24-1).

Diagram 24-1 diagram of sulfur saddle



Sulfur must be removed using a copper or mercury technique. Only the samples affected by sulfur need to be cleaned. If only part of the set of samples are cleaned, the method blank for the set must also undergo sulfur clean up. The method blank and the associated sulfur cleaned samples are reported separately on Form 4. The Form 1 for these samples should have an "Y" in the sulfur cleanup field.

If sulfur is present in any sample and was not removed, data must be qualified. Each sample must be checked and all single and multi-component analytes that elute in the masked retention time must be rejected and qualified as "R". Document action in Data Assessment under Other Problems section. Document the contract non-compliance issue under the appropriate section.

The last checklist section (13.0) covered in the next unit is Field Duplicates. Sections 10, 11 and 12 of the checklist will be covered in Module 25.

Unit 3 Field Duplicates

Relative Percent Difference (RPD)

Data may be qualified or commented on the criterion of Relative Percent Difference (RPD) of duplicate samples.

There are no specific criteria for comparability of field duplicate analyses. Soil duplicate samples will usually have a greater variance than water duplicate samples. The duplicate sample numbers are listed in the sample trip report or the traffic report. The reviewer should compute the RPD, and may qualify data based on this.

A high RPD in two soil samples having the same sample location is often due to non-homogeneity of the samples' matrix and not necessarily caused by inadequate analytical performance. If there is strong evidence that one sample result has a higher reliability than the field duplicate sample, it should be noted in the data assessment. The data user will make the final decision on how to evaluate the usability of field duplicates.

Equation 24-1 provides the formula to calculate RPD.

Equation -24-1 Formula for RPD

$$RPD = \frac{| SR - SDR |}{(1/2)\,(SR + SDR)} \times 100$$

SR = sample result of a particular analyte.
SDR = Sample Duplicate Result of a particular analyte.

The vertical bars in the formula above indicate the absolute value of the difference, hence RPD is always expressed as a positive value.

Example 24-1 Calculate RPD for delta BHC

Delta BHC in sample BBB02 is 78 ug/L and duplicate sample BBB07 has 63ug/L. What is the RPD?

$$RPD = \frac{| 78 - 63 |}{(1/2)\,(78 + 63)} \times 100$$

$$RPD\ (21.3) = \frac{15}{70.5} \times 100$$

Look at the last pesticide section in the checklist for any action that may be required if the RPD is over a specific number.

13.0 Field Duplicates

13.1 Were any field duplicates submitted?

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

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

Usually a number less than 25% for water and 50% for soil is not considered to be a problem. Remember these numbers are not fixed in stone. Use your judgement based on the data of all the samples in the package. Anything that the validator feels should be noted or brought to the attention by the data user should be mentioned in the Data Assessment.

There are many times when a situation may be present that does not affect the validity of the data but is different or unusual. Do not hesitate to inform the data user of the situation. Add a note or a FYI that will call the data user attention to the details.

There is a short quiz to practice calculating RPD. Answers are in Appendix E.

Module 24 Quiz 3

Instructions: Calculate the RPD for each of the following problems.

1.	DDT	Sample 1 = 5.7	Sample 2 = 4.1	RPD =
2.	Endrin	Sample 1 = 1.5	Sample 2 = 2.2	RPD =
3.	Methoxychlor	Sample 1 = 45	Sample 2 = 15	RPD =
4.	Aroclor 1254	Sample 1 = 550	Sample 2 = 780	RPD =
5.	Gamma BHC	Sample 1 = 0.07	Sample 2 = 0.04	RPD =
6.	Dieldrin	Sample 1 = 0.045	Sample 2 = 0.023	RPD =
7.	Endosulfan I	Sample 1 = 22	Sample 2 = 35	RPD =
8.	Endosulfan sulfate	Sample 1 = 15	Sample 2 = 24	RPD =
9.	Endrin aldehyde	Sample 1 = 8.7	Sample 2 = 4.4	RPD =
10.	Toxaphene	Sample 1 = 17	Sample 2 = 21	RPD =

Learning Module 23

Learning Objectives for this Module

- **Identify action taken for Initial and Continuing Calibration criteria not meeting the requirements stated in the checklist**
- **Calculate concentration of analytes**

Review of Key Terms

%RSD - Percent Relative Standard Deviation- statistical tool used to measure the population standard deviation of a list of values.

CF - Calibration Factor- a measure of the relative response of an analyte compared to the concentration of the standard.

%D - Percent Difference- compares two values and indicates both the direction and the magnitude of the comparison. The value may be positive, negative or zero.

GPC - Gel Permeation Clean-up procedure used on complex matrices. It is a size exclusion chromatographic technique for removing large organic molecules such as lipids and polymers.

Note: This module will reference the SOW term "calibration verification" as continuing calibration to maintain uniformity in the validation process.

This format for this module is slightly different than the modules for the other fractions. You will be doing the calculation unit first followed by the criteria and checklists units.

Unit 1 Calculations

Analyte Concentration

Quantitative analysis of pesticides/Aroclors must be accomplished by the external standard method. Three-point calibration curves for single component analytes and the surrogates must be generated during the calibration. Single-point calibrations for multi-component analytes are sufficient for quantitation by this method.

Analytes may be quantitated using either peak height or peak area, as long as the method is consistent throughout the analytical sequence. The electron capture detector (ECD) response for single component analytes must be within the three-point calibration range in order for quantitative measurements to be made. The extracts must be diluted if the ECD response exceeds the calibration range. Quantitation of target analytes and surrogates must be performed and reported on both columns. The lowest value from both columns is reported on the Form 1 for each analyte.

Single Component Pesticides

The concentrations of the single component pesticides are calculated separately for both analyses by using the following equations:

Equation 23-1 Concentration of analytes in aqueous matrix

$$\text{Concentration Ug/L} = \frac{(A_x)(V_t)(Df)}{(CF)(V_o)(V_i)}$$

Where,

A_x = Area of the peak for the compound to be measured

CF = Calibration factor for the mid point concentration standard (see Equation 23-4)

V_o = Volume of water extracted in milliliters (mL)

V_i = Volume of extract injected in microliters (uL). (If a single injection is made onto two columns, use one half the volume in the syringe as the volume injected onto each column.)

V_t = Volume of the concentrated extract in microliters (uL) (this volume must be 10000 uL)

Df = Dilution factor. The dilution factor for analysis of water samples by this method is defined as follows:

$$\frac{\text{uL most conc. extract used to make dilution + uL clean solvent}}{\text{uL most conc. extract used to make dilution}}$$

If no dilution is performed, Df = 1.0.

If GPC is performed on a water sample extract, V_t becomes 5000 uL, and a factor of 2 must be added to the numerator, as described below for soil/sediment samples.

Equation 23-2 Concentration of analytes in soil matrix

$$\text{Concentration Ug/Kg (Dry Weight basis)} = \frac{(A_x)(V_t)(Df)(2.0)}{(CF)(V_i)(W_s)(D)}$$

Where,

A_x = DF and CF are as given for water, above.

V_t = Volume of the concentrated extract in microliters (uL) (this volume must be 5000 uL)

V_i = Volume of extract injected in microliters (uL). (If a single injection is made onto two columns, use one half the volume in the syringe as the volume injected onto each column.)

$D = \frac{100 - \%\ \text{moisture}}{100}$

W_s = Weight of the sample extracted in grams (g)

If no dilution is performed, Df = 1.0.

The factor of 2.0 in the numerator is used to account for the amount of extract that is not recovered from the mandatory use of GPC cleanup. Concentrating the extract collected after GPC to 5.0 mL rather than 10.0 mL for water samples not subjected to GPC maintains the sensitivity of the soil method comparable to the water method, but correction of the numerical result is still required.

Practice 23-1 Aqueous matrix

BBB31 has a sample volume of 1000 mL, injection volume is 1 uL on each column, final volume is 10000 uL. The area response for TCX is 20767 and the CF is 653350. Calculate the concentration of TCX in the sample using Equation 23-1.

Answer to Practice 23-1

The on-column concentration is 0.0317 ng and the actual concentration in the sample is 0.317 ug/L.

Practice 23-2 Soil matrix

BBB33 has a sample weight of 30.0g, % moisture of 17%, injection volume is 1 uL on each column, final volume is 5000 uL. The area response for TCX is 18731 and the CF is 653350. Calculate the concentration of TCX in the sample using Equation 23-2.

Answer to Practice 23-2

To answer this problem correctly, you had to remember GPC must be performed. Since the final extract volume is 5000 uL, GPC was performed on the sample. (Always read the SDG narrative for this fraction to check for extraction process problems. The on column amount is 0.028668 ng and the actual concentration in the sample is 11.514 rounded and reported as 12.0 ug/Kg.

The next quiz will give you practice calculating the concentration of an analyte. Answers are in Appendix E.

Module 23 Quiz 1

Instructions:

- Calculate the concentration of the analytes in each sample using the appropriate equation, (Equation 23-1 or 23-2).
- Use the values in Table 1 and write the concentration for the analyte for each sample in Table 2.

Table 1

	Sample ID	Matrix/ %M	Vol/Wt	Inj Vol	Final Vol	CF	Analyte
1.	BBB20	water	950	1 uL	10000	1026840	Alpha BHC
2.	BBB21	Soil / 15%	30.5	1 uL	5000	912750	Delta BHC
3.	BBB22	water	800	1 uL	10000	368880	Heptachlor
4.	BBB23	Soil / 25%	31.4	1 uL	5000	736100	Dieldrin
5.	BBB24	water	980	1 uL	10000	456425	Endrin
6.	BBB25	Soil / 5%	30.8	1 uL	5000	528675	DDE
7.	BBB26	water	1000	1 uL	10000	569800	DDT
8.	BBB27	Soil / 55%	30.0	1 uL	5000	462450	Methoxychlor
9.	BBB28	water	500	1 uL	5000	246080	TCX
10.	BBB29	Soil / 45%	15.0	1 uL	5000	575675	DBC

Table 2 Answers

		Sample ID	response	Concentration
1.		BBB20	20658	
2.		BBB21	18731	
3.		BBB22	55563	
4.		BBB23	22587	
5.		BBB24	66358	
6.		BBB25	11245	
7.		BBB26	188794	
8.		BBB27	27935	
9.		BBB28	5215	
10		BBB29	8859	

Multi-component Pesticides

The concentrations of the multi- component pesticides are calculated separately for each peak on both columns by using the Equations 23-1 and 23-2. This unit will concentrate on the quantitation of Aroclors. The identification of the Aroclors will be discussed in Module 25.

There are specific criteria for PCBs:

- A minimum of three to five major peaks must be chosen for each Aroclor.
- The peaks should be different for each Aroclor. If more than one Aroclor is identified, the peaks chosen for each Aroclor must be different.

Each peak is quantitated separately and an **average** taken of the quantitated peaks.

Practice 23-3 Calculate the concentration of Aroclor 1221 in a water sample 1000mL, 1.0 uL injection.

Aroclor 1221	RT	CF	Response	Concentration
Peak 1	6.05	4195	1673	
Peak 2	6.40	3435	1568	
Peak 3	6.55	13535	8707	
			Final Conc.	

Answer to Practice 23-3

Aroclor 1221	Concentration
Peak 1	3.99
Peak 2	4.57
Peak 3	6.43
Final Conc.	5.0 (4.996)

The next quiz will ask you to calculate several Aroclors. The answers are in Appendix E. You will need the equations to calculate the concentrations for the calibration forms.

Module 23 Quiz 2

Calculate the concentration of each Aroclor in the samples on the next page. Refer to Form 6G for Calibration Factors.

Modified 6G

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

COMPOUND	AMOUNT (NG)	PEAK[1]	RT	CALIBRATION FACTOR
Aroclor 1016:	0.10	1	6.55	10330
		2	7.58	22580
		3	8.69	54450
		4	9.01	23190
		5	10.15	17870
Aroclor 1221:	0.20	1	4.38	2835
		2	6.05	4195
		3	6.40	3435
		4	6.55	13535
		5		
Aroclor 1232:	0.10	1	6.55	13610
		2	7.58	8480
		3	8.69	23450
		4	9.02	9540
		5	10.15	6380
Aroclor 1242:	0.10	1	6.55	8960
		2	7.58	15360
		3	8.69	40720
		4	11.15	16630
		5	11.67	17080
Aroclor 1248:	0.10	1	10.15	23080
		2	10.43	25630
		3	11.05	32670
		4	11.67	28850
		5	12.66	19590
Aroclor 1254:	0.10	1	11.60	45910
		2	12.65	51350
		3	13.18	56260
		4	13.97	33550
		5	14.41	61860
Aroclor 1260:	0.10	1	13.60	67750
		2	15.29	35050
		3	15.87	84200
		4	16.69	55660
		5	18.00	15650

[1]At least 3 peaks for each column are required for identification of multi-component analytes.

1.

Sample Info	Aroclor 1016 Peaks	Response	Conc.
Water	1	555	
980 mL	2	1023	
1.0 uL injection	3	3657	
DF = 2	4	1097	
F.V = 10000	5	887	
	Final		

2.

Sample Info	Aroclor 1221 Peaks	Response	Conc.
Soil 38%	1	1856	
30.6g	2	2579	
1.0 uL injection	3	2256	
DF = 1	4	12879	
F.V = 5000	5		
	Final		

3.

Sample Info	Aroclor 1260 Peaks	Response	Conc.
Water	1	5456	
1000 mL	2	2874	
1.0 uL injection	3	7432	
DF = 5	4	4897	
F.V = 10000	5	1254	
	Final		

4.

Sample Info	Aroclor 1242 Peaks	Response	Conc.
Soil 28%	1	5896	
26.8g	2	10527	
1.0 uL injection	3	42365	
DF = 1	4	16669	
F.V = 5000	5	18963	
	Final		

5.

Sample Info	Aroclor 1254 Peaks	Response	Conc.
Water	1	48564	
750 mL	2	52178	
1.0 uL injection	3	62370	
DF = 1	4	45268	
F.V = 10000	5	78935	
	Final		

6.

Sample Info	Aroclor 1248 Peaks	Response	Conc.
Soil 15%	1	2232	
32.0g	2	3568	
1.0 uL injection	3	5896	
DF = 1	4	4458	
F.V = 5000	5	2222	
	Final		

Calibrations

There are many forms associated with the calibration criteria that must be checked. Initial calibration data for pesticides are divided onto two different forms: 6E, 6F and 6H are for single component analytes and 6G for multi-component analytes. Toxaphene and the seven Aroclors of interest (1016, 1221, 1232, 1242, 1248, 1254 and 1260) comprise the multi-component analytes. Forms 6I, 6J and 6K are completed for both initial and continuing calibration data. Continuing calibration information must be reported on forms 7E and 7F. There are basic calculations for calibration factor and retention time that must be completed for all of these forms.

Retention Time Window

Forms 6E and 6G require the retention time of each analyte and establish the each analyte identification retention time window. The window is determined by using the mean RT and $\pm$ a window value for the analyte. Equation 23-3 is used to calculate the mean RT and Table 23-7 list the window value added to the mean.

Table 23-1 Window value $\pm$ to the mean for each analyte

Condition	Window value
Analytes that elute before heptachlor epoxide	$\pm$ 0.05
All other analytes	$\pm$ 0.07
Decachlorobiphenyl	$\pm$ 0.10
Multi-component analytes	$\pm$ 0.07

Equation 23-3 Mean Value

$$\text{Mean} = \frac{(RT_{low} + RT_{med} + RT_{high})}{3}$$

Example 23-1

Alpha BHC has a mean RT of 9.22. Since this analyte elutes before heptachlor epoxide (check the Quant reports), $\pm$ 0.05 to the mean.

9.22 + 0.05 = 9.27
9.22 - 0.05 = 9.17

RT window is 9.17 to 9.27

This is a simple calculation that only requires you to remember the different analytes retention time criteria.

Calibration Factor

Forms 6F and G requires the lab to calculate the calibration factor for each analyte and %RSD. The validator should verify three or four values from each column. Equation 23-4 provides the calculation of calibration factors.

Equation 23-4 Calculation for CF value

$$CF = \frac{\text{Peak Area (or Height) of the analyte}}{\text{Mass Injected (ng)}}$$

The labs are allowed to use peak area or height in the equation **BUT** whichever response is used, it must be the same for all of the standard levels and samples.
Rule Examples:

- The lab used peak height for alpha BHC in the low-level standard. The lab must use peak height when calculating CF for the other levels and sample concentration for alpha BHC.
- The lab can use peak height for alpha BHC and peak area for gamma BHC as long as first rule is followed.
- Only single component analytes have three calibration levels.
- For Toxaphene or Aroclors, quantitation is accomplished by a single point calibration. Concentrations of multi-component analytes are calculated with the same equations used for single component pesticides, where A_x is the area or height for each of the major peaks selected from the multi-component analyte pattern. The concentration of each peak is determined separately and then the mean concentration for three to five peaks is calculated.

The next quiz will give you practice calculating RT and CF. Answers can be found in Appendix E. Do not check your answers until after you have completed the Quiz 5.

Module 23 Quiz 3

Instruction:

- Fill in the missing RT and Calculate the CF for each level and analyte on the appropriate forms.
- Fill in the CF values only, leave the mean CF and %RSD fields empty.

Column RTX-35 Modified Quant Reports for initial calibration standards

INDAL24

RT	area	Compounds	On-column amt. ng
5.25	2764	TCMX	0.005
6.88	4028	alpha-BHC	0.005
7.80	3692	gamma BHC	0.005
8.87	4225	Heptachlor	0.005
11.95	3461	Endosulfan I	0.005
12.60	6175	Dieldrin	0.010
13.28	3020	Endrin	0.010
13.73	4477	4,4'DDD	0.010
14.43	4618	4,4'DDT	0.010
16.10	12053	Methoxychlor	0.05
19.36	5467	DBC	0.010

INDBL24

RT	area	Compounds	On-column amt. ng
5.25	2894	TCMX	0.005
8.07	1741	beta BHC	0.005
8.79	2999	delta-BHC	0.005
9.63	3933	Aldrin	0.005
11.06	3464	Heptachlor epoxide	0.005
11.51	3706	gamma-Chlordane	0.005
11.87	4026	alpha-Chlordane	0.005
12.40	6925	4,4'DDE	0.010
13.79	5883	Endosulfan II	0.010
14.60	4385	Endrin aldehyde	0.010
15.23	5307	Endosulfan sulfate	0.010
16.38	5295	Endrin ketone	0.010
19.36	5464	DBC	0.010

INDAM24

RT	area	Compounds	On-column amt. ng
5.25	13068	TCMX	0.020
6.88	20556	alpha-BHC	0.020
7.80	18437	gamma BHC	0.020
8.87	19543	Heptachlor	0.020
11.95	15892	Endosulfan I	0.020
12.60	28577	Dieldrin	0.040
13.28	18401	Endrin	0.040
13.73	21495	4,4'DDD	0.040
14.43	22309	4,4'DDT	0.040
16.10	31056	Methoxychlor	0.20
19.36	35267	DBC	0.040

INDBM24

RT	area	Compounds	On-column amt. ng
5.25	12737	TCMX	0.020
8.07	7398	beta BHC	0.020
8.79	17973	delta-BHC	0.020
9.63	17522	Aldrin	0.020
11.06	15570	Heptachlor epoxide	0.020
11.51	16619	gamma-Chlordane	0.020
11.87	15589	alpha-Chlordane	0.020
12.39	29808	4,4'DDE	0.040
13.79	24898	Endosulfan II	0.040
14.60	18498	Endrin aldehyde	0.040
15.23	22285	Endosulfan sulfate	0.040
16.39	21572	Endrin ketone	0.040
19.37	21955	DBC	0.040

INDAH24

RT	area	Compounds	On-column amt. ng
5.25	49939	TCMX	0.080
6.88	110796	alpha-BHC	0.080
7.80	77069	gamma BHC	0.080
8.87	74557	Heptachlor	0.080
11.95	56751	Endosulfan I	0.080
12.60	105738	Dieldrin	0.160
13.28	66054	Endrin	0.160

INDBH24

RT	area	Compounds	On-column amt. ng
5.25	48476	TCMX	0.080
8.07	28551	beta BHC	0.080
8.79	81461	delta-BHC	0.080
9.63	66722	Aldrin	0.080
11.06	57020	Heptachlor epoxide	0.080
11.51	62439	gamma-Chlordane	0.080
11.87	57736	alpha-Chlordane	0.080

13.73	83680	4,4'DDD	0.160
14.43	86454	4,4'DDT	0.160
16.10	170358	Methoxychlor	0.800
19.37	81102	DBC	0.160

12.40	109303	4,4'DDE	0.160
13.79	89362	Endosulfan II	0.160
14.60	67405	Endrin aldehyde	0.160
15.23	81827	Endosulfan sulfate	0.160
16.38	81199	Endrin ketone	0.160
19.37	76188	DBC	0.160

Column DB-5 Modified Quant Reports for initial calibration standards

INDAL24

RT	area	Compounds	On-column amt. ng
4.01	3225	TCMX	0.005
5.28	4052	alpha-BHC	0.005
6.01	4002	gamma BHC	0.005
7.10	4766	Heptachlor	0.005
10.08	3899	Endosulfan I	0.005
10.64	6715	Dieldrin	0.010
11.12	5213	Endrin	0.010
11.52	4924	4,4'DDD	0.010
12.14	5421	4,4'DDT	0.010
13.38	15163	Methoxychlor	0.05
16.60	7722	DBC	0.010

INDBL24

RT	area	Compounds	On-column amt. ng
4.02	3507	TCMX	0.005
6.27	2260	beta BHC	0.005
6.65	3469	delta-BHC	0.005
7.77	4075	Aldrin	0.005
9.22	4152	Heptachlor epoxide	0.005
9.51	3980	gamma-Chlordane	0.005
9.82	4112	alpha-Chlordane	0.005
10.17	5015	4,4'DDE	0.010
11.64	6866	Endosulfan II	0.010
12.61	5814	Endrin aldehyde	0.010
13.58	6656	Endosulfan sulfate	0.010
14.14	6683	Endrin ketone	0.010
16.60	7724	DBC	0.010

INDAM24

RT	area	Compounds	On-column amt. ng
4.02	15350	TCMX	0.020
5.28	20804	alpha-BHC	0.020
6.01	19936	gamma BHC	0.020
7.11	20801	Heptachlor	0.020
10.08	16641	Endosulfan I	0.020
10.64	30831	Dieldrin	0.040
11.12	23755	Endrin	0.040
11.52	23155	4,4'DDD	0.040
12.14	25104	4,4'DDT	0.040
13.38	62151	Methoxychlor	0.20
16.60	29712	DBC	0.040

INDBM24

RT	area	Compounds	On-column amt. ng
4.02	15127	TCMX	0.020
6.27	9117	beta BHC	0.020
6.65	18119	delta-BHC	0.020
7.78	17461	Aldrin	0.020
9.22	16962	Heptachlor epoxide	0.020
9.51	23148	gamma-Chlordane	0.020
9.82	16704	alpha-Chlordane	0.020
10.17	29057	4,4'DDE	0.040
11.64	28130	Endosulfan II	0.040
12.61	22483	Endrin aldehyde	0.040
13.58	26473	Endosulfan sulfate	0.040
14.14	26860	Endrin ketone	0.040
16.60	28021	DBC	0.040

INDAH24

RT	area	Compounds	On-column amt. ng
4.01	60354	TCMX	0.080
5.28	111278	alpha-BHC	0.080
6.02	87805	gamma BHC	0.080
7.11	82930	Heptachlor	0.080
10.08	63642	Endosulfan I	0.080
10.64	125799	Dieldrin	0.160
11.12	94007	Endrin	0.160

INDBH24

RT	area	Compounds	On-column amt. ng
4.02	57997	TCMX	0.080
6.27	33784	beta BHC	0.080
6.65	80920	delta-BHC	0.080
7.77	70798	Aldrin	0.080
9.22	64425	Heptachlor epoxide	0.080
9.51	67370	gamma-Chlordane	0.080
9.82	64377	alpha-Chlordane	0.080

11.52	97734	4,4'DDD	0.160
12.14	104194	4,4'DDT	0.160
13.38	371621	Methoxychlor	0.800
16.60	103404	DBC	0.160

10.17	122812	4,4'DDE	0.160
11.64	106600	Endosulfan II	0.160
12.61	82398	Endrin aldehyde	0.160
13.58	98438	Endosulfan sulfate	0.160
14.14	104335	Endrin ketone	0.160
16.60	97144	DBC	0.160

Column RTX-35 Modified Form 6E

Compounds	RT of Standards			Mean RT	RT window	
	low	med	high		From	TO
alpha-BHC						
beta BHC	8.07	8.07	8.07	8.07	8.02	8.12
delta-BHC	8.79	8.79	8.79	8.79	8.74	8.84
gamma BHC	7.80	7.80	7.80	7.80	7.75	7.85
Heptachlor						
Aldrin	9.63	9.63	9.63	9.63	9.58	9.68
Heptachlor epoxide	11.06	11.06	11.06	11.06	10.99	11.10
Endosulfan I	11.95	11.95	11.95	11.95	11.88	12.00
Dieldrin	12.60	12.60	12.60	12.60	12.53	12.70
4,4'DDE						
Endrin	13.28	13.28	13.28	13.28	13.21	13.40
Endosulfan II	13.79	13.79	13.79	13.79	13.72	13.90
4,4'DDD	13.73	13.73	13.73	13.73	13.66	13.80
Endosulfan sulfate	15.23	15.23	15.23	15.23	15.16	15.30
4,4'DDT						
Methoxychlor	16.10	16.10	16.10	16.10	16.03	16.20
Endrin ketone	16.39	16.39	16.39	16.39	16.32	16.50
Endrin aldehyde	14.60	14.60	14.60	14.60	14.53	14.70
alpha-Chlordane						
gamma-Chlordane	11.51	11.51	11.51	11.51	11.44	11.60
Tetrachloro-m-xylene						
Decachlorobiphenyl	19.36	19.36	19.37	19.36	19.26	19.50

Modified Form 6F

Compounds	low	med	high	mean	%RSD
alpha-BHC					
beta BHC	348200	369900	356888	358329	3.0
delta-BHC					
gamma BHC	738200	921850	963350	874467	13.7
Heptachlor	845000	977100	931950	918017	7.3
Aldrin					
Heptachlor epoxide	692800	778450	712750	728000	6.2
Endosulfan I	692000	794600	709375	731992	7.5
Dieldrin	617400	714400	660863	664221	7.3
4,4'DDE	692400	745200	683144	706915	4.7
Endrin					
Endosulfan II	588300	622450	558506	589752	5.4
4,4'DDD	447700	537375	522994	502690	9.6
Endosulfan sulfate	530600	557125	511413	533046	4.3
4,4'DDT	461700	557700	540331	519910	9.8
Methoxychlor					
Endrin ketone	529400	539275	507488	525388	3.1
Endrin aldehyde	438400	462450	421275	440708	4.7
alpha-Chlordane	805200	779400	721688	768763	5.6
gamma-Chlordane	741200	830900	780475	784192	5.7
Tetrachloro-m-xylene	552800	653350	624238	610129	8.5
Decachlorobiphenyl					

DB-5 Modified Form 6E

Compounds	RT of Standards			Mean RT	RT window	
	low	med	high		From	TO
alpha-BHC	5.28	5.28	5.28	5.28	5.23	5.33
beta BHC	6.27	6.27	6.27	6.27	6.22	6.32
delta-BHC						
gamma BHC	6.01	6.01	6.02	6.01	5.96	6.06
Heptachlor	7.11	7.11	7.11	7.11	7.06	7.16
Aldrin	7.77	7.78	7.77	7.77	7.72	7.82
Heptachlor epoxide	9.22	9.22	9.22	9.22	9.15	9.29
Endosulfan I	10.08	10.08	10.08	10.08	10.01	10.20
Dieldrin	10.63	10.63	10.64	10.63	10.56	10.70
4,4'DDE	10.17	10.17	10.17	10.17	10.10	10.20
Endrin						
Endosulfan II	11.64	11.64	11.64	11.64	11.57	11.70
4,4'DDD	11.52	11.52	11.52	11.52	11.45	11.60
Endosulfan sulfate	13.58	13.58	13.58	13.58	13.51	13.70
4,4'DDT	12.14	12.14	12.14	12.14	12.07	12.20
Methoxychlor	13.38	13.38	13.38	13.38	13.31	13.50
Endrin ketone	14.14	14.14	14.14	14.14	14.07	14.20
Endrin aldehyde	12.61	12.61	12.61	12.61	12.54	12.70
alpha-Chlordane						
gamma-Chlordane	9.51	9.51	9.51	9.51	9.44	9.58
Tetrachloro-m-xylene	4.01	4.02	4.02	4.02	3.97	4.07
Decachlorobiphenyl						

Modified Form 6F

Compounds	low	med	high	mean	%RSD
alpha-BHC					
beta BHC	451800	455800	422300	443300	4.1
delta-BHC					
gamma BHC	800400	996750	1097563	964904	15.7
Heptachlor	953200	1040000	1036613	1009938	4.9
Aldrin	814800	873050	884963	857604	4.4
Heptachlor epoxide	830200	848100	805300	827867	2.6
Endosulfan I	779600	832000	795513	802371	3.3
Dieldrin	671400	770775	786244	742806	8.4
4,4'DDE					
Endrin	521300	593850	587544	567564	7.1
Endosulfan II	686500	703225	666250	685325	2.7
4,4'DDD	492300	578875	610838	560671	10.9
Endosulfan sulfate	665600	661800	515231	647544	4.3
4,4'DDT	542100	627575	651213	606963	9.5
Methoxychlor					
Endrin ketone	668300	671475	652094	663956	1.6
Endrin aldehyde	581300	562050	514988	552779	6.2
alpha-Chlordane	822400	835150	804700	820750	1.9
gamma-Chlordane					
Tetrachloro-m-xylene					
Decachlorobiphenyl					

Keep partially completed Forms 6E and 6F available. You will need it for the next two quizzes.

The mean is calculated by the addition of the CF values then divide by the number of values used. See Equation 23-5.

Equation 23-5 Average Value

$$\text{Average} = \frac{(STD_{low} + STD_{med} + STD_{high})}{3}$$

Where,

STD = CF of the analyte for each standard level.

Module 23 Quiz 4

Instruction: Go back to Table 2 in Quiz 3 and fill in the mean CF values.

Do not check your answers until Quiz 5 is completed.

The last column, %RSD is usually calculated using a calculator. The equation is given below. The most common error by the labs in computing %RSD is substituting n for n-1.

Equation 23-6 %RSD equation

$$\%RSD = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$

Where,

$$\text{Standard Deviation} = \sqrt{\frac{\sum_{i=1}^{n} (X_i - \bar{X})^2}{(n-1)}}$$

X_i = each individual value used to calculate the mean

$\bar{X}$ = The mean of the n values

n = The total number of values

Use a scientific calculator or calculation program to verify %RSD.

Module 23 Quiz 5

Instruction: Go back to Table 2 from Quiz 3. Write in the %RSD for each analyte.

The answers for Table 2 for Quizzes 3, 4and 5 are in Appendix E.

Keep Table 2 from the above quizzes handy, you will need it for the last quiz, to be taken after the checklist.

Unit 2 Initial Calibration

The purpose of the initial calibration is to verify the linearity of the instrument response within a specified concentration range. For Pesticides, this three-point calibration range reflects Calibration Factors (CF) for two mixes of specific analytes for all 20 single component TCL analytes, eight multi-component TCL analytes and two surrogate compounds.

The calibration method used for pesticide/Aroclors varies from that found in the GC/MS protocol. The pesticide/Aroclors calibration is an external standard calibration while the volatiles and base/neutrals calibration is an internal standard calibration. An advantage to using external calibration is that concentrations of analytes in the sample extract can be directly compared to instrument response and the concentration of the compound in the standard. Disadvantages to external calibration are that injection volumes must be consistent and the instrument sensitivity must remain stable throughout the analysis of samples and standards.

Pesticides are calibrated using a three-point calibration. Individual Standard Mixtures A and B consist of the single component pesticides plus the surrogate compounds, which must be prepared at three concentrations for each analyte. The single component pesticides are separated into two calibration mixtures to ensure that each peak is adequately resolved. The low point concentration corresponds to the CRQL for each analyte. The midpoint concentration must be 4 times the low point concentration. The high point concentration must be at least 16 times that of the low point concentration, but the Contractor may choose to report the higher concentration. The high point concentration defines the upper end of the concentration range for which the calibration is valid.

Packed columns are not allowed to be used for sample analysis using this SOW. This is a dual capillary column analysis method. Meaning there are two different capillary columns used for analyzing the samples. Each sample should have raw data from two sources. Most labs used a split injection or single injection technique. Using a split injection allows a sample to be injected once onto 2 separate columns. Theoretically, half of the sample amount is injected onto each column. The injection time for the analysis is exactly the same for both sets of data. Other labs may have two separate injections onto two separate columns. The two columns may be located on the same instrument or on a different instrument. Either way, each sample must have two sets of raw data from two different columns.

Analytes may be quantitated using either peak height or peak area, as long as the method is consistent throughout the analytical sequence. The electron capture detector (ECD) response for single component analytes must be within the three-point calibration range in order for quantitative measurements to be made. The extracts must be diluted if the ECD response exceeds the calibration range. Quantitation of target analytes and surrogates must be performed and reported on both columns.

Validating the Initial Calibration criterion

During the validation process, the calibration is reviewed for technical criterion as well as contractual requirements. The requirements for technical and contractual acceptance criteria are the same and all of the single component analytes are affected by the criteria. All initial calibration data are reported on Forms 6E-K while continuing calibration data is reported on Forms 7E and F.

Technical and Contractual Requirements

There are several points to consider when reviewing the data:

- All single component analytes **except** alpha and delta BHC must be equal or less than the maximum %RSD of 20%.

- Alpha and delta BHC must be equal or less than the maximum %RSD of 25%.

- Surrogates must be equal or less than the maximum %RSD of 30%.

- The SOW allows up to **2** of all single component analytes except the surrogates to fail contractual requirements for %RSD. **The failing analytes must have a %RSD ≤ 30%.** Therefore if 1 of the required analytes is > 30%, this is considered to be a contract non-compliance. Document the problem in the DA.

- Peaks for all positively identified analytes must elute within established retention time windows.

- Analytes must be reported on both columns to be considered a positive hit. The lowest value is reported even if the concentration is below the CRQL.

- Aroclors and Toxaphene (multi-component analytes) are identified primarily by pattern recognition. (Module 25)

Initial Calibration Forms

Initial calibration data are reported on seven forms 6E to K that must be checked by the validator.

Form 6E - Reports the retention times and establishes the retention time window for each single component analyte. This form must be completed for each initial calibration run for each column. Therefore each initial calibration must have two copies of this form, one from each of the columns.

Form 6F- Reports calibration factor for each single component analyte. This form must be completed for each initial calibration run for each column. Therefore each initial calibration must have two copies of this form, one from each of the columns.

Form 6G- Reports the calibration factors, retention times and establishes the retention time window for each multi-component analyte. This form must be completed for each initial calibration run for each column. Therefore each initial calibration must have two copies of this form, one from each of the columns.

Note: Aroclors must be analyzed as separate mixtures except for Aroclors 1221 and 1260 which may be combined into one mixture (sometimes referred to as Aroclor 2160). A minimum of 3 peaks must be reported for each Aroclor and no duplication of peaks between Aroclors. In other word a peak at retention time 12:34 for Aroclor 1254 cannot be used to report the same peak for Aroclor 1260. If only one Aroclor is reported, do not be too concerned about the same peak for different Aroclors on Form 6G. If two or more

Aroclors have been identified in the sample, both Aroclors must use different peaks for quantitation.

Form 6H- Documents the percent resolution between specific analytes found in the Resolution Check Mixture (see Table 23-2). This mix is the first standard that must be analyzed before the calibration during the sequence.

Table 23-2 Analytes listed in Resolution Check Mix

Endosulfan I	Dieldrin
4,4'DDE	Endosulfan sulfate
Methoxychlor	Endrin ketone
gamma-Chlordane	
TCMX	DBC

Form 6I- Documents the percent resolution between specific analytes found in the PEM (Performance Evaluation Mixture) mix (see Table 23-3). This mix is the second standard that must be analyzed before the calibration during the sequence. This form is reported for each PEM standard analyzed within a sequence.

Table 23-3 Analytes listed in PEM Mix

alpha-BHC	beta BHC
gamma BHC	Endrin
4,4'DDT	Methoxychlor
TCMX	DBC

Form 6J- Documents the percent resolution between specific analytes found in the Individual Standard Mixture A (see Table 23-4). This mix is the one of the standards that comprises the calibration and must be analyzed during the sequence. Initial calibration data from both columns are listed on the one form. Although surrogates are found in Mixes A and B, the CFs are obtained using the response from this mix. This form is reported for each Individual Mix A standard analyzed within a sequence.

Table 23-4 Analytes listed in Individual Standard Mix A

alpha-BHC	gamma BHC
Heptachlor	Endosulfan I
Dieldrin	Endrin
4,4'DDD	4,4'DDT
Methoxychlor	
TCMX	DBC

Form 6K- Documents the percent resolution between specific analytes found in the Individual Standard Mixture B (see Table 23-5). This mix is one of the standards that comprises the calibration and must be analyzed during the sequence. Initial calibration data from both columns are listed on the one form. This form is reported for each Individual Mix B standard analyzed within a sequence.

Table 23-5 Analytes listed in Individual Standard Mix B

beta BHC	delta-BHC
Heptachlor epoxide	Aldrin
4,4'DDE	Endosulfan II
Endosulfan sulfate	Endrin ketone
Endrin aldehyde	alpha-Chlordane
gamma-Chlordane	
TCMX	DBC

Validation tip: Review Forms 6E and 6G again. You are looking for overlaps in retention times that may contribute to positive negatives or false positives.

On Form 6E for each column, mark off in red pencil using different symbols (circle, brackets, and boxed markings) any analytes that have retention time overlaps with each other on one column. Then check the second column to see if the same analytes have overlaps. Look at Table 23-6 for a comparison of 2 analytes whose retention time overlap on both columns.

Table 23-6 Retention time comparison for 2 analytes

Form 6E	Endosulfan II	DDD	overlap
Column 1	13.72 to 13.90	13.66 to 13.80	13.72 to 13.80
Column 2	11.57 to 11.70	11.45 to 11.60	11.57 to 11.60

Ideally, if 2 analytes overlap on one column, they should not overlap on the second column. Unfortunately this is not always the case as you can see from Table 23-6. A validator should identify overlapping analytes so he is aware of potential problems. Each sample with a positive hit for any of the problem analytes must have the Quant report and chromatogram checked. Verify the analyte eluted in a window of no conflict otherwise the identification is not acceptable and must be qualified.

Look at Table 23-7. These are the actual retention times where there is no overlap for either analyte on a column.

Table 23-7 New restricted retention time for positively identified analytes

Form 6E	Endosulfan II	DDD
Column 1	13.81 to 13.90	13.66 to 13.71
Column 2	11.61 to 11.70	11.45 to 11.56

Any problems with the peak identification require professional judgement. The following suggestions are routinely used to handle this problem in Region 2.

- If the peaks for Endosulfan II and DDD are within the new retention time on either column, there is no question about identification

.

- If the peaks for Endosulfan II and DDD are **not** within the new retention time on either column, there is question about identification. In this case the problem analyte must be within the new retention time on the second column.

- If any analyte peak is within retention time window for overlapping analytes, use professional judgement.

Practice 23-4 How would a validator qualify the following samples using Table 23-6 and Table 23-7?

Sample 1

Quant Rpt	Endosulfan II	DDD
Column 1	13.79	13.73
Column 2	11.64	11.52

Sample 2

Quant Rpt	Endosulfan II	DDD
Column 1	13.74	13.68
Column 2	11.62	11.48

Sample 3

Quant Rpt	Endosulfan II	DDD
Column 1	No peak	13.75
Column 2	No peak	11.46

Sample 4

Quant Rpt	Endosulfan II	DDD
Column 1	13.74	13.79
Column 2	11.59	11.59

Sample 5

Quant Rpt	Endosulfan II	DDD
Column 1	13.85	13.68
Column 2	11.59	11.59

Sample 6

Quant Rpt	Endosulfan II	DDD
Column 1	13.79	13.73
Column 2	11.62	11.59

Sample 7

Quant Rpt	Endosulfan II	DDD
Column 1	13.79	No peak
Column 2	11.59	No peak

Answer to Practice 23-4

Sample 1

Column 1 has overlap for both analytes but on column 2 there is no overlap of retention times. Identification is not questioned, no action for either analyte.

Sample 2

Columns 1 and 2 have overlap for Endosulfan II but there is no overlap of retention times for DDD. Identification of Endosulfan II is positive, no action for either analyte.

Sample 3

Column 1 has overlap for DDD but on column 2 there is no overlap of retention times. Identification is not questioned, no action for DDD.

Sample 4

Columns 1 and 2 have overlap for both analytes. Identification is questionable for both analytes, qualify both analytes as "R".

Sample 5

Notice the co-elution of Endosulfan 2 and DDD on Column 2. This presents a special problem since the identity from the second column can not be verified. An analyte must be confirmed on another column to be considered a positive hit. The analytes on column 1 are not confirmed since the peak on column 2 can be either or both analytes.

A validator has 2 options based on professional judgement:

- Reject both analytes since confirmation is questionable.

Or

- Report the analyte concentrations from column 1 (the peaks are clearly separated) and qualify the value as estimated "J".

Sample 6

Both analytes overlap on both columns, therefore there are two separate peaks. Use professional judgement to estimate "J" the concentration.

Sample 7

The lab did not report DDD since probably the Lab's software identified the peak as Endosulfan 2. The peaks on both columns are within overlapped retention times. In other words, the peak 13.79 on column 1 and the peak 11.59 on column 2 could be either Endosulfan II or DDD on either column. Reject "R" both analytes due to questionable identification.

Most problems like sample 7 are software errors that were not corrected or noticed by the analyst. Review each sample until you understand the correct qualifications to add to the Form 1's.

The checklist for calibration is extensive and covers initial and continuing calibrations. We are going to look at this checklist section in parts, as the topics are explored. The first part is about contractual issues associated with the initial calibration standards.

7.0 Calibration and GC Performance "

7.1 Are the following Gas Chromatograms and Data Systems Printouts for both columns present for all samples, blanks and MS/MSD:

a. Peak resolution check?

b. Performance evaluation mixtures?

c. Aroclor 1016/1260?

d. Aroclors 1221, 1232, 1242, 1248, 1254?

e. Toxaphene?

f. Low points individual mixtures A & B?

g. Med points individual mixtures A & B?

h. High points individual mixtures A & B?

I. Instrument blanks?

j. Were the appropriate GC columns used as specified on pg. D-10/PEST, sections 6.23.3 to 6.23.3.7, in the SOW?

7.2 Do the chromatograms for all Individual Standard Mixtures and PEM analyses display single component analytes at > 10% but < 100% of full scale (see sections 9.3.5.8.1 thru 9.3.5.8.4, pages D-30 & 31/PEST)?

Have chromatograms for Individual Standard Mixtures and PEM analyses been replotted, showing scaling factor(s), to meet the above requirements when necessary?

NOTE: All standard chromatograms must clearly display all peaks at > 10% but < 100% of full scale, and replotted if necessary to accommodate peaks not properly scaled in the initial chromatogram(s). Both the initial and replotted chromatograms must be submitted with the data package.

ACTION: If all single component peaks are not clearly displayed on chromatograms for all Individual Standard Mixtures and PEM analyses, notify the TOPO to obtain resubmittal of the necessary data.

7.3 Are Forms VI PEST 1-7 present and complete for each column and each analytical sequence?

ACTION: If no, take action as specified in 3.2 above..

7.4 Are there any transcription/ calculation errors between raw data and Forms VI?

ACTION: If large errors exist, take action as specified in section 3.2 above.

7.5 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the Initial Calibration (see Form VI PEST-1)?

ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results "JN" and non-detects as unusable (R). For Aroclors, the RT may be outside the window, but the Aroclor may still be identified from its distinctive pattern.

7.6 Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (%RSD must be # 25.0 for alpha and delta BHC, # 30.0 for the two surrogates and # 20% for all other analytes.)

NOTE: Contractual requirements allow up to two single component TCL compounds, but not surrogates, on each column to exceed the criteria provided the %RSD is # 30%. (See page D-26/Pest, sec. 9.2.5.7 in the SOW.) Technical criteria, however, are the same for all analytes.

ACTION: If technical criteria were not met, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects

"UJ". When %RSD > 90%, flag all non-detect results for that analyte "R" (unusable), and positive results as "J" estimated.

ACTION: If more than two analytes failed %RSD, document in the Data Assessment Contract Problems/Non-Compliance section.

Use the completed forms 6E and 6F from the Quizzes in this unit and the checklist section from above to take the Quiz 6. Answers are in Appendix E.

Module 23 Quiz 6

Instruction: Using the above portion of the checklist and the completed Forms 6E and 6F, qualify the sample on the next page. Write out the data assessment statements on this page.

Data Assessment

Technical

Contractual

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BRR65

Lab Name: ____NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BRR34

Matrix: (soil/water) ___water_____ Lab Sample ID: __BRR34-22_____

Sample wt/vol: ____1000_____(g/mL) ___mL_____ Lab File ID: __BRR34-22AA_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: __05/17/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___05/26/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: __05/29/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH __6.7___ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L __	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.03	J
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.58	
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.55	
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	5.4	
11096-82-5	Aroclor 1260	1.0	U

You have just performed a general overview of the initial calibration data. Remember, concentrations are quantified used initial calibration data, so it is important that all information is present and can be verified.

Resolution

The amount of separation achieved between two adjacent peaks is measured in terms of resolution. Examining resolution provides an indication of the column's performance.

Forms 6H to 6K are defined in the beginning of this unit. These forms combined with Forms 6E, 6F and 6G must be present as for the initial calibration criteria. There are specific forms for the Resolution mix, PEM mix and the Individual mix standards. The purpose of these forms is to document the resolution of specific peaks. Equation 23-7 provides the calculation for checking the resolution between adjacent peaks. Diagram 23-1 is a graphical representation of the formula.

Equation 23-7 Resolution

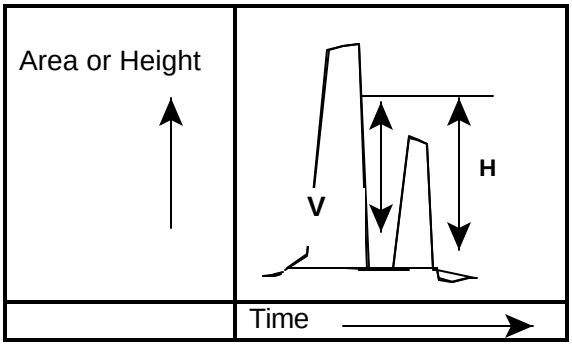
$$\text{Resolution} = \frac{V}{H} \times 100$$

Where,

V = Depth of the valley between the two peaks. The depth of the valley is measured along a vertical line from the level of the apex of the shorter peak to the floor of the valley between the two peaks.

H = Height of the shorter of the adjacent peaks.

Diagram 23-1 Drawing of valley and height for resolution equation



The resolution pairs may be different due to the elution order of the analytes in the mix. The last space for % resolution on the DBC line is left blank. Look at Example 23-2:

Example 23-2

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	gamma-Chlordane	11.51	97.0
3	Endosulfan I	11.65	100.0
4	4,4'DDE	12.39	65.0
5	Dieldrin	12.40	100.0
6	Endosulfan sulfate	15.22	82.0
7	Methoxychlor	15.40	100.0
8	Endrin ketone	16.38	100.0
9	DBC	19.36	

The resolution between TCMX and gamma chlordane is 100% while the resolution between gamma chlordane and Endosulfan I is 97%. The resolution between Endrin Ketone and DBC is 78% but there is no other compound of interest after DBC, so the resolution field is left blank.

The resolution criteria are:

- The resolution between each adjacent peaks in the Resolution Check Mix must be $\geq$ 60%.
- The resolution between each adjacent peaks in the PEM Mix must be $\geq$ 90%.
- The resolution between each adjacent peaks in the Individual Standards A and B Mixes must be $\geq$ 90%.

Review checklist sections 7.7 to 7.10. This section of the checklist evaluates Forms 6H to 6K.

7.7 Is the resolution between each pair of adjacent peaks in the Resolution Check Mixture $ 60.0% for both columns? (See Form VI PEST-4.)(D-25/Pest)

ACTION: If no, qualify positive results for compounds that were not adequately resolved "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable (R).

7.8 Is Form VI PEST-5 present and complete for each Performance Evaluation Mixture (PEM) standard used for both initial and continuing calibrations (see SOW section 3.12.4.4, page B-48)?

ACTION: If no, take action as specified in section 3.2 above.

7.9 For each PEM standard, was the resolution between each pair of adjacent peaks $ 90.0% on both columns?

ACTION: Qualify positive results for compounds not adequately resolved estimated (J). Qualify non-detects based on professional judgement.

7.10 Have Forms VI PEST-6 & PEST-7 been completed for all midpoint Individual Standards A and B used for initial calibration?

For each standard, was the resolution between each pair of adjacent peaks $ 90.0% on both columns?

ACTION: If no, qualify positive results for compounds that were not adequately resolved estimated (J). Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable "R".

Use the above checklist section to qualify the information in the next quiz. Answers are located in Appendix E.

Module 23 Quiz 7

Instructions:

- Using sections 7.7 to 7.10 of the checklist and the forms on the next 4 pages, qualify the sample at the end of the quiz.
- Write the Data Assessment statements on this page.

Technical

Contractual

6H
PESTICIDE ANALYTE RESOLUTION SUMMARY

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: __12345_ SAS No.: _____ SDG No.:_BRR34

GC Column (1): _RTX-35_ ID: _0.32__(mm) Instrument ID (1): ___8290AA_____

EPA Sample No. (RESC##) : _RESC24_____ Lab Sample ID (1): ___ RESC24_____

Date Analyzed (1) : ___05/30/01_____ Time Analyzed (1): ___1813_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	gamma-Chlordane	11.51	97.0
3	Endosulfan I	11.95	100.0
4	4,4'DDE	12.39	100.0
5	Dieldrin	12.60	100.0
6	Endosulfan sulfate	15.22	100.0
7	Methoxychlor	16.10	100.0
8	Endrin ketone	16.38	100.0
9	DBC	19.36	

GC Column (2): _DB-5__ ID: __0.53__(mm) Instrument ID (2): __8290AB_____

EPA Sample No. (RESC##) : _RESC24_____ Lab Sample ID (1): ___ RESC24_____

Date Analyzed (1) : ___05/30/01_____ Time Analyzed (1): ___1813_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	gamma-Chlordane	9.51	100.0
3	Endosulfan I	10.08	58.0
4	4,4'DDE	10.17	100.0
5	Dieldrin	10.63	100.0
6	Endosulfan sulfate	13.38	100.0
7	Methoxychlor	13.57	100.0
8	Endrin ketone	14.13	100.0
9	DBC	16.60	

6I

PERFORMANCE EVALUATION MIXTURE (PEM)

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: __12345_ SAS No.: _____ SDG No.:_BRR34

GC Column (1): _RTX-35_ ID: _0.32___(mm) Instrument ID (1): ___8290AA_____

EPA Sample No. (PEM##) : __PEM24_____ Lab Sample ID (1): ___PEM24_____

Date Analyzed (1) : ____05/30/01_____ Time Analyzed (1): ____1837_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	alpha-BHC	6.88	100.0
3	gamma BHC	7.80	100.0
4	beta BHC	8.07	100.0
5	Endrin	13.28	100.0
6	4,4'DDT	14.43	100.0
7	Methoxychlor	16.10	100.0
8	DBC	19.36	

GC Column (2): _DB-5__ ID: __0.53___(mm) Instrument ID (2): __8290AB_____

EPA Sample No. (PEM##) : __PEM24_____ Lab Sample ID (1): ___PEM24_____

Date Analyzed (1) : ____05/30/01_____ Time Analyzed (1): ____1837_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	alpha-BHC	5.28	100.0
3	gamma BHC	6.01	88.0
4	beta BHC	6.17	100.0
5	Endrin	11.12	100.0
6	4,4'DDT	12.14	100.0
7	Methoxychlor	13.38	100.0
8	DBC	16.60	

6J

INDIVIDUAL STANDARD MIXTURE A

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: __12345_ SAS No.: _____ SDG No.:_BRR34

GC Column (1): _RTX-35_ ID: _0.32___(mm) Instrument ID (1): ___8290AA_____

EPA Sample No. (INDAM##) : __INDAM24_____ Lab Sample ID (1): _____INDAM24_____

Date Analyzed (1) : ___05/30/01_____ Time Analyzed (1): ____2235_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	alpha-BHC	6.88	100.0
3	gamma BHC	7.80	100.0
4	Heptachlor	8.87	100.0
5	Endosulfan I	11.95	100.0
6	Dieldrin	12.60	100.0
7	Endrin	13.28	100.0
8	4,4'DDD	13.73	100.0
9	4,4'DDT	14.43	100.0
10	Methoxychlor	16.10	100.0
11	DBC	19.36	

GC Column (2): _DB-5__ ID: _0.53___(mm) Instrument ID (2): __8290AB_____

EPA Sample No. (INDAM##) : __INDAM24_____ Lab Sample ID (1): _____INDAM24_____

Date Analyzed (1) : ___05/30/01_____ Time Analyzed (1): ____2235_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	alpha-BHC	5.28	100.0
3	gamma BHC	6.01	100.0
4	Heptachlor	7.11	100.0
5	Endosulfan I	10.08	100.0
6	Dieldrin	10.63	100.0
7	Endrin	11.12	100.0
8	4,4'DDD	11.52	100.0
9	4,4'DDT	12.14	100.0
10	Methoxychlor	13.38	100.0
11	DBC	16.60	

FORM VI PEST-6

OLM04.2

6K
INDIVIDUAL STANDARD MIXTURE B

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: __12345_ SAS No.: _____ SDG No.:_BRR34

GC Column (1): _RTX-35_ ID: __0.32___(mm) Instrument ID (1): ___8290AA_____

EPA Sample No. (INDBM##) : __INDBM24_____ Lab Sample ID (2): ___ INDBM24_____

Date Analyzed (2) : _____05/30/01_____ Time Analyzed (2): ____2259_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	5.25	100.0
2	beta BHC	8.07	100.0
3	delta-BHC	8.79	100.0
4	Aldrin	9.63	100.0
5	Heptachlor epoxide	11.06	100.0
6	gamma-Chlordane	11.51	100.0
7	alpha-Chlordane	11.87	100.0
8	4,4'DDE	12.39	100.0
9	Endosulfan II	13.79	100.0
10	Endrin aldehyde	14.60	100.0
11	Endosulfan sulfate	15.23	100.0
12	Endrin ketone	16.39	100.0
13	DBC	19.37	

GC Column (2): _DB-5__ ID: _0.53___(mm) Instrument ID (2): __8290AB_____

EPA Sample No. (INDBM##) : __INDBM24_____ Lab Sample ID (2): ___ INDBM24_____

Date Analyzed (2) : _____05/30/01_____ Time Analyzed (2): ____2259_____

	ANALYTE	RT	RESOLUTION (%)
1	TCMX	4.02	100.0
2	beta BHC	6.27	100.0
3	delta-BHC	6.65	100.0
4	Aldrin	7.78	100.0
5	Heptachlor epoxide	9.22	100.0
6	gamma-Chlordane	9.51	100.0
7	alpha-Chlordane	9.82	100.0
8	4,4'DDE	10.17	100.0
9	Endosulfan II	11.64	100.0
10	Endrin aldehyde	12.61	100.0
11	Endosulfan sulfate	13.58	100.0
12	Endrin ketone	14.14	100.0
13	DBC	16.60	

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BRR65

Lab Name: ____NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BRR34

Matrix: (soil/water) ___water_____ Lab Sample ID: __BRR34-22_____

Sample wt/vol: ____1000_____(g/mL) ___mL_____ Lab File ID: __BRR34-22AA_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: __05/17/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___05/26/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: __05/29/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH __6.7___ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L __	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.03	J
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.58	
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.55	
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	5.4	
11096-82-5	Aroclor 1260	1.0	U

Unit 3 Continuing Calibration

Sample quantitation is based on the initial calibration, not the continuing calibration response factors. The initial calibration may be used as long as the analytical system remains under control. Three types of analyses are used to verify the calibration and evaluate the instrument performance. The analyses of the instrument blanks, PEMs, and the mid-point concentration of the Individual Standard Mixtures A and B constitute the continuing calibration. Continuing calibration data are reported on Forms 7E and 7F.

The absolute retention time for each of the single component pesticides and surrogates in the Individual Standard Mixtures A and B and PEM mix used to demonstrate the calibration verification must be within the retention time window determined from the initial calibration.

The percent difference (%D) for the PEM and mid-point concentration of the Individual Standard Mixtures must be less than or equal to 25.0 percent. Sample data are not acceptable unless bracketed by acceptable analyses of instrument blanks, PEMs, and both Individual Standard Mixtures A and B (Sequence topic is covered in Module 24).

The data reviewer has to verify which initial calibration is associated with each continuing calibration. Compare instrument ID, date, time of initial calibration with instrument ID, date, and times reported on continuing calibration forms.

The concentration of the continuing calibration standard is calculated using Equation 23-8.

Equation 23-8 %D calculation

$$\%D = \frac{CF_{calc} - CF_{nom}}{CF_{nom}} \times 100$$

Where,

CF_{nom} = theoretical or nominal concentration of each analyte. (see Table 23-8)

CF_{calc} = calculated concentration of each analyte from the analyses of the standard.

Table 23-8 ng concentration for each analyte in PEM standard

Analyte	Conc.	Analyte	Conc.	Analyte	Conc.
alpha-BHC	10.0	4,4'DDT	100.0	TCMX	20.0
beta BHC	10.0	Endrin	50.0	DBC	20.0
gamma BHC	10.0	Methoxychlor	250.0		

Practice 23-5 Calculate the %D for alpha BHC if the nominal amount is 0.010 and the calculated concentration is 0.0091.

Answer to Practice 23-5

$$\%D = \frac{0.0091 - 0.010}{0.010} \times 100$$

The percent D value of -9.0 passed criteria of ! 25%.
Practice calculating % D by taking the next quiz. Answers are in Appendix E.

Module 23 Quiz 8

Instruction:

- Use Table 23-8 and equation 23-1 to calculate the analyte concentration in Table 1.
- Use Equation 23-8 to calculate the %D in Table 2.
- Don't forget rounding rules and significant figures for reporting results.
- Keep quiz available for % breakdown calculations.

First column = RTX35 Second column = DB5

Table 1 Modified Quant report for PEM standard

RT	RT window		Area	Quant RF	Compound	Std Amt. On-Col. ng	Calc Amt. On-Col. ng
5.25	5.20	5.30	12806	653350	TCMX	0.020	
4.02	3.97	4.07	14717	767450			
6.88	6.83	6.93	9863	1027750	alpha-BHC	0.010	
5.28	5.23	5.33	9516	1040150			
7.80	7.75	7.85	9194	921850	gamma BHC	0.010	
6.01	5.96	6.06	9355	996750			
8.06	8.02	8.12	4237	369900	beta BHC	0.010	
6.17	6.12	6.22	5111	455800			
13.28	13.21	13.35	24368	460025	Endrin	0.050	
11.12	11.05	11.20	31171	593850			
13.74	13.66	13.80	307	537375	4,4'DDD	000	
11.52	11.45	11.60	326	578875			
14.43	14.36	14.50	54151	557700	4,4'DDT	0.100	
12.14	12.07	12.20	59973	627575			
14.60	14.53	14.67	809	462450	Endrin Aldehyde	000	
12.58	12.54	12.70	1046	562050			
16.10	16.03	16.17	58894	255280	Methoxychlor	0.250	
13.38	13.31	13.50	69318	310750			
16.38	16.32	16.46	1046	539275	Endrin Ketone	000	
14.10	14.07	14.20	5969	671475			
19.36	19.26	19.46	12214	581675	DBC	0.020	
16.55	16.50	16.70	15156	742775			

Table 2 Form 7E (RTX35)

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC					0.010	
beta BHC					0.010	
gamma BHC					0.010	
Endrin					0.050	
4,4'DDT					0.100	
Methoxychlor					0.250	

4,4'DDT % Breakdown (1): _____ Endrin % Breakdown (1): _____
Combined % Breakdown (1): _____

Table 2 Form 7E (DB5)

PEM Compound	RT	RT Window		CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
		From	TO			
alpha-BHC					0.010	
beta BHC					0.010	
gamma BHC					0.010	
Endrin					0.050	
4,4'DDT					0.100	
Methoxychlor					0.250	

4,4'DDT % Breakdown (1): _____ Endrin % Breakdown (1): _____
Combined % Breakdown (1): _____

Did you notice the % breakdown portion on Form 7E?

Certain analytes will readily decomposed into by-products indicating possible column problems. A dirty column or active sites on the injection port or column will alter the concentrations of certain analytes and their by-products. The amount of DDT and Endrin breakdown products is measured from the Performance Evaluation Mixture. The DDT degradation products are DDE and DDD; the Endrin degradation products are Endrin aldehyde and Endrin ketone.

The % Breakdown criteria is simple:

- The breakdown of DDT and Endrin in all Performance Evaluation Mixtures must be less than 20.0 percent
- The combined percent breakdown for 4,4'-DDT/Endrin must be less than 30.0 percent.
- Both conditions must be met , otherwise the data must be qualified since the reported concentrations for these analytes DDE, DDD, DDT, Endrin, Endrin aldehyde and Endrin ketone are suspected.

There are three equations used to determine % breakdown. Equation 23-9 calculates the concentration of the breakdown by-products. Equation 23-10 determines the % breakdown for DDT and Endrin separately. The last equation, 23-11 provides the total % breakdown value for the PEM standard.

Equation 23-9 Amount Found (ng)

$$\text{Amount Found (ng)} = \frac{\text{Peak Area (height) of compound in PEM}}{CF_{MP}}$$

Where,

CF_{MP} = The calibration factor determined from the mid-point standard in the most recent initial calibration. If during the initial calibration, linearity was determined using peak area (or height), then the mid-point calibration standard must use peak area (or height).

TIP = Amount found is the same as calculated amount on-column (ng) on a Quant report.

TIP = Most but not all Quant reports will have the CF listed usually as Quant RF. You should check to make sure the RF value agrees with the CF from the initial calibration. If the information is not in the Quant report, you will have to go back to Form 6F.

Equation 23-10 % breakdown

$$\text{\% Breakdown} = \frac{\text{Amount Found (ng)}}{\text{Amount (ng) of analyte injected}} \times 100$$

Where,

Amount found is (DDE + DDD) for DDT.

OR

Amount found is (Endrin aldehyde and Endrin ketone) for Endrin.

TIP = Injected amount is the same as Standard amount on-column (ng).

Equation 23-11
Combined % Breakdown Combined % Breakdown = % Breakdown DDT + % Breakdown Endrin

Practice 23-6 Using tables 1 and 2 from Quiz 6 and the Equations 23-9, 23-10 and 23-11. Calculate the % breakdown for DDT. For this problem, the % Breakdown for Endrin is 29.5

Answer to Practice 23-6

Equation 23-9:
DDD calculated amount in the PEM is 307/537375 = 0.000571.

Equation 23-10:
0.000571/0.10 x 100= 0.57

0.57 < 20% so it passes criteria for individual breakdown.

Check the % Breakdown for Endrin, which was given in the problem.
29.5 > 20% so it failed criteria for individual breakdown.

Equation 23-11:
29.5 + 0.57 = 30.07 is >30% so it failed % breakdown criteria.

Calibration verification is an important part of the validation procedures for the pesticide fraction. It is important that you know how to calculate and check these criteria. Practice calculating %D and % Breakdown by taking the next Quiz. Answers are in Appendix E.

Module 23 Quiz 9

Instructions:

Part 1

Use tables 1 and 2 from Quiz 6, Calculate the DDT, Endrin and combined % Breakdown.

Part 2

Calculate the analyte concentration, %D and % Breakdown for the following PEM problems.

1.

RT	RT window		Area	Quant RF	Compound	Std Amt. On-Col. ng	Calc Amt. On-Col. ng	%D
5.25	5.20	5.30	12111	653350	TCMX	0.020		
6.88	6.83	6.93	11378	1027750	alpha-BHC	0.010		
7.80	7.75	7.85	7895	921850	gamma BHC	0.010		
8.06	8.02	8.12	4371	369900	beta BHC	0.010		
12.39	12.32	12.50	32755	745200	4,4'DDE	000		
13.28	13.21	13.35	7327	460025	Endrin	0.050		
13.74	13.66	13.80	20508	537375	4,4'DDD	000		
14.43	14.36	14.50	2069	557700	4,4'DDT	0.100		
14.60	14.53	14.67	17525	462450	Endrin Aldehyde	000		
16.10	16.03	16.17	48183	255280	Methoxychlor	0.250		
16.38	16.32	16.46	20431	539275	Endrin Ketone	000		
19.36	19.26	19.46	12346	581675	DBC	0.020		

% Breakdown- DDT: _____ Endrin: _____ Combined: _____

2.

RT	RT window		Area	Quant RF	Compound	Std Amt. On-Col. ng	Calc Amt. On-Col. ng	%D
5.25	5.20	5.30	15498	653350	TCMX	0.020		
6.88	6.83	6.93	9908	1027750	alpha-BHC	0.010		
7.80	7.75	7.85	9683	921850	gamma BHC	0.010		
8.06	8.02	8.12	5254	369900	beta BHC	0.010		
12.39	12.32	12.50	12406	745200	4,4'DDE	000		
13.28	13.21	13.35	31939	460025	Endrin	0.050		
13.74	13.66	13.80	352	537375	4,4'DDD	000		
14.43	14.36	14.50	62493	557700	4,4'DDT	0.100		
14.60	14.53	14.67	1001	462450	Endrin Aldehyde	000		
16.10	16.03	16.17	71112	255280	Methoxychlor	0.250		
16.38	16.32	16.46	1214	539275	Endrin Ketone	000		
19.36	19.26	19.46	16067	581675	DBC	0.020		

% Breakdown- DDT: _____ Endrin: _____ Combined: _____

3.

RT	RT window		Area	Quant RF	Compound	Std Amt. On-Col. ng	Calc Amt. On-Col. ng	%D
5.25	5.20	5.30	14717	653350	TCMX	0.020		
6.88	6.83	6.93	9516	1027750	alpha-BHC	0.010		
7.80	7.75	7.85	9355	921850	gamma BHC	0.010		
8.06	8.02	8.12	5111	369900	beta BHC	0.010		
12.39	12.32	12.50	6778	745200	4,4'DDE	000		
13.28	13.21	13.35	31171	460025	Endrin	0.050		
13.74	13.66	13.80	3206	537375	4,4'DDD	000		
14.43	14.36	14.50	59973	557700	4,4'DDT	0.100		
14.60	14.53	14.67	9406	462450	Endrin Aldehyde	000		
16.10	16.03	16.17	69318	255280	Methoxychlor	0.250		
16.38	16.32	16.46	969	539275	Endrin Ketone	000		
19.36	19.26	19.46	15156	581675	DBC	0.020		

% Breakdown- DDT: _____ Endrin: _____ Combined: _____

Noticed the PEMs did not perform well? Most labs would not let this kind of data out of the lab. The columns need to be clipped and the injection ports cleaned. After column maintenance is performed, the failing standard must be reanalyzed. If this standard fails again, a new initial calibration must be started and the samples reanalyzed. You will learn more about this in Module 24.
Since the PEMs did poorly, the data must be qualified for %D as well as % Breakdown. Individual Standard A and B mid-point mixes are only evaluated for %D criteria.

The next section of the checklist 7.11 to 7.17 must be reviewed and specified action taken on the associated data. Refer to the forms that were completed in Quizzes 6 and 7 as you review the checklist.

7.11 Is Form VII Pest-1 present and complete for each PEM standard analyzed during the analytical sequence for both columns?

NOTE: If a PEM or Individual std mixture does not meet technical criteria listed on sec. 9.3.5.8.1 through 9.3.5.8.4, it MUST be reinjected immediately. If the second injection meets the criteria, sample analysis may continue. Otherwise, ALL data collection MUST BE STOPPED. Document it in the Data Assessment under Contract Problems/Non compliance.(p. D-31/Pest, sec. 9.3.6.4).

Was the %Breakdown of DDT and Endrin calculated using the equations given on page D-24/PEST, sec. 9.2.4.8 in the SOW?

Were all pesticides and surrogates in each PEM standard within the RT windows established during the Initial Calibration?

ACTION: If no, take action as specified in 3.2 above.

7.12 Has the individual percent breakdown for DDT/Endrin exceeded 20.0% in any PEM on either column? (See Form VII PEST-1.)

- for 4,4'-DDT?

- for Endrin?

Has the combined percent breakdown for DDT/Endrin exceeded 30.0% in any PEM on either column (required for all PEM analyses)?

ACTION: 1. If any percent breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the initial calibration sequence (page D-21/Pest, sec. 9.2.3.4 in the SOW), qualify all samples in the entire analytical sequence as described in sections 2.a, b and c below.

2. If any percent breakdown failed the QC criteria in a PEM calibration verification analysis, review data beginning with the samples which followed the last in-control standard until the next acceptable PEM and qualify the data as described below.

a. 4,4'-DDT Breakdown: If DDT breakdown was > 20.0%:

I. Qualify all positive results for DDT with "J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT unusable, "R".

ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

b. Endrin Breakdown: If Endrin breakdown was > 20.0%:

I. Qualify all positive results for Endrin with "J". If Endrin was not detected, but Endrin aldehyde and Endrin ketone are positive, then qualify the quantitation limit for Endrin as unusable "R".

ii. Qualify positive results for Endrin ketone and Endrin aldehyde as presumptively present at an approximated quantity "JN".

c. Combined Breakdown: If the combined 4,4'-DDT and Endrin breakdown is greater than 30.0%:

I. Qualify all positive results for DDT and Endrin with "J". If Endrin was not detected, but Endrin aldehyde and Endrin ketone are positive, then qualify the quantitation limit for Endrin as unusable "R". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable "R".

ii. Qualify positive results for Endrin ketone and Endrin aldehyde as presumptively present at an approximated quantity "JN". Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

7.13 Are all percent difference (%D) values for PEM analytes and surrogates on both columns $ -25% and # +25.0%? (See Form VII PEST-1.)

ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".

NOTE: If the failing PEM is part of the initial calibration, all samples are potentially affected. If the offending standard is a calibration verification, the associated samples are those which followed the last in-control standard until the next passing standard.

6.14 Is Form VII Pest-2 present and complete for each INDA and INDB calibration verification analyzed?

ACTION: If no, take action specified in 3.2 above.

7.15 Are there any transcription/calculation errors between raw data and Form VII Pest-2?

ACTION: If large errors exists, take action as specified in section 3.6 above.

7.16 *Do all standard retention times for each INDA and INDB calibration verification fall within the RT windows established during the initial calibration sequence? (See Form VII PEST-2.)*

ACTION: If no, beginning with the samples which followed the last in-control standard, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable (R).

7.17 *Are all %D values for INDA and INDB calibration verification compounds $ -25.0% and # +25.0%?*

ACTION: *If the %D is outside the ±25.0% range for any compound(s), qualify associated positive results for that compound "J" and non-detects "UJ". The "associated samples" are those which followed the last in-control standard up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).*

Take the next quiz. Answers are in Appendix E.

Module 23 Quiz 10

Instruction:

- Use Forms 6E and 6F from Quiz 5, Forms 6H, 6I, 6J, 6K from Quiz 7, Form 7E from Quiz 8 and Forms 7F included in this quiz after this page.
- Apply the qualifications to the sample on the next page using the checklist section 7. Ignore any references to sequence.
- On this page write the action/qualifications that must be applied to the sample.

Technical Problems

Contract Non-Compliance

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB30

GC Column (1): _RTX-35__ ID: _0.32__(mm) Initial Calib. Date(s) : _05/30/01__ _05/30/01_

EPA Sample No. (PIBLK##) : __PIBLKUZ_____ Date Analyzed : ___05/31/01_____

Lab Sample ID (PIBLK##) : ___ PIBLKUZ _____ Time Analyzed : ___0918_____

EPA Sample No. (INDAM##) : ___INDAMUZ_____ Date Analyzed : __05/31/01_____

Lab Sample ID (INDA) : __ INDAMUZ __ Time Analyzed : ___0942_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	6.88	6.83	6.93	0.019	0.020	-5.0
Gamma BHC	7.80	7.75	7.85	0.019	0.020	-5.0
Heptachlor	8.87	8.82	8.92	0.019	0.020	-5.0
Endosulfan I	11.95	11.88	12.02	0.019	0.020	-5.0
Dieldrin	12.59	12.53	12.67	0.039	0.040	-2.5
Endrin	13.28	13.21	13.35	0.030	0.040	-25.0
4,4'DDD	13.72	13.66	13.80	0.038	0.040	-5.0
4,4'DDT	14.43	14.36	14.50	0.037	0.040	-7.5
Methoxychlor	16.10	16.03	16.17	0.189	0.200	-5.0
Tetrachloro-m-xylene	5.25	5.20	5.30	0.018	0.020	-10.0
Decachlorobiphenyl	19.36	19.26	19.46	0.038	0.040	-5.0

EPA Sample No. (INDBM##) : __ INDBMUZ ____ Date Analyzed : ___05/31/01_____

Lab Sample ID (INDB) : _ INDBMUZ _____ Time Analyzed : ___1006_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	8.06	8.02	8.12	0.019	0.020	-5.0
Delta-BHC	8.78	8.74	8.84	0.014	0.020	-30.0
Aldrin	9.63	9.58	9.68	0.019	0.020	-5.0
Heptachlor epoxide	11.06	10.99	11.13	0.019	0.020	-5.0
4,4'DDE	12.39	12.32	12.50	0.039	0.040	-2.5
Endosulfan II	13.78	13.72	13.86	0.038	0.040	-5.0
Endosulfan sulfate	15.22	15.16	15.30	0.039	0.040	-2.5
Endrin ketone	16.38	16.32	16.46	0.038	0.040	-5.0
Endrin aldehyde	14.59	14.53	14.67	0.038	0.040	-5.0
Alpha-Chlordane	11.86	11.80	11.94	0.019	0.020	-5.0
Gamma-Chlordane	11.51	11.44	11.58	0.019	0.020	-5.0
Tetrachloro-m-xylene	5.25	5.20	5.30	0.019	0.020	-5.0
Decachlorobiphenyl	19.36	19.26	19.46	0.036	0.040	-10.0

7F

CALIBRATION VERIFICATION SUMMARY

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB30

GC Column (1): _DB5__ ID: _0.53__(mm) Initial Calib. Date(s) : _05/30/01__ _05/30/01_

EPA Sample No. (PIBLK##) : __PIBLKVZ_____ Date Analyzed : ___05/31/01_____

Lab Sample ID (PIBLK##) : ___ PIBLKVZ _____ Time Analyzed : ___0918_____

EPA Sample No. (INDAM##) : ___INDAMVZ_____ Date Analyzed : __05/31/01_____

Lab Sample ID (INDA) : __ INDAMVZ __ Time Analyzed : ___0942_____

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Alpha-BHC	5.25	5.23	5.33	0.020	0.020	0.0
Gamma BHC	5.98	5.96	6.06	0.020	0.020	0.0
Heptachlor	7.07	7.06	7.16	0.020	0.020	0.0
Endosulfan I	10.04	10.01	10.15	0.020	0.020	0.0
Dieldrin	10.60	10.56	10.70	0.040	0.040	0.0
Endrin	11.09	11.05	11.19	0.040	0.040	0.0
4,4'DDD	11.48	11.45	11.59	0.040	0.040	0.0
4,4'DDT	12.10	12.07	12.21	0.040	0.040	0.0
Methoxychlor	13.34	13.31	13.45	0.204	0.200	2.0
Tetrachloro-m-xylene	3.99	3.97	4.07	0.020	0.020	0.0
Decachlorobiphenyl	16.57	16.50	16.70	0.042	0.040	5.0

EPA Sample No. (INDBM##) : __ INDBMVZ ____ Date Analyzed : ___05/31/01_____

Lab Sample ID (INDB) : _ INDBMVZ _____ Time Analyzed : ___1006_____

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW		CALC AMOUNT (NG)	NOM AMOUNT (NG)	% D
		FROM	TO			
Beta BHC	6.17	6.12	6.22	0.020	0.020	0.0
Delta-BHC	6.61	6.60	6.70	0.020	0.020	0.0
Aldrin	7.73	7.72	7.82	0.020	0.020	0.0
Heptachlor epoxide	9.18	9.15	9.29	0.020	0.020	0.0
4,4'DDE	10.13	10.10	10.24	0.040	0.040	0.0
Endosulfan II	11.60	11.57	11.71	0.041	0.040	2.5
Endosulfan sulfate	13.54	13.51	13.65	0.041	0.040	2.5
Endrin ketone	14.10	14.07	14.21	0.041	0.040	2.5
Endrin aldehyde	12.57	12.54	12.68	0.040	0.040	0.0
Alpha-Chlordane	9.78	9.75	9.89	0.020	0.020	0.0
Gamma-Chlordane	9.47	9.44	9.58	0.020	0.020	0.0
Tetrachloro-m-xylene	3.99	3.97	4.07	0.020	0.020	0.0
Decachlorobiphenyl	16.56	16.50	16.70	0.039	0.040	-2.5

FORM VII PEST-2 OLM04.2

1E

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BBB34

Lab Name: ____NEWLAB_____ Contract : __123456_____

Lab Code: __NLB____ Case No.: __12345__ SAS No.: _____ SDG No.:_BRR34

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB30-11_____

Sample wt/vol: ____1000_____(g/mL) ___mL_____ Lab File ID: __BBB30-11AA_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: __05/17/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___05/26/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: __05/29/01_____

Injection Volume: __1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH __6.7___ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _ lg/L __	Q
319-84-6	alpha-BHC	0.25	
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.03	J
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.58	
72-43-5	Methoxychlor	0.55	
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	2.5	

Learning Module 22

Learning Objectives for this Module

- **Identify action taken for Contamination not meeting the requirements stated in the checklist**

Unit 1 QC Blanks Contamination

Method Blanks

Method blanks are analyzed in the laboratory along with environmental samples to assure that positive values in samples are not the result of laboratory contamination. The Method Blank Summary Form IV (a copy is available in Appendix B) shows which samples are associated with each method blank. Contaminants in method blanks are multiplied by the dilution factor because these contaminants could be present in the dilution water.

Field Blanks

Field blanks (also called rinse blanks or equipment blanks) consist of deionized water poured over or through sampling equipment. Field blanks measure contamination caused by contaminated sampling equipment. Environmental samples are usually qualified due to field blank contamination if the environmental sample was collected the same day as the field blank, and with the same equipment. Check the Sampling Trip Report for field blank association if there are any questions. Some contractors will decontaminate all of the equipment needed for the job on the first day.

Instrument Blanks

An Instrument blanks consists of 5 mL of reagent water, spiked with SMC and IS and analyzed as a sample. This type of blank is analyzed after a sample that has an analyte that exceeded the calibration range. The results of an instrument blank analysis indicate whether there is carryover from the previous sample. If carryover is present in the instrument blank, the next sample must be inspected to determine if the contaminant was carried over from the previous analysis or actually present in the field sample.

Clean up Blanks

Cleanup blanks may result from any of three cleanup procedures specified in the CLP method: gel permeation chromatography (GPC), Florisil cartridge, and sulfur cleanup.

Gel permeation chromatography is a size exclusion cleanup procedure. The packing material is porous and is characterized by the exclusion range. In the choice of packing, the exclusion range must be larger than the size of the molecules to be separated. This cleanup method is most efficient for removing high boiling materials that may otherwise condense in the injection port of the gas chromatograph (GC) and interfere with sample analysis. GPC cleanup is mandatory for all soil/sediment extracts.

Florisil cartridge cleanup is required for all extracts. Florisil cartridge cleanup significantly reduces matrix interference caused by polar compounds. These matrix interferences may be caused by contaminants that are extracted from sample along with the compounds of interest.

Sulfur cleanup is used if crystals of sulfur are evident in the extract or if the sample analysis shows the presence of sulfur. Sulfur contamination will cause a rise in the baseline of the chromatogram that may interfere with the analysis.

Why is Contamination a major concern?

Blank contamination is the most common cause of data qualification. It is essential to keep track of which blanks are associated with every sample.

For example, if sampling equipment or sample containers are not cleaned properly, the samples may show levels of contaminants that are not actually in the ground water that was sampled, but are from the containers. If monitoring wells are not properly constructed and evacuated, the resultant sample data may be too high or too big, even if the lab analyzed the sample perfectly. Proper containers, preservatives, and holding times are essential if the data generated are assumed to be valid. If proper chain of custody procedures is not followed, data may not be considered valid in court.

Blank contamination can result in false positive data. We qualify suspect data with a “U” or “R”. When qualifying TCL analytes, the “U” indicates that the compound was not present at a certain concentration. For example, if a lab reports a compound at 40 ug/L, and there was significant contamination in the field blank, and the contaminant is within criterion, the data reviewer would change the 40 to 40U.

Four things to remember about QC blanks (Method, Field, Instrument, Clean-up):

- Blanks are not qualified due to contamination in other blanks. Field, trip and storage blanks associated with a method blank are not qualified for a contaminant in the method blank. This is only true for contamination criterion. All blanks are qualified for all other criteria such as SMC, IS, and Calibrations.

- Water blanks”, “drill blanks”, and “distilled water blanks are used to verify the quality of the blank water and drilling water used at a site. These samples should be considered environmental samples and not QC-samples. Do not qualify data because of contaminants in these blanks.

- Method, Field and instrument blanks are analyzed for VOA, BNA and Pest/PCB fractions compounds.

- Instrument blanks affect only the sample analyzed immediately after the blank.

- Clean-up blanks are present only if part or all of the samples were subjected to additional clean up.

Next, let’s look at the checklist sections 5 and 6 for this criterion. This can be complicated but it is the most frequently used criterion for qualifying data.

5.0 Blanks (Form IV)

4.1 Is the Method Blank Summary (Form IV) present?

5.2 Frequency of Analysis: Has a reagent/method blank been analyzed for each SDG, every 20 samples of similar matrix and concentration level or each extraction batch, whichever is more frequent?

