FINAL [redacted] TECHNICAL MEMORANDUM

PHASE II BASELINE ECOLOGICAL ASSESSMENT
SUMMARY OF RESULTS
KANE AND LOMBARD SUPERFUND SITE
BALTIMORE, MARYLAND

VOLUME 3 OF 3

Prepared For

American Telephone and Telegraph Company
Baltimore Gas and Electric Company
Browning-Ferris, Inc.
General Motors Corporation

By

Harding Lawson Associates
Philadelphia, Pennsylvania

March 17, 1995

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APPENDIX G

ENVIRONMENTAL MEDIA SAMPLING RESULTS

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Volatile Organic Compounds Analysis
(MULTI-MEDIA, MULTI-CONCENTRATION)

4 MPP 12-29-94

Case Number: 94239, SDG # 47430	Project Number: 27656, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec, Inc.	
Validator: J. Whittle	Validation Date: 12/16/94
QC Reviewer: M. Phillips	Review Date: 12/29/94
Sample Matrix: Soil/Sediment (11), Water QC (3)	
Analytical Method: EPA OLM01.0 SOW	

Sample Designations:

BSEA4	W10EA7	BSFB	
BSEA9	BSEA8	BFB	
WSEA4	S10EA8	RBBS	
BEA3	WSEA8		
BEA7			
B10EA3			
WEA7			

Data for the above samples are:

____ Acceptable for use
X Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," (February 1994).

DATA COMPLETENESS CHECKLIST

__X__ Included, no problems
__*__ Included, problems
__O__ Not included
__NA__ Not applicable

Quality Control Summary
__X__ Case Narrative
__X__ Surrogate Recovery Summary
__X__ MS/MSD Summary
__X__ Reagent Blank Summary
__X__ GC/MS Instrument Performance Summary

Sample Data
__X__ Chain of Custody Forms
__X__ Holding Times
__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms
__X__ Mass Spectra Printouts
__NA__ TIC Mass Spectra Library Searches

Initial Calibration Data
__*__ Calibration Summary
__X__ Standards Quantitation Reports
__X__ Standards Reconstructed Ion Chromatograms

Continuing Calibration Data
__*__ Calibration Summary
__X__ Standards Quantitation Reports
__X__ Standards Reconstructed Ion Chromatograms
__*__ Internal Standards Summary

Instrument Performance Data
__X__ BFB Mass Spectra
__X__ Reconstructed Ion Chromatogram
__X__ BFB Mass Listings

Reagent Blank Data

_*_ Organic Analysis Data Sheets
_X_ Quantitation Reports
_X_ Reconstructed Ion Chromatograms
_X_ Mass Spectra Printouts
_NA_ TIC Mass Spectra Library Searches

Matrix Spike and Matrix Spike Duplicate Data

_X_ Organic Analysis Data Sheets
_X_ Quantitation Reports
_X_ Reconstructed Ion Chromatograms

Laboratory Control Sample

_NA_ Organic Analysis Data Sheets
_NA_ Quantitation Reports
_NA_ Reconstructed Ion Chromatograms
_NA_ Mass Spectra Printouts
_NA_ TIC Mass Spectra Library Searches

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

None

Holding Times

Were sample analyses performed within holding times?

Yes No

Comments:

None (See page 12)

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes No

Comments: As outlined on page 13, %RSD values for acetone were slightly above the 30% QC limit, affecting the water samples (BSFB, BFB, RBBS). ~~Results~~ positive results for acetone in these samples should be considered estimated (UJ/J). MPP 12-29-94

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes No

Did the continuing calibration meet the minimum RRF criteria?

Yes No

Comments: Several compounds exceeded the 25% difference criteria for the continuing calibrations (see page 14). All associated samples, as indicated, should be considered estimated for these compounds (UJ/J).

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments: MS/MSD analyses were performed on samples BSEA8 and WEA7, as specified on the COC.

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No NA

Comments: Internal standard areas for sample WSEA8, BSEA8MSD, and WEA7MSD were slightly below the lower control limits. No action should be taken regarding the MSD samples, since area counts for BSEA8 and WEA7 were within control limits. Sample WSEA8 was reanalyzed and the chlorobenzene-d5 area count was still below the lower control limit. The following compounds associated with this internal standard should be considered estimated (UJ/J) in samples WSEA8 and WSEA8RE:

4-Methyl-2-pentanone
2-Hexanone
1,1,2,2-Tetrachloroethane
Toluene
Ethylbenzene
Styrene

AR301962

Blank Analyses

Were the appropriate number of blank analyses performed?

(Yes) No

Were analytes detected in the blanks?

(Yes) No

If analytes were detected in the blanks, were the same analytes detected in the associated investigative samples?

(Yes) No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

(Yes) No

Comments: Acetone, 2-butanone, and chloroform contaminations were evident in the method and field blanks, as specified on page 15. Samples were qualified as undetected (U) for these compounds, when sample values were less than 5 times (10 times for acetone and 2-butanone) the associated blank contaminant value.

MPP 12-29-94

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes No (NA)

Were the LCS recoveries within acceptable limits?

Yes No (NA)

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were mass spectra provided for the target analytes detected in the investigative samples?

Yes No

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes No

Comments:

None

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes No NA

Were non-target peaks evaluated as required?

Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes No

Comments:

None

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes No NA

Were sample analyses properly documented and performed in accordance with method protocols?

Yes No

Comments:

None

Calculation Checks

Instrument Tuning 10/26/94, 14:17

Relative Abundance:

$$RA = \frac{\text{Target Peak Abundance}}{\text{Reference Peak Abundance}} = \frac{m/z\ 174}{m/z\ 95} = \frac{10944}{16704} \times 100 = 65.52\%$$

Initial Calibration 10/3/94, 12:30 RRF100 = NCX100HV.D

RRF:

$$\frac{\text{Compound Response}}{\text{Internal Standard Response}} \times \frac{\text{IS Concentration}}{\text{Compound Concentration}} = RRF$$

$$\frac{2389187}{279778} \times \frac{50}{100} = 4.270 \text{ for carbon disulfide}$$

%RSD:

$$\frac{\text{Standard Deviation of 5 Response Factors}}{\text{Mean of 5 Response Factors}} \times 100 = \%RSD$$

$$\frac{0.10910}{0.6834} \times 100 = 16.0\% \text{ for 4-methyl-2-pentanone}$$

Continuing Calibration 10/26/94, 14:24

RRF: (same as initial calibration)

$$\frac{533303}{258995} \times \frac{50}{50} = \cancel{0.2058}\ 2.059 \text{ for 1,2-dichloroethane}$$

MPP 12-29-94

%D:

$$\frac{\text{Initial RRF} - \text{Continuing RRF}}{\text{Initial Compound RRF}} \times 100 = \%D$$

$$\frac{0.856 - 0.998}{0.856} \times 100 = -16.59\% \text{ for 1,1,2,2-tetrachloroethane}$$

Surrogate Recovery Sample BEA7

$$\frac{\text{Surrogate Response} \times \text{IS Concentration} \times 100}{\text{IS Response} \times \text{Continuing RRF} \times \text{Surrogate Added}} = \%R$$

$$\frac{660585 \times 50 \times 100}{461516 \times 1.148 \times 50} = 124.68\% \text{ for toluene-d8}$$

Matrix Spike Recovery $\boxed{\text{Sample WEA7MS}}$

MPP 12-29-94

$$\frac{\text{Spike Response} \times \text{IS Concentration}}{\text{IS Response} \times \text{Continuing RRF} \times \text{\% Solids}} = \text{Spike } \cancel{\text{recovery}} \text{ concentration}$$

$$\frac{733076 \times 50}{920240 \times 0.949 \times 0.58} = 72.36\,\mu g/Kg \text{ for benzene}$$

$$\text{Spike Recovery} = \frac{\text{Spike concentration}}{\text{Spike added}} \times 100 = \frac{72.36\ ug/kg}{86\ ug/kg} \times 100 = 84\ \%$$ MPP 12-29-94

RPD:

$$(\text{MS Recovery} - \text{MSD Recovery}) \div \frac{\text{MS} + \text{MSD Recoveries}}{2} \times 100$$

$$(77.58 - 68.28) \div (72.93) \times 100 = 12.75\ \% \text{ for toluene}$$

$$(91 - 79) \div \left(\frac{91+79}{2}\right) \times 100 = 14\ \%$$ MPP 12-29-94

Sample Results $\boxed{\text{Sample BEA3}}$

CRQL:

$$\frac{\text{Base CRQL} \times \text{Dilution Factor}}{\text{\% Solids}} = \text{Reported CRQL}$$

$$\frac{10\,\mu g/\ell \times 1}{0.60} = 16.67 = 17\,\mu g/Kg \text{ for chloromethane}$$

Detected Result:

$$\frac{\text{Detect Result} \times \text{IS Concentration}}{\text{IS Response} \times \text{Continuing RRF} \times \text{\% Solids}} = \text{Compound Concentration}$$

$$\frac{12246 \times 50}{247818 \times 1.597 \times 0.6} = 2.58\,\mu g/Kg \text{ for methylene chloride}$$

TIC Result

(Not Reported)

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Analyzed	Analysis Holding Time	Qualifier
BSEA4	10/20/94	10/26/94	14 days	(None)
BSEA9	10/20/94	10/26/94		
WSEA4	10/20/94	10/26/94		
BEA3	10/21/94	10/27/94		
BEA7	10/21/94	10/26/94		
B10EA3	10/21/94	10/27/94		
WEA7	10/21/94	10/27/94		
W10EA7	10/21/94	10/27/94		
BSEA8	11/2/94	11/11/94		
S10EA8	11/2/94	11/15/94		
WSEA8 + RE	11/2/94	11/15/94		
BSFB	10/20/94	10/26/94		
BFB	10/21/94	10/26/94		
RBBS	11/2/94	11/11/94		

Comments:

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
10/3/94, 1232	M	Acetone	—	30.8	BSFB, BFB	MPP 12-29-97 ~~UJ~~/J
10/27/94, 1336	M	Acetone	—	31.4	RBBS	MPP 12-29-97 ~~UJ~~/J
10/3/94, 1230	~~M~~ N	(None)	—	—	BSEA4, BSEA9, WSEA4, BEA7, WEA7, BEA3, W10EA7, B10EA3	(None)
10/4/94, 1431	O	(None)	—	—	BSEA8	(None)
11/14/94, 0818	O	(None)	—	—	WSEA8, S10EA8, WSEA8RE	(None)

Comments:

AR301969

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
10/26/94;1032	M	Acetone	—	46.2	BSFB, BFB	UJ/J
		4-Methyl-2-pentanone	—	-40.6	↓	↓
		2-Hexanone	—	-31.6	↓	↓
11/11/94;1320	M	(None)	—	—	RBBS	(None)
10/26/94;1424	N	Acetone	—	42.0	BSEA4, BSEA9, WSEA4, BEA7,	UJ/J
		4-Methyl-2-pentanone	—	-44.1	WEA7	↓
		2-Hexanone	—	-45.2	↓	↓
10/27/94;1605	N	2-Butanone	—	-38.2	BEA3, W10EA7, B10EA3	UJ/J
		4-Methyl-2-pentanone	—	-35.8	↓	↓
		2-Hexanone	—	-42.6	↓	↓
11/11/94;1006	O	2-Butanone	—	-48.0	BSEA8	UJ/J
		Bromomethane	—	26.3	↓	↓
		2-Hexanone	—	-39.0	↓	↓
11/15/94;0926	O	(None)	—	—	WSEA8, S10EA8, WSEA8RE	(None)

Comments:

AR301570

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples
VBLKL9	(None)	—	—	BSFB, BFB
VBLKQ4	(None)	—	—	RBBS
VBLKM2	Acetone	4 µg/Kg	40 µg/Kg	BSEA4, BSEA9, WSEA4,
				BEA7, WEA7
VBLKM4	Acetone	2 µg/Kg	20 µg/Kg	BEA3, W10EA7, B10EA3
	2-Butanone	1 µg/Kg	10 ~~5~~ µg/Kg MPP 12-29-94	↓
VBLKQ3	Acetone	2 µg/Kg	20 µg/Kg	BSEA8
VBLKQ9	Acetone	2 µg/Kg	20 µg/Kg	WSEA8, S10EA8, WSEA8RE
	Chloroform	1 µg/Kg	5 µg/Kg	↓
BSFB	(None)	—	—	BSEA4, BSEA9, WSEA4
BFB	Acetone	7 µg/~~Kg~~ L MPP 12-29-94	70 µg/Kg	BEA3, BEA7, WEA7,
				B10EA3, W10EA7
RBBS	(None)	—	—	BSEA8, WSEA8, WSEA8RE,
				S10EA8

Comments:

AR301971

Summary and Conclusions

All necessary data were present for a full validation of this multi-concentration volatile analysis, and all holding times were met. Surrogate, instrument performance, and MS/MSD data all met required quality control criteria. Calculation checks and data review suggested no errors in compound identification or quantitation. Sample values were correctly adjusted for moisture content.

Qualification of the samples was necessary on the basis of initial calibration relative standard deviations (RSD) and continuing calibration percent differences (%D). Acetone exceeded the 30% RSD control limit, affecting samples BSFB, BFB, and RBBS. Acetone, 4-methyl-2-pentanone, 2-hexanone, 2-butanone, and bromomethane exceeded the 25%D control limit, affecting the investigative samples as specified on page 14. All affected compounds in the associated samples (see pages 13 and 14) were qualified as estimated (UJ/J).

Qualification of the compounds associated with internal (IS) standard chlorobenzene-d5 (see page 6) was also necessary for samples WSEA8 and WSEA8RE, since the IS area counts fell below the lower control levels. The associated

(continued)

Validator's Signature:	
Validator's Initials:	Validation Date:
QC Reviewer's Signature:	
QC Reviewer's Initials	Review Date:

Summary and Conclusions

compounds in these samples should be considered estimated (UJ/J) and were qualified as such.

Qualification of the sample data was also necessary on the basis of method and field blank contaminations (refer to page 15). Sample results ~~greater~~ less than 5 times (10 times for 2-butanone and acetone) the blank contamination values were qualified as undetected (U). The results were that samples BSEA4, BEA3, BEA7, WEA7, S10EA8, and WSEA8RE were qualified undetected for acetone. No other qualifiers on the basis of blank contamination were necessary.