ACTION: If any blank data are missing, take action as specified above in section 3.2. If blank data is not available, reject "R" all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.

5.3 A separate Form IV should be present if part of an extraction batch required sulfur removal. In such cases some samples will be listed on two blank summary forms - once under the method blank, and once under the sulfur clean-up blank (PCBLK). Was this additional blank raw data and Form IV submitted when required?

ACTION: If sulfur clean-up blank data and Form IV are missing, take action as specified in 3.2 above.

5.4 Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following the initial calibration sequence (minimum contract requirement)?

ACTION: If any blank data are missing, take action as specified in section 3.2 above.

5.5 Was the correct identification scheme used for all Pest/PCB blanks? (See page B-30, sec. 3.3.7.3 of the SOW for further information.)

ACTION: Contact the TOPO to obtain resubmittals or make the required corrections on the forms. Document in the Data Assessment under Contract Problems/Non-Compliance all corrections made by the validator.

5.6 Chromatography: review the blank raw data - chromatograms, quant. reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable?

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

Section 5 is concerned with the frequency of the various QC blank analyses. Below is a checklist of criterion requirements:

- Method blank must be analyzed for each matrix type
- Instrument blank analyzed after an analysis with a high concentration
- Detected hits in the blanks must be < CRQL for all target compounds

6.0 Contamination

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

6.1 *Do any method/reagent, instrument, or cleanup blanks show positive hits for pest/PCBs?*

6.2 *If any method blanks and/or sulfur clean-up blanks contain "hits" for target compounds, are these hits greater than the CRQL for that analyte?*

6.3 *In any instrument blanks, is the concentration of any target hit > 0.5 times CRQL for that analyte (see SOW, section 12.1.4.3.3, page D-73/PEST)?*

NOTE: *Most labs will report 0.5 times CRQLs on the instrument blank Form I instead of the actual method CRQLs. If the lab reported the actual CRQLs, then check if any detected hits are above 0.5 times the CRQLs reported on the Form I.*

ACTION: *If yes to any of the above questions: note in the Data Assessment under Contract Problems/Non-Compliance if any method or clean-up blanks contain hits > the CRQL, or of instrument blank contained hits > 0.5 times CRQL for that analyte.*

6.4 *Do any field/rinse blanks have positive pest/PCB results?*

ACTION: *Prepare a list of the samples associated with each contaminated blank. (Attach a separate sheet)*

NOTE: *All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Do not convert field blank results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, and/or calibration QC problems.*

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

NOTE: *When applied as directed in the table below, the contaminant concentration in method/instrument/ reagent/cleanup blanks is multiplied by the sample dilution factor, where necessary.*

If the laboratory has not already done so, the contaminant concentration in soil blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate are

used to prepare each soil reagent/method blank as instructed on page D-69/PEST, section 12.1.2.3.1. Ask the TOPO to contact the laboratory if the soil blanks are not reported in soil units (µg/kg).

Figure 22-1 Validation actions based on sample and blank concentrations

For:	***Flag sample result with a "U" when:***	***Report CRQL & qualify "U" when:***	***No qualification is needed when:***
All contaminants	*Sample conc. Is > CRQL, but ≤ 5x blank value*	*Sample conc. Is < CRQL and ≤ 5x blank value*	*Sample conc. Is > CRQL and > 5x blank value*

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as "R", unusable.

6.5 Are there field/rinse/equipment blanks associated with every sample?

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For analytes with high concentrations, use professional judgement to qualify these values and document in the Data Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

Section 6 concentrates on the concept of contamination. It is this section that outlines the actual validation actions. All compounds follow the 5 X rules. Figure 22-1 outlines the specific action that must be taken regarding any contamination in the sample. Check the CRQL values for all analytes. Alpha BHC to Endosulfan 1, alpha and gamma chlordanes have CRQL of 0.05 for waters and 0.10 for soil samples. The CRQLs for Methoxychlor is 0.50 (17) and Toxaphene is 5.0 (170). Except for Aroclor 1221 whose CRQL is 2.0 for waters and 67 for soil, all other Aroclors have CRQLs of 1.0 and 33. Keep these numbers or Table of CRQLs in Exhibit C/3.0 of the SOW.

Practice 22-1 Using the information in Figure 22-1, how would you qualify the following sample?

Aqueous sample, the contaminant is alpha chlordane and the value reported in the method blank is 0.04. The sample has a reported value of 0.18 and the CRQL is 0.05.

Answer to Practice 22-1

The sample value is > CRQL and is < blank contamination rule value of 0.20 (0.04 x 5= 0.20)

Look at Figure 6-1 and find the statement that matches the above statement. The top of the column tells you to “Flag the sample result “U”. Cross out the Laboratory qualifier of "B" and write "U". Therefore the reported sample value is reported as 0.18U.

Practice 22-2 Using the information in Figure 22-1, how would you qualify the next sample?

Let’s try another problem using a soil sample. The % moisture of the sample is 15, CRQL is 3.3, Dieldrin has a value of 18 and the method blank contamination value for Dieldrin is 2.0.

Answer to Practice 22-2

First, you should check the CRQL value is correct. A soil sample value is corrected by dividing the value by the percent dry weight value. So 3.3/.85 is 3.88 rounded to 3.9. (Dry weight is 100-15 (% Moisture)/100=.85)

Next the method blank contamination value has to be corrected to account for % moisture, 2 x 5 (5x rule) = 10
10/.85 (dry weight) = 11.7
11.7 rounded to 12.

Now we have a sample Dieldrin value of 18 which is > CRQL (3.9) and ≥ blank contamination rule value (12). Using Figure 22-1, Dieldrin is not qualified and is reported as 18. Cross out the Laboratory qualifier "B".

It takes practice to remember the rules from Figure 22-1. Try the quiz on the next page. Answers are located in Appendix E.

Module 22 Quiz 1

Instruction:

- Use Figure 22.1 from page 5 or from the checklist in section 6.2 to qualify the each problem.

- Calculate and write in the correct CRQL for the sample if dilution factor (DF) or % moisture is involved. (use SOW required sample amount)
- Write in the Qualified Result. This is the correct value and qualifier to be reported on the sample Form 1. Remember the significant figures and rounding rules.

1. Matrix water

Blank Contaminant	0.008	gamma BHC
Sample CRQL		
Sample DF	2	
Sample Result	1.0	
Qualified Result		

2. Matrix water

Blank Contaminant	0.50	Endrin
Sample CRQL		
Sample Result	2.0	
Qualified Result		

3. Matrix water

Blank Contaminant	0.10	DDT
Sample CRQL		
Sample Result	0.32	
Qualified Result		

4. Matrix water

Blank Contaminant	0.50	Aroclor 1254
Sample CRQL		
Sample Result	1.8	
Qualified Result		

5. Matrix water

Blank Contaminant	0.25	Methoxychlor
Sample CRQL		
Sample Result	1.55	
Qualified Result		

6. Matrix soil

Blank Contaminant	4	Aroclor 1221
Sample CRQL		
Sample DF	2	
% Moisture	45	
Sample Result	160	
Qualified Result		

7. Matrix soil

Blank Contaminant	15	Methoxychlor
Sample CRQL		
% Moisture	35	
Sample Result	38	
Qualified Result		

8. Matrix soil

Blank Contaminant	3	Toxaphene
Sample CRQL		
% Moisture	20	
Sample Result		40
Qualified Result		

9. Matrix soil

Blank Contaminant	8	DDE
Sample CRQL		
Sample DF	2	
% Moisture	8	
Sample Result	25	
Qualified Result		

10. Matrix soil

Blank Contaminant	3	Heptachlor
Sample CRQL		
% Moisture	15	
Sample Result	10	
Qualified Result		

Unit 2 Multiple QC associated with sample

Frequently a sample will have other QC blanks associated with it besides the method blank. Theoretically, the highest value from any of the associated blanks is used to qualify the sample for contamination criteria. In reality, this rule can be a major headache. There is an easier way to handle multiple QC blanks.

Trying to check and remember which field blank or trip blank is associated with each sample is time consuming and confusing for a new validator. Remember in Region 2 only QC blanks associated with each sample is used for contamination criteria. Other Regions may follow the policy that all method/QC blanks are associated with all samples.

Region 2 is very specific about which sample is associated with each QC blank.

- Only samples listed on Form 4 are associated with that Method Blank.
- Field blanks may be assigned to either matrix based on specific equipment used to collect the sample (equipment blanks).
- Field blanks are assigned to samples collected on each sampling date. There are exceptions and the Sampling Trip Report should state which FBs are assigned to samples.

Years of validation have taught experienced validators an easier way to qualify the data when numerous QC blanks are involved. Validate the data in the order listed below:

- Method blanks contaminants are the first values to use since this blank should affect the most number of samples.
- Any aqueous sample contaminant that has not been resolved uses the trip blank or field blank contaminants. Instrument blanks only affect the sample after the instrument blank analysis.
- If none of the QC blanks can be used to qualify the data, then the sample value is not changed and the B qualifier is removed.
- Soil samples are qualified using method blanks. Soil samples usually are not affected by other QC blanks (specifically FBs which are always aqueous matrix) since the concentration units are different. If the analyte value in the sample is very low and the contaminant value in the QC blank is high, then there is chance of qualifying the data. Do not assume this will always be the case. Check the samples and QC blanks.
- Do not convert units. QC blanks are expressed as lg/L and soil samples as lg /Kg. Do not convert associated Field blank contaminant lg/L values to lg /Kg.
- Always cross out the “B” qualifier and replace with appropriate qualifier. If no qualifier is needed, just cross out the “B” qualifier.

There are two quizzes coming up. Take your time to think of the correct action. Figure 22-1 is the best resource and following the above suggestions to correctly answer the questions.

Validate Quiz 2 for Method Blank contamination for analytes following the 10x and 5x rules.

Validate Quiz 3 samples for several QC blanks. You will have to determine which QC blanks are associated with each sample to apply the contamination criteria correctly. The information needed is usually located on forms, case narrative or sampling trip report. It is important to learn how to gather the pieces of information. You will never find everything written down or in one location. You have to learn to be a "scientific investigator" to find the information and if the information is not available, be able to make a decision for this criterion.

Sampling Trip Report

BPL04	Aqueous - Rinse blank	01/23/01
BBJ68	Aqueous - Trip Blank	01/23/01
BBJ28	Soil	01/24/01

Answers for both quizzes are located in Appendix E.

4C

EPA SAMPLE NO.

PESTICIDE METHOD BLANK SUMMARY

PBLKS1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50_

Lab Sample ID: ___BBJ50-MBS_____ Lab File ID: ___BBJ50-MB2_____

Matrix: (soil/water) ___SOIL_____ Extraction: (Type) ___SONC_____

Sulfur Cleanup: (Y/N) ____N_____ Date Extracted: ____02/01/01_____

Date Analyzed (1): ___02/03/01_____ Date Analyzed (2): ___02/03/01_____

Time Analyzed (1): ____0825_____ Time Analyzed (2): ___0825_____

Instrument ID (1): ___ HP5890AA _____ Instrument ID (2): ___HP5890AB_____

GC Column (1): __RTX-35_ ID: __0.32___ (mm) GC Column (2): _DB-5__ ID: __0.53___ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BPH62	BBJ50-13	02/03/01	02/03/01
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

COMMENTS:

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PBLKW1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50_

Lab Sample ID: ___BBJ50-MBW_____ Lab File ID: ___BBJ50-MB1_____

Matrix: (soil/water) ___WATER_____ Extraction: (Type) ___SEPF_____

Sulfur Cleanup: (Y/N) ____N_____ Date Extracted: ____02/01/01_____

Date Analyzed (1): ___01/27/01_____ Date Analyzed (2): ___01/27/01_____

Time Analyzed (1): ____1252_____ Time Analyzed (2): ___1252

Instrument ID (1): ___ HP5890CA _____ Instrument ID (2): ___HP5890CB_____

GC Column (1): __RTX-35_ ID: __0.32___ (mm) GC Column (2): _DB-5__ ID: __0.53___ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BBJ60	BBJ50-18	01/27/01	01/27/01
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

COMMENTS:

1E

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BBJ60

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-10_____

Sample wt/vol: __1000_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-10C_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___01/24/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.08	
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.21	
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.36	
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.24	
72-43-5	Methoxychlor	0.82	
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

FORM I PEST

OLM04.2

1E

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BPH62

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBJ50-13_____

Sample wt/vol: __30_____(g/mL) ___G_____ Lab File ID: ___BBJ50-13A_____

% Moisture: _____21_____ Decanted: (Y/N) ___N____ Date Received: ___01/26/01_____

Extraction : (Type) ___SONC____ Date Extracted: ___02/01/01_____

Concentrated Extract Volume: __5000____(lL) Date Analyzed: ___02/03/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__Y____ pH ____6.8____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg_	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma BHC	1.5	J
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'DDE	4.2	U
72-20-8	Endrin	6.6	
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'DDT	8.2	
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	1.3	J
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor 1016	42	U
11104-28-2	Aroclor 1221	85	U
11141-16-5	Aroclor 1232	42	U
53469-21-9	Aroclor 1242	42	U
12672-29-6	Aroclor 1248	42	U
11097-69-1	Aroclor 1254	42	U
11096-82-5	Aroclor 1260	42	U

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

PBLKS1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBJ50-MB2_____

Sample wt/vol: __30_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-MBS_____

% Moisture: _____0_____ Decanted: (Y/N) __N_____ Date Received: _____

Extraction : (Type) ___SONC____ Date Extracted: ___02/01/01_____

Concentrated Extract Volume: __5000____(lL) Date Analyzed: ___02/03/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__Y____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma BHC	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'DDE	4.2	U
72-20-8	Endrin	2.2	J
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'DDT	4.2	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	1.4	J
5103-74-2	gamma-Chlordane	1.1	J
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor 1016	42	U
11104-28-2	Aroclor 1221	85	U
11141-16-5	Aroclor 1232	42	U
53469-21-9	Aroclor 1242	42	U
12672-29-6	Aroclor 1248	42	U
11097-69-1	Aroclor 1254	42	U
11096-82-5	Aroclor 1260	42	U

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

PBLKW1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-MB1_____

Sample wt/vol: __1000_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-MBW_____
% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____
Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.04	J
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.06	J
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.47	J
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

4C

EPA SAMPLE NO.

PESTICIDE METHOD BLANK SUMMARY

PBLKS1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50_

Lab Sample ID: ___BBJ50-MBS_____ Lab File ID: ___BBJ50-MB2_____

Matrix: (soil/water) ___SOIL_____ Extraction: (Type) ___SONC_____

Sulfur Cleanup: (Y/N) ____N_____ Date Extracted: ____02/01/01_____

Date Analyzed (1): ___02/03/01_____ Date Analyzed (2): ___02/03/01_____

Time Analyzed (1): ____0825_____ Time Analyzed (2): ___0825_____

Instrument ID (1): ___ HP5890AA _____ Instrument ID (2): ___HP5890AB_____

GC Column (1): __RTX-35_ ID: __0.32___ (mm) GC Column (2): _DB-5__ ID: __0.53___ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BBJ28	BBJ50-11	02/03/01	02/03/01
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				

COMMENTS:

4C

EPA SAMPLE NO.

PESTICIDE METHOD BLANK SUMMARY

PBLKW1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50_

Lab Sample ID: ___BBJ50-MBW_____ Lab File ID: ___BBJ50-MB1_____

Matrix: (soil/water) ___WATER_____ Extraction: (Type) ___SEPF_____

Sulfur Cleanup: (Y/N) ____N_____ Date Extracted: ____02/01/01_____

Date Analyzed (1): ___01/27/01_____ Date Analyzed (2): ___01/27/01_____

Time Analyzed (1): ____1252_____ Time Analyzed (2): ___1252_____

Instrument ID (1): ___ HP5890CA _____ Instrument ID (2): ___HP5890CB_____

GC Column (1): __RTX-35_ ID: __0.32___ (mm) GC Column (2): _DB-5__ ID: __0.53___ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1.	BBJ68	BBJ50-18	01/27/01	01/27/01
2.	BPL04	BBJ50-33	01/27/01	01/27/01
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

COMMENTS:

1E

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BBJ28

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBJ50-11_____

Sample wt/vol: __30_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-11A_____

% Moisture: _____25_____ Decanted: (Y/N) __N_____ Date Received: ___01/26/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___02/01/01_____

Concentrated Extract Volume: __5000____(lL) Date Analyzed: ___02/03/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH ___5.3____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg __	Q
319-84-6	alpha-BHC	2.6	U
319-85-7	beta BHC	2.6	U
319-86-8	delta-BHC	2.6	U
58-89-9	gamma BHC	3.3	
76-44-8	Heptachlor	2.6	U
309-00-2	Aldrin	2.6	U
1024-57-3	Heptachlor epoxide	1.1	J
959-98-8	Endosulfan I	2.6	U
60-57-1	Dieldrin	5.2	U
72-55-9	4,4'DDE	5.2	U
72-20-8	Endrin	5.3	
33213-65-9	Endosulfan II	5.2	U
72-54-8	4,4'DDD	5.2	U
1031-07-8	Endosulfan sulfate	5.2	U
50-29-3	4,4'DDT	7.9	
72-43-5	Methoxychlor	26	U
53494-70-5	Endrin ketone	5.2	U
7421-93-4	Endrin aldehyde	5.2	U
5103-71-9	alpha-Chlordane	1.8	J
5103-74-2	gamma-Chlordane	1.2	J
8001-35-2	Toxaphene	260	U
12674-11-2	Aroclor 1016	51	U
11104-28-2	Aroclor 1221	100	U
11141-16-5	Aroclor 1232	51	U
53469-21-9	Aroclor 1242	51	U
12672-29-6	Aroclor 1248	51	U
11097-69-1	Aroclor 1254	51	U
11096-82-5	Aroclor 1260	51	U

FORM I PEST

OLM04.2

1E

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BBJ68

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-18_____

Sample wt/vol: __800_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-18C_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___01/24/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _	Q
319-84-6	alpha-BHC	0.063	U
319-85-7	beta BHC	0.063	U
319-86-8	delta-BHC	0.063	U
58-89-9	gamma BHC	0.063	U
76-44-8	Heptachlor	0.063	U
309-00-2	Aldrin	1.0	
1024-57-3	Heptachlor epoxide	0.063	U
959-98-8	Endosulfan I	0.063	U
60-57-1	Dieldrin	0.13	U
72-55-9	4,4'DDE	0.23	
72-20-8	Endrin	0.13	U
33213-65-9	Endosulfan II	0.13	U
72-54-8	4,4'DDD	0.25	
1031-07-8	Endosulfan sulfate	0.13	U
50-29-3	4,4'DDT	0.36	
72-43-5	Methoxychlor	0.88	
53494-70-5	Endrin ketone	0.13	U
7421-93-4	Endrin aldehyde	0.13	U
5103-71-9	alpha-Chlordane	0.063	U
5103-74-2	gamma-Chlordane	0.063	U
8001-35-2	Toxaphene	6.3	U
12674-11-2	Aroclor 1016	1.3	U
11104-28-2	Aroclor 1221	2.6	U
11141-16-5	Aroclor 1232	1.3	U
53469-21-9	Aroclor 1242	1.3	U
12672-29-6	Aroclor 1248	1.3	U
11097-69-1	Aroclor 1254	1.3	U
11096-82-5	Aroclor 1260	1.3	U

FORM I PEST

OLM04.2

1E

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BPL04

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-33_____

Sample wt/vol: __900_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-33C_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___01/24/01_____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _	Q
319-84-6	alpha-BHC	0.056	U
319-85-7	beta BHC	0.056	U
319-86-8	delta-BHC	0.056	U
58-89-9	gamma BHC	0.040	J
76-44-8	Heptachlor	0.056	U
309-00-2	Aldrin	0.056	U
1024-57-3	Heptachlor epoxide	0.130	
959-98-8	Endosulfan I	0.056	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'DDT	0.21	
72-43-5	Methoxychlor	0.44	J
53494-70-5	Endrin ketone	0.11	U
7421-93-4	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.056	U
5103-74-2	gamma-Chlordane	0.056	U
8001-35-2	Toxaphene	5.6	U
12674-11-2	Aroclor 1016	1.1	U
11104-28-2	Aroclor 1221	2.2	U
11141-16-5	Aroclor 1232	1.1	U
53469-21-9	Aroclor 1242	1.1	U
12672-29-6	Aroclor 1248	1.1	U
11097-69-1	Aroclor 1254	1.1	U
11096-82-5	Aroclor 1260	1.1	U

FORM I PEST

OLM04.2

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKS1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____SOIL_____ Lab Sample ID: __BBJ50-MB2_____

Sample wt/vol: __30_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-MBS_____

% Moisture: _____0_____ Decanted: (Y/N) __N_____ Date Received: _____

Extraction : (Type) ___SONC____ Date Extracted: ___02/01/01_____

Concentrated Extract Volume: __5000____(lL) Date Analyzed: ___02/03/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__Y____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma BHC	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'DDE	4.2	U
72-20-8	Endrin	2.2	J
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'DDT	4.2	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	1.4	J
5103-74-2	gamma-Chlordane	1.1	J
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor 1016	42	U
11104-28-2	Aroclor 1221	85	U
11141-16-5	Aroclor 1232	42	U
53469-21-9	Aroclor 1242	42	U
12672-29-6	Aroclor 1248	42	U
11097-69-1	Aroclor 1254	42	U
11096-82-5	Aroclor 1260	42	U

1E

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

PBLKW1

Lab Name: ___NEWLAB_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____WATER_____ Lab Sample ID: __BBJ50-MB1_____

Sample wt/vol: __1000_____(g/mL) ___ML_____ Lab File ID: ___BBJ50-MBW_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) ___SEPF____ Date Extracted: ___01/25/01_____

Concentrated Extract Volume: __10000____(lL) Date Analyzed: ___01/27/01_____

Injection Volume: ___1.0____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L __	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma BHC	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.04	J
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.06	J
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxychlor	0.47	J
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

FORM I PEST

OLM04.2

Data Assessment

Each action taken due to QC contamination is documented in the DA. Each type of QC should be listed separately. In other words, if an analyte was qualified for method blank contamination, the action should be listed under method blanks. Analytes qualified for rinse blank contamination are listed under rinse blanks and so on. An analyte only needs to be mentioned for one type of QC blank. For Example if aldrin was qualified in sample GHT45 because of contamination in a method blank, rinse blank and an instrument blank, it should be mentioned under method blank but not trip or storage blanks. Don't forget you must have a statement of the problem, action taken and samples affected. Above example can be written under Method Blank contamination as:

The following samples had analytes reported < CRQL and < 10 x the blank contamination. Reported concentration was raised to the CRQL and qualified "U".

aldrin
BHT45

The first sentence stated the problem. The second sentence explains the action taken. The sample and analyte affected are documented.

Learning Module 21

Learning Objectives for this Module

- **Identify action taken for Matrix Spike criterion not meeting the requirements stated in the checklist**

Unit 1Matrix spike

The matrix is defined as the predominant sample composition material. For the purpose of this training manual, a matrix is either water or soil/sediment. Matrix is not synonymous with phase (liquid or solid).

The matrix spike (MS) is an aliquot (a measured portion) of a matrix (water sample or soil sample) fortified (spiked) with known quantities of specific compounds, and analyzed. Measuring recovery of the spiked compounds demonstrates method efficiency, and the effect of the matrix on an environmental sample.

Spike recovery is expressed in percent, and is defined as the amount of material found in the spiked sample divided by the amount spiked into the sample prior to the analysis, times 100 (Equation 21-1). The matrix spike duplicate (MSD) is a replicate matrix spike, which is used to determine method precision. If the MS/MSD recoveries are not within certain limits, there may be a matrix interference problem.

Equation 21-1 Calculate MS and MSD Spike Recoveries

$$\text{MS/MSD (Percent Recovery)} = \frac{(SSR - SR)}{SA} \times 100$$

Where:
SSR = Spike Sample Result (spike added + sample result)
SR = Sample Result
SA = Spike added from spiking solution

The matrix spike/matrix spike duplicate sample results are examined to determine which analyte spikes are outside recovery limits. Based on professional judgement, the data reviewer may qualify sample data if both the matrix spike and matrix spike duplicate have less than 10% recovery for that analyte. However, the reviewer should check the GC chromatograms for matrix interference, as well as the internal standard area counts and surrogate recoveries before qualifying data due to MS/MSD recovery. Also various Regions and Projects have different requirements for using and validating MS/MSD data. The checklist (HW-6) addresses only Region 2 guidelines. Any project specific requirements that may affect the validation will be stated in the Task Direction Form (TDF).

The concept of MS/MSD samples is uncomplicated, but the units on the form can be very confusing to individuals who do not have applicable laboratory experience. The Form 3 report in the column named "Spike Added" the concentration in ug/L . It is very important to remember this is not the concentration of the spike aliquot itself, but reflects the ***concentration of the spike in the sample***. A copy of a Form 3 is available in Appendix B.

Any concentration reported for the compound in the unspiked sample is subtracted from the reported MS and MSD concentration before % recovery and RPD are calculated. Remember if the initial volume or weight is not 1000 mL or 30 g, then the amount spiked into the sample will be different.

Table 21-1

Compound	Spiking solution Conc.
Gamma-BHC	0.5
DDT	1.0
Endrin	1.0
Heptachlor	0.5
Aldrin	0.5
Dieldrin	1.0

A water sample contains 0.50/1.0 lg/L of compound X (refer to Table 21-1). The sample volume is 1000 mL. The lab spiked the sample with 1mL of a 0.5/1.0 lg/mL spiking solution. On Form 3E, the spike added should be 0.50/1.0 ug/L spike, the sample concentration is the amount found in the unspiked sample and the MS and MSD concentration is the amount found in the spiked sample. The percent recovery is calculated using the Equation 21-1.

A matrix spike and matrix spike duplicate must be performed for each group of samples of a similar matrix, for the following, whichever is most frequent:

- Each case of field samples received.
- Each 20 field samples in a case.
- Each group of field samples of a similar concentration level (low soil or media soil).
- Each 14 calendar day period (7 calendar day period for 14-day data turnaround contracts) during which field sample in case were received (said period beginning with the receipt of the first sample in that Sample Delivery Group (SDG).

To statistically measure the difference between MS and MSD recoveries, we introduce the term Relative Percent Difference (RPD). We calculate the RPD of MS/MSD recoveries using Equation 5-2:

Equation 21-2 Calculate Relative Percent Difference (RPD)

$$RPD = \frac{|MSR - MSDR|}{(MSR + MSDR)/2} \times 100$$

where,
MSR = Matrix Spike Recovery
MSDR = Matrix Spike Duplicate Recovery

The vertical bars in the formula above indicate absolute value of the difference. Hence, RPD is always expressed as a positive value.

In the Example 5-1, if the MS recovery is 80% and the MSD recovery is 120%, The RPD would be calculated as 40%.

Example 21-1 RPD calculation

$$(RPD) = \frac{|80\text{-}120|}{(80+120)/2} \times 100 = 40$$

Unit 2 Matrix Spike Qualification

Generally, Region 2 does not validate samples for this criterion. This does not mean the results are not important. Precision and Accuracy is an important part of data usability. Unfortunately there are a number of factors that can affect the spike results so it is used with caution. Any qualification usually affects the sample that was spiked. Let's continue with section 4 of the checklist.

4.0 Matrix Spikes (Form III)

4.1 *Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?*

4.2 *Were matrix spikes analyzed at the required frequency for each of the following matrices: (one MS/MSD must be performed for every 20 samples of similar matrix or concentration level):*

a. Low Water?

b. Low Soil?

ACTION: If any matrix spike data are missing, take the action specified in section 3.2 above.

ACTION: Circle all outliers with red pencil.

ACTION: Circle all outliers with red pencil.

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.

Note that the MS and MSD samples (Form I) are considered a criteria contributing to the data reliability in the particular sample spiked. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data. Note that only the sample spiked would be qualified if necessary. Rarely would the entire case or SDG of similar matrix be qualified for these matrix spike problems.

What this means is the validator using **professional judgement** has several options:

- Do nothing
- Qualify only the affected analyte in the unspiked sample
- Qualify all of the analytes in the unspiked sample
- Qualify only the affected analyte in all samples. This must have supporting details to document this action
- Qualify only the affected analyte or all of the analytes is recovery is < 10%

Documentation

Except for the first option, all other options must be documented in the DA, either under the matrix spike section or under the section called Other Problems.

A couple of tips about soil samples:

- Check chromatograms for severe matrix interference, which would explain not meeting criterion limits.
- Soil samples are prone to hot spots, areas in the sample where a higher concentration of a compound is present than the rest of the sample.

We generally do not qualify soil samples for this criterion for the last reason. If there is a co-elution problem, a peak masking another peak or an unknown peak that interferes with a spiked compound, then qualification may be necessary. Check the other samples to see if the same problems are in the sample chromatograms, if so, consider qualifying the data.

On the next page practice calculating the percent recovery and RPD of the sample. Answers are in Appendix E.

Instruction:

- Fill in the Recovery and RPD values for each problem.

1. Water sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
gamma BHC:	0.50	0.0	0.29		0.42			15	56-123
Heptachlor:	0.50	0.0	0.28		0.40			20	40-131
Aldrin:	0.50	0.0	0.29		0.41			22	40-120
Dieldrin:	1.0	0.0	0.61		0.85			18	52-126
Endrin:	1.0	0.0	0.60		0.85			21	56-121
4,4'DDT:	1.0	0.0	0.56		0.79			27	38-127

2. Low level Soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
gamma BHC:	20	0.0	8.6		8.7			50	46-127
Heptachlor:	20	0.0	12		14			31	35-130
Aldrin:	20	0.0	17		17			43	34-132
Dieldrin:	40	0.0	23		23			38	31-134
Endrin:	40	0.0	31		30			45	42-139
4,4'DDT:	40	0.0	25		25			50	23-134

3. water sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
gamma BHC:	0.50	0.0	0.30		0.34			15	56-123
Heptachlor:	0.50	0.0	0.45		0.49			20	40-131
Aldrin:	0.50	0.0	0.47		0.55			22	40-120
Dieldrin:	1.0	0.0	0.74		0.81			18	52-126
Endrin:	1.0	0.0	0.92		1.0			21	56-121
4,4'DDT:	1.0	0.0	0.81		0.87			27	38-127

4. Low level soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
gamma BHC:	26	0.0	19		30			50	46-127
Heptachlor:	26	0.0	16		28			31	35-130
Aldrin:	26	0.0	15		17			43	34-132
Dieldrin:	51	0.0	44		46			38	31-134
Endrin:	51	0.0	40		44			45	42-139
4,4'DDT:	51	5.0	36		45			50	23-134

Learning Module 20

Learning Objectives for this Module

- **Identify action taken for Surrogates criterion not meeting the requirements stated in the checklist**

Unit 1Surrogate Criteria

It is important to learn how to verify surrogate recovery, and to qualify data based on surrogate recovery limits. Low surrogate recovery is one of the most common reasons that data are qualified.

Surrogates are added to every blank, sample, matrix spike, matrix spike duplicate, and standard for pesticide analysis. They are used in evaluating the performance of the gas chromatography system. These compounds are chlorinated compounds not expected to be present in environmental media.

First you will learn how to calculate surrogate percent recovery. Then you will review the qualification process.

One Pest soil and one Pest water surrogate % recovery calculation for each surrogate should be checked per SDG and per calibration. If they are correct, we can assume that all the calculations are correct. If there are any errors then check more surrogate results.

There are several facts that can affect the number reported by the lab. The first one that affects any reported value is the rounding rule* stated in the SOW. Labs will round off at various stages in the calculation process. Some may use the rounded number in the next round of calculations; other might use the real number. If the reported result is within ballpark of your number, it is not an issue. For example the lab reported a value of 93 and your value is 98. This is not a big difference. The only concern is if the results are near the upper and lower limits of the criterion since this potentially can affect qualification of the data. The lower limit is the most critical particularly if the recovery is < 10%. Numbers near the limit ends should be double-checked and a decision made about the accuracy of the number.

*** Rounding Rule**: For rounding off numbers to the appropriate level of precision. If the figure following those to be retained is less than 5, drop it (round down). If the figure is > or = to 5, drop it and increase the last digit to be retained by 1.

Example: 934 is rounded to 930.
936 is rounded to 940.
935 is rounded to 940.
925 is rounded to 930

The second fact is significant figure. You will notice the numbers are reported to 2 significant figures. This is a requirement of the SOW unless stated otherwise in the document. All pesticides results are reported to 2 significant figures.

Calculations

Equations 20-1 and 20-2 are standard equations used for calculating spike concentrations and recoveries.

- First you must check the reported limits on the lab forms are the same as the limits on the SOW forms.
- Then you must verify the lab reported the correct value. The surrogate form has only % recovery values, not the concentration.
- You must know the theoretical and actual concentrations of the surrogate in the sample. The question is how do you proceed to find the numbers you need to fill in the equations.

When you work on a package, the values needed for all calculations are listed on a quantitation report, usually called a Quant report. The surrogates are mixed in with the analytes in the order of retention time.

First, figure out the theoretical amount of surrogate added to the sample. This information is in the SOW but you have to know where to find the information. In the beginning section of each fraction is a section called Reagents and Standards. Read through each paragraph until you find the working standard solution for the criteria. For this criteria you are looking for the Surrogate Spiking Solution. The paragraph for this solution states the amount of solution to add to the sample. The amount of standard to add to a sample for other criteria is not always stated in this section. If not stated, you will have to go to the section on sample preparation to find the amount of solution to add to the sample.

Surrogate spiking solutions should be prepared at 0.2 ug/mL for each compound. For water samples, 1.0 mL of the surrogate solution is added to all samples prior to extraction. For soil samples, 2.0 mL of the surrogate solution is added to all samples before extraction. Equation 20-1 is the equation to calculate the theoretical concentration of the surrogate added to the sample.

Equation 20-1 Theoretical Surrogate amount calculation

$$\text{Surrogate amount} = \frac{I_{sp} \times S}{V_o}$$

Where:

I_{sp} = Amount of surrogate added to sample (usually 1.0 mL for water, 2.0 mL for soil sample)

S = surrogate concentration (usually 0.2 ug/mL)

V_o = Volume/Weight of sample in liters (L). (Usually 1000 mL as per water and 30g for soil, don't forget to make adjustment if this value is different)

Example 20-1 Water sample : 960 mL

$$\frac{(1.0\text{mL})(0.2\text{ug/mL})}{(.960\text{L})} = .2083 \text{ ug/L}$$

Next determine the actual concentration of surrogate found in the sample during analysis. Equation 20-2 is used to calculate actual values. Pesticides use external calibration procedures instead of internal calibration used for VOA and BNA fraction. Therefore internal standards are not added to the sample or used in the calculations.

Equation 20-2 SMC Concentration in a Sample

$$\text{Concentration } \mu g/L = \frac{(A_x)\,(V_t)}{(CF)\;(V_o \text{ or } W_s)\,V_i}$$

Where:

A_x = Area of the peak for the analyte to be measured

V_t = Volume of the concentrated extract in microliters (mL). If GPC is not performed, then this value is 10000. If GPC was performed, then this value is 5000).

CF = Calibration factor from the initial calibration for the midpoint concentration. (Note: area responses from Individual Mix A are used to calculate the calibration factor for surrogate analytes.)

V_o = Water sample Volume extracted in milliliters (mL, usually 1000).

OR

W_s = Soil sample Volume extracted in grams (g, usually 30).

V_i = Volume of extract injected in microliters (uL) (If a single injection is made onto two columns, use one half the volume in the syringe as the volume injected onto each column).

Let's try another practice problem (Example 20-2). Calculate the recovery amount of the surrogate DCB for a water sample.

Area response of DCB in sample on first column: 13830
Calibration factor from the midpoint: 624840
Sample volume 960 mL
Injection amount 1.0
GPC not performed on water samples

Example 20-2

$$\text{Conc. } \mu g/L = \frac{(13830)(10000uL)(1.0)}{(624840)(960mL)(1uL)} = .2306 \text{ ug/L}$$

Once you have the theoretical concentration (.2083) and the actual concentration (.2306), then you can calculate the % recovery using Equation 20-3.

Equation 20-3 Calculating Percent Recovery

$$\%\text{ Recovery} = \frac{\text{Concentration (amount) Found}}{\text{Concentration (amount) Spiked}} \times 100$$

Now calculate % recovery value using Equation 20-3 and the answer is:

$$\frac{.2306}{.2083} \times 100 = 110.7\% \text{ reported as } 111\%$$

Practice 20-1 Following the above steps, Calculate the concentration and % recovery for the other the surrogate TCX (also known as TCMX)

Look at the calculation for a water sample for the surrogate TCX.

Area response of DCB in sample on first column: 13568
Calibration factor from the midpoint: 947896
Sample volume 960 mL
Injection amount 1.0
GPC not performed on water samples

Answer to Practice 20-1

Check your answers below.

	Concentration	% Recovery
TCX	0.149	72 (71.5)

If your answers do not match, go back and double-check your equations.

TIP: There is another way to check the concentration of an analyte. The Quant report for a sample has two concentration columns titled "On column (ng)" and "Final (ug/X)". X is L for water samples and Kg for soil samples.

The "on column" value is the actual concentration of analyte in the sample. This value has not been corrected for sample amount, % moisture, and dilution factor.

Review this concept using Examples 20-3 and 20-4 and calculate the surrogate recovery for TCX and DCB. A modified Quant report has been provided for this sample. A modified Form 6F showing the initial calibration response factors provided will be used for Examples 20-3 and 20-4.

Example 20-3 Water sample, 1000 mL, 1.0 uL injection, final extract volume 10000

Modified Quant report for a sample for column CLPPEST1

RT	RT window	Response	Compounds	On column ng	Final ug/L	Adjusted CRQL
5.25	5.20 5.30	8920	Tetrachloro-m-xylene	0.0136		
19.36	19.26 19.46	7210	Decachlorobiphenyl	0.0124		

Modified Form 6F for associated continuing calibration

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
Tetrachloro-m-xylene	552800	653350	624238	610129.3	8.5
Decachlorobiphenyl	546700	581675	506881	545085.3	6.9

Answer to Example 20-3

Concentration of TCX = 0.14, theoretical conc. = 0.20, recovery = 67%
Concentration of DCB = 0.13, theoretical conc. = 0.20, recovery = 62%

Example 20-4-Calculate the two surrogate recoveries for a soil sample (32.00 g, % moisture 23%, DF= 1. Use the Modified 6F form from the previous example.

Modified Quant report for a sample

RT	RT window	Response	Compounds	On column ng	Final ug/L	Adjusted CRQL
5.25	5.20 5.30	5470	Tetrachloro-m-xylene	0.008		
19.36	19.26 19.46	5022	Decachlorobiphenyl	0.0089		

Answer to Example 20-4

Concentration of TCX = 3.397, theoretical conc. = 16.23, recovery = 21%
Concentration of DCB = 3.6 (3.64), theoretical conc. = 16.23, recovery = 22%

Continue onto the quiz for more practice. The values given in the quiz are just numbers for you to practice calculations. Match your answers with the quiz answers in Appendix E.

Module 20 Quiz 1

Instruction:

- Calculate the % Recovery of each surrogate in the samples and report the values on the Form 2, which can be found on next 2 pages.

Use 1.0 uL injection

Sample BBJ60, 1000mL,	Concentration
TCX	0.21258
DCB	0.12587
TCX	0.23540
DCB	0.14454

Sample BPH71, 500 mL,	Concentration
TCX	0.22548
DCB	0.30145
TCX	0.28754
DCB	0.31112

Sample BPH62, 30g, 12%,	Concentration
TCX	5.8
DCB	13
TCX	7.2
DCB	14

Sample BNR68, 31.8, 15%, DF=2	Concentration
TCX	9.8
DCB	12
TCX	11
	15

Calibration Factors	Column 1
TCX	653350
DCB	581675

Sample BBJ60, 1000mL, 1.0uL	Area responses	Concentration
TCX	26936	
DCB	26254	

Sample BPH71, 500 mL, 2.0uL	Area responses	Concentration
TCX	29274	
DCB	20098	

Sample BPH62, 30g, 2.0uL, 12%,	Area responses	Concentration
TCX	20098	
DCB	39871	

Sample BNR68, 31.8, 2.0uL, 15%, DF=2	Area responses	Concentration
TCX	20023	
DCB	28756	

2E

WATER PESTICIDE SURROGATE RECOVERY

Lab Name: __NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345___ SAS No.: _____ SDG No.:_____

GC Column (1) : _CLPPEST____ ID: _0.53_ (mm) GC Column (2) : __CLPPEST2__ ID: _0.53_ (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
2.	BBJ60							
3.	BPH71							
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								
31.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)

DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

page __1___ of __1_____

FORM II PEST-1

OLM04.2

2F

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: __NEWLAB_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345___ SAS No.: _____ SDG No.:__BBB00___

GC Column (1) : _CLPPEST____ ID: _0.53_ (mm) GC Column (2) : __CLPPEST2__ ID: _0.53_ (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
1.	BPH62							
2.	BNR68							
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)

DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

page __1___ of __1___

FORM II PEST-2

OLM04.2

Unit 2 SMC Qualifications

As you can see in Table 20-2, the SMC expected recovery range for each compound and matrix is the same. Compare the percent recoveries from the previous quiz with the limits listed below:

Table 20-2 SMC Recovery Ranges

Compound	% Recovery Water	% Recovery Soil
TCX	30-150	30-150
DCB	30-150	30-150

Some of the recoveries are within range. What action is needed for the recoveries outside the upper and lower limits? Determine the appropriate action by reviewing the SMC section in the checklist.

3.0 Surrogate Recovery (Form II)

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

a. Low Water?

b. Soil?

b. Soil?

3.2 *Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summary for each of the following matrices:*

a. Low Water?

b. Soil?

ACTION: *Contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.*

3.3 *Were outliers marked correctly with an asterisk?*

ACTION: *Circle all outliers with red pencil.*

3.4 *Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample,*

method blank or sulfur clean-up blank (30-150%)?

ACTION: In the absence of matrix interference, qualification of the data is not required in the following three situations:

1. *When surrogates on both columns are diluted out.*

2. *When one surrogate on one column was outside (either above or below) the contract limits but above 10%.*

3. *When the same surrogate on both columns is above the contract limit.*

ACTION: If the same surrogate on both columns is below the contract limit but above 10%, check chromatograms for interference. The reviewer may use professional judgement, and qualify only those analytes which elute in the region of the GC chromatogram where interference was observed.

ACTION: If the same surrogate on both columns is below the contract limit but above 10% (with no interference), qualify non-detects and positive hits "J" (estimated).

ACTION: If recoveries for both surrogates on both columns are below the contract limit but above 10%, flag positive results and non-detects for that sample "J".

ACTION: If recoveries are above the contract limit for both surrogates on both columns, then qualify positive values "J".

ACTION: If both surrogates on one column are below the contract limit but above 10%, then use the data from the other column, providing both surrogates on that column are within contract limits. The validator must check from which column the concentration is reported for each analyte. If the value is reported from the failed column, then cross it out and use the value from the other column. Document this change in the Data Assessment.

ACTION: If recovery is below 10% for either surrogate on any column, qualify positive results "J" and flag non-detects "R".

3.5 Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of Individual Standard Mixture A (see Form VI Pest-1)?

ACTION: If the RT limits are not met, positive results and non-detects for that sample may be qualified unusable, "R", based on professional judgement.

ACTION: *If the RT limits are not met, positive results and non-detects for that sample may be qualified unusable, "R", based on professional judgement.*

3.6 *Are there any transcription/calculation errors between raw data and Form II?*

ACTION: *If large errors exist, contact the TOPO to obtain an explanation or resubmittal of corrected deliverables from the laboratory. Make any necessary corrections and document the effect in the Data Assessment.*

Parts 3.1 to 3.3 are simple questions requiring Yes, NO or N/A response. Forms are submitted according to the matrices of the samples. Each matrix must be listed on the correct form.

Part 3.4 is asking about a contract issue. If any sample has any surrogate recovery above or below the limits, it must be reanalyzed. The suffix RE or DL identifies reanalyzed samples. If a sample used for MS/MSD is out, the MS/MSD analyses are considered to be a reanalysis.

The rest of section 3.4 provides the actions taken for samples that fail SMC criteria.

- If a SMC recovery is above the upper limits, only positive hits are qualified as "J".
- If the recovery value is **below the lower limits AND ≥ 10%,** all positive and non-detected analytes are qualified as "J".
- If the recovery is < 10%, positive hits are qualified "J" and non detects are qualified as "R".

When a reported value is rejected, the number and the qualifier on the form are crossed out with a line using a red pencil. When a value or qualifier is changed, it is crossed out with a single line.

Section 3.5, surrogate retention time can be answered by comparing the Form 6E with retention times for the surrogates in each sample. The last section 3.6 is easily answered from your calculations. If most or all of the values are drastically different from your calculations, document the problem in the DA under the Other Problem section. The purpose is to alert the lab that there is a reporting problem. The problem is documented even if all of the calculation values are within limits.

Water and Low Level Soil Samples

OK, now we want to combine the calculation results with the appropriate action. Look at the water sample SMC recoveries in Example 20-2 and compare the values with the water SMC recovery values in Table 20-2 (Page 9):

Example 20-2 SMC recoveries for water sample BGT76

Sample	TCX-1	TCX-2	DCB-1	DCB-2
BGT76	20	56	96	101

One SMC compound TCX on first column failed criteria. All SMC compounds recovery results affect all analytes. Since the value is below the lower limits and > 10%, all analytes are not qualified. (Go back and check the actions in section 3.4).
What do you do if more than 1 SMC compound failed criteria? Looking at the example below, what qualifications are needed for SMC?

Example 20-3 SMC recoveries for sample water BGT77

Sample	TCX-1	TCX-2	DCB-1	DCB-2
BGT77	25	9	145	250

Obviously both surrogates on both columns fail criteria. TCX-2 result requires all positive hits to be qualified "J" and non-detects are qualified as "R". Surrogate DCB on both columns exceeded calibration range and only positive hits are qualified "J. Since a “R” qualifier is a higher hierarchy then “J”, the action based on TCX results takes precedent. The final and correct answer for this sample would be all non-detects are qualified "R" and all positive hits is qualified as "J”.

Test your understanding of SMC qualification by applying the checklist to the next 2 quizzes. The first quiz will ask you to write out your response. The second quiz is actual forms and Quant reports. You will add your qualifications to the Form 1 for each sample. Quiz answers are located in Appendix E.

NOTE: Labs will submit the raw data for a sample one of two ways. The raw data may be listed on separate Quant reports or listed together on one Quant report. In the following quiz, the modified Quant reports for the first sample are listed separately. The second sample will have the raw data combined on one Quant report.

Module 20 Quiz 2

Instruction: For each sample information, write the final qualifications you would take for the sample based on the SMC recoveries.

Sample 1-

SMC compound	% Recovery
TCX-1	49
TCX-2	96
DCB-1	25
DCB-2	20

Sample 2

SMC compound	% Recovery
TCX-1	09
TCX-2	20
DCB-1	45
DCB-2	50

Sample 3

SMC compound	% Recovery
TCX-1	78
TCX-2	75
DCB-1	165
DCB-2	225

Sample 4 *

SMC compound	% Recovery
TCX-1	26
TCX-2	40
DCB-1	85
DCB-2	160

*Note: This scenario is very common but not covered in the checklist. The validator must decide qualifications.

Module 20 Quiz 3

Instructions:

- Calculate the Surrogate Recoveries that are missing from each Form 2. Apply the Regional checklist qualifications to the Form 1's for each sample.
- Modified Quant Reports for each sample and the RF values are located after each Form 1 for the sample.
- Write a detailed assessment of the qualification action for each sample on this page.

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB__ Case No.: __12345__ SAS No.: _____ SDG No.:_BBB00____

GC Column (1) : _CLPPEST1_ ID: _0.53_ (mm) GC Column (2) : _CLPPEST2_ ID: _0.53 (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
1.	VBLKJH	75	70	80	85			0
2.	BGH67							
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)
DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

2F

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB__ Case No.: __12345__ SAS No.: _____ SDG No.:__BBB00_

GC Column (1) : _CLPPEST1_ ID: _0.53_ (mm) GC Column (2) : _CLPPEST2_ ID: _0.53 (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
1.	VBLKDS	85	69	72	77			0
2.	BZZ89							
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)

DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BGH67

Lab Name: ___NewLab___ Contract : ___123456____

Lab Code: __NLB____ Case No.: __12345____ SAS No.: _____ SDG No.:_BBB00__

Matrix: (soil/water) ___water_____ Lab Sample ID: ___ BGH67_____

Sample wt/vol: ___1000___(g/mL) ____ML_____ Lab File ID: BBB00-31_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: ___01/24/01_____

Extraction : (Type) __SEPT_____ Date Extracted: ___01/29/01_____

Concentrated Extract Volume: __10000___(lL) Date Analyzed: ___02/01/01_____

Injection Volume: __1.0___(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)__N__ pH _____ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L __	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma BHC	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'DDT	0.10	U
72-43-5	Methoxyclor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	2.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

Modified Quant Report for Sample BGH67

GCAA COLUMN: CLPPEST1

RT	RT window	Response	Compounds	On column ng	Final ug/L	Adjusted CRQL
5.25	5.20 5.30	7593	Tetrachloro-m-xylene	0.016		
19.36	19.26 19.46	3625	Decachlorobiphenyl	0.0055		

6F (Modified)
PESTICIDE INITIAL CALIBRATION

Date: 01/30/01 Injection time: 21.48 Instrument: GCAA COLUMN: CLPPEST1

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
alpha-BHC:	805600	1027750	1084938	972762.7	15.2
beta BHC:	348200	369900	356888	358329.3	3.0
delta-BHC:	699800	898650	918263	838904.3	14.4
gamma BHC:	738200	921850	963350	874466.7	13.7
4,4'DDE:	692400	745200	683144	706914.7	4.7
Endrin:	402000	460025	412831	424952.0	7.3
Endrin ketone:	529400	539275	507488	525387.7	3.1
Endrin aldehyde:	438400	462450	421275	440708.3	4.7
alpha-Chlordane:	805200	779400	721688	768762.7	5.6
gamma-Chlordane:	741200	830900	780475	784191.7	5.7
Tetrachloro-m-xylene	552800	653350	624238	610129.3	8.5
Decachlorobiphenyl	546700	581675	506881	545085.3	6.9

GCAA COLUMN: CLPPEST2

RT	RT window	Response	Compounds	On column ng	Final ug/L	Adjusted CRQL
3.99	3.97 4.07	8831	Tetrachloro-m-xylene	0.015		
16.56	16.50 16.70	4011	Decachlorobiphenyl	0.0052		

6F (Modified)
PESTICIDE INITIAL CALIBRATION

Date: 01/30/01 Injection time: 21.48 Instrument: GCAA COLUMN CLPPEST2

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
alpha-BHC:	810200	1040150	1190975	1013775.0	18.9
beta BHC:	451800	455800	422300	443300.0	4.1
delta-BHC:	693600	905900	1011500	870333.3	18.6
gamma BHC:	800400	996750	1097563	964904.3	15.7
4,4'DDE:	641500	726425	767569	711831.3	9.0
Endrin:	521300	593850	587544	567564.7	7.1
Endrin ketone:	668300	671475	652094	663956.3	1.6
Endrin aldehyde:	581300	562050	514988	552779.3	6.2
alpha-Chlordane:	822400	835150	804700	820750.0	1.9
gamma-Chlordane:	796000	857400	842113	831837.7	3.8
Tetrachloro-m-xylene	645000	767450	754425	722291.7	9.3
Decachlorobiphenyl	772100	742775	646275	720383.3	9.1

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BZZ89

Lab Name: ___NewLab_____ Contract : ___123456____

Lab Code: __NLB____ Case No.: __12345____ SAS No.: _____ SDG No.:_BBB00_

Matrix: (soil/water) ___soil_____ Lab Sample ID: ___ BXX89_____

Sample wt/vol: ___30___(g/mL) ____G_____ Lab File ID: BBB00-66_____

% Moisture: _____21_____ Decanted: (Y/N) __N_ Date Received: ___01/24/01_____

Extraction : (Type) __SONC_____ Date Extracted: ___01/29/01_____

Concentrated Extract Volume: __5000___(lL) Date Analyzed: ___02/01/01_____

Injection Volume: __1.0___(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)__Y__ pH __6.8___ Sulfur Cleanup: (Y/N)_N__

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma BHC	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'DDE	4.2	U
72-20-8	Endrin	4.2	U
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'DDT	4.2	U
72-43-5	Methoxyclor	22	U
53494-70-5	Endrin ketone	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor 1016	42	U
11104-28-2	Aroclor 1221	85	U
11141-16-5	Aroclor 1232	42	U
53469-21-9	Aroclor 1242	42	U
12672-29-6	Aroclor 1248	42	U
11097-69-1	Aroclor 1254	42	U
11096-82-5	Aroclor 1260	42	U

FORM I PEST

OLM04.2

Modified Quant Report for Sample BZZ89

Compounds	RT 1	RT 2	Response 1	Response 2	Col. 1 ng	Col. 2 ng	Col. 1 ug/kg	Col. 2 ug/kg
Tetrachloro-m-xylene	5.25	3.99	2312	17589				
gamma BHC:	7.80			9972		0.010		4.221
Endrin:	13.28		5632		0.0122		51.66	
Decachlorobiphenyl	19.36	16.56	19258	21167				

6F (Modified)
PESTICIDE INITIAL CALIBRATION

Date: 01/30/01 Injection time: 21.48 Instrument: GCAA COLUMN CLPPEST1

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
alpha-BHC:	805600	1027750	1084938	972762.7	15.2
beta BHC:	348200	369900	356888	358329.3	3.0
delta-BHC:	699800	898650	918263	838904.3	14.4
gamma BHC:	738200	921850	963350	874466.7	13.7
4,4'DDE:	692400	745200	683144	706914.7	4.7
Endrin:	402000	460025	412831	424952.0	7.3
Endrin ketone:	529400	539275	507488	525387.7	3.1
Endrin aldehyde:	438400	462450	421275	440708.3	4.7
alpha-Chlordane:	805200	779400	721688	768762.7	5.6
gamma-Chlordane:	741200	830900	780475	784191.7	5.7
Tetrachloro-m-xylene	552800	653350	624238	610129.3	8.5
Decachlorobiphenyl	546700	581675	506881	545085.3	6.9

6F (Modified)
PESTICIDE INITIAL CALIBRATION

Date: 01/30/01 Injection time: 21.48 Instrument: GCAA COLUMN CLPPEST2

COMPOUND	CALIBRATION FACTORS				% RSD
	LOW	MID	HIGH	MEAN	
alpha-BHC:	810200	1040150	1190975	1013775.0	18.9
beta BHC:	451800	455800	422300	443300.0	4.1
delta-BHC:	693600	905900	1011500	870333.3	18.6
gamma BHC:	800400	996750	1097563	964904.3	15.7
4,4'DDE:	641500	726425	767569	711831.3	9.0
Endrin:	521300	593850	587544	567564.7	7.1
Endrin ketone:	668300	671475	652094	663956.3	1.6
Endrin aldehyde:	581300	562050	514988	552779.3	6.2
alpha-Chlordane:	822400	835150	804700	820750.0	1.9
gamma-Chlordane:	796000	857400	842113	831837.7	3.8
Tetrachloro-m-xylene	645000	767450	754425	722291.7	9.3
Decachlorobiphenyl	772100	742775	646275	720383.3	9.1

Learning Module 19

Learning Objectives for this Module

- **Review Preliminary data criteria**
- **Introduce the Pesticides/PCBs fraction**
- **Describe the sampling and analysis method**
- **Identify action taken for sample conditions and holding time criteria not meeting the requirements stated in the checklist**

Unit 1Preliminary Validation

If you reviewed Module 1 in the VOA fraction or Module 11 in the BNA fraction, skip this unit and go to unit 2. All validation marks, changes and crossed out on the forms and raw data are made with a **red pencil**. Never use ink on any of the pages. Pencil marks are easier to remove than ink marks if you make a mistake.

A copy of the method specific SOP checklist (HW-6) is located in Appendix A. Let's look at the first three pages of the checklist you will be using during the validation process. These pages cover Package Completeness and Deliverables. All of the answers to these questions should be found in the first and last section of the case. Checklist sections are in Italics.

PACKAGE COMPLETENESS AND DELIVERABLES

1.0 Chain of Custody and Sampling Trip Reports

1.1 Are the Traffic Reports/Chain-of-Custody Records present for all samples?

ACTION: If no, contact RSCC, or contact the TOPO to obtain replacement of missing or illegible copies from the lab.

1.2 Is the Sampling Trip Report present for all samples and all fractions?

ACTION: If no, contact either RSCC or ask the TOPO to obtain this information from the prime contractor.

Let's start with Section 1.0 Chain of Custody and Sampling Trip Reports. The Traffic reports can be found in the first and last section of the package. One will be an original CoC (White, thin paper) and the other will be a copy of the CoC. It does not matter if the original is in the first or last section. It is important that all of the original Traffic reports listing all of the samples associated with the SDG be present. Any missing original CoC may be in another SDG. If samples on a CoC are split into several SDGs, the original will only be in one SDG and copies in the other SDGs. Copies should have a statement naming the SDG where the original CoC can be found.

The Sampling Trip Report is sent to RSCC from the sampling contractor. RSCC will make a copy for the package and file the original in RSCC files. If the report is not in the case either ask

someone from RSCC or check the files. Samplers from the EPA and some private contractors will not provide a Sampling Trip Report.

If all documents/information asked for in each question are present, check YES, if missing, check NO.

2.0 Data Completeness and Deliverables

2.1 Have any missing deliverables been received and added to the data package?

NOTE: The lab is required to submit data for only two analyses, for each fraction. (i.e., the original sample and one dilution, or the most concentrated dilution analyzed and one further dilution.)

ACTION: Contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the lab. If lab cannot provide them, note the effect on the review of the package in the Contract Problems/Non-compliance section of the Data Assessment and the Organic Regional Data Assessment Summary form.

2.2 Was CLASS CCS checklist included with package?

2.3 Are there any discrepancies between the Traffic Reports/Chain-of-Custody Records, Sampling Report and Sample Tags?

ACTION: If yes, contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the laboratory.

The questions in this section are very clear and can be found in the first part of the package. If all documents asked for in the question are present, check YES, if missing, check NO. The missing CCS reports are available from CLASS or from the TOPO. If any discrepancies are not resolved, document in the DA under Other Problems and any action taken against the case.

3.0 Cover Letter SDG Narrative

2.1 Is the Narrative or Cover Letter Present?

2.2 Are case number, SDG number and contract number contained in the SDG Narrative or cover letter (see SOW, Exhibit B, section 2.6.1)?
EPA sample numbers in the SDG, detailed documentation of any quality control, sample, shipment, and/or analytical problems encountered in processing the samples? Corrective action taken?

3.3 Does the narrative contain the following information:

*VOA: description of trap and columns used **for** sample analyses?*
VOA: a NOTE stating whether Volatile low level soil samples prepared according to the modified SW-846 Method 5035?(p. B-9/VOA, sec 2.6.1)

VOA: any discrepancies between low level soil weights determined in the field and in the Laboratory? (p. B-10/VOA, sec. 2.6.1)

BNA: description of columns used for sample analyses?

Pest: description of columns used for sample analyses?

NOTE: As per section 6.23.3.1 SOW/p. D-11/Pest, Packed columns are not permitted.

3.4 Does the narrative, VOA and BNA sections, contain a list of all TIC's identified as alkanes and their estimated concentrations?

2.5 Is the temperature indicator bottle present in the cooler? If not, did the Laboratory document in the SDG Narrative the alternative technique used to determine the cooler temperature?(Exhibit A/ p. A-5 sec. 4.2.1.2.3.3)

3.6 Does the narrative contain a record of all cooler temperatures? If the temperature of a cooler was exceeded, > 10^{o} C, the lab must list by fraction and sample number, all affected samples.

3.7 Does the Narrative contain a list of sample reanalyses submitted? Did the Lab distinguish whether the reanalysis is billable, and if so why?

3.8 Does the narrative contain a list of the pH values determined for each water sample submitted for volatile analysis (SOW Exhibit B, section 2.6.1.2)?

3.9 Does the Case Narrative contain the statement, "verbatim", as required in Section B of the SOW?

ACTION: If "No", to any question in this section, contact the TOPO to obtain all necessary resubmittals. If information is not available, document in the Data Assessment under Contract Problems/Non-Compliance section.

All of the answers to these questions can be answered by reading the case narrative. Many labs will tabulate the alkanes and pH values and insert the sheets after the case narrative. This is not a problem, but the information should be present in the first section. If the answer to any question in this section is no, document the problem in your DA under the Contract Problems/Non-Compliance section.

4.0 Data Validation Checklist

4.1 Check the package for the following discrepancies:

a. Is the package paginated in ascending order starting from the SDG narrative?

b. Are all forms and copies legible?

c. Is each fraction assembled in the order set forth in the SOW?

The following checklist is divided into three parts. Part A is for any VOA analyses, Part B is for BNAs and Part C is Pesticide/PCBs.

Does this package contain:

VOA Data?

BNA Data?

Pesticide/PCB data?

ACTION: *Complete corresponding parts of checklist.*

The questions in this section are very clear. If correct check YES. If not correct, check NO.

We are ready to move on to the Pesticides/PCBs fraction. All three fractions use Gas Chromatography instruments but different detectors to perform analyses. Therefore it is important to have information and some understanding about this type of instrument.

Introduction to Gas Chromatography

The following is an extremely brief description of gas chromatography. However, this chapter will provide all of the information needed to validate data.

Gas chromatographs separate organic compound on columns using a temperature program and an inert carrier gas. There are many types of columns and analyte detectors. For example, if we are only interested in pesticide chlorinated organic compounds, we could use detectors that would only register pesticide chlorinated hydrocarbons. Other classes of organic compounds, such as hydrocarbons, would be invisible to the detector. The detector records the retention time, and the quantity of the analyte. Analyte identification is based on the retention tine of an unknown compound compared to the retention time of a known in a standard. The compound in question is quantitated by comparing the peak area or peak height of an unknown to that of a known standard. To minimize the possibility of false positive results, samples are analyzed on two dissimilar columns, except when using mass spectrometer (MS) detectors.

The most sophisticated and definitive detector is the mass spectrometer. The MS bombards compounds separated on the GC with electrons. This causes compound specific ion fragments to form in a specific ratio. This ratio is printed out as a vertical bar graph. Therefore, for any compound, the GC shows the retention time and the MS detector shows the ratio of ion fragments on a bar graph. The unique characteristics of compound GC retention times and MS bar graphs allow positive identifications to be made. GC coupled with an MS detector is the most accurate method for identification and analysis of organic compounds.

Another type of detector used in a GC instrument for Pesticides/PCB analysis is called Electron Capture Detector (ECD). The ECD is used to analyze chlorinated compounds.

A chromatogram will have the retention time along the x-axis and the response along the y-axis. The chromatogram print should be clear, sharp and readable. The peaks should be within the scale of the chromatogram and not saturate the detector (flat topped peak). All peaks should be identified either by name or number that correlates to the number of the analyte on the Quant report. If there are any questions about a chromatogram ask a knowledgeable colleague before contacting the lab. Pesticides/PCBs analytes

Unit 2 Pesticide/PCB Analysis

Key Terms for this Fraction

Aroclor is a trade name for a PCB
Pesticide/Polychlorinated Biphenyl (Pest/PCBs)
Electron Capture Detector (ECD)
Tetrachloro-meta-xylene (TCMX or TCM)
Decachlorobiphenyl (DCB)
Gel Permeation Chromatography (GPC)
Florisil

Pesticides/PCBs are chlorinated compounds. There are 21 single component compounds and seven multi-component compounds. Single component compounds elute on a column in a single peak. The multi-component compounds elute on a column in a series of peaks, which together form a distinctive pattern for that compound.

The most commonly used detector for analysis is the Electron Capture Detector (ECD). The GC instrument performs simultaneous injections onto two dissimilar capillary columns. Identification of a compound is established if a peak is eluted within the retention time window established for the compound standard during the initial calibration. This is a critical criterion for the single component compounds. Multi-component compounds are not as dependent on the retention time windows since pattern recognition is a more important criterion.

Brief Introduction to Pesticides/PCBs Sample Analysis

After collection, samples are packed in coolers and shipped by an overnight delivery service to the lab. CLASS assigns the labs to sites a week before sample collection. When the samples arrive at the lab, the sample custodian logs in the samples and notes any deficiencies (broken vials, missing labels, mismatch of tags and identification, etc.) on the traffic report. The samples are then refrigerated while awaiting analysis.

When the analyses are completed, a data package is generated and delivered to the RSCC. As mentioned in Learning Module 2, CLASS will check the data for problems. RSCC checks the data package to ensure that all deliverables are present. Any problems are documented on the CSF audit sheet that is added to the front of the package, behind the ROC. It is a good idea to glance at this sheet to spot unusual problems.

Pesticides/PCBs analysis is performed on low-level waters and low-level soil samples. Each matrix type is handled differently during the preparation process. Pesticides/PCBs samples are extracted prior to sample analysis.

Water Samples

The sample is collected in a 1000 mL amber glass container with Teflon lined screw caps. The sample is extracted using either a separatory funnel procedure or a continuous liquid-liquid extraction procedure. The sample is measured, the pH is recorded and pH adjusted to between 5 and 9 with sodium hydroxide or sulfuric acid as required. Any sample pH adjustment must be documented in the SDG narrative. The sample aliquot is fortified with 1.0 mL of the surrogates spiking solution. The surrogates are usually tetrachloro -meta -xylene (TCM) and Decachlorobiphenyl (DCB). The addition of surrogates measures the efficiency of the extraction procedure. Internal standards are not added to the sample since an external calibration is used for this method to quantitate the positive hits. The gas chromatograph is temperature programmed to separate the pesticides and PCBs peaks, which are detected with an ECD.

Soil Samples Analysis

For samples collected in jars, 30 grams of the sample is weighed and mixed with anhydrous sodium sulfate. The sample is extracted using a sonication or a Soxhlet extraction procedure. The sample is measured, the pH is recorded but no pH adjustments are made. The sample aliquot is fortified with 1.0 mL of the surrogates spiking solution. The surrogates are usually tetrachloro -meta -xylene (TCM) and Decachlorobiphenyl (DCB). The addition of surrogates measures the efficiency of the extraction procedure. Internal standards are not added to the sample since an external calibration is used for this method to quantitate the positive hits. The gas chromatograph is temperature programmed to separate the pesticides and PCBs peaks, which are detected with an ECD.

Quality Assurance/Quality Control (QA/QC)

With each group of samples, a calibration standard, method blank, and matrix spike/matrix spike duplicate samples (MS/MSD) are analyzed. In addition other blanks such as storage, field and instrument blanks are routinely analyzed with the samples. The calibration standard contains all of the target compounds at a known concentration and is used to quantitatively measure each target compound.

The method blank measures whether the environmental samples are free from contamination that may have been introduced in the lab. An Instrument blank provides information about carryover from a previously analyzed sample. Field blanks measure possible contaminants that may have been introduced in the course of equipment and field sampling.

The MS/MSD contain a solution of 6 target compounds added to each of two aliquots of a sample which are used to measure the effect of the sample matrix on the efficiency of the GC system. Each group of samples must be bracketed by successful continuing calibration check standards analyses.

Pesticides/PCBs Sample Condition/Problems

If the sample is classified as a soil or sediment matrix, then Percent Moisture of the sample must be checked as well. Let's look at the Sample Condition/Problems section of the checklist.

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody Records, Sampling Report or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, then qualify positive results "J", and non-detects "R".

ACTION: If samples were not iced or the ice was melted upon arrival at the laboratory and the cooler temperature was elevated (> 10^{o} C), then flag all positive results with a "J" and all non-detects "UJ".

ACTION: Check aqueous extraction log for sample pH, if adjustment was needed, it should have been noted in the SDG Narrative. If more information is needed, notify the TOPO to contact the lab.

This is a general section about percent moisture, cooler temperature and pH problems. The first and last action is checked against the extraction log for each sample. The CoC and the Sample Log-in sheet will answer the middle actions. All problems or discrepancies about sample conditions are written up under Other Problems section in the DA. If it is a contract problem, it is documented under the Contract/Non-Compliance section in the DA.

It is a good idea to take detailed notes of all the data you inspected. Any action should be written up and the affected samples should be listed. It is highly recommended to write the DA as you move through the validation process rather than wait until you are finished. Work with one fraction only for all criteria.

Check your knowledge of sample conditions criteria by completing the quiz on the following pages. Sample conditions mean cooler temperature and percent moisture. The quiz examples contain additional information just like real samples and Form 1's. Be aware there is additional information in the examples not needed for the criterion. Read the instructions to understand which criterion you should be validating. The answers are in Appendix E.

Module 19 Quiz 1

Instructions:

- Validate for **cooler temperature and percent moisture** criteria only.
- Specify what qualifications are needed if any.
- Example: The sample BGH65 did not meet cooler temperature criteria. All non-detects were qualified "UJ" and detects were qualified "J".

1. Sample BJK90 is an aqueous matrix, cooler temperature is <10°C, sample volume is 950mL, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-06-2000, extraction date is 03-08-2000 and date of analysis is 03-09-2000.
Learning Module 1

2. Sample BNG65 is an aqueous matrix, cooler temperature is >10°C, sample volume is 1000mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000, extraction date is 03-15-2000 and date of analysis is 03-19-2000.

3. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 91%, sample weight is 30 g, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-07-2000, extraction date is 03-08-2000 and date of analysis is 03-10-2000.

4. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 30 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-19-2000 and date of analysis is 03-24-2000.

5. Sample BXD16 is a soil matrix, the cooler temperature >10°C, the percent moisture is 55%, sample weight is 31 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-10-2000 and date of analysis is 03-11-2000.

Unit 2 Time Criteria

Each fraction is evaluated for eleven specific criteria. They are Holding Times, Surrogates, Matrix spike, Blank Contamination, Tune, TCL, TIC, CRQL, Calibration, Sequence and Field Duplicates. You will learn to evaluate each criterion separately in the same order as presented in the checklist. How to handle the CADRE reports for each criterion will be detailed in each section.

Holding Times

Why is holding time criteria important? While samples are kept in storage, organic compounds degrade due to oxidation, evaporation, chemical reaction, or biodegradation. This usually results in lower analyte concentrations. The longer a sample is stored, the greater the possibility of analyte loss, contamination, or production of analytes not present in the original sample.

The NFG is the basis for appropriate action for problems in the case. Each EPA Region may develop specific guidelines that must be followed. Regional guidelines take precedent over the NFG. The requirements the validators use to qualify data are called *Technical* requirements. The requirements stipulated in the SOW are called *Contractual* requirements. The contractual holding time criteria are slightly different from the technical holding times. There are several reasons for this. The laboratory is not responsible if a sampler does not ship samples within 24 hours of collection. The laboratory is only required to analyze samples within “x” days from the verified time of sample receipt (VTSR). However, in determining data usability, the data reviewer is concerned with the date that a sample was collected. Therefore, when evaluating technical holding time the data reviewer must always count from the date that a sample was collected. The data reviewer validates data using the holding time criteria in the checklist not the criteria in the SOW. Differences in technical and contractual requirements are detailed in the checklist.

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded?

NOTE: Technical Holding Times: Water and soil samples for PEST/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction.

ACTION: If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits "UJ" and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable "R".

Table of Holding Time Violations

(See Chain-of-Custody Records)

Sample Analyzed	*Sample Matrix*	*Date Sampled*	*Date Lab Received*	*Date Extracted*	*Date Analyzed*

NOTE: Contractual Holding Times: Extraction of water samples must be completed within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Extracts of water and soil/sediment samples must be analyzed within 40 days following start of extraction.

ACTION: If contractual holding times are exceeded, document in the Data Assessment.

NOTE: The data reviewer must note in the Data Assessment whether or not technical and contractual holding times were met.

The section above is checking for technical holding times. The NOTE is checking for contractual holding time violations. Data is not validated or qualified based on contractual problems.

For water and soil samples, the technical extraction holding time is seven days from the sampling date. The contractual extraction holding time for soil samples is 10 days and water samples is 5 days from VTSR.

For water and soil samples, technical and contractual analysis holding time for soil samples is 40 days from extraction date.

Remember: write a communication log to the TOPO if additional information is needed. Do not contact the sampler directly. Any holding time violation is recorded directly using the table in the checklist.

Any samples that fail to meet analysis-holding time should be listed in the table. Listed after the table are various actions a validator can take depending upon the length of time between date of collection and analysis of a sample. All action is documented in the DA under the Holding Time criterion section. You will notice in this section a note concerning contractual holding time. There is a second note telling the validator to state in the DA if technical and contractual holding times were met. Usually contractual extraction holding time was met yet the sample is qualified for technical extraction holding time. A simple statement is inserted if there are no problems with either holding time, “Technical and contractual holding times were met for all samples in all fractions”.

If holding times are not grossly exceeded (less than two weeks beyond criteria), flag all, positive results with a “J” and all non-detect as “UJ”. If holding times are grossly exceeded (more than 14 days beyond criteria), the reviewer must use informed professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. Flag all positive results with a “J”, but the reviewer has the discretion to determine that non-detect data are unusable “R”. If holding times are exceeded by more than 28 days all non-detects must be qualified unusable “R”

If there are problems, it must be documented in the DA the action taken and the samples affected. For example if samples BGT67, BGT54 AND BGT89 failed technical holding time criteria and passed contractual holding time, you would write under the Holding Time section:

The following Pesticide samples failed technical extraction holding time and all analytes were qualified “J”:
BGT67, BGT54, BGT89
All contractual holding times were met.

All actions taken for a criterion especially if professional judgement is used to qualify the data differently from the checklist, must be documented in the DA and specified as professional judgement.

Let’s try an example. Sample BGF45 is an aqueous matrix, date of collection is 06-03-2000, VTSR is 06-04-2000, date of extraction is 06-10-2000 and the analysis date is 07-30-2000.

The sample is not qualified since technical extraction holding time criteria was met. Contractual extraction holding time was not met. Remember that data is never qualified for contractual problems. Contractual issues are always documented in the DA under the Contract/Non-Compliance section.

Technically, 7 days have passed from collection to extraction, the criteria for aqueous samples is 7 days, which passes criterion. Contractually, 6 days have passed from VTSR and extraction. Contractual holding time is 5 days, this is written up as a contract non-compliance problem in the DA.

Analysis of the sample was performed 50 days from the extraction date, which fails technical and contractual criteria.

Under the Holding Time section in the DA you would write:
Sample BGF45 met technical extraction holding times. Analysis holding time failed technical criteria by 10 days. All analytes were qualified "J".

Under the Contract/Non-Compliance section you would write:
Contractual extraction holding times were was exceeded by 1 day. . Analysis holding time failed contractual criteria by 10 days.

Check your knowledge of the holding time criterion by completing the quiz on the following pages. You will recognize these examples from the previous quiz; validate each example for holding time criterion only. The answers are in Appendix E.

Module 19 Quiz 2

Instructions:

- Write the qualification statement as it would appear in the data assessment
- Validate for **holding time criteria only**
- Specify which holding time: technical or contractual or both
- Specify what qualifications are needed if any.
- Example: Contractual holding times were met. The sample BGH65 did not meet technical requirements. Sample BGH65 was analyzed 30 days after date of collection, all non-detects were qualified "R" and detects were qualified "J".

1. Sample BJK90 is an aqueous matrix, cooler temperature is <10°C, sample volume is 950mL, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-06-2000, extraction date is 03-08-2000 and date of analysis is 03-09-2000.

2. Sample BNG65 is an aqueous matrix, cooler temperature is >10°C, sample volume is 1000mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000, extraction date is 03-15-2000 and date of analysis is 03-19-2000.

3. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 91%, sample weight is 30 g, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-07-2000, extraction date is 03-08-2000 and date of analysis is 03-10-2000.

4. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 30 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-19-2000 and date of analysis is 03-24-2000.

5. Sample BXD16 is a soil matrix, the cooler temperature >10°C, the percent moisture is 55%, sample weight is 31 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-10-2000 and date of analysis is 03-11-2000.

Did you do well on the last quiz? It probably was difficult trying to remember all of the conditions for the criteria. You may realize by now that validation is like a juggler with 3 balls constantly in the air. After some experience, you will be able to assess and qualify samples quickly for cooler temperature, sample size, percent moisture, preservation and holding time.

Once an analyte is qualified for a criterion, the qualifier is not removed if it passes another criterion. Any qualification can be removed and replaced with a “R”. There is a hierarchy to qualifications and a limited combination of qualifiers.

A “U” qualifier can be combined with a "J" and become a “UJ”.
A “J” qualifier can be combined with a "N" and become a “JN”.
A “UJ and a “N” qualifier can not be combined.
A “U” or “UJ” can replace a “J”
A “JN” can not replace a “UJ”.
A “R” can replace a “U”, “UJ”, “J” or “JN”.

When you work on Quizzes 3, 4, 5, you will apply the qualifiers directly to a copy of the form 1. You will follow the sample conditions and holding time criteria for each sample given for the quizzes.

Each quiz has a Form1’s that make up the full TCL list for Pest/PCB fraction. Use the sample information provided below for each quiz. Make your marks on the Form 1 using a pencil so you can erase any changes. Answers are in Appendix E.

Quiz 3

Sample BXD16 is a soil matrix, the cooler temperature <10°C, date of collection is 03-02-2001.

Quiz 4

Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, and date of collection is 03-04-2001.

Quiz 5

Sample BXZ26 is an soil sample, the pH is 7, the cooler temperature <10°C, date of collection is 03-02-2001.

Module 19 Quiz 3

1E EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BXD16

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345____ SAS No.: _____ SDG No.:_BXD10

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXD10-8_____

Sample wt/vol: ____30.3_____(g/mL) _____g_____ Lab File ID: __BXD10-8AA_____

% Moisture: _____35_____ Decanted: (Y/N) _____ Date Received: __03/05/2001____

Extraction : (Type) __SONC_____ Date Extracted: __03/10/2001_____

Concentrated Extract Volume: ___5000_____(lL) Date Analyzed: ___03/20/2001_____

Injection Volume: ____1.0_____(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)__Y____ pH ___6.7_____ Sulfur Cleanup: (Y/N)__N____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
319-84-6	alpha-BHC		
319-85-7	beta BHC		
319-86-8	delta-BHC		
58-89-9	gamma BHC		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide		
959-98-8	Endosulfan I		
60-57-1	Dieldrin		
72-55-9	4,4'DDE		
72-20-8	Endrin		
33213-65-9	Endosulfan II		
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate		
50-29-3	4,4'DDT		
72-43-5	Methoxyclor		
53494-70-5	Endrin ketone		
7421-93-4	Endrin aldehyde		
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene		
12674-11-2	Aroclor 1016		
11104-28-2	Aroclor 1221		
11141-16-5	Aroclor 1232		
53469-21-9	Aroclor 1242		
12672-29-6	Aroclor 1248		
11097-69-1	Aroclor 1254		
11096-82-5	Aroclor 1260		

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BDR40

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BDR40-3_____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: _BDR40-3BB_____

% Moisture: _____ Decanted: (Y/N) _____ Date Received: _03/05/2001_____

Extraction : (Type) ____SEPF_____ Date Extracted: __03/11/2001__

Concentrated Extract Volume: ___10000_____(lL) Date Analyzed: __04/25/2001_____

Injection Volume: _1.0_____(lL) Dilution Factor: _____1.0_____

GPC Cleanup: (Y/N)__N____ pH _____ Sulfur Cleanup: (Y/N)___N___

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
319-84-6	alpha-BHC		
319-85-7	beta BHC		
319-86-8	delta-BHC		
58-89-9	gamma BHC		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide		
959-98-8	Endosulfan I		
60-57-1	Dieldrin		
72-55-9	4,4'DDE		
72-20-8	Endrin		
33213-65-9	Endosulfan II		
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate		
50-29-3	4,4'DDT		
72-43-5	Methoxyclor		
53494-70-5	Endrin ketone		
7421-93-4	Endrin aldehyde		
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene		
12674-11-2	Aroclor 1016		
11104-28-2	Aroclor 1221		
11141-16-5	Aroclor 1232		
53469-21-9	Aroclor 1242		
12672-29-6	Aroclor 1248		
11097-69-1	Aroclor 1254		
11096-82-5	Aroclor 1260		

FORM I PEST

OLM04.2

1E

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345___ SAS No.: _____ SDG No.:_BXZ26

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXZ26-1__

Sample wt/vol: ____30.4_____(g/mL) _____g_____ Lab File ID: _BXZ26-1AA_____

% Moisture: _____55_____ Decanted: (Y/N) __N_____ Date Received: _03/03/2001___

Extraction : (Type) __SONC_____ Date Extracted: _03/05/2001_____

Concentrated Extract Volume: ___5000_____(lL) Date Analyzed: __03/10/2001_____

Injection Volume: ___1.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N)__N____ pH __5.8_____ Sulfur Cleanup: (Y/N)___N___

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
319-84-6	alpha-BHC		
319-85-7	beta BHC		
319-86-8	delta-BHC		
58-89-9	gamma BHC		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide		
959-98-8	Endosulfan I		
60-57-1	Dieldrin		
72-55-9	4,4'DDE		
72-20-8	Endrin		
33213-65-9	Endosulfan II		
72-54-8	4,4'DDD		
1031-07-8	Endosulfan sulfate		
50-29-3	4,4'DDT		
72-43-5	Methoxyclor		
53494-70-5	Endrin ketone		
7421-93-4	Endrin aldehyde		
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene		
12674-11-2	Aroclor 1016		
11104-28-2	Aroclor 1221		
11141-16-5	Aroclor 1232		
53469-21-9	Aroclor 1242		
12672-29-6	Aroclor 1248		
11097-69-1	Aroclor 1254		
11096-82-5	Aroclor 1260		

Unit 4 Documentation and Reports

Data Assessment

The Data Assessment currently used in Region 2 is SOP HW-6 for SOW OLM04.2. A copy of SOP HW-6 is included in Appendix C and at the end of Appendix A.

- Each criterion is written or documented under the specific section. Whether you copy and paste from the CADRE or write the discrepancy, make sure the statement detailed the problem, the action taken, and the samples affected.

- A problem that did not meet the SOW criteria is documented under the section titled Contract problems/Non-Compliance. This statement details only the problem and the samples affected. Hint: Copy and paste the original statement from the criterion section. Paste under Contract Problems section and remove action part of the statement.

- Problems that are not contract problems or covered under one of the criterion are documented under the section titled Other Problems. This statement details only the problem and the samples affected.

- Check CCS report, if a contract problem was mentioned in the report, do not mention the problem in your DA. CLASS has already addressed the problem.

- Any sample analysis not used such as dilutions or re-analysis, are listed in the last section of the DA. Watch the wording of the paragraph, you want the last line to read "….the following Form 1(s) are identified **not** to be used." Then list the analyses for each fraction that are not to be used.

Learning Module 18

Learning Objectives for this Module

- **Identify action taken for Field Duplicates criterion not meeting the requirements stated in the checklist**

Unit 1 Field Duplicates

Relative Percent Difference (RPD)

Data may be qualified or commented on Relative Percent Difference (RPD) of duplicate samples.

There are no specific criteria for comparability of field duplicate analyses. Soil duplicate samples will usually have a greater variance than water duplicate samples. The duplicate sample numbers are listed in the sample trip report or the traffic report. The reviewer should compute the RPD, and may qualify data based on this.

The laboratory usually mentions high discrepancies in field duplicate results in the case narrative. A high RPD in two soil samples having the same sample location is often due to non-homogeneity of the samples' matrix and not necessarily caused by inadequate analytical performance. If there is strong evidence that one sample result has a higher reliability than the field duplicate sample, it should be noted in the data assessment. The data user will make the final decision on how to evaluate the usability of field duplicates.

Equation 18-1 provides the formula to calculate RPD.

Equation 18-1Formula for RPD

$$RPD = \frac{|SR - SDR|}{(1/2)(SR + SDR)} \times 100$$

Where:

SR = sample result of a particular analyte.

SDR = Sample Duplicate Result of a particular analyte.

The vertical bars in the formula above indicate the absolute value of the difference, hence RPD is always expressed as a positive value.

Example 18-1 Calculate RPD for acetone

Phenol in sample BBB02 is 56 ug/L and duplicate sample BBB07 has 78 ug/L. What is the RPD?

$$RPD = \frac{|56 - 78|}{(1/2)(56 + 78)} \times 100$$

$$RPD = \frac{22}{67} \times 100$$

RPD = 32.8

Look at the last BNA section in the checklist for any action that may be required if the RPD is over a specific number.

15.0 Field Duplicates

15.1
Were any field duplicates submitted for BNA analysis?

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

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

Usually a number less than 25% for water and 50% for soil is not considered to be a problem. Remember these numbers are not fixed in stone. Use your judgement based on the data of all the samples in the package. Anything that the validator feels should be noted or attention by the data user should be mentioned.

There are many times when a situation may be present that does not affect the validity of the data but is different or unusual. Do not hesitate to inform the data user of the situation. Add a note, FYI or a header that will call the data user attention to the details.

There is a short quiz to practice calculating RPD. Answers are in Appendix E. In another file (Appendix H) is a BNA Final Quiz that covers all of the criteria presented in Learning Modules 11-18. Answers for the Final Quiz are in a separate file marked as BNA Final Quiz Answers (Appendix I).

Module 18 Quiz 1

Instructions: Calculate the RPD for each of the following problems.

1. Hexachloroethane Sample 1 = 56 Sample 2 = 31 RPD =
2. N-Nitroso-di-n- propylamine Sample 1 = 15 Sample 2 = 4 RPD =
3. 4-Methylphenol Sample 1 = 110 Sample 2 = 98 RPD =
4. Acetophenone Sample 1 = 20 Sample 2 = 15 RPD =
5. 2,2'-oxybis (1-Chloropropane) Sample 1 = 185 Sample 2 = 113 RPD =
6. 2-Methylphenol Sample 1 = 73 Sample 2 = 47 RPD =
7. 2-Chlorophenol Sample 1 = 1200 Sample 2 = 800 RPD =
8. bis(2-Chloroethyl) ether Sample 1 = 47 Sample 2 = 22 RPD =
9. Phenol Sample 1 = 61 Sample 2 = 73 RPD =
10. Benzaldehyde Sample 1 = 5 Sample 2 = 8 RPD =

Learning Module 17

Learning Objectives for this Module

- **Identify action taken for Internal Standard criterion not meeting the requirements stated in the checklist**

Unit 1 Internal Standards

Internal Standards Criterion

Internal standards are added to the sample immediately prior to injection and are used to indicate instrument stability problems. Internal Standards are used to quantitate BNA TCL analytes. The results determine if data should be qualified because internal standard area response or retention times are outside specified limits

For low level BNA analysis, internal standards are added prior to analysis. Since internal standards are added after sample extraction and dilution, they cannot be diluted out.

All samples require sample extraction. The internal standard area counts will reflect a full matrix effect because the internal standards are added to the sample immediately before analysis.

As mentioned in Module 16, BNA compounds are quantitated using the internal calibration technique. Specifics known amounts of internal standards are added to all standards and samples. The internal standard amount and area response from the sample and the RRF value from the associated continuing calibration are used to quantitate each positive analyte identified in a sample. Internal standards are associated with specific TCL analytes and surrogates. There are six BNA internal standards associated with 65 TCL analytes and eight surrogates. Table 17-1 (on the next page) is a list of analytes and surrogates and the associated internal standards used to quantitate BNA TCL compounds.

Table 17-1 TCL compounds associated with Internal Standards

1,4 Dichlorobenzene-d4	Naphthalene-d8	Acenaphthene-d10
Benzaldehyde	Nitrobenzene	Hexachlorocyclopentadiene
Phenol	Isophorone	2,4,6-Trichlorophenol
bis(2-Chloroethyl)ether	2-Nitrophenol	2,4,5-Trichlorophenol
2-Chlorophenol	2,4-Dimethylphenol	1,1 Biphenyl
2-Methylphenol	bis(2-Chloroethoxy)methane	2-Chloronaphthalene
2,2'-oxybis(1-Chloropropane)	2,4-Dichlorophenol	2-Nitroaniline
Acetophenone	Naphthalene	Dimethylphthalate
4-Methylphenol	4-Chloroaniline	2,6-Dinitrotoluene
N-Nitroso-di-n-propylamine	Hexachlorobutadiene	Acenaphthylene
Hexachloroethane	Caprolactam	3-Nitroaniline
Phenol-d5 (SMC)	4-Chloro-3-methylphenol	Acenaphthene
2-Fluorophenol (SMC)	2-Methylnaphthalene	2,4-Dinitrophenol
2-Chlorophenol-d4 (SMC)	Nitrobenzene-d5 (SMC)	4-Nitrophenol
1,2 Dichlorobenzene-d4 (SMC)		Dibenzofuran
		2,4-Dinitrotoluene
		Diethylphthalate
		Fluorene
		4-Chlorophenyl-phenylether
		4-Nitroaniline
		2-Fluorobiphenyl (SMC)

Phenanthrene-d10	Chrysene-d12	Perylene-d12
4,6-Dinitro-2-methylphenol	Pyrene	Di-n-octylphthalate
N-Nitrosodiphenylamine (1)	Butylbenzylphthalate	Benzo(b)fluoranthene
4-Bromophenyl-phenylether	3,3'-Dichlorobenzidine	Benzo(k)fluoranthene
Hexachlorobenzene	Benzo(a)Anthracene	Benzo(a)Pyrene
Atrazine	Chrysene	Indeno(1,2,3-cd)Pyrene
Pentachlorophenol	bis(2-Ethylhexyl)phthalate	Dibenzo(a,h)Anthracene
Phenanthrene	Terphenyl-d14 (SMC)	Benzo(g,h,i)perylene
Anthracene		
Carbazole		
Di-n-butylphthalate		
Fluoranthene		
2,4,6 Tribromophenol (SMC)		

The Internal Standard Area and Retention Time Summary Form 8 shows how environmental and QC sample internal standard area counts and retention tines vary from the continuing calibration standard. A drop or increase of internal standard area response reflects a change in instrument sensitivity. This sensitivity change can be caused by a matrix effect. Another reason

may be poor extraction techniques such as adding incorrect amounts of internal standards added to samples.

The internal standard area response limits are -50% or +100% of the associated continuing calibration standard. Example 17-1 provides the internal standard information for the first three internal standards to check the limits.

Example 17-1 Internal Standard Area Response

	IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
12 HOUR STD	1975181	8.71	9410690	9.99	7602547	13.28
UPPER LIMIT	3950362	9.21	18821380	10.49	15205094	13.78
LOWER LIMIT	987590	8.21	4705345	9.49	3801274	12.78
EPA SAMPLE						
SBLK01	1660064	8.72	7543107	10.01	5979831	13.29
BBB10	835521	8.77	4835448	10.35	3846894	13.51
BBB25	3645224	8.75	17765345	10.40	17256455	13.48
BBB57	4058365	8.72	1723678	10.30	10254879	13.45

The area response for the 12-hour STD is taken from the continuing calibration standard. If the samples are associated with an initial calibration, the mid level (50) is used to provide the area response.

The upper limit = 12-hour STD X 2. Looking at IS1 (DCB) 1975181 x 2 = 3950362.

The lower limit = 12-hour STD /2. Looking at IS1 (DCB) 1975181 / 2 = 987590.

The validator needs to determine the value that will be considered the extreme low response (<25% of the 12 hour standard). An extremely low area response means the sensitivity has dropped significantly and the concentration of the analytes associated with this internal standard are bias very low. The easiest way to determine the very low level limit or extreme drops in sensitivity is to use the lower limit/2. Looking at IS1 (DCB) lower limit 987590/2 = 493795. This is the same as 25% of 1975181 (1975181 x 0.25 = 493795). Any area response lower than this number would be considered very low or extremely low area response.

Let's look at the samples and see how the area responses fit into the limits. SBLK01 area responses for all 3 ISs are within the upper and lower limits.

BBB10 area responses for IS2 and IS3 are within the upper and lower limits while IS1 is below the lower limits.

BBB25 area responses for IS1 and IS2 are within the upper and lower limits while IS3 is above the upper limits.

BBB57 area response for IS3 is within the upper and lower limits, and IS1 is above the limits. IS2 area response is extremely low (1723678 < 235672.5 (4705345/2).

Note that all of the retention times are within the $\pm$ 30 second window established by the 12-hour continuing calibration standard.

Now that we know which area responses are outside the criteria, what are the qualifications that need to be applied to the data. Section 14 of the checklist provides the appropriate actions.

14.0 Internal Standard (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to +100%) for each continuing calibration?

If no, was the sample re-analyzed?

ACTION: 1. Circle all outliers with red pencil.

2. List all the outliers below.

ACTION: If any sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

Sample #	***Internal Std.***	***Area***	***Lower/Upper Limit***
			/
			/
			/

(Attach additional sheets if necessary, or attach copies of Form VIIIs.)

ACTION: 1. If the internal standard area count is outside the "upper" or "lower" limit, flag with "J" all positive results and non-detects quantitated with this internal standard with the following exceptions:

A. Do not qualify non-detects associated with IS area > 100%.

B. If the IS area in the sample is < 50%, qualify all analytes associated with that IS estimated (J). If area counts are extremely low (< 25% of the area in the 12 hour standard), or if performance exhibits a major abrupt drop-off, flag all associated non-detects as unusable (R) and positive hits estimated (J).

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard?

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

NOTE: Contractual requirements state that if any internal standard fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

Using the results from Example 17-1, apply the checklist actions. Internal Standards that passed criteria are not qualified. Action is required for the remaining Internal Standards.

BBB10 area responses for IS2 and IS3 are within the upper and lower limits while IS1 is below the lower limits. All analytes associated with IS1 would be qualified with a "J" for detects and "UJ" for non-detects.

BBB25 area responses for IS1 and IS2 are within the upper and lower limits while IS3 is above the upper limits. Analytes associated with IS3 would be qualified with a "J" for detects and no action for non-detects.

BBB57 area response for IS3 is within the upper and lower limits, and IS1 is above the limits. IS2 area response is extremely low (1723678 < 235672.5 (4705345/2). Analytes associated with IS1 would be qualified with a "J" for detects and no action for non-detects. All analytes associated with IS2 would be qualified with a "J" for detects and "R" for non-detects.

In Example 17-1, the retention time of all the Internal Standards in the samples were within established retention time windows. If the retention rime varies by more than 30 seconds, the validator may use professional judgement in qualifying data.

Internal Standard criteria are very easy and straightforward and only analytes associated with the failing IS are qualified. Most of the analytes are associated with IS in the order in the TCL listing

Using the checklist, write the qualifications needed for the samples listed on Form 8 for the next quiz. Answers are in Appendix E.

Module 17 Quiz 1

Instruction:

- Use the checklist to qualify the samples on Form 8 located on the next 2 pages.
- Apply the qualifications to the correct sample Form 1's that are located after all of the Form 8s.
- Write the action taken for each sample on this page.

Internal Standards

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Date Analyzed: __02/02/01_____

EPA Sample N0. (VSTD50##): _VSTD50GH___

Lab File ID: (Standard) _GH0202D50___ Time Analyzed: __1647_____

Instrument ID: _HP5972AB35____ GC Column: _J&W DB-5MS_ ID: _0.32__(mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	287596	8.33	811190	11.20	446006	14.73
	UPPER LIMIT	575192	8.83	1622380	11.70	892012	15.23
	LOWER LIMIT	143798	7.83	405595	10.70	223003	14.23
	EPA SAMPLE						
1.	SBLK01	295213	8.33	829078	11.20	470766	14.72
2.	BPJ04	628096	8.33	913723	11.20	486077	14.72
3.							
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17.							
18.							
19.							
20.							

IS1 (DCB) = 1,4 Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page _1____ of __2___

FORM VIII SV-1

OLM04.2

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50GH___ Date Analyzed: __02/02/01_____

Lab File ID: (Standard) _GH0202D50___ Time Analyzed: __1647_____

Instrument ID: _HP5972AB35____ GC Column: _J&W DB-5MS_ ID: _0.32__(mm)

	IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
12 HOUR STD	744700	19.06	745493	24.68	689252	27.30
UPPER LIMIT	1489400	19.56	1490986	25.18	1378504	27.80
LOWER LIMIT	372350	18.56	372746	24.18	344626	26.80
EPA SAMPLE						
1. SBLK01	816435	19.06	771890	24.66	697863	27.30
2. BPJ04	353590	19.06	795235	24.66	116384	27.30
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20.						

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page __2___ of __2___

FORM VIII SV-2

OLM04.2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50HJ___ Date Analyzed: __02/03/01_____

Lab File ID: (Standard) _HJ0203D50___ Time Analyzed: __1527_____

Instrument ID: _HP5972AB35____ GC Column: _J&W DB-5MS_ ID: _0.32__(mm)

	IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
12 HOUR STD	450630	8.98	133584	11.28	91515	14.58
UPPER LIMIT	901260	9.48	267168	11.78	183030	15.08
LOWER LIMIT	225320	8.48	66792	10.78	45758	14.08
EPA SAMPLE						
1. BPH62	614300	8.98	184227	11.28	125771	14.56
2. BPJ51	155700	8.98	268395	11.28	11397	14.56
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20.						

IS1 (DCB) = 1,4 Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page __1___ of __2___

FORM VIII SV-1

OLM04.2

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50HJ___ Date Analyzed: __02/03/01_____

Lab File ID: (Standard) _HJ0203D50___ Time Analyzed: __1527_____

Instrument ID: _HP5972AB35____ GC Column: _J&W DB-5MS_ ID: _0.32__(mm)

	IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
12 HOUR STD	155366	18.08	203836	23.43	164804	26.10
UPPER LIMIT	310732	18.58	407672	23.93	329608	26.60
LOWER LIMIT	77683	17.58	101918	22.93	82402	25.60
EPA SAMPLE						
1. BPH62	218345	18.07	231657	23.41	208092	26.10
2. BPJ51	183546	18.06	100053	23.41	187855	26.10
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20.						

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page __2___ of __2___

FORM VIII SV-2

OLM04.2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50JA___ Date Analyzed: __02/04/01_____

Lab File ID: (Standard) _JA0204D50___ Time Analyzed: __0854_____

Instrument ID: _HP5972AB35____ GC Column: _J&W DB-5MS_ ID: _0.32__(mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	167051	8.66	438786	11.87	249015	17.12
	UPPER LIMIT	334102	9.16	877572	12.37	498030	17.62
	LOWER LIMIT	83526	8.16	219393	11.37	124508	16.62
	EPA SAMPLE						
1.	SBLK02	196226	8.67	570960	11.87	311881	17.12
2.	BPJ52	191304	8.65	192680	11.86	304109	17.11
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22.							

IS1 (DCB) = 1,4 Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page __1___ of _2____

FORM VIII SV-1 OLM04.2

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD50JA___ Date Analyzed: __02/04/01_____

Lab File ID: (Standard) _JA0204D50___ Time Analyzed: __0854_____

Instrument ID: _HP5972AB35____ GC Column: _J&W DB-5MS_ ID: _0.32__(mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	434192	20.70	392368	25.83	349858	28.33
	UPPER LIMIT	868384	21.20	784736	26.33	699716	28.83
	LOWER LIMIT	217096	20.20	196184	25.33	174929	27.83
	EPA SAMPLE						
1.	SBLK02	566740	20.70	483850	25.83	389344	28.35
2.	BPJ52	528584	20.71	821244	25.83	76607	28.35
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22.							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page __2___ of __2___

FORM VIII SV-2

OLM04.2

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB34___

Sample wt/vol: _____1000_____(g/mL) ____mL_____ Lab File ID: __BBB00-04____

Level: (low/med) ___low_____ Date Received: ___01/29/01____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/31/01___

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/03/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ___6.2_____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ____lg/L ___	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	5	J
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	J
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	20	
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB34___

Sample wt/vol: _____1000_____(g/mL) ____mL_____ Lab File ID: __BBB00-04____

Level: (low/med) _____low_____ Date Received: ___01/29/01____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/31/01___

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/03/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ___6.2_____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____lg/L ____	Q
51-28-5	2,4-Dinitrophenol	35	
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	15	J
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	65	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	15	
207-08-9	Benzo(k)fluoranthene	13	
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ04

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB38___

Sample wt/vol: _____1000_____(g/mL) ____mL_____ Lab File ID: __BBB00-08____

Level: (low/med) ___low_____ Date Received: ___01/29/01____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/31/01___

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ___8.2_____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ____lg/L __	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	J
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	8	J
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	15	
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	23	
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	8	J
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPJ04

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB38___

Sample wt/vol: _____1000_____(g/mL) ____mL_____ Lab File ID: __BBB00-08____

Level: (low/med) ____low_____ Date Received: ___01/29/01____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/31/01___

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/02/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ___8.2_____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ____lg/L ___	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	30	
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	J
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	20	
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	12	
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	34	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	6	J
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

1C

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPJ51

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB40___

Sample wt/vol: _____1000_____(g/mL) ____mL_____ Lab File ID: __BBB00-12____

Level: (low/med) ____low_____ Date Received: ___01/29/01____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/31/01___

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/03/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ___5.2_____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L ___	Q
100-52-7	Benzaldehyde	2	J
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	12	
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	22	J
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	7	J
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB40___

Sample wt/vol: _____1000_____(g/mL) ____mL_____ Lab File ID: __BBB00-12____

Level: (low/med) ____low_____ Date Received: ___01/29/01____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: ___01/31/01___

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/03/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___N_____ pH: ___5.2_____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	7	J
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	62	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ52

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___soil_____ Lab Sample ID: __BBB44___

Sample wt/vol: _____30_____(g/mL) ____g_____ Lab File ID: __BBB00-14____

Level: (low/med) __low_____ Date Received: ___01/29/01____

% Moisture: not dec. ___15_____ Decant: (Y/N) __N_____ Date Extracted: ___01/31/01___

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __02/03/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: ___6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
100-52-7	Benzaldehyde	390	U
3908-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
95-48-7	2-Methylphenol	390	U
3908-60-1	2,2'-oxybis(1-Chloropropane)	370	J
98-86-2	Acetophenone	390	U
3906-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
3905-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
91-20-3	Naphthalene	390	U
3906-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
3905-60-2	Caprolactam	320	J
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	980	U
92-52-4	1,1 Biphenyl	390	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	980	U
131-11-3	Dimethylphthalate	400	
606-20-2	2,6-Dinitrotoluene	390	U
208-96-8	Acenaphthylene	390	U
99-09-2	3-Nitroaniline	980	U
83-32-9	Acenaphthene	390	U

1D

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPJ52

Lab Name: ___NewLab_____ Contract : __123456_____

Lab Code: _NLB__ Case No.: _12345_ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___soil_____ Lab Sample ID: __BBB44___

Sample wt/vol: _____30_____(g/mL) ____g_____ Lab File ID: __BBB00-14____

Level: (low/med) __low_____ Date Received: ___01/29/01____

% Moisture: not dec. ___15_____ Decant: (Y/N) __N_____ Date Extracted: ___01/31/01___

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __02/03/01_____

Injection Volume: ____2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: ___6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	980	U
3900-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	380	J
86-73-7	Fluorene	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
3900-01-6	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
3901-55-3	4-Bromophenyl-phenylether	210	J
118-74-1	Hexachlorobenzene	390	U
1912-24-9	Atrazine	390	U
87-86-5	Pentachlorophenol	980	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	500	
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	420	
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	890	
117-84-0	Di-n-octylphthalate	190	J
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) Cannot be separated from Diphenylamine

Learning Module 16

Learning Objectives for this Module

- **Identify action taken for Initial and Continuing Calibration criteria not meeting the requirements stated in the checklist**

Unit 1 Initial Calibration

The purpose of the initial calibration is to verify the linearity of the instrument response within a specified concentration range. For BNA, this five point calibration range reflects Relative Response Factors (RRF) at a concentration of 20, 50, 80,120, and 160 part per billion for 57 BNA TCL analytes and eight surrogate compounds. Eight BNA compounds have a four-point calibration range at a concentration of 50, 80,120, and 160 part per billion. These eight compounds have elevated CRQLs reporting requirements.

The response factors of the five initial calibration standards are computed using the associated internal standards concentration and area response (see Equation 16.1). Internal standards are used to quantitate TCL analytes when the GC detects them and identified (by MS) in an environmental sample.

There are six internal standards for the BNA analysis. The internal standards have different retention times. TCL analytes are quantitated with their particular internal standard (see Module 17, Table 17-1 for the list of Internal Standards and associated compounds). The retention time of a specific internal standard is close to the retention time of the associated TCL compound.

Validating the Initial Calibration criterion

During the validation process, the calibration is reviewed for technical criterion as well as contractual requirements. The requirements are different for technical and contractual for the acceptance criteria and the number of analytes that are affected by the criteria. All initial calibration data is reported on Form 6 while continuing calibration data is reported on Form 7.

Review of Key Terms

%RSD - Percent Relative Standard Deviation- statistical tool used to measure the population standard deviation of a list of values.

RRF - Relative Response Factor- a measure of the relative mass spectral response of an analyte compared to its internal standard.

%D - Percent Difference- compares two values and indicates both the direction and the magnitude of the comparison. The value may be positive, negative or zero.

Contractual Requirements

Let's look at the contractual criterion first. There are 3 points to consider when reviewing the data:

- 41analytes and seven SMC have to meet the minimum RRF and maximum %RSD (20.5) values. These required analytes are marked with an asterisk * on the Forms 6 and 7. Table 16-1 is a list of the 41 analytes and the RRF and %RSD values.

- All other analytes must meet a minimum RRF of 0.010. There is no maximum %RSD for these analytes.

- The SOW allows up to **4** of the required analytes to fail contractual requirements for RRF or %RSD. **The failing analytes must have a %RSD ≤ 40% and RRF must be ≥ 0.010.** Therefore if one of the required analytes is > 40% or has a RRF < 0.010, this is considered to be a contract non-compliance. Document the problem in the DA. Every required analyte at every level must pass specified RRF and %RSD contractual requirements.

Table 16-1 List of required analytes, RRF, %RSD and %D values for Contractual requirements

Analyte	Min. RRF	Max. %RSD	Max. %D
Phenol	0.800	20.5	± 25.0
bis(2-Chloroethyl)ether	0.700	20.5	± 25.0
2-Chlorophenol	0.800	20.5	± 25.0
2-Methylphenol	0.700	20.5	± 25.0
4-Methylphenol	0.600	20.5	± 25.0
N-Nitroso-di-n-propylamine	0.500	20.5	± 25.0
Hexachloroethane	0.300	20.5	± 25.0
Nitrobenzene	0.200	20.5	± 25.0
Isophorone	0.400	20.5	± 25.0
2-Nitrophenol	0.100	20.5	± 25.0
2,4-Dimethylphenol	0.200	20.5	± 25.0
bis(2-Chloroethoxy)methane	0.300	20.5	± 25.0
2,4-Dichlorophenol	0.200	20.5	± 25.0
Naphthalene	0.700	20.5	± 25.0
4-Chloro-3-methylphenol	0.200	20.5	± 25.0
2-Methylnaphthalene	0.400	20.5	± 25.0
2,4,6-Trichlorophenol	0.200	20.5	± 25.0
2,4,5-Trichlorophenol	0.200	20.5	± 25.0
2-Chloronaphthalene	0.800	20.5	± 25.0
2,6-Dinitrotoluene	0.200	20.5	± 25.0
Acenaphthylene	0.900	20.5	± 25.0
Acenaphthene	0.900	20.5	± 25.0
Dibenzofuran	0.800	20.5	± 25.0
2,4-Dinitrotoluene	0.200	20.5	± 25.0
Fluorene	0.900	20.5	± 25.0
4-Chlorophenyl-phenylether	0.400	20.5	± 25.0
4-Bromophenyl-phenylether	0.100	20.5	± 25.0
Hexachlorobenzene	0.100	20.5	± 25.0
Pentachlorophenol	0.050	20.5	± 25.0
Phenanthrene	0.700	20.5	± 25.0
Anthracene	0.700	20.5	± 25.0
Fluoranthene	0.600	20.5	± 25.0

Pyrene	0.600	20.5	± 25.0
Benzo(a)Anthracene	0.800	20.5	± 25.0
Chrysene	0.700	20.5	± 25.0
Benzo(b)fluoranthene	0.700	20.5	± 25.0
Benzo(k)fluoranthene	0.700	20.5	+ 25.0
Benzo(a)Pyrene	0.700	20.5	± 25.0
Indeno(1,2,3-cd)Pyrene	0.500	20.5	± 25.0
Dibenzo(a,h)Anthracene	0.400	20.5	± 25.0
Benzo(g,h,i)perylene	0.500	20.5	± 25.0
* Nitrobenzene-d5	0.200	20.5	± 25.0
* 2-Fluorobiphenyl	0.700	20.5	± 25.0
* Terphenyl-d14	0.500	20.5	+ 25.0
* Phenol-d5	0.800	20.5	± 25.0
* 2-Fluorophenol	0.600	20.5	± 25.0
* 2-Chlorophenol-d4	0.800	20.5	± 25.0
* 1,2 Dichlorobenzene-d4	0.400	20.5	± 25.0

* Surrogate compounds

Technical Requirements

Technical guidelines are applied to **all analytes**, not just selected compounds as for contractual requirements. There are 3 points to consider when reviewing the data:

- All analytes are reviewed for technical requirement of %RSD ≤ 30%
- The average RRF should be ≥ 0.05.
- Region 2 qualifies analytes if average RRF is < 0.05. If an individual standard RRF is < 0.05 but the average is ≥ 0.05, no action is taken. Other Regions may qualify data if an individual level or average RRF is < 0.05.

Next verify the RRF and %RSD values for each analyte. Unless there are a number of errors, check 1 analyte associated with each internal standard. Equation 16-1 is the formula for verifying the RRF value for each of the 5 level standards.

Equation 16-1 Calculation for RRF value

$$RRF_{(\text{Concentration level})} = \frac{(A_X)(C_{is})}{(A_{is})(C_X)}$$

Where:

(A_X) = Area of the characteristic ion for the standard to be measured

(A_{is}) = Area of the characteristic ion for the internal standard to be measured

(C_X) = Concentration of the standard

(C_{is}) = Concentration of the internal standard

For example if phenol area response is 131815 and the internal standard (1,4-dichlorobenzene) area response is 64368 for level standard (80). The concentration of the internal standard for all levels is 40 ng. The equation would be set up like this:

$$\text{phenol RRF}_{(80)} = \frac{(131815) \times (40)}{(64368) \times (80)} = 1.024$$

The next quiz will give you practice calculating RRF. Answers can be found in Appendix E.

Module 16 Quiz 1

Instruction:

- Table 1 is the area responses for all of the analytes of interest.
- Calculate the RRF for each level and analyte and fill in Table 2.
- Fill in the RRF values only, leave the average RRF and %RSD fields empty. They will be filled in from later quizzes.

Table 1 Modified Quant report for the initial calibration standards

Compounds	RRF 20	RRF 50	RRF 80	RRF 120	RRF 160
*bis(2-Chloroethyl)ether	85929	234605	351672	518065	669604
Acetophenone	108689	273945	454720	1317578	853230
*Hexachloroethane	42772	108451	164749	242388	310309
*Nitrobenzene	96504	251474	381017	554446	715653
4-Chloroaniline	68804	188334	291706	397371	522757
Hexachlorobutadiene	13074	26724	38082	40180	5541
*2,6-Dinitrotoluene	30616	83211	125525	186790	219895
3-Nitroaniline	27399	87636	127260	181139	218826
2,4-Dinitrotoluene	43163	116235	172586	260403	321246
*4-Bromophenyl-phenylether	30018	80586	124106	180196	243117
Di-n-butylphthalate	254550	679189	1022806	1514165	1904995
*Fluoranthene	183267	498758	715105	1024672	1310368
*Benzo(a)Anthracene	160796	437063	664139	958809	1251080
*Chrysene	159226	421305	631508	888359	1111627
bis(2-Ethylhexyl)phthalate	167670	449213	685683	960676	1248543
*Indeno(1,2,3-cd)Pyrene	129543	134852	520701	731018	1055839
*Dibenzo(a,h)Anthracene	121155	334198	491134	719958	977326
*Benzo(g,h,i)perylene	126644	344598	498339	703344	929861
1,4 Dichlorobenzene-d4	110312	114259	112060	109451	108080
Naphthalene-d8	336037	355647	343689	331215	316786
Acenaphthene-d10	168576	176482	169369	164104	160578
Phenanthrene-d10	276983	292111	281919	266948	258201
Chrysene-d12	226690	243469	238787	223525	215585
Perylene-d12	203249	215208	206754	194496	191886

* Analytes required to passed minimum RRF and maximum %RSD.

Table 2 Modified Form 6C/D

Compounds	RRF 20	RRF 50	RRF 80	RRF 120	RRF 160	Ave RRF	%RSD
*bis(2-Chloroethyl)ether							
Acetophenone							
*Hexachloroethane							
*Nitrobenzene							
4-Chloroaniline							
Hexachlorobutadiene							
*2,6-Dinitrotoluene							
3-Nitroaniline							
2,4-Dinitrotoluene							
*4-Bromophenyl-phenylether							
Di-n-butylphthalate							
*Fluoranthene							
*Benzo(a)Anthracene							
*Chrysene							
bis(2-Ethylhexyl)phthalate							
*Indeno(1,2,3-cd)Pyrene							
*Dibenzo(a,h)Anthracene							
*Benzo(g,h,i)perylene							

*Analytes required to passed minimum RRF and maximum %RSD.

Keep Table 2 of Module 16 Quiz 1 available. You will need it for the quizzes for when doing the next 2 calculations.

Did any of the RRF values < 0.05? Remember in Region 2, the average RRF is used to qualify samples. The average (Equation 16-2) is calculated by the addition of all of the RRF values then divide by the number of values used.

Equation 16-2 Average Value

$$\text{Average} = \frac{(STD_{20} + STD_{50} + STD_{80} + STD_{120} + STD_{160})}{\text{Number of Values (usually 5)*}}$$

* NOTE: This value is usually 5 but if a standard is dropped, either the lowest or the highest, this value will be different. Keep in mind, if you decide to drop the lowest standard, all of the CRQLs must be raised to reflect the new lowest standard. If the highest standard is dropped, concentrations must be checked for exceeding the modified calibration range and qualified if dilutions are not available.

Remember there are eight BNA compounds with elevated CRQLs. The average RRF value for these compounds is based on four standard values because the first level standard in the initial calibration is not reported as per the SOW. Table 16-1 is the list of the eight compounds.

Table 16-1 Eight BNA compounds with elevated CRQLs (level 1 not reported for initial calibration range

2,4,5 Trichlorophenol	4-Nitrophenol
2-Nitroaniline	4-Nitroaniline
3-Nitroaniline	4,6-Dinitro-2-methylphenol
2,4 Dinitrophenol	Pentachlorophenol

Module 16 Quiz 2

Instruction: Go back to Table 2 in Quiz 1 and fill in the average RRF values.

Answers are in Appendix E for this quiz.

The last equation (Equation 16-3) needed to complete Table 2 is %RSD. Percent RSD is usually calculated using a calculator. The most common error by the labs in computing %RSD is substituting n for n-1.

Equation 16-3 %RSD equation

$$\%RSD = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$

Where:

$$\text{Standard Deviation} = \sqrt{\frac{\sum_{i=1}^{n} (X_i - \overline{X})^2}{(n-1)}}$$

X_i = each individual value used to calculate the mean

$\overline{X}$ = The mean of the n values

n = The total number of values

Use a scientific calculator or calculation program to verify %RSD. Make sure the value used in the standard deviation calculation is (n-1).

Module 16 Quiz 3

Instruction: Go back to Table 2 from Quiz 1. Fill in the %RSD for each analyte.

The answers for %RSD are in Appendix E. Keep Table 2 from the above quizzes handy, you will need it for the last quiz, taken after the checklist.

In the last Module, a great deal of time was devoted to tune and sequence of samples. Both criteria are tied in with the calibration criterion. For now, let's look at sections 11 and 12 of the BNA checklist to understand how to qualify data for failing RRF and %RSD values.

11.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. reports) present for each initial and continuing calibration?

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction?

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are the % relative standard deviation (%RSD) values for BNAs $\leq$ 30% over the concentration range of the calibration?

ACTION: Circle all outliers with red pencil.

NOTE: Although 41 BNA compounds and 7 SMC have a contractual minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

NOTE: Eight BNA compounds do not require a 20ng standard. They are 2,4-Dinitrophenol, 2,4,5-Trichlorophenol, 2-Nitroaniline, 3-Nitroaniline, 4-Nitroaniline, 4-Nitrophenol, 4,6-Dinitro-2-methylphenol, and Pentachlorophenol.

ACTION: If the %RSD is > 30.0%, qualify only positive results for that analyte "J" and do not qualify non-detects. When %RSD is > 90%, flag all non-detect results for that analyte "R" (unusable) and all positive results "J" (estimated)for ALL samples analyzed under that particular Initial Calibration.

NOTE: Analytes previously qualified "U" due to blank contamination are still considered as "hits" when qualifying for calibration criteria.

12.3 Are any average RRFs < 0.05?

ACTION: Circle all outliers with red pencil.

ACTION: If the average RRF is < 0.05 then:

1. "R" all non-detects for ALL samples analyzed under that particular Initial Calibration.

2. "J" all positive results for ALL samples analyzed under that particular Initial Calibration.

12.4 Are there any transcription/calculation errors in the reporting of RRFs and/or %RSDs? (Check at least two values; if errors are found check more.)

ACTION: Circle errors with red pencil.
ACTION: If errors are large, take action as specified in section 3.5 above.

NOTE: Contract Requirement: The SOW allows up to four of the required analytes to fail contractual %RSD or RRF criteria provided the %RSD is 40% or RRF is 0.010. (See Table 5, page D-67/SVOA and analytes marked with a " " on Form VI for a list of required analytes and contractual criteria.) Technical criteria, however, are the same for all analytes.

ACTION: If more than four analytes fail %RSD or RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance.

Important note about analytes qualified "U" for blank contamination. As mentioned in the checklist, these analytes are still considered to be positive hits and are qualified as positive hits.

For example in a calibration the %RSD for phenol is 95%. Non-detects are qualified as "R" and detects are qualified as "J". Phenol was previously qualified "U" due to contamination in a sample. Phenol would then be reported as "UJ" not "R". The "U" is for contamination and the "J" is for calibration criteria. Although it is now considered as non-detect for contamination, it was originally a positive hit and is treated as a detected hit.

The checklist is very explicit about the technical requirements and qualifications to apply for failing values.

Use Table 2 that you filled out from the previous quizzes and the checklist above to do the next quiz. Answers are in Appendix E

Module 16 Quiz 4

- Instruction: Use the completed Table 2 from the previous quizzes and the checklist to determine which analytes failed criteria.
- Write on the page which analytes failed Contractual criteria and which criterion failed. For example: phenol failed %RSD criteria.
- Write on the page which analytes failed Technical criteria and which criterion failed. For example: phenol failed RRF criteria.
- For analytes failing technical requirements, write the qualifications needed to apply to the data.

Contractual Requirements

Technical Requirements

Unit 2 Continuing Calibration

All analyte concentration calculations are based on the RRF50 continuing calibration, which is also called the daily calibration. Always check to ensure that the lab reported the raw data and the forms at the correct level. Labs have been known to submit raw data for a standard at a different level other than 50. If this happens, request a resubmittal from the Lab through the TOPO.

Every batch of samples associated with a calibration must be analyzed within 12 hours of tune injection time. The most common sequence for the analysis of blank and samples is:

1. Injection of instrument performance compound (DFTPP)

2. Continuing calibration (STD50) for all TCL compounds = RRF50

3. Method blank for each matrix must be analyzed at least once for each batch/SDG. It is common for a continuing calibration to be followed by environmental sample analyses instead of a method blank.

4. Environmental samples. The last sample injection must be within 12 hours of the instrument tune

When samples are analyzed directly after the five point initial calibration, the RRF50 of the initial calibration is used for quantitation. The lab should submit a Form 7 for this mid level standard to prove the standard passed continuing calibration criteria.

For BNA analysis, the samples and method blanks must be analyzed within the 12 hours time of injection of the tune check standard.

The continuing calibration instrument response is compared with the initial calibration instrument response for the same instrument. The instrument response for specific TCL compounds is expressed by the relative response factor RRF.

The data reviewer has to verify the initial calibration associated with each continuing calibration. Compare instrument ID, date, time and mean RRFs of initial calibration (Form 6 C/D) with instrument ID, date, time, and mean RRFs reported on continuing calibration form (Form 7 C/D).

The comparison of average RRF values from Form 6 C/D and RRF50 RRF values from a continuing calibration is calculated using the % Difference equation (Equation 16-4).

Equation 16-4 %D calculation

$$\%D = \frac{\overline{RRF} - RRF_{50}}{\overline{RRF}} \times 100$$

Use Equation 16-1 to do the practice problem. Remember to use the average RRF from the initial calibration in the denominator of the equation.

Practice 16-1 Calculate the %D for Benzaldehyde if the RRF_{50} is 1.403 and the average RRF from the initial calibration is 2.275.

$$\%\ D = \frac{2.275 - 1.403}{2.275} \times 100$$

The % D value of -38.33 failed criteria of $\pm$ 25%. If you did not get this answer, go back and check that you used the average RRF and not the continuing calibration RRF in the denominator of the equation.

Practice calculating % D by taking the next quiz. Answers are in Appendix E.

Module 16 Quiz 5

Instruction:

- Calculate the RRF and %D from the area responses given in Table 1.
- Write the RRF and %D in Table 2.

Table 1 Modified Quant Report of a sample

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d4	152	8.33	8.332	287596	40.0	
* Naphthalene-d8	136	11.20	11.203	811190	40.0	
* Acenaphthene-d10	164	14.71	14.733	446006	40.0	
* Phenanthrene-d10	188	19.05	19.057	744700	40.0	
* Chrysene-d12	240	24.66	24.681	745493	40.0	
* Perylene-d12	264	27.29	27.299	689252	40.0	
$ 2-Fluorophenol	112	5.81	5.849	420240		
$ Phenol-d_5	99	7.85	7.859	504349		
$ 2-Chlorophenol- d_4	132	7.95	7.960	464384		
$ 1,2-Dichlorobenzene- d_4	152	8.75	8.754	333597		
$ Nitrobenzene-d_5	82	9.732	9.734	560589		
$ 2-Fluorobiphenyl	172	13.26	13.264	740321		
$ 2,4,6 Tribromophenol	330	17.28	17.283	147002		
$ Terphenyl- d_{14}	244	22.68	22.688	889271		
bis(2-Chloroethyl)ether	93	7.910	7.910	511008		
Acetophenone	105	9.379	9.379	735635		
Hexachloroethane	117	9.463	9.463	241223		
Nitrobenzene	77	9.767	9.767	538648		
4-Chloroaniline	127	11.439	11.439	395219		
Hexachlorobutadiene	225	11.541	11.541	211287		
2,6-Dinitrotoluene	165	14.480	14.480	203807		
3-Nitroaniline	138	14.851	14.851	174745		
2,4-Dinitrotoluene	165	15.594	15.594	248789		
4-Bromophenyl-phenylether	248	17.959	17.959	227308		
Di-n-butylphthalate	149	20.779	20.779	1599654		
Fluoranthene	202	21.827	21.827	1209534		
Benzo(a)Anthracene	228	24.647	24.647	1150561		
Chrysene	228	24.715	24.715	1137434		
bis(2-Ethylhexyl)phthalate	149	24.867	24.867	1093329		
Indeno(1,2,3-cd)Pyrene	276	29.815	29.815	1154444		
Dibenzo(a,h)Anthracene	278	29.832	29.832	961065		
Benzo(g,h,i)perylene	276	30.542	30.542	999119		

* = Internal Standard

$ = SMC

Table 2 Modified Form 7C/D Continuing Calibration

Compounds	____ RRF	RRF50	MIN RRF	%D	MA %D
bis(2-Chloroethyl)ether	1.579		0.700		25.0
Acetophenone	1.981				
Hexachloroethane	0.745		0.300		25.0
Nitrobenzene	0.563		0.200		25.0
4-Chloroaniline	0.414				
Hexachlorobutadiene	0.201				
2,6-Dinitrotoluene	0.366		0.200		25.0
3-Nitroaniline	0.371				
2,4-Dinitrotoluene	0.515		0.200		25.0
4-Bromophenyl-phenylether	0.224		0.100		25.0
Di-n-butylphthalate	1.849				
Fluoranthene	1.301		0.600		25.0
Benzo(a)Anthracene	1.425		0.800		25.0
Chrysene	1.345		0.700		25.0
bis(2-Ethylhexyl)phthalate	1.454				
Indeno(1,2,3-cd)Pyrene	1.293		0.500		25.0
Dibenzo(a,h)Anthracene	1.226		0.400		25.0
Benzo(g,h,i)perylene	1.230		0.500		25.0
Nitrobenzene-d_5	0.560		0.200		25.0
2-Fluorobiphenyl	1.431		0.700		25.0
2-Fluorophenol	1.102		0.500		25.0
Terphenyl- d_{14}	1.698		0.800		25.0
Phenol-d_5	1.330		0.600		25.0
2,4,6 Tribromophenol	0.145				
2-Chlorophenol- d_4	1.520		0.800		25.0
1,2-Dichlorobenzene- d_4	0.963		0.400		25.0

Review section 13 of the checklist to understand how to qualify data based on failed RRF and % D values.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction?

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?

ACTION: List below all sample analyses that were not analyzed within twelve hours of a continuing calibration standard for each instrument used.

ACTION: If any forms are missing, or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, contact the TOPO to obtain an explanation/resubmittal from the

lab. If continuing calibration data are unavailable, flag all associated sample data as unusable "R".

13.3 Does any BNA compound have a percent difference (%D) between the initial and continuing calibration RRFs which exceeds the ±25.0% criteria?

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ACTION: Circle all outliers with red pencil

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated "J". When %D is > 90%, reject all non-detects for that analyte, "R", and qualify positive results "J" (estimated)for ALL samples analyzed under that particular Continuing Calibration.

13.4 Are any continuing RRFs < 0.05?

ACTION: Circle all outliers with red pencil.

ACTION: If the RRF is < 0.05, qualify as unusable (R) associated non-detects and "J" associated positive values for ALL samples analyzed under that particular Continuing Calibration.

NOTE: Contract Requirement: The SOW allows up to four of the required analytes to fail contractual %D and RRF criteria, provided that the %D is 40% and the RRF is 0.010. (See Table 5 page D-67/SVOA or analytes marked with a " " on Form VI for a list of the required analytes.) Technical criteria, however, are the same for all analytes.

ACTION: If more than four analytes failed %D and RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance.

13.5 Are there any transcription/calculation errors in the reporting of average relative response factors (RRF) or %difference (%D) between initial and continuing RRFs? (Check at least two values, but if errors are found, check more.)

ACTION: Circle errors with red pencil.

ACTION: If errors are large, take action as specified in section 3.5 above.

Take the next quiz and apply the checklist to Table 2 of Quiz 5. Answers are in Appendix E.

Module 16 Quiz 6

Instruction:

- Using Table 2 from Quiz 5 and the checklist, write out the qualifications that are needed for the failing RRF and %RSD values.
- Don't forget to identify and describe contractual problems.

Technical Problems

Contractual Problems

Module 16 Quiz 7

Instruction:

- Circle all values that fail criteria for the Initial and Continuing Calibration forms on the next 4 pages. Form 6 is for initial calibration and Form 7 is for continuing calibration.
- On this page write the action/qualifications that must be applied to samples.

Technical Problems

Contractual Problems

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __HP5972AB35_____ Calibration Date: _12/12/00_____ __12/13/00_____

Calibration Times: _2136____ _0046_____

LAB FILE ID: RRF20 = __ HK1212C20_____ RRF50 = ___ HK1212C50_____

RRF80 = _HK1213860_____ RRF120 = _ HK1213C120____ RRF160 = __ HK1213C160___

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	____ RRF	% RSD
Benzaldehyde	0.945	0.961	0.790	0.692	0.610	0.800	19.2
Phenol *	1.417	1.386	1.262	1.171	1.214	1.290	8.3*
bis(2-Chloroethyl)ether *	1.127	1.109	0.976	0.917	0.917	1.009	10.2*
2-Chlorophenol *	1.305	1.236	1.185	1.139	1.111	1.195	6.5*
2-Methylphenol *	1.103	1.078	0.980	0.966	0.937	1.013	7.2*
2,2'-oxybis(1-Chloropropane)	1.670	1.641	1.475	1.401	1.368	1.511	9.1
Acetophenone	1.834	1.822	1.635	1.626	1.643	1.712	6.2
4-Methylphenol *	1.173	1.112	1.050	1.019	1.012	1.073	6.4*
N-Nitroso-di-n-propylamine *	0.724	0.708	0.671	0.693	0.660	0.691	3.8*
Hexachloroethane *	0.757	0.755	0.689	0.654	0.654	0.702	7.4*
Nitrobenzene *	0.427	0.410	0.391	0.387	0.367	0.396	5.8*
Isophorone *	0.746	0.719	0.670	0.632	0.635	0.680	7.5*
2-Nitrophenol *	0.252	0.255	0.246	0.234	0.238	0.245	3.7*
2,4-Dimethylphenol *	0.375	0.352	0.339	0.320	0.318	0.341	6.9*
bis(2-Chloroethoxy)methane *	0.480	0.456	0.410	0.395	0.381	0.424	9.8*
2,4-Dichlorophenol *	0.400	0.397	0.386	0.376	0.371	0.386	3.3*
Naphthalene *	1.131	1.070	1.060	1.001	1.009	1.054	5.0*
4-Chloroaniline	0.457	0.463	0.443	0.435	0.392	0.438	6.4
Hexachlorobutadiene	0.353	0.344	0.343	0.339	0.332	0.342	2.3
Caprolactam	0.041	0.033	0.057	0.045	0.051	0.041	16.9
4-Chloro-3-methylphenol *	0.365	0.346	0.342	0324	0.306	0.337	6.7*
2-Methylnaphthalene *	0.742	0.719	0.681	0.682	0.651	0.695	5.1*
Hexachlorocyclopentadiene	0.458	0.543	0.571	0.585	0.609	0.553	10.5
2,4,6-Trichlorophenol *	0.512	0.513	0.494	0.494	0.494	0.501	2.0*
2,4,5-Trichlorophenol *		0.524	0.515	0.515	0.545	0.525	2.7*
1,1 Biphenyl	1.584	1.542	1.468	1.468	1.473	1.507	3.5
2-Chloronaphthalene *	1.289	1.244	1.191	1.182	1.192	1.220	3.7*
2-Nitroaniline		0.416	0.396	0.386	0.385	0.396	3.6
Dimethylphthalate	1.570	1.514	1.502	1.482	1.456	1.505	2.8
2,6-Dinitrotoluene *	0.154	0.221	0.157	0.178	0.156	0.173	16.4*
Acenaphthylene *	1.957	1.870	1.824	1.802	1.796	1.850	3.6*
3-Nitroaniline		0.348	0.334	0.319	0.306	0.327	5.6
Acenaphthene *	1.270	1.224	1.184	1.168	1.188	1.207	3.4*
2,4-Dinitrophenol		0.229	0.246	0.244	0.256	0.244	4.6
4-Nitrophenol		0.252	0.251	0.259	0.265	0.257	2.6
Dibenzofuran *	1.853	1.830	1.753	1.745	1.739	1.784	3.0*

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

6D

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __HP5972AB35_____ Calibration Date: _12/12/00_____ __12/13/00_____

Calibration Times: _2136____ _0046_____

LAB FILE ID: RRF20 = __ HK1212C20_____ RRF50 = ___ HK1212C50_____

RRF80 = _HK1213860_____ RRF120 = _ HK1213C120____ RRF160 = __ HK1213C160___

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	___ RRF	% RSD
2,4-Dinitrotoluene *	0.521	0.508	0.488	0.473	0.485	0.495	3.9*
Diethylphthalate	1.601	1.550	1.484	1.474	1.494	1.521	3.5
Fluorene *	1.406	1.348	1.281	1.258	1.267	1.312	4.8*
4-Chlorophenyl-phenylether *	0.796	0.775	0.754	0.745	0.740	0.762	3.0*
4-Nitroaniline		0.330	0.302	0.295	0.266	0.298	8.7
4,6-Dinitro-2-methylphenol		0.197	0.195	0.203	0.202	0.199	2.0
N-Nitrosodiphenylamine (1)	0.536	0.531	0.504	0.514	0.495	0.516	3.4
4-Bromophenyl-phenylether *	0.290	0.290	0.276	0.276	0.275	0.281	2.7*
Hexachlorobenzene *	0.367	0.378	0.340	0.355	0.340	0.356	4.7*
Atrazine	0.235	0.226	0.217	0.215	0.209	0.220	4.6
Pentachlorophenol *		0.192	0.184	0.193	0.199	0.192	3.3*
Phenanthrene *	1.206	1.176	1.101	1.143	1.116	1.148	3.7*
Anthracene *	1.014	1.203	1.120	1.442	1.713	1.298	21.6*
Carbazole	1.009	0.989	0.899	0.902	0.866	0.933	6.7
Di-n-butylphthalate	1.530	1.497	1.411	1.411	1.356	1.441	4.9
Fluoranthene *	1.417	1.349	1.297	1.283	1.253	1.320	4.9*
Pyrene *	1.391	1.386	1.313	1.336	1.306	1.346	3.0*
Butylbenzylphthalate	0.678	0.680	0.623	0.629	0.630	0.648	4.4
3,3'-Dichlorobenzidine	0.407	0.391	0.382	0.361	0.337	0.376	7.3
Benzo(a)anthracene *	1.353	1.387	1.284	1.291	1.310	1.325	3.3*
Chrysene *	1.268	1.233	1.186	1.195	1.257	1.228	3.0*
bis(2-Ethylhexyl)phthalate	0.979	0.948	0.889	0.906	0.924	0.929	3.8
Di-n-octylphthalate	1.636	1.681	1.595	1.671	1.608	1.638	2.3
Benzo(b)fluoranthene *	1.401	1.459	1.341	1.383	1.355	1.388	3.3*
Benzo(k)fluoranthene *	1.549	1.477	1.475	1.513	1.423	1.487	3.2*
Benzo(a)pyrene *	1.295	1.291	1.216	1.271	1.221	1.259	3.0*
Indeno(1,2,3-cd)pyrene *	1.315	1.298	1.255	1.247	1.173	1.258	4.4*
Dibenz(a,h)anthracene *	0.785	1.490	0.721	1.026	1.810	1.166	40.3*
Benzo(g,h,i)perylene *	1.281	1.265	1.191	1.201	1.168	1.221	4.0*
Nitrobenzene-d5 *	0.444	0.426	0.397	0.385	0.381	0.407	6.7*
2-Fluorobiphenyl *	1.529	1.448	1.413	1.369	1.366	1.425	4.7*
Terphenyl-d14 *	1.089	1.093	1.023	1.039	1.040	1.057	3.1*
Phenol-d5 *	1.534	1.457	1.333	1.293	1.271	1.378	8.2*
2-Fluorophenol	1.229	1.242	1.140	1.107	1.096	1.163	5.9*
2,4,6 Tribromophenol	0.226	0.236	0.220	0.228	0.216	0.225	3.4
2-Chlorophenol-d4 *	1.434	1.394	1.318	1.277	1.242	1.333	6.0*
1,2 Dichlorobenzene-d4 *	1.010	0.967	0.904	0.888	0.860	0.926	6.6*

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

FORM VI SV-2 OLM04.2

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __HP5972AB35_____ Calibration Date: ___01/29/01_____ Time: ___1244___

Lab File ID: __HK0129D50____ Calibration Date: _12/12/00_____ __12/13/00_____

EPA Sample N0. (VSTD50##): _____ Calibration Times: _2136____ _0046_____

GC Column: __J&W DB-5MS___ ID: ___0.32____(mm)

COMPOUND		_____ RRF	RRF50	MIN RRF	% D	MAX % D
Benzaldehyde		0.800	0.875		9.4	
Phenol	*	1.290	1.196	0.800	-7.3	25.0
bis(2-Chloroethyl)ether	*	1.009	1.044	0.700	3.5	25.0
2-Chlorophenol	*	1.195	1.076	0.800	-10.0	25.0
2-Methylphenol	*	1.013	0.919	0.700	-9.3	25.0
2,2'-oxybis(1-Chloropropane)		1.511	1.638		8.4	
Acetophenone		1.712	1.449		-15.4	
4-Methylphenol	*	1.073	0.854	0.600	-20.4	25.0
N-Nitroso-di-n-propylamine	*	0.691	0.438	0.500	36.6	25.0
Hexachloroethane	*	0.702	0.827	0.300	17.8	25.0
Nitrobenzene	*	0.396	0.413	0.200	4.3	25.0
Isophorone	*	0.680	0.502	0.400	26.2	25.0
2-Nitrophenol	*	0.245	0.256	0.100	4.5	25.0
2,4-Dimethylphenol	*	0.341	0.349	0.200	2.3	25.0
bis(2-Chloroethoxy)methane	*	0.424	0.455	0.300	7.3	25.0
2,4-Dichlorophenol	*	0.386	0.430	0.200	11.4	25.0
Naphthalene	*	1.054	0.948	0.700	-10.1	25.0
4-Chloroaniline		0.438	0.406		-7.3	
Hexachlorobutadiene		0.342	0.433		26.6	
Caprolactam		0.041	0.093		126.8	
4-Chloro-3-methylphenol	*	0.337	0.331	0.200	-1.8	25.0
2-Methylnaphthalene	*	0.695	0.726	0.400	4.5	25.0
Hexachlorocyclopentadiene		0.553	0.626		13.2	
2,4,6-Trichlorophenol	*	0.501	0.456	0.200	-9.0	25.0
2,4,5-Trichlorophenol	*	0.525	0.471	0.200	-10.3	25.0
1,1 Biphenyl		1.507	1.581		4.9	
2-Chloronaphthalene	*	1.220	1.157	0.800	-5.2	25.0
2-Nitroaniline		0.396	0.328		-17.2	
Dimethylphthalate		1.505	1.426		-5.2	
2,6-Dinitrotoluene	*	0.173	0.323	0.200	86.71	25.0
Acenaphthylene	*	1.850	1.617	0.900	-12.6	25.0
3-Nitroaniline		0.327	0.281		-14.1	
Acenaphthene	*	1.207	0.902	0.900	25.27	25.0
2,4-Dinitrophenol		0.244	0.173		-29.1	
4-Nitrophenol		0.257	0.236		-8.2	
Dibenzofuran	*	1.784	1.827	0.800	2.4	25.0

All other compounds must meet a minimum RRF of 0.010.

FORM VII SV-1 OLM04.2

7D

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __HP5972AB35_____ Calibration Date: ___01/29/01_____ Time: ___1244___

Lab File ID: __HK0129D50____ Calibration Date: _12/12/00_____ __12/13/00_____

EPA Sample N0. (VSTD50##): _____ Calibration Times: _2136____ _0046_____

GC Column: __J&W DB-5MS___ ID: ___0.32____(mm)

COMPOUND		_____ RRF	RRF50	MIN RRF	% D	MAX % D
2,4-Dinitrotoluene	*	0.495	0.449	0.200	-9.3	25.0
Diethylphthalate		1.521	1.554		2.2	
Fluorene	*	1.312	1.238	0.900	-5.6	25.0
4-Chlorophenyl-phenylether	*	0.762	0.773	0.400	1.4	25.0
4-Nitroaniline		0.298	0.256		-14.1	
4,6-Dinitro-2-methylphenol		0.199	0.171		-14.1	
N-Nitrosodiphenylamine (1)		0.516	0.460		-10.9	
4-Bromophenyl-phenylether	*	0.281	0.280	0.100	-0.4	25.0
Hexachlorobenzene	*	0.356	0.522	0.100	46.63	25.0
Atrazine		0.220	0.096		-56.4	
Pentachlorophenol	*	0.192	0.177	0.050	-7.8	25.0
Phenanthrene	*	1.148	1.044	0.700	-9.1	25.0
Anthracene	*	1.298	1.060	0.700	-18.3	25.0
Carbazole		0.933	0.902		-3.3	
Di-n-butylphthalate		1.441	1.523		5.7	
Fluoranthene	*	1.320	1.255	0.600	-4.9	25.0
Pyrene	*	1.346	1.005	0.600	25.3	25.0
Butylbenzylphthalate		0.648	0.565		-12.8	
3,3'-Dichlorobenzidine		0.376	0.370		-1.6	
Benzo(a)anthracene	*	1.325	1.184	0.800	-10.6	25.0
Chrysene	*	1.228	1.239	0.700	0.9	25.0
bis(2-Ethylhexyl)phthalate		0.929	0.780		-16.0	
Di-n-octylphthalate		1.638	1.490		-9.0	
Benzo(b)fluoranthene	*	1.388	1.359	0.700	-2.1	25.0
Benzo(k)fluoranthene	*	1.487	1.415	0.700	-4.8	25.0
Benzo(a)pyrene	*	1.259	1.159	0.700	-7.9	25.0
Indeno(1,2,3-cd)pyrene	*	1.258	1.233	0.500	-2.0	25.0
Dibenz(a,h)anthracene	*	1.166	0.970	0.400	-16.81	25.0
Benzo(g,h,i)perylene	*	1.221	0.902	0.500	26.1	25.0
Nitrobenzene-d5	*	0.407	0.440	0.200	8.1	25.0
2-Fluorobiphenyl	*	1.425	1.335	0.700	-6.3	25.0
Terphenyl-d14	*	1.057	0.900	0.500	-14.9	25.0
Phenol-d5	*	1.378	1.262	0.800	-8.4	25.0
2-Fluorophenol	*	1.163	1.115	0.600	-4.1	25.0
2,4,6 Tribromophenol		0.225	0.239		6.2	
2-Chlorophenol-d4	*	1.333	1.161	0.800	-12.9	25.0
1,2 Dichlorobenzene-d4	*	0.926	0.907	0.400	-2.1	25.0

All other compounds must meet a minimum RRF of 0.010.

Learning Module 15

Learning Objectives for this Module

- **Identify action taken for Instrument Performance not meeting the requirements stated in the checklist**
- **Calculate CRQL and analyte concentration**
- **Identify discrepancies in chromatograms**

Unit 1 Tune

Data should be qualified if the GC/MS system was not properly tuned, or the samples were analyzed more than 12 Hours after an instrument tune check standard. The mass spectrometer is tuned to manufacturer's specifications using either perfluoro-tri-n-butylamine (FC-43) or perfluorokerosene (PFK). Validators do not check for either of these compounds. The instrument performance check standard is used to verify the instrument was tuned correctly.

Verifying the instrument tune is easy. Decafluorotriphenylphosphine (DFTPP) is the verification standard used for BNA compounds. The system performance compound is a representative of their class of target compounds. If the GC/MS is properly tuned, the instrument has the capability to qualitatively identify organic compounds.

We examine the tuning data for calculation and transcription errors between the mass/charge listings in Figure 15-1. Validators also verify that the % relative abundance complies with the checklist ion abundance criteria.

Figure 15-1 Mass/charge Listing for DFTPP

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1-value is % mass 69 2-Value is % mass 442

All of the % relative abundance (RA) values are calculated against the base peak. In addition, 3 of the ion abundance's (m/e 68, 70, 443) are compared against another peak. The calculation for this relative abundance is provided in Equation 15-1.

Equation 15-1 % Relative Abundance calculation

$$\frac{\text{Intensity of ion to be measured}}{\text{Intensity of base peak}} \times 100 = \%\ \text{RA}$$

If the % relative abundance of a particular ion is outside the ion abundance criteria limits, the analyzed data is suspect, especially with regard to false negatives. When this occurs, the compound identification is not definitive. Qualification of the data will be discussed in Unit 2.

Practice 15-1 Using Equation 15-1 to calculate the % relative abundance for each m/e, fill in the table.

m/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1-value is % mass 69 2-Value is % mass 442

Modified raw data for DFTPP tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	169	94.00	33	143.00	123	197.00	73	297.00	117
38.00	214	95.00	104	146.00	103	198.00	16872	303.00	78
39.00	1244	96.00	82	147.00	230	199.00	1139	314.00	31
40.00	106	97.00	60	148.00	636	200.00	83	315.00	69
41.00	58	98.00	1068	149.00	145	201.00	71	316.00	38
50.00	3564	103.00	156	151.00	76	209.00	64	346.00	44
51.00	12134		290	153.00	161	210.00	65	352.00	82
52.00	582	104.00	297	154.00	110	211.00	154	353.00	49
53.00	38		2813	155.00	276	215.00	28	354.00	77
55.00	58	105.00	405	156.00	351	216.00	32	365.00	329
		107.00							
		108.00							
63.00	412	110.00	5851	162.00	58	225.00	475	366.00	42
64.00	71		863	165.00	215	226.00	45	372.00	129
65.00	230	111.00	93	166.00	142	227.00	879	373.00	33
66.00	18		18	167.00	954	228.00	126	383.00	39
68.00	67	112.00	76	168.00	480	229.00	158	402.00	40
		115.00							
		116.00							
69.00	14363	124.00	151	172.00	74	245.00	206	403.00	59

70.00	145	0	127	173.00	88	246.00	317	421.00	57
73.00	96	125.0	9108	174.00	168	247.00	33	422.00	55
74.00	1231	0	754	175.00	317	249.00	37	423.00	490
75.00	1808	127.0	4436	176.00	86	253.00	27	424.00	74
		0							
		128.0							
		0							
		129.0							
		0							
87.00	116	130.0	356	184.00	81	265.00	185	441.00	1252
88.00	70	0	86	185.00	338	273.00	217	442.00	7882
91.00	217	131.0	29	186.00	2032	274.00	573	443.00	1529
92.00	223	0	123	187.00	646	275.00	3142	444.00	143
93.00	1581	132.0	353	188.00	41	276.00	420		
		0							
		134.0							
		0							
		135.0							
		0							

Answer to Practice 15-1

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	71.9
68	Less than 2.0% of mass 69	0.4 (0.4)1
69	Mass 69 relative abundance	85.1
70	Less than 2.0% of mass 69	0.9 (1.0)1
127	25.0-75.0% of mass 198	54.0
197	Less than 1.0% of mass 198	0.4
198	Base peak, 100% relative abundance	100.0
199	5.0-9.0% of mass 198	6.7
275	10.0-30.0% of mass 198	18.6
365	Greater than 0.75% of mass 198	1.95
441	Present, but less than mass 443	7.4
442	40.0-110.0% of mass 198	46.7
443	15.0-24.0% of mass 442	9.1 (19.4)2

1-value is % mass 69 2-Value is % mass 442

The tune met the Ion Abundance criteria in Figure 15-1. Therefore the tune is acceptable and analysis of samples may proceed. While other Regions may qualify data if the tune is not met, Region 2 does not consider the data acceptable and will be rejected. This is also considered to be in violation of the SOW.

Reinforce the habit of checking the RA values by taking the next quiz. The answers to the quiz can be found in Appendix E.

Module 15 Quiz 1

Instruction: Using the raw data provided for each of the three samples, fill in the % Relative abundance for each m/e.

Tune 15-1

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1-value is % mass 69 2-Value is % mass 442

Modified Raw data for DFTPP tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	169	94.00	33	143.00	123	197.00	98	297.00	117
38.00	214	95.00	104	146.00	103	198.00	20458	303.00	78
39.00	1244	96.00	82	147.00	230	199.00	1673	314.00	31
40.00	106	97.00	60	148.00	636	200.00	71	315.00	69
41.00	58	98.00	1068	149.00	145	201.00	25	316.00	38
50.00	3564	103.00	156	151.00	76	209.00	64	346.00	44
51.00	8579	104.00	290	153.00	161	210.00	65	352.00	82
52.00	582	105.00	297	154.00	110	211.00	154	353.00	49
53.00	38	107.00	2813	155.00	276	215.00	28	354.00	77
55.00	58	108.00	405	156.00	351	216.00	32	365.00	235
63.00	412	110.00	5851	162.00	58	225.00	475	366.00	42
64.00	71	111.00	863	165.00	215	226.00	45	372.00	129
65.00	230	112.00	93	166.00	142	227.00	879	373.00	33
66.00	18	115.00	18	167.00	954	228.00	126	383.00	39
68.00	678	116.00	76	168.00	480	229.00	158	402.00	40
69.00	145	124.00	151	172.00	74	245.00	206	403.00	59
70.00	65	127	173.00	88	246.00	317	421.00	57	

73.00	1231	125.0	8547	174.00	168	247.00	33	422.00	55
74.00	1808	0	754	175.00	317	249.00	37	423.00	490
75.00	548	127.0	4436	176.00	86	253.00	27	424.00	74
		0							
		128.0							
		0							
		129.0							
		0							
87.00	116	130.0	356	184.00	81	265.00	185	441.00	1835
88.00	70	0	86	185.00	338	273.00	217	442.00	24502
91.00	217	131.0	29	186.00	2032	274.00	573	443.00	3783
92.00	223	0	123	187.00	646	275.00	5236	444.00	143
93.00	1581	132.0	353	188.00	41	276.00	420		
		0							
		134.0							
		0							
		135.0							
		0							

Tune 15-2

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1-value is % mass 69 2-Value is % mass 442

Modified Raw data for DFTPP tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	169	94.00	33	143.00	123	197.00	105	297.00	117
38.00	214	95.00	104	146.00	103	198.00	15478	303.00	78
39.00	1244	96.00	82	147.00	230	199.00	1324	314.00	31
40.00	106	97.00	60	148.00	636	200.00	71	315.00	69
41.00	58	98.00	1068	149.00	145	201.00	47	316.00	38
50.00	3564	103.0	156	151.00	76	209.00	64	346.00	44
51.00	4858	0	290	153.00	161	210.00	65	352.00	82
52.00	582	104.0	297	154.00	110	211.00	154	353.00	49
53.00	38	0	2813	155.00	276	215.00	28	354.00	77
55.00	58	105.0	405	156.00	351	216.00	32	365.00	189
		0							
		107.0							
		0							

		108.00							
63.00	412	110.00	5851	162.00	58	225.00	475	366.00	42
64.00	71	0	863	165.00	215	226.00	45	372.00	129
65.00	230	111.00	93	166.00	142	227.00	879	373.00	33
66.00	18	0	18	167.00	954	228.00	126	383.00	39
68.00	89	112.00	76	168.00	480	229.00	158	402.00	40
		0							
		115.00							
		0							
		116.00							
		0							
69.00	7436	124.00	151	172.00	74	245.00	206	403.00	59
70.00	93	0	127	173.00	88	246.00	317	421.00	57
73.00	6	125.00	10235	174.00	168	247.00	33	422.00	55
74.00	1231	0	754	175.00	317	249.00	37	423.00	490
75.00	1808	127.00	4436	176.00	86	253.00	27	424.00	74
		0							
		128.00							
		0							
		129.00							
		0							
87.00	116	130.00	356	184.00	81	265.00	185	441.00	2579
88.00	70	0	86	185.00	338	273.00	217	442.00	16012
91.00	217	131.00	29	186.00	2032	274.00	573	443.00	4502
92.00	223	0	123	187.00	646	275.00	3579	444.00	143
93.00	1581	132.00	353	188.00	41	276.00	420		
		0							
		134.00							
		0							
		135.00							
		0							

Tune 15-3

M/e	Ion Abundance criteria	% Relative Abundance
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1-value is % mass 69 2-Value is % mass 442

Modified Raw data for DFTPP tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	169	94.00	33	143.00	123	197.00	105	297.00	117
38.00	214	95.00	104	146.00	103	198.00	15478	303.00	78
39.00	1244	96.00	82	147.00	230	199.00	1324	314.00	31
40.00	106	97.00	60	148.00	636	200.00	71	315.00	69
41.00	58	98.00	1068	149.00	145	201.00	57	316.00	38
50.00	3564	103.0	156	151.00	76	209.00	64	346.00	44
51.00	5201	0	290	153.00	161	210.00	65	352.00	82
52.00	582	104.0	297	154.00	110	211.00	154	353.00	49
53.00	38	0	2813	155.00	276	215.00	28	354.00	77
55.00	58	105.0	405	156.00	351	216.00	32	365.00	189
		0							
		107.0							
		0							
		108.0							
		0							
63.00	412	110.0	5851	162.00	58	225.00	475	366.00	42
64.00	71	0	863	165.00	215	226.00	45	372.00	129
65.00	230	111.0	93	166.00	142	227.00	879	373.00	33
66.00	18	0	18	167.00	954	228.00	126	383.00	39
68.00	65	112.0	76	168.00	480	229.00	158	402.00	40
		0							
		115.0							
		0							
		116.0							
		0							
69.00	8773	124.0	151	172.00	74	245.00	206	403.00	59
70.00	105	0	127	173.00	88	246.00	317	421.00	57
73.00	1456	125.0	10235	174.00	168	247.00	33	422.00	55
74.00	1231	0	754	175.00	317	249.00	37	423.00	490
75.00	1808	127.0	4436	176.00	86	253.00	27	424.00	74
		0							
		128.0							
		0							
		129.0							
		0							

87.00	116	130.00	356	184.00	81	265.00	185	441.00	2579
88.00	70		86	185.00	338	273.00	217	442.00	16012
91.00	217	131.00	29	186.00	2032	274.00	573	443.00	4502
92.00	223		123	187.00	646	275.00	3579	444.00	143
93.00	1581	132.00	353	188.00	41	276.00	420		
		134.00							
		135.00							

Did you notice any unusual problems with Quiz 1? All three tunes failed criteria. This is a contract as well as a technical problem. Unit 2 will teach you how to qualify data associated with improper tuning.

Instrument Performance Check Form 5B tabulates the samples associated with this tune with the date and time analyzed as well as pertinent sample information. We will use this form again to check for the 12-hour clock permitted for sample analysis.

Data are rarely qualified because of a non-compliance tune. Samples analyzed more than 12 hours after a tune are the most common cause of data qualification Therefore; it is essential to scrutinize the tune time and date.

All standards, QC, and samples must be analyzed within 12 hours of the **injection** time for DFTPP. All time is reported in military time, which is a 24-hour clock. Therefore 1:30 p.m. should be written as 1330.

If DFTPP is injected on December 12, 2001 at 0855, the 12-hour clock is up at 2055. Samples analyzed after this time are not acceptable "R". Using professional judgement, data may be used if the internal standards pass criteria.
At this time it is Region 2 policy that data analyzed outside the 12-hour clock are not acceptable.

This is a good time to check the sequence of the analysis. After an acceptable tune, initial calibration standards or a continuing calibration standard must be analyzed. A method blank for each matrix must be analyzed after this standard and **before** any sample analysis. The method blank for each matrix is analyzed once for the SDG. This is different from the VOA fraction that requires multiple method blank analyses. Any deviation from this rule is considered to be contract non-compliance. The validator must also consider the effect on the data. Of course, there is one exception to this sequence. If there is time left on the 12-hour clock after the analyses of the five point initial calibration standards, analysis, beginning with a method blank, may proceed if the mid level standard from the initial calibration meets the continuing calibration criterion. Figure 15-2 is an example of an acceptable sample sequence.

Figure 15-2 12 hour clock sequence

DFTPP injection Date: 02-14-01 DFTPP injection time 0824

EPA sample No.	Date Analyzed	Time Analyzed
SSTD50	02-14-01	0900
SBLK04	02-14-01	0936
GHT75	02-14-01	1118
HJU78	02-14-01	1814
BGT99	02-14-01	2002

The injection time is 0824 and the 12-hour clock ends 2024. All of the analyses in Figure 15-2 were analyzed within tune criteria. This is a very simple requirement but can be easily overlooked.

Quiz 2 will test how well you pay attention to the details of the samples analyzed within a valid sequence.

Module 15 Quiz 2

Instruction: Using the tune criteria, write on the line any problems with the sequence.

Sequence 1

DFTPP injection Date: 02-14-01 DFTPP injection time 1224

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0501B	02-14-01	1319
SSTD0201B	02-14-01	1355
SSTD0801B	02-14-01	1435
SSTD1201B	02-14-01	1510
SSTD1601B	02-14-01	1550
SBLK85	02-14-01	1620
BFG65	02-14-01	1824
KJY34	02-15-01	0124

Sequence 2

DFTPP injection Date: 02-14-01 DFTPP injection time 0854

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0501B	02-14-01	0814
SLK22	02-14-01	1015
KJI76	02-14-01	1055
KJY66	02-14-01	1955

Sequence 3

DFTPP injection Date: 02-04-01 DFTPP injection time 1544

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0501B	02-04-01	1620
SSTD0101B	02-04-01	1700
SSTD0201B	02-04-01	1735
SSTD1001B	02-04-01	1845
SSTD2001B	02-04-01	2045
GTR56	02-05-01	0023
SBLK76	02-05-01	0340

Sequence 4

DFTPP injection Date: 02-22-01 DFTPP injection time 1824

EPA sample No.	Date Analyzed	Time Analyzed
SSTD0201B	02-22-01	1800
GFD54	02-22-01	1837
GFT56	02-22-01	1905
GTY78	02-22-01	1940

Unit 2 Tune Criteria

The data reviewer should also verify that the raw data and Form V date, time, and instrument ID# are consistent. If tuning data are not contractually compliant, the data reviewer should contact the TOPO. If samples were analyzed more than 12 hours after a tune, all associated data should be flagged as unusable "R". For more information regarding qualification guidelines, review section 7 of the EPA Regional SOP checklist.

7.0 GC/MS Instrument Performance Check (Form V)

7.1 *Are the GC/MS Instrument Performance Check Forms (Form V) present for Bromofluorobenzene (DFTPP)?*

7.2 *Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve-hour shift?*

7.3 *Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument?*

ACTION: *List date, time, instrument ID, and sample number for which no associated GC/MS tuning data are valid.*

SAMPLE NUMBERS	***DATE***	***TIME***	***INSTRUMENT ID***

ACTION: *If the **TOPO** cannot obtain missing data from the lab, reject "R" all data generated outside an acceptable twelve hour calibration interval.*

7.4 *Have the ion abundances been normalized to m/z 198 (see SOW, page D-62/SVOA)?*

NOTE: *All ion abundance ratios must be normalized to m/z 198, the nominal base peak, even though the ion abundance of m/z 442 may up to 110% that of m/z 198.*

ACTION: *If mass assignment is in error, flag all associated sample data as unusable "R".*

7.5 *Have the ion abundance criteria been met for each instrument used?*

ACTION: *List all data which do not meet ion abundance criteria (attach a separate sheet).*

ACTION: *If ion abundance criteria are not met, the Region II TPO must be notified.*

7.6 *Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values, but if errors are found check more.)*

7.7 *Is the number of significant figures for the reported relative abundances consistent with the number given for each ion in the ion abundance criteria column?*

ACTION: *If large errors exist, take action as specified in section 3.5 above.*

7.8 *Is the mass spectrum of DFTPP acquired according to sec. 9.2.4.2 p. D-20/SVOA ?*

NOTE: *Sec. 9.2.4.2 states that "the mass spectrum of DFTPP MUST be acquired in the following manner: Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged. Background subtraction is required, and MUST be accomplished using a single scan acquired no more than 20 scans prior to the elution of DFTPP. Do NOT subtract part of the DFTPP peak." See Attachment 3 for DFTPP criteria.*

ACTION: *If not, then reject "R" all data analyzed under that particular tune.*

7.9 *Are the spectra of the mass calibration compound acceptable?*

ACTION: *Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.*

The raw data for the DFTPP tune can be found just before the method blank section in the case. For each tune, a m/z listing and spectra must be submitted. Usually the lab will have a copy of the tune criteria (top part of Form 5B) as part of the raw data. Do not verify the tune numbers from the form with this version since it is not always correct. Do the actual calculations for each ion.

If we go back and look at the values reported for each tune in Quiz 1, none of the tune pass criteria. According to the EPA Regional checklist, all data associated with an invalid tune are not acceptable and are qualified as "R". This is a contractual issue as well as a technical problem. In Region 2, samples analyzed with an invalid tune are required to be reanalyzed by the lab. Be aware other Regions may have different policies for this criterion.

The same action is taken if samples are analyzed outside the twelve-hour clock. Technically Region 2 will not accept this data but other Regions have different actions for this problem. If re-analysis or re-sampling of the sample is not possible or feasible due to time constraints, using professional judgement, there are other criteria to consider salvaging the data.

The reason for a twelve-hour clock is to maintain the quality of the instrument's sensitivity. It is possible to consider samples outside the twelve-hour clock as acceptable and estimated "J" **if** internal standards area response and surrogate recoveries are within limits for that sample. Internal Standard criterion is a better measurement because they are added after the samples are extracted. Samples with severe or problem matrix interference would not pass this test and would keep original qualification of "R" for all analytes.

Remember all action taken on the samples that deviates from the checklist must be documented (list reasons) and stated as professional judgement.

The next quiz you will apply the instrument performance criteria for the samples. Answers are in Appendix E.

Module 15 Quiz 3

Instruction:

- Calculate the ion abundance using the Quant reports at the end of the quiz.
- Using the checklist in this unit, apply the qualifications to each of the samples. Form 5s and modified raw data for the tunes have been included after the Form 1s.
- Write the qualifications on the Forms. Write any remarks about the samples that should be added to the DA on this page.

Data Assessment

Instrument Performance section

Contract-Non-Compliance section

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ66

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB__ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: ___1080_____(g/mL) __mL_____ Lab File ID: _BBB00-15AB_____

Level: (low/med) ___Low_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: _02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: __1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L_____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	2	J
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	8	J
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	20	
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	50	
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	6	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ66

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: ___1080_____(g/mL) __mL_____ Lab File ID: _BBB00-15AB_____

Level: (low/med) ___Low_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: _02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: __1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	180	
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	65	
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	28	
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPH62

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __SOIL_____ Lab Sample ID: _BBBOO-10_____

Sample wt/vol: ___30.0_____(g/mL) ____G_____ Lab File ID: _BBB00-10AB_____

Level: (low/med) ____LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) ___N____ Date Extracted: _02/12/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: _02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N) __Y_____ pH: __6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
100-52-7	Benzaldehyde	350	U
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)ether	350	U
95-57-8	2-Chlorophenol	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
98-86-2	Acetophenone	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	350	U
67-72-1	Hexachloroethane	500	
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	330	J
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
105-60-2	Caprolactam	3800	
59-50-7	4-Chloro-3-methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	890	U
92-52-4	1,1 Biphenyl	350	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	890	U
131-11-3	Dimethylphthalate	350	U
606-20-2	2,6-Dinitrotoluene	350	U
208-96-8	Acenaphthylene	350	U
99-09-2	3-Nitroaniline	890	U
83-32-9	Acenaphthene	350	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __SOIL_____ Lab Sample ID: _BBBOO-10_____

Sample wt/vol: ___30.0_____(g/mL) ____G_____ Lab File ID: _BBB00-10AB_____

Level: (low/med) ____LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) ___N____ Date Extracted: _02/12/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: _02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N) __Y_____ pH: __6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
51-28-5	2,4-Dinitrophenol	890	U
100-02-7	4-Nitrophenol	890	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	2500	
86-73-7	Fluorene	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
100-01-6	4-Nitroaniline	890	U
534-52-1	4,6-Dinitro-2-methylphenol	890	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
1912-24-9	Atrazine	350	U
87-86-5	Pentachlorophenol	640	J
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	330	J
84-74-2	Di-n-butylphthalate	4000	
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	2000	
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenz(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1) Cannot be separated from Diphenylamine

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: ____1080_____(g/mL) __ML_____ Lab File ID: __BBB00-21RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	100	
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: ____1080_____(g/mL) __ML_____ Lab File ID: __BBB00-21RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	20	J
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	120	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL07

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: ____1100_____(g/mL) __ML_____ Lab File ID: __BBB00-22RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	3	J
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	2	J

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPL07

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: ____1100_____(g/mL) __ML_____ Lab File ID: __BBB00-22RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	20	
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	6	J
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.
SBLKSA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: _BBB00-MB1_____

Sample wt/vol: ____30_____(g/mL) __G_____ Lab File ID: __BBB00-MB1_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. __0_____ Decant: (Y/N) ___N____ Date Extracted: __02/12/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
100-52-7	Benzaldehyde	330	U
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)ether	330	U
95-57-8	2-Chlorophenol	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
98-86-2	Acetophenone	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-di-n-propylamine	330	U
67-72-1	Hexachloroethane	100	J
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
105-60-2	Caprolactam	310	J
59-50-7	4-Chloro-3-methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	830	U
92-52-4	1,1 Biphenyl	330	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	830	U
131-11-3	Dimethylphthalate	330	U
606-20-2	2,6-Dinitrotoluene	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	830	U
83-32-9	Acenaphthene	330	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKSA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: _BBB00-MB1_____

Sample wt/vol: ____30_____(g/mL) __G_____ Lab File ID: __BBB00-MB1_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. __0_____ Decant: (Y/N) ___N____ Date Extracted: __02/12/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	830	U
100-02-7	4-Nitrophenol	830	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	200	J
86-73-7	Fluorene	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
100-01-6	4-Nitroaniline	830	U
534-52-1	4,6-Dinitro-2-methylphenol	830	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
1912-24-9	Atrazine	330	U
87-86-5	Pentachlorophenol	830	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	50	J
84-74-2	Di-n-butylphthalate	100	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	330	U
117-84-0	Di-n-octylphthalate	400	
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenz(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) Cannot be separated from Diphenylamine

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-MB2_____

Sample wt/vol: ____1000_____(g/mL) __ML_____ Lab File ID: __BBB00-MB2_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	5	J
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	8	J
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLKWA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-MB2_____

Sample wt/vol: ____1000_____(g/mL) __ML_____ Lab File ID: __BBB00-MB2_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	12	J
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	30	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: __NEWLAB_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: __DF00207B11_____ DFTPP Injection Date: __02/07/01_____

Instrument ID: __5972HP11_____ DFTPP Injection Time: __2107_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1- Value is % mass 69 2- Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	SSTD050AB	SSTD050AB	A020701A50	02/07/01	2136
2.	SSTD020AB	SSTD020AB	A020701A20	02/07/01	2224
3.	SSTD080AB	SSTD080AB	A020701A80	02/07/01	2311
4.	SSTD120AB	SSTD120AB	A020701A120	02/07/01	2359
5.	SSTD160AB	SSTD160AB	A020701A160	02/08/01	0046
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: __NEWLAB_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: __DF00208B11_____ DFTPP Injection Date: __02/08/01_____

Instrument ID: __5972HP11_____ DFTPP Injection Time: __1448_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1- Value is % mass 69 2- Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	SSTD050AC	SSTD050AC	A020801A50	02/08/01	1527
2.	SBLKSA	BBB00-MB1	BBB00-MB1	02/08/01	2150
3.	SBLKWA	BBB00-MB2	BBB00-MB2	02/08/01	2237
4.					
5.					
6.					
7.					
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9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: __NEWLAB_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Lab File ID: __DF00213B11_____ DFTPP Injection Date: __02/13/01_____

Instrument ID: __5972HP11_____ DFTPP Injection Time: __0815_____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0-80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	25.0-75.0% of mass 198	
197	Less than 1.0% of mass 198	
198	Base peak, 100% relative abundance	
199	5.0-9.0% of mass 198	
275	10.0-30.0% of mass 198	
365	Greater than 0.75% of mass 198	
441	Present, but less than mass 443	
442	40.0-110.0% of mass 198	
443	15.0-24.0% of mass 442	( )2

1- Value is % mass 69 2- Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	SSTD050AD	SSTD050AD	A021301A50	02/13/01	0854
2.	BBJ66	BBB00-15	BBB00-15AB	02/13/01	1037
3.	BPL07	BBB00-22	BBB00-22RB	02/13/01	1254
4.	BPH62	BBB00-10	BBB00-10AB	02/13/01	1423
5.	BPL04	BBB00-21	BBB00-21RB	02/13/01	2043
6.					
7.					
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19.					
20.					