MPP 12-29-94

(JW)

Validator's Signature: Joyce E. Whittle	
Validator's Initials: JW	Validation Date: 12/16/94
QC Reviewer's Signature: Michael P. Phillips	
QC Reviewer's Initials MPP	Review Date: 12/29/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA4

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238829

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N238829V.D

Level: (low/med) LOW Date Received: 10/21/94

% Moisture: not dec. 25 Date Analyzed: 10/26/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	5	J
67-64-1	Acetone	13 ~~7~~	~~JB~~ UJ
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U J
591-78-6	2-Hexanone	13	U J
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	2	J

VALIDATED

Reviewed By Joyce J. Whittle FORM I VOA

Date 12/16/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA9

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238830

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N238830V.D

Level: (low/med) LOW Date Received: 10/21/94

% Moisture: not dec. 10 Date Analyzed: 10/26/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	11	U	
74-83-9	Bromomethane	11	U	
75-01-4	Vinyl Chloride	11	U	
75-00-3	Chloroethane	11	U	
75-09-2	Methylene Chloride	37		
67-64-1	Acetone	11	U	J
75-15-0	Carbon Disulfide	11	U	
75-35-4	1,1-Dichloroethene	11	U	
75-34-3	1,1-Dichloroethane	11	U	
540-59-0	1,2-Dichloroethene (total)	11	U	
67-66-3	Chloroform	11	U	
107-06-2	1,2-Dichloroethane	11	U	
78-93-3	2-Butanone	11	U	
71-55-6	1,1,1-Trichloroethane	11	U	
56-23-5	Carbon Tetrachloride	11	U	
75-27-4	Bromodichloromethane	11	U	
78-87-5	1 2-Dichloropropane	11	U	
10061-01-5	cis-1,3-Dichloropropene	11	U	
79-01-6	Trichloroethene	11	U	
124-48-1	Dibromochloromethane	11	U	
79-00-5	1,1,2-Trichloroethane	11	U	
71-43-2	Benzene	11	U	
10061-02-6	trans-1,3-Dichloropropene	11	U	
75-25-2	Bromoform	11	U	
108-10-1	4-Methyl-2-Pentanone	11	U	J
591-78-6	2-Hexanone	11	U	J
127-18-4	Tetrachloroethene	11	U	
79-34-5	1,1,2,2-Tetrachloroethane	11	U	
108-88-3	Toluene	11	U	
108-90-7	Chlorobenzene	11	U	
100-41-4	Ethylbenzene	11	U	
100-42-5	Styrene	11	U	
1330-20-7	Xylene (total)	11	U	

VALIDATED

Reviewed By Joyce L. Whittle FORM I VOA

Date 12/16/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSFB

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 238831

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M238831V.D

Level: (low/med) LOW Date Received: 10/21/94

% Moisture: not dec. _____ Date Analyzed: 10/26/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-3	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
124-48-1	Dibromochloromethane	10	U	
79-00-5	1,1,2-Trichloroethane	10	U	
71-43-2	Benzene	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	J
591-78-6	2-Hexanone	10	U	J
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	

VALIDATED

Reviewed By Joyce L. Whittle

Date 12/16/94

FORM I VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA4

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238833

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N238833V.D

Level: (low/med) LOW Date Received: 10/21/94

% Moisture: not dec. 6 Date Analyzed: 10/26/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	11	U	
74-83-9	Bromomethane	11	U	
75-01-4	Vinyl Chloride	11	U	
75-00-3	Chloroethane	11	U	
75-09-2	Methylene Chloride	8	J	
67-64-1	Acetone	11	U	J
75-15-0	Carbon Disulfide	11	U	
75-35-4	1,1-Dichloroethene	11	U	
75-34-3	1,1-Dichloroethane	11	U	
540-59-0	1,2-Dichloroethene (total)	11	U	
67-66-3	Chloroform	11	U	
107-06-2	1,2-Dichloroethane	11	U	
78-93-3	2-Butanone	11	U	
71-55-6	1,1,1-Trichloroethane	11	U	
56-23-5	Carbon Tetrachloride	11	U	
75-27-4	Bromodichloromethane	11	U	
78-87-5	1,2-Dichloropropane	11	U	
10061-01-5	cis-1,3-Dichloropropene	11	U	
79-01-6	Trichloroethene	11	U	
124-48-1	Dibromochloromethane	11	U	
79-00-5	1,1,2-Trichloroethane	11	U	
71-43-2	Benzene	11	U	
10061-02-6	trans-1,3-Dichloropropene	11	U	
75-25-2	Bromoform	11	U	
108-10-1	4-Methyl-2-Pentanone	11	U	J
591-78-6	2-Hexanone	11	U	J
127-18-4	Tetrachloroethene	11	U	
79-34-5	1,1,2,2-Tetrachloroethane	11	U	
108-88-3	Toluene	11	U	
108-90-7	Chlorobenzene	11	U	
100-41-4	Ethylbenzene	11	U	
100-42-5	Styrene	11	U	
1330-20-7	Xylene (total)	11	U	

VALIDATED

Reviewed By Joyce J. Whittle

Date 12/16/94

FORM I VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA3

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238909

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N238909I2V.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: not dec. 40 Date Analyzed: 10/27/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	17	U
74-83-9	Bromomethane	17	U
75-01-4	Vinyl Chloride	17	U
75-00-3	Chloroethane	17	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	17 ~~4~~	~~JB~~ U
75-15-0	Carbon Disulfide	17	U
75-35-4	1,1-Dichloroethene	17	U
75-34-3	1,1-Dichloroethane	17	U
540-59-0	1,2-Dichloroethene (total)	17	U
67-66-3	Chloroform	17	U
107-06-2	1,2-Dichloroethane	17	U
78-93-3	2-Butanone	17	U J
71-55-6	1,1,1-Trichloroethane	17	U
56-23-5	Carbon Tetrachloride	17	U
75-27-4	Bromodichloromethane	17	U
78-87-5	1,2-Dichloropropane	17	U
10061-01-5	cis-1,3-Dichloropropene	17	U
79-01-6	Trichloroethene	17	U
124-48-1	Dibromochloromethane	17	U
79-00-5	1,1,2-Trichloroethane	17	U
71-43-2	Benzene	17	U
10061-02-6	trans-1,3-Dichloropropene	17	U
75-25-2	Bromoform	17	U
108-10-1	4-Methyl-2-Pentanone	17	U J
591-78-6	2-Hexanone	17	U J
127-18-4	Tetrachloroethene	17	U
79-34-5	1,1,2,2-Tetrachloroethane	17	U
108-88-3	Toluene	17	U
108-90-7	Chlorobenzene	17	U
100-41-4	Ethylbenzene	17	U
100-42-5	Styrene	17	U
1330-20-7	Xylene (total)	17	U

VALIDATED

Reviewed By Joyce Z. Whittle

Date 12/16/94

FORM I VOA

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AR301978

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA7

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238910

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N238910V.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: not dec. 40 Date Analyzed: 10/26/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	17	U
74-83-9	Bromomethane	17	U
75-01-4	Vinyl Chloride	17	U
75-00-3	Chloroethane	17	U
75-09-2	Methylene Chloride	17	U
67-64-1	Acetone	32	~~B~~ UJ
75-15-0	Carbon Disulfide	17	U
75-35-4	1,1-Dichloroethene	17	U
75-34-3	1,1-Dichloroethane	17	U
540-59-0	1,2-Dichloroethene (total)	17	U
67-66-3	Chloroform	17	U
107-06-2	1,2-Dichloroethane	17	U
78-93-3	2-Butanone	6	J
71-55-6	1,1,1-Trichloroethane	17	U
56-23-5	Carbon Tetrachloride	17	U
75-27-4	Bromodichloromethane	17	U
78-87-5	1,2-Dichloropropane	17	U
10061-01-5	cis-1,3-Dichloropropene	17	U
79-01-6	Trichloroethene	17	U
124-48-1	Dibromochloromethane	17	U
79-00-5	1,1,2-Trichloroethane	17	U
71-43-2	Benzene	17	U
10061-02-6	trans-1,3-Dichloropropene	17	U
75-25-2	Bromoform	17	U
108-10-1	4-Methyl-2-Pentanone	17	U J
591-78-6	2-Hexanone	17	U J
127-18-4	Tetrachloroethene	17	U
79-34-5	1,1,2,2-Tetrachloroethane	17	U
108-88-3	Toluene	17	U
108-90-7	Chlorobenzene	17	U
100-41-4	Ethylbenzene	17	U
100-42-5	Styrene	17	U
1330-20-7	Xylene (total)	17	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/16/94

FORM I VOA 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10EA3

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238911

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N238911I3V.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: not dec. 39 Date Analyzed: 10/27/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	16	U	
74-83-9	Bromomethane	16	U	
75-01-4	Vinyl Chloride	16	U	
75-00-3	Chloroethane	16	U	
75-09-2	Methylene Chloride	16	U	
67-64-1	Acetone	16	U	
75-15-0	Carbon Disulfide	16	U	
75-35-4	1,1-Dichloroethene	16	U	
75-34-3	1,1-Dichloroethane	16	U	
540-59-0	1,2-Dichloroethene (total)	16	U	
67-66-3	Chloroform	16	U	
107-06-2	1,2-Dichloroethane	16	U	
78-93-3	2-Butanone	16	U	J
71-55-6	1,1,1-Trichloroethane	16	U	
56-23-5	Carbon Tetrachloride	16	U	
75-27-4	Bromodichloromethane	16	U	
78-87-5	1,2-Dichloropropane	16	U	
10061-01-5	cis-1,3-Dichloropropene	16	U	
79-01-6	Trichloroethene	16	U	
124-48-1	Dibromochloromethane	16	U	
79-00-5	1,1,2-Trichloroethane	16	U	
71-43-2	Benzene	16	U	
10061-02-6	trans-1,3-Dichloropropene	16	U	
75-25-2	Bromoform	16	U	
108-10-1	4-Methyl-2-Pentanone	16	U	J
591-78-6	2-Hexanone	16	U	J
127-18-4	Tetrachloroethene	16	U	
79-34-5	1,1,2,2-Tetrachloroethane	16	U	
108-88-3	Toluene	16	U	
108-90-7	Chlorobenzene	16	U	
100-41-4	Ethylbenzene	16	U	
100-42-5	Styrene	16	U	
1330-20-7	Xylene (total)	16	U	

VALIDATED

Reviewed By Joyce Z. Whittle

Date 12/16/94

FORM I VOA

AR301980

3/90

000460

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFB

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 238912

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M238912V.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: not dec. _____ Date Analyzed: 10/26/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/16/94

FORM I VOA

3/90

000464

AR301981

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WEA7

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238914

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N238914V.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: not dec. 42 Date Analyzed: 10/27/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	17	U
74-83-9	Bromomethane	17	U
75-01-4	Vinyl Chloride	17	U
75-00-3	Chloroethane	17	U
75-09-2	Methylene Chloride	17	U
67-64-1	Acetone	17 ~~6~~	~~JB~~ UJ
75-15-0	Carbon Disulfide	17	U
75-35-4	1,1-Dichloroethene	17	U
75-34-3	1,1-Dichloroethane	17	U
540-59-0	1,2-Dichloroethene (total)	17	U
67-66-3	Chloroform	17	U
107-06-2	1,2-Dichloroethane	17	U
78-93-3	2-Butanone	17	U
71-55-6	1,1,1-Trichloroethane	17	U
56-23-5	Carbon Tetrachloride	17	U
75-27-4	Bromodichloromethane	17	U
78-87-5	1,2-Dichloropropane	17	U
10061-01-5	cis-1,3-Dichloropropene	17	U
79-01-6	Trichloroethene	17	U
124-48-1	Dibromochloromethane	17	U
79-00-5	1,1,2-Trichloroethane	17	U
71-43-2	Benzene	17	U
10061-02-6	trans-1,3-Dichloropropene	17	U
75-25-2	Bromoform	17	U
108-10-1	4-Methyl-2-Pentanone	17	U UJ
591-78-6	2-Hexanone	17	U UJ
127-18-4	Tetrachloroethene	17	U
79-34-5	1,1,2,2-Tetrachloroethane	17	U
108-88-3	Toluene	17	U
108-90-7	Chlorobenzene	17	U
100-41-4	Ethylbenzene	17	U
100-42-5	Styrene	17	U
1330-20-7	Xylene (total)	17	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/16/94

FORM I VOA

AR301982

3/90

000168

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W10EA7

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238915

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N238915I2V.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: not dec. 38 Date Analyzed: 10/27/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	16	U	
74-83-9	Bromomethane	16	U	
75-01-4	Vinyl Chloride	16	U	
75-00-3	Chloroethane	16	U	
75-09-2	Methylene Chloride	16	U	
67-64-1	Acetone	16	U	
75-15-0	Carbon Disulfide	16	U	
75-35-4	1,1-Dichloroethene	16	U	
75-34-3	1,1-Dichloroethane	16	U	
540-59-0	1,2-Dichloroethene (total)	16	U	
67-66-3	Chloroform	16	U	
107-06-2	1,2-Dichloroethane	16	U	
78-93-3	2-Butanone	16	U	J
71-55-6	1,1,1-Trichloroethane	16	U	
56-23-5	Carbon Tetrachloride	16	U	
75-27-4	Bromodichloromethane	16	U	
78-87-5	1,2-Dichloropropane	16	U	
10061-01-5	cis-1,3-Dichloropropene	16	U	
79-01-6	Trichloroethene	16	U	
124-48-1	Dibromochloromethane	16	U	
79-00-5	1,1,2-Trichloroethane	16	U	
71-43-2	Benzene	16	U	
10061-02-6	trans-1,3-Dichloropropene	16	U	
75-25-2	Bromoform	16	U	
108-10-1	4-Methyl-2-Pentanone	16	U	J
591-78-6	2-Hexanone	16	U	J
127-18-4	Tetrachloroethene	16	U	
79-34-5	1,1,2,2-Tetrachloroethane	16	U	
108-88-3	Toluene	16	U	
108-90-7	Chlorobenzene	16	U	
100-41-4	Ethylbenzene	16	U	
100-42-5	Styrene	16	U	
1330-20-7	Xylene (total)	16	U	

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/16/94

FORM I VOA

3/90

AR301989

000174

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240142

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 0240142.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: not dec. 42 Date Analyzed: 11/11/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	17	U	
74-83-9	Bromomethane	17	U	J
75-01-4	Vinyl Chloride	17	U	
75-00-3	Chloroethane	17	U	
75-09-2	Methylene Chloride	17	U	
67-64-1	Acetone	17	U	
75-15-0	Carbon Disulfide	17	U	
75-35-4	1,1-Dichloroethene	17	U	
75-34-3	1,1-Dichloroethane	17	U	
540-59-0	1,2-Dichloroethene (total)	17	U	
67-66-3	Chloroform	17	U	
107-06-2	1,2-Dichloroethane	17	U	
78-93-3	2-Butanone	17	U	J
71-55-6	1,1,1-Trichloroethane	17	U	
56-23-5	Carbon Tetrachloride	17	U	
75-27-4	Bromodichloromethane	17	U	
78-87-5	1,2-Dichloropropane	17	U	
10061-01-5	cis-1,3-Dichloropropene	17	U	
79-01-6	Trichloroethene	17	U	
124-48-1	Dibromochloromethane	17	U	
79-00-5	1,1,2-Trichloroethane	17	U	
71-43-2	Benzene	17	U	
10061-02-6	trans-1,3-Dichloropropene	17	U	
75-25-2	Bromoform	17	U	
108-10-1	4-Methyl-2-Pentanone	17	U	
591-78-6	2-Hexanone	17	U	J
127-18-4	Tetrachloroethene	17	U	
79-34-5	1,1,2,2-Tetrachloroethane	17	U	
108-88-3	Toluene	17	U	
108-90-7	Chlorobenzene	17	U	
100-41-4	Ethylbenzene	17	U	
100-42-5	Styrene	17	U	
1330-20-7	Xylene (total)	17	U	

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/16/94

FORM I VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S10EA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240143

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 0240143V.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: not dec. 44 Date Analyzed: 11/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	18	U
74-83-9	Bromomethane	18	U
75-01-4	Vinyl Chloride	18	U
75-00-3	Chloroethane	18	U
75-09-2	Methylene Chloride	18	U
67-64-1	Acetone	18 ~~13~~	~~JB~~ U
75-15-0	Carbon Disulfide	18	U
75-35-4	1,1-Dichloroethene	18	U
75-34-3	1,1-Dichloroethane	18	U
540-59-0	1,2-Dichloroethene (total)	18	U
67-66-3	Chloroform	18	U
107-06-2	1,2-Dichloroethane	18	U
78-93-3	2-Butanone	18	U
71-55-6	1,1,1-Trichloroethane	18	U
56-23-5	Carbon Tetrachloride	18	U
75-27-4	Bromodichloromethane	18	U
78-87-5	1,2-Dichloropropane	18	U
10061-01-5	cis-1,3-Dichloropropene	18	U
79-01-6	Trichloroethene	18	U
124-48-1	Dibromochloromethane	18	U
79-00-5	1,1,2-Trichloroethane	18	U
71-43-2	Benzene	18	U
10061-02-6	trans-1,3-Dichloropropene	18	U
75-25-2	Bromoform	18	U
108-10-1	4-Methyl-2-Pentanone	18	U
591-78-6	2-Hexanone	18	U
127-18-4	Tetrachloroethene	18	U
79-34-5	1,1,2,2-Tetrachloroethane	18	U
108-88-3	Toluene	18	U
108-90-7	Chlorobenzene	18	U
100-41-4	Ethylbenzene	18	U
100-42-5	Styrene	18	U
1330-20-7	Xylene (total)	18	U

VALIDATED

Reviewed By Joyce R. Whittle

Date 12/16/94

FORM I VOA

3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 240144

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M240144V.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: not dec. _____ Date Analyzed: 11/11/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

MPP 12-29-94

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/16/94

FORM I VOA 3/90

AR301986

000487

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240147

Sample wt/vol: 5.0 (g/mL) G Lab File ID: O240147V.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: not dec. 18 Date Analyzed: 11/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