Modified Raw data for DFTPP tune 02-07-01 2107 File ID DF00207B11

m/z	Y	m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	204	94.00	95	143.00	227	197.00	358	297.00	464
38.00	413	95.00	109	146.00	177	198.00	43592	303.00	311
39.00	1742	96.00	81	147.00	554	199.00	2857	314.00	141
40.00	47	97.00	93	148.00	1496	200.00	234	315.00	394
41.00	24	98.00	2327	149.00	163	201.00	208	316.00	165
50.00	6902	103.00	286	151.00	178	209.00	108	346.00	245
51.00	21968	0	493	153.00	338	210.00	219	352.00	298
52.00	1099	104.00	589	154.00	211	211.00	457	353.00	165
53.00	118	0	5843	155.00	508	215.00	74	354.00	295
55.00	143	105.00	774	156.00	723	216.00	88	365.00	1579
		0							
		107.00							
		0							
		108.00							
		0							
63.00	730	110.00	10235	162.00	178	225.00	1426	366.00	214
64.00	92	0	1542	165.00	440	226.00	54	372.00	509
65.00	336	111.00	209	166.00	209	227.00	2720	373.00	113
66.00	526	0	42	167.00	2441	228.00	373	383.00	148
68.00	67	112.00	7638	168.00	1218	229.00	554	402.00	202
		0							
		115.00							
		0							
		116.00							
		0							
69.00	25432	124.00	276	172.00	213	245.00	598	403.00	286
70.00	188	0	272	173.00	230	246.00	893	421.00	273
73.00	283	125.00	16744	174.00	419	247.00	179	422.00	197
74.00	2289	0	1264	175.00	777	249.00	134	423.00	1854
75.00	3076	127.00	8102	176.00	242	253.00	84	424.00	348
		0							
		128.00							
		0							
		129.00							
		0							
87.00	212	130.00	692	184.00	15	265.00	652	441.00	5726
88.00	45	0	129	185.00	736	273.00	749	442.00	36816
91.00	307	131.00	61	186.00	5154	274.00	1974	443.00	7138
92.00	380	0	250	187.00	1384	275.00	10337	444.00	638
93.00	3321	132.00	557	188.00	307	276.00	1266		
		0							
		134.00							
		0							
		135.00							
		0							

Modified Raw data for DFTPP tune 02-08-01 1448 File ID DF00208B11

m/z	Y	m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	161	94.00	130	143.00	195	197.00	695	297.00	370
38.00	293	95.00	51	146.00	129	198.00	28144	303.00	244
39.00	917	96.00	67	147.00	385	199.00	1842	314.00	121
40.00	62	97.00	780	148.00	1763	200.00	162	315.00	295
41.00	149	98.00	1646	149.00	250	201.00	113	316.00	134
50.00	5004	103.00	127	151.00	96	209.00	86	346.00	131
51.00	12366	0	273	153.00	207	210.00	232	352.00	224
52.00	549	104.00	303	154.00	128	211.00	275	353.00	141
53.00	48	0	3302	155.00	307	215.00	144	354.00	150

55.00	255	105.00	415	156.00	415	216.00	2730	365.00	1388
		107.00							
		108.00							
63.00	315	110.00	4868	162.00	360	225.00	1242	366.00	171
64.00	54	0	821	165.00	238	226.00	4919	372.00	403
65.00	120	111.00	117	166.00	45	227.00	2733	373.00	86
66.00	130	0	444	167.00	3058	228.00	384	383.00	104
68.00	132	112.00	7042	168.00	1814	229.00	499	402.00	103
		115.00							
		116.00							
69.00	10988	124.00	136	172.00	119	245.00	491	403.00	196
70.00	43	0	79	173.00	197	246.00	752	421.00	166
73.00	224	125.00	8171	174.00	311	247.00	117	422.00	157
74.00	1811	0	817	175.00	610	249.00	146	423.00	992
75.00	1748	127.00	3970	176.00	166	253.00	80	424.00	219
		128.00							
		129.00							
87.00	89	130.00	277	184.00	131	265.00	567	441.00	2751
88.00	97	0	74	185.00	733	273.00	622	442.00	18184
91.00	142	131.00	119	186.00	4190	274.00	1507	443.00	3657
92.00	166	0	122	187.00	1072	275.00	7675	444.00	360
93.00	1958	132.00	279	188.00	290	276.00	966		
		134.00							
		135.00							

Modified Raw data for DFTPP tune 02-13-01 0815 File ID DF00213B11

m/z	Y	m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	175	94.00	184	143.00	95	197.00	272	297.00	397
38.00	351	95.00	135	146.00	156	198.00	32984	303.00	324
39.00	1308	96.00	82	147.00	446	199.00	2258	314.00	120
40.00	106	97.00	49	148.00	1938	200.00	166	315.00	481
41.00	114	98.00	1609	149.00	342	201.00	186	316.00	150
50.00	5411	103.0	131	151.00	124	209.00	153	346.00	187
51.00	14661	0	288	153.00	241	210.00	177	352.00	236
52.00	750	104.0	342	154.00	137	211.00	347	353.00	214
53.00	76	0	3713	155.00	465	215.00	168	354.00	264
55.00	46	105.0	453	156.00	523	216.00	304	365.00	1521
		0							
		107.0							
		0							
		108.0							
		0							
63.00	335	110.0	5594	162.00	91	225.00	1464	366.00	227
64.00	46	0	1005	165.00	385	226.00	5507	372.00	487
65.00	85	111.0	111	166.00	309	227.00	2939	373.00	102
66.00	38	0	976	167.00	3071	228.00	359	383.00	122
68.00	145	112.0	216	168.00	1748	229.00	474	402.00	151
		0							
		115.0							
		0							
		116.0							
		0							
69.00	13475	124.0	205	172.00	135	245.00	554	403.00	233
70.00	96	0	214	173.00	159	246.00	842	421.00	202
73.00	202	125.0	9726	174.00	434	247.00	213	422.00	165
74.00	1844	0	882	175.00	643	249.00	148	423.00	1170
75.00	2161	127.0	4950	176.00	184	253.00	150	424.00	165
		0							
		128.0							
		0							
		129.0							
		0							
87.00	91	130.0	381	184.00	154	265.00	625	441.00	3549
88.00	153	0	70	185.00	774	273.00	697	442.00	22560
91.00	225	131.0	45	186.00	4462	274.00	2026	443.00	4420
92.00	135	0	112	187.00	1282	275.00	8208	444.00	435
93.00	2025	132.0	382	188.00	17	276.00	1179		
		0							
		134.0							
		0							
		135.0							
		0							

Unit 3 TCL and TICs

Chromatograms and Spectra Analysis

The next two sections in the EPA Regional checklist covers target analytes and tentatively identified compounds. In these sections you are checking that all required raw data and spectra are present for each sample. The chromatograms are inspected for baseline and matrix interference problems.

This method uses a mass spectrometer to positively identify the compound. The lab will usually provide three spectra for evaluation of each compound present in the sample. Usually the lab will provide an enhanced spectrum, an un/enhanced spectrum and a reference spectrum also called a library spectrum. Sometimes the lab will provide a difference spectrum (sample minus standard or library spectrum) to demonstrate the similarity of the spectra.)

All spectra should be carefully reviewed for the following criteria:

- All ions present in the reference mass spectrum at a relative intensity greater than 20% must be present in the sample spectrum.
- The relative intensities of ions specified above must agree within +20% between the reference and sample spectra. (Example: For an ion with an abundance of 50% in the reference spectra, the corresponding sample ion abundance must be between 30% and 70%.)
- Ions greater than 10% relative abundance in the topic spectra but not resent in the reference spectrum must be considered and accounted for.

Qualification based on mass spectral identification requires professional judgement. Any action must be documented and cited as professional judgement.

Table 15-1 shows some characteristic ions for Benzo compounds. For a positive identification, the sample primary and one secondary ion must be very similar to the reference or library spectrum.

Table 15-1 Ions for 3 similar but different compounds

Compound	Primary Ion	Secondary Ions	GC Retention time
Benzo (b) fluoranthene	252	253, 125	25.174
Benzo (k) fluoranthene	252	253, 125	25.242
Benzo (a) Pyrene	252	253, 125	26.222

Table 15-1 demonstrates that the mass spectrometer cannot differentiate between the three Benzo compounds, but the GC capillary column can separate the three compounds. Primary and secondary ions must be present at appropriate relative intensities to verify compound identification.

It should be noted that the secondary ion might be missing from compounds detected below the CRQL. If the RT matches the standard, the primary ion is the basis for compound identification.

The reason for this occurrence is the low concentration material present to have a detectable instrument response for these ionized molecule fragments however, if a lab reports such a value as a false positive in the RIC, the reviewer should not report this value on Form I. The labs are not required to report such values that are below the CRQL. The identification might be too uncertain. The checklist (section 8.0) lists certain criteria for flagging data, with “N”, “R”, or “U” because of relative ion intensities.

The lists of target compound characteristic ions, internal standards and surrogates for BNA are tabled in the Exhibit section of the BNA fraction in the SOW.

Relative Retention time (RRF)

The retention time of an analyte can change because of changes in carrier gas flow (drift). Instead of using absolute retention time as a criterion, we use relative retention time (RRT). A Quant report consists of mass listing (m/e), retention time (RT), area response, and RRT.

Equation 7-2 for calculating RRF is simple and requires the retention times of the analyte in the sample or standard and the associated internal standard.

Equation 15-2 Calculate RRT

$$RRT_{sample} = \frac{RT_{analyte}}{RT_{internal\ std.}}$$

$RT_{analyte}$ = retention time of the analyte of interest in a sample or standard

$RT_{internal\ std}$ = retention time of the associated internal standard for the analyte of interest in a sample or standard

Figure 15-3 is a small piece of a Quant report (modified) for a sample. This example is only concern with the compound phenol.

Figure 15-3 Quant report of a sample

No.	Name	
1	1,4 Dichlorobenzene -d4	(Internal Standard)
16	phenol	

No.	m/e	RT	Relative RT	(Other information)
1	152	8.331	1.00	
16	94	7.848	0.937	

Use Equation 15-2 to calculate the RRT for phenol using the values in Figure 15-4.

Figure 15-4 Quant report of a daily continuing calibration

No.	Name			
1	1,4 Dichlorobenzene -d4			(Internal Standard)
16	phenol			

No.	m/e	Time	RRT	(Other information)
1	152	8.339	1.00	
16	94	7.829	?	

RRT of the continuing calibration should be 0.939 (7.829/8.339) for No. 16 (phenol).

The criterion for RRT is the difference between the RRT of the sample and the RRT of the continuing calibration must not exceed 0.06 units. Therefore phenol (0.937) and the continuing calibration (0.939) difference is < 0.06 units and acceptable.

Today most software provides the RRT of the compounds in the quant report and the validator only needs to check the numbers.

Try the question in Practice 715-2 to check your understanding of the RRT calculation and criterion.

Practice 15-2 **Using the information in Figure 15-5 and Figure 15-6, compute and fill in the RRT for methylene chloride in the sample and the standard. Does the difference between RRTs exceed 0.06?**

Figure 15-5 Quant report of a sample

No.	Name			
2	Naphthalene-d8			(Internal Standard)
25	Nitrobenzene			

No.	m/e	RT	Rel RT	(Other information)
2	136	11.202	1.00	
25	77	10.184	?	

Figure 15-6 Quant report of a daily continuing calibration

No.	Name			
2	Naphthalene-d8			(Internal Standard)
25	Nitrobenzene			

No.	m/e	Time	RRT	(Other information)
2	136	11.547	1.00	
25	77	10.111	?	

Answer to Practice 15-2

The answers you should have gotten are 0.909 for the sample and 0.876 for the standard. The RRT are within 0.06 criterion.

Make sure you understand RRT since you will be asked to check for this criterion in the checklist. The checklist wants you to check the raw data for all analyses. Missing chromatograms, quant reports and spectra will have to be requested from the TOPO.

Let's start with EPA Regional checklist section 8.0 Target Analytes. This section will ask you to check chromatograms, spectra and relative retention time. A chromatogram provides an overview picture of all of the detected peaks in the sample. Any matrix interference or baseline problems are easily detected and the effects evaluated during the validation of the sample.

8.0 <u>Target Compound List (TCL) Analytes (FORM I VOA)</u>

8.1 Are the Organic Analysis Data Sheets (Form I SV) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate?

b. Matrix spikes and matrix spike duplicates?

c. Blanks?

8.2 Has GPC cleanup been performed on all soil/ sediment sample extracts?

Has the Laboratory provided the TWO most recent UV traces of the calibration solution? GPC calibration and GPC CCV? (D-39/SVOA,sec.10.3.4.4)

ACTION: If data suggests that GPC was not performed, use professional judgement. Make note in Contract Problems/Non-Compliance section of the Data Assessment.

8.3 Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (quant. reports) included in the sample package for each of the following:

a. Samples and/or fractions as appropriate?

b. Matrix spikes and matrix spike duplicates (mass spectra not required)?

c. Blanks?

ACTION: If any data are missing, take action specified in 3.2 above.

8.4 Is chromatographic performance acceptable with respect to:
Baseline stability?

Resolution?

Peak shape?

Full-scale graph (attenuation)?

Other:_____?

ACTION: Use professional judgement to determine the acceptability of the data.

8.5 Are lab-generated standard mass spectra of identified BNA compounds present for each sample?

ACTION: If any mass spectra are missing, take action specified in 3.2 above. Note under Contract Non-compliance if lab does not generate their own standard spectra. If spectra are missing, reject all positive data.

8.6 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?

8.7 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?

8.8 Do sample and standard relative ion intensities agree within ±20%?

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected "R", flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected "U" at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.6, 8.7, and 8.8.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

NOTE: The maximum dilution factor permitted for low-level soils is 30. If a low level soil sample requires a dilution greater than 30, then the medium level method shall be utilized.(p. D-43) SVOA, sec. 10.6.5.4 . Document in the Data Assessment under Contract Problems/Non compliance if any low-level soil was analyzed at a dilution factor greater than 30.

TICs

Tentatively Identified Compounds are listed on a separate Form 1. Even if TICs were not found in the sample, this form must be submitted for each sample. Only MS/MSD samples do not have TICs reported and you will not find the form submitted for these samples. The basic actions taken for TICs are:

- All compounds identified and labeled with a CAS No. should be qualified as "JN".
- Aldol by /products are always "R".

- A TIC reported in a QC blank will use the 5x rule to evaluate contamination. TIC compounds below the contamination level are "R"; this is a different qualification that is followed for TCL contamination (Review Module 6, Unit 3).
- Alkanes (detected in BNA fraction) and analytes reported in other fractions are "R". If the analyte is usually reported in a fraction that was not analyzed for this sample, then do not reject the compound.
- Analytes reported under a different name for a TCL analytes are "R". For example methylene chloride also is called dichloromethane.
- Siloxane products and common laboratory contaminants such as phthalates, solvent preservatives are "R".
- All PCB congeners are rejected "R" (see section 9.3 of the checklist).

Go through section 9 of the checklist, it is small and should answer any possible qualifications that validators would perform on TICs. This checklist section is a repeat from Learning Module 14 on Contamination.

9.0 <u>Tentatively Identified Compounds (TIC)</u>

9.1 *Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?*

9.2 *Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:*

a. Samples and/or fractions as appropriate?

b. Blanks?

c. Alkanes listed in/or part of the Case Narrative?

ACTION: *If any TIC data are missing, take action specified in 3.2 above.*

ACTION: *Add "N" qualifier to all chemically named TICs, if missing.*

9.3 *Are any TCL compounds (from any fraction) listed as TIC compounds? (Example: 1,2-Dimethylbenzene is Xylene, a VOA TCL analyte, and should not be reported as a TIC.)*

ACTION: *Flag with "R" any TCL compound listed as a TIC.*

9.4 *Are any TICs reported earlier than 30 sec before the first semivolatile compound, or three- (3) min. after the last semivolatile compound listed in Exhibit C SVOA? (p. D-45/SVOA, 11.1.2.2)*

ACTION: *Flag with "R" any TIC compound reported.*

9.5 *Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?*

9.6 *Do TIC and "best match" standard relative ion intensities agree within 20%?*

ACTION: *Use professional judgement to determine the acceptability of TIC identifications. If it is determined an incorrect identification was made, change the identification to "unknown," or to some less specific identification as appropriate. (Example: "C3 substituted benzene.")*

Also, when a compound is not found in any blank, but a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable "R.

9.7 *Are TICs with responses < 10% of the internal standard (as determined by inspection of the peak areas or height) reported?*

ACTION: *If yes, cross out questionable TICs.*

Unit 4 Contract Required Quantitation Limits

Validators must assure that the reported Contract Required Quantitation Limits (CRQLs) are accurately reported. The CRQLs should be carefully checked because errors are relatively common.

Several factors impact analyte instrument sensitivity. These include analyte physical and chemical properties, analyte response factors, and sample matrix. All of these factors may affect the reported CRQL for a sample.

To refresh your memory, aqueous samples are extracted using 1000 mL of sample. Low-level soil samples are extracted using 30 g of sample. For medium level BNA soil analysis, 1 g of sample is used for extraction.

The CLP contract required quantitation limits (CRQLs) are 10 lg/L for water matrix, 330 lg /Kg (based on dry weight) for low level soil analysis and 10000 lg /Kg for medium level BNA soil analysis. Each sample is adjusted for initial volume/weight, dilution factor and % moisture.

Equations 15-3, and 15-4 are calculations for water, and low level/medium level soil samples.

Equation 15- 3 Calculation of adjusted CRQL in a water sample

$$\text{Adjusted CRQL} = \text{Contract CRQL} \times \frac{(V_x)(V_t)(V_y)(DF)}{(V_0)(V_c)(V_i)}$$

Where:

V_x = Contract sample volume (1000 mL).

V_t = Volume of the concentrated extract in microliters (lL) (V_t = 500 lL if GPC, 1000 lL if GPC not performed).

V_y = Contract injection volume (2 lL)

V_o = volume of sample extracted in milliliters mL.

V_c = Contract concentrated extract volume 1000 lL if GPC is not performed, and 500 lL if GPC was performed.

V_i = Volume of the extract injected in microliters (lL).

DF = dilution factor defined as follows:

$$DF = \frac{\text{lL most conc. Extract used to make dilution + lL clean solvent}}{\text{lL most conc. Extract used to make dilution}}$$

Equation 15-4 Calculation of adjusted CRQL in a soil sample

$$\text{Adjusted CRQL} = \text{Contract CRQL} \times \frac{(W_x)(V_t)(V_y)(DF)}{(W_s)(V_c)(V_i)(D)}$$

Where:

W_x = Contract Weight of sample extracted in grams (g). (30 g for low level and 1 g for medium level soil/sediment samples)

W_s = Weight of sample extracted in grams (g).

V_t = Volume of the concentrated extract in microliters (µL) (V_t = 500 µL if GPC, 1000 µL if GPC not performed). Check extractions log if unsure of the amount.

V_y = Contract injection volume (2 µL)

V_c = Contract concentrated extract volume (500 µL GPC is required, always check if GPC is performed).

V_i = Volume of the extract injected in microliters (µL).

DF = dilution factor defined as follows:

$$DF = \frac{\text{µL most conc. Extract used to make dilution + µL clean solvent}}{\text{µL most conc. Extract used to make dilution}}$$

D = dry weight (100/% moisture value)/100)

There have been changes in SOW 4.2 for low/level soils on how CRQLs are reported if the sample volume is greater than 5g. Simply stated, if the adjusted CRQL value is less than contract CRQL, the CRQL is reported as the contract CRQL. This calculation takes into account the % moisture value. Use the adjusted equation given in Equation 15-4 to calculate the adjusted CRQL for Practice 15-3.

Practice 15-3 Soil Sample

Soil sample with a weight of 31g, % moisture of 15 and a dilution factor of 1, would be calculated as:

$$\text{Adjusted CRQL} = 330 \times \frac{(30)(500)(2)(1)}{(31)(500)(2)(.85)}$$

Answer to Practice 15-3

The adjusted CRQL value of 375 should be reported as 380.
If the adjusted CRQL value is greater than the CRQL listed in the SOW (330), report the adjusted CRQL to 2 significant figures.

The Lotus spreadsheets as of this writing, will report the adjusted CRQL even if < SOW CRQL. Hopefully changes in the new CADRE version will address this problem. Until then all lotus spreadsheets must be scrutinized for correct CRQL values.

The next quiz will ask you to calculate the adjusted CRQL and state the CRQL value that should be reported on the Form 1. Remember to use the round off rule and significant figures to report the CRQL correctly on the form. Review Learning Module 4, Unit 1 for round off and significant figures rules. The answers to the quiz are in Appendix E.

Module 15 Quiz 4

Instruction: For each problem, calculate the adjusted CRQL and state the CRQL value that should be reported on the Form 1.

Sample	1	2	3
Matrix	water	water	water
Volume	1100	950	750
Injection vol.	2	2	2
GPC performed	no	yes	no
DF	2	1	2
Adjusted CRQL			
Reported CRQL			

Sample	4	5	6
Matrix	Low level soil	Low level soil	Low level soil
Weight	31.5	28.0	30.
Injection vol.	2	2	2
GPC performed	yes	yes	no
DF	1	1	1
% Moisture	57	23	14
Adjusted CRQL			
Reported CRQL			

Sample	7	8	9
Matrix	Medium level soil	Medium level soil	Medium level soil
Weight	1.0	1.0	1.0
Volume of extract injected (Vi)	.500	.100	2
Injection vol.	2	2	2
GPC performed	yes	yes	yes
DF	1	2	1
% Moisture	33	25	72
Adjusted CRQL			
Reported CRQL			

The checklist section for CRQLs is very small and concerned with transcription errors. There is an action for samples with two analyses. The dilution analysis values are transferred to the lower CRQL analysis, usually a non-diluted analysis.

10.0 Compound Quantitation and Reported Detection Limits

10.1 *Are there any transcription/calculation errors in Form I results? (Check at least two positive values. Verify that the correct internal standards, quantitation ions, and RRF were used to calculate Form I result.)*

10.2 *Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?*

ACTION: If errors are large, take action as specified in section 3.2 above.

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

The validator must remember to cross out the Form 1 of the dilution (DL) analysis that should not be used and write on the form "Do Not Use". Keep track of which analyses are not used and document them in the DA under the last section.

The same action is followed for samples identified as re/analysis (RE) samples. Decide based on other criteria such as internal standard and surrogates which analysis is technically better. Cross/out, mark and document the Do Not Use" analysis.

Unit 5 Data Calculations

While you are reviewing the chromatograms, it is a good idea to check the concentration of the analytes reported on the Form 1. It is imperative that you learn to calculate the concentration of the positive hits in the samples. It is easier to calculate an analyte missing from the Form 1 than to lose time waiting for a correction from the lab.

This section will help you understand various calculation procedures used by CLP laboratories. If you do not have applicable laboratory experience, you will be required to expend considerable effort to comprehend those principles.

Before starting on the calculations, it is necessary to know which internal standards are associated with each analytes. For your convenience, a list has been provided in Table 15-1. You will need to refer to the table while calculating the concentration of the analytes in the sample.

Table 15-1 TCL analytes and their associated Internal Standards

1,4 Dichlorobenzene-d4	Naphthalene-d8	Acenaphthene-d10
Benzaldehyde	Nitrobenzene	Hexachlorocyclopentadiene
Phenol	Isophorone	2,4,6-Trichlorophenol
bis(2-Chloroethyl)ether	2-Nitrophenol	2,4,5-Trichlorophenol
2-Chlorophenol	2,4-Dimethylphenol	1,1 Biphenyl
2-Methylphenol	bis(2-Chloroethoxy)methane	2-Chloronaphthalene
2,2'-oxybis(1-Chloropropane)	2,4-Dichlorophenol	2-Nitroaniline
Acetophenone	Naphthalene	Dimethylphthalate
4-Methylphenol	4-Chloroaniline	2,6-Dinitrotoluene
N-Nitroso-di-n-propylamine	Hexachlorobutadiene	Acenaphthylene
Hexachloroethane	Caprolactam	3-Nitroaniline
Phenol-d5 (SMC)	4-Chloro-3-methylphenol	Acenaphthene
2-Fluorophenol (SMC)	2-Methylnaphthalene	2,4-Dinitrophenol
2-Chlorophenol-d4 (SMC)	Nitrobenzene-d5 (SMC)	4-Nitrophenol
1,2 Dichlorobenzene-d4 (SMC)		Dibenzofuran
		2,4-Dinitrotoluene
		Diethylphthalate
		Fluorene
		4-Chlorophenyl-phenylether
		4-Nitroaniline
		2-Fluorobiphenyl (SMC)

Equation 15-6 is used to calculate the concentration of a positively identified analyte in an aqueous sample. There may be minor differences in the actual value report in the Quant report by the laboratory and the value calculated by a validator. The differences are usually due to whether the laboratory's software used the actual number or a rounded number in the final calculation. There is no difference between 194 and 185 since both numbers would be reported as 190 on the Form 1.

Equation 15-6 Calculation for water samples

$$\mu g/L = \frac{(A_x)\,(I_s)\,(V_t)\,(DF)\,(GPC)}{(A_{is})\,(RRF_{50})\,(V_o)\,(V_i)}$$

Where:

A_x = Area of the compound to be measured

I_s = Amount of internal standard added in nanograms (40 ng)

V_t = Volume of the concentrated extract in microliters (µL) (V_t = 500 µL if GPC, 1000 µL if GPC not performed).

GPC = GPC Factor.
GPC = 1.0 if water sample was not subjected to GPC;
GPC = 2.0 if water sample was subjected to GPC

A_{is} = Area of the associated internal standard

RRF_{50} = Relative Response Factor from the continuing calibration found on Form 7. Explanation and calculation of RRF are detailed in Module 8.

V_o = Volume of water extracted in milliliters (mL).

V_i = Volume of the extract injected in microliters (µL).

DF = dilution factor defined as follows:

$$DF = \frac{\text{µL most conc. Extract used to make dilution + µL clean solvent}}{\text{µL most conc. Extract used to make dilution}}$$

A sample of 950 mL, with an area response for phenol (1365572), and the area response for the associated internal standard, 1,4 Dichlorobenzene (357053), the dilution factor is 1 and the RRF is 1.630. Using Equation 15-6 and fill in the values:

$$49.40\ \mu g/L = \frac{(1365572)\,(40)\,(1000)\,(1)\,(1)}{(357053)\,(1.630)\,(950)\,(2)}$$

You should have gotten the value of 49.40. The value reported on the Form 1 by the lab is 49 µg/L.

Always check the Quant report before performing any calculations. Different labs report the TCL compounds in one of two formats.

- Internal standards compounds first followed by surrogates. The TCL compounds are after the surrogates and are listed in order of the retention time.
- All of the internal standards, surrogates and TCL compounds are listed by increasing retention time.

The Quant reports may be of either format to give you practice finding the correct analytes. Now try a practice question, which is located on the next page.

Practice 15-4 Using Figures 15-7 and 15-8 and Equation 15-6, Calculate the concentrations of Hexachloroethane, 4-chloroaniline, 4-nitrophenol, Carbazole, Pyrene and Benzo (b) fluoranthene in the sample. The sample is a straight analysis with a sample volume of 1000 mL.

Figure 15-7 Modified Quant Report of a sample

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.332	8.332	357053	40.0	
* Naphthalene-d_8	136	11.202	11.203	1028111	40.0	
* Acenaphthene-d_{10}	164	14.732	14.733	563621	40.0	
* Phenanthrene-d_{10}	188	19.056	19.057	979688	40.0	
* Chrysene-d_{12}	240	24.663	24.681	969101	40.0	
* Perylene- d_{12}	264	27.298	27.299	868953	40.0	
$ 2-Fluorophenol	112	5.814	5.849	990850		
$ Phenol-d_5	99	7.858	7.859	1222097		
$ 2-Chlorophenol- d_4	132	7.943	7.960	1192746		
$ 1,2-Dichlorobenzene- d_4	152	8.753	8.754	499915		
$ Nitrobenzene-d_5	82	9.733	9.734	944663		
$ 2-Fluorobiphenyl	172	13.263	13.264	1327701		
$ 2,4,6 Tribromophenol	330	17.266	17.283	401135		
$ Terphenyl- d_{14}	244	22.687	22.688	1414796		
Hexachloroethane	117	9.756	9.758	4593851		
4-chloroaniline	127	11.800	11.823	177365		
4-nitrophenol	109	15.644	15.655	164291		
Carbazole	167	18.049	18.040	2456830		
Pyrene	202	22.265	22.269	2445739		
Benzo (b) fluoranthene	252	25.143	25.140	35701450		

* = Internal Standard
$ = SMC

Figure 15-8 Modified Form 7C/D Continuing Calibration

Compounds	**RRF**	**RRF50**	**MIN RRF**	**%D**	**MA %D**
Hexachloroethane	0.666	0.671	0.300	0.75	25.0
4-chloroaniline	0.423	0.390		-7.80	
4-nitrophenol	0.119	0.116		-2.52	
Carbazole	0.858	0.863		0.58	
Pyrene	1.344	1.340	0.600	-0.29	25.0
Benzo (b) fluoranthene	1.599	1.592	0.700	-0.44	25.0
Nitrobenzene-d_5	0.555	0.553	0.200	-0.36	25.0
2-Fluorobiphenyl	1.333	1.328	0.700	-0.37	25.0
Terphenyl- d_{14}	0.967	0.954	0.500	-1.34	25.0
Phenol-d_5	1.444	1.403	0.800	-2.84	25.0
2-Fluorophenol	1.185	1.169	0.600	-1.35	25.0
2,4,6 Tribromophenol	0.150	0.158		5.33	
2-Chlorophenol- d_4	1.299	1.292	0.800	-0.54	25.0
1,2-Dichlorobenzene- d_4	0.934	0.928	0.400	-0.64	25.0

Answer to Practice 15-4 Answers to Figures15-7 and 15-8. Answers are reported using rounding and significant figure rules. Value in ( ) is the actual value.

Hexachloroethane

38 (38.35) lg/L = $\frac{(4593851)\ (40)\ (1000)\ (1)\ (1)}{(357053)\ (0.671)\ (1000)\ (2\ )}$

4-chloroaniline

88 (88.48) lg/L = $\frac{(177365)\ (40)\ (1000)\ (1)\ (1)}{(1028111)\ (0.390)\ (1000)\ (2)}$

4-nitrophenol

50 (50.25) lg/L = $\frac{(164291)\ (40)\ (1000)\ (1)\ (1)}{(563621)\ (0.116)\ (1000)\ (2)}$

Carbazole

58 (58.12) lg/L = $\frac{(2456830)\ (40)\ (1000)\ (1)\ (1)}{(979688)\ (0.863)\ (1000)\ (2)}$

Pyrene

38 (37.66) lg/L = $\frac{(2445739)\ (40)\ (1000)\ (1)(1)}{(969101)\ (1.340)\ (1000)\ (2)}$

Benzo (b) fluoranthene

520 (516.15) lg/L = $\frac{(35701450)\ (40)\ (1000)\ (1)\ (1)}{(868953)\ (1.592)\ (1000)\ (2)}$

If you did not get all of the answers correct, go over your calculations to determine the problem. Do not go on to the next calculation until you understand this equation.

Equation 15-7 is the calculation for low level soil samples. You will use this calculation for medium level samples as well.

Equation 15-7 Calculation for soil sample

$$lg/Kg = \frac{(A_x)\ (I_s)\ (V_t)\ (DF)\ (GPC)}{(A_{is})\ (RRF_{50})\ (V_i)\ (W_s)\ (D)}$$

Where:

A_x = Area of the compound to be measured

I_s = Amount of internal standard added in nanograms (40 ng)

V_t = Volume of the concentrated extract in microliters (lL) (V_t = 500 lL if GPC, 1000 lL if GPC not performed). Check extractions log if unsure of the amount.

GPC = GPC Factor.
GPC = 1.0 if water sample was not subjected to GPC;
GPC = 2.0 if water sample was subjected to GPC

A_{is} = Area of the associated internal standard

RRF_{50} = Relative Response Factor from the continuing calibration found on Form 7. Explanation and calculation of RRF are detailed in Module 8.

V_i = Volume of the extract injected in microliters (lL).

W_s = Weight of sample extracted in grams (g).

D = Dry weight of sample (100% moisture/100)

DF = dilution factor defined as follows:

$$DF = \frac{\text{lL most conc. Extract used to make dilution + lL clean solvent}}{\text{lL most conc. Extract used to make dilution}}$$

Practice 15-5 Using Figures 15-7 and 15-8 from Practice Question 15-4 and Equation 15-7, Calculate the concentration of Hexachloroethane, 4-chloroaniline, 4-nitrophenol, Carbazole, Pyrene and Benzo (b) fluoranthene in the sample. The sample is a straight analysis with a sample volume of 30 g and moisture of 23%. Answers are reported using rounding and significant figure rules. Value in ( ) is the actual value.

Answer to Practice 15-5

Hexachloroethane

17000 (16601.21) lg/L = $\frac{(4593851)\ (40)\ (500)\ (1)\ (2)}{(357053)\ (0.671)\ (30)\ (2\ )}$

4-chloroaniline

380 (382.98) lg/L = $\frac{(177365)\ (40)\ (500)\ (1)\ (2)}{(1028111)\ (0.390)\ (30)\ (2)\ (.77)}$

4-nitrophenol

2200 (2175.64) lg/L = $\frac{(164291)\ (40)\ (500)\ (1)\ (2)}{(563621)\ (0.116)\ (30)\ (2)\ (.77)}$

Carbazole

2500 (2515.91) lg/L = $\frac{(2456830)\ (40)\ (500)\ (1)\ (2)}{(979688)\ (0.863)\ (30)\ (2)\ (.77)}$

Pyrene

1600 (1630.63) lg/L = $\frac{(2445739)\ (40)\ (500)\ (1)(2)}{(969101)\ (1.340)\ (30)\ (2)\ (.77)}$

Benzo (b) fluoranthene

22000 (22344.19) lg/L = $\frac{(35701450)\ (40)\ (500)\ (1)\ (2)}{(868953)\ (1.592)\ (30)\ (2)\ (.77)}$

There is a quiz on the next page. Make sure you have enough time to do all of the calculations. Tip: Labs do not present the information in a quant report the same way. The order of the

analytes may differ from lab to lab. Check the quant reports to determine the different indicators for the internal standards and surrogate compounds.

For your convenience a modified Form 7 with the RRF values have been provided as well as a modified Quant report for the sample. Depending on the software, some labs may include the RRF information on the sample's Quant report and may be labeled as "FAC (L)".

Answers to the quiz are in Appendix E.

Module 15 Quiz 5

Instruction: Using the Quant reports given below:

- Calculate concentration for all TCL analytes using the parameters specified in each sample.
- Write the concentration following the rounding and significant figures criteria in the table on the next page.

Table of Sample Parameters

Sample	Matrix	Parameters
BGT67	water	750 mL
MHY43	Soil low	31 g, 34%, dilution = 2
VGT23	water	1300 mL
CFR99	Soil medium	1 g, 15%

Quant Report for continuing calibration

No.	Compounds		RRF
7	$	2-Fluorophenol	1.329
8	$	Phenol-d5	1.691
9	$	2-chlorophenol-d4	1.484
10	$	1,2 dichlorobenzene-d4	0.950
11	$	Nitrobenzene-d5	0.556
12	$	2-Fluorobiphenyl	1.422
13	$	2,4,6-tribromophenol	0.144
14	$	Terphenyl-d14	1.071
24		Hexachloroethane	0.735
32		4-chloroaniline	0.424
49		4-nitrophenol	0.209
64		Carbazole	0.766
67		Pyrene	1.549
74		Benzo (b) fluoranthene	1.386

* = Internal Standard 40 ng

$ = SMC

Modified Quant Report of a sample

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.369	8.332	114259	40.0	
* Naphthalene-d_8	136	11.545	11.203	355647	40.0	
* Acenaphthene-d_{10}	164	14.804	14.733	176482	40.0	
* Phenanthrene-d_{10}	188	17.557	19.057	292111	40.0	
* Chrysene-d_{12}	240	22.506	24.681	243469	40.0	
* Perylene- d_{12}	264	26.424	27.299	215208	40.0	
$ 2-Fluorophenol	112	5.988	5.849	193672		
$ Phenol-d_5	99	7.812	7.859	255625		
$ 2-Chlorophenol- d_4	132	7.964	7.960	227095		
$ 1,2-Dichlorobenzene- d_4	152	8.876	8.754	140532		
$ Nitrobenzene-d_5	82	10.058	9.734	255244		
$ 2-Fluorobiphenyl	172	13.571	13.264	315749		
$ 2,4,6 Tribromophenol	330	16.341	17.283	52304		
$ Terphenyl- d_{14}	244	20.564	22.688	339524		
Hexachloroethane	117	9.754	9.758	108451		
4-chloroaniline	127	11.781	11.823	188334		
4-nitrophenol	109	15.362	15.655	45180		
Carbazole	167	18.047	18.040	292220		
Pyrene	202	20.226	22.269	500198		
Benzo (b) fluoranthene	252	25.174	25.140	392205		

* = Internal Standard

$ = SMC

Modified Form 7C/D Continuing Calibration

Compounds	**RRF**	**RRF50**	**MIN RRF**	**%D**	**MA %D**
Hexachloroethane	0.666	0.735	0.300	10.4	25.0
4-chloroaniline	0.423	0.424		0.23	
4-nitrophenol	0.119	0.209		75.6	
Carbazole	0.858	0.766		-10.7	
Pyrene	1.344	1.549	0.600	15.3	25.0
Benzo (b) fluoranthene	1.599	1.386	0.700	-13.3	25.0
Nitrobenzene-d_5	0.555	0.556	0.200	0.18	25.0
2-Fluorobiphenyl	1.333	1.422	0.700	6.7	25.0
Terphenyl- d_{14}	0.967	1.071	0.500	10.8	25.0
Phenol-d_5	1.444	1.691	0.800	17.1	25.0
2-Fluorophenol	1.185	1.329	0.600	12.2	25.0
2,4,6 Tribromophenol	0.150	0.144		-4.0	
2-Chlorophenol- d_4	1.299	1.484	0.800	14.2	25.0
1,2-Dichlorobenzene- d_4	0.934	0.950	0.400	1.7	25.0

Fill in the concentration of each compound for each sample.

Compounds	BGT67	MHY43	VGT23	CFR99
Hexachloroethane				
4-chloroaniline				
4-nitrophenol				
Carbazole				
Pyrene				
Benzo (b) fluoranthene				

Learning Module 14

Learning Objectives for this Module

- **Identify action taken for Contamination not meeting the requirements stated in the checklist**

Unit 1 QC Blanks Contamination

Method Blanks

Method blanks are analyzed in the laboratory along with environmental samples to assure that positive values in samples are not the result of laboratory contamination. The Method Blank Summary Form 4 (a copy is available in Appendix B) shows which samples are associated with each method blank. Contaminants in method blanks are multiplied by the dilution factor because these contaminants could be present in the dilution water.

Field Blanks

Field blanks (also called rinse blanks or equipment blanks) consist of deionized water poured over or through sampling equipment. Field blanks measure contamination caused by contaminated sampling equipment. Environmental samples are usually qualified due to field blank contamination if the environmental sample was collected the same day as the field blank, and with the same equipment. Check the Sampling Trip Report for field blank association if there are any questions. Some contractors will decontaminate all of the equipment needed for the job on the first day.

Why is Contamination a major concern?

Blank contamination is the most common cause of data qualification. It is essential to keep track of which blanks are associated with every sample.

For example, if sampling equipment or sample containers are not cleaned properly, the samples may show levels of contaminants that are not actually in the ground water that was sampled, but are from the containers. If monitoring wells are not properly constructed and evacuated, the resultant sample data may be too high or too big, even if the lab analyzed the sample perfectly. Proper containers, preservatives, and holding times are essential if the data generated are assumed to be valid. If proper chain of custody procedures are not followed, data may not be considered valid in court.

Blank contamination can result in false positive data. We qualify suspect data with a “U” or “R”. When qualifying TCL analytes, the “U” indicates that the compound was not present at a certain concentration. For example, if a lab reports a compound at 40 ug/L, and there was significant contamination in the field blank, and the contaminant is within criterion, the data reviewer would change the 40 to 40U.

For TICS, if a laboratory reports a compound present at 20ug/L and there was significant field blank contamination listed as TICs, the data reviewer would change the 20 ug/L to “R” (rejected). The “R” means that the compound may or may not be present, and that resampling and reanalyses is needed to verify if the analyte in question is present.

Four things to remember about QC blanks (Method, Field, Rinse, Equipment):

- Blanks are not qualified due to contamination in other blanks. Field blanks associated with a method blank are not qualified for a contaminant in the method blank. This is only true for contamination criterion. All blanks are qualified for all other criteria such as SMC, IS, and Calibrations.

- "Water blanks", "drill blanks", and "distilled water blanks are used to verify the quality of the blank water and drilling water used at a site. These samples should be considered environmental samples and not QC-samples. Do not qualify data because of contaminants in these blanks.

Next, let's look at the checklist sections 5 and 6 for this criterion. This can be complicated but it is the most frequently used criterion for qualifying data.

5.0 Blanks (Form IV)

5.1 *Is the Method Blank Summary (Form IV) present?*

5.2 *Frequency of Analysis: Has a reagent/method blank analysis been reported per 20 samples of similar matrix, or concentration level, and for each time samples are extracted?*

5.3 *Has a BNA method blank been analyzed for each GC/MS system used? (See SOW pg. D-55/SVOA, Section 12.1.2.)*

ACTION: *If any method blank data are missing, contact the TOPO to obtain an explanation/resubmittal from the lab. If resubmittals are unavailable, use professional judgement to determine if the associated sample data should be qualified.*

5.4 *The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-30, sec. 3.3.7.3 of the SOW for further information.*

Was the correct identification scheme used for all BNA blanks?

ACTION: *Contact the TOPO to obtain resubmittals from the lab or make the required corrections on the forms. Document all corrections made by the validator in the Data Assessment under Contract Problems/Non-Compliance.*

5.5 *Chromatography: review the blank raw data - chromatograms (RICs), quant. reports or data system printouts and spectra. Is the chromatographic performance (baseline stability) acceptable for each instrument?*

ACTION: *Use professional judgement to determine the effect on the data.*

5.6 *Are all detected hits for target compounds less than the CRQL for that analyte in all method blanks?*

Exception: Phthalate esters must be less than five times (5×) the CRQL.

Section 5 is concern with the frequency of the various QC blank analyses. Below is a checklist of criterion requirements:

- Method blank was analyzed for each matrix type
- Detected hits in the blanks must be < CRQL except for phthalate esters, which must be < 5 x the CRQL

6.0 Contamination

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

6.1 *Do any method/reagent blanks have positive results (TCL and/or TIC)?*

NOTE: *Water: When applied as directed in the table below (page 33), the contaminant concentration in method/ instrument/reagent blanks is multiplied by the sample dilution factor, where necessary.*

Soil: If the lab has not already done so, the contaminant concentration in soil blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate (1 gram for medium level soils) are used to prepare the soil reagent/method blank as instructed on page D-54/SVOA, section 12.1.3. Contact the TOPO to obtain resubmittals if the soil blanks are not reported in soil units (µg/kg).

6.2 *Do any field/rinse blanks have positive BNA results (TCL and/or TIC)?*

ACTION:

Prepare a list of samples associated with each contaminated blank. (Attach a separate sheet.)

NOTE: *All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify sample data. Do not convert field blank results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, spectral, instrument performance, calibration and Internal standard QC problems.*

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

gross contamination exists, all data in the associated samples should be qualified as unusable "R".

Figure 14-1 Validation actions based on sample and blank concentrations

For:	***Flag sample result with a "U" when:***	***Report CRQL & qualify "U" when:***	***No qualification is needed when:***
Common Phthalate esters	*Sample conc. Is ≥ CRQL, but ≤ 10x blank value*	*Sample conc. Is < CRQL and ≤ 10x blank value*	*Sample conc. Is > CRQL and > 10x blank value*
Other Contaminants	*Sample conc. Is ≤ CRQL, but ≤ 5x blank value.*	*Sample conc. Is < CRQL and ≤ 5x blank value.*	*Sample conc. Is CRQL and > 5x Blank value.*

NOTE: *Analytes qualified "U" for blank contamination are still treated as "hits" when qualifying for calibration criteria.*

ACTION: *For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).*

6.3 *Are there field/rinse/equipment blanks associated with every sample?*

ACTION: *For low-level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For samples with high concentrations of suspected blank contaminants, use professional judgement to qualify these values and make a note in the Data Assessment.*

Exception: samples taken from a drinking water tap do not have associated field blanks.

Section 6 concentrates on the concept of contamination. It is this section that outlines the actual validation actions. Six phthalate compounds follow the 10 x rule, while all other compounds use the 5x rule. Figure 14-1 outlines the specific action that must be taken regarding any contamination in the sample.

Practice 14-1 Using the information in Figure 14-1, how would you qualify the following sample?

Aqueous sample, the contaminant is Hexachlorobenzene and the value reported in the method blank is 5. The sample has a reported value of 48 and the CRQL is 10.

Answer to Practice 14-1

The sample value is > CRQL and is > blank contamination rule value of 25 (Hexachlorobenzene follows the 5 x rule, 5 x 5= 25)

Look at Figure 14-1 and find the statement that matches the above statement. The top of the column tells you to “No Qualification is needed”. Cross out the Laboratory qualifier "B". Therefore the reported sample value is reported as 48.

Practice 14-2 Using the information in Figure 14-1, how would you qualify the next sample?

Let's try another problem using a soil sample. The % moisture of the sample is 15, CRQL is 330, Di-n- butylphthalate is 200 and the method blank contamination value for acetone is 30.

Answer to Practice 14-2

First, you should check the CRQL value is correct. A soil sample value is corrected by dividing the value by the percent dry weight value. So 330/.85 is 388 rounded to 390. (Dry weight is 100-15 (% Moisture)/100=.85)

Next the method blank contamination value has to be corrected to account for % moisture for this sample so, 30 x 10 (10x rule) = 300
300/.85 (dry weight) = 352.9
352.9 rounded to 350.

Now we have a sample Di-n- butylphthalate value of 200 which is < CRQL (390) and $\leq$ blank contamination rule value (350). Using Figure 14-1, Di-n- butylphthalate is qualified and is reported as 200U. Cross out the Laboratory qualifier "B".

NOTE: There are 8 analytes with elevated CRQLs of 25 for waters and 830 for low-level soil samples. The analytes are 2,4,5-Trichlorophenol, 2-Nitroaniline, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol, and Pentachlorophenol.

Figure 14-2 CRQL table

matrix	CRQL	8 analytes CRQL
water	10	25
Low level soil	330	830
Medium level soil	10000	25000

It takes practice to remember the rules from Figure 14-1. Try the quiz on the next page. Answers are located in Appendix E.

Module 14 Quiz 1

Instruction:

- Use Figure 14-1 from page 4 or from the checklist in section 6.2 to qualify the each problem.
- Calculate and write in the correct CRQL for the sample if dilution factor (DF) or % moisture is involved. Assume the SOW CRQL. Use Figure 14-2 for guidance on CRQLs.
- Write in the Qualified Result. This is the correct value and qualifier to be reported on the sample Form 1. Remember the significant figures and rounding rules.

1. Matrix water 1000 mL

Blank Contaminant	4	Butylbenylphthalate
Sample CRQL		
Sample Result	8	
Qualified Result		

2. Matrix water 650 mL

Blank Contaminant	12	2-chlorophenol
Sample CRQL		
Sample Result	50	
Qualified Result		

3. Matrix water 970 mL

Blank Contaminant	3	4-chloroaniline
Sample CRQL		
Sample Result	65	
Qualified Result		

4. Matrix water 890 mL

Blank Contaminant	2	2,4,5 Trichlorophenol
Sample CRQL		
Sample Result	8	
Qualified Result		

5. Matrix water 1000 mL

Blank Contaminant	3	Bis (2-ethyl-hexyl) phthalate
Sample CRQL		
Sample Result	23	
Qualified Result		

6. Matrix water 990 mL

Blank Contaminant	3	Pentachlorophenol
Sample CRQL		
Sample DF	3	
Sample Result	44	
Qualified Result		

7. Matrix soil

Blank Contaminant	120	Isophorone
Sample CRQL		
% Moisture	15	
Sample Result	420	
Qualified Result		

8. Matrix soil

Blank Contaminant	400	Benzo (g,h,i) perylene
Sample CRQL		
Sample DF	2	
% Moisture	45	
Sample Result	7600	
Qualified Result		

9. Matrix soil

Blank Contaminant	150	Benzo (b) fluoranthene
Sample CRQL		
% Moisture	35	
Sample Result	380	
Qualified Result		

10. Matrix soil

Blank Contaminant	85	Di-n-octylphthalate
Sample CRQL		
Sample DF	5	
% Moisture	20	
Sample Result	400	
Qualified Result		

11. Matrix soil

Blank Contaminant	130	4,6 dinitro-2-methylphenol
Sample CRQL		
Sample DF	2	
% Moisture	8	
Sample Result	280	
Qualified Result		

12. Matrix soil

Blank Contaminant	30	Carbazole
Sample CRQL		
Sample DF	1	
% Moisture	15	
Sample Result	100	
Qualified Result		

Unit 2Multiple QC associated with sample

Frequently a sample will have other QC blanks associated with it besides the method blank. Theoretically, the highest value from any of the associated blanks is used to qualify the sample for contamination criteria. In reality, this rule can be a major headache. There is an easier way to handle multiple QC blanks.

BNA samples are only associated with method and field blanks. This is easier than VOA samples, which can be associated with 5 type of blanks. Remember in Region 2 only QC blanks associated with each sample is used for contamination criteria. Other Regions follow the policy that all method/QC blanks are associated with all samples.

Region 2 is very specific about which sample is associated with each QC blank.

- Only samples listed on Form 4 are associated with that Method Blank.

- Field blanks may be assigned to either matrix based on specific equipment used to collect the sample (equipment blanks).

- Field blanks are assigned to samples collected on each sampling date. There are exceptions and the Sampling Trip Report should state which FBs are assigned to samples.

Years of validation have taught experience validators an easier way to qualify the data when numerous QC blanks are involved. Validate the data in the order listed below:

- Method blanks contaminants are the first values to use since this blank should affect the most number of samples.

- Any aqueous sample contaminant that has not been resolved uses the field blank contaminants.

- If none of the QC blanks can be used to qualify the data, then the sample value is not changed and the B qualifier is removed.

- Soil samples are qualified using method blanks. Soil samples usually are not affected by other QC blanks (specifically FBs which are always aqueous matrix) since the concentration units are different. If the analyte value in the sample is very low and the contaminant value in the QC blank is high, then there is chance of qualifying the data. Do not assume this will always be the case. Check the samples and QC blanks.

- Do not convert units. QC blanks are expressed as lg/L and soil samples as lg /Kg. Do not convert associated Field blank contaminant lg/L values to lg /Kg.

- Always cross out the “B” qualifier and replace with appropriate qualifier. If no qualifier is needed, just cross out the “B” qualifier.

The next quiz will require two steps. Take your time to think of the correct action. Figure 14-1 is the best resource and following the above suggestions to correctly answer the questions.

Step 1- Validate samples for Method Blank contamination for analytes following the 10x and 5x rules.

Step 2- Validate samples for several QC blanks. You will have to determine which QC blanks are associated with each sample to apply the contamination criteria correctly. The information needed is located on forms, case narrative or sampling trip report (see page 22). It is important to learn how to gather the pieces of information. You will never find everything written down or in one location. You have to learn to be a “scientific investigator” to find the information and if the information is not available, be able to make a decision for this criterion.

Answers for both quizzes are located in Appendix E.

1C

EPA SAMPLE NO.

BBJ66

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB___ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Lab Sample ID: _BBB00-15_____

Matrix: (soil/water) ___Water_____

Lab File ID: _BBB00-15AB_____

Sample wt/vol: ___1080_____(g/mL) __mL_____

Date Received: __02/03/01_____

Level: (low/med) ___Low_____

Date Extracted: __02/07/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____

Date Analyzed: _02/08/01_____

Concentrated Extract Volume: __1000_____(IL)

Dilution Factor: __1_____

Injection Volume: ___2.0_____(IL)

Extraction: (Type) __CONT_____

GPC Cleanup: (Y/N) ___N_____ pH: _____

CAS NO.	COMPOUND	CONCENTRATION (lg/L or lg/Kg)__lg/L	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	2	J
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	8	J
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	20	
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	50	
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	6	J

EPA SAMPLE NO.

BBJ66

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB___ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: ___1080_____(g/mL) __mL_____ Lab File ID: _BBB00-15AB_____

Level: (low/med) ___Low_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: _02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: __1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L_____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	180	
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	65	
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	28	
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

1C

EPA SAMPLE NO.

BPH62

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __SOIL_____ Lab Sample ID: _BBBOO-10_____

Sample wt/vol: ___30.0_____(g/mL) ____G_____ Lab File ID: _BBB00-10AB_____

Level: (low/med) ____LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) ___N____ Date Extracted: _02/12/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: _02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N) __Y_____ pH: __6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION (lg/L or lg/Kg) ___lg/L	Q
100-52-7	Benzaldehyde	350	U
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)ether	350	U
95-57-8	2-Chlorophenol	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
98-86-2	Acetophenone	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	350	U
67-72-1	Hexachloroethane	500	
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	330	J
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
105-60-2	Caprolactam	3800	
59-50-7	4-Chloro-3-methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	890	U
92-52-4	1,1 Biphenyl	350	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	890	U
131-11-3	Dimethylphthalate	350	U
606-20-2	2,6-Dinitrotoluene	350	U
208-96-8	Acenaphthylene	350	U
99-09-2	3-Nitroaniline	890	U
83-32-9	Acenaphthene	350	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPH62

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __SOIL_____ Lab Sample ID: _BBBOO-10_____

Sample wt/vol: ___30.0_____(g/mL) ____G_____ Lab File ID: _BBB00-10AB_____

Level: (low/med) ____LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) ___N____ Date Extracted: _02/12/01_____

Concentrated Extract Volume: ____500_____(lL) Date Analyzed: _02/13/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ___1.0_____

GPC Cleanup: (Y/N) __Y_____ pH: __6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION (lg/L or lg/Kg) _lg/L _____	Q
51-28-5	2,4-Dinitrophenol	890	U
100-02-7	4-Nitrophenol	890	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	2500	
86-73-7	Fluorene	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
100-01-6	4-Nitroaniline	890	U
534-52-1	4,6-Dinitro-2-methylphenol	890	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
1912-24-9	Atrazine	350	U
87-86-5	Pentachlorophenol	640	J
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	330	J
84-74-2	Di-n-butylphthalate	4000	
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	2000	
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenz(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

BPL04

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: ____1080_____(g/mL) __ML_____ Lab File ID: __BBB00-21RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	100	
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPL04

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: ____1080_____(g/mL) __ML_____ Lab File ID: __BBB00-21RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(IL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(IL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	20	J
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	120	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPL07

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: ____1100_____(g/mL) __ML_____ Lab File ID: __BBB00-22RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	3	J
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	2	J

EPA SAMPLE NO.

BPL07

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-22_____

Sample wt/vol: ____1100_____(g/mL) __ML_____ Lab File ID: __BBB00-22RB_____

Level: (low/med) ___LOW_____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(IL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(IL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	20	
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	6	J
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.

SBLKSA

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: _BBB00-MB1_____

Sample wt/vol: ____30_____(g/mL) __G_____ Lab File ID: __BBB00-MB1_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. __0_____ Decant: (Y/N) ___N____ Date Extracted: __02/12/01_____

Concentrated Extract Volume: __500_____(IL) Date Analyzed: __02/13/01_____

Injection Volume: ___2.0_____(IL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
100-52-7	Benzaldehyde	330	U
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)ether	330	U
95-57-8	2-Chlorophenol	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
98-86-2	Acetophenone	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-di-n-propylamine	330	U
67-72-1	Hexachloroethane	100	J
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
105-60-2	Caprolactam	310	J
59-50-7	4-Chloro-3-methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	830	U
92-52-4	1,1 Biphenyl	330	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	830	U
131-11-3	Dimethylphthalate	330	U
606-20-2	2,6-Dinitrotoluene	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	830	U
83-32-9	Acenaphthene	330	U

EPA SAMPLE NO.
SBLKSA

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___SOIL_____ Lab Sample ID: _BBB00-MB1_____
Sample wt/vol: ____30_____(g/mL) __G_____ Lab File ID: __BBB00-MB1_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. __0_____ Decant: (Y/N) ___N____ Date Extracted: __02/12/01_____

Concentrated Extract Volume: __500_____(IL) Date Analyzed: __02/13/01_____

Injection Volume: ___2.0_____(IL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: _____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
51-28-5	2,4-Dinitrophenol	830	U
100-02-7	4-Nitrophenol	830	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	200	J
86-73-7	Fluorene	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
100-01-6	4-Nitroaniline	830	U
534-52-1	4,6-Dinitro-2-methylphenol	830	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
1912-24-9	Atrazine	330	U
87-86-5	Pentachlorophenol	830	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	50	J
84-74-2	Di-n-butylphthalate	100	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	330	U
117-84-0	Di-n-octylphthalate	400	
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenz(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) Cannot be separated from Diphenylamine

EPA SAMPLE NO.
SBLKWA

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ____NEWLAB_____ _____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-MB2_____

Sample wt/vol: ____1000_____(g/mL) __ML_____ Lab File ID: __BBB00-MB2_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(IL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	5	J
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	8	J
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLKWA

Lab Name: ____NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: _12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___WATER_____ Lab Sample ID: _BBB00-MB2_____

Sample wt/vol: ____1000_____(g/mL) __ML_____ Lab File ID: __BBB00-MB2_____

Level: (low/med) ___LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION(lg/L or lg/Kg) _lg/	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	12	J
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	30	
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

Case Narrative

The following samples were received in good condition and containers intact.

Airbill Number: 10976520, cooler temp 6˚C, received 02-03-2001

BBJ66

BPL07

Airbill Number: 28765941, cooler temp 3˚C, received 02-03-2001

BPH62

BPL04

Sampling Trip Report

Sample	Date of Collection	Shipped	Description
BBJ66	02-01-2001	02-01-2001	Surface water
BPH62	02-01-2001	02-01-2001	Soil, 2" to 6" deep
BPL04	02-01-2001	02-01-2001	Rinse Blank for bowel and trowel
BPL07	02-01-2001	02-01-2001	Rinse blank for bucket

TIC Contamination

There is a separate set of rules for TICs that are rejected due to contamination. All TICs in a sample are listed on a separate form. If no TICs are found in the sample, the Lab must still report this form. Form 1G is the form used to report BNA TICs in a sample.

The following conditions will result in the rejection "R" of TIC analytes:

- Analyte is an aldol by product, must be identified by the Lab with an "A" qualifier. The 5x or 10x rule does not apply to the Tic value.

- Common Laboratory artifacts such as siloxane by-products, certain freons, and phthalates. The 5x or 10x rule does not apply to the Tic value.

- Solvent preservative (Cyclohexane) and related by products. The 5x or 10x rule does not apply to the Tic value.

- Analyte is present in the method blank and the concentration is < 5x the method blank value. **ALL method blank** contaminants in a sample must be reported and identified with the "B" qualifier. If the value is above the 5 x rule, cross off the "B" qualifier.

- Analyte is a TCL analyte from another fraction. If the analyte is included in the target compound list of a fraction that was analyzed for the sample, reject "R" the analyte. If the fraction was not analyzed, do not take any action. For example, a SDG contained BNA and Pest fractions only and acetone was reported as a TIC in the BNA sample analysis. Acetone would not be rejected since the VOA fraction was not analyzed.

- Analyte reported under a different name (example Dichloromethane is the same as methylene chloride) and listed, as a tic is "R" since it is a TCL analyte. Check the CAS No. if unsure about the identification.

- PCB congeners are rejected "R" (see section 9.3 of the checklist in Appendix A).

The TIC section of the checklist is reviewed for this criterion.

9.0 Tentatively Identified Compounds (TIC)

9.1 *Are all Tentatively Identified Compound Forms (Form I, Part B) present? and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?*

9.2 *Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:*

a. Samples and/or fractions as appropriate?

b. Blanks?

c. Are Alkanes listed in/or part of the Case Narrative?

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "N" qualifier to all chemically named TIC's, if missing.

9.3 *Are any TCL compounds (from any fraction) listed as TIC compounds? (Example: 1,2-dimethylbenzene is xylene - a VOA TCL - and should not be reported as a TIC.)*

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 *Are any TICS reported earlier than 30 sec. before the first semivolatile compound, or three (3) minutes after the last semivolatile compound listed in Exhibit C SVOA?(p.D-45/SVOA,11.1.2.2)*

ACTION: Flag with "R" any TIC compound reported.

9.5 *Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?*

9.6 *Do TIC and "best match" standard relative ion intensities agree within ±20%?*

ACTION: *Use professional judgement to determine the acceptability of TIC identifications. If it is determined that an incorrect identification was made, change the identification to "unknown," or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable, "R".*

9.7 *Are any TICs with responses < 10% of the internal standard (as determined by inspection of the peak areas or height) reported?*

ACTION: If yes, cross out questionable TIC(s).

Quiz on the next page will give you practice qualifying TICs for contamination. Answers for the quiz are in Appendix E.

Module 14 Quiz 3

Instruction: Write the correct qualification for the TICs in the sample for contamination. The method blank TICs are on the next page.

1G

EPA SAMPLE NO.
BBJ66

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00_

Matrix: (soil/water) __water_____ Lab Sample ID: __BBB00-15_____

Sample wt/vol: ____1000_____(g/mL) __mL_____ Lab File ID: __BBB00-15AB_____

Level: (low/med) ___LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: ___1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: ___2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) __N_____ pH: _____ Extraction: (Type) ___CONT_____

Number TICs found: ___4_____ CONCENTRATION UNITS (lg/L or lg/Kg) __UG/L_____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	14.54	11	NJ
2.	Unknown	15.88	14	JB
3.	Unknown Amide	17.13	10	JB
4. 57-10-3	Hexadecanoic acid	18.52	25	NJ
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

FORM I SV-TIC OLM04.

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLKWA

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00_

Matrix: (soil/water) __water_____ Lab Sample ID: __BBB00-MB2_____

Sample wt/vol: ____1000_____(g/mL) __mL_____ Lab File ID: __BBB00-MB2_____

Level: (low/med) _____LOW_____ Date Received: _____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: ___1000_____(lL) Date Analyzed: __02/08/01_____

Injection Volume: _____2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___N_____ pH: _____ Extraction: (Type) ____CONT_____

CONCENTRATION UNITS

Number TICs found: ____3_____ (lg/L or lg/Kg) __UG/L_____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	14.54	4	J
2.	Unknown	15.88	10	J
3.	Unknown Amide	17.13	51	
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

FORM I SV-TIC

OLM04.2

Unit 4 Documents and Reports

Data Assessment

Each action taken due to QC contamination is documented in the DA. Each type of QC should be listed separately. In other words, if an analyte was qualified for method blank contamination, the action should be listed under method blanks. Analytes qualified for field blank contamination are listed under field blanks and so on. An analyte only needs to be mentioned for one type of QC blank. For Example if phenol was qualified in sample GHT45 because of contamination in a method blank, and a field blank, it should be mentioned under method blank but not field blank. Don't forget you must have a statement of the problem, action taken and samples affected. Above example can be written under Method Blank contamination as:

The following samples had analytes reported < CRQL and < 5 x the blank contamination. Reported concentration was raised to the CRQL and qualified "U".

Phenol
BHT45

The first sentence stated the problem. The second sentence explains the action taken. The sample and analyte affected are documented.

Learning Module 13

Learning Objectives for this Module

- **Identify action taken for Matrix Spike criterion not meeting the requirements stated in the checklist**

Unit 1 Matrix spike

The matrix is defined as the predominant sample composition material. For the purpose of this training manual, a matrix is either water or soil/sediment. Matrix is not synonymous with phase (liquid or solid).

The matrix spike MS is an aliquot (a measured portion) of a matrix (water sample or soil sample) fortified (spiked) with known quantities of specific compounds, and analyzed. Measuring recovery of the spiked compounds demonstrates method efficiency, and the effect of the matrix on an environmental sample.

Spike recovery is expressed in percent, and is defined as the amount of material found in the spiked sample divided by the amount spiked into the sample prior to the analysis, times 100 (Equation 13-1). The matrix spike duplicate (MSD) is a replicate matrix spike, which is used to determine method precision. If the MS/MSD recoveries are not within certain limits, there may be a matrix interference problem.

Equation 13-1 Calculate MS and MSD Spike Recoveries

$$\text{MS/MSD (Percent Recovery)} = \frac{(SSR - SR) \times 100}{SA}$$

Where:
SSR = Spike Sample Result (spike added + sample result) SR = Sample Result SA = Spike added from spiking solution

The matrix spike/matrix spike duplicate sample results are examined to determine which analyte spikes are outside recovery limits. Based on professional judgement, the data reviewer may qualify sample data if both the matrix spike and matrix spike duplicate have less than 10% recovery for that analyte. However, the reviewer should check the GC chromatograms for matrix interference, as well as the internal standard area counts and surrogate recoveries before qualifying data due to MS/MSD recovery. Also various Regions and Projects have different requirements for using and validating MS/MSD data. The checklist (HW-6) addresses only Region 2 guidelines. Any project specific requirements that may affect the validation will be stated in the Task Direction Form (TDF).

The concept of MS/MSD samples is uncomplicated, but the units on the Form can be very confusing to individuals who do not have applicable laboratory experience. SOW Form 3C report ion the column named "Spike Added" the concentration in ug/L. It is very important to remember this is not the concentration of the spike aliquot itself, but reflects the ***concentration of the spike in the sample***.

Any concentration reported for the compound in the unspiked sample is subtracted from the reported MS and MSD concentration before % recovery and RPD are calculated. Remember if the initial volume or weight is not 1000 mL or 30 g, then the amount spiked into the sample will be not be 100 for Base-Neutral and 150 for acids in the sample.

On Form 3C, the spike added should be 50 ug/L or 75 ug/L depending on the analyte type for the spike, the sample concentration is the amount found in the unspiked sample and the MS and MSD concentration is the amount found in the spiked sample. The percent recovery is calculated using the Equation 13-1.

A matrix spike and matrix spike duplicate must be performed for each group of samples of a similar matrix, for the following, whichever is most frequent:

Ø Each case of field samples received.

Ø Each 20 field samples in a case.

Ø Each group of field samples of a similar concentration level (low soil or media soil).

Ø Each 14 calendar day period (7 calendar day period for 14-day data turnaround contracts) during which field sample in case were received (said period beginning with the receipt of the first sample in that Sample Delivery Group (SDG).

To statistically measure the difference between MS and MSD recoveries, we introduce the term Relative Percent Difference (RPD). We calculate the RPD of MS/MSD recoveries using Equation 13-2:

Equation 13-2 Calculate Relative Percent Difference (RPD)

$$RPD = \frac{|MSR - MSDR|}{(MSR + MSDR)/2} \times 100$$

where,

MSR = Matrix Spike Recovery

MSDR = Matrix Spike Duplicate RecoveryThe vertical bars in the formula above indicate absolute value of the difference. Hence, RPD is always expressed as a positive value.

In the Example 13-1, if the MS recovery is 80% and the MSD recovery is 120%, The RPD would be calculated as 40%.

Example 13-1 RPD calculation

$$(RPD) = \frac{|80-120|}{(80+120)/2} \times 100 = 40$$

The Semivolatile Matrix Standard Spike Solution in methanol contains the following Base-Neutral compounds at a concentration of 100 lg/mL: N-Nitroso-di-n-propylamine, Acenaphthene, 2,4-Dinitrotoluene, Pyrene. The following Acid compounds have a concentration of 150 lg/mL: Phenol, 2-chlorophenol, 4-Chloro-3-methylphenol, 4-Nitrophenol, Pentachlorophenol. A spike of 0.5 mL of this solution is added to each sample chosen for matrix spike and matrix spike duplicate.

The on-column amounts (ng) for both water and soil matrices are always 100 for Base-Neutrals and 150 for acids. The water matrix final amounts (ug/L) are usually 50 for Base-Neutrals and 75 for acids (depends upon volume amount). The soil matrix final amounts (ug/Kg) depend upon weight and percent moisture values.

Unit 2 Matrix Spike Qualification

Generally, Region 2 does not validate samples for this criterion. This does not mean the results are not important. Precision and Accuracy is an important part of data usability. Unfortunately there are a number of factors that can affect the spike results so it is used with caution. Any qualification usually affects the sample that was spiked. Let's continue with section 4 of the checklist.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?

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

a. Low Water?

b. Low Soil?

c. Med Soil?

ACTION: If any matrix spike data are missing, take the action specified in section 3.2 above.

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.

ACTION: Circle all outliers with red pencil.

Note that the MS and MSD samples (Form I's) are considered a criteria contributing to the data reliability for the particular sample spiked. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data. Note that only the sample spiked would be qualified if necessary. Rarely would the entire case or SDG of similar matrix be qualified for these matrix spike problems.

What this means is the validator using **professional judgement** has several options:

- Do nothing
- Qualify only the affected analyte in the unspiked sample
- Qualify all of the analytes in the unspiked sample
- Qualify only the affected analyte in all samples. This must have supporting details to document this action
- Qualify only the affected analyte or all of the analytes is recovery is < 10%

Documentation

Except for the first option, all other options must be documented in the DA, either under the matrix spike section or under the section called Other Problems.

A couple of tips about soil samples:

- Check chromatograms for severe matrix interference, which would explain not meeting criterion limits.

- Soil samples are prone to hot spots, areas in the sample where a higher concentration of a compound is present than the rest of the sample.

We generally do not qualify soil samples for this criterion for the last reason. If there is a co-elution problem, a peak masking another peak or an unknown peak that interferes with a spiked compound, then qualification may be necessary. Check the other samples to see if the same problems are in the sample chromatograms, if so, consider qualifying the data.

On the next page practice calculating the percent recovery and RPD of the sample. Answers are in Appendix E.

Module 13 Quiz 1

Instruction:

- Fill in the Recovery and RPD values for each problem.

4. Water sample, 1000 mL

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
Phenol		0	46.94		42.58			42	12-110
2-chlorophenol		0	48.99		44.06			40	27-123
N-Nitroso-di-n-propylamine		0	36.09		32.48			38	41-116
4-Chloro-3-methylphenol		0	53.25		50.67			42	23-97
Acenaphthene		0	36.13		32.81			31	46-118
4-Nitrophenol		0	50.44		40.45			50	10-80
2,4-Dinitrotoluene		0	44.34		35.36			38	24-96
Pentachlorophenol		0	60.72		53.35			50	9-103
Pyrene		0	37.66		33.99			31	26-127

5. Low level soil sample, 30 g, 23% moisture

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
Phenol		0	1519		1722			35	26-90
2-chlorophenol		0	1621		1814			50	25-102
N-Nitroso-di-n-propylamine		0	1224		1215			38	41-126
4-Chloro-3-methylphenol		0	1686		1542			33	26-103
Acenaphthene		0	1175		1211			19	31-137
4-Nitrophenol		0	1613		1794			50	11-114
2,4-Dinitrotoluene		0	1018		1187			47	28-89
Pentachlorophenol		0	1977		2168			47	17-109
Pyrene		0	1325		1339			36	35-142

Learning Module 12

Learning Objectives for this Module

- **Identify action taken for Surrogates criterion not meeting the requirements stated in the checklist**

Unit 1 Surrogates Criteria

It is important to learn how to verify surrogate recovery, and to qualify data based on surrogate recovery limits. The surrogate criterion is one of the most common reasons that data are qualified.

Surrogates are added to every BNA blank, sample, matrix spike, matrix spike duplicate, and standard for semivolatile analysis. They are used to evaluate the performance of the extraction procedure. These compounds are brominated or deuterated compounds not expected to be present in environmental media. There are 8 surrogate compounds that are added to the samples, 2 of the surrogates are for advisory purposes only.

First you will learn how to calculate surrogate percent recovery. Then you will review the qualification process.

One BNA soil and one BNA water surrogate % recovery calculation for each surrogate should be checked per SDG and per calibration. If they are correct, we can assume that all the calculations are correct. If there are any errors then check more surrogate results.

There are several facts that can affect the number reported by the lab. The first one that affects any reported value is the rounding rule* stated in the SOW. Labs will round off at various stages in the calculation process. Some may use the rounded number in the next round of calculations; other might use the real number. If the reported result is within ballpark of your number, it is not an issue. For example the lab reported a value of 93 and your value is 98. This is not a big difference. The only concern is if the results are near the upper and lower limits of the criterion since this potentially can affect qualification of the data. The lower limit is the most critical particularly if the recovery is < 10%. Numbers near the limit ends should be double-checked and a decision made about the accuracy of the number.

***Rounding Rule**: For rounding off numbers to the appropriate level of precision. If the figure following those to be retained is less than 5, drop it (round down). If the figure is > or = to 5, drop it and increase the last digit to be retained by 1.

Example: 934 is rounded to 930.
936 is rounded to 940.
935 is rounded to 940.
925 is rounded to 930

The second fact is **significant figure**. You will notice the numbers are reported to 2 significant figures. This is a requirement of the SOW unless stated otherwise in the document. BNA values are reported to 2 significant figures if the value is $\geq$ 10. If the value is < 10, report 1 significant figure. All pesticides results are reported to 2 significant figures.

Calculations

Equations 12-1 and 12-2 are standard equations used for calculating spike concentrations and recoveries. Learn the calculations well, you will use them repeatedly during the validation process.

- First you must check the reported limits on the lab forms are the same as the limits on the SOW forms.
- Then you must verify the lab reported the correct value. The surrogate form has only % recovery values, not the concentration.
- You must know the theoretical and actual concentrations of the surrogate in the sample. The question is how do you proceed to find the numbers you need to fill in the equations.

When you work on a package, the values needed for all calculations are listed on a quantitation report, usually called a Quant report. The surrogates and internal standards are mixed in with the analytes in the order of retention time. Most Quant reports will put a marker next to surrogate and internal standard compounds to help identify them.

First, figure out the theoretical amount of surrogate added to the sample. This information is always in the SOW but you have to know where to find the information. In the beginning section of each fraction is a section called Reagents and Standards. Read through each paragraph until you find the working standard solution for the criteria. For this criteria you are looking for the Surrogate Standard Spiking Solution. The paragraph for this solution states the amount of solution to add to the sample. The amount of standard to add to a sample for other criteria is not always stated in this section. If not stated, you will have to go to the section on sample preparation to find the amount of solution to add to the sample.

The surrogate solution states to add 0.5 mL of the solution (100 lg/mL of Base Neutrals and 150 lg/mL of Acid) into 1000 mL of water or 30g of soil sample. The final and theoretical concentration is 50 lg/L of Base Neutral surrogates and 75 lg/L of Acid surrogates in the sample. This value is takes into account the 2 lL injection. If the sample weight/volume is more or less, then an adjustment has to be made. If the on-column amount does not account for the 2 lL injection, use a theoretical concentration of 100 lg/L for Base Neutral surrogates and 150 lg/L for Acid surrogates (phenol compounds) in the sample.

Next determine the actual concentration of surrogate found in the sample during analysis. Equation 12-1 is used to calculate actual values.

Equation 12-1 Surrogate Concentration in a Sample

$$\text{Concentration lg/L} = \frac{(A_x)\,(I_s)\,(V_t)\,(DF)\,(GPC)}{(A_{is})\,(RRF_{50})\,(V_o)\,(V_i)\,(\mathbf{D})}$$

Where:

A_x = Area of the characteristic ion for the analyte to be measured

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

I_s = Amount of internal standard added in nanograms (SOW; 40 ng)

RRF_{50} = Relative Response Factor from the daily (continuing) calibration for the analyte to be measured.

V_o = Volume of sample used for extraction in milliliters (mL) for water and g for soil. (Usually 1000 mL or 30 g as per BNA method)

V_t = Volume of concentrated extracted in microliters (uL). (1000 uL if GPC not performed, 500 uL if GPC was performed.)

V_i = Volume of extracted injected in microliters (uL) (Usually 2.0 uL)

GPC = GPC factor is 1.0 if GPC was not performed and 2.0 if GPC was performed on the sample.

DF = Dilution factor is defined as follows:

$$\frac{\text{UL most conc. Extract used to make dilution + uL clean solvent}}{\text{UL most conc. Extract used to make dilution}}$$

D = Dry weight used for soil sample only

After looking at Equation 12-1, you are probably thinking I thought I was calculating surrogate, what does internal standards have to do with this. This method uses an internal standard calibration procedure to quantitate any analyte. This technique takes into account the instrument sensitivity to calculate the concentration of an analyte in a sample.

Internal standards for the BNA fraction will be extensively covered in Module 17. For now, you only need to know which surrogates are associated with each internal standard.

It is important to remember which are surrogate compounds and internal standard compounds. Some of the compounds have similar looking names so be sure to check the spelling of the analyte. The area responses from the internal standards are used in all of the calculations.

Table 12-1 Surrogate compounds and associated Internal Standard compounds

System Monitoring Compounds	Internal Standards
2-Fluorophenol	1,4 Dichlorobenzene-d_4
Phenol-d_5	1,4 Dichlorobenzene-d_4
2-Chlorophenol- d_4	1,4 Dichlorobenzene-d_4
1,2-Dichlorobenzene- d_4	1,4 Dichlorobenzene-d_4
Nitrobenzene-d_5	Naphthalene-d_8
2-Fluorobiphenyl	Acenaphthene-d_{10}
2,4,6 Tribromophenol	Phenanthrene-d_{10}
Terphenyl- d_{14}	Chrysene-d_{12}

Looking at the Table 12-1, you will notice that 4 of the surrogates are associated with the same internal standard. This is correct but remember the BNA fraction has 8 surrogates and 6 internal standards. It is important that you choose the correct internal standard. Do not mix up similar looking compounds.

Let's go back and review Equation 12-1 step by step. When using this equation for surrogate concentration, substitute the specific surrogate for the word analyte. The internal standard used is the internal standard associated with the surrogate compound. The RRF is from the continuing calibration associated with the sample for the surrogate being measured.

Let's calculate the concentration for 2-Fluorophenol in a water sample (1000 mL) based on the information presented in Example 12-1:

Example 12-1 Area responses for a sample

Analyte	Area responses
1,4 Dichlorobenzene-d_4	328096
Naphthalene-d_8	913723
Acenaphthene-d_{10}	486077
Phenanthrene-d_{10}	853590
Chrysene-d_{12}	795235
Perylene- d_{12}	716384
2-Fluorophenol	724292
Phenol-d_5	1009853
2-Chlorophenol- d_4	963188
1,2-Dichlorobenzene- d_4	366010
Nitrobenzene-d_5	681272
2-Fluorobiphenyl	983959
2,4,6 Tribromophenol	331437
Terphenyl- d_{14}	1164087
RRF- 2-Fluorophenol	1.169
RRF- Phenol-d_5	1.403
RRF- 2-Chlorophenol- d_4	1.292
RRF- 1,2-Dichlorobenzene- d_4	0.928
RRF- Nitrobenzene-d_5	0.553
RRF- 2-Fluorobiphenyl	1.328
RRF- 2,4,6 Tribromophenol	0.158
RRF- Terphenyl- d_{14}	0.954

The answer should be:

$$\frac{(A_x)\,(I_s)\,(V_t)\,(DF)\,(GPC)}{(A_{is})\,(RRF_{50})\,(V_o)\,(V_i)} = \frac{724292 \times 40 \times 1000 \times 1 \times 1}{328096 \times 1.169 \times 1000 \times 2} = 37.77$$

Remember Base Neutral surrogates have a concentration of 100 lg/mL while Acids (phenol compounds) have a concentration of 150 lg/mL. The surrogate 2- Fluorophenol is an acid surrogate. The amount added to the sample was 150 lg/mL with a 2.0 lL injection, so the final amount is 75 lg/mL.

$$\text{Theoretical amount} \quad \frac{(1)\,(150)\,(1000)\,(1)\,(1)}{(1)\,(1)\,(1000)\,(2)} \quad 75$$

Once you have the theoretical concentration (75) and the actual concentration (37.77), then you can calculate the % recovery using Equation 12-2.

Equation 12-2 Calculating Percent Recovery

$$\% \text{ Recovery} = \frac{\text{Concentration (amount) Found}}{\text{Concentration (amount) Spiked}} \times 100$$

Now calculate % recovery value using Equation 12-2 and the answer is:

$$\frac{37.77}{75} \times 100 = 50\%$$

Practice 12-1 Using Example 12-1 Calculate the concentration and % recovery for the other 7 SMC compounds

Answer to Practice 12-1

Check your answers below.

SMC compound	Concentration	% Recovery
Phenol-d_5	43.88	59
2-Chlorophenol- d_4	45.45	61
1,2-Dichlorobenzene-d_4	24.04	48
Nitrobenzene-d_5	26.97	54
2-Fluorobiphenyl	30.49	61
2,4,6 Tribromophenol	49.18	66
Terphenyl- d_{14}	30.68	61

If your answers do not match, go back and double check your equations for the right internal standards area responses or the RRF values.

When your answers match the above table, then continue onto the quiz. The values given in the quiz are just numbers for you to practice calculations. Match your answers with the quiz answers in Appendix E.

Module 12 Quiz 1

Instruction:

- For each of the samples, calculate and report the concentration for each surrogate. The matrix and sample volume/weight are listed next to the sample ID.
- Write your answers in the empty spaces provided for each SMC.
- Calculate the % Recovery of each surrogate in the samples and report the values on the correct Form 2, which can be found on pages 7 and 8.

Sample BBJ60 water, 1000 mL	Area responses	Concentration
2-Fluorophenol	821068	
Phenol-d_5	1144621	
2-Chlorophenol- d_4	1046467	
1,2-Dichlorobenzene- d_4	405414	
Nitrobenzene-d_5	708029	
2-Fluorobiphenyl	1101778	
2,4,6 Tribromophenol	334367	
Terphenyl- d_{14}	1411763	
1,4 Dichlorobenzene-d_4	331570	
Naphthalene-d_8	916107	
Acenaphthene-d_{10}	528790	
Phenanthrene-d_{10}	935241	
Chrysene-d_{12}	866779	
Perylene- d_{12}	797128	
RRF- 2-Fluorophenol	1.169	
RRF- Phenol-d_5	1.403	
RRF- 2-Chlorophenol- d_4	1.292	
RRF- 1,2-Dichlorobenzene- d_4	0.928	
RRF- Nitrobenzene-d_5	0.553	
RRF- 2-Fluorobiphenyl	1.328	
RRF- 2,4,6 Tribromophenol	0.158	
RRF- Terphenyl- d_{14}	0.954	

Sample BPH71 soil 30g	Area responses	Concentration
2-Fluorophenol	179850	
Phenol-d_5	236374	
2-Chlorophenol- d_4	230041	
1,2-Dichlorobenzene- d_4	72018	
Nitrobenzene-d_5	161800	
2-Fluorobiphenyl	221560	
2,4,6 Tribromophenol	66514	
Terphenyl- d_{14}	317841	
1,4 Dichlorobenzene-d_4	191304	
Naphthalene-d_8	502680	
Acenaphthene-d_{10}	304109	
Phenanthrene-d_{10}	528584	
Chrysene-d_{12}	421244	
Perylene- d_{12}	376607	
RRF- 2-Fluorophenol	1.019	
RRF- Phenol-d_5	1.373	
RRF- 2-Chlorophenol- d_4	1.244	
RRF- 1,2-Dichlorobenzene- d_4	0.839	
RRF- Nitrobenzene-d_5	0.524	
RRF- 2-Fluorobiphenyl	1.301	
RRF- 2,4,6 Tribromophenol	0.142	
RRF- Terphenyl- d_{14}	0.936	

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKMR	78	76	78	83	76	74	83	64	0
2.	BBJ60									
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										
21.										
22.										
23.										
24.										

		QC LIMITS
S1	(NBZ) = Nitrobenzene-d5	(35-114)
S2	(FBP) = 2-Fluorobiphenyl	(43-116)
S3	(TPH) = Terphenyl-d14	(33-141)
S4	(PHL) = Phenol-d5	(10-110)
S5	(2FP) = 2-Fluorophenol	(21-110)
S6	(TBP) = 2,4,6 Tribromophenol	(10-123)
S7	(2CP) = 2-Chlorophenol-d4	(33-110) (advisory)
S8	(DCB) = 1,2 Dichlorobenzene-d4	(16-110) (advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) ___Low_____

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKAM	39	40	46	40	44	39	41	39	0
2.	BPH71									
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										
21.										
22.										
23.										
24.										
25.										

		QC LIMITS
S1	(NBZ) = Nitrobenzene-d5	(23-120)
S2	(FBP) = 2-Fluorobiphenyl	(30-115)
S3	(TPH) = Terphenyl-d14	(18-137)
S4	(PHL) = Phenol-d5	(24-113)
S5	(2FP) = 2-Fluorophenol	(25-121)
S6	(TBP) = 2,4,6 Tribromophenol	(19-122)
S7	(2CP) = 2-Chlorophenol-d4	(20-130) (advisory)
S8	(DCB) = 1,2 Dichlorobenzene-d4	(20-130) (advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

page _____ of

FORM II SV-2

OLM04.2

Unit 2 SMC Qualifications

As you can see in Table 12-2, the surrogates expected recovery range for each compound and matrix is different. Compare the percent recoveries from the previous quiz with the limits listed below:

Table 12-2 SMC Recovery Ranges

Compound	% Recovery Water	% Recovery Soil
Nitrobenzene-d_5	35-114	23-120
2-Fluorobiphenyl	43-116	30-115
Terphenyl- d_{14}	33-141	18-137
Phenol-d_5	10-110	24-113
2-Fluorophenol	21-110	25-121
2,4,6 Tribromophenol	10-123	19-122
2-Chlorophenol- d_4	33-110	20-130
1,2-Dichlorobenzene-d_4	16-110	20-130

Some of the recoveries are within range. What action is needed for the recoveries outside the upper and lower limits? Determine the appropriate action by reviewing the SMC section in the checklist.

3.0 System Monitoring Compound (SMC) Recovery (Form II)

3.1 *Are the BNA Surrogate Recovery Summaries (Form II) present for each of the following matrices:*

a. Low Water?

b. Low Soil?

c. Med Soil?

3.2 *Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:*

a. Low Water?

b. Low Soil?

c. Med Soil?

ACTION: *Contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.*

3.3 *Were outliers marked correctly with an asterisk?*

ACTION: *Circle all outliers with red pencil.*

3.4 *Were two or more base-neutral OR acid surrogate recoveries out of specification for any sample or method blank?*

If yes, were samples reanalyzed?

Were method blanks reanalyzed?

ACTION: If all BNA surrogate recoveries are 10%, but two within the base-neutral or acid fraction do not meet SOW specifications, for the affected fraction only (i.e. acid or base-neutral compounds):

1. *Qualify positive results for that fraction as estimated (J).*

2. *Flag all non-detects as estimated detection limits ("UJ") when recoveries are less than the lower acceptance limit.*

3. *Do not qualify non-detects if recoveries are greater than the upper acceptance limit.*

***ACTION**: If any base-neutral or acid surrogate has a recovery of < 10%:*

1. *Qualify positive results for that fraction as estimated (J).*

2. *Qualify non-detects for that fraction as unusable (R).*

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and reanalyses. Also check the internal standard areas.

NOTE: Contractual requirements state that if two surrogate fails acceptance criteria, within the same fraction, i.e. Acid or BN, the sample must be re-analyzed. If sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

NOTE: The laboratory must submit the following data:

1. *If surrogate recoveries and internal standard responses meet the acceptance criteria in the re-analyzed sample, then the laboratory must submit only the re-analysis.*

2. *If surrogate recoveries and/or internal standard responses fail to meet the acceptance criteria upon re-analysis, then submit data from both analyses.*

3.5 Are there any transcription/calculation errors between raw data and Form II?

ACTION: *If large errors exist, contact the TOPO to request an explanation or resubmittal of corrected deliverables from the laboratory. Make necessary corrections and note errors in the Data Assessment.*

Sections 3.1 to 3.3 are simple questions requiring Yes, NO or N/A response. Forms are submitted according to the matrices of the samples. Each matrix must be listed on the correct form.

Section 3.4 is asking about a contract issue. If any sample has any surrogate recovery above or below the limits, it must be reanalyzed. The suffix RE or DL identifies reanalyzed or dilution samples. If a sample used for MS/MSD is out, the MS/MSD analyses are considered to be reanalyses.

The rest of section 3.4 provides the actions taken for samples that fail SMC criteria.

- If a SMC recovery is above the upper limits, only positive hits are qualified as "J".
- If the recovery value is **below the lower limits AND ≥ 10%,** all positive and non-detected analytes are qualified as "J".
- If the recovery is < 10%, positive hits are qualified "J" and non detects are qualified as "R".

Remember 2 or more either Base-Neutral or Acid surrogates must be out and only analytes from that fraction are qualified. For example if Nitrobenzene, Terphenyl and Phenol were below limits and >10%, only the Base-Neutral analytes would be qualified "J". Only 1 acid surrogate, Phenol was out, so the 14 acid analytes would not be qualified.

The only exception is any one surrogate with a recovery < 10% will result in qualification of analytes for that fraction. For example if Nitrobenzene and Phenol was <10%, the Base-Neutral and Acid analytes detects would be qualified "J" and non-detects as "R".

All of the analytes are Base-Neutral analytes EXCEPT the following 14 Acid fraction (AE) analytes :

Phenol	4-Chloro-3-methylphenol
2-Chlorophenol	2,4,6-Trichlorophenol
2-Methylphenol	2,4,5-Trichlorophenol
4-Methylphenol	2,4-Dinitrophenol
2-Nitrophenol	4-Nitrophenol
2,4-Dimethylphenol	4,6-Dinitro-2-methylphenol
2,4-Dichlorophenol	Pentachlorophenol

If 1 Base-Neutral and 1 Acid surrogates were out, no action is taken unless the recovery value is < 10%.

If either of the advisory surrogates, 2-Chlorophenol- d_4, 1,2-Dichlorobenzene- d_4, are out, use professional judgement to qualify data. In other words if Phenol and 2-Chlorophenol are out, the validator may decide to follow the checklist actions for 2 acid surrogates or not take any action.

When a reported value is rejected, the number and the qualifier on the form are crossed out with a line using a red pencil. When a value or qualifier is changed, it is crossed out with a single line.

The last section 3.5 is easily answered from your calculations. If most or all of the values are drastically different from your calculations, document the problem in the DA under the Other Problem section. The purpose is to alert the lab that there is a reporting problem. The problem is documented even if all of the calculation values are within limits. The validator needs to be concerned if the conflicting values are near the 10% mark.

Water and Low Level Soil Samples

OK, now we want to combine the calculation results with the appropriate action. Look at the water sample SMC recoveries in Examples 12-2 and 12-3 and compare the values with the water SMC recovery values in Table 12-2:

Example 12-2 Surrogate recoveries for sample BGT76

Sample	NBZ	FBP	TPH	PHL	2FP	TBP	2CP	DCB
BGT76	20	110	15	107	101	85	95	112

Two surrogate compounds Nitrobenzene and Terphenyl failed criteria. Base-Neutral surrogate compound recovery results affect only Base-Neutral analytes. Since the value is below the lower limits and > 10%, all Base-Neutral analytes are qualified “J”.

Example 12-3 Surrogate Recoveries for water Sample BGT75

Sample	NBZ	FBP	TPH	PHL	2FP	TBP	2CP	DCB
BGT75	85	110	135	107	18	85	15	112

Two surrogate compounds, 2-Fluorophenol and 2-chlorophenol failed criteria. Acid surrogate compound recovery results affect only Acid analytes. Since the value is below the lower limits and > 10%, all Acid analytes are qualified “J”. 2-chlorophenol is an advisory compound, since the value is below limits and close to 10%, checklist recommendations were applied to the acid fraction analytes. If the recovery exceeded the upper limit, checklist actions could be substituted using professional judgement.

What do you do if there is a mix of both fraction compounds that failed criteria? Looking at the soil sample BGT77 in Example 12-4 below and the soil recovery limits in Table 12-2, what qualifications are needed based on surrogate criteria?

Example 12-4 Surrogate recoveries for soil sample BGT77

Sample	NBZ	FBP	TPH	PHL	2FP	TBP	2CP	DCB
BGT77	20	110	138	10	20	85	95	112

Phenol requires all positive acid analytes to be “J” and all non-detects to be “R”. 2-Fluorophenol all acid analytes to be “J". Since a “R” qualifier is a higher hierarchy then “J”, all non-detects are qualified as “R” for the acid fraction. Nitrobenzene all Base Neutral analytes to be “J” and Terphenyl results require

only positive Base-Neutral analytes to be qualified "J". The final action for the Base-Neutral fraction is to qualify all Base-Neutral analytes as "J".

Remember water and low-level soil samples have different limits for each surrogate compound and are reported on different forms. Water samples are reported on Form 2C and soil samples are reported on Form 2D.

Medium Level Soil Samples

Samples that have high concentration(s) of analyte(s) are usually analyzed as a medium level soil. The results are reported on the soil sample forms. Medium level samples are extracted using 1 gram of sample and methylene chloride solvent using the sonication technique. Surrogates are added to the sample prior to the extraction process. The concentration of each surrogate is the same as water and low level soil matrices. The calculations for a medium level sample for surrogate concentration and recovery is the same calculations used for low level soils and water samples.

TIP: Quant reports usually report 2 concentrations: on-column and final. The on-column concentration has not been adjusted for sample weight/volume. This value is the same as the actual concentration for any spiked analyte (Surrogates, MS/MSD) in a sample. The final concentration is the on-column value corrected for sample weight/volume.

Test your understanding of SMC qualification by applying the checklist to the next 2 quizzes. The first quiz will ask you to write out your response. The second quiz is actual forms and Quant reports. You will add your qualifications to the Form 1 for the sample. Answers to the quizzes can be found in Appendix E.

Module 12 Quiz 2

Instruction: For each table, write the final qualifications you would take for the sample based on the Surrogate recoveries.

Sample 1- low level soil

SMC compound	% Recovery
Nitrobenzene-d_5	125
2-Fluorobiphenyl	120
Terphenyl- d_{14}	102
Phenol-d_5	110
2-Fluorophenol	120
2,4,6 Tribromophenol	89
2-Chlorophenol- d_4	9
1,2-Dichlorobenzene- d_4	95

Sample 2 water

SMC compound	% Recovery
Nitrobenzene-d_5	90
2-Fluorobiphenyl	59
Terphenyl- d_{14}	150
Phenol-d_5	112
2-Fluorophenol	115
2,4,6 Tribromophenol	125
2-Chlorophenol- d_4	109
1,2-Dichlorobenzene- d_4	107

Sample 3 medium level soil

SMC compound	% Recovery
Nitrobenzene-d_5	86
2-Fluorobiphenyl	195
Terphenyl- d_{14}	49
Phenol-d_5	89
2-Fluorophenol	112
2,4,6 Tribromophenol	114
2-Chlorophenol- d_4	120
1,2-Dichlorobenzene- d_4	115

Module 12 Quiz 3

Instructions:

- Calculate the Surrogate Recoveries that are missing from each Form 2. Apply the qualifications to the Form 1's for each sample.
- Modified Quant Reports for each sample and the RRF values are located after each form 1's for the sample.
- Write a detailed assessment of the action taken on this page.

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKWA	85	75	95	78	65	88	93	69	0
2.	BBJ60									
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										
21.										
22.										
23.										
24.										
25.										

		QC LIMITS
S1	(NBZ) = Nitrobenzene-d5	(35-114)
S2	(FBP) = 2-Fluorobiphenyl	(43-116)
S3	(TPH) = Terphenyl-d14	(33-141)
S4	(PHL) = Phenol-d5	(10-110)
S5	(2FP) = 2-Fluorophenol	(21-110)
S6	(TBP) = 2,4,6 Tribromophenol	(10-123)
S7	(2CP) = 2-Chlorophenol-d4	(33-110) (advisory)
S8	(DCB) = 1,2 Dichlorobenzene-d4	(16-110) (advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

page _1____ of 1

FORM II SV-1

OLM04.2

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) ____Low_____

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKSA	77	75	64	57	67	84	66	57	0
2.	BPH62									
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
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19.										
20.										
21.										
22.										
23.										
24.										
25.										

		QC LIMITS
S1	(NBZ) = Nitrobenzene-d5	(23-120)
S2	(FBP) = 2-Fluorobiphenyl	(30-115)
S3	(TPH) = Terphenyl-d14	(18-137)
S4	(PHL) = Phenol-d5	(24-113)
S5	(2FP) = 2-Fluorophenol	(25-121)
S6	(TBP) = 2,4,6 Tribromophenol	(19-122)
S7	(2CP) = 2-Chlorophenol-d4	(20-130) (advisory)
S8	(DCB) = 1,2 Dichlorobenzene-d4	(20-130) (advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

page __1___ of 1

FORM II SV-2

OLM04.2

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Level: (low/med) ___Med_____

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
1.	SBLKSB	74	54	38	44	45	35	50	51	0
2.	BNR68									
3.										
4.										
5.										
6.										
7.										
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23.										
24.										
25.										

		QC LIMITS
S1	(NBZ) = Nitrobenzene-d5	(23-120)
S2	(FBP) = 2-Fluorobiphenyl	(30-115)
S3	(TPH) = Terphenyl-d14	(18-137)
S4	(PHL) = Phenol-d5	(24-113)
S5	(2FP) = 2-Fluorophenol	(25-121)
S6	(TBP) = 2,4,6 Tribromophenol	(19-122)
S7	(2CP) = 2-Chlorophenol-d4	(20-130) (advisory)
S8	(DCB) = 1,2 Dichlorobenzene-d4	(20-130) (advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

page _1____ of 1

FORM II SV-2

OLM04.2

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: _____NewLab_____ Contract : ___123456_____

Lab Code: ___NLB____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____water_____ Lab Sample ID: __BBB00-14_____

Sample wt/vol: ___1080_____(g/mL) ____mL____ Lab File ID: _BBB0014AC_____

Level: (low/med) ___LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: ___1000_____(lL) Date Analyzed: ___02/10/01_____

Injection Volume: ____2_____(IL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ____N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L_____	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1D

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BBJ60

Lab Name: _____NewLab_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____water_____ Lab Sample ID: __BBB00-14_____

Sample wt/vol: ___1080_____(g/mL) ____mL_____ Lab File ID: _BBB0014AC_____

Level: (low/med) ___LOW_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: ___1000_____(lL) Date Analyzed: ___02/10/01_____

Injection Volume: ____2_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ____N_____ pH: _____ Extraction: (Type) ___CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

Modified Quant Report of a sample Sample BBJ60

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.33	8.334	823408	40.0	
* Naphthalene-d_8	136	11.20	11.207	912531	40.0	
* Acenaphthene-d_{10}	164	14.71	14.736	491836	40.0	
* Phenanthrene-d_{10}	188	19.05	19.057	893074	40.0	
* Chrysene-d_{12}	240	24.66	24.665	827665	40.0	
* Perylene- d_{12}	264	27.29	27.291	746991	40.0	
$ 2-Fluorophenol	112	5.81	5.809	934900		
$ Phenol-d_5	99	7.85	7.859	1285257		
$ 2-Chlorophenol- d_4	132	7.95	7.960	1110790		
$ 1,2-Dichlorobenzene- d_4	152	8.75	8.754	429290		
$ Nitrobenzene-d_5	82	9.732	9.734	744602		
$ 2-Fluorobiphenyl	172	13.26	13.264	534140		
$ 2,4,6 Tribromophenol	330	17.28	17.283	371731		
$ Terphenyl- d_{14}	244	22.68	22.688	788225		
Phenol	94					
Nitrobenzene	77					
2,4,5 Trichlorophenol	196					
Atrazine	200					
Pentachlorophenol	266					
Fluoroanthene	202					
Bis(2-Ethyl-hexyl) phthalate	149					
Dibenzo (a,h) anthracene	278					

* = Internal Standard

$ = SMC

Modified Form 7C/D Continuing Calibration

Date: 02/10/01 Injection Time: 1647 Instrument ID: AC

Compounds	____ RRF	RRF50	MIN RRF	%D	MA %D
Phenol	1.918	1.630	0.800	-15.0	25.0
Nitrobenzene	0.563	0.531	0.200	-5.7	25.0
2,4,5 Trichlorophenol	0.493	0.457	0.200	-7.3	25.0
Atrazine	0.173	0.095		-45.1	
Pentachlorophenol	0.159	0.144	0.050	-9.4	25.0
Fluoroanthene	1.301	1.299	0.600	-0.2	25.0
Bis(2-Ethyl-hexyl) phthalate	1.454	1.173		-19.3	
Dibenzo (a,h) anthracene	1.226	1.115	0.400	-9.1	25.0
Nitrobenzene-d_5	0.560	0.553	0.200	-1.3	25.0
2-Fluorobiphenyl	1.431	1.328	0.700	-7.2	25.0
Terphenyl- d_{14}	1.102	0.954	0.500	-13.4	25.0
Phenol-d_5	1.698	1.403	0.800	-17.4	25.0
2-Fluorophenol	1.330	1.169	0.600	-12.1	25.0
2,4,6 Tribromophenol	0.145	0.158		9.0	
2-Chlorophenol- d_4	1.520	1.292	0.800	-15.0	25.0
1,2-Dichlorobenzene- d_4	0.963	0.928	0.400	-3.6	25.0

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: _____NewLab_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: __BBB00-24_____

Sample wt/vol: ____1.0_____(g/mL) _____ Lab File ID: __BBB00-24AC_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: ___500_____(lL) Date Analyzed: __02/12/01_____

Injection Volume: __2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) __Y_____ pH: ___5.3_____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg___	Q
100-52-7	Benzaldehyde	11000	U
108-95-2	Phenol	11000	U
111-44-4	bis(2-Chloroethyl)ether	11000	U
95-57-8	2-Chlorophenol	11000	U
95-48-7	2-Methylphenol	11000	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11000	U
98-86-2	Acetophenone	11000	U
106-44-5	4-Methylphenol	11000	U
621-64-7	N-Nitroso-di-n-propylamine	11000	U
67-72-1	Hexachloroethane	11000	U
98-95-3	Nitrobenzene	11000	U
78-59-1	Isophorone	11000	U
88-75-5	2-Nitrophenol	11000	U
105-67-9	2,4-Dimethylphenol	11000	U
111-91-1	bis(2-Chloroethoxy)methane	11000	U
120-83-2	2,4-Dichlorophenol	11000	U
91-20-3	Naphthalene	11000	U
106-47-8	4-Chloroaniline	11000	U
87-68-3	Hexachlorobutadiene	11000	U
105-60-2	Caprolactam	11000	U
59-50-7	4-Chloro-3-methylphenol	11000	U
91-57-6	2-Methylnaphthalene	11000	U
77-47-4	Hexachlorocyclopentadiene	11000	U
88-06-2	2,4,6-Trichlorophenol	11000	U
95-95-4	2,4,5-Trichlorophenol	27000	U
92-52-4	1,1 Biphenyl	11000	U
91-58-7	2-Chloronaphthalene	11000	U
88-74-4	2-Nitroaniline	27000	U
131-11-3	Dimethylphthalate	11000	U
606-20-2	2,6-Dinitrotoluene	11000	U
208-96-8	Acenaphthylene	11000	U
99-09-2	3-Nitroaniline	27000	U
83-32-9	Acenaphthene	11000	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: _____NewLab_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: __BBB00-24_____

Sample wt/vol: ____1.0_____(g/mL) _____ Lab File ID: __BBB00-24AC_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: ___500_____(lL) Date Analyzed: __02/12/01_____

Injection Volume: __2.0_____(lL) Dilution Factor: _____1_____

GPC Cleanup: (Y/N) __Y_____ pH: ___5.3_____ Extraction: (Type) ___SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg_____	Q
51-28-5	2,4-Dinitrophenol	27000	U
100-02-7	4-Nitrophenol	27000	U
132-64-9	Dibenzofuran	11000	U
121-14-2	2,4-Dinitrotoluene	11000	U
84-66-2	Diethylphthalate	11000	U
86-73-7	Fluorene	11000	U
7005-72-3	4-Chlorophenyl-phenylether	11000	U
100-01-6	4-Nitroaniline	27000	U
534-52-1	4,6-Dinitro-2-methylphenol	11000	U
86-30-6	N-Nitrosodiphenylamine (1)	11000	U
101-55-3	4-Bromophenyl-phenylether	11000	U
118-74-1	Hexachlorobenzene	11000	U
1912-24-9	Atrazine	11000	U
87-86-5	Pentachlorophenol	27000	U
85-01-8	Phenanthrene	11000	U
120-12-7	Anthracene	11000	U
86-74-8	Carbazole	11000	U
84-74-2	Di-n-butylphthalate	11000	U
206-44-0	Fluoranthene	11000	U
129-00-0	Pyrene	11000	U
85-68-7	Butylbenzylphthalate	11000	U
91-94-1	3,3'-Dichlorobenzidine	11000	U
56-55-3	Benzo(a)anthracene	11000	U
218-01-9	Chrysene	11000	U
117-81-7	bis(2-Ethylhexyl)phthalate	11000	U
117-84-0	Di-n-octylphthalate	11000	U
205-99-2	Benzo(b)fluoranthene	11000	U
207-08-9	Benzo(k)fluoranthene	11000	U
50-32-8	Benzo(a)pyrene	11000	U
193-39-5	Indeno(1,2,3-cd)pyrene	11000	U
53-70-3	Dibenz(a,h)anthracene	11000	U
191-24-2	Benzo(g,h,i)perylene	11000	U

(1) Cannot be separated from Diphenylamine

Modified Quant Report for Sample BNR68

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.98	8.980		40.0	
* Naphthalene-d_8	136	11.28	11.283		40.0	
* Acenaphthene-d_{10}	164	14.56	14.571		40.0	
* Phenanthrene-d_{10}	188	18.06	18.065		40.0	
* Chrysene-d_{12}	240	23.41	23.407		40.0	
* Perylene- d_{12}	264	26.10	26.102		40.0	
$ 2-Fluorophenol	112	6.73	6.728			
$ Phenol-d_5	99	8.33	8.324			
$ 2-Chlorophenol- d_4	132	8.57	8.593	126486		
$ 1,2-Dichlorobenzene- d_4	152	9.25	9.253	45270		
$ Nitrobenzene-d_5	82	9.96	9.980	42033		
$ 2-Fluorobiphenyl	172	13.31	13.313	112034		
$ 2,4,6 Tribromophenol	330	16.13	16.138	13657		
$ Terphenyl- d_{14}	244	21.61	21.620	348030		
Phenol	94					
Nitrobenzene	77					
2,4,5 Trichlorophenol	196					
Atrazine	200					
Pentachlorophenol	266					
Fluoroanthene	202					
Bis(2-Ethyl-hexyl) phthalate	149					
Dibenzo (a,h) anthracene	278					

* = Internal Standard

$ = SMC

Modified Form 7C/D Continuing Calibration

Date: 02/12/01 Injection time: 1527 Instrument ID: AC

Compounds	RRF	RRF50	MIN RRF	%D	MA %D
Phenol	1.290	1.265	0.800	-1.9	25.0
Nitrobenzene	0.396	0.446	0.200	12.6	25.0
2,4,5 Trichlorophenol	0.525	0.498	0.200	-5.1	25.0
Atrazine	0.220	0.098		-55.5	
Pentachlorophenol	0.192	0.167	0.050	-13.0	25.0
Fluoroanthene	1.320	1.305	0.600	-1.1	25.0
Bis(2-Ethyl-hexyl) phthalate	0.929	0.698		-24.9	
Dibenzo (a,h) anthracene	1.146	0.998	0.400	-12.9	25.0
Nitrobenzene-d_5	0.407	0.441	0.200	8.4	25.0
2-Fluorobiphenyl	1.425	1.365	0.700	-4.2	25.0
Terphenyl- d_{14}	1.057	0.860	0.500	-18.6	25.0
Phenol-d_5	1.378	1.219	0.800	-11.5	25.0
2-Fluorophenol	1.163	1.027	0.600	-11.7	25.0
2,4,6 Tribromophenol	0.225	0.291		29.3	
2-Chlorophenol- d_4	1.333	1.097	0.800	-17.7	25.0
1,2-Dichlorobenzene- d_4	0.926	0.873	0.400	-5.7	25.0

1C

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BPH62

Lab Name: _____NewLab_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-10_____

Sample wt/vol: ___30_____(g/mL) __g_____ Lab File ID: _BBB00-10AC_____

Level: (low/med) ___low_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: _500_____(lL) Date Analyzed: __02/12/01_____

Injection Volume: __2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: ___6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
100-52-7	Benzaldehyde	350	U
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)ether	350	U
95-57-8	2-Chlorophenol	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
98-86-2	Acetophenone	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
105-60-2	Caprolactam	350	U
59-50-7	4-Chloro-3-methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	890	U
92-52-4	1,1 Biphenyl	350	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	890	U
131-11-3	Dimethylphthalate	350	U
606-20-2	2,6-Dinitrotoluene	350	U
208-96-8	Acenaphthylene	350	U
99-09-2	3-Nitroaniline	890	U
83-32-9	Acenaphthene	350	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: _____NewLab_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-10_____

Sample wt/vol: ___30_____(g/mL) __g_____ Lab File ID: _BBB00-10AC_____

Level: (low/med) ___low_____ Date Received: _02/03/01_____

% Moisture: not dec. ___7_____ Decant: (Y/N) _____ Date Extracted: __02/07/01_____

Concentrated Extract Volume: _500_____(lL) Date Analyzed: __02/12/01_____

Injection Volume: __2.0_____(lL) Dilution Factor: ____1_____

GPC Cleanup: (Y/N) ___Y_____ pH: ___6.0_____ Extraction: (Type) __SONC_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg_____	Q
51-28-5	2,4-Dinitrophenol	890	U
100-02-7	4-Nitrophenol	890	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
86-73-7	Fluorene	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
100-01-6	4-Nitroaniline	890	U
534-52-1	4,6-Dinitro-2-methylphenol	890	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
1912-24-9	Atrazine	350	U
87-86-5	Pentachlorophenol	890	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-butylphthalate	350	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	350	U
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenz(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1)Cannot be separated from Diphenylamine

Modified Quant Report for Sample BPH62

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* 1,4 Dichlorobenzene-d_4	152	8.33	8.856		40.0	
* Naphthalene-d_8	136	11.20	11.736		40.0	
* Acenaphthene-d_{10}	164	14.71	14.532		40.0	
* Phenanthrene-d_{10}	188	19.05	19.049		40.0	
* Chrysene-d_{12}	240	24.66	23.430		40.0	
* Perylene- d_{12}	264	27.29	26.137		40.0	
$ 2-Fluorophenol	112	5.81	6.078			
$ Phenol-d_5	99	7.85	8.354			
$ 2-Chlorophenol- d_4	132	7.95	8.593	129964		
$ 1,2-Dichlorobenzene- d_4	152	8.75	9.253	62306		
$ Nitrobenzene-d_5	82	9.73	9.980	238533		
$ 2-Fluorobiphenyl	172	13.26	13.313	203555		
$ 2,4,6 Tribromophenol	330	17.28	16.138	122853		
$ Terphenyl- d_{14}	244	22.68	21.620	329678		
Phenol	94					
Nitrobenzene	77					
2,4,5 Trichlorophenol	196					
Atrazine	200					
Pentachlorophenol	266					
Fluoroanthene	202					
Bis(2-Ethyl-hexyl) phthalate	149					
Dibenzo (a,h) anthracene	278					

* = Internal Standard
$ = SMC

Modified Form 7C/D Continuing Calibration

Date: 02/12/01 Injection time: 1527 Instrument ID: AC

Compounds	____ RRF	RRF50	MIN RRF	%D	MA %D
Phenol	1.290	1.265	0.800	-1.9	25.0
Nitrobenzene	0.396	0.446	0.200	12.6	25.0
2,4,5 Trichlorophenol	0.525	0.498	0.200	-5.1	25.0
Atrazine	0.220	0.098		-55.5	
Pentachlorophenol	0.192	0.167	0.050	-13.0	25.0
Fluoroanthene	1.320	1.305	0.600	-1.1	25.0
Bis(2-Ethyl-hexyl) phthalate	0.929	0.698		-24.9	
Dibenzo (a,h) anthracene	1.146	0.998	0.400	-12.9	25.0
Nitrobenzene-d_5	0.407	0.441	0.200	8.4	25.0
2-Fluorobiphenyl	1.425	1.365	0.700	-4.2	25.0
Terphenyl- d_{14}	1.057	0.860	0.500	-18.6	25.0
Phenol-d_5	1.378	1.219	0.800	-11.5	25.0
2-Fluorophenol	1.163	1.027	0.600	-11.7	25.0
2,4,6 Tribromophenol	0.225	0.291		29.3	
2-Chlorophenol- d_4	1.333	1.097	0.800	-17.7	25.0
1,2-Dichlorobenzene- d_4	0.926	0.873	0.400	-5.7	25.0

Learning Module 11

Learning Objectives for this Module

- **Review Preliminary data criteria**
- **Introduce the BNA fraction**
- **Describe the sampling and analysis method**
- **Identify action taken for sample conditions and holding time criteria not meeting the requirements stated in the checklist**

Unit 1 Preliminary Validation

All validation marks, changes and crossed out on the forms and raw data are made with a **red pencil**. Never use ink on any of the pages. Pencil marks are easier to remove than ink marks if you make a mistake.

A copy of the method specific SOP checklist (HW-6) is located in Appendix A. Let's review Section 1.0 Chain of Custody and Sampling Trip Reports. If you have already reviewed this topic in Learning Module 3 (VOA), skip this Unit and begin with Unit 2 Semivolatile Analytes on page 6.

Let's look at the first three pages of the checklist you will be using during the validation process. These pages cover Package Completeness and Deliverables. All of the answers to these questions should be found in the first and last section of the case. Checklist sections are in Italics.

PACKAGE COMPLETENESS AND DELIVERABLES

1.0 Chain of Custody and Sampling Trip Reports

1.1 Are the Traffic Reports/Chain-of-Custody Records present for all samples?

ACTION: If no, contact RSCC, or contact the TOPO to obtain replacement of missing or illegible copies from the lab.

1.2 Is the Sampling Trip Report present for all samples and all fractions?

ACTION: If no, contact either RSCC or ask the TOPO to obtain this information from the prime contractor.

Let's review Section 1.0 Chain of Custody and Sampling Trip Reports. The Traffic reports can be found in the first and last section of the package. One will be an original CoC (White, thin paper) and the other will be a copy of the CoC. It does not matter if the original is in the first or last section. It is important that all of the original Traffic reports listing all of the samples associated with the SDG be present. Any missing original CoC may be in another SDG. If samples on a CoC are split into several SDGs, the original will only be in one SDG and copies in the other SDGs. Copies should have a statement naming the SDG where the original CoC can be found.

The Sampling Trip Report is sent to RSCC from the sampling contractor. RSCC will make a copy for the package and file the original in RSCC files. If the report is not in the case either ask someone from RSCC or check the files. Samplers from the EPA and some private contractors will not provide a Sampling Trip Report.

If all documents/information asked for in each question are present, check YES, if missing, check NO. Move on to section 2.0 Data Completeness and Deliverables of the checklist.

2.0 Data Completeness and Deliverables

2.1 Have any missing deliverables been received and added to the data package?

NOTE: The lab is required to submit data for only two analyses, for each fraction. (i.e., the original sample and one dilution, or the most concentrated dilution analyzed and one further dilution.)

ACTION: Contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the lab. If lab cannot provide them, note the effect on the review of the package in the Contract Problems/Non-compliance section of the Data Assessment and the Organic Regional Data Assessment Summary form.

2.2 Was CLASS CCS checklist included with package?

2.3 Are there any discrepancies between the Traffic Reports/Chain-of-Custody Records, Sampling Report and Sample Tags?

ACTION: If yes, contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the laboratory.

The questions in this section are very clear and can be found in the first part of the package. If all documents asked for in the question are present, check YES, if missing, check NO. The missing CCS reports are available from CLASS or from the TOPO. If any discrepancies are not resolved, document in the DA (Appendix A/ attachment1) under Other Problems and any action taken against the case.

3.0 Cover Letter SDG Narrative

3.1 Is the Narrative or Cover Letter Present?

3.2 Are case number, SDG number and contract number contained in the SDG Narrative or cover letter (see SOW, Exhibit B, section 2.6.1)?
EPA sample numbers in the SDG, detailed documentation of any quality control, sample, shipment, and/or analytical problems encountered in processing the samples? Corrective action taken?

3.3 Does the narrative contain the following information:

VOA: description of trap and columns used for sample analyses?
VOA: a NOTE stating whether Volatile low level soil samples prepared according to the modified SW-846 Method 5035?(p. B-9/VOA, sec 2.6.1)

VOA: *any discrepancies between low level soil weights determined in the field and in the Laboratory? (p. B-10/VOA, sec. 2.6.1)*

BNA: *description of columns used for sample analyses?*

Pest: *description of columns used for sample analyses?*

NOTE: As per section 6.23.3.1 SOW/p. D-11/Pest, Packed columns are not permitted.

3.4 *Does the narrative, VOA and BNA sections, contain a list of all TIC's identified as alkanes and their estimated concentrations?*

3.5 *Is the temperature indicator bottle present in the cooler? If not, did the Laboratory document in the SDG Narrative the alternative technique used to determine the cooler temperature?(Exhibit A/ p. A-5 sec. 4.2.1.2.3.3)*

3.6 *Does the narrative contain a record of all cooler temperatures? If the temperature of a cooler was exceeded, > 10^{o} C, the lab must list by fraction and sample number, all affected samples.*

3.7 *Does the Narrative contain a list of sample reanalyses submitted? Did the Lab distinguish whether the reanalysis is billable, and if so why?*

3.8 *Does the narrative contain a list of the pH values determined for each water sample submitted for volatile analysis (SOW Exhibit B, section 2.6.1.2)?*

3.9 *Does the Case Narrative contain the statement, "verbatim", as required in Section B of the SOW?*

ACTION: *If "No", to any question in this section, contact the TOPO to obtain all necessary resubmittals. If information is not available, document in the Data Assessment under Contract Problems/Non-Compliance section.*

All of the answers to these questions can be answered by reading the case narrative. Many labs will tabulate the alkanes and pH values and insert the sheets after the case narrative. This is not a problem, but the information should be present in the first section. If the answer to any question in this section is no, document the problem in your DA under the Contract Problems/Non-Compliance section.

4.0 Data Validation Checklist

4.1 *Check the package for the following discrepancies:*

a. *Is the package paginated in ascending order starting from the SDG narrative?*

b. *Are all forms and copies legible?*

c. *Is each fraction assembled in the order set forth in the SOW?*

The following checklist is divided into three parts. Part A is for any VOA analyses, Part B is for BNAs and Part C is Pesticide/PCBs.

Does this package contain:

VOA Data?

BNA Data?

Pesticide/PCB data?

ACTION: Complete corresponding parts of checklist.

The questions in this section are very clear. If correct check YES. If not correct, check NO.

We are ready to move on to the BNA fraction. All three fractions use Gas Chromatography instruments but different detectors to perform analyses. Therefore it is important to have information and some understanding about this type of instrument.

Introduction to Gas Chromatography

The following is an extremely brief description of gas chromatography. However, this chapter will provide all of the information needed to validate data.

Gas chromatographs separate organic compound on columns using a temperature program and an inert carrier gas. There are many types of columns and analyte detectors. For example, if we are only interested in volatile chlorinated organic compounds, we could use detectors that would only register volatile chlorinated hydrocarbons. Other classes of organic compounds, such as hydrocarbons, would be invisible to the detector. The detector records the retention time, and the quantity of the analyte. Analyte identification is based on the retention tine of an unknown compound compared to the retention time of a known in a standard. The compound in question is quantitated by comparing the peak area or peak height of an unknown to that of a known standard. To minimize the possibility of false positive results, samples are analyzed on two dissimilar columns, except when using mass spectrometer (MS) detectors.

The most sophisticated and definitive detector is the mass spectrometer. The MS bombards compounds separated on the GC with electrons. This causes compound specific ion fragments to form in a specific ratio. This ratio is printed out as a vertical bar graph. Therefore, for any compound, the GC shows the retention time and the MS detector shows the ratio of ion fragments on a bar graph. The unique characteristics of compound GC retention times and MS bar graphs allow positive identifications to be made. GC coupled with an MS detector is the most accurate method for identification and analysis of organic compounds.

A chromatogram will have the retention time along the x-axis and the response along the y-axis. The chromatogram print should be clear, sharp and readable. The peaks should be within the scale of the chromatogram and not saturate the detector (flat topped peak). All peaks should be identified either by name or number that correlates to the number of the analyte on the Quant report. If there are any questions about a chromatogram ask a knowledgeable colleague before contacting the lab.

Unit 2 Semivolatile Analytes

Semivolatiles also called Base-Neutral-Acid are compounds that are stable but retain some capability of moving from one matrix to another matrix. Unlike samples for VOA analysis, samples (water and soil) for BNA analysis must be extracted prior to analysis. The extraction process uses the continuous liquid-liquid extraction technique for water samples and an ultrasonic technique for soil samples.

Brief Introduction to BNA Sample Analysis

After collection, samples are packed in coolers and shipped by an overnight delivery service to the lab. CLASS assigns the labs to sites a week before sample collection. When the samples arrive at the lab, the sample custodian logs in the samples and notes any deficiencies (broken vials, missing labels, mismatch of tags and identification, etc.) on the traffic report. The samples are then refrigerated while awaiting extraction and analysis.

When the analyses are completed, a data package is generated and delivered to the RSCC. As mentioned in Learning Module 2 (VOA fraction), CLASS will check the data for problems. RSCC checks the data package to ensure that all deliverables are present. Any problems are documented on the CSF audit sheet that is added to the front of the package, behind the ROC. It is a good idea to glance at this sheet to spot unusual problems.

BNA analysis is performed on low-level waters, low-level soils or medium level soil samples. Each analysis type is handled differently during the preparation process. As mentioned above, there are different extraction techniques for different matrices and samples are subjected to Gel Permeation Chromatography (GPC) clean up when appropriate.

Water Samples

The sample is collected in a 1 L amber containers with Teflon lined screw caps. The samples must be protected from light and refrigerated at 4 ˚C (± 2 ˚C). The measured sample is transferred to the continuous liquid-liquid extractor. The pH of the sample is adjusted to 2.0. The sample aliquot is fortified with 0.5 mL of surrogates. The surrogates contain analytes that are similar to the BNAs of interest in the sample. The addition of surrogates measures the efficiency of the extraction technique. The sample is extracted according to the SOW requirements for a minimum number of hours. The extraction time depends upon whether a hydrophobic membrane is used during the extraction procedure. The cooled extracted is reduced in volume to approximately 10 mL by employing the Kuderna-Danish (K-D) apparatus. GPC clean up is performed at this time if needed due to oily matrix or the suspected presence of high molecular weight compounds in the sample. The extracted is reduced further to a final volume of 1.0 mL or 0.5mL if extract went through GPC clean up. Just before instrument analysis, 10 lL of internal standard is added to each 1.0 mL of extract, for a concentration of 20 ng/lL for each internal standard. Internal standards are added to the sample at a known concentration as the basis for target compound quantitation. The gas chromatograph is temperature programmed to separate the Semivolatiles, which are detected with a mass spectrometer. A 2 lL injection of the sample extract must be used for the GC/MS.

Soil Samples Low level Analysis

Prior to sample extraction, the pH and Percent Moisture are determined. The samples are collected in jars, thirty (30) grams of the sample is weighed and mixed with 60 g of anhydrous

(powdered or granulated) sodium sulfate. Surrogates (0.5 mL) are added to the mix before the addition of the methylene-acetone solvent mixture used during the extraction process. The sample is sonicated and the methylene-acetone solvent process is repeated 3 times. The extracted is reduced in volume to approximately 10 mL by employing the Kuderna-Danish (K-D) apparatus. During the K-D phase, the acetone from the extraction step must be removed from the extract and replaced with methylene chloride to prevent problems during the GPC clean up and analysis on the GC/MS. GPC clean up is required for all soil samples and is performed at this time. After GPC cleanup the extracted is reduced further to a final volume of 0.5mL. Just before instrument analysis, 5 lL of internal standard is added to each 0.5 mL of extract, for a concentration of 20 ng/lL for each internal standard. A 2 lL injection of the sample extract must be used for the GC/MS. The gas chromatograph is temperature programmed to separate the Semivolatile analytes, which are detected with a mass spectrometer.

Soil Samples Medium Level Analysis

Prior to sample extraction, the pH and Percent Moisture are determined for each sample as described in the SOW. For the extraction process, 1 gram of the sample is weighed and mixed with 2.0 g of anhydrous (powdered or granulated) sodium sulfate in a 20 mL vial. Surrogates (0.5 mL) are added to the mix before the addition of the 9.5 mL of methylene during the extraction process. The sample is sonicated and the extract is filtered. The extract is reduced in volume to approximately 10 mL by employing the Kuderna-Danish (K-D) apparatus. GPC clean up is required and performed at this time. The extracted is reduced further to a final volume of 0.5mL. Just before instrument analysis, 5 lL of internal standard is added to each 0.5 mL of extract, for a concentration of 20 ng/lL for each internal standard. A 2 lL injection of the sample extract must be used for the GC/MS. The gas chromatograph is temperature programmed to separate the Semivolatile analytes, which are detected with a mass spectrometer.

Quality Assurance/Quality Control (QA/QC)

With each group of samples, a calibration standard, method blank, and matrix spike/matrix spike duplicate samples (MS/MSD) are analyzed. In addition other blanks such as rinse, equipment, field and instrument blanks are routinely analyzed with the samples. The calibration standard contains all of the target compounds at a known concentration and is used to quantitatively measure each target compound.

The method blank measures whether the environmental samples are free from contamination that may have been introduced in the lab. An instrument blank provides information about carryover from a previously analyzed sample. Field blanks measure possible contaminants that may have been introduced in the course of equipment and field sampling.

The MS/MSD contain a solution of 9 target compounds added to each of two aliquots of a sample which are used to measure the effect of the sample matrix on the efficiency of the GC/MS system. Before each group of samples are analyzed, a successful Instrument Performance Check (also called a tune check) using Decafluorotriphenylphosphine (DFTPP), calibration standard, and method blank must be analyzed.

BNA Sample Condition/Problems

If the sample is classified as a soil or sediment matrix, then Percent Moisture of the sample must be checked as well. Let's look at section 1.0 Sample Condition/Problems from the BNA fraction of the checklist.

1.0 <u>Sample Conditions/Problems</u>

1.1 Do the Traffic Reports/Chain-of-Custody Records, Sampling Report or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, then qualify positive results "J", and non-detects "R".

ACTION: If samples were not iced or the ice was melted upon arrival at the laboratory and the cooler temperature was elevated (> 10^{o} C), then flag all positive results with a "J" and all non-detects "UJ".

This is a general section about percent moisture, and cooler temperature. The first action is checked against the Form 1 for each sample. The CoC and the Sample Log-in sheet will answer the last action. All problems or discrepancies about sample conditions are written up under Other Problems section in the DA. If it is a contract problem, it is documented under the Contract/Non-Compliance section in the Data Assessment.

It is a good idea to take detailed notes of all the data you inspected. Any action should be written up and the affected samples should be listed. It is highly recommended to write the DA as you move through the validation process rather than wait until you are finished. Work with one fraction only for all criteria.

Check your knowledge of sample conditions criteria by completing the quiz on the following pages. Sample conditions are cooler temperature and percent moisture. The quiz examples contain additional information just like real samples and Form 1's. Be aware there is additional information in the examples not needed for the criterion. Read the instructions to understand which criterion you should be validating. The answers to the quiz are in Appendix E.

Module 11 Quiz 1

Instructions:

- Validate for **cooler temperature, and percent moisture** criteria only.
- Specify what qualifications are needed if any.
- Example: The sample BGH65 did not meet cooler temperature criteria. All non-detects were qualified "UJ" and detects were qualified "J".

1. Sample BJK90 is an aqueous matrix, the pH is 7, cooler temperature is <10°C, sample volume is 1000 mL, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-06-2000, extraction date is 03-11-2000, and date of analysis is 03-19-2000.

2. Sample BNG65 is an aqueous matrix, the pH is 12, cooler temperature is >10°C, sample volume is 980 mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000, extraction date is 03-13-2000, and date of analysis is 03-29-2000.

3. Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, sample volume is 1000 mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-07-2000, extraction date is 03-11-2000, and date of analysis is 04-12-2000.

4. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 51%, sample weight is 30 g, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-07-2000, extraction date is 03-16-2000, and date of analysis is 03-24-2000.

5. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 1.0 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-11-2000, and date of analysis is 03-14-2000.

Unit 3 Holding Time Criteria

Each fraction is evaluated for eleven specific criteria. The criteria are Holding Times, Surrogates, Matrix spike, Blank Contamination, Tune, TCL, TIC, CRQL, Calibration, Internal Standard and Field Duplicates. You will learn to evaluate each criterion separately in the same order as presented in the checklist. How to handle the CADRE reports for each criterion will be detailed in each section where appropriate.

Holding Times

Why is holding time criteria important? While samples are kept in storage, organic compounds degrade due to oxidation, evaporation, chemical reaction, or biodegradation. This usually results in lower analyte concentrations. The longer a sample is stored, the greater the possibility of analyte loss, contamination, or production of analytes not present in the original sample.

The NFG is the basis for appropriate action for problems in the case. Each EPA Region may develop specific guidelines that must be followed. Regional guidelines may take precedent over the NFG. The requirements the validators use to qualify data are called *Technical* requirements. The requirements stipulated in the SOW are called *Contractual* requirements. The contractual holding time criteria are slightly different from the technical holding times. There are several reasons for this. The laboratory is not responsible if a sampler does not ship samples within 24 hours of collection. The laboratory is only required to analyze samples within "x" days from the Verified Time of Sample Receipt (VTSR). However, in determining data usability, the data reviewer is concerned with the date that a sample was collected. Therefore, when evaluating technical holding time the data reviewer must always count from the date that a sample was collected. The data reviewer validates data using the holding time criteria in the checklist not the criteria in the SOW. Differences in technical and contractual requirements are detailed in the checklist.

2.0 Holding Times

2.1 Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded?

NOTE:

Technical Holding Time: Continuous extraction of water samples for BNA analysis must be started within seven days of the date of collection. Soil/sediment samples must be extracted within 7 days of collection. Extracts must be analyzed within 40 days of the date of extraction.

Table of Holding Time Violations

(See Chain-of-Custody Records)

Sample Analyzed	*Sample Matrix*	*Date Sampled*	*Date Lab Received*	*Date Extracted*	*Date Analyzed*

ACTION: *If technical holding times were exceeded, flag all positive results as estimated (J) and sample quantitation limits as estimated (UJ), and document in the Data Assessment that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on sample results. At a minimum, all results should be qualified "J", but the reviewer may determine that non-detect data are unusable "R". If holding times were exceeded by more than 28 days, all non-detect data must be qualified "R", unusable.*

NOTE: *Contractual Holding Times: Extraction of water samples must be started within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Water and soil/sediment extracts must be analyzed within 40 days following extraction.*

ACTION: *If contractual holding times are exceeded, document in the Data Assessment.*

NOTE: *The data reviewer must note in the Data Assessment whether or not technical and contractual holding times were met.*

The section above is checking for technical holding times. The NOTE is checking for contractual holding time violations. Data is not validated or qualified based on contractual problems. There are 3 holding time criteria to check for technical and contractual violations.

- The technical extraction holding time is between the collection date and date of extraction.
- For **contract** purposes, the extraction holding time criteria is from **date of VTSR and extraction date**.

- The *analysis* holding time is the between the *extraction date and analysis date* and is the *same for both contractual and technical* criteria.

The technical extraction holding time for water and soils is seven days from the sampling date. Water samples must be extraction within 5 days and soil samples within 10 days of VTSR to meet contract requirements. The analysis holding time for all samples (water and soil) is 40 days from date of extraction to meet technical and contract requirements. Soil sample holding time criteria are Region 2 specific. According to the National Functional Guidelines, holding times for soil samples have not been established. Be aware that other Regions may handle these criteria differently. Table 11-1 is a summary of the holding times criteria followed in Region II.

Table 11-1 Summary of Holding times.

Criteria	Technical	Contractual
Extraction Holding time	Date of collection to date of extraction Aqueous = 7 days Soil = 7 days	Date of VTSR to date of extraction Aqueous = 5 days Soil = 10 days
Analysis Holding Time	Date of extraction to date of analysis 40 days	Date of extraction to date of analysis 40 days

Very seldom will a lab miss analysis holding time but extraction holding time violations are common. It is important for validators to remember the differences for technical and contract holding time criteria for water and soil matrices.

Remember: Write a communication log to the TOPO if additional information is needed. Do not contact the sampler directly. Any holding time violation is recorded using the table in section 2 of the BNA portion of the checklist as well as the Data Assessment.

Any samples that fail to meet analysis-holding time must be listed in the table in section 2.0 of the checklist. Following the table are various actions a validator can take depending upon the length of time between date of collection and analysis of a sample. All action is documented in the DA under the Holding Time section. You will notice in this section a note concerning contractual holding time. There is a second note telling the validator to state in the DA if technical and contractual holding times were met. Usually contract holding time was met yet the sample is qualified for technical holding time. A simple statement is inserted if there are no problems with either holding time, “Technical and contractual holding times were met for all samples in all fractions”.

If holding times are not grossly exceeded (less than two weeks beyond criteria), flag all, positive results with a “J” and all non-detect as “UJ”. If holding times are grossly exceeded (more than 14 days beyond criteria), the reviewer must use informed professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. Flag all positive results with a “J”, but the reviewer has the discretion to determine that non-detect data are unusable “R”. If holding times are exceeded by more than 28 days all non-detects must be qualified unusable “R”

If there are problems, it must be documented in the DA the action taken and the samples affected. For example if samples BGT67, BGT54 AND BGT89 failed technical holding time criteria and passed contractual holding time, you would write under the Holding Time section:

> *The following BNA samples failed technical holding time and all analytes were qualified “J”:*
> *BGT67, BGT54, BGT89*
> *All contractual holding times were met.*

Let’s try an example. Sample BGF45 is an aqueous matrix, the pH is 7, date of collection is 06-03-2000, VTSR is 06-05-2000, extraction date is 06-11-2000, and date of analysis is 06-18-2000.

The sample is qualified “J” for all analytes since technical extraction holding time criteria was not met. Contractual holding time was not met. Remember that data is never qualified for contract problems. Contractual issues are always documented in the DA under the Contract/Non-Compliance section.

Technically, 1 day have passed from collection to extraction, the criteria for aqueous samples is 7 days, so all analytes are qualified “J”. Contractually, 1 day passed from VTSR and extraction. Contractual holding time is 5 days, therefore this is written up as a contract non-compliance problem in the Data Assessment.

Under the Holding Time section in the DA you would write:
Technical holding times for extraction and analysis were met for all BNA samples except Sample BGF45 - all analytes were qualified “J”. Contractual holding times for extraction and analysis were met for all BNA samples except Sample BGF45.

Under the Contract/Non-Compliance section you would write:
Sample BGF45 for BNA fraction did not meet contractual requirements for extraction holding times.

All actions taken for a criterion especially if professional judgement is used to qualify the data differently from the checklist must be documented in the DA and specified as professional judgement. It is not unusual to cite professional judgement and not qualify samples that missed technical extraction holding time by 1 day. In this case you would write: Technical holding time for extraction was exceeded by 1 day for sample BGF45. Using professional judgement, the sample was not qualified. If most of the samples in the SDG exceeded extraction holding time by 1 day, it is best to follow the checklist and document the unusual situation in the Other Problems section of the Data Assessment.

Check your knowledge of the holding time criterion by completing the quiz on the following pages. You will recognize these examples from the previous quiz; validate each example for holding time criterion only following the guidelines in the checklist. The answers for the quiz are in Appendix E.

Module 11 Quiz 2

Instructions:

- Write the qualification statement as it would appear in the data assessment
- Validate for **holding time criteria only**
- Specify which holding time: technical or contractual or both
- Specify what qualifications are needed if any.
- Example: Contractual holding times were met. The sample BGH65 did not meet technical requirements. Sample BGH65 was extracted 12 days after date of collection, all non-detects and detects were qualified "J".

1. Sample BJK90 is an aqueous matrix, the pH is 7, cooler temperature is <10°C, sample volume is 1000 mL, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-06-2000, extraction date is 03-11-2000, and date of analysis is 03-19-2000.

2. Sample BNG65 is an aqueous matrix, the pH is 12, cooler temperature is >10°C, sample volume is 980 mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000, extraction date is 03-13-2000, and date of analysis is 03-29-2000.

3. Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, sample volume is 1000 mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-07-2000, extraction date is 03-11-2000, and date of analysis is 04-12-2000.

4. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 51%, sample weight is 30 g, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-07-2000, extraction date is 03-16-2000, and date of analysis is 03-24-2000.

5. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 1.0 g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000, extraction date is 03-11-2000, and date of analysis is 03-14-2000.

Once an analyte is qualified for a criterion, the qualifier is not removed if it passes another criterion. Any qualification can be removed and replaced with a “R”. There is a hierarchy to qualifications and a limited combination of qualifiers.

A “U” qualifier can be combined with a "J" and become a “UJ”.
A “J” qualifier can be combined with a "N" and become a “JN”.
A “UJ and a “N” qualifier can not be combined.
A “U” or “UJ” can replace a “J”
A “JN” can not replace a “UJ”.
A “R” can replace a “U”, “UJ”, “J” or “JN”.

When you work on Quizzes 3, 4, 5, you will apply the qualifiers directly to a copy of the Form 1. You will follow the sample conditions and holding time criteria for each sample given for the quizzes.

Each quiz has 2 Form1’s that together make up the full TCL list for BNA. Use the sample information provided below for each quiz. Make your marks on the Form 1's using a pencil so you can erase any changes. Answers are in Appendix E.

Module 11 Quiz 3

Sample BXD01 is a soil matrix, the cooler temperature <10°C, date of collection is 03-02-2001.

Module 11 Quiz 4

Sample BDR40 is an aqueous matrix, cooler temperature is 10°C, and date of collection is 03-04-2001.

Module 11 Quiz 5

Sample BXZ20 is a soil sample, the cooler temperature >10°C, date of collection is 03-02-2001.

Write out holding time problems for each sample in the quizzes. Document both technical and contractual problems. Add the correct qualifications to the analytes on the forms.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXD01

Lab Name: ___NEW LAB_____ Contract : ___123456_____

Lab Code: __NLB___ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00

Matrix: (soil/water) ___soil_____ Lab Sample ID: __BBB00-01_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: __BBB00-01AA_____

Level: (low/med) __Low_____ Date Received: __03/04/01_____

% Moisture: not dec. ___15_____ Decant: (Y/N) __N_____ Date Extracted: __03/08/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __04/22/01_____

Injection Volume: ____2_____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N) ____Y_____ pH: ____7_____ Extraction: (Type) __Sonc_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
100-52-7	Benzaldehyde	390	U
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
98-86-2	Acetophenone	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
105-60-2	Caprolactam	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U

88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	980	U
92-52-4	1,1 Biphenyl	390	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	980	U
131-11-3	Dimethylphthalate	390	U
606-20-2	2,6-Dinitrotoluene	390	U
208-96-8	Acenaphthylene	390	U
99-09-2	3-Nitroaniline	980	U
83-32-9	Acenaphthene	390	U

1D

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BXD01

Lab Name: ___NEW LAB_____ Contract : ___123456_____

Lab Code: __NLB__ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00_

Matrix: (soil/water) ___soil_____ Lab Sample ID: __BBB00-01_____

Sample wt/vol: _____30_____(g/mL) _____G_____ Lab File ID: __BBB00-01AA_____

Level: (low/med) __Low_____ Date Received: __03/04/01_____

% Moisture: not dec. ___15_____ Decant: (Y/N) __N_____ Date Extracted: __03/08/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __04/22/01_____

Injection Volume: ____2_____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N) ____Y_____ pH: ____7_____ Extraction: (Type) __Sonc_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
86-73-7	Fluorene	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
100-01-6	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
1912-24-9	Atrazine	390	U
87-86-5	Pentachlorophenol	980	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U

129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) Cannot be separated from Diphenylamine

1C

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BDR40

Lab Name: ___NEW LAB_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00_

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB00-40_____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-40AA_____

Level: (low/med) __Low_____ Date Received: __03/06/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __03/10/01_____

Concentrated Extract Volume: __1000_____(µL) Date Analyzed: __03/14/01_____

Injection Volume: ____2_____(µL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N) ____N_____ pH: ____9_____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION (µg/L or µg/Kg)	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U

87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-52-4	1,1 Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1D

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BDR40

Lab Name: ___NEW LAB_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00_

Matrix: (soil/water) ___water_____ Lab Sample ID: __BBB00-40_____

Sample wt/vol: _____1000_____(g/mL) _____mL_____ Lab File ID: __BBB00-40AA_____

Level: (low/med) __Low_____ Date Received: __03/06/01_____

% Moisture: not dec. _____ Decant: (Y/N) _____ Date Extracted: __03/10/01_____

Concentrated Extract Volume: __1000_____(lL) Date Analyzed: __03/14/01_____

Injection Volume: ____2_____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N) ____N_____ pH: ____9_____ Extraction: (Type) __CONT_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U

84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) Cannot be separated from Diphenylamine

FORM I SV-2 OLM04.2

1C EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET BXZ20

Lab Name: ___NEW LAB_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00_

Matrix: (soil/water) ___soil_____ Lab Sample ID: __BBB00-20_____

Sample wt/vol: _____1_____(g/mL) _____G_____ Lab File ID: __BBB00-20AA_____

Level: (low/med) __Med_____ Date Received: __03/04/01_____

% Moisture: not dec. ___15_____ Decant: (Y/N) __N_____ Date Extracted: __03/15/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __03/19/01_____

Injection Volume: ____2_____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N) ____Y_____ pH: ____4.5_____ Extraction: (Type) __Sonc_____

CAS NO.	COMPOUND	CONCENTRATION (lg/L or lg/Kg)	Q
100-52-7	Benzaldehyde	10000	U
108-95-2	Phenol	10000	U
111-44-4	bis(2-Chloroethyl)ether	10000	U
95-57-8	2-Chlorophenol	10000	U
95-48-7	2-Methylphenol	10000	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10000	U
98-86-2	Acetophenone	10000	U
106-44-5	4-Methylphenol	10000	U
621-64-7	N-Nitroso-di-n-propylamine	10000	U
67-72-1	Hexachloroethane	10000	U
98-95-3	Nitrobenzene	10000	U
78-59-1	Isophorone	10000	U
88-75-5	2-Nitrophenol	10000	U
105-67-9	2,4-Dimethylphenol	10000	U
111-91-1	bis(2-Chloroethoxy)methane	10000	U
120-83-2	2,4-Dichlorophenol	10000	U
91-20-3	Naphthalene	10000	U

106-47-8	4-Chloroaniline	10000	U
87-68-3	Hexachlorobutadiene	10000	U
105-60-2	Caprolactam	10000	U
59-50-7	4-Chloro-3-methylphenol	10000	U
91-57-6	2-Methylnaphthalene	10000	U
77-47-4	Hexachlorocyclopentadiene	10000	U
88-06-2	2,4,6-Trichlorophenol	10000	U
95-95-4	2,4,5-Trichlorophenol	25000	U
92-52-4	1,1 Biphenyl	10000	U
91-58-7	2-Chloronaphthalene	10000	U
88-74-4	2-Nitroaniline	25000	U
131-11-3	Dimethylphthalate	10000	U
606-20-2	2,6-Dinitrotoluene	10000	U
208-96-8	Acenaphthylene	10000	U
99-09-2	3-Nitroaniline	25000	U
83-32-9	Acenaphthene	10000	U

1D

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BXZ20

Lab Name: ___NEW LAB_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00_

Matrix: (soil/water) ___soil_____ Lab Sample ID: __BBB00-20_____

Sample wt/vol: _____1_____(g/mL) _____G_____ Lab File ID: __BBB00-20AA_____

Level: (low/med) __Med_____ Date Received: __03/04/01_____

% Moisture: not dec. ___15_____ Decant: (Y/N) __N_____ Date Extracted: __03/15/01_____

Concentrated Extract Volume: __500_____(lL) Date Analyzed: __03/19/01_____

Injection Volume: ____2_____(lL) Dilution Factor: ____1.0_____

GPC Cleanup: (Y/N) ____Y_____ pH: ____4.5_____ Extraction: (Type) __Sonc_____

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
51-28-5	2,4-Dinitrophenol	25000	U
100-02-7	4-Nitrophenol	25000	U
132-64-9	Dibenzofuran	10000	U
121-14-2	2,4-Dinitrotoluene	10000	U
84-66-2	Diethylphthalate	10000	U
86-73-7	Fluorene	10000	U
7005-72-3	4-Chlorophenyl-phenylether	10000	U
100-01-6	4-Nitroaniline	25000	U
534-52-1	4,6-Dinitro-2-methylphenol	25000	U
86-30-6	N-Nitrosodiphenylamine (1)	10000	U
101-55-3	4-Bromophenyl-phenylether	10000	U
118-74-1	Hexachlorobenzene	10000	U
1912-24-9	Atrazine	10000	U
87-86-5	Pentachlorophenol	25000	U
85-01-8	Phenanthrene	10000	U
120-12-7	Anthracene	10000	U
86-74-8	Carbazole	10000	U
84-74-2	Di-n-butylphthalate	10000	U
206-44-0	Fluoranthene	10000	U
129-00-0	Pyrene	10000	U
85-68-7	Butylbenzylphthalate	10000	U
91-94-1	3,3'-Dichlorobenzidine	10000	U
56-55-3	Benzo(a)Anthracene	10000	U
218-01-9	Chrysene	10000	U
117-81-7	bis(2-Ethylhexyl)phthalate	10000	U
117-84-0	Di-n-octylphthalate	10000	U
205-99-2	Benzo(b)Fluoranthene	10000	U
207-08-9	Benzo(k)Fluoranthene	10000	U
50-32-8	Benzo(a)Pyrene	10000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10000	U
53-70-3	Dibenz(a,h)Anthracene	10000	U
191-24-2	Benzo(g,h,i)perylene	10000	U

(1) Cannot be separated from Diphenylamine

Unit 4 Documentation and Reports

Data Assessment

The Data Assessment currently used in Region 2 is SOP HW-6 for SOW OLM04.2. A copy of SOP HW-6 is included in Appendix C. It is also available as attachment 1 in Appendix A.

- Each criterion is written or documented under the specific section. Whether you copy and paste from the CADRE or write the discrepancy, make sure the statement detailed the problem, the action taken, and the samples affected.

- A problem that did not meet the SOW criteria is documented under the section titled Contract problems/Non-Compliance. This statement details only the problem and the samples affected. Hint: Copy and paste the original statement from the criterion section. Paste under Contract Problems section and remove action part of the statement.

- Problems that are not contract problems or covered under one of the criterion are documented under the section titled Other Problems. This statement details only the problem and the samples affected.

- Check Contract Compliance Screening (CCS) report, if a contract problem was mentioned in the report, do not mention the problem in your DA. CLASS has already addressed the problem.

- Any sample analysis not used such as dilutions or re-analysis, are listed in the last section of the DA. Watch the wording of the paragraph, you want the last line to read "….the following Form 1(s) are identified **not** to be used." Then list the sample analyses for each fraction that are not to be used. Analyses not to be used must be crossed out with a red X on the Forms and the words "Do Not Use" written somewhere on the Forms.

Learning Module 10

Learning Objectives for this Module

- **Identify action taken for Field Duplicates criterion not meeting the requirements stated in the checklist**

Unit 1 Field Duplicates

Relative Percent Difference (RPD)

Data may be qualified or commented on the criterion of Relative Percent Difference (RPD) of duplicate samples.

There are no specific criteria for comparability of field duplicate analyses. Soil duplicate samples will usually have a greater variance than water duplicate samples. The duplicate sample numbers are listed in the sample trip report or the traffic report. The reviewer should compute the RPD, and may qualify data based on this.

A high RPD in two soil samples having the same sample location is often due to non-homogeneity of the samples' matrix and not necessarily caused by inadequate analytical performance. If there is strong evidence that one sample result has a higher reliability than the field duplicate sample, it should be noted in the data assessment. The data user will make the final decision on how to evaluate the usability of field duplicates.

Equation 10-1 provides the formula to calculate RPD.

Equation 10-1 Formula for RPD

$$RPD = \frac{|SR - SDR|}{(1/2)(SR + SDR)} \times 100$$

SR = sample result of a particular analyte.
SDR = Sample Duplicate Result of a particular analyte.

The vertical bars in the formula above indicate the absolute value of the difference, hence RPD is always expressed as a positive value.

Example 10-1 Calculate RPD for acetone

Acetone in sample BBB02 is 56 ug/L and duplicate sample BBB07 has 78 ug/L. What is the RPD?

$$RPD = \frac{|\ 56 - 78\ |}{(1/2)\ (56 + 78)} \times 100$$

$$RPD\ (32.8) = \frac{22}{67} \times 100$$

Look at the last VOA section in the checklist for any action that may be required if the RPD is over a specific number.

15.0 <u>Field Duplicates</u>

15.1

Were any field duplicates submitted for VOA analysis?

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

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

Usually a number less than 25% for water and 50% for soil is not considered to be a problem. Remember these numbers are not fixed in stone. Use your judgement based on the data of all the samples in the package. Anything that the validator feels should be noted or brought to the attention by the data user should be mentioned in the Data Assessment.

There are many times when a situation may be present that does not affect the validity of the data but is different or unusual. Do not hesitate to inform the data user of the situation. Add a note or FYI that will call the data user attention to the details.

There is a short quiz to practice calculating RPD. Answers are in Appendix E. In another file (Appendix F) is a Final Quiz that covers all of the criteria presented in Learning Modules 1-10. Answers for the Final Quiz are in a separate file marked as Final Quiz Answers (Appendix G).

Module 10 Quiz 1

Instructions: Calculate the RPD for each of the following problems.

1.	Bromoform	Sample 1 = 34	Sample 2 = 15	RPD =
2.	Acetone	Sample 1 = 23	Sample 2 = 12	RPD =
3.	Chloromethane	Sample 1 = 45	Sample 2 = 15	RPD =
4.	Toluene	Sample 1 = 5	Sample 2 = 20	RPD =
5.	Methylene chloride	Sample 1 = 145	Sample 2 = 167	RPD =
6.	Benzene	Sample 1 = 85	Sample 2 = 63	RPD =
7.	2-hexanone	Sample 1 = 220	Sample 2 = 345	RPD =
8.	xylenes	Sample 1 = 63	Sample 2 = 24	RPD =
9.	2-butanone	Sample 1 = 72	Sample 2 = 58	RPD =
10.	Trichloroethene	Sample 1 = 91	Sample 2 = 79	RPD =

Learning Module 9

Learning Objectives for this Module

- **Identify action taken for Internal Standard criterion not meeting the requirements stated in the checklist**

Unit 1Internal Standards

Internal Standards Criterion

Internal standards are added to the sample immediately prior to injection on the instrument. The area response of each internal standard analyte determines instrument stability. Internal Standards used to quantitate VOA analytes are deuterated or fluorinated compounds. The data results are qualified if internal standard area response or retention times are outside specified limits.

For low level VOA analysis, internal standards are added along with surrogates prior to analysis. Since internal standards are added after sample preparation and dilution, they cannot be diluted out.

Low level VOA analyses do not require sample extractions. The internal standard area counts will reflect a full matrix effect because the internal standards are added to the sample immediately before analysis. Since the medium level VOA internal standards are added after sample extraction, there is a reduced matrix affect on the internal standard area counts.

As mentioned in Module 8, VOA compounds are quantitated using the internal calibration technique. Specifics known amounts of internal standards are added to all standards and samples. The internal standard amount and area response from the sample and the RRF value from the associated continuing calibration are used to quantitate each positive analyte identified in a sample. Internal standards are associated with specific TCL analytes and surrogates. There are three VOA internal standards associated with 48 TCL analytes and 3 surrogates. Table 9-1 (on the next page) is a list of analytes and surrogates and the associated internal standards used to quantitate VOA TCL compounds.

Table 9-1 TCL compounds associated with specific Internal Standards

Bromochloromethane	1,4 Difluorobenzene	Chlorobenzene-d5
Dichlorodifluoromethane	1,1,1-Trichloroethane	4-Methyl-2-pentanone
Chloromethane	Cyclohexane	Toluene
Vinyl Chloride	Carbon Tetrachloride	Tetrachloroethene
Bromomethane	Benzene	2-Hexanone
Chloroethane	Trichloroethene	1,2-Dibromoethane
Trichlorofluoromethane	Methylcyclohexane	Chlorobenzene
1,1 Dichloroethene	1,2-Dichloropropane	Ethylbenzene
1,1,2-trichloro-1,2,2-trifluoroethane	Bromodichloromethane	Xylene (total)
Acetone	Cis-1,3-Dichloropropene	Styrene
Carbon Disulfide	Trans-1,3 Dichloropropene	Isopropylbenzene
Methyl Acetate	1,1,2 Trichloroethane	1,1,2,2-Tetrachloroethane
Methylene Chloride	Dibromochloromethane	1,3-Dichlorobenzene
Trans-1,2-Dichloroethene	Bromoform	1,4- Dichlorobenzene
Methyl-tert-Butyl Ether		1,2 Dichlorobenzene
1,1 Dichloroethane		1,2-Dibromo-3-chloropropane
Cis- Dichloroethene		1,2,4-Trichlorobenzene
2-Butanone		Toluene-d8 (SMC)
Chloroform		4-bromofluorobenzene (SMC)
1,2 Dichloroethane		
1,2 Dichloroethane-d4 (SMC)		

The Internal Standard Area and Retention Time Summary Form 8 shows how environmental and QC sample internal standard area counts and retention tines vary from the continuing calibration standard. A drop or increase of internal standard area response reflects a change in instrument sensitivity. This sensitivity change may be caused by matrix interference. It can also be caused by improper technique by the analyst (incorrect amount of internal standards added to samples).

The internal standard area response limits are -50% or +100% of the associated continuing calibration standard. Example 9-1 provides an example of a Form 8 to check the internal standard limits.

Example 9-1 Example of Form 8 Internal Standard Area Response

	IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
12 HOUR STD	1975181	8.71	9410690	9.99	7602547	13.28
UPPER LIMIT	3950362	9.21	18821380	10.49	15205094	13.78
LOWER LIMIT	987590	8.21	4705345	9.49	3801274	12.78
EPA SAMPLE						
VBLK01	1660064	8.72	7543107	10.01	5979831	13.29
BBB10	835521	8.77	4835448	10.35	3846894	13.51
BBB25	3645224	8.75	17765345	10.40	17256455	13.48
BBB57	4058365	8.72	1723678	10.30	10254879	13.45

The area response for the 12-hour STD is taken from the associated continuing calibration standard. If the samples are associated with an initial calibration, the mid level (50) is used to provide the area response.

The upper limit = 12-hour STD X 2. Looking at IS1 (BCM) 1975181 x 2 = 3950362.

The lower limit = 12-hour STD +2. Looking at IS1 (BCM) 1975181 + 2 = 987590.

The validator needs to determine the area response value that will be considered the extreme low response (< 25% of the 12-hour standard). An extremely low area response means the sensitivity has dropped greatly and the value of the analytes associated with this internal standard are bias very low. The easiest way to determine the very low level limit or extreme drops in sensitivity is to use the lower limit + 2. Looking at IS1 (BCM) lower limit 987590 + 2 = 493795. This is the same as 25% of 1975181 (1975181 x 0.25 = 493795). Any area response lower than this number would be considered a very low or extremely low area response.

Let's look at the samples in Example 9-1 and see how the area responses fit into the limits. VBLK01 area responses for all 3 ISs are within the upper and lower limits.

BBB10 area responses for IS2 and IS3 are within the upper and lower limits while IS1 is below the lower limits.

BBB25 area responses for IS1 and IS2 are within the upper and lower limits while IS3 is above the upper limits.

BBB57 area response for IS3 is within the upper and lower limits, and IS1 is above the limits. IS2 area response is extremely low (1723678 is < 235672.5 (4705345 + 2)).

Note that all of the retention times are within the ! 30-second window established by the 12-hour standard.

Now that we know which area responses are outside the criteria, what are the qualifications that must be applied to the data. Section 14 of the checklist provides the appropriate actions.

14.0 <u>Internal Standard (Form VIII)</u>

14.1 *Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to +100%) for each continuing calibration?*

If no, was the sample re-analyzed?

ACTION: 1. Circle all outliers with red <u>pencil</u>.

2. List all the outliers below.

Sample #	*Internal Std.*	*Area*	*Lower/Upper Limit*
_____	_____	_____	_____ /_____
_____	_____	_____	_____ /_____
_____	_____	_____	_____ /_____

(Attach additional sheets if necessary, or attach copies of Form VIIIs.)

ACTION: If any sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

ACTION: 1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results quantitated with this internal standard. 2. Do not qualify non-detects when associated IS area counts are > 100%.

2. Do not qualify non-detects when associated IS area counts are > 100%.

3. If the IS area in the sample is below the "lower limit," < 50%, qualify all analytes associated with that IS estimated, "J". If the area counts are extremely low, < 25% of the area in the 12 hour standard, or if performance exhibits a major abrupt drop- off, flag all associated non-detects as unusable, "R", and positive hits estimated, "J".

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard?

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

NOTE: Contractual requirements state that if any internal standard fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

Using the results from Example 9-1 (page 2), apply the checklist actions. Internal Standards that passed criteria are not qualified. Action is required for the remaining Internal Standards.

BBB10 area responses for IS2 and IS3 are within the upper and lower limits while IS1 is <u>below</u> the lower limits. All analytes associated with IS1 would be qualified with a "J" for detects and "UJ" for non-detects.

BBB25 area responses for IS1 and IS2 are within the upper and lower limits while IS3 is above the upper limits. Analytes associated with IS3 would be qualified with a "J" for detects and no action for non-detects.

BBB57 area response for IS3 is within the upper and lower limits, and IS1 is above the limits. IS2 area response is extremely low (1723678 is < 235672.5 (4705345 + 2)). Analytes associated with IS1 would be qualified with a "J" for detects and no action for non-detects. All analytes associated with IS2 would be qualified with a "J" for detects and "R" for non-detects.

In Example 9-1, the retention time of all the Internal Standards in the samples were within established retention time windows. If the retention rime varies by more than 30 seconds, the validator may use professional judgement in qualifying data.

Internal Standard criteria are very easy and straightforward and only analytes associated with the failing IS are qualified. Most of the analytes are associated with IS in the retention time order in the TCL listing. There are several compounds that are out of order from the TCL listing. Bromoform and Dibromochloromethane are in the middle of the IS3 analytes, but are associated with IS2. 4-methyl-2-pentanone and toluene are in the middle of the IS2 listing of analytes, but are associated with IS3.

Using the checklist, write the qualifications needed for the samples listed on Form 8 for the next quiz. Answers are in Appendix E.