VALIDATED

Reviewed By Joyce G. Whittle

Date 12/16/94

FORM I VOA 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA8RE

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240147R1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: O240147I2V.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: not dec. 18 Date Analyzed: 11/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	12	U	
74-83-9	Bromomethane	12	U	
75-01-4	Vinyl Chloride	12	U	
75-00-3	Chloroethane	12	U	
75-09-2	Methylene Chloride	12	U	
67-64-1	Acetone	12 ~~7~~	~~JB~~ U	
75-15-0	Carbon Disulfide	12	U	
75-35-4	1,1-Dichloroethene	12	U	
75-34-3	1,1-Dichloroethane	12	U	
540-59-0	1,2-Dichloroethene (total)	12	U	
67-66-3	Chloroform	12	U	
107-06-2	1,2-Dichloroethane	12	U	
78-93-3	2-Butanone	12	U	
71-55-6	1,1,1-Trichloroethane	12	U	
56-23-5	Carbon Tetrachloride	12	U	
75-27-4	Bromodichloromethane	12	U	
78-87-5	1,2-Dichloropropane	12	U	
10061-01-5	cis-1,3-Dichloropropene	12	U	
79-01-6	Trichloroethene	12	U	
124-48-1	Dibromochloromethane	12	U	
79-00-5	1,1,2-Trichloroethane	12	U	
71-43-2	Benzene	12	U	
10061-02-6	trans-1,3-Dichloropropene	12	U	
75-25-2	Bromoform	12	U	
108-10-1	4-Methyl-2-Pentanone	12	U	J
591-78-6	2-Hexanone	12	U	J
127-18-4	Tetrachloroethene	12	U	J
79-34-5	1,1,2,2-Tetrachloroethane	12	U	J
108-88-3	Toluene	12	U	J
108-90-7	Chlorobenzene	12	U	J
100-41-4	Ethylbenzene	12	U	J
100-42-5	Styrene	12	U	J
1330-20-7	Xylene (total)	12	U	J

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/16/94

FORM I VOA

3/90

AR301988 000495

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Volatile Organic Compounds Analysis

Case Number : 94239, SDG# 47744	Project Number: 27654 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquetec	
Validator: Cindy Lucangioli	Validation Date: 1/10/95
QC Reviewer: Kirsten Meier	Review Date: 1-27-95
Sample Matrix: 3 ~~Low~~ Waters and 5 ~~low~~ soils	
Analytical Method: VOAs - CLP	

Sample Designations:

RRBS1 (x)	BSEA5		
RRBS2 (x)			
RRBS3 (x)			
BSEA1			
WSEA1			
WSEA2			
BSEA2			

(x) water sample

Data for the above samples are:

_____ Acceptable for use
✓ Acceptable for use as qualified
_____ Unacceptable for use

Is action required by the Project Manager?
Yes No

Comments: Data were validated using the "USEPA Contract ~~None~~ Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

MPP
1-31-95

vos_1.doc
10141994 1032

Form VOA 1.0

AR301989

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
X Surrogate Recovery Summary
KM * MS/MSD Summary
KM * Reagent Blank Summary
X GC/MS Instrument Performance Summary

Sample Data

X Chain of Custody Forms
X Holding Times
X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
NA TIC Mass Spectra Library Searches

Initial Calibration Data

KM * Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

KM * Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms
X Internal Standards Summary

Instrument Performance Data

X BFB Mass Spectra
X Reconstructed Ion Chromatogram
X BFB Mass Listings

Reagent Blank Data

KM ~~X~~ Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
NA TIC Mass Spectra Library Searches

Matrix Spike and Matrix Spike Duplicate Data

X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms

Laboratory Control Sample

NA Organic Analysis Data Sheets
Quantitation Reports
Reconstructed Ion Chromatograms
Mass Spectra Printouts
TIC Mass Spectra Library Searches

Comments:
None

AR301991

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

None

Holding Times

Were sample analyses performed within holding times?

Yes No

Comments:

None

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

WM ~~Yes~~ No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes No

Comments: ~~For the initial calibration~~ See the initial calibration summary forms for qualification of sample data due to ~~percent~~ validation criterion exceedance.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

WM ~~Yes~~ No

Did the continuing calibration meet the minimum RRF criteria?

Yes No

Comments: See the continuing calibration summary form for those compounds that exceeded the 25 to 25 validation criterion acceptance limit.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

KM ~~Yes~~ No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments:

No matrix spikes were performed on the water samples. However, the water samples are rinseblanks and most likely this matrix did not interfere with the analysis. Therefore no qualification of data was necessary.

KM 1-27-95

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No NA

Comments: The internal standard chlorobenzene-d5 was ~~below~~ outside the area KM acceptance criteria in samples WSEA1MS and WSEA1MSD. ~~Since the sample itself had no internal standard problems and~~ KM 1-27-95 The MS/MSD recoveries were within acceptance limits, no data qualification was considered necessary.

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were analytes detected in the blanks?

Yes No

If analytes were detected in the blanks, were the same analytes detected in the associated investigative samples?

Yes No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments: See the blank summary form for method blank, contaminants and the samples requiring qualification due to method blank contamination.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes No NA

Were the LCS recoveries within acceptable limits?

Yes No NA

Comments: LCSs are not required for CLP-VOAs

Sample Results

Were target analytes reported in the investigative samples?
Yes No

Were mass spectra provided for the target analytes detected in the investigative samples?
Yes No

Were the mass spectra of acceptable quality and analytes correctly identified?
Yes No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?
Yes No

Comments: ~~All target compounds reported as detected in the investigative samples were qualified as non-detect due to method blank contamination.~~ KM 1-27-95

None

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?
Yes No NA

Were non-target peaks evaluated as required?
Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?
Yes No

Comments: TICs were not reported by the laboratory at the request of IHA.

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes No NA

Were sample analyses properly documented and performed in accordance with method protocols?

Yes No

Comments: Form IV and V's were properly completed.

Calculation Checks

Instrument Tuning

Relative Abundance: ICAL 10/27/94 @ 1325 #M

50 is 24.5% = $\frac{7493}{30544} \times 100$

Initial Calibration 10/27/94 Acetone

RRF: .572 $\frac{44410}{387954} \times \frac{50}{10}$

%RSD: $\frac{.123}{.392} \times 100 = 39.2\%$

Continuing Calibration 4-methyl-2-pentanone

RRF: $1.137 = \frac{1034118}{909914} \times \frac{50}{50}$

%D: $\frac{.908 - 1.137}{1.137} \times 100 = 25.2\%$

Surrogate Recovery BSEAS

$BFB = \frac{629401}{770145} \times \frac{50}{.795} = 51.4$ $\frac{51.4}{50} = 103\%$

Matrix Spike Recovery DSEA1

$$TCE = \frac{426549}{941946} \times \frac{50}{.486} \frac{1}{.76} = 61 \qquad 61/66 = 92\%$$

RPD:

$$\frac{(92-91)}{\left(\frac{92+91}{2}\right)} \times 100 = 1\%$$

Sample Results WSEA1

CRQL: $10 \times 1 = 10$

Detected Result: Acetone 12 B $= \frac{44111}{225599} \times \frac{50}{.794}$

TIC Result NA

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Analyzed	Analysis Holding Time	Qualifier
RBBS 2	11/4/94	11/11/94	7	NONE
RBBS 1	11/3/94	11/14/94	11	
RBBS 3	11/12/94	11/17/94	5	
BSEA 1	11/3/94	11/14/94	11	
WSEA 1	11/3/94		11	
WSEA 2	11/4/94		10	
BSEA 2	11/4/94		10	
BSEA 5	11/12/94	11/18/94	6	

Comments:

None

AR302000

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
10/27/94 1325	#M	Acetone	.392	31.4	All waters (RBBS1, RBBS2, RBB3)	J ~~UJ~~
11/14/94 0812	#O	No outlier	—	—	All soils (BSEA1, BSEA2, BSEA5, WSEA1, WSEA2)	NONE

Qualification for Detections only
KM 1-27-95

Comments: Instrument #O met all method cal validation criteria for the initial calibration.
For Acetone no positive detections in the water samples above the CRQL were reported, qualification of data was not necessary.
KM 1-27-95

AR302001

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
11/14/94 1502	#M	chloromethane	—	25.8	RBBS 1	J/UJ
		Acetone		48.4		↓
		2-Butanone		26.0		↓
11/17/94 2146	#M	chloromethane		33.3	RBBS 3	J/UJ
		vinyl chloride		28.1		↓
11-14-94 1122	#O	4-Methyl-2-Pentanone		-25.2	BSEA1, WSEA1, WSEA2, BSEA2	J/UJ

IRM 1-27-95

Comments: ~~The continuing calibration on instrument #O met all initial and validation criteria.~~ Results for the above analytes in the associated samples were qualified as estimated (J).

AR302002

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples
VBLKQG	Acetone	4 J µg/kg	40 µg/kg	BSEA1, WSEA1, WSEA2
				BSEA2 and both soil MS/MSDs
VBLKS3	Acetone	15 µg/kg	150 µg/kg	BSEA5
RBBS1	Acetone	7 µg/L	70 µg/kg	BSEA1, WSEA1

Comments: Please note the conversion of units in the rinsate blank as applied to the soil samples.

AR302003

Summary and Conclusions

~~Rinsate blanks required minor qualification due to calibration criteria exceedance. Investigative soil samples required qualification due to method blank contamination.~~

Rinsate blank RBBS1 reported acetone as detected. The associated samples BSEA1, ~~WS~~ and WSEA1 were already qualified for acetone as non-detect due to method blank contamination and no further data qualification was required.

The sample data are considered to be useable as qualified by the reviewer. Satisfactory accuracy is indicated by the surrogate, matrix spikes and matrix spike duplicate recoveries. Precision as measured by the RPDs between MS/MSD recoveries were within acceptance limits indicating satisfactory precision. Completeness defined as the percentage of useable results, including those qualified as estimated, is 100%.

The detections of Acetone in the samples BSEA1, WSEA1, BSEA2, BSEA5 were qualified as undetected (U) due to blank contamination.
The results for 4-Methyl-2-Pentanone in the samples BSEA1, WSEA1, BSEA2 and WSEA2, Chloromethane in RBBS1 and RBBS3, Acetone and 2-Butanone in RBBS1 and Vinyl chloride in RBBS3 were qualified as estimated (J) due to exceeding %D criteria in the associated continuing calibrations. KM 1-27-95

Validator's Signature:	Cynthia H Jaeger		
Validator's Initials:	CHJ	Validation Date:	1/10/95
QC Reviewer's Signature:	Kristen Meier		
QC Reviewer's Initials	KM	Review Date:	1-27-95

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240299

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 0240299V.D

Level: (low/med) LOW Date Received: 11/04/94

% Moisture: not dec. 24 Date Analyzed: 11/14/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13	U
67-64-1	Acetone	13 ~~6~~	~~J~~ U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	13	U

VALIDATED

Reviewed By CMC

Date 1/12/95

FORM I VOA 3/90

AR302005

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240304

Sample wt/vol: 5.0 (g/mL) G Lab File ID: O240304V.D

Level: (low/med) LOW Date Received: 11/04/94

% Moisture: not dec. 0 Date Analyzed: 11/14/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	12	B U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U J
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

VALIDATED

Reviewed By CAR

Date 1/12/95

FORM I VOA 3/90

AR302006

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240394

Sample wt/vol: 5.0 (g/mL) G Lab File ID: O240394I2V.D

Level: (low/med) LOW Date Received: 11/05/94

% Moisture: not dec. 44 Date Analyzed: 11/14/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	18	U
74-83-9	Bromomethane	18	U
75-01-4	Vinyl Chloride	18	U
75-00-3	Chloroethane	18	U
75-09-2	Methylene Chloride	18	U
67-64-1	Acetone	34	B U
75-15-0	Carbon Disulfide	18	U
75-35-4	1,1-Dichloroethene	18	U
75-34-3	1,1-Dichloroethane	18	U
540-59-0	1,2-Dichloroethene (total)	18	U
67-66-3	Chloroform	18	U
107-06-2	1,2-Dichloroethane	18	U
78-93-3	2-Butanone	18	U
71-55-6	1,1,1-Trichloroethane	18	U
56-23-5	Carbon Tetrachloride	18	U
75-27-4	Bromodichloromethane	18	U
78-87-5	1,2-Dichloropropane	18	U
10061-01-5	cis-1,3-Dichloropropene	18	U
79-01-6	Trichloroethene	18	U
124-48-1	Dibromochloromethane	18	U
79-00-5	1,1,2-Trichloroethane	18	U
71-43-2	Benzene	18	U
10061-02-6	trans-1,3-Dichloropropene	18	U
75-25-2	Bromoform	18	U
108-10-1	4-Methyl-2-Pentanone	18	U J
591-78-6	2-Hexanone	18	U
127-18-4	Tetrachloroethene	18	U
79-34-5	1,1,2,2-Tetrachloroethane	18	U
108-88-3	Toluene	18	U
108-90-7	Chlorobenzene	18	U
100-41-4	Ethylbenzene	18	U
100-42-5	Styrene	18	U
1330-20-7	Xylene (total)	18	U

VALIDATED

Reviewed By CAL
Date 1/12/95

FORM I VOA 3/90

AR302007

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240398

Sample wt/vol: 5.0 (g/mL) G Lab File ID: O240398V.D

Level: (low/med) LOW Date Received: 11/05/94

% Moisture: not dec. 29 Date Analyzed: 11/14/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	14	U
67-64-1	Acetone	100	B
75-15-0	Carbon Disulfide	14	U
75-35-4	1,1-Dichloroethene	14	U
75-34-3	1,1-Dichloroethane	14	U
540-59-0	1,2-Dichloroethene (total)	14	U
67-66-3	Chloroform	14	U
107-06-2	1,2-Dichloroethane	14	U
78-93-3	2-Butanone	18	
71-55-6	1,1,1-Trichloroethane	14	U
56-23-5	Carbon Tetrachloride	14	U
75-27-4	Bromodichloromethane	14	U
78-87-5	1,2-Dichloropropane	14	U
10061-01-5	cis-1,3-Dichloropropene	14	U
79-01-6	Trichloroethene	14	U
124-48-1	Dibromochloromethane	14	U
79-00-5	1,1,2-Trichloroethane	14	U
71-43-2	Benzene	14	U
10061-02-6	trans-1,3-Dichloropropene	14	U
75-25-2	Bromoform	14	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	14	U
79-34-5	1,1,2,2-Tetrachloroethane	14	U
108-88-3	Toluene	14	U
108-90-7	Chlorobenzene	14	U
100-41-4	Ethylbenzene	14	U
100-42-5	Styrene	14	U
1330-20-7	Xylene (total)	14	U

VALIDATED

Reviewed By CK
Date 1/12/95

FORM I VOA 3/90

AR302008

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA5

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 241146

Sample wt/vol: 5.0 (g/mL) G Lab File ID: O241146V.D

Level: (low/med) LOW Date Received: 11/14/94

% Moisture: not dec. 20 Date Analyzed: 11/18/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	13	B U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

VALIDATED

FORM I VOA Reviewed By CAK 3/90
Date 1/12/95

AR302009

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240300

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M240300V.D

Level: (low/med) LOW Date Received: 11/04/94

% Moisture: not dec. _____ Date Analyzed: 11/14/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	7	J ~~B~~ KM 1-27-95
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

VALIDATED

Reviewed By GPC

Date 1/12/95

FORM I VOA 3/90

AR302010

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS3

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 241147

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M241147I2V.D

Level: (low/med) LOW Date Received: 11/14/94

% Moisture: not dec. _____ Date Analyzed: 11/18/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U ~~UJ~~ KM 1-27-9
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

VALIDATED

FORM I VOA

Reviewed By CK ~~3/90~~
Date 1/12/95

AR302011

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240395

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: L240395V.D

Level: (low/med) LOW Date Received: 11/05/94

% Moisture: not dec. _____ Date Analyzed: 11/11/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U ~~UJ~~ KH 1-27-95
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

VALIDATED

Reviewed By CR
Date 11/12/95

FORM I VOA 3/90

AR302012

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Volatile Organic Compounds Analysis
(LOW CONCENTRATION)

4 MPP 12-29-94

Case Number : 94239, SDG# 47430	Project Number: 27656, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec, Inc.	Inchcape Testing Services
Validator: J. Whittle	Validation Date: 12/15/94
QC Reviewer: M. Phillips	Review Date: 12/30/94
Sample Matrix: Surface Water (3), Water QC (2)	
Analytical Method: EPA OLC01.0 SOW	

Sample Designations:

SWEA4	TB		
SWEA8	TB1102		
W10EA8			

Data for the above samples are:

____ Acceptable for use
_X_ Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines For Organic Data Review", (February 1994).