Module 9 Quiz 1

Instruction:

- Use the checklist to qualify the samples on Form 8 located on the next page.
- Apply the qualifications to the correct sample Form 1's that are located after all of the internal standard forms.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

EPA Sample N0. (VSTD50##): _VSTD050GB_____ Date Analyzed: __02/10/01_____

Lab File ID: ___CCA03_____ Time Analyzed: __0849_____

Instrument ID: _AA_____ Heated Purge: (Y/N) ___N_____

GC Column: Equity 624_____ ID: ___0.53_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	1975181	8.71	9410690	9.99	7602547	13.28
	UPPER LIMIT	3950362	9.21	18821380	10.49	15205094	13.78
	LOWER LIMIT	987590	8.21	4705345	9.49	3801274	12.78
	EPA SAMPLE						
3.	VBLKJH	1660064	8.72	7543107	10.00	5979831	13.28
4.	BBJ60	468546	8.75	4354968	10.04	3414794	13.35
5.	BDR43	1868546	8.75	8354968	10.04	6414794	13.35
6.	BPH71	1833643	8.75	8369362	10.05	6394398	13.35
7.	BPJ51	1756578	8.70	1023445	10.08	7036555	13.39
8.	BPJ51MS	1710824	8.76	8105650	10.06	7073084	13.37
9.	BPJ51MSD	1802595	8.74	7989070	10.03	6216760	13.34
10.	BPL01	1715283	8.76	7681124	10.05	6086404	13.55
11.	BPL04	1684919	8.75	19513332	10.04	6078780	13.34
12.	VHBLK01	2417277	8.73	11434662	10.02	9444473	13.32
13.							
14.							
15.							
16.							
17.							
18.							
19.							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 100% of internal standard area
AREA LOWER LIMIT = + 100% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
*Values outside QC limits

page _1____ of ___1__

FORM VIII VOA

OLM04.2

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

Date Analyzed: __02/11/01_____

EPA Sample N0. (VSTD50##): _VSTD50GJ_____

Lab File ID: ___CCB04_____

Time Analyzed: __0639_____

Heated Purge: (Y/N) ___N_____

Instrument ID: ___AA_____

GC Column: Equity 624_____ ID: ___0.53_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	2053996	8.71	9662137	9.99	7833905	13.29
	UPPER LIMIT	4107992	9.21	19324274	10.49	15667810	13.79
	LOWER LIMIT	1026998	8.21	4831068	9.49	3916952	12.79
	EPA SAMPLE						
1.	VBLKSD	2180370	8.71	10645744	10.00	8771656	13.30
2.	BNR68	4187293	8.71	10478395	9.98	8678186	13.28
3.	BNR68MS	2783007	8.71	13501830	9.99	10995743	13.28
4.	BNR68MSD	955423	8.72	3335467	9.99	8570860	13.30
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area

AREA LOWER LIMIT = - 100% of internal standard area

AREA LOWER LIMIT = + 100% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

*Values outside QC limits

page __1___ of __1___

FORM VIII VOA

OLM04.2

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ____NewLab_____ Contract : __123456_____

Lab Code: __NLB_____ Case No.: _12345__ SAS No.: _____ SDG No.:_BBB00

Date Analyzed: __02/05/01_____

EPA Sample N0. (VSTD50##): _VSTD50KL_____

Lab File ID: __CCT03_____

Time Analyzed: __1523_____

Heated Purge: (Y/N) ___Y_____

Instrument ID: __BB_____

GC Column: J7W DB-624__ ID: _0.32_____(mm)

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	42176	7.91	211480	8.96	215712	11.90
	UPPER LIMIT	85432	8.41	422960	9.46	431424	12.40
	LOWER LIMIT	21358	7.41	105740	8.46	107856	11.40
	EPA SAMPLE						
1.	VBLKDS	51955	7.90	263474	8.94	243044	11.88
2.	BPH62	40502	7.91	187854	8.96	177417	11.90
3.	BXZ26	9030	7.88	431663	8.93	447852	11.87
4.	BXZ26MS	42616	7.93	186765	8.96	165043	11.89
5.	BXZ26MSD	37177	7.91	156950	8.96	149188	11.89
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area

AREA LOWER LIMIT = - 100% of internal standard area

AREA LOWER LIMIT = + 100% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

*Values outside QC limits

page __1___ of __1___

FORM VIII VOA

OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	85	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	52	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	23	
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	33	
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	5	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-14_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-14AA_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	14	
108-88-3	Toluene	8	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	17	
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	5	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	36	
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	U
74-87-3	Chloromethane	2200	U
75-01-4	Vinyl Chloride	2200	U
74-83-9	Bromomethane	2200	U
75-00-3	Chloroethane	2200	U
75-69-4	Trichlorofluoromethane	2200	U
75-35-4	1,1 Dichloroethene	2200	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	U
67-64-1	Acetone	3800	
75-15-0	Carbon Disulfide	2200	U
79-20-9	Methyl Acetate	690	J
75-09-2	Methylene Chloride	480	J
156-60-5	Trans-1,2-Dichloroethene	2200	U
1634-04-4	Methyl-tert-Butyl Ether	2200	U
75-34-3	1,1 Dichloroethane	2200	U
156-59-2	Cis- Dichloroethene	2200	U
78-93-3	2-Butanone	2200	U
67-99-3	Chloroform	2200	U
71-55-6	1,1,1-Trichloroethane	2200	U
12200-82-7	Cyclohexane	2200	U
56-23-5	Carbon Tetrachloride	2200	U
71-43-2	Benzene	2200	U
22007-06-2	1,2 Dichloroethane	2200	U

EPA SAMPLE NO.
BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____
Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____
GC Column: _Equity 624____ ID: Dilution Factor: _____1_____
___0.53_____(mm)

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	2200	U
22008-87-2	Methylcyclohexane	2200	U
78-87-5	1,2-Dichloropropane	2200	U
75-27-4	Bromodichloromethane	2200	U
2200061-01-5	Cis-1,3-Dichloropropene	2200	U
22008-2200-1	4-Methyl-2-pentanone	2200	U
22008-88-3	Toluene	2200	U
2200061-02-6	Trans-1,3 Dichloropropene	2200	U
79-00-5	1,1,2 Trichloroethane	2200	U
127-18-4	Tetrachloroethene	2200	U
591-78-6	2-Hexanone	2200	U
124-48-1	Dibromochloromethane	2200	U
22006-93-4	1,2-Dibromoethane	2200	U
22008-90-7	Chlorobenzene	2200	U
22000-41-4	Ethylbenzene	2200	U
1330-20-7	Xylene (total)	2200	U
22000-42-5	Styrene	2200	U
75-25-2	Bromoform	2200	U
98-82-8	Isopropylbenzene	2200	U
79-34-5	1,1,2,2-Tetrachloroethane	2200	U
541-73-1	1,3-Dichlorobenzene	2200	U
22006-46-7	1,4- Dichlorobenzene	2200	U
95-50-1	1,2 Dichlorobenzene	2200	U
96-12-8	1,2-Dibromo-3-chloropropane	2200	U
120-82-1	1,2,4-Trichlorobenzene	2200	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) ___lg/L _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	5	J
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBB00-21_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __ BBB00-21RB_____

Level: (low/med) _____ Date Received: __02/03/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	J
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	1	J
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	3	J
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	1	J

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/05/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	19	U
74-87-3	Chloromethane	19	U
75-01-4	Vinyl Chloride	19	U
74-83-9	Bromomethane	19	U
75-00-3	Chloroethane	19	U
75-69-4	Trichlorofluoromethane	19	U
75-35-4	1,1 Dichloroethene	19	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	19	U
67-64-1	Acetone	19	U
75-15-0	Carbon Disulfide	19	U
79-20-9	Methyl Acetate	19	U
75-09-2	Methylene Chloride	19	U
156-60-5	Trans-1,2-Dichloroethene	19	U
1634-04-4	Methyl-tert-Butyl Ether	19	U
75-34-3	1,1 Dichloroethane	19	U
156-59-2	Cis- Dichloroethene	19	U
78-93-3	2-Butanone	19	U
67-99-3	Chloroform	19	U
71-55-6	1,1,1-Trichloroethane	19	U
110-82-7	Cyclohexane	19	U
56-23-5	Carbon Tetrachloride	19	U
71-43-2	Benzene	19	U
107-06-2	1,2 Dichloroethane	19	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BBB00-11_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _ BBB00-11BB_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____23_____ Date Analyzed: _02/05/01_____

GC Column: _J&W DB-624_____ ID: ____0.32_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
79-01-6	Trichloroethene	19	U
108-87-2	Methylcyclohexane	19	U
78-87-5	1,2-Dichloropropane	19	U
75-27-4	Bromodichloromethane	19	U
10061-01-5	Cis-1,3-Dichloropropene	19	U
108-10-1	4-Methyl-2-pentanone	19	U
108-88-3	Toluene	19	U
10061-02-6	Trans-1,3 Dichloropropene	19	U
79-00-5	1,1,2 Trichloroethane	19	U
127-18-4	Tetrachloroethene	19	U
591-78-6	2-Hexanone	19	U
124-48-1	Dibromochloromethane	19	U
106-93-4	1,2-Dibromoethane	19	U
108-90-7	Chlorobenzene	19	U
100-41-4	Ethylbenzene	19	U
1330-20-7	Xylene (total)	19	U
100-42-5	Styrene	19	U
75-25-2	Bromoform	19	U
98-82-8	Isopropylbenzene	19	U
79-34-5	1,1,2,2-Tetrachloroethane	19	U
541-73-1	1,3-Dichlorobenzene	19	U
106-46-7	1,4- Dichlorobenzene	19	U
95-50-1	1,2 Dichlorobenzene	19	U
96-12-8	1,2-Dibromo-3-chloropropane	19	U
120-82-1	1,2,4-Trichlorobenzene	19	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-27_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-27AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	2200	U
74-87-3	Chloromethane	2200	U
75-01-4	Vinyl Chloride	2200	U
74-83-9	Bromomethane	2200	U
75-00-3	Chloroethane	2200	U
75-69-4	Trichlorofluoromethane	2200	U
75-35-4	1,1 Dichloroethene	10000	
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	U
67-64-1	Acetone	4100	
75-15-0	Carbon Disulfide	2200	U
79-20-9	Methyl Acetate	740	J
75-09-2	Methylene Chloride	440	J
156-60-5	Trans-1,2-Dichloroethene	2200	U
1634-04-4	Methyl-tert-Butyl Ether	2200	U
75-34-3	1,1 Dichloroethane	2200	U
156-59-2	Cis- Dichloroethene	2200	U
78-93-3	2-Butanone	1200	J
67-99-3	Chloroform	2200	U
71-55-6	1,1,1-Trichloroethane	2200	U
110-82-7	Cyclohexane	2200	U
56-23-5	Carbon Tetrachloride	2200	U
71-43-2	Benzene	9900	
107-06-2	1,2 Dichloroethane	2200	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68MSD

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-27_____

Sample wt/vol: _____3.63_____(g/mL) ___g_____ Lab File ID: __ BBB00-27AA_____

Level: (low/med) __Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: __02/11/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	9500	
108-87-2	Methylcyclohexane	2200	U
78-87-5	1,2-Dichloropropane	2200	U
75-27-4	Bromodichloromethane	2200	U
10061-01-5	Cis-1,3-Dichloropropene	2200	U
108-10-1	4-Methyl-2-pentanone	2200	U
108-88-3	Toluene	9600	
10061-02-6	Trans-1,3 Dichloropropene	2200	U
79-00-5	1,1,2 Trichloroethane	2200	U
127-18-4	Tetrachloroethene	2200	U
591-78-6	2-Hexanone	1200	J
124-48-1	Dibromochloromethane	2200	U
106-93-4	1,2-Dibromoethane	2200	U
108-90-7	Chlorobenzene	9400	
100-41-4	Ethylbenzene	2200	U
1330-20-7	Xylene (total)	2200	U
100-42-5	Styrene	2200	U
75-25-2	Bromoform	2200	U
98-82-8	Isopropylbenzene	2200	U
79-34-5	1,1,2,2-Tetrachloroethane	2200	U
541-73-1	1,3-Dichlorobenzene	7100	
106-46-7	1,4- Dichlorobenzene	9000	
95-50-1	1,2 Dichlorobenzene	15000	
96-12-8	1,2-Dibromo-3-chloropropane	2200	U
120-82-1	1,2,4-Trichlorobenzene	12000	

Learning Module 8

Learning Objectives for this Module

- **Identify action taken for Initial and Continuing Calibration criteria not meeting the requirements stated in the checklist**

Unit 1 Initial Calibration

The purpose of the initial calibration is to verify the linearity of the instrument response within a specified concentration range. For VOA, this five point calibration range reflects Relative Response Factors (RRF) at a concentration of 10, 20, 50, 100, and 200 part per billion for all 48 VOA TCL analytes and three surrogate compounds.

The response factors of the five initial calibration standards are computed using the associated internal standards concentration and area response (see Equation 8.1). Internal standards are used to quantitate TCL analytes when the GC detects and identified (by MS) them in an environmental sample.

There are three internal standards for the VOA analysis. The internal standards have different retention times. TCL analytes are quantitated with their particular internal standard (see Module 9, Table 9-1 for the list of Internal Standards and associated compounds). The retention time of a specific internal standard is close to the retention time of the associated TCL compound.

Validating the Initial Calibration criterion

During the validation process, the calibration is reviewed for technical criterion as well as contractual requirements. The requirements are different for technical and contractual for the acceptance criteria and the number of analytes that are affected by the criteria. All initial calibration data is reported on Form 6 while continuing calibration data is reported on Form 7.

Review of Key Terms

%RSD - Percent Relative Standard Deviation- statistical tool used to measure the population standard deviation of a list of values.

RRF - Relative Response Factor- a measure of the relative mass spectral response of an analyte compared to its internal standard.

%D - Percent Difference- compares two values and indicates both the direction and the magnitude of the comparison. The value may be positive, negative or zero.

Contractual Requirements

Let's look at the contractual criterion first. There are 3 points to consider when reviewing the data:

- 27 analytes and 1 SMC have to meet the minimum RRF and maximum %RSD (20.5) values. These required analytes are marked with an asterisk * on the Forms 6 and 7. Table 8-1 is a list of the 28 analytes and the RRF and %RSD values.

- All other analytes must meet a minimum RRF of 0.010. There is no maximum %RSD for these analytes.

- The SOW allows up to **2** of the required analytes to fail contractual requirements for RRF or %RSD. **The failing analytes must have a %RSD ≤ 40% and RRF must be ≥ 0.010.** Therefore if 1 of the required analytes is > 40% or has a RRF < 0.010, this is considered to be a contract non-compliance. Document the problem in the DA. Every required analyte at every level must pass specified RRF and %RSD contractual requirements.

Table 8-1 List of required analytes, RRF, %RSD and %D values for Contractual requirements

Analyte	Min. RRF	Max. %RSD	Max. %D
Bromomethane	0.100	20.5	± 25.0
Vinyl Chloride	0.100	20.5	± 25.0
1, 1-Dichloroethene	0.100	20.5	± 25.0
1, 1-Dichloroethane	0.200	20.5	± 25.0
Chloroform	0.200	20.5	± 25.0
1, 2-Dichloroethane	0.100	20.5	± 25.0
1, 1, 1-Trichloroethane	0.100	20.5	± 25.0
Carbon Tetrachloride	0.100	20.5	± 25.0
Bromodichloromethane	0.200	20.5	± 25.0
cis-1,3-Dichloropropene	0.200	20.5	± 25.0
Trichloroethene	0.300	20.5	± 25.0
Dibromochloromethane	0.100	20.5	± 25.0
1, 1, 2-Trichloroethane	0.100	20.5	± 25.0
Benzene	0.500	20.5	± 25.0
trans-1, 3-Dichloropropene	0.100	20.5	± 25.0
Bromoform	0.100	20.5	± 25.0
Toluene	0.400	20.5	± 25.0
tetrachloroethene	0.200	20.5	± 25.0
chlorobenzene	0.500	20.5	± 25.0
ethylbenzene	0.100	20.5	± 25.0
xylenes (Total)	0.300	20.5	± 25.0
styrene	0.300	20.5	± 25.0
1, 1, 2, 2-tetrachloroethane	0.300	20.5	± 25.0
1, 4 Dichlorobenzene	0.500	20.5	± 25.0
1, 3 Dichlorobenzene	0.600	20.5	± 25.0
1, 2 Dichlorobenzene	0.400	20.5	± 25.0
1, 2, 4 Trichlorobenzene	0.200	none	± 25.0
Bromofluorobenzene	0.200	20.5	± 25.0

Technical Requirements

Technical guidelines are applied to **all analytes**, not just selected compounds as for contractual requirements. There are 3 points to consider when reviewing the data:

- All analytes are reviewed for technical requirement of %RSD ≤ 30%

- The average RRF should be ≥ 0.05.

- Region 2 qualifies analytes if <u>average</u> RRF is < 0.05. If an individual standard RRF is < 0.05 but the average is ≥ 0.05, no action is taken. Other Regions may qualify data if an individual level or average RRF is < 0.05.

Next verify the RRF and %RSD values for each analyte. Unless there are a lot of errors, check 1 analyte associated with each internal standard. Module 9, Table 9-1 or the SOW OLM04.2 (page D-59/VOA, Table 3) has the list of analytes associated with each Internal Standard. Equation 8-1 is the formula for verifying the RRF value for each of the 5 levels.

Equation 8-1 Calculation for RRF value

$$RRF_{(\text{Concentration level})} = \frac{(A_x) \times (C_{is})}{(A_{is}) \times (C_x)}$$

Where:

(A_x) = Area of the characteristic ion for the standard to be measured
(A_{is}) = Area of the characteristic ion for the internal standard to be measured
(C_x) = Concentration of the standard
(C_{is}) = Concentration of the internal standard

For example if Vinyl chloride area response is 52756 and the internal standard (Bromochloromethane) area response is 64368 for level standard (20). The concentration of the internal standard for all levels is 50. The equation would look like this:

$$\text{Vinyl chloride } RRF_{(20)} = 2.048 \qquad \frac{(52726) \times (50)}{(64368) \times (20)}$$

The next quiz will give you practice calculating RRF. Answers can be found in Appendix E. Hint: mid level standard of 50 and IS concentration cancel each other out. You only need to divide the area responses.

Module 8 Quiz 1

Instruction:

- Table 1 is the area responses for all of the analytes of interest.
- Calculate the RRF for each level and analyte on Table 2.
- Fill in the RRF values only, leave the average RRF and %RSD fields empty. They will be filled in from later quizzes.

Table 1 Modified Quant Reports for initial calibration

Compounds	RRF 10	RRF 20	RRF 50	RRF 100	RRF 200
*Bromomethane	409350	466020	1249926	3082217	6415615
Acetone	15963	35935	68625	140328	221827
*Chloroform	907689	1697755	4105108	8342463	16477161
*Benzene	610201	1075699	2907350	6170945	11899904
Cyclohexane	9354	25524	79987	58987	225412
*Bromoform	319420	1075977	3365977	11799977	11996977
*Toluene	328502	510323	1305147	4079869	8114578
2-Hexanone	18080	160804	504770	1228383	2527510
*1,2,4 Trichlorobenzene	248478	499833	1008233	1958233	3688233
Toluene-d8	895546	1841986	5058301	10131353	21623119
*Bromofluorobenzene	758629	1624632	4418668	9001043	16265954
1,2 Dichloroethane-d4	273514	520679	1418264	2866711	6072579
Bromochloromethane	1044651	1070449	1143611	1204961	1341516
1,4 Difluorobenzene	4957106	5152521	5364949	5628863	6088307
Chlorobenzene-d5	4094002	4197350	4291897	4615845	4920107

* Analytes required to passed minimum RRF and maximum %RSD.

Table 2 Modified Form 6A/B

Compounds	**RRF 10**	**RRF 20**	**RRF 50**	**RRF 100**	**RRF 200**	**Ave RRF**	**%RSD**
*Bromomethane							
Acetone							
*Chloroform							
*Benzene							
Cyclohexane							
*Bromoform							
*Toluene							
2-Hexanone							
*1,2,4 Trichlorobenzene							
Toluene-d8							
*Bromofluorobenzene							
1,2 Dichloroethane-d4							

* Analytes required to passed minimum RRF and maximum %RSD.

Keep Table 2 of Module 8 Quiz 1 available. You will need it for the next two quizzes.

Were any of the RRF values < 0.05? Remember in Region 2, the average RRF is used to qualify samples. The average is calculated by the addition of all of the RRF values then divide by the number of values used. See Equation 8-2.

Equation 8-2 Average Value

$$\text{Average} = \frac{(STD_{10} + STD_{20} + STD_{50} + STD_{100} + STD_{200})}{\text{Number of Values (usually 5)}}$$

NOTE: This value is usually 5 but if a standard is dropped, either the lowest or the highest, this value will be different. Keep in mind, if you decide to drop the lowest standard, all of the CRQLs must be raised to reflect the new lowest standard. If the highest standard is dropped, concentrations must be checked for exceeding the modified calibration range and qualified if dilutions are not available.

Module 8 Quiz 1

Instruction: Go back to Table 2 in Quiz 1 and fill in the average RRF values.

Answers are in Appendix E for this quiz.

The last column, %RSD is usually calculated using a calculator. The equation is given below. The most common error by the labs in computing %RSD is substituting n for n-1.

Equation 8-3 %RSD equation

$$\%RSD = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$

Where:

$$\text{Standard Deviation} = \sqrt{\frac{\sum_{i=1}^{n} (X_i - \overline{X})^2}{(n-1)}}$$

X_i = each individual value used to calculate the mean

$\overline{X}$ = The mean of the n values

n = The total number of values

Use a scientific calculator or calculation program to verify %RSD.

Module 8 Quiz 3

Instruction: Go back to Table 2 from Quiz 1. Write in the %RSD for each analyte.

The answers for %RSD are in Appendix E.

Keep Table 2 from the above quizzes handy, you will need it for the last quiz, to be taken after the checklist.

In the last Module, a great deal of time was devoted to tune and sequence of samples. Both criteria are tied in with the calibration criterion. For now, let's look at sections 11 and 12 of the checklist on VOAs to understand how to qualify data for failing RRF and %RSD values.

11.0 Standards Data (GC/MS)

11.1Are the Reconstructed Ion Chromatograms, and data system printouts (quant. reports) present for each initial and continuing calibration?

ACTION:If any calibration standard data are missing, take action specified in 3.2 above.

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete at concentrations of 10, 20, 50, 100, 200ng for separate calibrations of low water/med soils (unheated purge) and low soils (heated purge)?

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Were all low level soil standards, blanks and samples analyzed by heated purge?

ACTION: If low level soil samples were not heated during purge, qualify positive hits "J" (estimated) and non-detects "R".

12.3 Are the % relative standard deviation (%RSD) values for VOA's # 30% over the concentration range of the calibration?

NOTE: Although 23 VOA compounds have a contractual minimum RRF and no maximum %RSD, the technical acceptance criteria are the same for all analytes.

ACTION: Circle all outliers with red pencil.

ACTION: If %RSD is > 30.0%, qualify associated positive results for that analyte "J" (estimated). Do not qualify non-detects. When %RSD is > 90%, flag all non-detects for that analyte "R" (unusable) and positive hits "J".

NOTE: Analytes previously qualified "U" for blank contamination are still considered as "hits" when qualifying for initial calibration criteria.

12.4 Are any average RRFs < 0.05?

ACTION: Circle all outliers with red pencil.

ACTION: If the average RRF is < 0.05, then qualify associated non-detects with an "R" and flag associated positive data as estimated "J".

NOTE: Contract Requirement: The SOW allows up to two of the required analytes to fail contractual %RSD or RRF criteria, provided the %RSD is # 40% and RRF is $ 0.010. (See Table 5, page D-61/VOA and analytes marked with a "(" on Form VI for required analytes and contractual criteria.) Technical criteria, however, are the same for all analytes.

ACTION: If more than two analytes failed %RSD or RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance.

12.5 Are there any transcription/calculation errors in the reporting of average relative response factors (RRF) or %RSD? (Check at least 2 values, but if errors are found, check more.)

ACTION: Circle errors with red pencil.

ACTION: If errors are large, contact the TOPO to obtain an explanation/resubmittal from the lab, document in the Data Assessment under Contract Problems/Non-Compliance.

Information about heated purge and samples, (section 12.2 of the checklist) can be found on Form 5 (tune and sequence), Form 4 (method blank summary) and Form 1's (sample data sheets). The Forms should have a "Y" for yes in the heated purge field if the sample matrix is soil/sediment. Otherwise, the heated purge field should have a "N" for no for aqueous samples.

Important note about analytes qualified "U" for blank contamination. As mentioned in the checklist, these analytes are still considered to be positive hits and are qualified as positive hits. For example in a calibration the %RSD for acetone is 95%. Non-detects are qualified as "R" and detects are qualified as "J". If Acetone was previously qualified "U" due to contamination in a sample, it would be reported as "UJ" not "R". The "U" is the qualifier for contamination and the "J" is for the calibration criteria. Although it is now considered a non-detect for contamination, it was originally a positive hit and is treated as a detected hit.

The checklist is very explicit about the technical requirements and qualifications to apply for failing values. Use Table 2 that you filled out from the previous quizzes and the checklist above to do the next quiz. Answers are in Appendix E.

Module 8 Quiz 4

- Instruction: Use the completed Table 2 from the previous quizzes and the checklist to determine which analytes failed criteria.
- Write on this page the analytes that failed Contract criterion and which criterion failed. For example: Sample X- methylene chloride failed %RSD criteria.
- Write on this page the analytes that failed Technical criterion and which criterion failed. For example: Sample X- methylene chloride failed RRF criteria.
- For analytes failing technical requirements, write the action/qualifiers that must be applied to the data.

Contract Requirements

Technical Requirements

Unit 2 Continuing Calibration

All analyte concentration calculations are based on the RRF50 continuing calibration, which is also called the daily calibration. Always check to ensure that the lab reported the raw data and the forms at the correct concentration. Labs have been known to submit raw data for a standard at a different concentration other than 50. If this happens, request a resubmittal from the Lab through the TOPO.

Every batch of samples associated with a calibration must be analyzed within 12 hours of instrument tune injection time. The most common sequence (check Form 5) for the analysis of blank and samples is:

- Injection of instrument performance compound (tune, BFB)
  Continuing calibration (STD50) for all TCL compounds = RRF50
- Method blank (mandatory for VOA within the 12-hour time frame/ per matrix). Separate water and med. level soil method blanks must be analyzed if samples of both matrices are analyzed within the same 12-hour period.
- Environmental samples. The last sample injection must be within 12 hours of the instrument tune

The only exception to this sequence is when samples are analyzed directly after the five point initial calibration. In this circumstance, the RRF50 standard of the initial calibration is used for quantitation. The lab should submit a Form 7 for this mid level to prove the standard passed continuing calibration criteria. The association of method blanks with particular samples is directly associated with the daily continuing calibration.

The continuing calibration instrument response is compared with the initial calibration instrument response for the same instrument. The instrument response for specific TCL compounds is expressed by the relative response factor RRF. The term “relative” derives from the comparison with the response of the particular internal standard, whose response is considered to be 100%.

The data reviewer has to verify which initial calibration is associated with each continuing calibration. Compare instrument ID, date, time and mean RRFs of initial calibration with instrument ID, date, time, and mean RRFs reported on continuing calibration form.

The RRF comparison is calculated using the % Difference equation. The formula for this calculation is given in Equation 8-4.

Equation 8-4 %D calculation

$$\%D = \frac{RRF - \overline{RRF}_{50}}{\overline{RRF}} \times 100$$

Practice 8-1 Calculate the %D for methylene chloride if the $\overline{RRF}_{50}$ is 1.508 and the mean RRF from the initial calibration is 1.771.

$$\%D = \frac{1.771 - 1.508}{1.771} \times 100$$

The percent D value of -14.9 passed criteria of ! 25%.

Practice calculating % D by taking the next quiz. Answers are in Appendix E.

Module 8 Quiz 5

Instruction:

- Calculate the RRF and %D from the area responses given in Table 1. Refer to Module 9, Table 9-1 or SOW OLM04.2 D-59/VOA, Table 3 for the list of analytes associated with each Internal Standard.
- Write the RRF and %D in Table 2.

Table 1 Modified Quant report for continuing calibration level

Compounds	RRF 50
Bromochloromethane	1975181
*Bromomethane	1545387
Acetone	85473
*Chloroform	7865473
1,2 Dichloroethane-d4	1996987
1,4 Difluorobenzene	9410690
*Benzene	5439473
Cyclohexane	95473
*Bromoform	7925473
Chlorobenzene-d5	7602547
Toluene-d8	8577587
*Toluene	4123478
2-Hexanone	9534587
*1,2,4 Trichlorobenzene	19634587
*Bromofluorobenzene	12559587

Table 2 Modified Form 7A/B

Compounds	RRF 50	RRF 50	%D
*Bromomethane	1.483		
Acetone	0.064		
*Chloroform	3.686		
*Benzene	0.543		
Cyclohexane	0.009		
*Bromoform	0.602		
*Toluene	0.396		
2-Hexanone	0.099		
*1,2,4 Trichlorobenzene	0.247		
Toluene-d8	1.113		
*Bromofluorobenzene	0.945		
1,2 Dichloroethane-d4	1.217		

Review section 13 of the checklist to understand how to qualify data based on failed RRF and % D values.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for separate calibration of low water/med soil and low soil samples?

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, contact the TOPO to request an explanation/resubmittal from the lab. If continuing calibration data are not available, flag all associated sample data as unusable "R".

ACTION: List below all sample(s) that were not analyzed within twelve hours of the previous continuing calibration.

13.3 Do any volatile compounds have a percent difference (%D) between the initial and continuing RRF which exceeds the ±25% criteria?

*NOTE: Although **23** VOA compounds have a contractual minimum RRF and no maximum %D, the technical acceptance criteria are the same for all analytes.*

ACTION: Circle all outliers with red pencil.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated. When %D is > 90%, qualify all non-detects for that analyte unusable (R) and positive results estimated (J) .

13.4 Are any continuing calibration RRFs < 0.05?

ACTION: Circle all outliers with red pencil.

ACTION: If the RRF is < 0.05, qualify the associated non-detects as unusable "R" and the associated positive values "J".

NOTE: Contract Requirement: The SOW allows up to two of the required analytes to fail contractual %D and RRF criteria, provided that the %D is # 40% and the RRF is $ 0.010. (See Table 5 pg. D-61/VOA or analytes marked with a "(" on Form VI for required analytes.) Technical criteria, however, are the same for all analytes.

13.5 Are there any transcription/calculation errors in the reporting of RRF or %D between initial and continuing RRFs? (Check at least two values, but if errors are found, check more.)

ACTION: Circle errors with red pencil.

ACTION: If errors are large, contact the TOPO to obtain an explanation/resubmittal from the lab, document in the Data Assessment under Contract Problems/Non-Compliance.

Take the next quiz. Answers are in Appendix E.

Module 8 Quiz 6

Instruction:

- Using Table 2 from Quiz 5 and the checklist, write out the qualifications that are needed for the failing RRF and %RSD values.
- Don't forget to identify and describe contractual problems.

Technical Problems

Contract Non-Compliance

Module 8 Quiz 7

Instruction:

- Circle all values that fail criteria for the Initial and Continuing Calibration forms on the next 4 pages. Form 6 is for initial calibration and Form 7 is for continuing calibration.
- On this page write the action/qualifications that must be applied to samples.

Technical Problems

Contract Non-Compliance

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _AA_____ Calibration Date: _02/07/00____ __02/07/00____

Heated Purge: (Y/N) __N_____ Calibration Times: __0949_____ __1156_____

GC Column: _Equity 624____ ID: ___0.53_____(mm)

LAB FILE ID: RRF10 = RRF20 = ___ ICA020_____
RRF50 = ____ ICA050___ __ICA010_____ RRF200 = ___ ICA200_____
RRF100 = _ ICA100_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
Dichlorodifluoromethane	2.908	2.486	2.198	2.018	1.809	2.284	18.8
Chloromethane	2.003	1.744	1.537	1.413	1.226	1.585	19.0
Vinyl Chloride *	2.039	1.766	1.542	1.449	1.349	1.629	*17.0
Bromomethane *	1.757	1.486	1.389	1.279	1.196	1.421	*15.3
Chloroethane	1.148	1.026	0.822	0.722	0.607	0.865	25.5
Trichlorofluoromethane	3.532	3.085	2.767	2.552	2.327	2.853	16.5
1,1 Dichloroethene *	1.599	1.502	1.356	1.277	1.189	1.385	*12.0
1,1,2-trichloro-1,2,2-trifluoroethane	3.376	3.166	2.801	2.686	2.457	2.897	12.8
Acetone	0.307	0.244	0.230	0.218	0.191	0.238	18.1
Carbon Disulfide	4.632	4.255	3.705	3.591	3.352	3.907	13.4
Methyl Acetate	1.164	0.852	0.838	0.794	0.699	0.869	20.1
Methylene Chloride	2.377	1.990	1.653	1.511	1.325	1.771	23.5
Trans-1,2-Dichloroethene	2.107	1.969	1.797	1.771	1.544	1.838	11.6
Methyl-tert-Butyl Ether	4.730	4.576	4.183	4.137	3.500	4.225	11.3
1,1 Dichloroethane *	4.374	4.037	3.607	3.512	3.099	3.726	*13.2
Cis- Dichloroethene	2.052	1.951	1.761	1.768	1.589	1.824	9.9
2-Butanone	0.418	0.362	0.340	0.338	0.272	0.346	15.2
Chloroform *	4.344	3.965	3.590	3.462	3.071	3.686	*13.2
1,1,1-Trichloroethane *	0.605	0.560	0.537	0.539	0.504	0.549	*6.8
Cyclohexane	0.677	0.609	0.552	0.553	0.515	0.581	10.9
Carbon Tetrachloride *	0.544	0.511	0.472	0.469	0.438	0.487	*8.4
Benzene *	1.215	1.122	1.042	1.048	0.957	1.077	*9.0
1,2 Dichloroethane *	1.912	1.823	1.660	1.641	1.441	1.695	*10.7
Trichloroethene *	0.468	0.439	0.420	0.421	0.399	0.429	*6.0
Methylcyclohexane	0.614	0.555	0.508	0.517	0.496	0.538	8.9

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: _AA_____ Calibration Date: _02/07/00____ __02/07/00____

Heated Purge: (Y/N) __N_____ Calibration Times: __0949_____ __1156_____

GC Column: _Equity 624____ ID: ___0.53_____(mm)

LAB FILE ID: RRF10 = RRF20 = ___ ICA020_____
RRF50 = ____ ICA050___ __ICA010_____ RRF200 = ___ ICA200_____
RRF100 = _ ICA100_____

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	_____ RRF	% RSD
1,2-Dichloropropane	0.634	0.583	0.540	0.528	0.480	0.553	10.5
Bromodichloromethane *	0.867	0.804	0.748	0.743	0.684	0.769	*9.0
Cis-1,3-Dichloropropene *	0.524	0.494	0.470	0.472	0.445	0.481	*6.2
4-Methyl-2-pentanone	0.174	0.205	0.203	0.204	0.188	0.195	7.0
Toluene *	1.608	1.485	1.369	1.334	1.200	1.399	*11.1
Trans-1,3 Dichloropropene *	0.297	0.295	0.290	0.311	0.301	0.299	*2.7
1,1,2 Trichloroethane *	0.339	0.314	0.291	0.298	0.281	0.305	*7.5
Tetrachloroethene *	0.486	0.456	0.432	0.457	0.445	0.455	*4.4
2-Hexanone	0.022	0.046	0.066	0.051	0.045	0.046	34.4
Dibromochloromethane *	0.582	0.562	0.546	0.564	0.520	0.555	*4.2
1,2-Dibromoethane	0.570	0.552	0.525	0.534	0.502	0.537	4.9
Chlorobenzene *	1.153	1.084	1.032	1.020	0.888	1.035	*9.4
Ethylbenzene *	0.526	0.498	0.469	0.474	0.456	0.485	*5.7
Xylene (total) *	0.647	0.616	0.572	0.565	0.505	0.581	*9.3
Styrene *	1.020	0.982	0.950	0.928	0.775	0.931	*10.1
Bromoform *	0.322	0.319	0.317	0.343	0.302	0.321	*4.6
Isopropylbenzene	1.760	1.674	1.542	1.525	1.102	1.521	16.7
1,1,2,2-Tetrachloroethane *	0.688	0.638	0.586	0.593	0.544	0.610	*9.0
1,3-Dichlorobenzene *	0.859	0.813	0.759	0.776	0.642	0.770	*10.5
1,4- Dichlorobenzene *	0.919	0.935	0.840	0.893	0.751	0.868	*8.6
1,2 Dichlorobenzene *	0.759	0.763	0.699	0.721	0.631	0.715	*7.5
1,2-Dibromo-3-chloropropane	0.124	0.120	0.108	0.103	0.083	0.108	14.9
1,2,4-Trichlorobenzene *	0.607	0.597	0.475	0.475	0.372	0.505	*19.4
Toluene -d8	1.094	1.097	1.179	1.097	1.099	1.113	3.3
Bromofluorobenzene *	0.927	0.968	1.030	0.975	0.827	0.945	*8.0
1,2 Dichloroethane -d4	1.309	1.216	1.240	1.190	1.132	1.217	5.4

*Compounds with required minimum RRF and maximum %RSD values.

All other compounds must meet a minimum RRF of 0.010.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA_____ Calibration Date: __02/10/01_____ Time: __0849_____

Lab File ID: ___CCA03_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	RRF	RRF50	MIN RRF	% D	MAX % D
Dichlorodifluoromethane	2.284	0.722		-68.4	
Chloromethane	1.585	0.963		-39.2	
Vinyl Chloride	1.629	1.236	0.100	-24.1	25.0
Bromomethane	1.421	1.183	0.100	-16.7	25.0
Chloroethane	0.865	0.714		-17.5	
Trichlorofluoromethane	2.853	2.461		-13.7	
1,1 Dichloroethene	1.385	1.507	0.100	8.8	25.0
1,1,2-trichloro-1,2,2-trifluoroethane	2.897	2.922		0.9	
Acetone	0.238	0.167		-29.8	
Carbon Disulfide	3.907	4.687		20.0	
Methyl Acetate	0.869	0.671		-22.8	
Methylene Chloride	1.771	3.488		-97.0	
Trans-1,2-Dichloroethene	1.838	1.666		-9.4	
Methyl-tert-Butyl Ether	4.225	3.220		-23.8	
1,1 Dichloroethane	3.726	5.525	0.200	-48.3	25.0
Cis- Dichloroethene	1.824	1.638		-10.2	
2-Butanone	0.346	0.239		-30.9	
Chloroform	3.686	3.019	0.200	-18.1	25.0
1,1,1-Trichloroethane	0.549	0.450	0.100	-18.0	25.0
Cyclohexane	0.581	0.498		-14.3	
Carbon Tetrachloride	0.487	0.415	0.100	-14.8	25.0
Benzene	1.077	0.922	0.500	-14.4	25.0
1,2 Dichloroethane	1.695	1.247	0.100	-26.4	25.0
Trichloroethene	0.429	0.254	0.300	-40.8	25.0
Methylcyclohexane	0.538	0.493		-8.4	

All other compounds must meet a minimum RRF of 0.010.

FORM VII VOA-1

OLM04.2

7B

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: __NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: ___12345_____ SAS No.: _____ SDG No.:_BBB00

Instrument ID: __AA_____ Calibration Date: __02/10/01_____ Time: __0849_____

Lab File ID: ___CCA03_____ Init. Calib Date(s): __02/07/01__ __02/07/01__

EPA Sample N0. (VSTD50##): _____ Init. Calib Times: __0949__ __1156___

Heated Purge: (Y/N) ____N_____

GC Column: _Equity 624_____ ID: ____0.53_____(mm)

COMPOUND	RRF	RRF50	MIN RRF	% D	MAX % D
1,2-Dichloropropane	0.553	0.435		-21.3	
Bromodichloromethane *	0.769	0.610	0.200	-20.7	25.0
Cis-1,3-Dichloropropene *	0.481	0.362	0.200	-24.7	25.0
4-Methyl-2-pentanone	0.195	0.009		-95.4	
Toluene *	1.399	1.170	0.400	-16.4	25.0
Trans-1,3 Dichloropropene *	0.299	0.199	0.100	-33.4	25.0
1,1,2 Trichloroethane *	0.305	0.256	0.100	-16.1	25.0
Tetrachloroethene *	0.455	0.479	0.200	5.3	25.0
2-Hexanone	0.046	0.076		65.2	
Dibromochloromethane *	0.555	0.486	0.100	-12.4	25.0
1,2-Dibromoethane	0.537	0.435		-19.0	
Chlorobenzene *	1.035	0.932	0.500	-10.0	25.0
Ethylbenzene *	0.485	0.397	0.100	-18.1	25.0
Xylene (total) *	0.581	0.479	0.300	-17.6	25.0
Styrene *	0.931	0.734	0.300	-21.2	25.0
Bromoform *	0.321	0.287	0.100	-10.6	25.0
Isopropylbenzene	1.521	1.303		-14.3	
1,1,2,2-Tetrachloroethane *	0.610	0.505	0.300	-17.2	25.0
1,3-Dichlorobenzene *	0.770	0.751	0.600	-2.5	25.0
1,4- Dichlorobenzene *	0.868	0.892	0.500	2.8	25.0
1,2 Dichlorobenzene *	0.715	0.721	0.400	0.8	25.0
1,2-Dibromo-3-chloropropane	0.108	0.046		-57.4	
1,2,4-Trichlorobenzene *	0.505	0.426	0.200	-15.6	25.0
Toluene -d8	1.113	1.095		-1.6	
Bromofluorobenzene *	0.945	0.858	0.200	-9.2	25.0
1,2 Dichloroethane -d4	1.217	0.964		-20.8	

All other compounds must meet a minimum RRF of 0.010.

FORM VII VOA-2

OLM04.2

Learning Module 7

Learning Objectives for this Module

- **Identify action taken for Instrument Performance not meeting the requirements stated in the checklist**
- **Calculate CRQL and analyte concentration**
- **Identify discrepancies in chromatograms**

Unit 1 Tune

Data should be qualified if the GC/MS system was not properly tuned, or the samples were analyzed more than 12 Hours after an instrument tune check standard. The mass spectrometer is tuned to manufacturer's specifications using either perfluoro-tri-n-butylamine (FC-43) or perfluorokerosene (PFK). Validators do not check for either of these compounds. The instrument performance check standard is used to verify the instrument was tuned correctly.

Verifying the instrument tune is easy. Bromofluorobenzene (BFB) is the compound used for VOA compounds. The system performance compound is a representative of their class of target compounds. If the GC/MS is properly tuned, the instrument has the capability to qualitatively identify organic compounds.

We examine the tuning data for calculation and transcription errors between the mass/charge listings in figure 7-1. Validators also verify that the % relative abundance complies with the checklist ion abundance criteria.

Figure 7-1 Mass/charge Listing for BFB

M/e	Ion Abundance criteria	% Relative Abundance
50	8.0 - 40.0% of mass 95	
75	30.0 - 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0 - 9.0% of mass 95	
173	Less than 2.0% of mass 174	
174	50.0 - 120.0% of mass 95	
175	4.0 - 9.0% of mass 174	
176	93.0 - 101.0% of mass 174	
177	5.0 - 9.0% of mass 176	
	1-value is % mass 174	2-Value is % mass 176

All of the % relative abundance (RA) values are calculated against the base peak. In addition, 4 of the ion abundance's (m/e 173, 175, 176, 177) are compared against another peak. The calculation for this relative abundance is provided in Equation 7-1.

Equation 7-1 % Relative Abundance calculation

$$\frac{\text{Intensity of ion to be measured}}{\text{Intensity of base peak}} \times 100 = \%\ \text{RA}$$

If the % relative abundance of a particular ion is outside the ion abundance criteria limits, the analyzed data is suspect, especially with regard to false negatives. When this occurs, the compound identification is not definitive. Qualification of the data will be discussed in Unit 2.

Practice 7-1 Using Equation 7-1 to calculate the % relative abundance for each m/e, fill in the table.

m/e	Ion Abundance criteria	% Relative Abundance
50	8.0 - 40.0% of mass 95	
75	30.0 - 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0 - 9.0% of mass 95	
173	Less than 2.0% of mass 174	( )1
174	50.0 - 120.0% of mass 95	
175	4.0 - 9.0% of mass 174	( )1
176	93.0 - 101.0% of mass 174	( )1
177	5.0 - 9.0% of mass 176	( )2

1-value is % mass 174 2-Value is % mass 176

Modified raw data for BFB tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	291	65.00	146	96.00	1442	142.00	26
37.00	1457	66.00	61	97.00	47	143.00	391
38.00	1307	67.00	96	103.00	51	145.00	24
39.00	371	68.00	3061	104.00	153	146.00	43
40.00	132	69.00	2754	105.00	100	147.00	21
42.00	17	70.00	294	106.00	182	148.00	84
43.00	44	72.00	160	108.00	18	149.00	23
44.00	110	73.00	1186	111.00	25	154.00	19
45.00	239	74.00	4501	112.00	19	155.00	71
46.00	48	75.00	13157	113.00	27	156.00	17
47.00	122	76.00	912	115.00	7	157.00	68
48.00	242	77.00	84	116.00	189	161.00	58
49.00	1012	79.00	888	117.00	159	170.00	17
50.00	5363	80.00	291	118.00	83	172.00	234
51.00	1439	81.00	833	119.00	217	173.00	24
52.00	64	82.00	143	123.00	18	174.00	22512
53.00	44	84.00	18	127.00	38	175.00	1694
55.00	62	85.00	19	128.00	94	176.00	22344
56.00	491	87.00	504	129.00	75	177.00	1426
57.00	709	88.00	518	130.00	75	207.00	35
60.00	360	91.00	127	134.00	22	208.00	17
61.00	1564	92.00	722	135.00	64	282.00	17
62.00	1139	93.00	1088	136.00	34		
63.00	847	94.00	2885	137.00	23		
64.00	116	95.00	24024	141.00	294		

Answer to Practice 7-1

M/e	Ion Abundance criteria	% Relative Abundance	
50	8.0 - 40.0% of mass 95	22.3	
75	30.0 - 66.0% of mass 95	54.8	
95	Base peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	6.0	
173	Less than 2.0% of mass 174	0.1	(0.1)1
174	50.0 - 120.0% of mass 95	93.7	
175	4.0 - 9.0% of mass 174	7.1	(7.5)1
176	93.0 - 101.0% of mass 174	93.0	(99.3)1
177	5.0 - 9.0% of mass 176	5.9	(6.4)2

1-value is % mass 174 2-Value is % mass 176

The tune met the Ion Abundance criteria in Figure 7.1. Therefore the tune is acceptable and analysis of samples may proceed. While other Regions may qualify data if the tune is not met, Region 2 does not consider the data acceptable and will be rejected. This is also considered to be in violation of the SOW.

Reinforce the habit of checking the RA values by taking the next quiz. The answers to the quiz can be found in Appendix E

Module 7 Quiz 1

Instruction: Using the raw data provided for each of the three samples, fill in the % Relative abundance for each m/e.

Tune 7-1

M/e	Ion Abundance criteria	% Relative Abundance	
50	8.0 - 40.0% of mass 95		
75	30.0 - 66.0% of mass 95		
95	Base peak, 100% relative abundance		
96	5.0 - 9.0% of mass 95		
173	Less than 2.0% of mass 174	(	)1
174	50.0 - 120.0% of mass 95		
175	4.0 - 9.0% of mass 174	(	)1
176	93.0 - 101.0% of mass 174	(	)1
177	5.0 - 9.0% of mass 176	(	)2

1-value is % mass 174 2-Value is % mass 176

Raw data for BFB tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	291	65.00	146	96.00	987	142.00	26
37.00	1457	66.00	61	97.00	47	143.00	391
38.00	1307	67.00	96	103.00	51	145.00	24
39.00	371	68.00	3061	104.00	153	146.00	43
40.00	132	69.00	2754	105.00	100	147.00	21
42.00	17	70.00	294	106.00	182	148.00	84
43.00	44	72.00	160	108.00	18	149.00	23
44.00	110	73.00	1186	111.00	25	154.00	19
45.00	239	74.00	4501	112.00	19	155.00	71
46.00	48	75.00	11258	113.00	27	156.00	17
47.00	122	76.00	912	115.00	7	157.00	68
48.00	242	77.00	84	116.00	189	161.00	58
49.00	1012	79.00	888	117.00	159	170.00	17
50.00	7458	80.00	291	118.00	83	172.00	234
51.00	1439	81.00	833	119.00	217	173.00	58
52.00	64	82.00	143	123.00	18	174.00	20212
53.00	44	84.00	18	127.00	38	175.00	1875
55.00	62	85.00	19	128.00	94	176.00	20006
56.00	491	87.00	504	129.00	75	177.00	1022
57.00	709	88.00	518	130.00	75	207.00	35
60.00	360	91.00	127	134.00	22	208.00	17
61.00	1564	92.00	722	135.00	64	282.00	17
62.00	1139	93.00	1088	136.00	34		
63.00	847	94.00	2885	137.00	23		
64.00	116	95.00	20236	141.00	294		

Tune 7-2

M/e	Ion Abundance criteria	% Relative Abundance
50	8.0 - 40.0% of mass 95	
75	30.0 - 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0 - 9.0% of mass 95	
173	Less than 2.0% of mass 174	( )1
174	50.0 - 120.0% of mass 95	
175	4.0 - 9.0% of mass 174	( )1
176	93.0 - 101.0% of mass 174	( )1
177	5.0 - 9.0% of mass 176	( )2

1-value is % mass 174 2-Value is % mass 176

Raw data for BFB tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	291	65.00	146	96.00	1440	142.00	26
37.00	1457	66.00	61	97.00	47	143.00	391
38.00	1307	67.00	96	103.00	51	145.00	24
39.00	371	68.00	3061	104.00	153	146.00	43
40.00	132	69.00	2754	105.00	100	147.00	21
42.00	17	70.00	294	106.00	182	148.00	84
43.00	44	72.00	160	108.00	18	149.00	23
44.00	110	73.00	1186	111.00	25	154.00	19
45.00	239	74.00	4501	112.00	19	155.00	71
46.00	48	75.00	12544	113.00	27	156.00	17
47.00	122	76.00	912	115.00	7	157.00	68
48.00	242	77.00	84	116.00	189	161.00	58
49.00	1012	79.00	888	117.00	159	170.00	17
50.00	2557	80.00	291	118.00	83	172.00	234
51.00	1439	81.00	833	119.00	217	173.00	35
52.00	64	82.00	143	123.00	18	174.00	19827
53.00	44	84.00	18	127.00	38	175.00	4578
55.00	62	85.00	19	128.00	94	176.00	11225
56.00	491	87.00	504	129.00	75	177.00	3568
57.00	709	88.00	518	130.00	75	207.00	35
60.00	360	91.00	127	134.00	22	208.00	17
61.00	1564	92.00	722	135.00	64	282.00	17
62.00	1139	93.00	1088	136.00	34		
63.00	847	94.00	2885	137.00	23		
64.00	116	95.00	54414	141.00	294		

Tune 7-3

M/e	Ion Abundance criteria	% Relative Abundance
50	8.0 - 40.0% of mass 95	
75	30.0 - 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0 - 9.0% of mass 95	
173	Less than 2.0% of mass 174	( )1
174	50.0 - 120.0% of mass 95	
175	4.0 - 9.0% of mass 174	( )1
176	93.0 - 101.0% of mass 174	( )1
177	5.0 - 9.0% of mass 176	( )2

1-value is % mass 174 2-Value is % mass 176

Raw data for BFB tune

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	291	65.00	146	96.00	1042	142.00	26
37.00	1457	66.00	61	97.00	47	143.00	391
38.00	1307	67.00	96	103.00	51	145.00	24
39.00	371	68.00	3061	104.00	153	146.00	43
40.00	132	69.00	2754	105.00	100	147.00	21
42.00	17	70.00	294	106.00	182	148.00	84
43.00	44	72.00	160	108.00	18	149.00	23
44.00	110	73.00	1186	111.00	25	154.00	19
45.00	239	74.00	4501	112.00	19	155.00	71
46.00	48	75.00	13757	113.00	27	156.00	17
47.00	122	76.00	912	115.00	7	157.00	68
48.00	242	77.00	84	116.00	189	161.00	58
49.00	1012	79.00	888	117.00	159	170.00	17
50.00	5232	80.00	291	118.00	83	172.00	234
51.00	1439	81.00	833	119.00	217	173.00	19
52.00	64	82.00	143	123.00	18	174.00	22654
53.00	44	84.00	18	127.00	38	175.00	1604
55.00	62	85.00	19	128.00	94	176.00	28377
56.00	491	87.00	504	129.00	75	177.00	1026
57.00	709	88.00	518	130.00	75	207.00	35
60.00	360	91.00	127	134.00	22	208.00	17
61.00	1564	92.00	722	135.00	64	282.00	17
62.00	1139	93.00	1088	136.00	34		
63.00	847	94.00	2885	137.00	23		
64.00	116	95.00	27537	141.00	294		

Did you notice any unusual problems with Quiz 1? All three tunes failed criteria. This is a contract as well as a technical problem. Unit 2 will teach you how to qualify data associated with improper tuning.

Instrument Performance Check Form 5A (appendix B) tabulates the samples associated with this tune with the date and time analyzed as well as pertinent sample information. We will use this form to check for the 12-hour clock permitted for sample analysis.

Data are rarely qualified because of a non-compliance tune. Samples analyzed more than 12 hours after a tune are the most common cause of data qualification Therefore; it is essential to scrutinize the tune time and date.

All standards, QC, and samples must be analyzed within 12 hours of the **injection** time for BFB. All time is reported in military time, which is a 24-hour clock. Therefore 1:30 p.m. should be written as 1330.

If BFB is injected on December 12, 2001 at 0855, the 12-hour clock is up at 2055. Samples analyzed after this time are not acceptable. Using professional judgement, data may be used if the internal standards pass criteria.
At this time it is Region 2 policy that data analyzed outside the 12-hour clock are not acceptable.

This is a good time to check the sequence of the analysis. After an acceptable tune, initial calibration standards or a continuing calibration standard must be analyzed. A method blank must be analyzed after this standard and **before** any sample analysis. Any deviation from this rule is considered to be a contract non-compliance. The validator must also consider the effect on the data. Of course, there is one exception to this sequence. If there is time left on the 12-hour clock after the analyses of the five point initial calibration standards, analysis, beginning with a method blank, may proceed if the mid level standard from the initial calibration meets the continuing calibration criterion. Figure 7-2 is an example of an acceptable sample sequence.

Figure 7-2 12 hour clock sequence

BFB injection Date: 02-14-01 BFB injection time 0824

EPA sample No.	Date Analyzed	Time Analyzed
SSTD50	02-14-01	0900
VBLK04	02-14-01	0936
GHT75	02-14-01	1118
HJU78	02-14-01	1814
BGT99	02-14-01	2002

The injection time is 0824 and the 12-hour clock ends 2024. All of the analyses in Figure 7-2 were analyzed within tune criteria. This is a very simple requirement but can be easily overlooked.

Quiz 2 will test how well you pay attention to the details of the samples analyzed within a valid sequence.

Module 7 Quiz 2

Instruction: Using the tune criteria, write on the line any problems with the sequence.

Sequence 1

BFB injection Date: 02-14-01 BFB injection time 1224

EPA sample No.	Date Analyzed	Time Analyzed
VSTD0101B	02-14-01	1319
VSTD0201B	02-14-01	1355
VSTD0501B	02-14-01	1435
VSTD1001B	02-14-01	1510
VSTD2001B	02-14-01	1550
VBLK85	02-14-01	1620
BFG65	02-14-01	1824
KJY34	02-15-01	0124

Sequence 2

BFB injection Date: 02-14-01 BFB injection time 0854

EPA sample No.	Date Analyzed	Time Analyzed
VSTD0501B	02-14-01	0814
VLK22	02-14-01	1015
KJI76	02-14-01	1055
KJY66	02-14-01	1955

Sequence 3

BFB injection Date: 02-04-01 BFB injection time 1544

EPA sample No.	Date Analyzed	Time Analyzed
VSTD0501B	02-04-01	1620
VSTD0101B	02-04-01	1700
VSTD0201B	02-04-01	1735
VSTD1001B	02-04-01	1845
VSTD2001B	02-04-01	2045
GTR56	02-05-01	0023
VBLK76	02-05-01	0340

Sequence 4

BFB injection Date: 02-22-01 BFB injection time 1824

EPA sample No.	Date Analyzed	Time Analyzed
VSTD0201B	02-22-01	1800
VBLK76	02-22-01	1837
GFD54	02-22-01	1905
GFT56	02-22-01	1940
GTY78	02-22-01	2015

Unit 2 Tune Criteria

The data reviewer should also verify that the raw data and Form V date, time, and instrument ID# are consistent. If tuning data are not contractually compliant, the data reviewer should contact the TOPO. If samples were analyzed more than 12 hours after a tune, all associated data should be flagged as unusable "R". For more information regarding qualification guidelines, review section 7 of the EPA Regional SOP checklist.

7.0 GC/MS Instrument Performance Check (Form V)

7.1 *Are the GC/MS Instrument Performance Check Forms (Form V) present for Bromofluorobenzene (BFB)?*

7.2 *Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve-hour shift?*

7.3 *Is the mass spectrum of BFB acquired according to sec. 9.2.4.1 D-23/VOA?*

Note: Sec. 9.2.4.1 states that "the mass spectrum of BFB MUST be acquired in the following manner. Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged. Background subtraction is required, and MUST be accomplished using a single scan no more than 20 scans prior to the elution of BFB. DO NOT background subtract part of the BFB peak." See Attachment 2 for BFB criteria.

Action: If not, reject "R" all samples associated with that particular BFB.

7.4 *Has an instrument performance check been analyzed for every analytical sequence on each instrument?*

ACTION: *List date, time, instrument ID, and sample numbers for which associated GC/MS tuning data are unavailable.*

DATE	***TIME***	***INSTRUMENT***	***SAMPLE NUMBERS***
___	___	_____	_____
___	___	_____	_____

ACTION: Notify the TOPO to obtain missing data, if possible. If the lab cannot provide the missing data, reject, "R", all data generated outside an acceptable twelve-hour calibration interval.

7.5 *Have the ion abundances been normalized to m/z 95 as specified in Exhibit D, page D-56/VOA?*

NOTE: *All ion abundance ratios must be normalized to m/z 95, the nominal base peak, even though the ion abundance of m/z 174 may be up to 120% that of m/z 95.*

ACTION: If mass assignment is in error, qualify all associated data as unusable "R".

7.6 Have the ion abundance criteria been met for each instrument used?

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

7.7 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values, but if errors are found check more.)

7.8 Is the number of significant figures for the reported relative abundances consistent with the number given for each ion in the ion abundance criteria column?

ACTION: If large errors exist, take action as specified in section 3.5 above.

7.9 Are the spectra of the mass calibration compound acceptable?

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

The raw data for the BFB tune can be found just before the method blank section in the case. For each tune, a m/z listing and spectra must be submitted. Usually the lab will have a copy of the tune criteria (top part of Form 5A) as part of the raw data. Do not verify the tune numbers from the form with this version since it is not always correct. Do the actual calculations for each ion.

If we go back and look at the values reported for each tune in Quiz 1, none of the tune pass criteria. According to the EPA Regional checklist, all data associated with an invalid tune are not acceptable and are qualified as "R". This is a contractual issue as well as a technical problem. In Region 2, samples analyzed with an invalid tune are required to be reanalyzed by the lab. Be aware other Regions may have different policies for this criterion.

The same action is taken if samples are analyzed outside the twelve-hour clock. Technically Region 2 will not accept this data but other Regions have different actions for this problem. If re-analysis or re-sampling of the sample is not possible or feasible due to time constraints, using professional judgement, there are other criteria to consider salvaging the data.

The reason for a twelve-hour clock is to maintain the quality of the instrument's sensitivity. It is possible to consider samples outside the twelve-hour clock as acceptable and estimated "J" **if** internal standards area response and surrogate recoveries are within limits for that sample. Internal Standard criterion is a better measurement because they are added after the samples are extracted. VOA samples are not extracted but the internal standards are added immediately prior to injection on the column. Samples with severe or problem matrix interference would not pass this test and would keep original qualification of "R" for all analytes.

Remember all action taken on the samples that deviates from the checklist must be documented (list reasons) and stated as professional judgement.

The next quiz you will apply the instrument performance criteria for the samples. Answers are in Appendix E.

Module 7 Quiz 1

Instruction:

- Calculate the ion abundance using the Quant reports at the end of the quiz.
- Using the checklist in this unit, apply the qualifications to each of the samples. Form 5s have been included after the Form 1s.
- Write the qualifications on the Forms. Any remarks that should be added to the DA about all samples, write up on this page.

Data Assessment

Instrument Performance section

Contract-Non-Compliance section

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPH62

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BPH50-3_____

Sample wt/vol: _____7.2_____(g/mL) ___g____ Lab File ID: __BPH50-3-AA____

Level: (low/med) __Low_____ Date Received: __02/03/01____

% Moisture: not dec. ____15_____ Date Analyzed: __02/05/01___

GC Column: _J&W DB-624____ ID: _____0.32___(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: __ _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	25	
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	15	
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	8	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	4	J
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BPH50-3_____

Sample wt/vol: _____7.2_____(g/mL) ___g_____ Lab File ID: __BPH50-3-AA_____

Level: (low/med) __Low_____ Date Received: __02/03/01_____

% Moisture: not dec. ____15_____ Date Analyzed: __02/05/01_____

GC Column: _J&W DB-624____ ID: _____0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	6	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	2	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPJ05

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:BPJ03-3

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BPJ03-3_____

Sample wt/vol: _____4_____(g/mL) ___g_____ Lab File ID: __BPJ03-3-FF_____

Level: (low/med) __Med_____ Date Received: __02/09/01_____

% Moisture: not dec. ____63_____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___50_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _	Q
75-71-8	Dichlorodifluoromethane	6900	U
74-87-3	Chloromethane	6900	U
75-01-4	Vinyl Chloride	6900	U
74-83-9	Bromomethane	6900	U
75-00-3	Chloroethane	6900	U
75-69-4	Trichlorofluoromethane	6900	U
75-35-4	1,1 Dichloroethene	6900	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	6900	U
67-64-1	Acetone	100	J
75-15-0	Carbon Disulfide	6900	U
79-20-9	Methyl Acetate	6900	U
75-09-2	Methylene Chloride	2000	J
156-60-5	Trans-1,2-Dichloroethene	6900	U
1634-04-4	Methyl-tert-Butyl Ether	6900	U
75-34-3	1,1 Dichloroethane	6900	U
156-59-2	Cis- Dichloroethene	6900	U
78-93-3	2-Butanone	3200	J
67-99-3	Chloroform	6900	U
71-55-6	1,1,1-Trichloroethane	6900	U
110-82-7	Cyclohexane	6900	U
56-23-5	Carbon Tetrachloride	6900	U
71-43-2	Benzene	8200	
107-06-2	1,2 Dichloroethane	6900	U

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPJ03

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BPJ03-3_____

Sample wt/vol: _____4_____(g/mL) ___g_____ Lab File ID: __BPJ03-3-FF_____

Level: (low/med) __Med_____ Date Received: __02/09/01_____

% Moisture: not dec. ____63_____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___50_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _	Q
79-01-6	Trichloroethene	5000	J
108-87-2	Methylcyclohexane	6900	U
78-87-5	1,2-Dichloropropane	6900	U
75-27-4	Bromodichloromethane	6900	U
10061-01-5	Cis-1,3-Dichloropropene	6900	U
108-10-1	4-Methyl-2-pentanone	6900	U
108-88-3	Toluene	600	J
10061-02-6	Trans-1,3 Dichloropropene	6900	U
79-00-5	1,1,2 Trichloroethane	6900	U
127-18-4	Tetrachloroethene	6900	U
591-78-6	2-Hexanone	1200	J
124-48-1	Dibromochloromethane	6900	U
106-93-4	1,2-Dibromoethane	6900	U
108-90-7	Chlorobenzene	6900	U
100-41-4	Ethylbenzene	6900	U
1330-20-7	Xylene (total)	6900	U
100-42-5	Styrene	6900	U
75-25-2	Bromoform	6900	U
98-82-8	Isopropylbenzene	6900	U
79-34-5	1,1,2,2-Tetrachloroethane	6900	U
541-73-1	1,3-Dichlorobenzene	7600	
106-46-7	1,4- Dichlorobenzene	9600	
95-50-1	1,2 Dichlorobenzene	12000	
96-12-8	1,2-Dibromo-3-chloropropane	6900	U
120-82-1	1,2,4-Trichlorobenzene	10000	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BPJ51

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPJ03

Matrix: (soil/water) __Water_____ Lab Sample ID: _BPJ03-5_____

Sample wt/vol: _____5_____(g/mL) ___mL_____ Lab File ID: __BPJ03-5-BB_____

Level: (low/med) _____ Date Received: __02/08/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L_	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	40	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	J
75-09-2	Methylene Chloride	5	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	15	
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPJ51

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPJ03

Matrix: (soil/water) __Water_____ Lab Sample ID: _BPJ03-5_____

Sample wt/vol: _____5_____(g/Ml) ___Ml_____ Lab File ID: __BPJ03-5-BB_____

Level: (low/med) _____ Date Received: __02/08/01_____

% Moisture: not dec. _____ Date Analyzed: __02/10/01_____

GC Column: _Equity-624____ ID: _____0.53_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L_	Q
79-01-6	Trichloroethene	6	J
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	3	J
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	43	
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

5A

OLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : ___123456_____

Lab Code: _NLB_____ Case No.: __12345____ SAS No.: _____ SDG No.:_BPH50

Lab File ID: _AA010202_____ BFB Injection Date: ___02/02/01_____

Instrument ID: __AA_____ BFB Injection Time: ___1754

GC Column: J&W DB-624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	
75	30.0- 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0- 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0- 120.0% of mass 95	
175	4.0- 9.0% of mass 174	( )1
176	93.0- 101.0% of mass 174	( )1
177	5.0- 9.0% of mass 176	( )2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD010AA	VSTD010AA	ICS010	02/02/01	1820
2.	VSTD020AA	VSTD020AA	ICS020	02/02/01	1850
3.	VSTD050AA	VSTD050AA	ICS050	02/02/01	1919
4.	VSTD100AA	VSTD100AA	ICS100	02/02/01	1949
5.	VSTD200AA	VSTD200AA	ICS200	02/02/01	2018
6.	VBLKLX	MB2	BPH50-MBS	02/02/01	2129
7.	BPH50	BPH50-1	BPH50-1AA	02/03/01	0411
8.	BPH51	BPH50-2	BPH50-2AA	02/03/01	0555
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BPH50

Lab File ID: _AA010205_____ BFB Injection Date: ___02/05/01_____

Instrument ID: __AA_____ BFB Injection Time: ___1429_____

GC Column: J&W DB/624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	
75	30.0- 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0- 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0- 120.0% of mass 95	
175	4.0- 9.0% of mass 174	( )1
176	93.0- 101.0% of mass 174	( )1
177	5.0- 9.0% of mass 176	( )2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD050KL	VSTD050KL	CCT03	02/05/01	1523
2.	VBLKOB	MB3	BPH50-MBS	02/05/01	1559
3.	BPH62	BPH50-3	BPH50-3AA	02/05/01	1638
4.	VHBLKTT	SB1	BPH50-SB1	02/05/01	2340
5.	BPH71	BPH50-4	BPH50-4RB	02/05/01	1708
6.					
7.					
8.					
9.					
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15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BPH50

Lab File ID: _FF010207_____ BFB Injection Date: ___02/07/01_____

Instrument ID: __FF_____ BFB Injection Time: ___0843_____

GC Column: Equity DB624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	
75	30.0- 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0- 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0- 120.0% of mass 95	
175	4.0- 9.0% of mass 174	( )1
176	93.0- 101.0% of mass 174	( )1
177	5.0- 9.0% of mass 176	( )2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VSTD010FF	VSTD010FF	ICA010	02/07/01	0949
2.	VSTD020FF	VSTD020FF	ICA020	02/07/01	1024
3.	VSTD050FF	VSTD050FF	ICA050	02/07/01	1054
4.	VSTD100FF	VSTD100FF	ICA100	02/07/01	1126
5.	VSTD200FF	VSTD200FF	ICA200	02/07/01	1156
6.					
7.					
8.					
9.					
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12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: ___NewLab_____ Contract : _123456_____

Lab Code: _NLB_____ Case No.: _124345____ SAS No.: _____ SDG No.:_BPH50

Lab File ID: _AA010210_____ BFB Injection Date: ___02/10/01_____

Instrument ID: __AA_____ BFB Injection Time: ___0827_____

GC Column: Equity DB624__ ID: __0.32___ (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0- 40.0% of mass 95	
75	30.0- 66.0% of mass 95	
95	Base peak, 100% relative abundance	
96	5.0- 9.0% of mass 95	
173	Less than 2.0% mass 174	( )1
174	50.0- 120.0% of mass 95	
175	4.0- 9.0% of mass 174	( )1
176	93.0- 101.0% of mass 174	( )1
177	5.0- 9.0% of mass 176	( )2

1- Value is % mass 174 2- Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	VST050BB	VST050BB	CCB03	02/10/01	0849
2.	BPJ03	BPJ03-1	BPJ03-1FF	02/10/01	1433
3.	VBLKLL	MB1	BPJ03-MBW	02/10/01	0923
4.	BPJ51	BPJ03-5	BPJ03-5FF	02/10/01	1308
5.	BPJ52	BPJ03-7	BPJ03-7FF	02/10/01	1337
6.	VBLKMM	MB4	BPJ03-MBS	02/10/01	1530
7.	BPJ04	BPJ03-3	BPJ03-3FF	02/10/01	1559
8.	BPJ05	BPJ03-4	BPJ03-4FF	02/10/01	1724
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					

COMMENTS:

Raw data for BFB tune 02-07-01 0843 File ID FF010207

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	5049	60.00	3325	79.00	7771	117.00	887
37.00	30760	61.00	20624	80.00	2327	118.00	162
38.00	25088	62.00	19416	81.00	7708	119.00	1386
39.00	10607	63.00	14966	82.00	1617	130.00	282
41.00	196	64.00	235	87.00	43408	141.00	575
43.00	456	67.00	816	88.00	39336	143.00	778
44.00	2454	68.00	51104	89.00	439	146.00	570
45.00	4114	69.00	51136	91.00	823	147.00	306
47.00	11937	70.00	3595	92.00	9891	148.00	578
48.00	1773	71.00	93	93.00	17520	169.00	433
49.00	20120	72.00	1531	94.00	63520	173.00	8281
50.00	105360	73.00	20336	95.00	766784	174.00	543552
51.00	32008	74.00	77800	96.00	50256	175.00	37216
52.00	273	75.00	287872	97.00	726	176.00	527232
55.00	1328	76.00	23352	104.00	378	177.00	32936
56.00	5263	77.00	3706	106.00	254	207.00	4
57.00	12380	78.00	3034	116.00	88		

Raw data for BFB tune 02-10-01 0827 File ID AA010210

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	4731	56.00	5967	77.00	3886	104.00	418
37.00	32488	57.00	12412	78.00	3841	106.00	287
38.00	27544	60.00	2871	79.00	8089	116.00	152
39.00	10827	61.00	20456	80.00	2428	117.00	887
40.00	303	62.00	19264	81.00	7985	119.00	549
42.00	255	63.00	13815	82.00	1918	128.00	101
43.00	147	64.00	265	83.00	137	130.00	255
44.00	2339	67.00	1067	87.00	34504	141.00	781
45.00	4439	68.00	51608	88.00	32184	143.00	732
47.00	12047	69.00	52120	91.00	535	173.00	2404
48.00	1727	70.00	4096	92.00	9396	174.00	441024
49.00	19584	72.00	1614	93.00	17056	175.00	31208
50.00	107632	73.00	19432	94.00	59984	176.00	419776
51.00	32456	74.00	77584	95.00	706496	177.00	26656
52.00	521	75.00	284544	96.00	47608	207.00	474
55.00	1279	76.00	21912	97.00	493		

Raw data for BFB tune 02-02-01 1754 File ID AA010202

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1071	63.00	4415	92.00	3321	141.00	1386
37.00	6786	64.00	365	93.00	5114	143.00	1600
38.00	6497	67.00	160	94.00	14284	148.00	419
39.00	2097	68.00	13350	95.00	116528	149.00	106
40.00	256	69.00	13199	96.00	7212	150.00	102
44.00	1427	70.00	1214	97.00	104	157.00	114
45.00	1063	72.00	685	104.00	841	171.00	117
47.00	965	73.00	5396	105.00	340	172.00	457
48.00	971	74.00	19504	106.00	640	174.00	48252
49.00	5898	75.00	58560	107.00	107	175.00	7178
50.00	23152	76.00	3914	116.00	560	176.00	96248
51.00	7138	77.00	465	117.00	768	177.00	6372
52.00	311	79.00	4895	118.00	389	193.00	151
55.00	289	80.00	1520	119.00	665	207.00	206
56.00	2120	81.00	5150	128.00	407	208.00	282
57.00	3500	82.00	1224	129.00	129	209.00	236
60.00	1212	87.00	4998	130.00	704	268.00	123
61.00	5487	88.00	4338	131.00	100		
62.00	5734	91.00	754	137.00	130		

Raw data for BFB tune 02-05-01 1429 File ID AA010205

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1143	62.00	5415	88.00	4225	129.00	150
37.00	7343	63.00	4095	89.00	256	130.00	502
38.00	6109	64.00	447	91.00	788	135.00	233
39.00	2246	67.00	162	92.00	3068	141.00	1642
40.00	280	68.00	14098	93.00	4951	142.00	171
41.00	335	69.00	12742	94.00	13379	143.00	1159
43.00	225	70.00	1036	95.00	110432	144.00	108
44.00	885	72.00	656	96.00	7264	147.00	155
45.00	1233	73.00	5379	97.00	252	157.00	257
47.00	1223	74.00	19880	104.00	807	172.00	761
48.00	766	75.00	57088	105.00	134	174.00	85760
49.00	5129	76.00	4582	106.00	588	175.00	6331
50.00	24328	77.00	852	107.00	105	176.00	81040
51.00	7566	78.00	442	111.00	225	177.00	5638
52.00	353	79.00	5752	113.00	131	178.00	157
55.00	617	80.00	1534	116.00	531	207.00	347
56.00	1914	81.00	6116	117.00	822	239.00	107
57.00	4145	82.00	1223	118.00	666	281.00	221
60.00	1145	86.00	106	119.00	666		
61.00	5979	87.00	4361	128.00	602		

Chromatograms and Spectra Analysis

The next two sections in the EPA Regional checklist covers target analytes and tentatively identified compounds. In these sections you are checking that all required raw data and spectra are present for each sample. The chromatograms are inspected for baseline and matrix interference problems.

This method uses a mass spectrometer to positively identify the compound. The lab will usually provide three spectra for evaluation of each compound present in the sample i.e. an enhanced spectrum, an un/enhanced spectrum and a reference spectrum also called a library spectrum. Sometimes the lab will provide a "difference spectrum" (sample minus standard or library spectrum) to demonstrate the similarity of the spectra.)

All spectra should be carefully reviewed for the following criteria:

- All ions present in the reference mass spectrum at a relative intensity greater than 20% must be present in the sample spectrum.

- The relative intensities of ions specified above must agree within +20% between the reference and sample spectra. (Example: For an ion with an abundance of 50% in the reference spectra, the corresponding sample ion abundance must be between 30% and 70%.)

- Ions greater than 10% relative abundance in the topic spectra but not resent in the reference spectrum must be considered and accounted for.

Qualification based on mass spectral identification requires professional judgement. Any action must be documented and cited as professional judgement.

Table 7-1 shows some characteristic ions for dichlorobenzenes. For a positive identification, the sample primary and one secondary ion must be very similar to the reference or library spectrum.

Table 7-1 Ions for 3 similar but different compounds

Compound	Primary Ion	Secondary Ions	GC Retention time
1,3 Dichlorobenzene	146	148, 113	13.76
1,4 Dichlorobenzene	146	148, 113	13.83
1,2 Dichlorobenzene	146	148, 113	14.14

Table7-1 demonstrates that the mass spectrometer cannot differentiate between the three Dichlorobenzene isomers, but the GC capillary column can separate the three isomers. Primary and secondary ions must be present at appropriate relative intensities to verify compound identification.

It should be noted that the secondary ion might be missing from compounds detected below the CRQL. If the RT matches the standard, the primary ion is the basis for compound identification. The reason for this occurrence is the low concentration material present to have a detectable

instrument response for these ionized molecule fragments. However, if a lab reports such a value as a false positive in the RIC, the reviewer should not report this value on Form I. The checklist (section 8.0) lists certain criteria for flagging data, with “N”, “R”, or “U” because of relative ion intensities.

The lists of target compound characteristic ions, internal standards and surrogates for VOA are tabled in the Exhibit section of the VOA fraction in the SOW.

Relative Retention time (RRF)

The retention time of an analyte can change because of changes in carrier gas flow (drift). Instead of using absolute retention time as a criterion, we use relative retention time (RRT). A Quant report consists of mass listing (m/e), retention time (RT), area response, and RRT.

Equation 7-2 for calculating RRF is simple and requires the retention times of the analyte in the sample or standard and the associated internal standard.

Equation 7-2 Calculate RRT

$$RRT_{sample} = \frac{RT_{analyte}}{RT_{internal\ std.}}$$

$RT_{analyte}$ = retention time of the analyte of interest in a sample or standard

$RT_{internal\ std}$ = retention time of the associated internal standard* for the analyte of interest in a sample or standard

*A table of analytes and associated internal standards is available in Learning Modules 7 and 9.

Figure 7-3 is a small piece of a quant report (modified) for a sample. This example is only concern with the compound acetone.

Figure 7-3 Quant report of a sample

No.	Name			
1	C101	Bromochloromethane		(Internal Standard)
12	C035	Acetone		
No.	m/e	RT	Relative RT	(Other information)
1	128	8.983	1.00	
12	43	5.083	0.565	

Use Equation 7-2 to calculate the RRT for acetone using the values in Figure 7-4.

Figure 7-4 Quant report of a daily continuing calibration

No.	Name				
1	C101	Bromochloromethane			(Internal Standard)
12	C035	Acetone			
No.	m/e	Scan	Time	RRT	(Other information)
1	128	715	9.00	1.00	
12	43	403	5.08	?	

RRT of the continuing calibration should be 0.564 (5.08/9.00) for No. 12 (Acetone).

The criterion for RRT is the difference between the RRT of the sample and the RRT of the continuing calibration must not exceed 0.06 units. Therefore acetone (0.565) and the continuing calibration (0.0564) difference is < 0.06 units and acceptable.

Today most software provides the RRT of the compounds in the quant report and the validator only needs to check the numbers.

Try the question in Practice 7-2 to check your understanding of the RRT calculation and criterion.

Practice 7-2 **Using the information in Figure 7-5 and Figure 766, compute and fill in the RRT for methylene chloride in the sample and the standard. Does the difference between RRTs exceed 0.06?**

Figure 755 Quant report of a sample

No.	Name			
1	C101	Bromochloromethane		(Internal Standard)
14	C030	Methylene chloride		
No.	m/e	RT	Rel RT	(Other information)
1	128	9.00	1.00	
12	84	5.91	?	

Figure 7-6 Quant report of a daily continuing calibration

No.	Name			
1	C101	Bromochloromethane		(Internal Standard)
14	C030	Methylene chloride		
No.	m/e	Time	RRT	(Other information)
1	128	9.00	1.00	
14	84	5.93	?	

Answer to Practice 7-2

The answers you should have gotten are 0.658 for the sample and 0.659 for the standard. The RRT are within 0.06 criterion.

Make sure you understand RRT since you will be asked to check for this criterion in the checklist. The checklist wants you to check the raw data for all analyses. Missing chromatograms, quant reports and spectra will have to be requested from the TOPO.

Let's start with EPA Regional checklist section 8.0 Target Analytes. This section will ask you to check chromatograms, spectra and relative retention time. A chromatogram provides an overview picture of all of the detected peaks in the sample. Any matrix or baseline problems are easily detected and the effects evaluated during the validation of the sample.

8.0 <u>Target Compound List (TCL) Analytes (FORM I VOA)</u>

8.1 *Are the Organic Analysis Data Sheets (Form I VOA) present with required header information on each page, for each of the following:*

a. Samples and/or fractions as appropriate?

b. Matrix spikes and matrix spike duplicates?

c. Blanks?

8.2 *Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (quant. reports) included in the sample package for each of the following:*

a. Samples and/or fractions as appropriate?

b. Matrix spikes and matrix spike duplicates (mass spectra not required)?

c. Blanks?

ACTION: If any data are missing, take action specified in 3.2 above.

8.3 *Is chromatographic performance acceptable with respect to:*

a. Baseline stability?

b. Resolution?

c. Peak shape?

d. Full/scale graph (attenuation)?

e. Other: _____?

ACTION: Use professional judgement to determine the acceptability of the data.

8.4 *Are the lab/generated standard mass spectra of the identified VOA compounds present for each sample?*

ACTION: If any mass spectra are missing, take action as specified in 3.2 above. If the lab does not generate its own standard spectra, document in the Contract Problems/Non/compliance section of the Data Assessment and the Organic Regional Data Assessment Summary.

8.5 *Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?*

8.6 *Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?*

8.7 Do sample and standard relative ion intensities agree within "20%?

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected "R", flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected "U" at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.5, 8.6, and 8.7.

ACTION: When sample carry/over is suspected, use professional judgement to determine if instrument cross/contamination has affected positive compound identifications.

TICs

Tentatively Identified Compounds are listed on a separate Form 1. Even if TICs were not found in the sample, this form must be submitted for each sample. Only MS/MSD samples do not have TICs reported and you will not find the form submitted for these samples. The basic actions taken for TICs are:

- All compounds identified and labeled with a CAS No. should be qualified as "JN".
- Aldol by-products are always "R".
- A TIC reported in a QC blank will use the 5x rule to evaluate contamination. TIC compounds below the contamination level are "R"; this is a different qualification that is followed for TCL contamination (Review Module 6, Unit 3).
- Alkanes (detected in BNA fraction) and analytes reported in other fractions are "R". If the analyte is usually reported in a fraction that was not analyzed for this sample, then do not reject the compound.
- Analytes reported under a different name for a TCL analytes are "R". For example methylene chloride also is called dichloromethane.
- Siloxane products and common laboratory contaminants such as phthalates, solvent preservatives are "R".
- All PCB congeners are rejected "R" (see section 9.3 of the checklist).

Go through section 9 of the checklist, it is small and should answer any possible qualifications that validators would perform on TICs. This checklist section is a repeat from Learning Module 6 on Contamination.

9.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?

9.2 Are the mass spectra for the TIC's and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate?

b. Blanks?

c. Alkanes listed for each sample?

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "JN" qualifier to all chemically named TICs, if missing.

9.3 Are any TCL compounds (from any fraction) listed as TIC compounds? (Example: 1,2/ dimethylbenzene is Xylene, a VOA TCL analyte, and should not be reported as a TIC.)

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are any TICs reported earlier than 30 sec before the first purgeable compound, or three (3) min. after the last purgeable compound listed in Exhibit C (Volatiles)?

ACTION: Flag with "R" any TIC compound reported. (p. D38/VOA, sec. 11.1.2.2)

9.5 *Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?*

9.6 *Do TIC and "best match" standard relative ion intensities agree within 20%?*

ACTION: Use professional judgement to determine the acceptability of TIC identifications. If it is determined an incorrect identification was made, change the identification to "unknown," or to some less specific identification as appropriate. (Example: "C3 substituted benzene.")

Also, when a compound is not found in any blank, but is detected in a sample and is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable "R". (E.g., Common Lab Contaminants: CO_2 (M/E 44), Siloxanes (M/E 73) hexane, aldol condensation products, solvent preservatives, and related by-products, PCB congeners (see the National Functional Guidelines for further guidance.)

9.7 *Are TICs with responses < 10% of the internal standard (as determined by inspection of the peak areas or height) reported?*

ACTION: If yes, cross out questionable TICs.

Unit 4 Contract Required Quantitation Limits

Validators must assure that the reported Contract Required Quantitation Limits (CRQLs) are accurately reported. The CRQLs should be carefully checked because errors are relatively common.

Several factors impact analyte instrument sensitivity. These include analyte physical and chemical properties, analyte response factors, and sample matrix. All of these factors may affect the reported CRQL for a sample.

To refresh your memory, aqueous samples are analyzed using 5 mL of sample. Low level soil sampled using EnCore are analyzed at the weight contained in the EnCore vial (5-6 gm). Otherwise, Low/level soil samples are analyzed using 5 gm of sample added to 5mL of water and purged. For medium level VOA soil analysis, 4 gm of sample are extracted with 10 mL of methanol. Usually 100 µl of this extract are added to 5 mL of water and purged.

The CLP contract required quantitation limits (CRQLs) are 10 µg/L or 10 µg /Kg (based on dry weight) for low level analysis and 1300 µg /Kg for medium level VOA soils analysis. Each sample is adjusted for initial volume/weight, dilution factor and % moisture.

Equations 7-3, 7-4 and 7-5 are calculations for water, low level soil (including EnCore samples) and medium level soil samples respectively.

Equation 7- 3 Calculation of adjusted CRQL in a water sample

$$\text{Adjusted CRQL} = \text{Contract CRQL} \times \frac{V_x}{V_o} \times DF$$

Where:

V_x = Final Volume of sample purged in milliliters (ml).
(5 mL per VOA method)

V_o = Initial Volume of sample purged in milliliters (ml).

DF = dilution factor

Equation 7-4 Calculation of adjusted CRQL in a soil sample

$$\text{Adjusted CRQL} = \text{Contract CRQL} \times \frac{(W_x)\,(DF)}{(W_o)\,(D)}$$

Where:

W_x = Final Weight of sample purged in grams (g).
(5 gm per VOA method)

W_o = Initial weight of sample purged in grams (g).

DF = dilution factor

D = dry weight (100/% moisture value)/100)

Equation 7-5 Calculation of adjusted CRQL for Medium level soil sample

$$\text{Adjusted CRQL} = \text{Contract CRQL} \times \frac{(W_x)(V_t)(V_y)(1000)(DF)}{(W_s)(V_c)(V_a)(D)}$$

Where:

W_x = Final Weight of sample purged in grams (g).
(4 g per VOA method)

W_s = Initial weight of sample extracted in grams (g).

V_t = Total volume of methanol extract on milliliters (mL). Typically 10 mL even though only 1 mL is transferred to the vial.

V_y = Contract soil aliquot volume from methanol extract (100 µL) Note: this value can vary.

V_c = Contract soil methanol extract volume (10,000 µL)

V_a = Volume of aliquot of the sample methanol extract in microliters µL. Amount of sample extract added to equal 100 µL (V_v), added to reagent water for purging.

DF = dilution factor

D = dry weight (100/% moisture value)/100)

There have been changes in SOW 4.2 for low/level soils on how CRQLs are reported if the sample volume is greater than 5g. Simply stated, if the adjusted CRQL value is less than contract CRQL (10), the CRQL is reported as the contract CRQL (10). This calculation takes into account the % moisture value. Make sure the lab did not use 10 and adjust the value for % moisture. Use the adjusted equation given in Equation 7-4 to calculate the adjusted CRQL for Practice 7-3.

Practice 7-3 Soil Sample

Soil sample with a weight of 7.5g, % moisture of 15 and a dilution factor of 1, would be calculated as:

$$\text{Adjusted CRQL} = 10 \times \frac{(5)\ (1)}{(7.5)\ (.85)} = 7.8$$

Answer to Practice 7-3

The adjusted CRQL value of 7.8 should be reported as 10 on the Form 1.
If the adjusted CRQL value is greater than the CRQL listed in the SOW (10), report the adjusted CRQL to 2 significant figures.

The labs should be reporting the adjusted CRQL < SOW CRQL as 10. Some labs have reported the CRQL as 10 then corrects the value for % moisture. This in incorrect and the Form 1's have to be changed.

The Lotus spreadsheets as of this writing, will report the adjusted CRQL even if < SOW CRQL. Hopefully changes in the new CADRE version will address this problem. Until then all lotus spreadsheets must be scrutinized for correct CRQL values.

The next quiz will ask you to calculate the adjusted CRQL and state the CRQL value that should be reported on the Form 1. Remember to use the round off rule and significant figures to report the CRQL correctly on the form. Review Learning Module 4, Unit 1 for round off and significant figures rules. All answers for quizzes are in Appendix E.

Module 7 Quiz 4

Instruction: For each problem, calculate the adjusted CRQL and state the CRQL value that should be reported on the Form 1.

Sample	1	2	3
Matrix	water	water	water
Volume	5	3	2.5
DF	2	1	1
Adjusted CRQL			
Reported CRQL			

Sample	4	5	6
Matrix	Low level soil	Low level soil	Low level soil
Weight	3.5	0.9	5.9
DF	2	1	1
% Moisture	57	23	14
Adjusted CRQL			
Reported CRQL			

Sample	7	8	9
Matrix	Low level soil	water	Low level soil
Vol/wt	5.0	4	6.3
DF	5	3	2
% Moisture	72		45
Adjusted CRQL			
Reported CRQL			

Sample	10	11	12
Matrix	Medium level soil	Medium level soil	Medium level soil
Weight	2.0	4.0	0.5
aliquot	50	100	75
DF	1	2	1
% Moisture	33	25	72
Adjusted CRQL			
Reported CRQL			

Sample	13	14	15
Matrix	Medium level soil	Medium level soil	Medium level soil
Weight	3.0	1.0	2.5
aliquot	100	100	10
DF	1	1	1
% Moisture	15	25	5
Adjusted CRQL			
Reported CRQL			

The checklist section for CRQLs is very small and concerned with transcription errors. There is an action for samples with two analyses. The dilution analysis values are transferred to the lower CRQL analysis, usually a non-diluted analysis.

10.0 <u>Compound Quantitation and Reported Detection Limits</u>

10.1 *Are there any transcription/calculation errors in Form I results? (Check at least two positive values. Verify that the correct internal standards, quantitation ions, and RRF were used to calculate Form I results.)*

10.2 *Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?*

ACTION: If errors are large, take action as specified in section 3.2 above.

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

The validator must remember to cross out the Form 1 of the dilution (DL) analysis that should not be used and write on the form "Do Not Use". Keep track of which analyses are not used and document them in the DA under the last section.

The same action is followed for samples identified as re/analysis (RE) samples. Decide based on other criteria such as internal standard and surrogates which analysis is technically better. Cross/out, mark and document the Do Not Use" analysis.

Unit 5 Data Calculations

While you are reviewing the chromatograms, it is a good idea to check the concentration of the analytes reported on the Form 1. It is imperative that you learn to calculate the concentration of the positive hits in the samples. It is easier to calculate an analyte missing from the Form 1 than to lose time waiting for a correction from the lab.

This section will help you understand various calculation procedures used by CLP laboratories. If you do not have applicable laboratory experience, you will be required to expend considerable effort to comprehend these procedures.

Before starting on the calculations, Table 7-1 listing the analytes and their associated internal standards is given below. You will refer to this table while calculating the concentrations of the analytes in the sample.

Table 7-1 TCL compounds associated with specific Internal Standards.

Bromochloromethane	1,4 Difluorobenzene	Chlorobenzene-d5
Dichlorodifluoromethane	1,1,1-Trichloroethane	4-Methyl-2-pentanone
Chloromethane	Cyclohexane	Toluene
Vinyl Chloride	Carbon Tetrachloride	Tetrachloroethene
Bromomethane	Benzene	2-Hexanone
Chloroethane	Trichloroethene	1,2-Dibromoethane
Trichlorofluoromethane	Methylcyclohexane	Chlorobenzene
1,1 Dichloroethene	1,2-Dichloropropane	Ethylbenzene
1,1,2-trichloro-1,2,2-trifluoroethane	Bromodichloromethane	Xylene (total)
Acetone	Cis-1,3-Dichloropropene	Styrene
Carbon Disulfide	Trans-1,3 Dichloropropene	Isopropylbenzene
Methyl Acetate	1,1,2 Trichloroethane	1,1,2,2-Tetrachloroethane
Methylene Chloride	Dibromochloromethane	1,3-Dichlorobenzene
Trans-1,2-Dichloroethene	Bromoform	1,4- Dichlorobenzene
Methyl-tert-Butyl Ether		1,2 Dichlorobenzene
1,1 Dichloroethane		1,2-Dibromo-3-chloropropane
Cis- Dichloroethene		1,2,4-Trichlorobenzene
2-Butanone		Toluene-d8 (SMC)
Chloroform		4-bromofluorobenzene (SMC)
1,2 Dichloroethane		
1,2 Dichloroethane-d4 (SMC)		

Equation 7-6 is the calculation used to quantitate the concentration of a positively identified analyte in a sample. There should be minor differences in the actual value report on the Quant report from the Lab and the value calculation by a validator. There is no difference between 175 and 184, since both numbers are rounded and reported as 180 on the Form 1.

Use Equation 7-6 for water samples only.

Equation 7-6 Calculation for water samples

$$\mu g/L = \frac{(A_x)\,(I_s)\,(DF)}{(A_{is})\,(RRF_{50})\,(V_o)}$$

Where:

A_x = Area of the compound to be measured

I_s = Amount of internal standard added in nanograms (always 250 ng for each of the three internal standards per 5 mL sample volume)

DF = Dilution Factor for water analysis is defined as the ratio of the number of milliliters of water purged (V_0) to the number of milliliters of the original water sample used for purging. If 2.0 mL of sample is diluted to 5.0 mL with reagent water, the DF is 5/2.0 = 2.5. If no dilution is performed the factor is 1

A_{is} = Area of the associated internal standard (refer toTable 7-1)

RRF_{50} = Relative Response Factor from the ambient temperature purge of the continuing calibration found on Form 7. Explanation and calculation of RRF are detailed in Module 8.

V_o = Volume of water purged in milliliters (mL). (5 mL per SOW)

A sample of 5 mL, with an area response for chloroform (534583), and the area response for the associated internal standard, Bromochloromethane (765483), the dilution factor is 2 and the RRF is 3.245. Using Equation 7-6 and fill in the values:

$$21.52\ \mu g/L = \frac{(534583)\,(250)\,(2)}{(765483)\,(3.245)\,(5)}$$

You should have gotten the value of 21.52. The value reported on the Form 1 by the lab is 22 µg/L. Review Learning Module 4 for rounding and significant figures rules.

Always check the Quant report before performing any calculations. Different labs report the TCL compounds in one of two formats.

- Internal standards compounds first followed by surrogates. The TCL compounds are after the surrogates and are listed in order of the retention time.
- All of the internal standards, surrogates and TCL compounds are listed by increasing retention time.

The Quant reports may be of either format to give you practice finding the correct analytes. Now try a practice question, which is located on the next page.

Practice 7-4 Using Figures 7-7 and 7-8 and Equation 7-6, Calculate the concentrations of Vinyl chloride, Benzene and Toluene in the sample. The sample is a straight analysis with a sample volume of 5 mL.

Figure 7-7 Modified Form 7A/B Continuing Calibration

Compounds	____ RRF	RRF50	MIN RRF	%D	MA %D
Vinyl Chloride	1.333	1.638	0.100	22.9	25.0
Acetone	0.748	1.743		133.0	
Methylene chloride	0.938	1.796		91.5	
Carbon Tetrachloride	0.450	0.461	0.100	2.4	25.0
Benzene	1.352	1.338	0.500	-1.09	25.0
Bromoform	0.200	0.238	0.100	19.0	25.0
Toluene	1.289	1.523	0.400	18.6	25.0
2-Hexanone	0.352	0.301		-14.5	
1,2 dichlorobenzene	0.777	0.785	0.400	1.03	25.0
Toluene-d8	1.312	1.269		-3.3	
Bromofluorobenzene	0.475	0.467	0.200	-1.7	25.0
1,2 Dichloroethane-d4	2.138	2.026		-5.2	

Figure 7-8 Modified Quant Report of a sample

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	9.20	9.18	927498	250	
Vinyl Chloride	61	3.20	3.25	537172		
Acetone	43	6.17	6.18	76275		
Methylene chloride	84	6.90	6.87	394478		
$ 1,2 Dichloroethane-d4	65	10.00	10.12	934280	124.30	24.86
* 1,4 Difluorobenzene	114	10.62	10.52	655765	250	
Carbon Tetrachloride	117	9.80	9.87	420317		
Benzene	78	10.07	10.05	1346464		
Bromoform	173	16.09	16.03	212267		
* Chlorobenzene-d5	117	14.78	14.69	525662	250	
$ Toluene-d8	98	12.67	12.58	821870	308.02	61.60
Toluene	92	12.76	12.62	707844		
2-Hexanone	43	13.67	13.75	258144		
$ Bromofluorobenzene	95	16.56	16.60	274277	279.32	55.86
1,2 dichlorobenzene	146	18.53	18.58	91409		

* = Internal Standard

$ = SMC

Note- Some labs report the IS concentration as 50 ng/mL instead of 250 ng/ 5 mL. If the lab reports 50 as the IS amount, then use 1mL as the sample volume amount (V_o).

Answer to Practice 7-4 **Answers to Figures 7-7 and 7-8. Answers are reported using rounding and significant figure rules. Value in ( ) is the actual value (reported in the "Final" column of the Quant report).**

Vinyl Chloride

18 (17.68) lg/L = $\frac{(537172)\ (250)\ (1)}{(927498)\ (1.638)\ (5)}$

Benzene

77 (76.73) lg/L = $\frac{(1346464)\ (250)\ (1)}{(655765)\ (1.338)\ (5)}$

Toluene

44 (44.21) lg/L = $\frac{(707844)\ (250)\ (1)}{(525662)\ (1.523)\ (5)}$

If you did not get all of the answers correct, go over your calculations to determine the problem. Do not go on to the next calculation until you understand this equation.

Equation 7-7 is the calculation for low/level soil samples. You will use this calculation for EnCore samples as well.

Equation 7-7 Calculation for low level soil sample

$$lg/Kg = \frac{(A_x)\ (I_s)}{(A_{is})\ (RRF_{50})\ (W_s)\ (D)}$$

Where:

A_x = Area of the compound to be measured

I_s = Amount of internal standard added in nanograms (always 250 ng for each of the three internal standards per 5 g sample weight)

A_{is} = Area of the associated internal standard

RRF_{50} = Relative Response Factor from the heated temperature purge of the continuing calibration found on Form 7. Explanation and calculation of RRF are detailed in Module 8.

W_s = Weight of water purged in grams (g). (5 g per SOW)

D = Dry weight of sample (100% moisture/100)

Practice 7-5 **Using Figures 7-7 and 7-8 from Practice Question 7-4 and Equation 7-7, Calculate the concentration of Acetone, Bromoform and 2-hexanone in the sample. The sample is a straight analysis with a sample volume of 4.6 g and moisture of 23%.**

Answer to Practice 7-5 Answers are reported using rounding and significant figure rules. Value in ( ) is the actual value (reported in the "Final" column of the Quant report).

Acetone

$$3.33\ (3.3)\ \mu g/Kg = \frac{(76275)\ (250)}{(927498)\ (1.743)\ (4.6)\ (.77)}$$

Bromoform

$$96\ (96.00)\ \mu g/Kg = \frac{(212267)\ (250)}{(655765)\ (0.238)\ (4.6)\ (.77)}$$

2-hexanone

$$120\ (115.15)\ \mu g/Kg = \frac{(258144)\ (250)}{(525662)\ (0.301)\ (4.6)\ (.77)}$$

The last equation is used for medium level soil samples only. Since Region 2 is using EnCore samples, medium level samples are usually not performed by the labs. Recent data has shown a marked difference in the reported value of an analyte that is reported from an EnCore analysis and from a medium level analysis. When reviewing analyses for a sample that uses 2 different techniques, caution must be taken as to the validity of the medium level value.

Equation 7-8 Calculation for medium level soil sample

$$\mu g/Kg = \frac{(A_x)(I_s)(V_t)(1000^*)(DF)}{(A_{is})(RRF_{50})(V_a)(W_s)(D)}$$

Where:

A_x = Area of the compound to be measured

I_s = Amount of internal standard added in nanograms (always 250 ng for each of the three internal standards per 5 g sample weight)

V_t = Total volume of methanol extract in milliliters (mL). NOTE: This volume is typically 10 mL, even though only 1 mL is transferred to a vial.

* The 1000 factor in the numerator converts mL to µL

DF = Dilution Factor for analysis is for medium level soil analysis is defined as:

$$\frac{\mu L \text{ most conc. extract used to make dilution} + \mu L \text{ clean solvent}}{\mu L \text{ most conc. extract used to make dilution}}$$

A_{is} = Area of the associated internal standard

RRF_{50} = Relative Response Factor from the ambient temperature purge of the continuing calibration found on Form 7. Explanation and calculation of RRF are detailed in Module 8.

V_a = Volume of the aliquot of the sample methanol extract (sample extract not including the methanol added to equal 100 µL in microliters µL added to reagent water for purging).

W_s = Weight of water purged in grams (g). (5 g per SOW)

D = Dry weight of sample (100% moisture/100)

Practice 7-6 Using Figures 7-7 and 7-8 from Practice Question 7-4 and Equation 7-8, Calculate the concentration of Methylene chloride, Carbon tetrachloride and 1,2 Dichlorobenzene in the sample. The sample is a straight analysis with a sample volume of 2.8 g and a moisture of 43%, sample extract is 50 lL.

Answer to Practice 7-6 Answers are reported using rounding and significant figure rules. Value in ( ) is the actual value (reported in the "Final" column of the Quant report).

Methylene chloride

7400 (7418.92) lg/Kg = $\frac{(394478)(250)(10_l)(1000^*)(1)}{(927498)(1.796)(50)(2.8)(.57)}$

Carbon tetrachloride

44000 (43557.70) lg/Kg = $\frac{(420317)(250)(10_l)(1000^*)(1)}{(655765)(0.461)(50)(2.8)(.57)}$

1,2 Dichlorobenzene

6900 (6939.85) lg/Kg = $\frac{(91409)(250)(10_l)(1000^*)(1)}{(525662)(0.785)(50)(2.8)(.57)}$

There is a quiz on the next page. Make sure you have enough time to do all of the calculations. Tip: Labs do not present analyte information in a quant report using the same format. The order of the analytes may differ from lab to lab. Check the quant reports to determine the different indicators for the internal standards and surrogate compounds.

For your convenience a modified Form 7 with the RRF values have been provided as well as a modified Quant report for the sample. Depending on the software, some labs may include the RRF information on the sample's Quant report and may be labeled as "FAC (L)".

Module 7 Quiz 5

Instruction: Using the Quant reports given below:

- Calculate concentration for all TCL analytes using the parameters specified in each sample.
- Write the concentration following the rounding and significant figures criteria in the table on the next page.

Table of Sample Parameters

Sample	Matrix	Parameters
BGT67	water	2.5 mL
MHY43	Soil low	3.8 g, 34%, dilution = 2
VGT23	water	4 mL
NBG21	Soil medium	4 g, 10uL, 12%, dilution = 3,
BXZ00	Soil low	6.8 g, 56%
CFR99	Soil medium	2 g, 75uL, 37%

Modified Form 7A/B Continuing Calibration

Compounds	**RRF**	**RRF50**	**MIN RRF**	**%D**	**MA %D**
Vinyl Chloride	1.633	1.638	0.100	0.31	25.0
Acetone	1.748	1.743		-0.29	
Methylene chloride	1.938	1.796		-7.3	
Carbon Tetrachloride	0.450	0.461	0.100	2.4	25.0
Benzene	1.352	1.338	0.500	-1.0	25.0
Bromoform	0.200	0.238	0.100	19.0	25.0
Toluene	1.389	1.523	0.400	9.6	25.0
2-Hexanone	0.352	0.301		-14.4	
1,2 dichlorobenzene	0.777	0.785	0.400	1.0	25.0
Toluene-d8	2.312	2.026		-12.4	
Bromofluorobenzene	1.475	1.269	0.200	-14.0	25.0
1,2 Dichloroethane-d4	0.538	0.467		-13.2	

Modified Quant Report of samples

Compounds	Mass	RT	EXP RT	Response	On column ng	Final ug/L
* Bromochloromethane	128	7.902	9.18	927498	250	
Vinyl Chloride	61	4.016	3.25	655765		
Acetone	43	5.703	6.18	525662		
Methylene chloride	84	6.235	6.87	93428		
$ 1,2 Dichloroethane-d4	65	8.513	10.12	821870		
* 1,4 Difluorobenzene	114	8.957	10.52	474277	250	
Carbon Tetrachloride	117	8.405	9.87	537172		
Benzene	78	8.612	10.05	76275		
Bromoform	173	12.635	16.03	394478		
* Chlorobenzene-d5	117	11.886	14.69	420317	250	
$ Toluene-d8	98	10.525	12.58	1346464		
Toluene	92	10.594	12.62	707844		
2-Hexanone	43	11.116	13.75	258144		
$ Bromofluorobenzene	95	12.872	16.60	212267		
1,2 dichlorobenzene	146	14.144	18.58	91409		

* = Internal Standard

$ = SMC

Note- Some labs report the IS concentration as 50 ng/mL instead of 250 ng/ 5 mL. If the lab reports 50 as the IS amount, then use 1mL as the sample volume amount (V_o).

Fill in the concentration of each compound for each sample.

Compounds	BGT67	MHY43	VGT23	NBG21	BXZ00	CFR99
Vinyl Chloride						
Acetone						
Methylene chloride						
Carbon Tetrachloride						
Benzene						
Toluene						
2-Hexanone						
Bromoform						
1,2 dichlorobenzene						

Learning Module 6

Learning Objectives for this Module

- **Identify action taken for Contamination not meeting the requirements stated in the checklist**

Unit 1QC Blanks Contamination

Method Blanks

Method blanks are analyzed in the laboratory along with environmental samples to assure that positive values in samples are not the result of laboratory contamination. The Method Blank Summary Form IV (a copy is available in Appendix B) shows which samples are associated with each method blank. Contaminants in method blanks are multiplied by the dilution factor because these contaminants could be present in the dilution water.

Field Blanks

Field blanks (also called rinse blanks or equipment blanks) consist of deionized water poured over or through sampling equipment. Field blanks measure contamination caused by contaminated sampling equipment. Environmental samples are usually qualified due to field blank contamination if the environmental sample was collected the same day as the field blank, and with the same equipment. Check the Sampling Trip Report for field blank association if there are any questions. Some contractors will decontaminate all of the equipment needed for the job on the first day.

Trip Blanks

Trip blanks consist of deionized water and are shipped with VOA sample vials in order to detect possible contamination entering the samples during the cooler shipment. Only those aqueous environmental samples that accompanied the trip blank are qualified for trip blank contamination. Sample log-in sheet will identify the samples in each cooler.

Storage Blanks

Storage blanks consists of deionized water in VOA sample vials. Upon receipt of the samples in a SDG, storage blank vials are prepared and stored with the samples under the same conditions. After all of the samples in the SDG have been analyzed, then the storage blank must be analyzed. Watch for analysis date. Some labs will submit a storage blank analyzed before all of the samples are analyzed. This is a contract non-compliance that must be documented in the DA.

Instrument Blanks

An Instrument blanks consists of 5 mL of reagent water, spiked with SMC and IS and analyzed as a sample. This type of blank is analyzed after a sample that has an analyte that exceeded

the calibration range. The results of an instrument blank analysis indicate whether there is carryover from the previous sample. If carryover is present in the instrument blank, the next sample must be inspected to determine if the contaminant was carried over from the previous analysis or actually present in the field sample.

Why is Contamination a major concern?

Blank contamination is the most common cause of data qualification. It is essential to keep track of which blanks are associated with every sample.

For example, if sampling equipment or sample containers are not cleaned properly, the samples may show levels of contaminants that are not actually in the ground water that was sampled, but are from the containers. If monitoring wells are not properly constructed and evacuated, the resultant sample data may be too high or too big, even if the lab analyzed the sample perfectly. Proper containers, preservatives, and holding times are essential if the data generated are assumed to be valid. If proper chain of custody procedures are not followed, data may not be considered valid in court.

Blank contamination can result in false positive data. We qualify suspect data with a “U” or “R”. When qualifying TCL analytes, the “U” indicates that the compound was not present at a certain concentration. For example, if a lab reports a compound at 40 ug/L, and there was significant contamination in the field blank, and the contaminant is within criterion, the data reviewer would change the 40 to 40U.

For TICs, if a laboratory reports a compound present at 20ug/L and there was significant field blank contamination listed as TICs, the data reviewer would change the 20 ug/L to “R” (rejected). The “R” means that the compound may or may not be present, and that resampling and reanalyses is needed to verify if the analyte in question is present.

Four things to remember about QC blanks (Method, Field, Trip, Storage, Instrument):

- Blanks are not qualified due to contamination in other blanks. Field, trip and storage blanks associated with a method blank are not qualified for a contaminant in the method blank. This is only true for contamination criterion. All blanks are qualified for all other criteria such as SMC, IS, and Calibrations.

- “Water blanks”, “drill blanks”, and “distilled water blanks are used to verify the quality of the blank water and drilling water used at a site. These samples should be considered environmental samples and not QC-samples. Do not qualify data because of contaminants in these blanks.

- Storage and Trip blanks are analyzed for VOA compounds only. Method, Field and instrument blanks are analyzed for VOA, BNA and Pest/PCB fractions compounds.

- Instrument blanks affect only the sample analyzed immediately after the blank.

Next, let’s look at the checklist sections 5 and 6 for this criterion. This can be complicated but it is the most frequently used criterion for qualifying data.

5.0 <u>Blanks (Form IV)</u>

5.1 *Is the Method Blank Summary (Form IV) present?*

5.2 *Frequency of Analysis: for the analysis of VOA TCL compounds, has a reagent/method blank been analyzed during every 12-hour time period on each GC/MS system, before any samples, and for each matrix?(water, low soil or medium soil)*

5.3 *Has a VOA method blank been analyzed at least once every twelve hours for each matrix/concentration and GC/MS system used?*

5.4 *Was a VOA instrument blank analyzed after each sample/dilution that contained a target compound that exceeded the initial calibration range?*

5.5 *Was a VOA storage blank analyzed at the end of all samples for each SDG in a case?*

ACTION: *If any method/instrument blank data are missing, contact the TOPO to obtain any missing deliverables from the laboratory. If method blank data are not available, reject "R" all associated positive data. However, using professional judgement, the data reviewer may substitute field blank or trip blank data for missing method blank data.*

If any instrument blank analyzed after a sample with high concentration is missing, contact the TOPO to obtain any missing deliverables from the laboratory. If the instrument blank was not analyzed or not available, inspect the chromatogram of the sample analyzed immediately after this analysis for possible carryover. Use professional judgement to determine if any contamination occurred and qualify analyte(s) accordingly.

If storage blank data is missing, contact the TOPO to obtain any missing deliverables from the laboratory. If unavailable, note in the Contract Problems/Non-Compliance section of the Data Assessment.

Note: *A storage blank shall be analyzed and reported as a water sample unless the SDG contains only soil samples. Then, the storage blank may be analyzed and reported as a soil sample. (p. D-49/VOA sec. 12.1.3.5)*

5.6 *The validator should verify that the correct identification scheme for the EPA Blank samples was used. See page B-30, section 3.3.7.3 of the SOW for further information.*

Was the correct identification scheme used for all VOA blanks?

ACTION: *Contact the TOPO to obtain missing deliverables from the lab, or make the required corrections on the forms. Document in the Data Assessment under Contract Problems/Non-compliance if the validator made corrections.*

5.7 *Chromatography: review the blank raw data- chromatograms (RICs), Quant. reports or data system printouts and spectra. Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs?*

ACTION: *Use professional judgement to determine the effect on the data.*

5.8 *Are all detected hits for target compounds in method, instrument and storage blanks less than the CRQL for that analyte?*

Exception: Acetone and 2-butanone must be less than 5 times the CRQL, and methylene chloride and Cyclohexane must be less than 2.5 times its CRQL. (p. D-50/VOA sec. 12.1.4.6)

ACTION: *If no, explanation and laboratory's corrective actions must be addressed in the case narrative. If the narrative contains no explanation, then make a note in the Contract Problems/Non-Compliance section of the Data Assessment.*

Section 5 is concern with the frequency of the various QC blank analyses. Below is a checklist of criterion requirements:

- Method blank was analyzed every 12 hours
- Method blank was analyzed for each matrix type
- Storage blank analyzed at the end of all sample analyses in the SDG
- Instrument blank analyzed after an analysis with a high concentration
- Detected hits in the blanks must be < CRQL except for Acetone and 2-butanone, which must be < 5 x the CRQL
- Detected hits in the blanks must be < CRQL except for Methylene chloride and Cyclohexane, which must be < 2.5 x the CRQL.

6.0 Contamination

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

6.1 *Do any method/instrument/reagent/storage blanks have positive results (TCL and/or TIC) for VOAs?*

NOTE: *When applied as directed in the table below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for %moisture when necessary.*

NOTE: *A contaminated instrument blank is not allowable under this SOW. The instrument blank must meet the technical acceptance criteria for blank analyses (sec. 12.1.4). See page D-48/VOA, section 12.1.2.4 for additional information. Document in the Data Assessment under Contract Problems/Non-Compliance if contaminated instrument blank was submitted.*

6.2 *Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)?*

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

NOTE: *All field blank results associated with a particular group of samples (may exceed one per case) must be used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Blanks may not be qualified because of contamination in another blank. Field Blanks & Trip Blanks must be qualified for system monitoring compound, instrument performance criteria, spectral or calibration, and Internal Standard QC problems.*

ACTION: *Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If any blanks are grossly contaminated, all associated data should be qualified as unusable "R".*

NOTE: *Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.*

ACTION: *For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R".*

Figure 6-1 Validation actions based on sample and blank concentrations

For:	***Flag sample result with a "U" when:***	***Report CRQL & qualify "U" when:***	***No qualification is needed when:***
Acetone *Methylene Chloride* *Toluene* *2-Butanone* Cyclohexane	*Sample conc. Is ≥ CRQL, but ≤ 10x blank value*	*Sample conc. Is < CRQL and ≤ 10x blank value*	*Sample conc. Is > CRQL and > 10x blank value*
Other Contaminants	*Sample conc. Is ≤ CRQL, but ≤ 5x blank value.*	*Sample conc. Is < CRQL and ≤ 5x blank value.*	*Sample conc. Is CRQL and > 5x Blank value.*

6.3 *Are there field/rinse/equipment blanks associated with every sample?*

ACTION: *For low-level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For samples with high concentrations of suspected blank contaminants, use professional judgement to qualify these values and make a note in the Data Assessment.*

Exception: samples taken from a drinking water tap do not have associated field blanks.

Section 6 concentrates on the concept of contamination. It is this section that outline the actual validation actions. Five compounds follow the 10 x rule, while all other compounds use the 5x rule. Figure 6-1 outlines the specific action that must be taken regarding any contamination in the sample.

Practice 6-1 Using the information in Figure 6-1, how would you qualify the following sample?

Aqueous sample, the contaminant is methylene chloride and the value reported in the method blank is 5. The sample has a reported value of 48 and the CRQL is 10.

Answer to Practice 6-1

The sample value is > CRQL and is < blank contamination rule value of 50 (methylene chloride follows the 10 x rule, 10 x 5= 50)

Look at Figure 6-1 and find the statement that matches the above statement. The top of the column tells you to “Flag the sample result “U”. Cross out the Laboratory qualifier of "B" and write "U". Therefore the reported sample value is reported as 48U.

Practice 6-2 Using the information in Figure 6-1, how would you qualify the next sample?

Let's try another problem using a soil sample. The % moisture of the sample is 15, CRQL is 12, acetone is 20 and the method blank contamination value for acetone is 1.

Answer to Practice 6-2

First, you should check the CRQL value is correct. A soil sample value is corrected by dividing the value by the percent dry weight value. So 10/.85 is 11.7 rounded to 12. (Dry weight is 100-15 (% Moisture)/100=.85)

Next the method blank contamination value has to be corrected to account for % moisture, 1 x 10 (10x rule) = 10
10/.85 (dry weight) = 11.7
11.7 rounded to 12.

Now we have a sample acetone value of 20 which is > CRQL (12) and $\geq$ blank contamination rule value (12). Using Figure 6-1, acetone is not qualified and is reported as 20. Cross out the Laboratory qualifier "B".

Practice 6-3 Using the information in Figure 6-1, how would you qualify the following sample?

This is the same problem as Practice 6-2 except the dilution factor is 2.

Answer to Practice 6-3

Since the sample is diluted, multiply the blank contaminant value by that value (2). The blank value of 12 must be multiplied by dilution factor of 2 = 24

Now we have a sample acetone value of 20 which is > CRQL (12) and $\leq$ blank value (24). Following Figure 6-1, acetone is qualified as 20U. Don't forget to cross out the Laboratory qualifier "B".

It takes practice to remember the rules from Figure 6-1. Try the quiz on the next page. Answers are located in Appendix E.

Module 6 Quiz 1

Instruction:

- Use Figure 6.1 from page 5 or from the checklist in section 6.2 to qualify the each problem.
- Calculate and write in the correct CRQL for the sample if dilution factor (DF) or % moisture is involved. Assume the SOW CRQL of 10 for your base value.
- Write in the Qualified Result. This is the correct value and qualifier to be reported on the sample Form 1. Remember the significant figures and rounding rules.

1.

Matrix water		
Blank Contaminant	4	acetone
Sample CRQL		
Sample Result	8	
Qualified Result		

2. Matrix water

Blank Contaminant	12	methylene chloride
Sample CRQL		
Sample Result	50	
Qualified Result		

3. Matrix water

Blank Contaminant	3	toluene
Sample CRQL		
Sample Result	65	
Qualified Result		

4. Matrix water

Blank Contaminant	2	benzene
Sample CRQL		
Sample Result	8	
Qualified Result		

5. Matrix water

Blank Contaminant	3	chloroform
Sample CRQL		
Sample Result	23	
Qualified Result		

6. Matrix water

Blank Contaminant	3	2-hexanone
Sample CRQL		
Sample DF	3	
Sample Result	25	
Qualified Result		

7. Matrix soil

Blank Contaminant	2	2-butanone
Sample CRQL		
% Moisture	15	
Sample Result	5	
Qualified Result		

8. Matrix soil

Blank Contaminant	4	Cyclohexane
Sample CRQL		
Sample DF	2	
% Moisture	45	
Sample Result	160	
Qualified Result		

9. Matrix soil

Blank Contaminant	15	methylene chloride
Sample CRQL		
% Moisture	35	
Sample Result	38	
Qualified Result		

10. Matrix soil

Blank Contaminant	3	1,2,4 trichlorobenzene
Sample CRQL		
Sample DF	5	
% Moisture	20	
Sample Result	40	
Qualified Result		

11. Matrix soil

Blank Contaminant	8	ethylbenzene
Sample CRQL		
Sample DF	2	
% Moisture	8	
Sample Result	25	
Qualified Result		

12. Matrix soil

Blank Contaminant	3	Trichloroethene
Sample CRQL		
Sample DF		
% Moisture	15	
Sample Result	10	
Qualified Result		

Unit 2 Multiple QC associated with sample

Frequently a sample will have other QC blanks associated with it besides the method blank. Theoretically, the highest value from any of the associated blanks is used to qualify the sample for contamination criteria. In reality, this rule can be a major headache. There is an easier way to handle multiple QC blanks.

Trying to check and remember which field blank or trip blank is associated with each sample is time consuming and confusing for a new validator. Remember in Region 2 only QC blanks associated with each sample is used for contamination criteria. Other Regions may follow the policy that all method/QC blanks are associated with all samples.

Region 2 is very specific about which sample is associated with each QC blank.

- Only samples listed on Form 4 are associated with that Method Blank.
- Only aqueous samples shipped in the same cooler are associated with trip blank placed in that cooler.
- Field blanks may be assigned to either matrix based on specific equipment used to collect the sample (equipment blanks).
- Field blanks are assigned to samples collected on each sampling date. There are exceptions and the Sampling Trip Report should state which FBs are assigned to samples.

Years of validation have taught experience validators an easier way to qualify the data when numerous QC blanks are involved. Validate the data in the order listed below:

Method blanks contaminants are the first values to use since this blank should affect the most number of samples.

- If sample contaminants are not resolved and the matrix is aqueous, use the Storage blank contaminant.
- Any aqueous sample contaminant that has not been resolved uses the trip blank or field blank contaminants. Instrument blanks only affect the sample after the instrument blank analysis.
- If none of the QC blanks can be used to qualify the data, then the sample value is not changed and the B qualifier is removed.
- Soil samples are qualified using method blanks then storage blank. Soil samples usually are not affected by other QC blanks (specifically FBs which are always aqueous matrix) since the concentration units are different. If the analyte value in the sample is very low and the contaminant value in the QC blank is high, then there is chance of qualifying the data. Do not assume this will always be the case. Check the samples and QC blanks.
- Do not convert units. QC blanks are expressed as lg/L and soil samples as lg /Kg. Do not convert associated Field blank contaminant lg/L values to lg /Kg.
- Always cross out the “B” qualifier and replace with appropriate qualifier. If no qualifier is needed, just cross out the “B” qualifier.

There are two quizzes coming up. Take your time to think of the correct action. Figure 6-1 is the best resource and following the above suggestions to correctly answer the questions.

Validate Quiz 2 for Method Blank contamination for analytes following the 10x and 5x rules.

Validate Quiz 3 samples for several QC blanks. You will have to determine which QC blanks are associated with each sample to apply the contamination criteria correctly. The information needed is located on forms, case narrative or sampling trip report (see page 38). It is important to learn how to gather the pieces of information. You will never find everything written down or in one location. You have to learn to be a “scientific investigator” to find the information and if the information is not available, be able to make a decision for this criterion.

Answers for both quizzes are located in Appendix E.

Module 6 Quiz 2

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKDS

Lab Name: __NewLab_____ Contract : __123456___

Lab Code: __NLB____ Case No.: __12345_ SAS No.: _____ SDG No.:_BBJ50

Lab File ID: _BPH50-MBS_____ Lab Sample ID: ___BPH50-MB2_____

Instrument ID : __HP12_____ Date Extracted: __01/26/01_____

Matrix: (soil/water) ____SOIL_____ Date Analyzed: ___02/05/01_____

Level: (low/med) _____LOW_____ Time Analyzed: ___0935_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.	BPH62	BBJ50-13	BBJ50-13BB	1005
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

COMMENTS:

page _1____ of __1_____

FORM IV SV

OLM04.2

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKJH

Lab Name: __NewLab_____ Contract : __123456___

Lab Code: __NLB____ Case No.: __12345___ SAS No.: _____ SDG No.:_BBJ50

Lab File ID: _BPH50-MBW_____ Lab Sample ID: ___BPH50-MB1_____

Instrument ID : __HP14_____ Date Extracted: __01/24/01_____

Matrix: (soil/water) ____WATER_____ Date Analyzed: ___01/30/01

Level: (low/med) _____ _____ Time Analyzed: ___1015_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.	BBJ60	BBJ50-10	BBJ50-10AA	1045
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

COMMENTS:

page __1___ of ____1____

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB___ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-10_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L _	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	85	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	52	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	23	
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	33	J
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	5	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB___ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-10_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L	Q
79-01-6	Trichloroethene	41	
108-87-2	Methylcyclohexane	10U	
78-87-5	1,2-Dichloropropane	10U	
75-27-4	Bromodichloromethane	10U	
10061-01-5	Cis-1,3-Dichloropropene	10U	
108-10-1	4-Methyl-2-pentanone	14	
108-88-3	Toluene	14	
10061-02-6	Trans-1,3 Dichloropropene	10U	
79-00-5	1,1,2 Trichloroethane	10U	
127-18-4	Tetrachloroethene	10U	
591-78-6	2-Hexanone	23	
124-48-1	Dibromochloromethane	10U	
106-93-4	1,2-Dibromoethane	10U	
108-90-7	Chlorobenzene	10U	
100-41-4	Ethylbenzene	10U	
1330-20-7	Xylene (total)	5J	
100-42-5	Styrene	10U	
75-25-2	Bromoform	10U	
98-82-8	Isopropylbenzene	10U	
79-34-5	1,1,2,2-Tetrachloroethane	10U	
541-73-1	1,3-Dichlorobenzene	10U	
106-46-7	1,4- Dichlorobenzene	10U	
95-50-1	1,2 Dichlorobenzene	10U	
96-12-8	1,2-Dibromo-3-chloropropane	36	
120-82-1	1,2,4-Trichlorobenzene	10U	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB___ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBJ50-13_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBJ50-13BB_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(ul) Soil Aliquot Volume: _____(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg) _ug/Kg _	Q
75-71-8	Dichlorodifluoromethane	10U	
74-87-3	Chloromethane	22	
75-01-4	Vinyl Chloride	10U	
74-83-9	Bromomethane	10U	
75-00-3	Chloroethane	10U	
75-69-4	Trichlorofluoromethane	10U	
75-35-4	1,1 Dichloroethene	10U	
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10U	
67-64-1	Acetone	83	
75-15-0	Carbon Disulfide	10U	
79-20-9	Methyl Acetate	10U	
75-09-2	Methylene Chloride	54	
156-60-5	Trans-1,2-Dichloroethene	10U	
1634-04-4	Methyl-tert-Butyl Ether	6	
75-34-3	1,1 Dichloroethane	10U	
156-59-2	Cis- Dichloroethene	10U	
78-93-3	2-Butanone	10U	
67-99-3	Chloroform	10U	
71-55-6	1,1,1-Trichloroethane	10U	
110-82-7	Cyclohexane	10U	
56-23-5	Carbon Tetrachloride	10U	
71-43-2	Benzene	20	
107-06-2	1,2 Dichloroethane	10U	

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____

Contract : ___123456_____

Lab Code: __NLB___ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____

Lab Sample ID: __BPH50-3_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____

Lab File ID: ____ BPH50-3BB_____

Level: (low/med) __Low_____

Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____

Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm)

Dilution Factor: ____1_____

Soil Extract Volume: _____(lL)

Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	11	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	4	
1330-20-7	Xylene (total)	14	
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	25	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB___ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-MB1_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(ul) Soil Aliquot Volume: _____(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg) _ug/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	1	
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB___ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-MB1_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	2	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB___ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-MB2_____

Sample wt/vol: _____5.42_____(g/mL) ___g_____ Lab File ID: ____ BPH50-MBS_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _	Q
75-71-8	Dichlorodifluoromethane	10U	
74-87-3	Chloromethane	10U	
75-01-4	Vinyl Chloride	10U	
74-83-9	Bromomethane	10U	
75-00-3	Chloroethane	10U	
75-69-4	Trichlorofluoromethane	10U	
75-35-4	1,1 Dichloroethene	10U	
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10U	
67-64-1	Acetone	9	
75-15-0	Carbon Disulfide	10U	
79-20-9	Methyl Acetate	10U	
75-09-2	Methylene Chloride	3J	
156-60-5	Trans-1,2-Dichloroethene	10U	
1634-04-4	Methyl-tert-Butyl Ether	10U	
75-34-3	1,1 Dichloroethane	10U	
156-59-2	Cis- Dichloroethene	10U	
78-93-3	2-Butanone	5J	
67-99-3	Chloroform	10U	
71-55-6	1,1,1-Trichloroethane	10U	
110-82-7	Cyclohexane	10U	
56-23-5	Carbon Tetrachloride	10U	
71-43-2	Benzene	10U	
107-06-2	1,2 Dichloroethane	10U	

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB___ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-MB2_____

Sample wt/vol: _____5.42_____(g/mL) ___g_____ Lab File ID: ____ BPH50-MBS_____

Level: (low/med) __Low_____

Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(ul) Soil Aliquot Volume: _____(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg) _ug/Kg	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	1	J
1330-20-7	Xylene (total)	3	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKDS

Lab Name: __NewLab_____ Contract : __123456___

Lab Code: __NLB____ Case No.: __12345 SAS No.: _____ SDG No.:_BBJ50

Lab File ID: _BPH50-MBS_____ Lab Sample ID: ___BPH50-MB2_____

Instrument ID : __HP12_____ Date Extracted: __01/26/01_____

Matrix: (soil/water) ____SOIL_____ Date Analyzed: ___02/05/01_____

Level: (low/med) _____LOW_____ Time Analyzed: ___0935_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.	BPH62	BBJ50-13	BBJ50-13BB	1005
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
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16.				
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18.				
19.				
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21.				
22.				
23.				
24.				
25.				

COMMENTS:

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FORM IV SV

OLM04.2

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKJH

Lab Name: __NewLab_____ Contract : __123456___

Lab Code: __NLB____ Case No.: __12345 SAS No.: _____ SDG No.:_BBJ50

Lab File ID: _BPH50-MBW_____ Lab Sample ID: ___BPH50-MB1_____

Instrument ID : __HP14_____ Date Extracted: __01/24/01_____

Matrix: (soil/water) ____WATER_____ Date Analyzed: ___01/30/01

Level: (low/med) _____ _____ Time Analyzed: ___1015_____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1.	BBJ60	BBJ50-10	BBJ50-10AA	1045
2.	BPL01	BBJ50-30	BBJ50-30AA	1115
3.	BPL04	BBJ50-33	BBJ50-33AA	1145
4.	VHBLK01	SB01	BBJ50-SB01	1215
5.				
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24.				
25.				

COMMENTS:

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FORM IV SV

OLM04.2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB____ Case No.: __12345____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-10_____

Sample wt/vol: _____5_____(g/mL) ____mL___ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L_	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	85	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	52	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	23	
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	33	
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	5	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

EPA SAMPLE NO.
BBJ60

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-10_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L	Q
79-01-6	Trichloroethene	41	
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	14	
108-88-3	Toluene	14	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	23	
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	5	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	36	
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBJ50-13_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBJ50-13BB_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	22	
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	83	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	54	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	6	J
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	20	
107-06-2	1,2 Dichloroethane	10	U

EPA SAMPLE NO.
BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-3_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BPH50-3BB_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) lg/Kg	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	11	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	4	J
1330-20-7	Xylene (total)	14	
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	25	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-30_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-30AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	2	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	5	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-30_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-30AA_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) lg/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	J
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	8	J
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-33_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-33AA_____

Level: (low/med) _____ Date Received: __01/26/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) lg/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	5	J
107-06-2	1,2 Dichloroethane	10	U

EPA SAMPLE NO.
BPL04

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-33_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-33AA_____

Level: (low/med) _____ Date Received: __01/26/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	4	J
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	1	J
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	3	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	1	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLK01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _SB01_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-SB01_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L_	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	5	J
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	3	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	2	J
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLK01

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _SB01_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-SB01_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	2	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	5	J
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-MB1_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) lg/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	6	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	1	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKJH

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50

Matrix: (soil/water) ___water_____ Lab Sample ID: _BBJ50-MB1_____

Sample wt/vol: _____5_____(g/mL) ____mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: __01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624____ ID: ____0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	2	J
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-MB2_____

Sample wt/vol: _____5_____(g/mL) ___g_____ Lab File ID: ____ BPH50-MBS_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____0_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	3	J
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	5	J
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDS

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BPH50

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BPH50-MB2_____

Sample wt/vol: _____5_____(g/mL) ___g_____ Lab File ID: ____ BPH50-MBS_____

Level: (low/med) __Low_____ Date Received: ___01/26/01_____

% Moisture: not dec. ____0_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	1	J
1330-20-7	Xylene (total)	3	J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

Case Narrative

The following samples were received in good condition and containers intact.

Airbill Number: 10976520, cooler temp 6˚C, received 01-24-2001

BBJ60
BPL01

Airbill Number: 28765941, cooler temp 3˚C, received 01-26-2001

BPH62
BPL04

Sampling Trip Report

Sample	Date of Collection	Shipped	Description
BBJ60	01-22-2001	01-22-2001	Surface water
BPH62	01-25-2001	01-25-2001	Soil, 2" to 6" deep
BPL01	01-22-2001	01-22-2001	Trip Blank
BPL04	01-25-2001	01-25-2001	Rinse Blank for bowel and trowel

Unit 3TICs

TIC Contamination

There are separate set of rules for TICs that are rejected due to contamination. All TICs in a sample are listed on a separate form. If no TICs are found in the sample, the Lab must still report this form. Form 1F is the form used to report VOA TICs in a sample.

TICs have various laboratory qualifiers given to them that should be crossed off and replaced with a validation qualifier. The following conditions will result in the qualifier "R" to replace existing qualifiers for the TIC analytes:

Analyte is an aldol by product, must be identified by the Lab with an "A" qualifier. The 5x or 10x rule does not apply to the Tic value.

Common Laboratory artifacts such as siloxane by-products, certain freons, and phthalates. The 5x or 10x rule does not apply to the Tic value.

- Solvent preservative (Cyclohexane) and related by products. The 5x or 10x rule does not apply to the Tic value.

- Analyte is present in the method blank and the concentration is < 5x the method blank value. **ALL method blank** contaminants in a sample must be reported and identified with the "B" qualifier. If the value is above the 5 x rule, cross off the "B" qualifier.

- Analyte is a TCL analyte from another fraction. If the analyte is included in the target compound list of a fraction **that was analyzed for the sample**, reject "R" the analyte. If the fraction was not analyzed, do not take any action. For example, a SDG contained BNA and Pest fractions only and acetone was reported as a TIC in the BNA sample analysis. Acetone would not be rejected since the VOA fraction was not analyzed.

- Analyte reported under a different name (example Dichloromethane is the same as methylene chloride) and listed, as a tic is "R" since it is a TCL analyte. Check the CAS No. if unsure about the identification.

- PCB congeners are rejected "R" (see section 9.3 of the checklist in Appendix A).

The TIC section of the checklist is reviewed for this criterion.

9.0 <u>Tentatively Identified Compounds (TIC)</u>

9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present? and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate?

b. Blanks?

c. Are Alkanes listed in/or part of the Case Narrative?

ACTION: *If any TIC data are missing, take action specified in 3.2 above.*

ACTION: *Add "N" qualifier to all chemically named TIC's, if missing.*

9.3 *Are any TCL compounds (from any fraction) listed as TIC compounds? (Example: 1,2-dimethylbenzene is xylene - a VOA TCL - and should not be reported as a TIC.)*

ACTION: *Flag with "R" any TCL compound listed as a TIC.*

9.4 *Are any TICS reported earlier than 30 sec. before the first semivolatile compound, or three (3) minutes after the last semivolatile compound listed in Exhibit C SVOA?(p.D-45/SVOA,11.1.2.2)*

ACTION: *Flag with "R" any TIC compound reported.*

9.5 *Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?*

9.6 *Do TIC and "best match" standard relative ion intensities agree within ±20%?*

ACTION: *Use professional judgement to determine the acceptability of TIC identifications. If it is determined that an incorrect identification was made, change the identification to "unknown," or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable, "R".*

9.7 *Are any TICs with responses < 10% of the internal standard (as determined by inspection of the peak areas or height) reported?*

ACTION: *If yes, cross out questionable TIC(s).*

Quiz on the next page will give you practice qualifying TICs for contamination. Answers for the quiz are in Appendix E.

Module 6 Quiz 4

Instruction: Write the correct qualification for the TICs in the sample for contamination. The method blank TICs are on the next page.

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
BBJ60

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50_

Matrix: (soil/water) __water_____ Lab Sample ID: __BBJ50-10_____

Sample wt/vol: ____5_____(g/mL) __mL_____ Lab File ID: __BBJ50-10AA_____

Level: (low/med) _____ Date Received: _01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(ul) Soil Aliquot Volume: _____(ul)

Number TICs found: _____ CONCENTRATION UNITS
(ug/L or ug/Kg) _____

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	75-09-2	Dichloromethane	6.52	25	NJ
2.	556-67-2	Cyclotetrasiloxane, Ocatameth	14.54	11	NJ
3.		Laboratory Artifact	15.88	14	JB
4.		Laboratory Artifact	17.13	10	JB
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

FORM I VOA-TIC OLM04.2

1F EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLKJH

Lab Name: __NewLab_____ Contract : __123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBJ50_

Matrix: (soil/water) __water_____ Lab Sample ID: __BBJ50-MB1_____

Sample wt/vol: ____5_____(g/mL) __mL_____ Lab File ID: __BBJ50-MBW_____

Level: (low/med) _____ Date Received: _01/24/01_____

% Moisture: not dec. _____ Date Analyzed: __01/30/01_____

GC Column: _Equity 624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

Number TICs found: _____ CONCENTRATION UNITS
(lg/L or lg/Kg) _____

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Laboratory Artifact	15.88	4	J
2.	Laboratory Artifact	17.13	10	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Unit 4 Documents and Reports

Data Assessment

Each action taken due to QC contamination is documented in the DA. Each type of QC should be listed separately. In other words, if an analyte was qualified for method blank contamination, the action should be listed under method blanks. Analytes qualified for Trip blank contamination are listed under trip blanks and so on. An analyte only needs to be mentioned for one type of QC blank. For Example if acetone was qualified in sample GHT45 because of contamination in a method blank, storage blank and a trip blank, it should be mentioned under method blank but not trip or storage blanks. Don't forget you must have a statement of the problem, action taken and samples affected. Above example can be written under Method Blank contamination as:

The following samples had analytes reported < CRQL and < 10 x the blank contamination. Reported concentration was raised to the CRQL and qualified "U".

Acetone
BHT45

The first sentence stated the problem. The second sentence explains the action taken. The sample and analyte affected are documented.

Learning Module 5

Learning Objectives for this Module

- **Identify action taken for Matrix Spike criterion not meeting the requirements stated in the checklist**

Unit 1Matrix spike

The matrix is defined as the predominant sample composition material. For the purpose of this training manual, a matrix is either water or soil/sediment. Matrix is not synonymous with phase (liquid or solid).

The matrix spike (MS) is an aliquot (a measured portion) of a matrix (water sample or soil sample) fortified (spiked) with known quantities of specific compounds, and analyzed. Measuring recovery of the spiked compounds demonstrates method efficiency, and the effect of the matrix on an environmental sample.

Spike recovery is expressed in percent, and is defined as the amount of material found in the spiked sample divided by the amount spiked into the sample prior to the analysis, times 100 (Equation 5-1). The matrix spike duplicate (MSD) is a replicate matrix spike, which is used to determine method precision. If the MS/MSD recoveries are not within certain limits, there may be a matrix interference problem.

Equation 5-1 Calculate MS and MSD Spike Recoveries

$$\text{MS/MSD (Percent Recovery)} = \frac{(SSR - SR)}{SA} \times 100$$

Where:
SSR = Spike Sample Result (spike added + sample result)
SR = Sample Result
SA = Spike added from spiking solution

The matrix spike/matrix spike duplicate sample results are examined to determine which analyte spikes are outside recovery limits. Based on professional judgement, the data reviewer may qualify sample data if both the matrix spike and matrix spike duplicate have less than 10% recovery for that analyte. However, the reviewer should check the GC chromatograms for matrix interference, as well as the internal standard area counts and surrogate recoveries before qualifying data due to MS/MSD recovery. Also various Regions and Projects have different requirements for using and validating MS/MSD data. The checklist (HW-6) addresses only Region 2 guidelines. Any project specific requirements that may affect the validation will be stated in the Task Direction Form (TDF).

The concept of MS/MSD samples is uncomplicated, but the units on the form can be very confusing to individuals who do not have applicable laboratory experience. The Form 3A report in the column named "Spike Added" the concentration in ug/L . It is very important to remember this is not the concentration of the spike aliquot itself, but reflects the ***concentration of the spike in the sample***. A copy of a Form 3 is available in Appendix B.

Any concentration reported for the compound in the unspiked sample is subtracted from the reported MS and MSD concentration before % recovery and RPD are calculated. Remember if the initial volume or weight is not 5 mL or 5 g, then the amount spiked into the sample will be not be 50.

A water sample contains 50 lg/L of compound X. The sample volume is 5 mL. The lab spiked the sample with 10 ll of a 25 lg/mL spiking solution.
On Form 3A, the spike added should be 50 ug/L spike, the sample concentration is the amount found in the unspiked sample and the MS and MSD concentration is the amount found in the spiked sample. The percent recovery is calculated using the Equation 5-1.

A matrix spike and matrix spike duplicate must be performed for each group of samples of a similar matrix, for the following, whichever is most frequent:

- Each case of field samples received.
- Each 20 field samples in a case.
- Each group of field samples of a similar concentration level (low soil or media soil).
- Each 14 calendar day period (7 calendar day period for 14-day data turnaround contracts) during which field sample in case were received (said period beginning with the receipt of the first sample in that Sample Delivery Group (SDG).

To statistically measure the difference between MS and MSD recoveries, we introduce the term Relative Percent Difference (RPD). We calculate the RPD of MS/MSD recoveries using Equation 5-2:

Equation 5-2 Calculate Relative Percent Difference (RPD)

$$RPD = \frac{|MSR - MSDR|}{(MSR + MSDR)/2} \times 100$$

where,
MSR = Matrix Spike Recovery
MSDR = Matrix Spike Duplicate Recovery

The vertical bars in the formula above indicate absolute value of the difference. Hence, RPD is always expressed as a positive value.

In the Example 5-1, if the MS recovery is 80% and the MSD recovery is 120%, The RPD would be calculated as 40%.

Example 5-1 RPD calculation

$$(RPD) = \frac{|80-120|}{(80+120)/2} \times 100 = 40$$

The Volatile Matrix Standard Spike Solution in methanol contains the following compounds at a concentration of 25 ug/mL (25 lg/mL) 1,1-Dichloroethene, Trichloroethene, Benzene, Toluene and Chlorobenzene. A spike of 10 lL of this solution is added to each sample chosen. Disregarding any dilutions and 5 mL or gm of sample, this is equivalent to a concentration of 50 ug/L for each matrix spike compound.

Unit 2 Matrix Spike Qualification

Generally, Region 2 does not validate samples for this criterion. This does not mean the results are not important. Precision and Accuracy is an important part of data usability. Unfortunately there are a number of factors that can affect the spike results so it is used with caution. Any qualification usually affects the sample that was spiked. Let's continue with section 4 of the checklist.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?

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

a. Low Water?

b. Low Soil?

c. Med Soil?

ACTION: If any matrix spike data are missing, take the action specified in section 3.2 above.

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.

ACTION: Circle all outliers with red pencil.

Note that the MS and MSD samples (Form I) are considered a criteria contributing to the data reliability in the particular sample spiked. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data. Note that only the sample spiked would be qualified if necessary. Rarely would the entire case or SDG of similar matrix be qualified for these matrix spike problems.

What this means is the validator using **professional judgement** has several options:

- Do nothing
- Qualify only the affected analyte in the unspiked sample
- Qualify all of the analytes in the unspiked sample
- Qualify only the affected analyte in all samples. This must have supporting details to document this action
- Qualify only the affected analyte or all of the analytes is recovery is < 10%

Documentation

Except for the first option, all other options must be documented in the DA, either under the matrix spike section or under the section called Other Problems.

A couple of tips about soil samples:

- Check chromatograms for severe matrix interference, which would explain not meeting criterion limits.
- Soil samples are prone to hot spots, areas in the sample where a higher concentration of a compound is present than the rest of the sample. VOA samples can not be homogeneously mixed to ensure uniformity.

We generally do not qualify soil samples for this criterion for the last reason. If there is a co-elution problem, a peak masking another peak or an unknown peak that interferes with a spiked compound, then qualification may be necessary. Check the other samples to see if the same problems are in the sample chromatograms, if so, consider qualifying the data.

On the next page practice calculating the percent recovery and RPD of the sample. Answers are in Appendix E.

Module 5 Quiz 1

Instruction:

- Fill in the Recovery and RPD values for each problem.
- Decide a possible course of action to qualify the data.

1. Water sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
1,1 Dichloroethene	50	0	34		45			14	61-145
Trichloroethene	50	20	45		45			14	71-120
Benzene	50	0	57		59			11	76-127
Toluene	50	0	68		70			13	76-125
Chlorobenzene	50	10	55		45			13	75-130

2. Low level Soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
1,1 Dichloroethene	50	0	48		24			22	59-172
Trichloroethene	50	0	55		53			24	62-137
Benzene	50	15	76		68			21	66-142
Toluene	50	40	110		92			21	59-139
Chlorobenzene	50	0	65		60			21	60-133

3. Med level soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
1,1 Dichloroethene	42	0	26		30			22	59-172
Trichloroethene	42	0	35		35			24	62-137
Benzene	42	0	23		25			21	66-142
Toluene	42	0	75		70			21	59-139
Chlorobenzene	42	0	52		55			21	60-133

4. Low level soil sample

Compound	Spike added	Sample Conc	MS Conc	MS % Rec	MSD Conc	MSD % Rec	% RPD	RPD Limits	Rec limits
1,1 Dichloroethene	71	0	45		40			14	61-145
Trichloroethene	71	0	56		50			14	71-120
Benzene	71	0	51		43			11	76-127
Toluene	71	0	63		54			13	76-125
Chlorobenzene	71	0	10		4			13	75-130

Learning Module 4

Learning Objectives for this Module

- **Identify action taken for System Monitoring Compounds/Surrogates criterion not meeting the requirements stated in the checklist**

Unit 1System Monitoring Compound Criteria

It is important to learn how to verify surrogate recovery, and to qualify data based on surrogate recovery limits. Low surrogate recovery is one of the most common reasons that data are qualified.

System monitoring compounds (SMC) are added to every blank, sample, matrix spike, matrix spike duplicate, and standard for volatile analysis. They are used in evaluating the performance of the purge and trap gas chromatography and mass spectrometer system. These compounds are brominated or deuterated compounds not expected to be present in environmental media.

First you will learn how to calculate surrogate percent recovery. Then you will review the qualification process.

One VOA soil and one VOA water surrogate % recovery calculation for each surrogate should be checked per SDG and per calibration. If they are correct, we can assume that all the calculations are correct. If there are any errors then check more surrogate results.

There are several facts that can affect the number reported by the lab. The first one that affects any reported value is the rounding rule* stated in the SOW. Labs will round off at various stages in the calculation process. Some may use the rounded number in the next round of calculations; other might use the real number. If the reported result is within ballpark of your number, it is not an issue. For example the lab reported a value of 93 and your value is 98. This is not a big difference. The only concern is if the results are near the upper and lower limits of the criterion since this potentially can affect qualification of the data. The lower limit is the most critical particularly if the recovery is < 10%. Numbers near the limit ends should be double-checked and a decision made about the accuracy of the number.

*** Rounding Rule**: For rounding off numbers to the appropriate level of precision. If the figure following those to be retained is less than 5, drop it (round down). If the figure is > or = to 5, drop it and increase the last digit to be retained by 1.

Example: 934 is rounded to 930.
936 is rounded to 940.
935 is rounded to 940.
925 is rounded to 930

The second fact is **significant figure**. You will notice the numbers are reported to 2 significant figures. This is a requirement of the SOW unless stated otherwise in the document. VOA and BNA values are reported to 2 significant figures if the value is $\geq$ 10. If the value is < 10, report 1 significant figure. All pesticides results are reported to 2 significant figures.

Calculations

Equations 4-1 and 4-2 are standard equations used for calculating spike concentrations and recoveries. Learn the calculations well, you will use them repeatedly during the validation process.

First you must check the reported limits on the lab forms are the same as the limits on the SOW forms.

- Then you must verify the lab reported the correct value. The SMC form has only % recovery values, not the concentration.
- You must know the theoretical and actual concentrations of the SMC in the sample. The question is how do you proceed to find the numbers you need to fill in the equations.

When you work on a package, the values needed for all calculations are listed on a quantitation report, usually called a Quant report. The surrogates and internal standards are mixed in with the analytes in the order of retention time. Most Quant reports will put a marker next to surrogate and internal standard compounds to help identify them.

First, figure out the theoretical amount of SMC added to the sample. This information is in the SOW but you have to know where to find the information. In the beginning section of each fraction is a section called Reagents and Standards. Read through each paragraph until you find the working standard solution for the criteria. For this criteria you are looking for the SMC Spiking Solution. The paragraph for this solution states the amount of solution to add to the sample. The amount of standard to add to a sample for other criteria is not always stated in this section. If not stated, you will have to go to the section on sample preparation to find the amount of solution to add to the sample.

The SMC solution states to add 10 lL of the 25 lg/mL solution into 5 mL of sample (250ng/5mL). The final and theoretical concentration is 50 lg/L of SMC in the sample. This value is for a 5mL or 5g of sample. If the sample value is more or less, then an adjustment has to be made. If the sample weight is 4g, (250/4) the final theoretical concentration is 62.50.

Next determine the actual concentration of SMC found in the sample during analysis. Equation 4-1 is used to calculate actual values.

Equation 4-1 SMC Concentration in a Sample

$$\text{Concentration } \mu g/L = \frac{(A_x)\,(I_s)}{(A_{is})\,(RRF_{50})\,(V_o \text{ or } W_s)}$$

Where:

A_x = Area of the characteristic ion for the analyte to be measured

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

I_s = Amount of internal standard added in nanograms (SOW; always 250ng for each of the three internal standards per 5ml sample volume which equals 50 lg/L)

RRF_{50} = Relative Response Factor from the ambient temperature purge of the daily (continuing) calibration for the analyte to be measured. “50” implies that the midrange concentration point of 50 ppb IS taken.

V_o = Water sample Volume purged in milliliters (mL).

(usually 5 mL as per VOA method, don't forget to make adjustment if this value is not 5)

OR

W_s = Soil sample Volume purged in grams (g).
(usually 5 g as per VOA method, don't forget to make adjustment if this value is not 5)

After looking at Equation 4-1, you are probably thinking I thought I was calculating SMC, what does internal standards have to do with this. This method uses an internal standard calibration procedure to quantitate any analyte. This technique takes into account the instrument sensitivity to calculate the concentration of an analyte in a sample.

Internal standards will be extensively covered in Module 9. For now, you only need to know which SMCs are associated with each internal standard.

It is important to remember which are SMC compounds and internal standard compounds. Some of the compounds have similar looking names so be sure to check the spelling of the analyte. The area responses from the internal standards are used in all of the calculations.

Table 4-1 SMC compounds and associated Internal Standard compounds

System Monitoring Compounds	Internal Standards
Toluene-d8	Chlorobenzene –d5
Bromofluorobenzene	Chlorobenzene –d5
1,2 Dichloroethane –d4	Bromochloromethane

Looking at the Table 4-1, you will notice that 2 of the SMCs are associated with the same internal standard. This is correct but remember the VOA fraction has 3 internal standards. It is important that you choose the correct internal standard. Do not mix up similar looking compounds.

Let's go back and review Equation 4-1 step by step. When using this equation for SMC concentration, substitute the specific SMC for the word analyte. The internal standard used is the internal standard associated with the SMC compound. The RRF is from the continuing calibration associated with the sample for the surrogate being measured.

Let’s calculate the concentration for toluene-d8 based on the information presented in Example 4-1:

Example 4-1 Modified Quant report for a sample and modified Form 7A/B

Modified Quant report for a sample

Compound	Response
* Bromochloromethane	68847
* 1,4 Difluorobenzene	285312
* Chlorobenzene –d5	231149
$ 1,2 Dichloroethane –d4	170728
$ Toluene-d8	265908
$ Bromofluorobenzene	233382

* Internal Standard
$ Surrogates

Modified Form 7A/B for associated continuing calibration

Compound		$\overline{RRF}$	RRF50
Toluene-d8	1.285	1.184	
Bromofluorobenzene	0.958	1.011	
1,2 Dichloroethane-d4	2.574	2.436	

The answer should be:

$$\frac{265908 \times 250 \times 48.58}{231149 \times 1.184 \times 5}$$

Once you have the theoretical concentration (50) and the actual concentration (48.58), then you can calculate the % recovery using Equation 4-2.

Equation 4-2 Calculating Percent Recovery

$$\% \text{ Recovery} = \frac{\text{Concentration (amount) Found}}{\text{Concentration (amount) Spiked}} \times 100$$

Now calculate % recovery value using Equation 4-2 and the answer is:

$$\frac{48.58}{50} \times 100 = 97\%$$

Practice 4-1 **Using Example 4-1 Calculate the concentration and % recovery for the other 2 SMC compounds**

Answer to Practice 4-1

Check your answers below.

SMC compound	Concentration	% Recovery
Bromofluorobenzene	49.93	100
1,2 Dichloroethane –d4	50.90	102

If your answers do not match, go back and double check your equations for the right internal standards area responses or the RRF values.

TIP: There is another way to check the concentration of an analyte. The Quant report for a sample has two concentration columns titled "On column (ng)" and "Final (ug/X)". X is L for water samples and Kg for soil samples.

The "on column" value is the actual concentration of analyte in the sample. This value has not been corrected for sample amount, % moisture, and dilution factor.

Let's look at the modified Quant report for a soil sample (5.90 g, % moisture 23%.

Modified Quant report for a sample

Compound	Response	On Column (ng)	Final (ug/Kg)
* Bromochloromethane	50301	250.00	
* 1,4 Difluorobenzene	211663	250.00	
* Chlorobenzene –d5	207852	250.00	
$ 1,2 Dichloroethane –d4	153917	297.305	65.44
$ Toluene-d8	231670	238.321	52.46
$ Bromofluorobenzene	124258	208.685	45.94

* Internal Standard
$ Surrogates

Modified Form 7A/B for associated continuing calibration

Compound	RRF	RRF50
Toluene-d8	1.222	1.169
Bromofluorobenzene	0.894	0.716
1,2 Dichloroethane –d4	2.323	2.573

The first surrogate, 1,2 Dichloroethane –d4 has an on column value of 297.305. Divide this number by the surrogate injected amount of 250 (10 lL of the 25 lg/mL solution into 5 g of sample (250ng/5Kg)).

$$\frac{297.305}{250.00} = 1.189 \times 100 = 119\ \%\ \text{surrogate recovery}$$

This is the same as the Final concentration of 65.44/55.03 x 100 = 119%. The final amount was corrected for sample weight and % moisture, so the injected final amount of 50 must be corrected by the same weight and % moisture values.

FYI Not all labs will report the "On column value as 250, some labs will report the value as 50 (250/5).

Medium Level Soil Samples

Samples that have high concentration(s) of analyte(s) are usually analyzed as a medium level soil. The results are reported on the soil sample forms except for Form 5 (tune). Medium level samples are associated with water sample tune and calibrations.

Medium level samples are extracted using methanol. SMCs are added to the sample prior to the methanol extraction process. The concentration of each SMC (50) is the same as water and low level soil matrices. The calculation for a medium level sample for surrogate "On column" concentration and recovery is the same calculation used for low level soils and water samples.

Equation 4-3 is used to calculate the actual concentration of SMC found in the medium level soil sample during analysis.

Equation 4-3 SMC Concentration in a medium level Sample

$$\text{Concentration } \mu g/Kg = \frac{(A_x)\,(I_s)\,(V_t)\,(1000)\,DF}{(A_{is})\,(RRF_{50})\,(V_a)\,(W_s)\,(D)}$$

Where:

A_x = Area of the characteristic ion for the analyte to be measured

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

I_s = Amount of internal standard added in nanograms (SOW; always 250ng for each of the three internal standards per 5ml sample volume which equals 50 µg/L)

V_t = Total volume of the methanol extract in milliliters (mL). NOTE: This volume is typically 10 mL, even though only 1 mL is transferred to a vial.

RRF_{50} = Relative Response Factor from the ambient temperature purge of the daily (continuing) calibration for the analyte to be measured. “50” implies that the midrange concentration point of 50 ppb IS taken.

V_a = Volume of the aliquot of the sample methanol extract (i.e. sample extract not including the methanol added to equal 100 µL) in microliters (µL) added to reagent water for purging.

W_s = Weight of soil/sediment extracted, in grams (g).

$$D = \frac{100 - \%\ \text{moisture}}{100}$$

DF = Dilution factor. The dilution factor for analysis of soil/sediment samples for volatiles by the medium level method is defined as:

$$\frac{\text{1L most conc. extract used to make dilution + 1L clean solvent}}{\text{1L most conc. extract used to make dilution}}$$

Example 4-4 Let's look at the modified Quant report for a soil sample (4.00 g, % moisture 23%, DF= 1, aliquot = 100.

Modified Quant report for a sample

Compound	Response	On Column (ng)	Final (ug/Kg)
* Bromochloromethane	50301	250.00	
* 1,4 Difluorobenzene	211663	250.00	
* Chlorobenzene-d5	207852	250.00	
$ 1,2 Dichloroethane-d4	153917	297.305	9652.94
$ Tolune-d8	231670	238.321	7739.10
$ Bromofluorobenzene	124258	208.685	6777.14

Modified Form 7A/B for associated continuing calibration

Compound	$\overline{RRF}$	RRF50
Toluene-d8	0.989	1.169
Bromofluorobenzene	0.765	0.716
1,2 Dichloroethane –d4	2.675	2.573

Final concentration of the surrogate 1,2 Dichloroethane –d4 is calculated using Equation 4-3.

$$\text{Actual Concentration } \mu g/Kg = 9652.94 \qquad \frac{(153917)\,(250)\,(10)\,(1000)\,1}{(50301)\,(2.573)\,(100)\,(4)\,(.77)}$$

$$\text{Theoretical concentration} = 8116.88 \qquad \frac{(250)\,(10)\,(1000)\,1}{(100)\,(4)\,(.77)}$$

$$\%\ \text{Recovery} = \frac{9652.94}{8116.88} \text{ is } 119\%.$$

When your answers match the above table, then continue onto the quiz. The values given in the quiz are just numbers for you to practice calculations. Match your answers with the quiz answers in Appendix E.

Module 4 Quiz 1

Instruction:

- For each of the 4 water samples, calculate and report the concentration for each surrogate.
- Write your answers in the empty spaces provided for each SMC.
- Calculate the % Recovery of each surrogate in the samples and report the values on the Form 2, which can be found on page 6.

Sample BBJ60	Area responses	Concentration
Toluene-d8	269364	
Bromofluorobenzene	262549	
1,2 Dichloroethane –d4	192501	

Bromochloromethane	83645
1,4 Difluorobenzene	216308
Chlorobenzene –d5	298770
RRF- Toluene-d8	1.843
RRF- Bromofluorobenzene	0.911
RRF- 1,2 Dichloroethane –d4	1.987

Sample BPH71	Area responses	Concentration
Toluene-d8	292745	
Bromofluorobenzene	200982	
1,2 Dichloroethane –d4	182375	

Bromochloromethane	45910
1,4 Difluorobenzene	246502
Chlorobenzene –d5	283302
RRF- Toluene-d8	1.145
RRF- Bromofluorobenzene	1.211
RRF- 1,2 Dichloroethane –d4	1.234

Sample BPH62	Area responses	Concentration
Toluene-d8	200983	
Bromofluorobenzene	398712	
1,2 Dichloroethane –d4	209870	

Bromochloromethane	87254
1,4 Difluorobenzene	229343
Chlorobenzene –d5	233433
RRF- Toluene-d8	1.002
RRF- Bromofluorobenzene	0.877
RRF- 1,2 Dichloroethane –d4	4.876

Sample BNR68	Area responses	Concentration
Toluene-d8	200234	
Bromofluorobenzene	287560	
1,2 Dichloroethane –d4	15005	

Bromochloromethane	61224
1,4 Difluorobenzene	212118
Chlorobenzene –d5	229850
RRF- Toluene-d8	1.763
RRF- Bromofluorobenzene	1.333
RRF- 1,2 Dichloroethane –d4	2.857

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB__ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
3.	VBLKJH	97	102	96		0
4.	BBJ60					
5.	BPH71					
6.	BPH62					
7.	BNR68					
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
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21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						
31.						
32.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(88-110)
SMC2	(BFB) = Bromofluorobenzene	(86-115)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

Page _1____ of _1____

FORM II VOA-1

OLM04.2

Unit 2 SMC Qualifications

As you can see in Table 4-2, the SMC expected recovery range for each compound and matrix is different. The most significant difference is the soil recovery limits for Bromofluorobenzene. Compare the percent recoveries from the previous quiz with the limits listed below:

Table 4-2 SMC Recovery Ranges

Compound	% Recovery Water	% Recovery Soil
Toluene-d8 (TOL)	88-110	84-138
Bromofluorobenzene (BFB)	96-115	59-113
1,2 dichloroethane-d4 (DCE)	76-114	70-121

Some of the recoveries are within range. What action is needed for the recoveries outside the upper and lower limits? Determine the appropriate action by reviewing the SMC section in the checklist.

3.0 System Monitoring Compound (SMC) Recovery (Form II)

3.1 *Are the VOA SMC Recovery Summaries (Form II) present for each of the following matrices:*

a. Low Water?

b. Low Soil?

c. Med Soil?

3.2 *Are all the VOA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices:*

a. Low Water?

b. Low Soil?

c. Med Soil?

ACTION: *Contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.*

3.3 *Were outliers marked correctly with an asterisk?*

ACTION: *Circle all outliers with red pencil.*

3.4 *Was one or more VOA system monitoring compound recovery outside of contract specifications for any sample or method blank?*

If yes, were samples re-analyzed?
Were method blanks re-analyzed?

ACTION: *If recoveries are >10%, but 1 or more compounds fail to meet SOW specifications:*

1. All positive results are qualified as estimated "J".

2. Flag all non-detects as estimated detection limits "UJ" where recovery is less than the lower acceptance limit.

3. If SMC recoveries are above allowable levels, qualify positive results "J" and do not qualify non- detects.

If any system monitoring compound recovery is < 10%:

1. Flag all positive results as estimated "J".

2. Flag all non-detects as unusable "R".

Professional judgement should be used to qualify data that only have method blank SMC recoveries out of specification in both original and re-analyses. Check the internal standard areas.

NOTE: Contractual requirements state that if any SMC fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

NOTE: The laboratory must submit the following data:

1. If SMC recoveries and internal standard responses meet the acceptance criteria in the re-analyzed sample, then the laboratory must submit only the re-analysis.

2. If an SMC recovery and/or internal standard response fails to meet the acceptance criteria upon re-analysis, then submit data from both analyses. (Refer to section 11.4.3.2, page D-45/VOA of the SOW for more information).

3.5 Are there any transcription/calculation errors between raw data and Form II?

ACTION: If large errors exist, contact the TOPO to obtain an explanation or resubmittal of corrected deliverables from the laboratory. Make any necessary corrections and note the effect in the Data Assessment.

Parts 3.1 to 3.3 are simple questions requiring Yes, NO or N/A response. Forms are submitted according to the matrices of the samples. Each matrix must be listed on the correct form.

Part 3.4 is asking about a contract issue. If any sample has any surrogate recovery above or below the limits, it must be reanalyzed. The suffix RE or DL identifies reanalyzed samples. If a sample used for MS/MSD is out, the MS/MSD analyses are considered to be a reanalysis.

The rest of section 3.4 provides the actions taken for samples that fail SMC criteria.

- If a SMC recovery is above the upper limits, only positive hits are qualified as “J”.
- If the recovery value is **below the lower limits AND ≥ 10%,** all positive and non-detected analytes are qualified as “J”.
  - If the recovery is < 10%, positive hits are qualified “J” and non detects are qualified as “R”.

When a reported value is rejected, the number and the qualifier on the form are crossed out with a line using a red pencil. When a value or qualifier is changed, it is crossed out with a single line.

The last section 3.5 is easily answered from your calculations. If most or all of the values are drastically different from your calculations, document the problem in the DA under the Other Problem section. The purpose is to alert the lab that there is a reporting problem. The problem is documented even if all of the calculation values are within limits.

Water and Low Level Soil Samples

OK, now we want to combine the calculation results with the appropriate action. Look at the water sample SMC recoveries in Example 4-2 and compare the values with the water SMC recovery values in Table 4-2 (Page 8):

Example 4-2 SMC recoveries for water sample BGT76

Sample	Tol	BFB	DCE
BGT76	86	96	98

One SMC compound Toluene-d8 failed criteria. All SMC compounds recovery results affect all analytes. Since the value is below the lower limits and > 10%, all analytes are qualified “J”.

What do you do if more than 1 SMC compound failed criteria? Looking at the example below, what qualifications are needed for SMC?

Example 4-3 SMC recoveries for sample water BGT77

Sample	Tol	BFB	DCE
BGT77	86	35	8

Obviously all three SMC compounds fail criteria. SMC1 (Toluene), and SMC2 (BFB) require all analytes to be “J”. SMC3 (DCE) require all positive hits to be “J” and all non-detects to be “R”. All positive hits are treated the same for all 3 SMCs. Only non-detects are qualified differently. Since a “R” qualifier is a higher hierarchy then “J”, all non-detects are qualified as “R”. The final and correct answers for this sample would be all non-detects are qualified "R" and all positive hits are qualified as "J”.

Remember water and low-level soil samples have different limits for each SMC compound and are reported on different forms. Water and samples are reported on Form 2A and soil samples are reported on Form 2B.

Test your understanding of SMC qualification by applying the checklist to the next 2 quizzes. The first quiz will ask you to write out your response. The second quiz is actual forms and Quant reports. You will add your qualifications to the Form 1 for each sample. Quiz answers are located in Appendix E.

Module 4 Quiz 2

Instruction: On the line under each sample information, write the final qualifications you would take for the sample based on the SMC recoveries. Use Table 4-2, Page10.

_____

Sample 1- low level soil

SMC compound	% Recovery
Toluene-d8	49
Bromofluorobenzene	96
1,2 Dichloroethane –d4	116

_____

Sample 2 water

SMC compound	% Recovery
Toluene-d8	90
Bromofluorobenzene	59
1,2 Dichloroethane –d4	322

_____

Sample 3 medium level soil

SMC compound	% Recovery
Toluene-d8	86
Bromofluorobenzene	195
1,2 Dichloroethane –d4	49

_____

Sample 4 low level soil

SMC compound	% Recovery
Toluene-d8	49
Bromofluorobenzene	94
1,2 Dichloroethane –d4	8.6

Module 4 Quiz 3

Instructions:

- Calculate the Surrogate Recoveries that are missing from each Form 2. Apply the Regional checklist qualifications to the Form 1's for each sample.
- Modified Quant Reports for each sample and the RRF values are located after each Form 1 for the sample.
- Write a detailed assessment of the qualification action for each sample on this page.