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
X Surrogate Recovery Summary
X MS/MSD Summary
X Reagent Blank Summary
X GC/MS Instrument Performance Summary
X Lab Control Sample Summary

Sample Data

X Chain of Custody Forms
X Holding Times
X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
NA TIC Mass Spectra Library Searches

Initial Calibration Data

X Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

* Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms
X Internal Standards Summary

Instrument Performance Data

X BFB Mass Spectra
X Reconstructed Ion Chromatogram
X BFB Mass Listings

Reagent Blank Data

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms
__X__ Mass Spectra Printouts
__NA__ TIC Mass Spectra Library Searches

Matrix Spike and Matrix Spike Duplicate Data

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms

Laboratory Control Sample

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms
__X__ Mass Spectra Printouts
__NA__ TIC Mass Spectra Library Searches

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

None

Holding Times

Were sample analyses performed within holding times?

Yes No

Comments:

See page 12 for sample analysis summary.

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes No

Comments:

None

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes No

Did the continuing calibration meet the minimum RRF criteria?

Yes No

Comments:

MPR 12-20-94

Acetone exceeded the ~~30%~~ 25 30% difference criteria for both continuing calibrations (see page 14). All sample data should be considered estimated for acetone (UJ/J).

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments:

MS/MSD analysis was performed on sample SWEA8, as specified on the COC.

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No NA

Comments:

None

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were analytes detected in the blanks?

Yes No

If analytes were detected in the blanks, were the same analytes detected in the associated investigative samples?

Yes No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments:

There was no contamination found in the method blanks. Samples were qualified as undetected (U) for acetone and chloroform on the basis of trip blank contamination. Refer to page 15 for a blank contamination summary.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes No NA

Were the LCS recoveries within acceptable limits?

Yes No NA

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were mass spectra provided for the target analytes detected in the investigative samples?

Yes No

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes No

Comments:

None

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes No NA

Were non-target peaks evaluated as required?

Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes No

Comments:

None

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes No NA

Were sample analyses properly documented and performed in accordance with method protocols?

Yes No

Comments:

None

Calculation Checks

Instrument Tuning 11/10/94, 17:50

Relative Abundance:

$$RA = \frac{\text{Target Peak Abundance}}{\text{Reference Peak Abundance}} = \frac{m/z\,176}{m/z\,174} = \frac{29928}{31104} \times 100 = 96.22\%$$

Initial Calibration 10/27/94, RRF2 = LCI002HV.D

RRF:

$$\frac{\text{Compound Response}}{\text{Internal Standard Response}} \times \frac{\text{IS Concentration}}{\text{Compound Concentration}} = RRF$$

$$\frac{35027}{192917} \times \frac{5}{2} = 0.454 \text{ for trichloroethene}$$

%RSD:

$$\frac{\text{Standard Deviation of 5 Response Factors}}{\text{Mean of 5 Response Factors}} \times 100 = \%RSD$$

$$\frac{0.01155}{0.4594} \times 100 = 2.5\% \text{ for trichloroethene}$$

Continuing Calibration 11/10/94, 17:56

RRF: (same as initial calibration)

$$\frac{285134}{210872} \times \frac{5}{5} = 1.352 \text{ for ethylbenzene}$$

%D:

$$\frac{\text{Initial RRF} - \text{Continuing RRF}}{\text{Initial Compound RRF}} \times 100 = \%D$$

$$\frac{1.192 - 1.093}{1.192} \times 100 = 8.3\% \text{ for toluene}$$

Surrogate Recovery Sample SWEA4

$$\frac{\text{Surrogate Response} \times \text{IS Concentration} \times 100}{\text{IS Response} \times \text{Continuing RRF} \times \text{Surrogate Added}} = \%R$$

$$\frac{91552 \times 5 \times 100}{226655 \times 0.406 \times 5} = 99.49\% \text{ for 4-bromofluorobenzene}$$

Matrix Spike Recovery $\boxed{\text{Sample SWEA8MS}}$

$$\frac{\text{Spike Response}}{\text{Internal Standard Response}} \times \frac{\text{IS Concentration}}{\text{Continuing RRF}} = \text{Spike Concentration } \cancel{\text{(recovery)}}$$

MPP 12-30-94

$$\frac{72576}{178993} \times \frac{5}{0.355} = 5.71\ \mu g/l \text{ for 1,1,2-trichloroethane}$$

spike recovery $= \frac{\text{spike concentration}}{\text{spike added}} \times 100 = \frac{5.71\ \mu g/l}{5\ \mu g/l} \times 100 = 114.2\ \%$ MPP 12-30-94

RPD:

$$(\text{MS Recovery} - \text{MSD Recovery}) \div \frac{\text{MS Recovery} + \text{MSD Recovery}}{2} \times 100$$

$$(5.71 - 5.87) \div (5.79) \times 100 = 2.8\ \% \text{ for 1,1,2-trichloroethane}$$

MPP 12-30-94 $(117.32 - 114.17) \div \left(\frac{117.32 + 114.17}{2}\right) \times 100 = 2.7\ \%$

Sample Results $\boxed{\text{Sample SWEA4}}$

CRQL:

$$\text{Base CRQL} \times \text{Dilution Factor} = \text{Reported CRQL}$$

$$1\ \mu g/l \times 1 = 1\ \mu g/l \text{ for chloromethane}$$

Detected Result:

$$\frac{\text{Detect Response}}{\text{Internal Standard Response}} \times \frac{\text{IS Concentration}}{\text{Continuing RRF}} = \text{Compound Concentration}$$

$$\frac{8087}{180944} \times \frac{5}{0.617} = 0.362\ \mu g/l \text{ for dibromochloromethane}$$

TIC Result

(Not Reported)

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Analyzed	Analysis Holding Time	Qualifier
SWEA4	10/20/94	10/28/94	14 days	(None)
SWEA8	11/2/94	11/10/94		
W10EA8	11/2/94	11/10/94		
TB	10/20/94	10/28/94		
TB1102	10/18/94, 11/02/94	11/10/94		
	MPP 12-30-94			

Comments:

AR302024

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Form VOA 1.0

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
10/27/94, 1812	L	Acetone	—	-35.1	SWEA4, TB	UJ/J
11/10/94, 1756	L	Acetone	—	37.4	SWEA8, W10EA8, TB1102	UJ/J

Comments:

AR302025

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples
VBLKM6	(None)	—	—	SWEA4, TB
VBLKQ2	(None)	—	—	SWEA8, W10EA8, TB1102
TB	Acetone	1 µg/l	10 µg/l	SWEA4
↓	Chloroform	6 µg/l	30 µg/l	↓
TB1102	Acetone	5 µg/l	50 µg/l	SWEA8, W10EA8
VSBLKA1	(None)	—	—	All samples

Comments:

AR302026

Summary and Conclusions

All necessary data were present for a full validation of this low concentration volatile analysis, and all holding times were met. Surrogate, instrument performance, initial calibration, laboratory control sample, method blank, internal standard, and MS/MSD data all met required quality control criteria. Calculation checks and data review suggested no errors in compound identification or quantitation.

Qualification of the sample data was necessary on the basis of continuing calibration percent differences (refer to page 14) for acetone beyond the ~~30%~~ 25 30% MPP 12-30-94 control limit. All samples were qualified as estimated for acetone (UJ/J).

Qualification of the sample data was also necessary on the basis of trip blank contamination (refer to page 15), for acetone and chloroform. Sample results ~~greater~~ less than 10 times the blank contamination for acetone were qualified as undetected (U) in SWEA4, SWEA8, and W10EA8. Sample results ~~greater~~ less than 5 times the blank contamination for chloroform were qualified as undetected in SWEA4.

Validator's Signature: Joyce E. Whittle	
Validator's Initials: JW	Validation Date: 12/15/94
QC Reviewer's Signature: Michael P. Phillips	
QC Reviewer's Initials MPP	Review Date: 12/30/94

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA4

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 238832 Date Received: 10/21/94

Lab File ID: L238832V.D Date Analyzed: 10/28/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	5	
67-64-1	Acetone	110	J
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	3	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	2	
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	0.6	J
124-48-1	Dibromochloromethane	0.4	J
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	0.6	J
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

FORM I LCV 10/92

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/15/94

000722

AR302028

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 238913 Date Received: 10/22/94

Lab File ID: L238913V.D Date Analyzed: 10/28/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	1	J
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	6	
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

FORM I LCV 10/92

C00723

VALIDATED

Reviewed By Joyce E. [illegible] 029

Date 12/15/94

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 240145 Date Received: 11/03/94

Lab File ID: L240145V.D Date Analyzed: 11/10/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	12	UJ
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/15/94

AR302430

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W10EA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 240146 Date Received: 11/03/94

Lab File ID: L240146V.D Date Analyzed: 11/10/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	18	UJ
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

FORM I LCV 10/92

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/15/94

C00733

AR302031

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB1102

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 240148 Date Received: 11/03/94

Lab File ID: L240148V.D Date Analyzed: 11/10/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

FORM I LCV 10/92

VALIDATED C00744

AR302032

Reviewed By Joyce E. Whittle

Date 12/15/94

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Volatile Organic Compounds Analysis

Case Number: 94239, SDG # 47744	Project Number: 27654 3.4.2.2
Site: Hare and Lombard	
Contractor Laboratory: Aquatec	
Validator: Cindy Lucangioli	Validation Date: 1/12/95
QC Reviewer: Kevin Garrett	Review Date: 2/6/95
Sample Matrix: Water	
Analytical Method: Low concentration CLP-VOAs	

Sample Designations:

TB	SWEA10		
SWEA1			
SWEA11			
TB1			
SWEA2			
TB2			
SWEA5			

Data for the above samples are:

____ Acceptable for use
_X_ Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

MPP
1-31-95

vos_1.doc
10141994 1032

Form VOA 1.0

AR302033

DATA COMPLETENESS CHECKLIST

__X__ Included, no problems
__*__ Included, problems
__O__ Not included
__NA__ Not applicable

Quality Control Summary

__X__ Case Narrative
__X__ Surrogate Recovery Summary
__X__ MS/MSD Summary
__X__ Reagent Blank Summary
__X__ GC/MS Instrument Performance Summary

Sample Data

__X__ Chain of Custody Forms
__X__ Holding Times
__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms
__X__ Mass Spectra Printouts
__NA__ TIC Mass Spectra Library Searches

Initial Calibration Data

__X__ Calibration Summary
__X__ Standards Quantitation Reports
__X__ Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

__X__ Calibration Summary
__X__ Standards Quantitation Reports
__X__ Standards Reconstructed Ion Chromatograms
__X__ Internal Standards Summary

Instrument Performance Data

__X__ BFB Mass Spectra
__X__ Reconstructed Ion Chromatogram
__X__ BFB Mass Listings

Reagent Blank Data

X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
NA TIC Mass Spectra Library Searches

Matrix Spike and Matrix Spike Duplicate Data

X ~~Ø~~ ≠ Organic Analysis Data Sheets
X ~~Ø~~ ≠ Quantitation Reports
X ~~Ø~~ ≠ Reconstructed Ion Chromatograms
See comment below KKD 1/24/95

Laboratory Control Sample

X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
NA TIC Mass Spectra Library Searches

Comments: MS/MSD is not required by the method, but was analyzed by the lab. as indicated on the chain of custodies. KKD 1/24/95

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

Holding Times

Were sample analyses performed within holding times?

Yes No

Comments:

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes No

Comments:

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

(Yes) No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

(Yes) No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

(Yes) No

Comments: The initial calibration met all method and validation acceptance criteria and no data qualification was necessary.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

(Yes) No

Did the continuing calibration meet the minimum RRF criteria?

(Yes) No

Comments: The continuing calibrations met the method specific acceptance limits. See the continuing calibration summary table for the validation criteria outliers. The continuing calibration analyzed on 11/10/94 @ 17:56 associated with samples SWEA2 and TB2 exceeded the ~~25~~ 30% D validation criterion for acetone with a 37.4% D. These ~~s~~ acetone sample data have been qualified as estimated (J/UJ) due to calibration criterion exceedance. The continuing calibration analyzed on 11/16/94 @ 8:39 associated with samples: SWEA1, SWEA5, SWEA10, SWEA11, TB and TB1 exceeded the 30% D validation criterion and was below the 0.05 minimum RRF criterion for acetone resulting in the estimation of detected results and the rejection of non-detects.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA

Comments:

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments: MS/MSDs are not required for low-level analysis. Sample SWEA811 was used for MS/MSD and recoveries were within 60-140% and RPDs were within 20%. Sample SWEA8 was reported on the MS Form III while SWEA11 MSD was reported on the Form III-2. ~~Since MS/MSDs were not required, no further action was taken. Also, the Form I's for the MS sample and the corresponding sample SWEA11 for MS/MSD~~ The laboratory was requested to submit the FORM III for SWEA11MS. This form was supplied and the reviewer found no recoveries outside of QC limits. Therefore, no qualifications were necessary. KEA 2/6/95

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No NA

Comments:

Blank Analyses

Were the appropriate number of blank analyses performed?
Yes No

Were analytes detected in the blanks?
Yes No

If analytes were detected in the blanks, were the same analytes detected in the associated investigative samples?
Yes No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?
Yes No

Comments: No target compounds were detected in any of the method blanks. However, all three trip blanks reported target compounds as detected. See the blank summary table for analytes and associated samples that required qualification. All of the investigative sample data required qualification for acetone as non-detect (U) due to acetone contamination in the associated trip blanks.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?
Yes No NA

Were the LCS recoveries within acceptable limits?
Yes No NA

Comments:

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were mass spectra provided for the target analytes detected in the investigative samples?

Yes No

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes No

Comments:

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes No NA

Were non-target peaks evaluated as required?

Yes No

Were the TIC mass spectra, searches. identifications, and quantitated results acceptable?

Yes No

Comments: TICs were not reported.

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes No NA

Were sample analyses properly documented and performed in accordance with method protocols?

Yes No

Comments: Form IVs and Vs were complete.

Calculation Checks

Instrument Tuning IC AL 10/27/94 1156

Relative Abundance: 50 = 16.6 % $\frac{7187}{43264} \times 100$

Initial Calibration IC AL 10/27/94 #2

CMR 1/25/95 RRF: ~~Acetone~~ Bromoform 1 = $\frac{15099}{187416} \times \frac{5}{1}$ = .403 ✓

%RSD: ~~Acetone 24.0 %~~ Bromoform 10.2 %

.403, .382, .440, .473, .485

RSD = $\frac{.0441}{.437} \times 100$ = 10.1 %

difference due to rounding and/or sig figs

Continuing Calibration 11/10/94 1756 #2

RRF: Acetone .051 $\frac{63765}{251581} \times \frac{5}{25}$ = .0507 ✓

%D: Acetone 37.4 % $\frac{.081 - .051}{.081} \times 100$ = ~~30.04~~ 37.04

difference due to rounding errors and/or sig figs.

Surrogate Recovery TB

BFB $\frac{58532}{\cancel{174713}\ 215236} \frac{5}{.402}$ = 5.12 $\frac{5.12}{5} \times 100$ = 102 %

Matrix Spike Recovery SWEA11MS

~~El~~ Carbon tetrachloride AJ $\frac{111930}{183765} \times \frac{5}{.595} = 5.12$

$\frac{5.12}{5} \times 100 = 102\%$

RPD: $\frac{(102 - 95.0)}{\left(\frac{102 + 95}{2}\right)} \times 100 = 7.11$ ~~NA too different samples provided~~ KH 2/6/95

$\frac{(102 - 95)}{\left(\frac{102 + 95}{2}\right)} \times 100 =$

Sample Results

CRQL: 1 µg/L by method ✓

Detected Result: SWEA1

carbon disulfide $\frac{48853}{288910} \times \frac{5}{.855} = .99$ ✓

TIC Result NA

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Analyzed	Analysis Holding Time	Qualifier
SWEA 1	11/3/94	11/16/94	13	NONE
TB	↓	↓	↓	↓
SWEA 11	↓	↓	↓	↓
SWEA 2	11/4/94	11/10/94	6	↓
TB 2	↓	↓	↓	↓
SWEA 5	11/12/94		1	↓
SWEA 10	↓		1	↓

Comments:

AR302044

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier

Comments: All initial calibrations met acceptance criteria.