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKJH	97	102	96		0
2.	BDR43		112			
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
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29.						
30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(88-110)
SMC2	(BFB) = Bromofluorobenzene	(86-115)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

Page _1____ of _1____

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OLM04.2

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00

Level: (low/med) __LOW_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKDS	99	83	113		0
2.	BPH62	107				
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
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26.						
27.						
28.						
29.						
30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(84-138)
SMC2	(BFB) = Bromofluorobenzene	(59-113)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

Page _1____ of ___1___

FORM II VOA-2

OLM04.2

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ___NEWLAB_____ Contract : ____123456_____

Lab Code: ___NLB____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00

Level: (low/med) __MED_____

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
1.	VBLKSD	97	99	101		0
2.	BNR68	99				
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
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28.						
29.						
30.						

		QC LIMITS
SMC1	(TOL) = Toluene-d8	(84-138)
SMC2	(BFB) = Bromofluorobenzene	(59-113)
SMC3	(DCE) = 1,2 Dichloroethane d-4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

page _1____ of ___1___

FORM II VOA-2

OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB____ Case No.: __12345_____ SAS No.: _____ SDG No.:BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL___ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53_(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (µg/L or lg/Kg) ___µg/L ____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB____ Case No.: __12345____ SAS No.: _____ SDG No.:BBB00

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BBB00-15_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _ BBB00-15DI_____

Level: (low/med) ____Low_____ Date Received: _02/03/01_____

% Moisture: not dec. _____ Date Analyzed: _02/10/01_____

GC Column: _Equity 624_____ ID: ___0.53___(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (µlg/L or lg/Kg) __µlg/L _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

Modified Quant Report for Sample BDR43

Compound	RT	EXP RT	Response	On-column	Final
* Bromochloromethane	8.755	8.792	1868546	250.00	
* 1,4 Difluorobenzene	10.041	10.189	8354968	250.00	
* Chlorobenzene-d5	13.355	13.388	6414794	250.00	
$ 1,2 Dichloroethane-d4	9.463	9.477	1884206	???	???
$ Tolune-d8	11.872	11.878	5611001	???	???
$ Bromofluorobenzene	14.369	14.375	6177427	???	???
Acetone	Compound Not Detected				
Methylene chloride	Compound Not Detected				
2-butanone	Compound Not Detected				
Benzene	Compound Not Detected				
2-hexanone	Compound Not Detected				

* Internal Standard
$ Surrogates

7 (Modified)
VOLATILE CONTINUING CALIBRATION CHECK

Date: 02/10/01 Injection time: 0849 Instrument: AA Heated Purge: N

Compound	$\overline{RRF}$	RRF50	MIN RRF	%D	Max %D
Acetone	0.841	0.759		-9.8	
Methylene chloride	2.310	1.955		-15.4	
2-butanone	1.156	1.236		6.9	
Benzene	1.279	1.247	0.500	-2.5	25.0
2-hexanone	0.444	0.415		-6.5	
Toluene-d8	1.153	1.095		-5.03	
Bromofluorobenzene	0.895	0.858	0.200	-4.13	25.0
1,2 Dichloroethane-d4	1.001	0.964		-3.69	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100_____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) __lg/Kg	Q
75-71-8	Dichlorodifluoromethane	2200	U
74-87-3	Chloromethane	2200	U
75-01-4	Vinyl Chloride	2200	U
74-83-9	Bromomethane	2200	U
75-00-3	Chloroethane	2200	U
75-69-4	Trichlorofluoromethane	2200	U
75-35-4	1,1 Dichloroethene	2200	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	2200	U
67-64-1	Acetone		
75-15-0	Carbon Disulfide	2200	U
79-20-9	Methyl Acetate	690	J
75-09-2	Methylene Chloride		J
156-60-5	Trans-1,2-Dichloroethene	2200	U
1634-04-4	Methyl-tert-Butyl Ether	2200	U
75-34-3	1,1 Dichloroethane	2200	U
156-59-2	Cis- Dichloroethene	2200	U
78-93-3	2-Butanone	2200	U
67-99-3	Chloroform	2200	U
71-55-6	1,1,1-Trichloroethane	2200	U
12200-82-7	Cyclohexane	2200	U
56-23-5	Carbon Tetrachloride	2200	U
71-43-2	Benzene	2200	U
22007-06-2	1,2 Dichloroethane	2200	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BNR68

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) __Soil_____ Lab Sample ID: _BBB00-24_____

Sample wt/vol: ____3.63_____(g/mL) ____g_____ Lab File ID: __ BBB00-24AA_____

Level: (low/med) ___Med_____ Date Received: __02/03/01_____

% Moisture: not dec. ____36_____ Date Analyzed: ___02/11/01_____

GC Column: _Equity 624____ ID: ___0.53_____(mm) Dilution Factor: _____1_____

Soil Extract Volume: _10000_____(lL) Soil Aliquot Volume: ___100____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	2200	U
22008-87-2	Methylcyclohexane	2200	U
78-87-5	1,2-Dichloropropane	2200	U
75-27-4	Bromodichloromethane	2200	U
2200061-01-5	Cis-1,3-Dichloropropene	2200	U
22008-2200-1	4-Methyl-2-pentanone	2200	U
22008-88-3	Toluene	2200	U
2200061-02-6	Trans-1,3 Dichloropropene	2200	U
79-00-5	1,1,2 Trichloroethane	2200	U
127-18-4	Tetrachloroethene	2200	U
591-78-6	2-Hexanone	2200	U
124-48-1	Dibromochloromethane	2200	U
22006-93-4	1,2-Dibromoethane	2200	U
22008-90-7	Chlorobenzene	2200	U
22000-41-4	Ethylbenzene	2200	U
1330-20-7	Xylene (total)	2200	U
22000-42-5	Styrene	2200	U
75-25-2	Bromoform	2200	U
98-82-8	Isopropylbenzene	2200	U
79-34-5	1,1,2,2-Tetrachloroethane	2200	U
541-73-1	1,3-Dichlorobenzene	2200	U
22006-46-7	1,4- Dichlorobenzene	2200	U
95-50-1	1,2 Dichlorobenzene	2200	U
96-12-8	1,2-Dibromo-3-chloropropane	2200	U
120-82-1	1,2,4-Trichlorobenzene	2200	U

Compound	RT	EXP RT	Response	On-column	Final
* Bromochloromethane	8.71	8.792	2187293	250.00	
* 1,4 Difluorobenzene	9.986	10.189	10478395	250.00	
* Chlorobenzene-d5	13.289	13.388	8678186	250.00	
$ 1,2 Dichloroethane-d4	9.420	9.477	1804457	???	???
$ Tolune-d8	11.807	11.878	9496540	???	???
$ Bromofluorobenzene	14.303	14.375	7655982	???	???
Acetone	Compound Not Detected				
Methylene chloride	Compound Not Detected				
2-butanone	Compound Not Detected				
Benzene	Compound Not Detected				
2-hexanone	Compound Not Detected				

* Internal Standard
$ Surrogates

7 (Modified)
VOLATILE CONTINUING CALIBRATION CHECK

Date: 02/10/01 Injection Time: 0849 Instrument: AA Heated Purge: N

Compound	RRF	RRF50	MIN RRF	%D	Max %D
Acetone	0.841	0.759		-9.8	
Methylene chloride	2.310	1.955		-15.4	
2-butanone	1.156	1.236		6.9	
Benzene	1.279	1.247	0.500	-2.5	25.0
2-hexanone	0.444	0.415		-6.5	
Toluene-d8	1.153	1.110		-3.73	
Bromofluorobenzene	0.895	0.876	0.200	-2.12	25.0
1,2 Dichloroethane-d4	1.001	0.891		-10.9	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBB00-10_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBB00-10BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane		
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	83	
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	54	
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	6	J
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene		
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BPH62

Lab Name: ____NewLab_____ Contract : ___123456_____

Lab Code: __NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BBB00

Matrix: (soil/water) ____Soil_____ Lab Sample ID: __BBB00-10_____

Sample wt/vol: _____5.70_____(g/mL) ___g_____ Lab File ID: ____ BBB00-10BB_____

Level: (low/med) __Low_____ Date Received: ___02/03/01_____

% Moisture: not dec. ____7_____ Date Analyzed: ___02/05/01_____

GC Column: _J&W DB-624__ ID: ___0.32_____(mm) Dilution Factor: ____1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _lg/Kg _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	11	
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	4	J
100-41-4	Ethylbenzene	14	
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene		

Compound	RT	EXP RT	Response	On-column	Final
* Bromochloromethane	7.918	8.292	40502	250.00	
* 1,4 Difluorobenzene	8.963	9.189	187854	250.00	
* Chlorobenzene-d5	11.902	12.388	177417	250.00	
$ 1,2 Dichloroethane-d4	8.529	8.477	121108	???	???
$ Tolune-d8	10.541	10.878	204187	???	???
$ Bromofluorobenzene	12.880	13.375	109616	???	???
Acetone	Compound Not Detected				
Methylene chloride	Compound Not Detected				
2-butanone	Compound Not Detected				
Benzene	Compound Not Detected				
2-hexanone	Compound Not Detected				

* Internal Standard
$ Surrogates

7 (Modified)
VOLATILE CONTINUING CALIBRATION CHECK

Date: 02/05/01 Injection Time: 1523 Instrument: BB Heated Purge: Y

Compound	RRF	RRF50	MIN RRF	%D	Max %D
Acetone	0.841	0.759		-9.75	
Methylene chloride	2.310	1.955		-15.37	
2-butanone	1.756	1.236		-29.61	
Benzene	1.279	1.247	0.500	-2.50	25.0
2-hexanone	0.444	0.415		-6.53	
Toluene-d8	1.153	1.071		-7.11	
Bromofluorobenzene	0.895	0.626	0.200	-30.06	25.0
1,2 Dichloroethane-d4	2.001	3.137		56.77	

Learning Module 3

Learning Objectives for this Module

- **Review Preliminary data criteria**
- **Introduce the VOA fraction**
- **Describe the sampling and analysis method**
- **Identify the Encore method**
- **Identify action taken for sample conditions and holding time criteria not meeting the requirements stated in the checklist**

Unit 1Preliminary Validation

All validation marks, changes and crossed out on the forms and raw data are made with a **red pencil**. Never use ink on any of the pages. Pencil marks are easier to remove than ink marks if you make a mistake.

A copy of the method specific SOP checklist (HW-6) is located in Appendix A. Let's look at the first three pages of the checklist you will be using during the validation process. These pages cover Package Completeness and Deliverables. All of the answers to these questions should be found in the first and last section of the case. Checklist sections are in Italics.

PACKAGE COMPLETENESS AND DELIVERABLES

1.0 Chain of Custody and Sampling Trip Reports

1.1 Are the Traffic Reports/Chain-of-Custody Records present for all samples?

ACTION: If no, contact RSCC, or contact the TOPO to obtain replacement of missing or illegible copies from the lab.

1.2 Is the Sampling Trip Report present for all samples and all fractions?

ACTION: If no, contact either RSCC or ask the TOPO to obtain this information from the prime contractor.

Let's start with Section 1.0 Chain of Custody and Sampling Trip Reports. The Traffic reports can be found in the first and last section of the package. One will be an original CoC (White, thin paper) and the other will be a copy of the CoC. It does not matter if the original is in the first or last section. It is important that all of the original Traffic reports listing all of the samples associated with the SDG be present. Any missing original CoC may be in another SDG having the same case number. If samples on a CoC are split into several SDGs, the original will only be in one SDG and copies in the other SDGs. Copies should have a statement naming the SDG where the original CoC can be found.

The Sampling Trip Report is sent to RSCC from the sampling contractor. RSCC will make a copy for the package and file the original in RSCC files. If the report is not in the case either ask

someone from RSCC or check the files. Samplers from the EPA and some private contractors will not provide a Sampling Trip Report.

If all documents/information asked for in each question are present, check YES, if missing, check NO.

2.0 Data Completeness and Deliverables

2.1 Have any missing deliverables been received and added to the data package?

NOTE: The lab is required to submit data for only two analyses, for each fraction. (i.e., the original sample and one dilution, or the most concentrated dilution analyzed and one further dilution.)

ACTION: Contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the lab. If lab cannot provide them, note the effect on the review of the package in the Contract Problems/Non-compliance section of the Data Assessment and the Organic Regional Data Assessment Summary form.

2.2 Was CLASS CCS checklist included with package?

2.3 Are there any discrepancies between the Traffic Reports/Chain-of-Custody Records, Sampling Report and Sample Tags?

ACTION: If yes, contact the TOPO to obtain an explanation or resubmittal of any missing deliverables from the laboratory.

The questions in this section are very clear and can be found in the first part of the package. If all documents asked for in the question are present, check YES, if missing, check NO. The missing CCS reports are available from CLASS or from the TOPO. If any discrepancies are not resolved, document in the DA (Appendix A/ attachment 1) under Other Problems and any action taken against the case.

3.0 Cover Letter SDG Narrative

3.1 Is the Narrative or Cover Letter Present?

3.2 Are case number, SDG number and contract number contained in the SDG Narrative or cover letter (see SOW, Exhibit B, section 2.6.1)?
EPA sample numbers in the SDG, detailed documentation of any quality control, sample, shipment, and/or analytical problems encountered in processing the samples? Corrective action taken?

3.3 Does the narrative contain the following information:

*VOA: description of trap and columns used **for** sample analyses?*

VOA: a NOTE stating whether Volatile low level soil samples preparedaccording to the modified SW-846 Method 5035?(p. B-9/VOA, sec 2.6.1)

VOA: any discrepancies between low level soil weights determined in the field and in the Laboratory? (p. B-10/VOA, sec. 2.6.1)

BNA: description of columns used for sample analyses?

Pest: description of columns used for sample analyses?

NOTE: As per section 6.23.3.1 SOW/p. D-11/Pest, Packed columns are not permitted.

3.4 Does the narrative, VOA and BNA sections, contain a list of all TIC's identified as alkanes and their estimated concentrations?

2.5 Is the temperature indicator bottle present in the cooler? If not, did the Laboratory document in the SDG Narrative the alternative technique used to determine the cooler temperature?(Exhibit A/ p. A-5 sec. 4.2.1.2.3.3)

3.6 Does the narrative contain a record of all cooler temperatures? If the temperature of a cooler was exceeded, > 10^{o} C, the lab must list by fraction and sample number, all affected samples.

3.7 Does the Narrative contain a list of sample reanalyses submitted? Did the Lab distinguish whether the reanalysis is billable, and if so why?

3.8 Does the narrative contain a list of the pH values determined for each water sample submitted for volatile analysis (SOW Exhibit B, section 2.6.1.2)?

3.9 Does the Case Narrative contain the statement, "verbatim", as required in Section B of the SOW?

ACTION: If "No", to any question in this section, contact the TOPO to obtain all necessary resubmittals. If information is not available, document in the Data Assessment under Contract Problems/Non-Compliance section.

All of the answers to these questions can be answered by reading the case narrative. Many labs will tabulate the alkanes and pH values and insert the sheets after the case narrative. This is not a problem, but the information should be present in the first section. If the answer to any question in this section is no, document the problem in your DA under the Contract Problems/Non-Compliance section.

4.0 Data Validation Checklist

4.1 Check the package for the following discrepancies:

a. Is the package paginated in ascending order starting from the SDG narrative?

b. Are all forms and copies legible?

c. Is each fraction assembled in the order set forth in the SOW?

The following checklist is divided into three parts. Part A is for any VOA analyses, Part B is for BNAs and Part C is Pesticide/PCBs.

Does this package contain:

VOA Data?

BNA Data?

Pesticide/PCB data?

ACTION: Complete corresponding parts of checklist.

The questions in this section are very clear. If correct check YES. If not correct, check NO.

We are ready to move on to the VOA fraction. All three fractions use Gas Chromatography instruments but different detectors to perform analyses. Therefore it is important to have information and some understanding about this type of instrument.

Introduction to Gas Chromatography

The following is an extremely brief description of gas chromatography. However, this chapter will provide all of the information needed to validate data.

Gas chromatographs separate organic compound with columns using a temperature program and an inert carrier gas. There are many types of columns and analyte detectors. For example, if we are only interested in volatile chlorinated organic compounds, we could use detectors that would only register volatile chlorinated hydrocarbons. Other classes of organic compounds, such as low concentration hydrocarbons, would be invisible to the detector. The detector records the retention time, and the quantity of the analyte. Analyte identification is based on the retention tine of an unknown compound compared to the retention time of a known in a standard. The compound in question is quantitated by comparing the peak area or peak height of an unknown to that of a known standard. To minimize the possibility of false positive results, samples are analyzed on two dissimilar columns, except when using mass spectrometer (MS) detectors.

The most sophisticated and definitive detector is the mass spectrometer (MS). The MS bombards compounds separated on the GC with electrons. This causes compound specific ion fragments to form in a specific ratio. This ratio is printed out as a vertical bar graph. Therefore, for any compound, the GC shows the retention time and the MS detector shows the ratio of ion fragments on a bar graph. The unique characteristics of compound GC retention times and MS bar graphs allow positive identifications to be made. GC coupled with an MS detector is the most accurate method for identification and analysis of organic compounds.

A chromatogram will have the retention time along the x-axis and the response along the y-axis. The chromatogram print should be clear, sharp and readable. The peaks should be within the scale of the chromatogram and not saturate the detector (flat topped peak). All peaks should be identified either by name or number that correlates to the number of the analyte on the Quant report. If there are any questions about a chromatogram ask a knowledgeable colleague before contacting the lab.

Unit 2 Volatile analytes

Volatiles are compounds that readily move from one matrix to another matrix. An analyte in a water or soil matrix will readily move into a gas matrix. During the process of validation, we are concerned with this chemical property for two reasons. First, the concentration of an analyte reported in a sample would be bias low and second, cross contamination of samples may occur if the samples are handled incorrectly. This is the reason it is important the VOA vials do not contain air bubbles.

Brief Introduction to VOA Sample Analysis

After collection, samples are packed in coolers and shipped by an overnight delivery service to the lab. CLASS assigns the labs to sites a week before sample collection. When the samples arrive at the lab, the sample custodian logs in the samples and notes any deficiencies (broken vials, missing labels, mismatch of tags and identification, etc.) on the traffic report. The samples are then refrigerated while awaiting analysis.

When the analyses are completed, a data package is generated and delivered to the RSCC. As mentioned in Learning Module 2, CLASS will check the data for problems. RSCC checks the data package to ensure that all deliverables are present. Any problems are documented on the CSF audit sheet that is added to the front of the package, behind the ROC. It is a good idea to glance at this sheet to spot unusual problems.

VOA analysis is performed on low-level waters, low-level soils or medium level soil samples. Each analysis type is handled differently during the preparation process. VOA samples are not extracted and held for analysis like BNA or Pest samples. VOA samples are "extracted" using the Purge and Trap technique. The “extraction” of the VOA sample occurs immediately prior to sample analysis.

Water Samples

The sample is collected in a 40 mL vial with Teflon lined septa caps. The sample is allowed to warm to room temperature. The sample is poured into the barrel of a 5-mL syringe just short of overflowing. The plunger is replaced and the sample compressed to 5 mL. The sample aliquot is then fortified with 10 µL of surrogates (SMC) and 10 µL of internal standards through the valve bore of the syringe. The surrogates contain analytes that are similar to the VOAs of interest in the sample. The addition of surrogates measures the efficiency of the purge and trap-GC/MS system. Internal standards are added to the sample at a known concentration as the basis for target compound quantitation. The syringe is connected to the purge device and the sample is injected into the purging chamber. An inert gas is bubbled through the sample at *ambient* temperature transferring the Volatiles from the aqueous phase to the vapor phase. The vapor is swept through a sorbent column where the Volatiles are trapped. After purging is completed, the sorbent column is heated and backflushed with the inert gas to desorb the Volatiles onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the Volatiles, which are detected with a mass spectrometer.

Soil Samples Low level Analysis

This level may be sampled one of two ways, either collected in sample jar or as an EnCore sample (modified Method SW-846 5035). EPA Region II requires the EnCore sampler.

For samples collected in jars, five grams of the sample is weighed and mixed with 5 mL with reagent water. The syringe is prepared as for the analysis of water sample using reagent water containing the SMC and IS spiking solutions. An inert gas is bubbled through the sample at *elevated* temperature transferring the Volatiles from the aqueous phase to the vapor phase. The vapor is swept through a sorbent column where the Volatiles are trapped. After purging is completed, the sorbent column is heated and backflushed with the inert gas to desorb the Volatiles onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the Volatiles, which are detected with a mass spectrometer.

An **EnCore** sampler is used to collect the sample into vials with septum sealed screw cap. The vials are pre-weighed at the laboratory and have a stirring bar at the bottom. Upon VTSR at the laboratory, the contents are reweighed and preserved with sodium bisulfate within 48 hours. The samples are placed on a special apparatus that adds the water and reagents to each sample before purging. An inert gas is bubbled through the sample at *elevated* temperature transferring the Volatiles from the aqueous phase to the vapor phase. The vapor is swept through a sorbent column where the Volatiles are trapped. After purging is completed, the sorbent column is heated and backflushed with the inert gas to desorb the Volatiles onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the Volatiles, which are detected with a mass spectrometer.

Soil Samples Medium Level Analysis

Five grams of the sample are weighed and extracted with methanol. An aliquot of the methanol is diluted to 5 mL with reagent water. The syringe is prepared as for the analysis of water sample using reagent water containing the SMC and IS spiking solutions. The fortified reagent water is added to the purge device and an inert gas is bubbled through the sample using *ambient* temperatures. The medium level analysis is handled the same as a water sample.

Quality Assurance/Quality Control (QA/QC)

With each group of samples, a calibration standard, method blank, and matrix spike/matrix spike duplicate samples (MS/MSD) are analyzed. In addition other blanks such as storage, trip, field and instrument blanks are routinely analyzed with the samples. The calibration standard contains all of the target compounds at a known concentration and is used to quantitatively measure each target compound.
The method blank and storage blank measures whether the environmental samples are free from contamination that may have been introduced in the lab. Storage blanks are associated only with VOA samples. An Instrument blank provides information about carryover from a previously analyzed sample. Field blanks measure possible contaminants that may have been introduced in the course of equipment and field sampling. Trip blanks are associated only with VOA samples and measure possible cross contamination of aqueous samples in a cooler during transport.

The MS/MSD contain a solution of 5 target compounds added to each of two aliquots of a sample which are used to measure the effect of the sample matrix on the efficiency of the purge-trap-GC/MS system. Before each group of samples are analyzed, a successful Instrument Performance Check (also called a tune check) using 4-bromofluorobenzene (BFB), calibration standard, and method blank must be analyzed.

VOA Sample Condition/Problems

Validators must verify the absence of air bubbles in the headspace of a vial for aqueous samples. Aqueous VOA vials are not suppose to have any headspace and should not be used for analysis. If documentation in the case indicates the vials used for analysis had air bubbles, all non-detects in the sample are qualified as rejected "R" and detects are qualified as estimated "J". If samples taken from the same sampling contractor consistently have air bubbles, the cases should be documented and the TOPO notified.

If the sample is classified as a soil or sediment matrix, then Percent Moisture of the sample must be checked as well. Let's look at the Sample Condition/Problems section of the checklist.

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody Records, Sampling Report or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, then qualify positive results "J", and non-detects "R".

ACTION: If samples were not iced or the ice was melted upon arrival at the laboratory and the cooler temperature was elevated (> 10^{o} C), then flag all positive results with a "J" and all non-detects "UJ".

ACTION: If both VOA vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, flag all positive results "J" and all non-detects "R".

ACTION: The smallest soil size permitted is 0.5g. If any soil sample is smaller than 0.5g, document in the Data Assessment under Contract Problems/Non-Compliance.

This is a general section about percent moisture, cooler temperature, air bubbles and sample size. The first and last action is checked against the Form 1 for each sample. The CoC and the Sample Log-in sheet will answer the two middle actions. All problems or discrepancies about sample conditions are written up under Other Problems section in the DA. If it is a contract problem, it is documented under the Contract/Non-Compliance section in the DA.

It is a good idea to take detailed notes of all the data you inspected. Any action should be written up and the affected samples should be listed. It is highly recommended to write the DA as you move through the validation process rather than wait until you are finished. Work with one fraction for all criteria.

Check your knowledge of sample conditions criteria by completing the quiz on the following pages. Sample conditions mean sample size, cooler temperature and percent moisture. The quiz examples contain additional information just like real samples and Form 1's. Be aware there is additional information in the examples not needed for the criterion. Read the instructions to understand which criterion you should be validating. The answers are in Appendix E.

Module 3 Quiz 1

Instructions:

- Validate for **cooler temperature, sample size and percent moisture** criteria only.
- Specify what qualifications are needed if any.
- Example: The sample BGH65 did not meet cooler temperature criteria. All non-detects were qualified "UJ" and detects were qualified "J".

1. Sample BJK90 is an aqueous matrix, the pH is < 2, cooler temperature is <10°C, sample volume is 5mL, dilution factor is 100, date of collection is 03-04-2000, VTSR is 03-06-2000 and date of analysis is 03-09-2000.

2. Sample BNG65 is an aqueous matrix, the pH is < 2, cooler temperature is >10°C, sample volume is 5mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000 and date of analysis is 03-19-2000.

3. Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, sample volume is 5mL, dilution factor is 1, aliquot amount is 100μL, date of collection is 03-04-2000, VTSR is 03-07-2000 and date of analysis is 03-12-2000.

4. Sample BSD43 is an aqueous matrix, the pH is 7, cooler temperature is < 10°C, sample volume is 5mL, dilution factor is 5, date of collection is 03-04-2000, VTSR is 03-09-2000 and date of analysis is 03-20-2000.

5. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 91%, sample weight is 0.9g, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-07-2000 and date of analysis is 03-14-2000.

6. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 0.4g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000 and date of analysis is 03-14-2000.

7. Sample BXD16 is a soil matrix, the cooler temperature <10°C, the percent moisture is 55%, sample weight is 5.2g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000 and date of analysis is 03-31-2000.

8. Sample BKJ73 is an EnCore sample, preserved 03-07-2000, the cooler temperature <10°C, the percent moisture is 75%, sample weight is 4.7g, dilution factor is 5, date of collection is 03-02-2000, VTSR is 03-05-2000 and date of analysis is 03-13-2000.

9. Sample BFG38 is an EnCore sample, preserved 03-05-2000, the cooler temperature >10°C, the percent moisture is 15%, sample weight is 5.5g, dilution factor is 10, date of collection is 03-02-2000, VTSR is 03-03-2000 and date of analysis is 03-14-2000.

10. Sample BXZ26 is an EnCore sample, preserved 03-06-2000, the cooler temperature <10°C, the percent moisture is 5%, sample weight is 3.4g, dilution factor is 2, date of collection is 03-02-2000, VTSR is 03-03-2000 and date of analysis is 03-13-2000.

Unit 3 Holding Time Criteria

Each fraction is evaluated for eleven specific criteria. They are Holding Times, Surrogates, Matrix spike, Blank Contamination, Tune, TCL, TIC, CRQL, Calibration, Internal Standard and Field Duplicates. You will learn to evaluate each criterion separately in the same order as presented in the checklist. How to handle the CADRE reports for each criterion will be detailed in each section.

Holding Times

Why is holding time criteria important? While samples are kept in storage, organic compounds degrade due to oxidation, evaporation, chemical reaction, or biodegradation. This usually results in lower analyte concentrations. The longer a sample is stored, the greater the possibility of analyte loss, contamination, or production of analytes not present in the original sample.

The NFG is the basis for appropriate action for problems in the case. Each EPA Region may develop specific guidelines that must be followed. Regional guidelines may take precedent over the NFG. The requirements the validators use to qualify data are called Technical requirements. The requirements stipulated in the SOW are called Contractual requirements. The contractual holding time criteria are slightly different from the technical holding times. There are several reasons for this. The laboratory is not responsible if a sampler does not ship samples within 24 hours of collection. The laboratory is only required to analyze samples within “x” days from the verified time of sample receipt (VTSR). However, in determining data usability, the data reviewer is concerned with the date that a sample was collected. Therefore, when evaluating technical holding time the data reviewer must always count from the date that a sample was collected. The data reviewer validates data using the holding time criteria in the checklist not the criteria in the SOW. Differences in technical and contractual requirements are detailed in the checklist.

2.0 Holding Times

2.1 Have any VOA technical holding times, determined from date of collection to date of analysis, been exceeded?

***Technical Holding Times for AQUEOUS AND SOIL NON-ENCORE SAMPLES**: If unpreserved, aqueous samples, maintained at 4˚ C for aromatic hydrocarbons analysis must be analyzed within 7 days of collection. If preserved with HCl (pH < 2) and stored at 4˚ C, then aqueous samples must be analyzed within 14 days of collection. If uncertain about preservation, contact sampler to determine whether or not samples were preserved. The holding time for non-Encore soils is 10 days from date of collection.*

ACTION: If technical holding times for aqueous samples and soil non-Encore samples are exceeded, flag all positive results as estimated "J" and sample quantitation limits as estimated "UJ", and document in the Data Assessment that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer

must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results must be qualified "J", but the reviewer may determine that non-detect data are unusable "R". If holding times are exceeded by more than 28 days, all non detect data are unusable "R".

NOTE: Contractual Holding Times: Analysis of water samples must be completed within 10 days of Validated Time of Sample Receipt (VTSR). This requirement does not apply to Performance Evaluation (PE) samples.

The section above is checking for technical holding times. The NOTE is checking for contractual holding time violations. Data is not validated or qualified based on contractual problems. Check the case narrative for a log of pH values (<2) to confirm preservation of aqueous samples. Check date of preservation for EnCore samples, usually provided as a log or mentioned in the instrument log in the last section of the package.

For water samples, the holding time of analysis for aromatics is seven days and non-aromatics 14 days from the sampling date. Aromatic compounds contain a benzene ring structure. The technical holding time statement mentions aromatic hydrocarbons. There are eleven aromatic compounds: Benzene, Toluene, Chlorobenzene, Ethylbenzene, Xylene, Styrene, Isopropylbenzene, 1,3- dichlorobenzene, 1,2 -dichlorobenzene, 1,4- dichlorobenzene, and 1,2,4 - trichlorobenzene. If not preserved, these eleven compound are qualified “J” if sample was analyzed more than seven days pass the date of collection. All other compounds must be analyzed within 14 days. If aqueous samples are preserved with HCl, the holding time for all analytes is 14 days. The holding time for analysis of all soil samples is 10 days.

EnCore samples present a unique set of circumstances that affect technical and contractual holding times. A special subsection under Holding Times addresses EnCore samples. It should be noted the current National Functional Guidelines does not mention EnCore samples. These requirements were developed using NFG and Region 2 guidelines for this criterion. Technical guidelines for EnCore samples provide guidance for validators in Region 2.

Technical Holding Times for soils Encore samples:

i) If sample was preserved ≤ 2 days of VTSR:

1. *and analyzed # 14 days from DoC, NO action needed.*
2. *and analyzed > 14 days from DoC, qualify positive results "J” and non-detects “UJ”.*
3. *and analyzed > 28 days from DoC, qualify positive results “J” and non-detects “R”.*

ii) If sample was NOT preserved, or preserved > 2 days of VTSR and analyzed # 7 days from DoC, No action needed.

1. *and analyzed > 7 days from DoC, qualify AROMATIC analytes only, both positive and non-detects, as estimated “J”.*

2. *and analyzed > 10 days from DoC, qualify ALL positive analytes "J" and ALL non-detects as "UJ".*

3. *and analyzed ≥ 20 days from DoC, qualify positive results "J" and non-detects "R".*

Note: CONTRACT holding times for soil Encore samples are:

1. *Samples must be preserved within two (2) days of VTSR and must be analyzed within ten (10) days of VTSR.*

2. *Samples NOT preserved within two (2) days of VTSR must be analyzed within two (2) days of VTSR.*

ACTION: If contractual holding times are exceeded, document in the Data Assessment.

NOTE: The data reviewer must note in the Data Assessment whether or not technical and contractual holding times were met.

Remember: write a communication log to the TOPO if additional information is needed. Do not contact the sampler directly. Any holding time violation is recorded directly using the table in the checklist.

Table of Holding Time Violations

(See Chain-of-Custody Records)

Sample ID	Sample Matrix	Was Sample Preserved?	Date Sampled	Date Lab Received	Date Analyzed

Any samples that fail to meet analysis-holding time should be listed in the table. Listed after the table are various actions a validator can take depending upon the length of time between date of collection and analysis of a sample. All action is documented in the DA under the Holding Time criterion section. You will notice in this section a note concerning contractual holding time. There is a second note telling the validator to state in the DA if technical and contractual holding times were met. Usually contractual holding time was met yet the sample is qualified for technical holding time. A simple statement is inserted if there are no problems with either holding time, "Technical and contractual holding times were met for all samples in all fractions".

If holding times are not grossly exceeded (less than two weeks beyond criteria), flag all, positive results with a “J” and all non-detect as “UJ”. If holding times are grossly exceeded (more than 14 days beyond criteria), the reviewer must use informed professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. Flag all positive results with a “J”, but the reviewer has the discretion to determine that non-detect data are unusable “R”. If holding times are exceeded by more than 28 days all non-detects must be qualified unusable “R”

There is something you should remember. Temperature is considered to be a form of preservation for soil samples. This is the reason cooler temperature was emphasized in the sample condition section.

If there are problems, it must be documented in the DA the action taken and the samples affected. For example if samples BGT67, BGT54 AND BGT89 failed technical holding time criteria and passed contractual holding time, you would write under the Holding Time section:

The following VOA samples failed technical holding time and all analytes were qualified “J”:
BGT67, BGT54, BGT89
All contractual holding times were met.

Another example:

The following VOA samples failed technical holding time and only aromatic analytes were qualified “J”:
Benzene, Toluene, Chlorobenzene, Ethylbenzene, Xylene, Styrene, Isopropylbenzene, 1,3-dichlorobenzene, 1,2 -dichlorobenzene, 1,4- dichlorobenzene, and 1,2,4 -trichlorobenzene
BGT67, BGT54, BGT89
All contractual holding times were met.

All actions taken for a criterion especially if professional judgement is used to qualify the data differently from the checklist, must be documented in the DA and specified as professional judgement.

Let’s try an example. Sample BGF45 is an aqueous matrix, the pH is <2, date of collection is 06-03-2000, VTSR is 06-05-2000 and date of analysis is 06-18-2000.

The sample is qualified “J” for all analytes since technical holding time criteria was not met. Also contractual holding time was not met. Remember that data is not qualified for contractual problems. Contractual issues are always documented in the DA under the Contract/Non-Compliance section.

Technically, 16 days have passed from collection to analysis, the criteria for preserved aqueous samples is 14 days, so all analytes are qualified “J”. Contractually, 13 days have passed from VTSR and analysis. Contractual holding time is 10 days, this is written up as a contract non-compliance problem in the DA.

Under the Holding Time section in the DA you would write:
Technical holding times were met for all VOA samples except Sample BGF45 - all analytes were qualified “J”. Contractual holding times were met for all VOA samples except Sample BGF45.

Under the Contract/Non-Compliance section you would write:
Sample BGF45 for VOA fraction did not meet contractual requirements.

Check your knowledge of the holding time criterion by completing the quiz on the following pages. You will recognize these examples from the previous quiz; validate each example for holding time criterion only. The answers are in Appendix E.

Module 3 Quiz 2

Instructions:

- Write the qualification statement as it would appear in the data assessment
- Validate for **holding time criteria only**
- Specify which holding time: technical or contractual or both
- Specify what qualifications are needed if any.
- Example: Contractual holding times were met. The sample BGH65 did not meet technical requirements. Sample BGH65 was analyzed 30 days after date of collection, all non-detects were qualified "R" and detects were qualified "J".

1. Sample BJK90 is an aqueous matrix, the pH is < 2, cooler temperature is <10°C, sample volume is 5mL, dilution factor is 100, date of collection is 03-04-2000, VTSR is 03-06-2000 and date of analysis is 03-09-2000.

2. Sample BNG65 is an aqueous matrix, the pH is < 2, cooler temperature is >10°C, sample volume is 5mL, dilution factor is 1, date of collection is 03-04-2000, VTSR is 03-09-2000 and date of analysis is 03-19-2000.

3. Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, sample volume is 5mL, dilution factor is 1, aliquot amount is 100μL, date of collection is 03-04-2000, VTSR is 03-07-2000 and date of analysis is 03-12-2000.

4. Sample BSD43 is an aqueous matrix, the pH is 7, cooler temperature is < 10°C, sample volume is 5mL, dilution factor is 5, date of collection is 03-04-2000, VTSR is 03-09-2000 and date of analysis is 03-20-2000.

5. Sample BLK30 is a sediment matrix, the cooler temperature is <10°C, the percent moisture is 91%, sample weight is 0.9g, dilution factor is 10, date of collection is 03-04-2000, VTSR is 03-07-2000 and date of analysis is 03-14-2000.

6. Sample BWE29 is a soil matrix, the cooler temperature is >10°C, the percent moisture is 23%, sample weight is 0.4g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000 and date of analysis is 03-14-2000.

7. Sample BXD16 is a soil matrix, the cooler temperature <10°C, the percent moisture is 55%, sample weight is 5.2g, dilution factor is 1, date of collection is 03-02-2000, VTSR is 03-07-2000 and date of analysis is 03-31-2000.

8. Sample BKJ73 is an EnCore sample, preserved 03-07-2000, the cooler temperature <10°C, the percent moisture is 75%, sample weight is 4.7g, dilution factor is 5, date of collection is 03-02-2000, VTSR is 03-05-2000 and date of analysis is 03-13-2000.

9. Sample BFG38 is an EnCore sample, preserved 03-05-2000, the cooler temperature >10°C, the percent moisture is 15%, sample weight is 5.5g, dilution factor is 10, date of collection is 03-02-2000, VTSR is 03-03-2000 and date of analysis is 03-14-2000.

10. Sample BXZ26 is an EnCore sample, preserved 03-06-2000, the cooler temperature <10°C, the percent moisture is 5%, sample weight is 3.4g, dilution factor is 2, date of collection is 03-02-2000, VTSR is 03-03-2000 and date of analysis is 03-13-2000.

Did you do well on the last quiz? It probably was difficult trying to remember all of the conditions for the criteria. You may realized by now that validation is like a juggler with 3 balls constantly in the air. After some experience, you will be able to assess and qualify samples quickly for cooler temperature, sample size, percent moisture, preservation and holding time.

Once an analyte is qualified for a criterion, the qualifier is not removed if it passes another criterion. Any qualification can be removed and replaced with a “R”. There is a hierarchy to qualifications and a limited combination of qualifiers.

A “U” qualifier can be combined with a "J" and become a “UJ”.
A “J” qualifier can be combined with a "N" and become a “JN”.
A “UJ and a “N” qualifier can not be combined.
A “U” or “UJ” can replace a “J”
A “JN” can not replace a “UJ”.
A “R” can replace a “U”, “UJ”, “J” or “JN”.

When you work on Quizzes 3, 4, 5, you will apply the qualifiers directly to a copy of the form 1. You will follow the sample conditions and holding time criteria for each sample given for the quizzes.

Each quiz has 2 Form1’s that together make up the full TCL list for VOA. Use the sample information provided below for each quiz. Make your marks on the Form 1 using a pencil so you can erase any changes. Answers are in Appendix G.

Quiz 3

Sample BXD16 is a soil matrix, the cooler temperature <10°C, date of collection is 03-02-2001.

Quiz 4

Sample BDR43 is an aqueous matrix, the pH is 7, cooler temperature is 10°C, and date of collection is 03-04-2001.

Quiz 5

Sample BXZ26 is an EnCore sample, not preserved, the cooler temperature <10°C, date of collection is 03-02-2001.

Module 3 Quiz 3

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXD16

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BXD10_

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXD10-8_____

Sample wt/vol: ____5.2_____(g/mL) _____g_____ Lab File ID: __BXD10-8AA_____

Level: (low/med) ___low_____ Date Received: __03/07/2001_____

% Moisture: not dec. ____55_____ Date Analyzed: __03/31/2001_____

GC Column: J&D DB-624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(µL) Soil Aliquot Volume: _____(µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (µg/L or µg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	21	U
74-87-3	Chloromethane	21	U
75-01-4	Vinyl Chloride	21	U
74-83-9	Bromomethane	21	U
75-00-3	Chloroethane	21	U
75-69-4	Trichlorofluoromethane	21	U
75-35-4	1,1 Dichloroethene	21	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	21	U
67-64-1	Acetone	21	U
75-15-0	Carbon Disulfide	21	U
79-20-9	Methyl Acetate	21	U
75-09-2	Methylene Chloride	21	U
156-60-5	Trans-1,2-Dichloroethene	21	U
1634-04-4	Methyl-tert-Butyl Ether	21	U
75-34-3	1,1 Dichloroethane	21	U
156-59-2	Cis- Dichloroethene	21	U
78-93-3	2-Butanone	21	U
67-99-3	Chloroform	21	U
71-55-6	1,1,1-Trichloroethane	21	U
110-82-7	Cyclohexane	21	U
56-23-5	Carbon Tetrachloride	21	U
71-43-2	Benzene	21	U
107-06-2	1,2 Dichloroethane	21	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXD16

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BXD10_

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXD10-8_____

Sample wt/vol: ____5.2_____(g/mL) _____g_____ Lab File ID: __BXD10-8AA_____

Level: (low/med) ___low_____ Date Received: __03/07/2001_____

% Moisture: not dec. ____55_____ Date Analyzed: __03/31/2001_____

GC Column: J&D DB-624_____ ID: ___0.53_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(µL) Soil Aliquot Volume: _____(µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (µg/L or µg/Kg) _____	Q
79-01-6	Trichloroethene	21	U
108-87-2	Methylcyclohexane	21	U
78-87-5	1,2-Dichloropropane	21	U
75-27-4	Bromodichloromethane	21	U
10061-01-5	Cis-1,3-Dichloropropene	21	U
108-10-1	4-Methyl-2-pentanone	21	U
108-88-3	Toluene	21	U
10061-02-6	Trans-1,3 Dichloropropene	21	U
79-00-5	1,1,2 Trichloroethane	21	U
127-18-4	Tetrachloroethene	21	U
591-78-6	2-Hexanone	21	U
124-48-1	Dibromochloromethane	21	U
106-93-4	1,2-Dibromoethane	21	U
108-90-7	Chlorobenzene	21	U
100-41-4	Ethylbenzene	21	U
1330-20-7	Xylene (total)	21	U
100-42-5	Styrene	21	U
75-25-2	Bromoform	21	U
98-82-8	Isopropylbenzene	21	U
79-34-5	1,1,2,2-Tetrachloroethane	21	U
541-73-1	1,3-Dichlorobenzene	21	U
106-46-7	1,4- Dichlorobenzene	21	U
95-50-1	1,2 Dichlorobenzene	21	U
96-12-8	1,2-Dibromo-3-chloropropane	21	U
120-82-1	1,2,4-Trichlorobenzene	21	U

FORM I VOA-2

OLM04.2

Module 3 Quiz 4

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BDR40_

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BDR40-3_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _BDR40-3BB_____

Level: (low/med) ____Low_____ Date Received: _03/07/2001_____

% Moisture: not dec. _____ Date Analyzed: _03/12/2001_____

GC Column: _Equity 624_____ ID: ___0.23_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1 Dichloroethene	10	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	Trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert-Butyl Ether	10	U
75-34-3	1,1 Dichloroethane	10	U
156-59-2	Cis- Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-99-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2 Dichloroethane	10	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BDR43

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BDR40

Matrix: (soil/water) ____Water_____ Lab Sample ID: _BDR40-3_____

Sample wt/vol: _____5_____(g/mL) _____mL_____ Lab File ID: _BDR40-3BB_____

Level: (low/med) ____Low_____ Date Received: _03/07/2001_____

% Moisture: not dec. _____ Date Analyzed: _03/12/2001_____

GC Column: _Equity 624_____ ID: ___0.23_____(mm) Dilution Factor: ___1_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	Cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	Trans-1,3 Dichloropropene	10	U
79-00-5	1,1,2 Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4- Dichlorobenzene	10	U
95-50-1	1,2 Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

Module 3 Quiz 5

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BXZ26_

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXZ26-1_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _BXZ26-1AA_____

Level: (low/med) ____Low_____ Date Received: _03/03/2001_____

% Moisture: not dec. _____5_____ Date Analyzed: _03/13/2001_____

GC Column: _J&D DB-624_____ ID: ____0.53_____(mm) Dilution Factor: _____2_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
75-71-8	Dichlorodifluoromethane	31	U
74-87-3	Chloromethane	31	U
75-01-4	Vinyl Chloride	31	U
74-83-9	Bromomethane	31	U
75-00-3	Chloroethane	31	U
75-69-4	Trichlorofluoromethane	31	U
75-35-4	1,1 Dichloroethene	31	U
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	31	U
67-64-1	Acetone	31	U
75-15-0	Carbon Disulfide	31	U
79-20-9	Methyl Acetate	31	U
75-09-2	Methylene Chloride	31	U
156-60-5	Trans-1,2-Dichloroethene	31	U
1634-04-4	Methyl-tert-Butyl Ether	31	U
75-34-3	1,1 Dichloroethane	31	U
156-59-2	Cis- Dichloroethene	31	U
78-93-3	2-Butanone	31	U
67-99-3	Chloroform	31	U
71-55-6	1,1,1-Trichloroethane	31	U
110-82-7	Cyclohexane	31	U
56-23-5	Carbon Tetrachloride	31	U
71-43-2	Benzene	31	U
107-06-2	1,2 Dichloroethane	31	U

FORM I VOA-1

OLM04.2

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXZ26

Lab Name: ___NEWLAB_____ Contract : ___123456_____

Lab Code: ___NLB_____ Case No.: __12345_____ SAS No.: _____ SDG No.:_BXZ26_

Matrix: (soil/water) ___Soil_____ Lab Sample ID: _BXZ26-1_____

Sample wt/vol: ____3.4_____(g/mL) _____g_____ Lab File ID: _BXZ26-1AA_____

Level: (low/med) ____Low_____ Date Received: _03/03/2001_____

% Moisture: not dec. _____5_____ Date Analyzed: _03/13/2001_____

GC Column: _J&D DB-624_____ ID: ____0.53_____(mm) Dilution Factor: _____2_____

Soil Extract Volume: _____(lL) Soil Aliquot Volume: _____(lL)

CAS NO.	COMPOUND	CONCENTRATION UNITS (lg/L or lg/Kg) _____	Q
79-01-6	Trichloroethene	31	U
108-87-2	Methylcyclohexane	31	U
78-87-5	1,2-Dichloropropane	31	U
75-27-4	Bromodichloromethane	31	U
10061-01-5	Cis-1,3-Dichloropropene	31	U
108-10-1	4-Methyl-2-pentanone	31	U
108-88-3	Toluene	31	U
10061-02-6	Trans-1,3 Dichloropropene	31	U
79-00-5	1,1,2 Trichloroethane	31	U
127-18-4	Tetrachloroethene	31	U
591-78-6	2-Hexanone	31	U
124-48-1	Dibromochloromethane	31	U
106-93-4	1,2-Dibromoethane	31	U
108-90-7	Chlorobenzene	31	U
100-41-4	Ethylbenzene	31	U
1330-20-7	Xylene (total)	31	U
100-42-5	Styrene	31	U
75-25-2	Bromoform	31	U
98-82-8	Isopropylbenzene	31	U
79-34-5	1,1,2,2-Tetrachloroethane	31	U
541-73-1	1,3-Dichlorobenzene	31	U
106-46-7	1,4- Dichlorobenzene	31	U
95-50-1	1,2 Dichlorobenzene	31	U
96-12-8	1,2-Dibromo-3-chloropropane	31	U
120-82-1	1,2,4-Trichlorobenzene	31	U

Unit 4 Documentation and Reports

Data Assessment

The Data Assessment currently used in Region 2 is SOP HW-6 for SOW OLM04.2. A copy of SOP HW-6 is included in Appendix C. It is also available as attachment 1 in Appendix A.

- Each criterion is written or documented under the specific section. Whether you copy and paste from the CADRE or write the discrepancy, make sure the statement detailed the problem, the action taken, and the samples affected.

- A problem that did not meet the SOW criteria by the laboratory is documented under the section titled Contract problems/Non-Compliance. This statement details only the problem and the samples affected. Hint: Copy and paste the original statement from the criterion section. Paste under Contract Problems section and remove action part of the statement.

- Problems that are not contract problems or covered under one of the criterion are documented under the section titled Other Problems. This statement details only the problem and the samples affected.

- Check CCS report, if a contract problem was mentioned in the report, do not mention the problem in your DA. CLASS has already addressed the problem.

- Any sample analysis not used such as dilutions or re-analysis, are listed in the last section of the DA. Watch the wording of the paragraph, you want the last line to read "….the following Form 1(s) are identified **not** to be used." Then list the analyses for each fraction that are not to be used.

Learning Module 2

Learning Objectives for this Module

- **Identify each section of a data package**
- **Explain the forms used in the SOW**
- **Explain briefly each validation criteria**
- **Describe and assemble the required validation documents**

Key Terms for this Unit

Bromofluorobenzene (BFB)
CADRE- Computer Assisted Data Review Evaluation - Reports provided by CLASS
Case Narrative
Completed SDG File (CSF)
Contract Compliance Screening (CCS) - provided by CLASS
Contract Laboratory Analytical Services Support (CLASS)
Data Assessment (DA)
Decafluorotriphenylphosphine (DFTPP)
Document Control Room (DCR)
Internal Standards (IS)
Lotus
Lotus file extension (wk4)
Matrix Spike (MS)
Matrix Spike Duplicate (MSD)
Percent Difference (%D)
Percent Relative Abundance (%RA)
Performance Evaluation Mix (PEM)
Q ion
Reconstructed Ion Chromatograms (RIC)
Record of Communication (ROC)
Regional Sample Control Center (RSCC)
Relative Percent Difference (%RPD)
Relative Response Factor (RRF)
Relative Standard Deviation (%RSD)
Sample Delivery Group (SDG)
Sampling Trip Report - provided by the sampling contractor
Standard Operating Procedure (SOP)
Surrogates - term for BNA and Pest fractions. Same function as SMC.
System Monitoring Compound (SMC) VOA fraction only. Same function as surrogates.
Target Compound List (TCL)
Task Order Project Officer (TOPO)
Technical Direction Form (TDF)
Tentatively Identified Compounds (TIC)
Traffic Report (TR) also called Chain of Custody (CoC)
Validated Time of Sample Receipt (VTSR)
WordPerfect file extension (wpd)

Unit 1 Package Information

How is a case put together?

A case usually contains three fractions. The fractions mentioned in Learning Module 1 are VOA, BNA and Pesticides/PCBs. One, two or all three fractions may be present in a case. The number of samples and fractions will vary the size or thickness of a package. It can vary from 3 inches to 3 feet. The most important thing to remember is not to panic. It may appear to be overwhelming but all packages are handled and assembled the same way.

Each case has a case number assigned by Contract Laboratory Analytical Services Support (CLASS). The maximum number of samples allowed in a Sample Delivery Group (SDG) is twenty samples. For example, a case with 21 samples must be split into 2 SDGs. If the lab received the samples on different days or of different matrices, they may separate the samples into different SDGs.

Section 1 General Information

Visualize a case split into three sections. The first section contains general information about the samples. The first page is a blue sheet called the Record of Communication (ROC) and is generated by Regional Sample Control Center (RSCC). This paper documents the transfer of the case from RSCC to each of the validators until the case is returned to the Document Control Room (DCR) and finally archived for storage. Next are the laboratory documents such as the Case Narrative, SDG Cover Sheet, Chain of Custody (CoC) also called Traffic Reports (TR), and other required information. Each document is explained below.

The Case Narrative describes any problems that were encountered by the lab while analyzing the samples, and defines any special data qualifiers that were used. The Case Narrative also lists the samples received by the Lab, cooler temperatures, pH of water samples and the data release statement. A tabulated list of any Alkanes found in the samples must be present. It is important to read the case narrative very carefully to uncover problems that could affect the validation process. At the very end of the Case Narrative is a data release statement that must be written verbatim from the SOW and signed. The signature must be original and not a copy.

The SDG Cover Sheet is a document that lists all of the samples in the SDG. It contains information that should be checked during the validation process. Validators are concern with the Laboratory name, Case number, SDG number, and list of EPA sample numbers, identifying the first and last sample in the SDG. EPA sample numbers are different from laboratory sample numbers. The EPA sample numbers that are on the CoC are the correct identifiers to use when reporting sample results.

Immediately behind the SDG Cover Sheet is the Traffic Report (TR). The TR shows the sampling date (needed for holding time evaluation), the name of the sampler (needed if preservation of VOAs samples is uncertain) and comments on the condition of the samples. This report is needed to confirm the date the lab received the samples. This date is referred to as Validated Time of Sample Receipt (VTSR) and is crucial to technical and contractual holding time criteria.

There are several other documents that are added to the package either through a case audit or acquired from other sources. In the course of an audit, a Completed SDG File (CSF) Inventory Checklist and SDG Inventory Sheets are completed by RSCC. SDG Inventory Sheets provides the correct order to assemble the case and the page numbers for each section. Any resubmittals from the laboratory and the Sampling Trip Report (if available) are added to the package.

The Sampling Trip Report is submitted by the contractor (Private sector and state data validation projects rarely include this document). This report provides information about the sampling event, sample location, sample location number, EPA sample number, sampling date, identification of Quality Control (QC) samples, VTSR, and the date of shipment to the lab for analysis.

When a validator starts a case, a Contract Compliance Screening (CCS) report is added to the case if available. This can be a valuable tool to see at a glance some of the major problems to expect with a case. It is important not to rely heavily on the information since most of the CCS results do not affect the validation.

When EPA has samples analyzed under the CLP program, the data is validated twice. The validation performed by validators is for data usability. This training manual will hopefully explain how to perform this task for organic data. The second type of validation is for contract compliance, and is called a CCS report. The CCS is prepared by CLASS and is transmitted to the Regional Office and the lab. This review is transmitted after a data package is received by CLASS and the Regional Office. The CCS should list all contractual, technical, and administrative deficiencies in a data package. The CCS determines whether a lab receives full payment for an analysis. The CCS lists administrative deficiencies such as missing forms, inconsistent instrument ID, etc.

Finally, the CCS shows the method blank, tune, and calibrations applicable to each sample. Although there are sometimes errors in the CCS, and most of the comments do not effect data usability, however the CCS is very helpful in validating data. The Data Reviewer must check that all missing documents requested in the CCS report were received.

For EPA Region II analysis, the lab must be contacted (following Region II procedures) to verify unreadable or missing information. The traffic report is the final document in the General Information section.

This is a good time to explain the steps a validator must take to verify unreadable information or obtain missing data/forms. It is against Region II policy for a contractor to contact another contractor. The action of requesting information directly from another contractor may be construed as giving direction or providing personal service. The appropriate step is to complete a Communication Log (located in Appendix C, at the end of the Data Assessment) and submit the form to the EPA's Task Order Project Officer (TOPO).

Unit 2 Forms

Section 2 Samples

The second section is composed of the forms and raw data for all of the fractions the lab was required to analyze for each sample. A copy of each of the forms can be found in Appendix B.

All data analysis information is submitted on the forms provided in the SOW. Most of the forms are common to all of the three fractions. It is important to learn what information can be found on each form. Table 2-1 tabulates the Form number with the Form function and the associated fractions.

Table 2-1 Identification of Forms

Form Number	Form Function	Used with Fractions
1	Data Sheet- Report results of sample TCL analysis for analytes and TICs.	TCL - All TICS - VOA and BNA
2	SMC- Report recoveries for each surrogate to monitor extraction efficiency.	All
3	Matrix Spike/Matrix Spike Duplicate- Report the spiked recoveries results and precision.	All
4	Method Blank Summary- Tabulates all samples associated with each blank.	All
5	Instrument Performance Check- Report tune criteria and sample sequence.	VOA, BNA
6	Initial Calibration- Report the response and %RSD for 5 standard levels.	All
	Resolution and Performance Evaluation- Provides a check for appropriate separation of each pesticide peak in a mixture.	Pest
7	Continuing Calibration- Reports the response of the mid level standard and compares it to the average response of the initial calibration.	All
	Performance Evaluation Mixture (PEM) and % Breakdown- Reports the response of the standard to monitor instrument sensitivity based on analyte breakdown.	Pest
8	Internal Standard- Tabulates the response of the samples against a range established using the mid level standard.	VOA, BNA

	Analytical Sequence- list of samples associated with calibration analyzed on each instrument and column.	Pest
9	Clean-up Forms- Reports the recoveries of required Florisil and GPC clean-up procedures for water and soil matrices.	Pest Florisil - water GPC - soil
10	Identification Form- Summarized response and retention time of single component and multi-component pesticides against the retention time and response of the mid-point standard from the initial calibration.	Pest

Each numbered form is assigned a letter and in sequential order. The forms are assembled by form type then by fraction: VOA first, BNA followed by Pesticides. In other words all of the form 1's are group together by fraction followed by Form 2 and so on. Each form has a number and a letter assigned that can be found at the top of the page. At the bottom of the page is the form and fraction identification with a number (only if there is a second page to that form). For example the Form 1 for VOA fraction has at the top Form 1-A and at the bottom, Form I VOA-1. Since more than 1 form needed for all of the VOA analytes, the information is continued on a second page. The next form is 1-B at the top and Form I VOA-2 at the bottom. Both forms together provide the reporting of all of the VOA analytes. The next fraction BNA has 1-C at the top and Form I SV-1 on the bottom.

The labs must submit all of the forms for each fraction analyzed. There are two exceptions: Form 3 matrix spike/matrix spike duplicate and Form 10 for pesticide identification. These forms are only submitted if needed.

The forms are assembled in a specific order in the case. The order is given below with a brief description of the criteria for the form.

Surrogates Form II

System Monitoring Compounds (SMC) Recoveries (VOA)
(Surrogate Recoveries for BNA, PEST)

All samples are spiked with SMCs or surrogates prior to sample analysis. Surrogates are a measure of *extraction success and analytical system efficiency*. If the surrogates are outside the acceptable range for a sample, data is qualified based on the SOP Checklist (a copy is in Appendix A). Samples are commonly qualified because of surrogate recoveries outside of QC limits. The Data Reviewer must carefully check all header information. On the bottom of the form, the QC limits for each of the surrogates are specified. If the surrogate recoveries are outside QC limits, the laboratory must report those recoveries with an asterisk *.

Matrix Spike and Matrix Spike Duplicates (MS/MSD) Form III

Matrix spike and matrix spike duplicates consists of adding known quantities of several analytes to sample aliquots prior to analysis. The form shows the % recovery for the

matrix spike and matrix spike duplicates, the relative percent difference (RPD) between the matrix spike and matrix spike duplicate results, and the QC limits for % recovery and RPD. If the spiked recoveries are outside QC limits, the laboratory must report those recoveries with an asterisk *.

Method Blank Summary Form IV

The Method Blank Summary Form shows which samples are associated with each method blank. This information is needed to qualify sample data according to the method blank contamination criteria. This QC criterion is one of the most critical aspects in the validation process.

Tuning Form V

This form lists the samples and calibration standard(s) associated with each tune via an instrument performance check compound. It also shows the time of the tune calibration, and sample analysis. All samples must be analyzed within 12 hours of an injection of a tune compound. Finally, the form provides the tuning criteria (Ion Abundance Criteria), and the results of the tune (% Relative Abundance (%RA)). The tune compound for VOA fraction is Bromofluorobenzene (BFB), and the tune compound for BNA fraction is Decafluorotriphenylphosphine (DFTPP). All samples associated with an invalid tune are not acceptable and are rejected.

Internal Standard Area Summary Form VIII

The Internal Standard Area Summary compares the internal standard area response and retention times between the standard and samples. A drop or increase in the area counts may reflect a change in *instrument sensitivity*. This change can also be caused by a matrix effect. If the internal standard recoveries are outside QC limits, the laboratory must report those recoveries with an asterisk *. Internal Standard criteria applies to only VOA and BNA analyses.

Organic Analysis Data Sheet Form I

The Organic Analysis Data Sheet provides the following details: target analytes, sample weight, dilution factor, % moisture (if soil sample), date of sample receipt, date of analysis, and matrix. The above is needed to verify the analyte concentrations listed on the form. Tentatively Identified Compounds (TICs) listed on a separate Form I are organic analytes that are not on the Target Compound List (TCL). Compounds not on the TCL are only tentatively identified because the laboratory and data validator can only compare the spectra of the unknown compound to the spectra of the suspected compound, but not the retention time of the compound with a standard retention time. Therefore, there is substantial doubt about the qualitative identification.

Directly behind the Form 1s for each sample is the GC chromatogram, the quantitation report followed by the spectra.

The GC Chromatogram of a sample should be examined for baseline stability, resolution, peak shape, attenuation, shift, and interference.

The Quantitation Report shows the retention time (RT) of the analyte, Q ion (ion used to quantitate an analyte), ion area, and concentration units. The information on the "Quant Report" is needed to verify the reported analyte concentration on the organic analysis data sheets (Form 1). If a lab crosses out an analyte in the Quant Report, this indicates that it is not a true hit. Laboratories are not required to submit spectra for compounds that are not reported as present on Form I.

Mass Spectra (Reconstructed Ion Chromatogram)

The Reconstructed Ion Chromatogram (RIC) includes the reference standard, the enhanced sample spectra (background subtracted), and the unaltered sample spectra. Some labs report a “q” value, which represent an index of how well a sample spectrum matches a standard spectrum. The data reviewer has to compare the spectrum of the sample against the standard to verity the positive identification. Although the q or FIT values can be helpful, they should not be relied upon. The software sometimes makes some very strange choices, when selecting the closest match for TICS.

Initial Calibration Form VI

The calibration section begins after the sample data section. The purpose of the initial calibration is to verify the instrument linearity within a specified concentration range. The form tabulates the Relative Response Factor (RRF) for each target compounds and surrogates at specific concentrations, the average RRF, and the Percent Relative Standard Deviation (% RSD). Behind each calibration form will be the raw data for the standards listed on that form. If more than one calibration was needed for the samples, the calibration forms and data is presented by instrument and chronological order.

Continuing Calibration Form VII

The Continuing Calibration (a mid level or third standard of five) Form tabulates the response factors used for all data calculations. The Percent Difference (% D) represents the difference between the average RRF from the initial calibration and the RRF from the continuing calibration. Behind each continuing calibration form will be the raw data for the standards listed on that form.

Tuning Raw Data

The raw data for each tune should be used to verify the information on the Instrument Performance Check (Form V).

Method Blank Data Form I

An Organics Analysis Data Sheet must be completed for each method blank associated with the samples in that SDG. This Information is used to qualify sample data based on method blank contamination. Each method blank in a fraction must be uniquely identified and follow a specific format. VOA blanks are identified as VBLKxx, BNA are identified as SVBLKxx and the Pesticides identifier is PBLKxx. The Pesticide fraction has another type of blank submitted in this section called instrument blanks. The identification for instrument blanks is PIBLKxx. The VOA fraction must have a storage blank and is identified as VHBLKxx. The xx is replace by a number and/or alpha identifier that is unique.

MS/MSD Sample Data

The final documents in this section are the Organic Analysis Data Sheet (Form I), and raw data for the Matrix Spike and Matrix Spike Duplicate samples.

Clean-up Procedures Form IX

If soil samples analyzed for BNA are included in an SDG, GPC data must be included in the package. The raw data for GPC is located immediately after the MSD data. Calibrations, results and a strip chart (copy or original) must be submitted. No form is required to be submitted for the BNA fraction.

The pesticide fraction has two Form nines to document clean-up procedures. All samples, water and soil matrices must undergo Florisil clean-up procedures. Form 9A must be submitted for all samples in the SDG. In addition, soil samples must go through another clean up procedure called Gel Permeation Clean-up (GPC). Form 9B must be submitted for all soil samples in the SDG.

Identification Summary Form X

Any positively confirmed pesticide analyte or PCB in a sample must have an identification summary form submitted for the sample. Pesticides and PCBs are reported on separate forms. Pesticide analytes are reported on Form 10A (single component analytes) while PCBs and Toxaphene are reported on Form 10B (multcomponent analytes). These forms are required for positive hits in all samples and QC analyses.

Unit 3 Documents

Section 3 Supporting Documents

The last section contains supporting documents such as lab book standard pages, instrument run logs, any additional analyses not reported, Sample Log-in Sheet, and any Communication logs.

The Sample Log in Sheet should be checked for custodial problems such as air bubbles in VOA vials, cooler temperature problems or cracked jars. A copy of the Sample Log-in Sheet (Form DC-2-1) can be found in Appendix B.

Communication logs between the lab and CLASS are important documentation of any sample problems or discrepancies such as sample identification or QC identification.

Validation Documents

There are additional documents that are prepared by other sources and added to the package. Reports and spreadsheets from CLASS, as well as Data Assessments and checklists generated by validators are considered to be validation documents.

Validators will write a Data Assessment (DA) for each case (see Appendix C or attachment 1 in Appendix A). If there are more than 1 SDG in a case, the DA will address each SDG individually but the assessment is submitted as one document. You will need three copies of the DA. These copies are to be double sided.

One copy of the appropriate checklist is submitted for each case. If there are more than 1 SDG in a case, only one copy is needed. The checklist referred to as the Standard Operating Procedure (SOP) checklist is method specific. The SOP checklist to be used for each case is usually specified on the Technical Direction Form (TDF). For this training manual the latest version of the checklist is used for the current SOW. A copy of the checklist is located in Appendix A.

Attached to one copy of the DA, is a copy of the CSF audit for each SDG in the DA. Additional copies of the CSF Audit Sheet in the case are provided by RSCC.

Check your knowledge of this module on the next page. The answers are in Appendix E.

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Module 2 Quiz 1

Instruction: Write the letter of the correct meaning next to the acronym.

a)Technical Direction Form	____ RSCC
b) Sample Delivery Group	____ TOPO
c) Percent Relative Percent Difference	____ RIC
d) Percent Relative Standard Deviation	____ SDG
e) Relative Response Factor	____ CLASS
f) Reconstructed Ion Chromatograms	____ BFB
g) Regional Sample Control Center	____%D
h) Task Order Project Officer	____TDF
i) Percent Difference	____%RPD
j) Contract Laboratory Analytical Services Support	____%RSD
k) Bromofluorobenzene	____ RRF

Module 2 Quiz 2

Instruction: Circle the correct answer for each question.

1. Surrogates are added to the sample to measure

a. Instrument sensitivity
b. Matrix interference
c. Extraction efficiency
d. Marker to show beginning and ending of chromatogram

2. What are Surrogates in VOAs called?

a. SOP
b. SMC
c. SMM

3. The date and time samples arrive in the lab is called

a. TR
b. CoC
c. VTSR
d. Trip report

4. The file extension for Lotus is

a. wk4
b. wpd
c. doc

5. Explain the difference between a case narrative and a data assessment.

6. Explain the difference between a Traffic Report and a Trip Report.

7. List the Forms for each fraction that the labs are required to submit.

8. Assemble the case for the VOA fraction in the proper order using the following terms:
SDG Cover Sheet, Sample Log-in Sheet, Form 8, continuing calibration raw data, raw data for Tune, Form 5, Form 7, Communication logs, Form 6, initial calibration raw data, method blanks Form 1s, Case narrative, GC/MS instrument logs, General Information, Sampling Trip Report, Form 2, sample Form 1s, MS/MSD Form 1s, Supporting Documents, Form 3, raw data for samples, Form 4, Forms.

9. T F Internal Standards are added to samples to measure instrument sensitivity (also used in calculating RF).

10. T F A SDG may have more than 20 samples assigned to it.

Learning Module 1

Learning Objectives for this Module

- **Define the CLP program**
- **Explain the Validation Concept**
- **Evaluate qualifiers used by the validators and the laboratories**
- **List important Acronyms and validation terms**

Before we begin

The training manual has been revised to reflect changes in the methodologies, Regional requirements and technological advances. The format has been changed to make it easier to understand the concepts. The information has been broken up into more manageable sections called learning modules. The look is more open, user friendly and more appealing to the adult learner.

There are three fractions in the Manual: Volatile (VOA), semi-volatile, which is composed of acid based analytes and base neutral analytes (BNA) and Pesticide/Polychlorinated Biphenyls (Pest/PCBs). Aroclor is a manufacturing trade name for a PCB. Most of the concepts necessary for validation apply to all of the fractions. In earlier manuals, all three fractions were discussed under each concept. In this manual, each fraction is handled separately and each concept is discussed within the fraction.

You will notice the margins are wide. Write in them, jot down notes, questions and answers as you go along. The beginning of each unit will have an icon with the header *Key terms for this Unit*. All new terms introduced in the unit will be listed under this header.

There will be other icons in the module to draw your attention to important ideas, hints and information. You, the trainee are the most important part of this manual. How well you use and study the manual will determine your progress and enable you to accurately, effectively and efficiently validate CLP cases.

Unit 1Contract Laboratory Program

Key Terms for this Unit

Aroclor is a trade name for a PCB
Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)
Contract Laboratory Program (CLP)
Pesticide/Polychlorinated Biphenyl (Pest/PCBs)
Routine analytical services *(*RAS)
Semi-Volatile or Base-Neutral/Acid (BNA)
Standard Operation Procedures (SOP)
Statement of Work (SOW)
Superfund Amendments and Reauthorization Act of 1986 (SARA)
Target Compound List (TCL)
Volatile Organic Analytes (VOA)

Why is validation important?

Validation of data is essential to providing high quality usable information in a consistent manner. It is a systematic process for reviewing a body of data against a set of criteria to provide assurance that the data are adequate for their intended use.

In the context of this manual, data validation consists of data editing, screening, checking, auditing, verifying, certifying and reviewing of samples analyzed by laboratories in the Contract Laboratory Program (CLP). In Region 2, sample data are reviewed using regionally prepared Standard Operation Procedures (SOP) Checklists (Appendix A).

What is the Contract Laboratory Program (CLP)?

The purpose of this program is to provide analytical data for use by the US Environmental Protection Agency (EPA) principally in support of its investigation and clean-up activities under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Other EPA program Offices that have similar analytical needs will utilize the services and data generated using the CLP methodologies.

Under the Contract Laboratory Program (CLP), analyses of samples are classified as Routine Analytical Services (RAS*)*. A standard CLP method is employed for the isolation, detection and quantitative measurements of Target Compound List (TCL) compounds that consist of 48 volatiles (VOA), 14 acids, 51 base/neutrals (together called BNA), 21 pesticides, and 7 Aroclors. The contractual requirements used to evaluate the data are specified in the current Statement of Work (SOW), which is a multi-media, multi-concentration method (OLM04.2, May 1999).

It is important to keep in mind, this training manual is designed for the current SOW (OLM04.2). When validating other data, the validator can apply the same concepts taught in this manual. Professional judgement must be used when evaluating any data package since there will be circumstances outside the control of the laboratories, analysts and validators.

Check your knowledge of key terms for this unit on the next page. A copy of the quiz can be found in Appendix D. The answers are in Appendix E.

Module 1 Quiz 1

Instruction: Write the letter of the correct meaning next to the acronym.
A.

A. Contract Laboratory Program	____RAS
B. Standard Operation Procedures	____BNA
C. Statement of Work	____TCL
D. Aroclor	____VOA
E. Comprehensive Environmental Response, Compensation and Liability Act of 1980	____CLP
F. Superfund Amendments and Reauthorization Act of 1986	____PCB
G. Routine analytical services	____SOW
H. Target Compound List	____SARA
I. Volatile Organic Analytes	____SOP
J. Base-Neutral/Acid	____CERCLA

Unit 2 Introduction to Data Validation

Key Terms for this Unit

Chain of Custody (CoC)
Chemical Abstracts Service Registry Number(CAS#)
Contract Required Quantitation Limits (CRQLs)
Data Assessment (DA)
Data Quality Objectives (DQOs)
Gas Chromatography/Mass Spectrometer (GC/MS)
National Functional Guidelines (NFG)
Performance Evaluation (PE)
Potentially Responsible Party (PRP)
Quality Assurance (QA)
Quality Assurance Project Plan (QAPP)
Tentatively Identified Compounds (TICs)

Background Information

Before any Superfund site is sampled, a Quality Assurance Project Plan (QAPP) is written for the project. The QAPP describes sampling goals, a sampling plan, Data Quality Objectives (DQOs), Chain of Custody (CoC) practices, data validation protocols, analytical methods, preservatives, containers, decontamination procedures, etc. that will be followed. The purpose of the QAPP is to prevent sampling or methodology errors that may result in erroneous data.

Data Quality Objectives (DQOs)

Data quality objectives (DQOs) specify the quality of data required to support environmental decisions. DQOs are determined based on the specific uses of the data to be collected.

Data can be used for remediation, Potentially Responsible Parties (PRP), feasibility studies, investigation of a hazardous waste site, determining the nature and extent of contamination at a site are some of the reasons high quality and usable data is essential. The data from this program is also available for use in the EPA's Superfund enforcement/litigation activities. Additional information is available in an EPA document (Guidance on Data Quality Objectives Process (QA/G-4), USEPA Quality Assurance Management Staff, August 2000).

The Data Quality Objectives Process is a process to clarify a project objectives, define appropriate type of data, and specify tolerable levels of potential decision errors to establish a basis for the quality and quantity of data needed to support decisions. DQOs determine which analytical methods are appropriate. For example, drinking water sampled for volatile organic compounds will require a very low detection limit. Soil samples would not need such low detection limit for volatile organic compounds, because contaminant regulatory action levels are much higher in soils than in drinking water**.**

Data Validation is an essential segment in the Assessment phase of the project's life cycle. The elements of Data Validation and Usability address Quality Assurance (QA) activities that occur after data collection or generation of analytical data is completed. These elements help to ensure that data meet the specified criteria. This section of the DQOs corresponds to the regional SOP Checklist (Appendix A) that reviewers use during the validation process. The Data

Assessment (DA, Appendix C) generated by the validators is used in conjunction with the QAPP to determine if the DQOs for the project have been met.

Introduction to Validation

Data validation is a systematic process for reviewing a body of data against a set of criteria. These criteria are established to provide assurance that the sample data are adequate for their intended use. Data validation consists of data editing, screening, checking, auditing, verifying, certifying and reviewing raw data of samples analyzed by the lab under this program.

The Data Reviewer evaluates raw data using SOP Validation Guidelines established by the Region from the EPA National Functional Guideline (NFG) document. The criteria are:

- Holding times.
- Instrument tune (VOA and BNA only).
- Calibration and retention time windows.
- Blank contaminants.
- Surrogates (a measure of extraction efficiency).
- Matrix effect errors; interference from the sample itself.
- Quality Assurance Samples.
- Internal Standards (VOA and BNA only).
- Compound identification.
- Detection Limits.
- Percent Moisture.

In addition the validator is concern with the following criteria:

- Chromatographic performance (baseline, interference, shift and peak resolution).
- Transcription of numerical value to the required forms in the data package.
- Calculations.
- Sample conditions.
- Degradation of compounds during analysis.

There is a substantial amount of uncertainty in all chemical data. Laboratory errors or field sampling errors can increase due to this uncertainty. Examples of laboratory errors are: not following the contract, not storing the samples correctly until analysis, mixing up the identification of the samples or a mistake by the software or the analyst. Field sampling errors can be caused by improper decontamination of field equipment, air bubbles in VOA vials, loss of samples, improper cooler temperatures and failure to ship samples in a timely manner after collection.

Why Do We Qualify Data?

Qualifying data is a method of notifying the data user that some data have higher uncertainty than others. No qualifier is required if the numerical value meets all performance criteria that reflect the best reliability of the particular compound.

At the present time, data is qualified as unusable, estimated, or presumptively present, which indicates uncertainty about qualitative identification. Table 1-1 lists the qualifiers that are applied to the Form 1 for each sample by the validators:

Table 1-1Qualifications used by Validators

Qualifier	Meaning for qualification	Reasons for the qualifier
U	Analyte was not detected or below the Contract Required Quantitation Limits (CRQLs)	field or laboratory introduced contamination, analyte identification is below the CRQLs
J	Data should be used with caution. The data could be significantly imprecise, and the reported value given is little more than an estimate. Estimated means that we know that the compound is present, but we cannot be sure of the exact amount.	holding time , degradation or contamination during storage, low surrogate recoveries, low internal standard response, calibration problems, % Moisture
N	When we cannot positively identify an analyte, but believe that it is present in a sample. Referred to as presumptively present.	Identification of the analyte. Used only for TCL analytes in the Pesticide fraction in conjunction with "J" qualifier. Also used to qualified identified TICs in VOA and BNA fractions.
R	When data is rejected, it means the result was not valid. Based on the raw data, a judgement can not be made if the analyte is present or not present. If there is uncertainty, then the data is considered unusable.	Calibration problems, % moisture > 90%, very low surrogate recoveries, very low internal standard response, tune problems, air bubbles in VOA vials.

Validators may combine a U or N to the qualifier J. The qualifier “UJ” means the analyte is non-detected at the Contract Required Quantitation Limits (CRQLs) and estimated due to another criteria. The qualifier “NJ” or “JN” (it does not matter which way it is written) means the analyte is presumptively present and the concentration is estimated. This qualifier is used primarily to qualify TCL analytes in the Pesticide/PCB fraction. It is used for the VOA and BNA fractions to qualify Tentatively Identified Compounds (TICs) that have meet spectral identification.

Laboratories qualify their data based on analytical problems and the methodology requirements. Target Compound List (TCL) analytes and Tentatively Identified Compounds (TICs) must be qualified so the validators and the data users may understand the impact of the data.

A TIC is a compound that has been identified in the sample but is not a target analyte. Laboratories are required to report up to 30 organic compounds of greatest apparent concentration not listed as a target analyte. If the compound can be identified, the lab must provide a Chemical Abstracts Service Registry Number (CAS no.), compound name, and is qualified as “NJ”. If a generic characterization such as “unknown” or “unknown chlorinated hydrocarbon” is listed, the compound is qualified as “J”.

The reason that the identification is considered tentative is that the actual retention time of the TIC is unknown. A Gas Chromatography/Mass Spectrometer (GC/MS) positive identification consists of comparing both the retention time and the spectra of an unknown to that of a known

compound. The reason that the quantity of TIC is considered estimated is there is no calibration information, so the response factor could be off by an order of magnitude.

The CLP Laboratories are limited to the specific qualifiers. Most of these qualifiers except for U and J **must** be removed by the validator and replaced with a validation approved qualifier. Table 1-2 list all of the qualifiers the labs are allowed to use to represent the data before submission to the Region.

Table 1-2Qualifiers allowed to be used by the Labs

Qualifiers	Meaning for Qualification
D	The positive value is the result of an analysis at a secondary dilution factor.
B	The analyte is present in the associated method blank as well as in the sample. This qualifier has a different meaning when validating inorganic data.
J	The associated numerical value is an estimated quantity because it is below the CRQL
E	The concentration of this analyte exceeds the calibration range of the instrument.
U	The material was analyzed for, but not detected. The associated numerical value is the CRQL.
P	Pesticide/Aroclor target analytes when the % Difference between the analyte concentrations obtained from the two dissimilar GC columns is greater than 25%.
A	Indicates a Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.
C	Applies to Pesticide results where the identification of the analyte has been confirmed by GC/MS.
X,Y,Z	Laboratory defined flags. The data reviewer must change these qualifiers during validation so that the data user may understand their impact on the data.

Many regulatory agencies and some clients require a laboratory to perform satisfactorily on Performance Evaluation (PE) samples. Correctly analyzed PE samples are used to determine if a laboratory is competent to perform environmental analyses, usually prior to the award of a contract. However, a data validator should not be concerned with how competently a laboratory analyzed either pre-award or periodic PE samples because the result can not be used to assist

in the validation of environmental data. When PE samples are submitted with a case, the Region will provide directions to the validator in a technical document.

The exception to this is a “double blind” PE sample, a sample of known formulation that is included with environmental samples. The PE sample has the same type of label as the other samples, which prevents the lab from identifying the PE sample. Double blind PE samples can be very helpful in validating environmental data because many laboratory errors will not be ascertained during data validation.

Check your knowledge of these terms on the next page. A copy of the quiz can be found in Appendix D. The answers are in Appendix E.

Module 1 Quiz 2

Instruction: Write the letter of the correct meaning next to the acronym.

a)	Quality Assurance Project Plan	____SMC
b)	Chain of Custody	____CoC
c)	Data Quality Objectives	____GC/MS
d)	National Functional Guidelines	____PRP
e)	Surrogates	____PE
f)	Internal Standards	____TICs
g)	Potentially Responsible Party	____CAS#
h)	Tentatively Identified Compounds	____QAPP
i)	Performance Evaluation	____NFG
j)	Gas Chromatography/Mass Spectrometer	____DQOs
k)	Chemical Abstracts Service Registry Number	____IS

Module 1 Quiz 3

Instruction: Write the qualifier next to the correct meaning:

Qualifiers

D	B	J	E	U	P
A	C	X,Y,Z		N	R

Meaning of Qualifier

____ Laboratory defined flags. The data reviewer must change these qualifiers during validation so that the data user may understand their impact on the data.

____ Analyte cannot be positively identified, but believe that it is present in a sample. Referred to as presumptively present.

____ Analyte is present in the associated method blank as well as in the sample.

____ Material was analyzed for, but not detected. The associated numerical value is the CRQL.

____ Positive value is the result of an analysis at a secondary dilution factor.

____ Indicates a Tentatively Identified Compound (TIC) is a suspected adol-condensation product.

____ Reported result is not valid. Based on the raw data, a judgement can not be made if the analyte is present or not present and the data is considered unusable.

____ Concentration of this analyte exceeds the calibration range of the instrument.

____ Applies to Pesticide results where the identification of the analyte has been confirmed by GC/MS.

____ Associated numerical value is an estimated quantity because it is below the CRQL

____ Pesticide/Aroclor target analytes when the % Difference between the analyte concentrations obtained from the two dissimilar GC columns is greater than 25%.

Module 1 Quiz 4

Instruction: Circle the correct answer for each question.

1. Which of the following sets does not have a validator's qualifier?

a. A,J,N,U
b. R,U,E,C
c. Y,P,A,C
d. U,N,J,R

2. T F The qualifier J can be combined with the qualifier N.

3. T F Air bubbles in VOA vials are acceptable.

4. T F Qualifiers A, C, P and E are limited to the Pesticide fraction.

5. T F The qualifier D can be combined with the qualifier JN.

6. T F The qualifier U can be combined with the qualifier N

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*Note: Each fraction in this manual is handled separately. Sample information for one fraction does not carry through to another fraction. In a real case, validators must cross-reference the sample information for all fractions.