AR302045

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
11/10/94 1756	#L	Acetone		37.0	SWEA2, TB2	J/UJ
11/16/94 0839	#L	Acetone	0.047	41.7	SWEA1, TB, SWEA11	J/R
					SWEA5, SWEA10	↓

Comments:

AR302046

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples
TB	Acetone	5 µg/L	50 µg/L	SWEA1, SWEA11
	Chloroform	3 µg/L	~~30~~ 15 µg/L	↓
TB2	Methylene chloride	0.6 µg/L	6 µg/L	SWEA2
	Acetone	3 µg/L	30 µg/L	↓
TB1	Acetone	9 µg/L	90 µg/L	SWEA5, SWEA10

Comments: For the compounds listed above samples have been qualified as non-detect at the reporting limit or at the reported value.

AR302047

Summary and Conclusions

All the investigative sample data required qualification due as non-detect (U) for acetone due to trip blank contamination. Sample SWEA2 was then qualified as estimated for acetone due to the 30% D criterion exceedance for acetone in the associated continuing calibration. The remaining investigative samples, SWEA1, SWEA5, SWEA10 and SWEA11 were associated with a different continuing calibration which failed to meet the minimum RRF criterion of 0.05 for acetone and resulted in the rejection (R) of the acetone data. No other qualification of sample data was necessary.

With the exception of acetone in samples SWEA1, SWEA5, SWEA10 and SWEA11, the sample data are considered to be useable as qualified by the reviewer. Accuracy as measured by the surrogate and LCS recoveries was satisfactory. Completeness, defined as the percentage of useable results, including those values qualified as estimated, is 99%.

Validator's Signature:	Cynthia H Langelli		
Validator's Initials:	CHL	Validation Date:	2/12/95
QC Reviewer's Signature:	Karen E Garrett		
QC Reviewer's Initials	KEG	Review Date:	2/6/95

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240301 Date Received: 11/04/94

Lab File ID: L240301V.D Date Analyzed: 11/16/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	6	U R
75-15-0	Carbon Disulfide	1	
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

Reviewed By CWC

Date 1/12/95

FORM I LCV 10/92

AR302049

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240396 Date Received: 11/05/94

Lab File ID: L240396V.D Date Analyzed: 11/10/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	14	UJ
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	0.4	J
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

FORM I LCV 10/92

Reviewed By CAC

Date 1/12/95

AR302050

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA5

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 241148 Date Received: 11/14/94

Lab File ID: L241148V.D Date Analyzed: 11/16/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	7	U R
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

FORM I LCV 10/92

Reviewed By GR

Date 1/12/95

AR30205

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA10

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 241149 Date Received: 11/14/94

Lab File ID: L241149V.D Date Analyzed: 11/16/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	8	U R
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

FORM I LCV 10/92

Reviewed By

Date 1/12/95

AR302052

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA11

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240302 Date Received: 11/04/94

Lab File ID: L240302V.D Date Analyzed: 11/16/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	7	~~U~~ R
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

FORM I LCV 10/92

Reviewed By CAL

Date 1/12/95

AR302053

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240303 Date Received: 11/04/94

Lab File ID: L240303V.D Date Analyzed: 11/16/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	5	
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	3	
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

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VALIDATED

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AR302054

Reviewed By CMS

Date 1/12/95

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 241150 Date Received: 11/14/94

Lab File ID: L241150V.D Date Analyzed: 11/16/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

FORM I LCV 10/92

Reviewed By CPC

Date 11/12/95

AR302055

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240397 Date Received: 11/05/94

Lab File ID: L240397V.D Date Analyzed: 11/10/94

Purge Volume: 5.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	0.6	J
67-64-1	Acetone	3	J
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylene (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

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AR302056

Reviewed By CWC

Date 1/12/95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Semivolatile Organic Compounds Analysis
(MULTI-MEDIA, MULTI- CONCENTRATION)

Case Number: 94239, SDG# 47430	Project Number: 27654, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec, Inc.	Inchcape Testing Services
Validator: J. Whittle	Validation Date: 12/21/94
QC Reviewer: M. Phillips	Review Date: 12/30/94
Sample Matrix: Soil/Sediment (11), Water QC (3)	
Analytical Method: EPA OLM01.0 SOW	

Sample Designations:

BSEA4	W10EA7	BSFB	
BSEA9	BSEA8	BFB	
WSEA4	S10EA8	RBBS	
BEA3	WSEA8		
BEA7			
B10EA3			
WEA7			

Data for the above samples are:

____ Acceptable for use
_X_ Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," (February 1994).

DATA COMPLETENESS CHECKLIST

__X__ Included, no problems
__*__ Included, problems
__O__ Not included
__NA__ Not applicable

Quality Control Summary

__X__ Case Narrative
__*__ Surrogate Recovery Summary
__*__ MS/MSD Summary
__X__ Reagent Blank Summary
__X__ GC/MS Instrument Performance Summary

Sample Data

__X__ Chain of Custody Forms
__X__ Holding Times
__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms
__X__ Mass Spectra Printouts
__NA__ TIC Mass Spectra Library Searches

Initial Calibration Data

__X__ Calibration Summary
__X__ Standards Quantitation Reports
__X__ Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

__*__ Calibration Summary
__X__ Standards Quantitation Reports
__X__ Standards Reconstructed Ion Chromatograms
__*__ Internal Standards Summary

Instrument Performance Data

__X__ DFTPP Mass Spectra
__X__ Reconstructed Ion Chromatogram
__X__ DFTPP Mass Listings

AR302058

Reagent Blank Data

__*__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms
__X__ Mass Spectra Printouts
_NA_ TIC Mass Spectra Library Searches

Matrix Spike Data and Matrix Spike Duplicate Data

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms

Laboratory Control Sample

_NA_ Organic Analysis Data Sheets
_NA_ Quantitation Reports
_NA_ Reconstructed Ion Chromatograms
_NA_ Mass Spectra Printouts
_NA_ TIC Mass Spectra Library Searches

Comments:

AR302059

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

None

Holding Times

Were sample extractions performed within holding times?

Yes No

Were sample analyses performed within holding times?

Yes No

Comments:

Refer to page 12 for sample analysis summary.

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes No

Comments:

None

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes No

Did the continuing calibration meet the minimum RRF criteria?

Yes No

Comments:

Several compounds exceeded the 25% criteria for the continuing calibration percent differences (see page 14). All associated samples, as indicated, should be considered estimated for these compounds (UJ/J).

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes (No)

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes (No) NA

Comments: A surrogate summary was not included in the data package for the water blanks. Recoveries were calculated from the raw data by the reviewer and included in this report as page 6B. Refer to page 6C for a continuation of surrogate comments.

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

(Yes) No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes (No)

Comments: Refer to page 6D for MS/MSD comments.

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes (No)

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No (NA)

Comments: Refer to page 6D for internal standard comments.

Harding Lawson Associates
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SHEET _____ OF _____
JOB NO. 27656, 3.4.2.2
DATE 12/21/94
COMPUTED BY J. Whittle
CHECKED BY _____

PROJECT Kane and Lombard
SUBJECT Data Validation

WATER SEMIVOLATILE SURROGATE RECOVERY

Sample	S1 (NBZ)	S2 (FBP)	S3 (TPH)	S4 (PHL)	S5 (2FP)	S6 (TBP)	S7 (2CP)	S8 (DCB)
BSFB	110	87	110	92	86	97	94	74
BFB	33 D	30 D	38 D	32 D	34 D	24 D	32 D	32 D
RBBS	100	100	95	99	84	105	92	89

Surrogates	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
S8 (DCB) = 1,2-Dichlorobenzene-d4	16-110

* Values outside of contract required QC limits

D Surrogate diluted out

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Environmental Services

SHEET _____ OF _____
JOB NO. 27656, 3.4.2.2
DATE 12/21/94
PROJECT Kane and Lombard
COMPUTED BY J. Whittle
SUBJECT Data Validation
CHECKED BY _____

Surrogate recoveries were low for one base/neutral ① and one acid surrogate in sample BEA7, and for one base/neutral surrogate in sample B10EA3. Since no more than one surrogate per fraction in each sample fell outside QC limits, no qualifiers were necessary. Some recoveries were low, or zero, in samples BFB, WEA7, W10EA7, W10EA7MS, and W10EA7MSD, but these were due to dilution factors and matrix effects. No qualifiers are recommended.

① The recovery of this surrogate was less than 10% and the sample was not reanalyzed by the lab. Qualifying guidelines call for the estimation (J) of detects in the sample and the possible rejection of nondetected base/neutral results. However, all detects are below the detection limit (J), and review of the raw data and QC did not support the need to reject any nondetected results. Therefore, no qualifying action was taken.

MS/MSD analyses were performed on samples WEA7 and BSEA8. The analysis of BSEA8 showed good recoveries, but 13 out of 22 spike recoveries were below QC limits for WEA7. This was due to dilution factors and matrix effects, as was evident with the surrogate recoveries. Since mass tuning and internal standard QC were acceptable, and since sufficient spike recoveries (surrogate, MS/MSD) are available for review, no qualifying action is recommended. The QC do not suggest poor laboratory performance.

All internal standard QC limits were met except for spike sample BSEA8MS, in which the area counts for acenaphthalene-d10 and phenanthrene-d10 were slightly above the upper control limits. This would suggest the possibility of high-bias in the sample results, but since area counts for BSEA8MSD and BSEA8 were within limits, and since surrogate and spike recoveries were good, no qualifying action is recommended.

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were analytes detected in the blanks?

Yes No

If analytes were detected in the blanks, were the same analytes also detected in the associated investigative samples?

Yes No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments: Bis (2-ethylhexyl) phthalate and di-n-butylphthalate were detected in the method blanks and field blanks, as outlined on page 15. Samples were qualified as undetected (U) for these compounds when sample values were less than ~~5~~ 10 times the associated blank contaminant value. MPP 12-20-94

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes No NA

Were the LCS recoveries within acceptable limits?

Yes No NA

Comments:

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were mass spectra provided for the target analytes reported in the investigative samples?

Yes No

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes No

Comments:

Hydrocarbon patterns were evident in the chromtograms, necessitating dilutions done on the basis of BNA screens. No evidences of identification or quantitation errors were found.

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes No NA

Were all non-target peaks evaluated as required?

Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes No

Comments:

TICs were not evaluated.

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes No

Were sample analyses properly documented and performed in accordance with method protocols?

Yes No

Comments:

None

Calculation Checks

Instrument Tuning 11/4/94, 1535

Relative Abundance:

$$RA = \frac{\text{Target Peak Abundance}}{\text{Reference Peak Abundance}} = \frac{m/z\ 199}{m/z\ 198} = \frac{14847}{238549} \times 100 = 6.22\ \%$$

Initial Calibration 11/4/94, 1141 RRF 80 = QDL080BS.D

RRF:

$$\frac{\text{Compound Response}}{\text{Internal Standard Response}} \times \frac{\text{IS Concentration}}{\text{Compound Concentration}} = RRF$$

$$\frac{427672}{122009} \times \frac{40}{80} = 1.753 \text{ for acenaphthylene}$$

%RSD:

$$\frac{\text{Standard Deviation of 5 Response Factors}}{\text{Mean of 5 Response Factors}} \times 100 = \%RSD$$

$$\frac{0.05174}{0.3414} \times 100 = 15.16\% \text{ for hexachlorocyclopentadiene}$$

Continuing Calibration 11/4/94, 1559

RRF: (same as initial calibration)

$$\frac{127244}{314640} \times \frac{40}{50} = 0.324 \text{ for 1,2,4-trichlorobenzene}$$

%D:

$$\frac{\text{Initial RRF} - \text{Continuing RRF}}{\text{Initial Compound RRF}} \times 100 = \%D$$

$$\frac{1.126 - 1.253}{1.126} \times 100 = -11.28\% \text{ for benzo(K)fluoranthene}$$

Surrogate Recovery Sample BEA3

$$\frac{\text{Surrogate Response} \times \text{IS Concentration} \times 100}{\text{IS Response} \times \text{Continuing RRF} \times \text{Surrogate Added}} = \%R$$

$$\frac{113682 \times 40 \times 100}{147486 \times 0.911 \times 100} = 33.84\% \text{ for 1,2-dichlorobenzene-d4}$$

$$\frac{\text{spike concentration}}{\text{spike added}} \times 100 = \frac{2400\ ug/kg}{2900\ ug/kg} \times 100 = 83\%$$

MPP
12/30/94

Matrix Spike Recovery **Sample BSEA8MS**

$$\frac{\text{Spike Response} \times \text{IS Concentration} \times \text{DF} \times \text{Extract Volume}}{\text{IS Response} \times \text{Continuing RRF} \times \%\text{Solids} \times \text{Sample Weight}}$$

$$\frac{85370 \times 40 \times 4 \times 500}{386507 \times 0.426 \times 0.57 \times 30} = 2426\ \mu g/Kg \text{ 2,4-dinitrotoluene}$$

RPD:

$$(\text{MS Recovery} - \text{MSD Recovery}) \div \frac{\text{MS Recovery} + \text{MSD Recovery}}{2} \times 100$$

$$(2426 - 2649) \div (2538) \times 100 = -8.8\% \text{ for 2,4-dinitrotoluene}$$

$$(83 - 90) \div \left(\frac{83+90}{2}\right) \times 100 = -8.1\% \text{ for 2,4-dinitrotoluene}$$

MPP
12/30/94

Sample Results **Sample S10EA8**

CRQL:

$$\frac{\text{Base CRQL} \times \text{Dilution Factor}}{\%\text{Solids}} = \text{Reported CRQL}$$

$$\frac{330 \times 4}{0.61} = 2164 \text{ or } 2200\ \mu g/Kg \text{ for phenol}$$

Detected Result:

$$\frac{\text{Compound Response} \times \text{IS Concentration} \times \text{DF} \times \text{Extract Volume}}{\text{IS Response} \times \text{Continuing RRF} \times \%\text{Solids} \times \text{Sample Weight}}$$

$$\frac{23615 \times 40 \times 4 \times 500}{307708 \times 1.257 \times 0.61 \times 30} = 266.9\ \mu g/Kg \text{ for fluorene}$$

TIC Result

(Not Reported)

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
BSEA4	10/20/94	10/24/94	11/2/94	14 days	40 days	(None)
BSEA9	↓	↓	↓	↓	↓	↓
WSEA4	↓	↓	↓	↓	↓	↓
BEA3	10/21/94	↓	11/4/94	↓	↓	↓
BEA7	↓	↓	↓	↓	↓	↓
B10EA3	↓	↓	↓	↓	↓	↓
WEA7	↓	↓	↓	↓	↓	↓
W10EA7	↓	↓	↓	↓	↓	↓
BSEA8	11/2/94	11/6/94	11/22/94	↓	↓	↓
S10EA8	↓	↓	11/23/94	↓	↓	↓
WSEA8	↓	↓	11/23/94	↓	↓	↓
BSFB	10/20/94	10/25/94	10/31/94	7 days	↓	↓
BFB	10/21/94	10/25/94	11/1/94	↓	↓	↓
RBBS	11/2/94	11/7/94	11/28/94	↓	↓	↓

Comments:

AR302071

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
11/23/94, 0934	P	(None)	—	—	RBBS	(None)
10/17/94, 1204	Q	(None)	—	—	BSEA4, BSEA9, WSEA4	(None)
11/4/94, 1141	Q	(None)	—	—	WEA7, BEA3, BEA7, B10EA3, W10EA7	(None)
9/21/94, 1747	R	(None)	—	—	BSFB, BFB	(None)
11/21/94, 2103	R	(None)	—	—	BSEA8, S10EA8, WSEA8	(None)

Comments:

AR302072

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
11/28/94, 1136	P	2,2'-oxybis (1-CP)	—	-27.2	RBBS	UJ/J
		N-Nitroso-di-n-PA	—	-29.0		
		Hexachloroethane	—	-25.9		
		Hexachlorocyclopenta	—	-43.0		
		2-Nitroaniline	—	-28.0		
11/2/94, 1624	Q	Hexachlorocyclopenta	—	60.5	BSEA4, BSEA9, WSEA4	UJ/J
		2,4-Dinitrophenol	—	47.4		
		Pentachlorophenol	—	32.5		
11/4/94, 1559	Q	(None)	—	—	WEA7, BEA3, BEA7, B10EA3, W10EA7	(None)
10/31/94, 0914	R	Hexachlorocyclopenta	—	32.5	BSFB	UJ/J
11/1/94, 0814	R	Hexachlorocyclopenta	—	33.4	BFB	UJ/J
		2,4-Dinitrophenol	—	27.2		
11/22/94, 1524	R	(None)	—	—	BSEA8, S10EA8, WSEA8	(None)

Comments:

AR302073

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples
SBLK7W	bis(2-ethylhexyl)phthalate	77 µg/Kg	770 µg/Kg	BSEA4, BSEA9, WSEA4, WEA7, BEA3, BEA7, B10EA3, W10EA7
SBLK6I	bis(2-ethylhexyl)phthalate	6 µg/l	60 µg/l	BSFB, BFB
SBLK9G	Di-n-butylphthalate	60 µg/Kg	600 µg/Kg	BSEA8, S10EA8, WSEA8
SBLK7J	bis(2-ethylhexyl)phthalate	4 µg/l	40 µg/l	RBBS
BSFB	bis(2-ethylhexyl)phthalate	19 µg/l*	190 µg/l	BSEA9, WSEA4, BSEA4
RBBS	bis(2-ethylhexyl)phthalate	5 µg/l	50 µg/l	BSEA8, WSEA8, S10EA8
BFB	bis(2-ethylhexyl)phthalate	65 µg/l*	650 µg/l	BEA3, B10EA3, BEA7, WEA7, W10EA7

Comments: * Blank results have been adjusted to reflect a sample volume of 1L and a dilution factor of 1.0 for comparison purposes with the investigative samples. MPP 12/30/94

AR302074

Summary and Conclusions

All necessary data were present for a full validation of this multi-concentration semivolatile analysis, and all holding times were met. Instrument performance and initial calibrations met required quality control criteria. Internal standard, surrogate, and MS/MSD results exceeded control criteria in some cases, but data qualification was not necessary. Calculation checks and data review did not show any errors in compound identification or quantitation. Sample values were correctly adjusted for sample volume, dilution factors, and moisture content.

Qualification of the samples was necessary on the basis of continuing calibration percent differences exceeding the 25% control limit. The compounds involved (see page 14) were qualified as estimated (UJ/J) in the associated samples.

Qualification of the sample data was also necessary on the basis of method blank contamination (see page 15). Sample results less than 10 times the blank contamination values were qualified as undetected (U). Qualifications were also made on the same basis by the field blanks, using the highest contaminant values between the method and field blanks.

Validator's Signature: Joyce E. Whittle	
Validator's Initials: JW	Validation Date: 12/23/94
QC Reviewer's Signature: Michael P. Phillips	
QC Reviewer's Initials MPP	Review Date: 12/30/94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA4

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238829

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238829S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 22 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/02/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	420	U
111-44-4	bis(-2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-oxybis(1-Chloropropane)	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-Methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U J
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	96	J

VALIDATED
Reviewed By Joyce L. Whittle
Date 12/22/94

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA4

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238829

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238829S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 22 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/02/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
51-28-5	2,4-Dinitrophenol	1000	U	J
100-02-7	4-Nitrophenol	1000	U	
132-64-9	Dibenzofuran	69	J	
121-14-2	2,4-Dinitrotoluene	420	U	
84-66-2	Diethylphthalate	420	U	
7005-72-3	4-Chlorophenyl-phenylether	420	U	
86-73-7	Fluorene	160	J	
100-01-6	4-Nitroaniline	1000	U	
534-52-1	4,6-Dinitro-2-methylphenol	1000	U	
86-30-6	N-nitrosodiphenylamine (1)	420	U	
101-55-3	4-Bromophenyl-phenylether	420	U	
118-74-1	Hexachlorobenzene	420	U	
87-86-5	Pentachlorophenol	1000	U	J
85-01-8	Phenanthrene	1600		
120-12-7	Anthracene	240	J	
86-74-8	Carbazole	180	J	
84-74-2	Di-n-butylphthalate	420	U	
206-44-0	Fluoranthene	2400		
129-00-0	Pyrene	1100		
85-68-7	Butylbenzylphthalate	41	J	
91-94-1	3,3'-Dichlorobenzidine	420	U	
56-55-3	Benzo(a)anthracene	1000		
218-01-9	Chrysene	1200		
117-81-7	bis(2-Ethylhexyl)phthalate	520	~~B~~	U
117-84-0	Di-n-octylphthalate	420	U	
205-99-2	Benzo(b)fluoranthene	1100		
207-08-9	Benzo(k)fluoranthene	1100		
50-32-8	Benzo(a)pyrene	320	J	
193-39-5	Indeno(1,2,3-cd)pyrene	330	J	
53-70-3	Dibenz(a,h)anthracene	270	J	
191-24-2	Benzo(g,h,i)perylene	420	U	

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA9

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238830

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238830S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 6 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/02/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(-2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	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
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U J
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	850	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	850	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	850	U
83-32-9	Acenaphthene	350	U

VALIDATED
Reviewed By Joyce E. Whittle
Date 12/22/94

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA9

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238830

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238830S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 6 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/02/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	850	U J
100-02-7	4-Nitrophenol	850	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	850	U
534-52-1	4,6-Dinitro-2-methylphenol	850	U
86-30-6	N-nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	850	U J
85-01-8	Phenanthrene	27	J
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-butylphthalate	350	U
206-44-0	Fluoranthene	53	J
129-00-0	Pyrene	36	J
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)anthracene	36	J
218-01-9	Chrysene	59	J
117-81-7	bis(2-Ethylhexyl)phthalate	350 ~~120~~	~~JB~~ U
117-84-0	Di-n-octylphthalate	350	U
205-99-2	Benzo(b)fluoranthene	44	J
207-08-9	Benzo(k)fluoranthene	44	J
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

FORM I SV-2 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSFB

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 238831

Sample wt/vol: 484 (g/mL) ML Lab File ID: R238831S.D

Level: (low/med) LOW Date Received: 10/21/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/25/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 10/31/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
108-95-2	Phenol	21	U	
111-44-4	bis(-2-Chloroethyl)Ether	21	U	
95-57-8	2-Chlorophenol	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	
95-48-7	2-Methylphenol	21	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	21	U	
106-44-5	4-Methylphenol	21	U	
621-64-7	N-Nitroso-di-n-propylamine	21	U	
67-72-1	Hexachloroethane	21	U	
98-95-3	Nitrobenzene	21	U	
78-59-1	Isophorone	21	U	
88-75-5	2-Nitrophenol	21	U	
105-67-9	2,4-Dimethylphenol	21	U	
111-91-1	bis(2-Chloroethoxy)methane	21	U	
120-83-2	2,4-Dichlorophenol	21	U	
120-82-1	1,2,4-Trichlorobenzene	21	U	
91-20-3	Naphthalene	21	U	
106-47-8	4-Chloroaniline	21	U	
87-68-3	Hexachlorobutadiene	21	U	
59-50-7	4-Chloro-3-Methylphenol	21	U	
91-57-6	2-Methylnaphthalene	21	U	
77-47-4	Hexachlorocyclopentadiene	21	U	J
88-06-2	2,4,6-Trichlorophenol	21	U	
95-95-4	2,4,5-Trichlorophenol	52	U	
91-58-7	2-Chloronaphthalene	21	U	
88-74-4	2-Nitroaniline	52	U	
131-11-3	Dimethylphthalate	21	U	
208-96-8	Acenaphthylene	21	U	
606-20-2	2,6-Dinitrotoluene	21	U	
99-09-2	3-Nitroaniline	52	U	
83-32-9	Acenaphthene	21	U	

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSFB

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 238831

Sample wt/vol: 484 (g/mL) ML Lab File ID: R238831S.D

Level: (low/med) LOW Date Received: 10/21/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/25/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 10/31/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	52	U
100-02-7	4-Nitrophenol	52	U
132-64-9	Dibenzofuran	21	U
121-14-2	2,4-Dinitrotoluene	21	U
84-66-2	Diethylphthalate	21	U
7005-72-3	4-Chlorophenyl-phenylether	21	U
86-73-7	Fluorene	21	U
100-01-6	4-Nitroaniline	52	U
534-52-1	4,6-Dinitro-2-methylphenol	52	U
86-30-6	N-nitrosodiphenylamine (1)	21	U
101-55-3	4-Bromophenyl-phenylether	21	U
118-74-1	Hexachlorobenzene	21	U
87-86-5	Pentachlorophenol	52	U
85-01-8	Phenanthrene	21	U
120-12-7	Anthracene	21	U
86-74-8	Carbazole	21	U
84-74-2	Di-n-butylphthalate	21	U
206-44-0	Fluoranthene	21	U
129-00-0	Pyrene	21	U
85-68-7	Butylbenzylphthalate	21	U
91-94-1	3,3'-Dichlorobenzidine	21	U
56-55-3	Benzo(a)anthracene	21	U
218-01-9	Chrysene	21	U
117-81-7	bis(2-Ethylhexyl)phthalate	39	~~B~~ U
117-84-0	Di-n-octylphthalate	21	U
205-99-2	Benzo(b)fluoranthene	21	U
207-08-9	Benzo(k)fluoranthene	21	U
50-32-8	Benzo(a)pyrene	21	U
193-39-5	Indeno(1,2,3-cd)pyrene	21	U
53-70-3	Dibenz(a,h)anthracene	21	U
191-24-2	Benzo(g,h,i)perylene	21	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

000893

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

AR302081

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA4

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238833

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238833S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/02/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(-2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-Methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U J
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	870	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	870	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	870	U
83-32-9	Acenaphthene	37	J

VALIDATED

Reviewed By Joyce S. Whittle

Date 12/22/94

000898

AR302082

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA4

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238833

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238833S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/02/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
51-28-5	2,4-Dinitrophenol	870	U	J
100-02-7	4-Nitrophenol	870	U	
132-64-9	Dibenzofuran	24	J	
121-14-2	2,4-Dinitrotoluene	360	U	
84-66-2	Diethylphthalate	360	U	
7005-72-3	4-Chlorophenyl-phenylether	360	U	
86-73-7	Fluorene	61	J	
100-01-6	4-Nitroaniline	870	U	
534-52-1	4,6-Dinitro-2-methylphenol	870	U	
86-30-6	N-nitrosodiphenylamine (1)	360	U	
101-55-3	4-Bromophenyl-phenylether	360	U	
118-74-1	Hexachlorobenzene	360	U	
87-86-5	Pentachlorophenol	870	U	J
85-01-8	Phenanthrene	1100		
120-12-7	Anthracene	190	J	
86-74-8	Carbazole	77	J	
84-74-2	Di-n-butylphthalate	47	J	
206-44-0	Fluoranthene	2000		
129-00-0	Pyrene	560		
85-68-7	Butylbenzylphthalate	91	J	
91-94-1	3,3'-Dichlorobenzidine	360	U	
56-55-3	Benzo(a)anthracene	1000		
218-01-9	Chrysene	1100		
117-81-7	bis(2-Ethylhexyl)phthalate	360 ~~250~~	~~JB~~	U
117-84-0	Di-n-octylphthalate	87	J	
205-99-2	Benzo(b)fluoranthene	1100		
207-08-9	Benzo(k)fluoranthene	1200		
50-32-8	Benzo(a)pyrene	160	J	
193-39-5	Indeno(1,2,3-cd)pyrene	120	J	
53-70-3	Dibenz(a,h)anthracene	180	J	
191-24-2	Benzo(g,h,i)perylene	360	U	

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

C00899

AR302083

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA3

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238909

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238909I2S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 42 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	570	U
111-44-4	bis(-2-Chloroethyl)Ether	570	U
95-57-8	2-Chlorophenol	570	U
541-73-1	1,3-Dichlorobenzene	570	U
106-46-7	1,4-Dichlorobenzene	570	U
95-50-1	1,2-Dichlorobenzene	570	U
95-48-7	2-Methylphenol	570	U
108-60-1	2,2'-oxybis(1-Chloropropane)	570	U
106-44-5	4-Methylphenol	570	U
621-64-7	N-Nitroso-di-n-propylamine	570	U
67-72-1	Hexachloroethane	570	U
98-95-3	Nitrobenzene	570	U
78-59-1	Isophorone	570	U
88-75-5	2-Nitrophenol	570	U
105-67-9	2,4-Dimethylphenol	570	U
111-91-1	bis(2-Chloroethoxy)methane	570	U
120-83-2	2,4-Dichlorophenol	570	U
120-82-1	1,2,4-Trichlorobenzene	570	U
91-20-3	Naphthalene	570	U
106-47-8	4-Chloroaniline	570	U
87-68-3	Hexachlorobutadiene	570	U
59-50-7	4-Chloro-3-Methylphenol	570	U
91-57-6	2-Methylnaphthalene	46	J
77-47-4	Hexachlorocyclopentadiene	570	U
88-06-2	2,4,6-Trichlorophenol	570	U
95-95-4	2,4,5-Trichlorophenol	1400	U
91-58-7	2-Chloronaphthalene	570	U
88-74-4	2-Nitroaniline	1400	U
131-11-3	Dimethylphthalate	570	U
208-96-8	Acenaphthylene	49	J
606-20-2	2,6-Dinitrotoluene	570	U
99-09-2	3-Nitroaniline	1400	U
83-32-9	Acenaphthene	29	J

FORM I SV-1 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA3

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238909

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238909I2S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 42 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1400	U
100-02-7	4-Nitrophenol	1400	U
132-64-9	Dibenzofuran	32	J
121-14-2	2,4-Dinitrotoluene	570	U
84-66-2	Diethylphthalate	570	U
7005-72-3	4-Chlorophenyl-phenylether	570	U
86-73-7	Fluorene	35	J
100-01-6	4-Nitroaniline	1400	U
534-52-1	4,6-Dinitro-2-methylphenol	1400	U
86-30-6	N-nitrosodiphenylamine (1)	570	U
101-55-3	4-Bromophenyl-phenylether	570	U
118-74-1	Hexachlorobenzene	570	U
87-86-5	Pentachlorophenol	1400	U
85-01-8	Phenanthrene	250	J
120-12-7	Anthracene	90	J
86-74-8	Carbazole	47	J
84-74-2	Di-n-butylphthalate	34	J
206-44-0	Fluoranthene	530	J
129-00-0	Pyrene	160	J
85-68-7	Butylbenzylphthalate	190	J
91-94-1	3,3'-Dichlorobenzidine	570	U
56-55-3	Benzo(a)anthracene	330	J
218-01-9	Chrysene	310	J
117-81-7	bis(2-Ethylhexyl)phthalate	600	~~B~~ U
117-84-0	Di-n-octylphthalate	570	U
205-99-2	Benzo(b)fluoranthene	360	J
207-08-9	Benzo(k)fluoranthene	200	J
50-32-8	Benzo(a)pyrene	570	U
193-39-5	Indeno(1,2,3-cd)pyrene	53	J
53-70-3	Dibenz(a,h)anthracene	570	U
191-24-2	Benzo(g,h,i)perylene	570	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

000924

AR302085

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA7

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238910

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238910I2S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 45 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	600	U
111-44-4	bis(-2-Chloroethyl)Ether	600	U
95-57-8	2-Chlorophenol	600	U
541-73-1	1,3-Dichlorobenzene	600	U
106-46-7	1,4-Dichlorobenzene	600	U
95-50-1	1,2-Dichlorobenzene	600	U
95-48-7	2-Methylphenol	600	U
108-60-1	2,2'-oxybis(1-Chloropropane)	600	U
106-44-5	4-Methylphenol	600	U
621-64-7	N-Nitroso-di-n-propylamine	600	U
67-72-1	Hexachloroethane	600	U
98-95-3	Nitrobenzene	600	U
78-59-1	Isophorone	600	U
88-75-5	2-Nitrophenol	600	U
105-67-9	2,4-Dimethylphenol	600	U
111-91-1	bis(2-Chloroethoxy)methane	600	U
120-83-2	2,4-Dichlorophenol	600	U
120-82-1	1,2,4-Trichlorobenzene	600	U
91-20-3	Naphthalene	600	U
106-47-8	4-Chloroaniline	600	U
87-68-3	Hexachlorobutadiene	600	U
59-50-7	4-Chloro-3-Methylphenol	600	U
91-57-6	2-Methylnaphthalene	600	U
77-47-4	Hexachlorocyclopentadiene	600	U
88-06-2	2,4,6-Trichlorophenol	600	U
95-95-4	2,4,5-Trichlorophenol	1400	U
91-58-7	2-Chloronaphthalene	600	U
88-74-4	2-Nitroaniline	1400	U
131-11-3	Dimethylphthalate	600	U
208-96-8	Acenaphthylene	36	J
606-20-2	2,6-Dinitrotoluene	600	U
99-09-2	3-Nitroaniline	1400	U
83-32-9	Acenaphthene	600	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA7

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238910

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238910I2S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 45 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1400	U
100-02-7	4-Nitrophenol	1400	U
132-64-9	Dibenzofuran	600	U
121-14-2	2,4-Dinitrotoluene	600	U
84-66-2	Diethylphthalate	600	U
7005-72-3	4-Chlorophenyl-phenylether	600	U
86-73-7	Fluorene	600	U
100-01-6	4-Nitroaniline	1400	U
534-52-1	4,6-Dinitro-2-methylphenol	1400	U
86-30-6	N-nitrosodiphenylamine (1)	600	U
101-55-3	4-Bromophenyl-phenylether	600	U
118-74-1	Hexachlorobenzene	600	U
87-86-5	Pentachlorophenol	1400	U
85-01-8	Phenanthrene	85	J
120-12-7	Anthracene	600	U
86-74-8	Carbazole	600	U
84-74-2	Di-n-butylphthalate	100	J
206-44-0	Fluoranthene	170	J
129-00-0	Pyrene	600	U
85-68-7	Butylbenzylphthalate	350	J
91-94-1	3,3'-Dichlorobenzidine	600	U
56-55-3	Benzo(a)anthracene	160	J
218-01-9	Chrysene	96	J
117-81-7	bis(2-Ethylhexyl)phthalate	4100	~~B~~ U
117-84-0	Di-n-octylphthalate	600	U
205-99-2	Benzo(b)fluoranthene	600	U
207-08-9	Benzo(k)fluoranthene	600	U
50-32-8	Benzo(a)pyrene	600	U
193-39-5	Indeno(1,2,3-cd)pyrene	600	U
53-70-3	Dibenz(a,h)anthracene	600	U
191-24-2	Benzo(g,h,i)perylene	600	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

000947

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

AR302087

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10EA3

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238911

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238911I3S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 39 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	540	U
111-44-4	bis(-2-Chloroethyl)Ether	540	U
95-57-8	2-Chlorophenol	540	U
541-73-1	1,3-Dichlorobenzene	540	U
106-46-7	1,4-Dichlorobenzene	540	U
95-50-1	1,2-Dichlorobenzene	540	U
95-48-7	2-Methylphenol	540	U
108-60-1	2,2'-oxybis(1-Chloropropane)	540	U
106-44-5	4-Methylphenol	540	U
621-64-7	N-Nitroso-di-n-propylamine	540	U
67-72-1	Hexachloroethane	540	U
98-95-3	Nitrobenzene	540	U
78-59-1	Isophorone	540	U
88-75-5	2-Nitrophenol	540	U
105-67-9	2,4-Dimethylphenol	540	U
111-91-1	bis(2-Chloroethoxy)methane	540	U
120-83-2	2,4-Dichlorophenol	540	U
120-82-1	1,2,4-Trichlorobenzene	540	U
91-20-3	Naphthalene	540	U
106-47-8	4-Chloroaniline	540	U
87-68-3	Hexachlorobutadiene	540	U
59-50-7	4-Chloro-3-Methylphenol	540	U
91-57-6	2-Methylnaphthalene	36	J
77-47-4	Hexachlorocyclopentadiene	540	U
88-06-2	2,4,6-Trichlorophenol	540	U
95-95-4	2,4,5-Trichlorophenol	1300	U
91-58-7	2-Chloronaphthalene	540	U
88-74-4	2-Nitroaniline	1300	U
131-11-3	Dimethylphthalate	540	U
208-96-8	Acenaphthylene	45	J
606-20-2	2,6-Dinitrotoluene	540	U
99-09-2	3-Nitroaniline	1300	U
83-32-9	Acenaphthene	540	U

VALIDATED

Reviewed By Joyce E. Whittle 11/22/94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10EA3

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238911

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238911I3S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 39 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1300	U
100-02-7	4-Nitrophenol	1300	U
132-64-9	Dibenzofuran	540	U
121-14-2	2,4-Dinitrotoluene	540	U
84-66-2	Diethylphthalate	540	U
7005-72-3	4-Chlorophenyl-phenylether	540	U
86-73-7	Fluorene	540	U
100-01-6	4-Nitroaniline	1300	U
534-52-1	4,6-Dinitro-2-methylphenol	1300	U
86-30-6	N-nitrosodiphenylamine (1)	540	U
101-55-3	4-Bromophenyl-phenylether	540	U
118-74-1	Hexachlorobenzene	540	U
87-86-5	Pentachlorophenol	1300	U
85-01-8	Phenanthrene	88	J
120-12-7	Anthracene	64	J
86-74-8	Carbazole	34	J
84-74-2	Di-n-butylphthalate	31	J
206-44-0	Fluoranthene	210	J
129-00-0	Pyrene	37	J
85-68-7	Butylbenzylphthalate	110	J
91-94-1	3,3'-Dichlorobenzidine	540	U
56-55-3	Benzo(a)anthracene	140	J
218-01-9	Chrysene	120	J
117-81-7	bis(2-Ethylhexyl)phthalate	540 ~~520~~	~~JB~~ U
117-84-0	Di-n-octylphthalate	540	U
205-99-2	Benzo(b)fluoranthene	540	U
207-08-9	Benzo(k)fluoranthene	540	U
50-32-8	Benzo(a)pyrene	540	U
193-39-5	Indeno(1,2,3-cd)pyrene	540	U
53-70-3	Dibenz(a,h)anthracene	540	U
191-24-2	Benzo(g,h,i)perylene	540	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

000961

AR302089

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFB

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 238912

Sample wt/vol: 502 (g/mL) ML Lab File ID: R238912DS.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/25/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/01/94

Injection Volume: 2.0(uL) Dilution Factor: 2.9

GPC Cleanup: (Y/N) N pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	57	U
111-44-4	bis(-2-Chloroethyl)Ether	57	U
95-57-8	2-Chlorophenol	57	U
541-73-1	1,3-Dichlorobenzene	57	U
106-46-7	1,4-Dichlorobenzene	57	U
95-50-1	1,2-Dichlorobenzene	57	U
95-48-7	2-Methylphenol	57	U
108-60-1	2,2'-oxybis(1-Chloropropane)	57	U
106-44-5	4-Methylphenol	57	U
621-64-7	N-Nitroso-di-n-propylamine	57	U
67-72-1	Hexachloroethane	57	U
98-95-3	Nitrobenzene	57	U
78-59-1	Isophorone	57	U
88-75-5	2-Nitrophenol	57	U
105-67-9	2,4-Dimethylphenol	57	U
111-91-1	bis(2-Chloroethoxy)methane	57	U
120-83-2	2,4-Dichlorophenol	57	U
120-82-1	1,2,4-Trichlorobenzene	57	U
91-20-3	Naphthalene	57	U
106-47-8	4-Chloroaniline	57	U
87-68-3	Hexachlorobutadiene	57	U
59-50-7	4-Chloro-3-Methylphenol	57	U
91-57-6	2-Methylnaphthalene	57	U
77-47-4	Hexachlorocyclopentadiene	57	U J
88-06-2	2,4,6-Trichlorophenol	57	U
95-95-4	2,4,5-Trichlorophenol	140	U
91-58-7	2-Chloronaphthalene	57	U
88-74-4	2-Nitroaniline	140	U
131-11-3	Dimethylphthalate	57	U
208-96-8	Acenaphthylene	57	U
606-20-2	2,6-Dinitrotoluene	57	U
99-09-2	3-Nitroaniline	140	U
83-32-9	Acenaphthene	57	U

FORM I SV-1 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

000975

AR302090

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFB

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 238912

Sample wt/vol: 502 (g/mL) ML Lab File ID: R238912DS.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/25/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/01/94

Injection Volume: 2.0(uL) Dilution Factor: 2.9

GPC Cleanup: (Y/N) N pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
51-28-5	2,4-Dinitrophenol	140	U	J
100-02-7	4-Nitrophenol	140	U	
132-64-9	Dibenzofuran	57	U	
121-14-2	2,4-Dinitrotoluene	57	U	
84-66-2	Diethylphthalate	57	U	
7005-72-3	4-Chlorophenyl-phenylether	57	U	
86-73-7	Fluorene	57	U	
100-01-6	4-Nitroaniline	140	U	
534-52-1	4,6-Dinitro-2-methylphenol	140	U	
86-30-6	N-nitrosodiphenylamine (1)	57	U	
101-55-3	4-Bromophenyl-phenylether	57	U	
118-74-1	Hexachlorobenzene	57	U	
87-86-5	Pentachlorophenol	140	U	
85-01-8	Phenanthrene	57	U	
120-12-7	Anthracene	57	U	
86-74-8	Carbazole	57	U	
84-74-2	Di-n-butylphthalate	57	U	
206-44-0	Fluoranthene	57	U	
129-00-0	Pyrene	57	U	
85-68-7	Butylbenzylphthalate	57	U	
91-94-1	3,3'-Dichlorobenzidine	57	U	
56-55-3	Benzo(a)anthracene	57	U	
218-01-9	Chrysene	57	U	
117-81-7	bis(2-Ethylhexyl)phthalate	370	~~B~~	U
117-84-0	Di-n-octylphthalate	57	U	
205-99-2	Benzo(b)fluoranthene	57	U	
207-08-9	Benzo(k)fluoranthene	57	U	
50-32-8	Benzo(a)pyrene	57	U	
193-39-5	Indeno(1,2,3-cd)pyrene	57	U	
53-70-3	Dibenz(a,h)anthracene	57	U	
191-24-2	Benzo(g,h,i)perylene	57	U	

(1) - Cannot be separated from Diphenylamine

FORM I SV-2

C00979

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

AR302091

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WEA7

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238914

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238914D2S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 44 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	2400	U
111-44-4	bis(-2-Chloroethyl)Ether	2400	U
95-57-8	2-Chlorophenol	2400	U
541-73-1	1,3-Dichlorobenzene	2400	U
106-46-7	1,4-Dichlorobenzene	2400	U
95-50-1	1,2-Dichlorobenzene	2400	U
95-48-7	2-Methylphenol	2400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	2400	U
106-44-5	4-Methylphenol	2400	U
621-64-7	N-Nitroso-di-n-propylamine	2400	U
67-72-1	Hexachloroethane	2400	U
98-95-3	Nitrobenzene	2400	U
78-59-1	Isophorone	2400	U
88-75-5	2-Nitrophenol	2400	U
105-67-9	2,4-Dimethylphenol	2400	U
111-91-1	bis(2-Chloroethoxy)methane	2400	U
120-83-2	2,4-Dichlorophenol	2400	U
120-82-1	1,2,4-Trichlorobenzene	2400	U
91-20-3	Naphthalene	2400	U
106-47-8	4-Chloroaniline	2400	U
87-68-3	Hexachlorobutadiene	2400	U
59-50-7	4-Chloro-3-Methylphenol	2400	U
91-57-6	2-Methylnaphthalene	2400	U
77-47-4	Hexachlorocyclopentadiene	2400	U
88-06-2	2,4,6-Trichlorophenol	2400	U
95-95-4	2,4,5-Trichlorophenol	5700	U
91-58-7	2-Chloronaphthalene	2400	U
88-74-4	2-Nitroaniline	5700	U
131-11-3	Dimethylphthalate	2400	U
208-96-8	Acenaphthylene	2400	U
606-20-2	2,6-Dinitrotoluene	2400	U
99-09-2	3-Nitroaniline	5700	U
83-32-9	Acenaphthene	2400	U

VALIDATED 000955

Reviewed By Joyce E. Whittle

Date 12/24/94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WEA7

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238914

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238914D2S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 44 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	5700	U
100-02-7	4-Nitrophenol	5700	U
132-64-9	Dibenzofuran	2400	U
121-14-2	2,4-Dinitrotoluene	2400	U
84-66-2	Diethylphthalate	2400	U
7005-72-3	4-Chlorophenyl-phenylether	2400	U
86-73-7	Fluorene	2400	U
100-01-6	4-Nitroaniline	5700	U
534-52-1	4,6-Dinitro-2-methylphenol	5700	U
86-30-6	N-nitrosodiphenylamine (1)	2400	U
101-55-3	4-Bromophenyl-phenylether	2400	U
118-74-1	Hexachlorobenzene	2400	U
87-86-5	Pentachlorophenol	5700	U
85-01-8	Phenanthrene	2400	U
120-12-7	Anthracene	2400	U
86-74-8	Carbazole	2400	U
84-74-2	Di-n-butylphthalate	2400	U
206-44-0	Fluoranthene	2400	U
129-00-0	Pyrene	2400	U
85-68-7	Butylbenzylphthalate	230	J
91-94-1	3,3'-Dichlorobenzidine	2400	U
56-55-3	Benzo(a)anthracene	2400	U
218-01-9	Chrysene	2400	U
117-81-7	bis(2-Ethylhexyl)phthalate	4800	~~B~~ U
117-84-0	Di-n-octylphthalate	2400	U
205-99-2	Benzo(b)fluoranthene	2400	U
207-08-9	Benzo(k)fluoranthene	2400	U
50-32-8	Benzo(a)pyrene	2400	U
193-39-5	Indeno(1,2,3-cd)pyrene	2400	U
53-70-3	Dibenz(a,h)anthracene	2400	U
191-24-2	Benzo(g,h,i)perylene	2400	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

VALIDATED 000955

Reviewed By Joyce E. Whittle

Date 12/21/94

AR302093

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W10EA7

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238915

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238915D2S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 41 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1100	U
111-44-4	bis(-2-Chloroethyl)Ether	1100	U
95-57-8	2-Chlorophenol	1100	U
541-73-1	1,3-Dichlorobenzene	1100	U
106-46-7	1,4-Dichlorobenzene	1100	U
95-50-1	1,2-Dichlorobenzene	1100	U
95-48-7	2-Methylphenol	1100	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1100	U
106-44-5	4-Methylphenol	1100	U
621-64-7	N-Nitroso-di-n-propylamine	1100	U
67-72-1	Hexachloroethane	1100	U
98-95-3	Nitrobenzene	1100	U
78-59-1	Isophorone	1100	U
88-75-5	2-Nitrophenol	1100	U
105-67-9	2,4-Dimethylphenol	1100	U
111-91-1	bis(2-Chloroethoxy)methane	1100	U
120-83-2	2,4-Dichlorophenol	1100	U
120-82-1	1,2,4-Trichlorobenzene	1100	U
91-20-3	Naphthalene	1100	U
106-47-8	4-Chloroaniline	1100	U
87-68-3	Hexachlorobutadiene	1100	U
59-50-7	4-Chloro-3-Methylphenol	1100	U
91-57-6	2-Methylnaphthalene	1100	U
77-47-4	Hexachlorocyclopentadiene	1100	U
88-06-2	2,4,6-Trichlorophenol	1100	U
95-95-4	2,4,5-Trichlorophenol	2700	U
91-58-7	2-Chloronaphthalene	1100	U
88-74-4	2-Nitroaniline	2700	U
131-11-3	Dimethylphthalate	1100	U
208-96-8	Acenaphthylene	1100	U
606-20-2	2,6-Dinitrotoluene	1100	U
99-09-2	3-Nitroaniline	2700	U
83-32-9	Acenaphthene	1100	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

000993
AR302094

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W10EA7

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238915

Sample wt/vol: 30.0 (g/mL) G Lab File ID: Q238915D2S.D

Level: (low/med) LOW Date Received: 10/22/94

% Moisture: 41 decanted: (Y/N) N Date Extracted: 10/24/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/04/94

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	2700	U
100-02-7	4-Nitrophenol	2700	U
132-64-9	Dibenzofuran	1100	U
121-14-2	2,4-Dinitrotoluene	1100	U
84-66-2	Diethylphthalate	1100	U
7005-72-3	4-Chlorophenyl-phenylether	1100	U
86-73-7	Fluorene	1100	U
100-01-6	4-Nitroaniline	2700	U
534-52-1	4,6-Dinitro-2-methylphenol	2700	U
86-30-6	N-nitrosodiphenylamine (1)	1100	U
101-55-3	4-Bromophenyl-phenylether	1100	U
118-74-1	Hexachlorobenzene	1100	U
87-86-5	Pentachlorophenol	2700	U
85-01-8	Phenanthrene	1100	U
120-12-7	Anthracene	1100	U
86-74-8	Carbazole	1100	U
84-74-2	Di-n-butylphthalate	1100	U
206-44-0	Fluoranthene	1100	U
129-00-0	Pyrene	1100	U
85-68-7	Butylbenzylphthalate	120	J
91-94-1	3,3'-Dichlorobenzidine	1100	U
56-55-3	Benzo(a)anthracene	1100	U
218-01-9	Chrysene	1100	U
117-81-7	bis(2-Ethylhexyl)phthalate	2200	~~B~~ U
117-84-0	Di-n-octylphthalate	1100	U
205-99-2	Benzo(b)fluoranthene	1100	U
207-08-9	Benzo(k)fluoranthene	1100	U
50-32-8	Benzo(a)pyrene	1100	U
193-39-5	Indeno(1,2,3-cd)pyrene	1100	U
53-70-3	Dibenz(a,h)anthracene	1100	U
191-24-2	Benzo(g,h,i)perylene	1100	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

VALIDATED 000994

Reviewed By Joyce E. Whitt

Date 12/22/94

AR302095

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240142

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R240142DS.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: 43 decanted: (Y/N) N Date Extracted: 11/06/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/22/94

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1200	U
111-44-4	bis(-2-Chloroethyl)Ether	1200	U
95-57-8	2-Chlorophenol	1200	U
541-73-1	1,3-Dichlorobenzene	1200	U
106-46-7	1,4-Dichlorobenzene	1200	U
95-50-1	1,2-Dichlorobenzene	1200	U
95-48-7	2-Methylphenol	1200	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1200	U
106-44-5	4-Methylphenol	150	J
621-64-7	N-Nitroso-di-n-propylamine	1200	U
67-72-1	Hexachloroethane	1200	U
98-95-3	Nitrobenzene	1200	U
78-59-1	Isophorone	1200	U
88-75-5	2-Nitrophenol	1200	U
105-67-9	2,4-Dimethylphenol	1200	U
111-91-1	bis(2-Chloroethoxy)methane	1200	U
120-83-2	2,4-Dichlorophenol	1200	U
120-82-1	1,2,4-Trichlorobenzene	1200	U
91-20-3	Naphthalene	630	J
106-47-8	4-Chloroaniline	1200	U
87-68-3	Hexachlorobutadiene	1200	U
59-50-7	4-Chloro-3-Methylphenol	1200	U
91-57-6	2-Methylnaphthalene	1000	J
77-47-4	Hexachlorocyclopentadiene	1200	U
88-06-2	2,4,6-Trichlorophenol	1200	U
95-95-4	2,4,5-Trichlorophenol	2800	U
91-58-7	2-Chloronaphthalene	1200	U
88-74-4	2-Nitroaniline	2800	U
131-11-3	Dimethylphthalate	1200	U
208-96-8	Acenaphthylene	260	J
606-20-2	2,6-Dinitrotoluene	1200	U
99-09-2	3-Nitroaniline	2800	U
83-32-9	Acenaphthene	100	J

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

CC1002
AR302096

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240142

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R240142DS.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: 43 decanted: (Y/N) N Date Extracted: 11/06/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/22/94

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	2800	U
100-02-7	4-Nitrophenol	2800	U
132-64-9	Dibenzofuran	600	J
121-14-2	2,4-Dinitrotoluene	1200	U
84-66-2	Diethylphthalate	1200	U
7005-72-3	4-Chlorophenyl-phenylether	1200	U
86-73-7	Fluorene	290	J
100-01-6	4-Nitroaniline	2800	U
534-52-1	4,6-Dinitro-2-methylphenol	2800	U
86-30-6	N-nitrosodiphenylamine (1)	1200	U
101-55-3	4-Bromophenyl-phenylether	1200	U
118-74-1	Hexachlorobenzene	1200	U
87-86-5	Pentachlorophenol	2800	U
85-01-8	Phenanthrene	1500	
120-12-7	Anthracene	650	J
86-74-8	Carbazole	420	J
84-74-2	Di-n-butylphthalate	1200 ~~150~~	~~JB~~ U
206-44-0	Fluoranthene	2200	
129-00-0	Pyrene	2500	
85-68-7	Butylbenzylphthalate	1200	U
91-94-1	3,3'-Dichlorobenzidine	1200	U
56-55-3	Benzo(a)anthracene	1200	U
218-01-9	Chrysene	3100	
117-81-7	bis(2-Ethylhexyl)phthalate	1200 ~~1100~~	~~J~~ U
117-84-0	Di-n-octylphthalate	1200	U
205-99-2	Benzo(b)fluoranthene	2100	
207-08-9	Benzo(k)fluoranthene	1600	
50-32-8	Benzo(a)pyrene	2900	
193-39-5	Indeno(1,2,3-cd)pyrene	1100	J
53-70-3	Dibenz(a,h)anthracene	1200	U
191-24-2	Benzo(g,h,i)perylene	670	J

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/24/94

C01003

AR302097

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S10EA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240143

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R240143DS.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: 39 decanted: (Y/N) N Date Extracted: 11/06/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/23/94

Injection Volume: 2.0(uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	2200	U
111-44-4	bis(-2-Chloroethyl)Ether	2200	U
95-57-8	2-Chlorophenol	2200	U
541-73-1	1,3-Dichlorobenzene	2200	U
106-46-7	1,4-Dichlorobenzene	2200	U
95-50-1	1,2-Dichlorobenzene	2200	U
95-48-7	2-Methylphenol	2200	U
108-60-1	2,2'-oxybis(1-Chloropropane)	2200	U
106-44-5	4-Methylphenol	2200	U
621-64-7	N-Nitroso-di-n-propylamine	2200	U
67-72-1	Hexachloroethane	2200	U
98-95-3	Nitrobenzene	2200	U
78-59-1	Isophorone	2200	U
88-75-5	2-Nitrophenol	2200	U
105-67-9	2,4-Dimethylphenol	2200	U
111-91-1	bis(2-Chloroethoxy)methane	2200	U
120-83-2	2,4-Dichlorophenol	2200	U
120-82-1	1,2,4-Trichlorobenzene	2200	U
91-20-3	Naphthalene	510	J
106-47-8	4-Chloroaniline	2200	U
87-68-3	Hexachlorobutadiene	2200	U
59-50-7	4-Chloro-3-Methylphenol	2200	U
91-57-6	2-Methylnaphthalene	860	J
77-47-4	Hexachlorocyclopentadiene	2200	U
88-06-2	2,4,6-Trichlorophenol	2200	U
95-95-4	2,4,5-Trichlorophenol	5200	U
91-58-7	2-Chloronaphthalene	2200	U
88-74-4	2-Nitroaniline	5200	U
131-11-3	Dimethylphthalate	2200	U
208-96-8	Acenaphthylene	280	J
606-20-2	2,6-Dinitrotoluene	2200	U
99-09-2	3-Nitroaniline	5200	U
83-32-9	Acenaphthene	2200	U

VALIDATED

Reviewed By Joyce E. Whittle
Date 12/22/94

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S10EA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240143

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R240143DS.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: 39 decanted: (Y/N) N Date Extracted: 11/06/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/23/94

Injection Volume: 2.0(uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
51-28-5	2,4-Dinitrophenol		5200	U
100-02-7	4-Nitrophenol		5200	U
132-64-9	Dibenzofuran		560	J
121-14-2	2,4-Dinitrotoluene		2200	U
84-66-2	Diethylphthalate		2200	U
7005-72-3	4-Chlorophenyl-phenylether		2200	U
86-73-7	Fluorene		270	J
100-01-6	4-Nitroaniline		5200	U
534-52-1	4,6-Dinitro-2-methylphenol		5200	U
86-30-6	N-nitrosodiphenylamine (1)		2200	U
101-55-3	4-Bromophenyl-phenylether		2200	U
118-74-1	Hexachlorobenzene		2200	U
87-86-5	Pentachlorophenol		5200	U
85-01-8	Phenanthrene		1300	J
120-12-7	Anthracene		590	J
86-74-8	Carbazole		420	J
84-74-2	Di-n-butylphthalate	2200	~~140~~	~~JB~~ U
206-44-0	Fluoranthene		2200	
129-00-0	Pyrene		1800	J
85-68-7	Butylbenzylphthalate		2200	U
91-94-1	3,3'-Dichlorobenzidine		2200	U
56-55-3	Benzo(a)anthracene		990	J
218-01-9	Chrysene		1900	J
117-81-7	bis(2-Ethylhexyl)phthalate	2200	~~570~~	~~J~~ U
117-84-0	Di-n-octylphthalate		2200	U
205-99-2	Benzo(b)fluoranthene		3500	
207-08-9	Benzo(k)fluoranthene		2200	U
50-32-8	Benzo(a)pyrene		990	J
193-39-5	Indeno(1,2,3-cd)pyrene		860	J
53-70-3	Dibenz(a,h)anthracene		2200	U
191-24-2	Benzo(g,h,i)perylene		690	J

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

C01029

AR302099

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240147

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R240147DS.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: 21 decanted: (Y/N) N Date Extracted: 11/06/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/23/94

Injection Volume: 2.0(uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) Y pH: 7.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1700	U
111-44-4	bis(-2-Chloroethyl)Ether	1700	U
95-57-8	2-Chlorophenol	1700	U
541-73-1	1,3-Dichlorobenzene	1700	U
106-46-7	1,4-Dichlorobenzene	1700	U
95-50-1	1,2-Dichlorobenzene	1700	U
95-48-7	2-Methylphenol	1700	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1700	U
106-44-5	4-Methylphenol	1700	U
621-64-7	N-Nitroso-di-n-propylamine	1700	U
67-72-1	Hexachloroethane	1700	U
98-95-3	Nitrobenzene	1700	U
78-59-1	Isophorone	1700	U
88-75-5	2-Nitrophenol	1700	U
105-67-9	2,4-Dimethylphenol	1700	U
111-91-1	bis(2-Chloroethoxy)methane	1700	U
120-83-2	2,4-Dichlorophenol	1700	U
120-82-1	1,2,4-Trichlorobenzene	1700	U
91-20-3	Naphthalene	1700	U
106-47-8	4-Chloroaniline	1700	U
87-68-3	Hexachlorobutadiene	1700	U
59-50-7	4-Chloro-3-Methylphenol	1700	U
91-57-6	2-Methylnaphthalene	1700	U
77-47-4	Hexachlorocyclopentadiene	1700	U
88-06-2	2,4,6-Trichlorophenol	1700	U
95-95-4	2,4,5-Trichlorophenol	4000	U
91-58-7	2-Chloronaphthalene	1700	U
88-74-4	2-Nitroaniline	4000	U
131-11-3	Dimethylphthalate	1700	U
208-96-8	Acenaphthylene	1700	U
606-20-2	2,6-Dinitrotoluene	1700	U
99-09-2	3-Nitroaniline	4000	U
83-32-9	Acenaphthene	1700	U

AR302100

VALIDATED

Reviewed By Joyce E. Whittle OOR

Date 12/22/94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240147

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R240147DS.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: 21 decanted: (Y/N) N Date Extracted: 11/06/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/23/94

Injection Volume: 2.0(uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) Y pH: 7.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	4000	U
100-02-7	4-Nitrophenol	4000	U
132-64-9	Dibenzofuran	1700	U
121-14-2	2,4-Dinitrotoluene	1700	U
84-66-2	Diethylphthalate	1700	U
7005-72-3	4-Chlorophenyl-phenylether	1700	U
86-73-7	Fluorene	1700	U
100-01-6	4-Nitroaniline	4000	U
534-52-1	4,6-Dinitro-2-methylphenol	4000	U
86-30-6	N-nitrosodiphenylamine (1)	1700	U
101-55-3	4-Bromophenyl-phenylether	1700	U
118-74-1	Hexachlorobenzene	1700	U
87-86-5	Pentachlorophenol	4000	U
85-01-8	Phenanthrene	96	J
120-12-7	Anthracene	1700	U
86-74-8	Carbazole	1700	U
84-74-2	Di-n-butylphthalate	1700	U
206-44-0	Fluoranthene	110	J
129-00-0	Pyrene	130	J
85-68-7	Butylbenzylphthalate	1700	U
91-94-1	3,3'-Dichlorobenzidine	1700	U
56-55-3	Benzo(a)anthracene	1700	U
218-01-9	Chrysene	140	J
117-81-7	bis(2-Ethylhexyl)phthalate	1700 ~~570~~	~~J~~ U
117-84-0	Di-n-octylphthalate	1700	U
205-99-2	Benzo(b)fluoranthene	220	J
207-08-9	Benzo(k)fluoranthene	1700	U
50-32-8	Benzo(a)pyrene	1700	U
193-39-5	Indeno(1,2,3-cd)pyrene	1700	U
53-70-3	Dibenz(a,h)anthracene	1700	U
191-24-2	Benzo(g,h,i)perylene	1700	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

001033

AR302101

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 240144

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P240144S.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 11/07/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/28/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
108-95-2	Phenol	10	U	
111-44-4	bis(-2-Chloroethyl)Ether	10	U	
95-57-8	2-Chlorophenol	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	
95-48-7	2-Methylphenol	10	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U	J
106-44-5	4-Methylphenol	10	U	
621-64-7	N-Nitroso-di-n-propylamine	10	U	J
67-72-1	Hexachloroethane	10	U	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	
120-82-1	1,2,4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	
106-47-8	4-Chloroaniline	10	U	
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	J
88-06-2	2,4,6-Trichlorophenol	10	U	
95-95-4	2,4,5-Trichlorophenol	25	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	25	U	J
131-11-3	Dimethylphthalate	10	U	
208-96-8	Acenaphthylene	10	U	
606-20-2	2,6-Dinitrotoluene	10	U	
99-09-2	3-Nitroaniline	25	U	
83-32-9	Acenaphthene	10	U	

AR302102

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

C01003

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 240144

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P240144S.D

Level: (low/med) LOW Date Received: 11/03/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 11/07/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/28/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/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
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	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
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 ~~5~~	~~JB~~ 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 3/90

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/22/94

C01087

AR302103

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Semivolatile Organic Compounds Analysis

Case Number : 94239, SDG # 47744	Project Number: 27654 3.42.2
Site: Hare and Lombard	
Contractor Laboratory: Aquatec	
Validator: Cindy Lucarioli	Validation Date: 1/11/95
QC Reviewer: Kirsten Meier	Review Date: 1-26-95
Sample Matrix: 3 ~~low~~ waters and five ~~low~~ soils	
Analytical Method: BNA - CLP	

Sample Designations:

RBBS1	BSEA5		
RBBS2			
RBBS3			
WSEA1			
BSEA1			
WSEA2			
BSEA2			

Data for the above samples are:

____ Acceptable for use

_X_ Acceptable for use as qualified

____ Unacceptable for use

Is action required by the Project Manager?

Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

MPP 1-31-95 ~~Hove~~

bna_1.doc
10141994 1034

Form BNA 1.0

AR302104

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
X Surrogate Recovery Summary
KM * MS/MSD Summary
KM * Reagent Blank Summary
X GC/MS Instrument Performance Summary

Sample Data

X Chain of Custody Forms
X Holding Times
X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
NA TIC Mass Spectra Library Searches

Initial Calibration Data

X Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

KM * Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms
X Internal Standards Summary

Instrument Performance Data

X DFTPP Mass Spectra
X Reconstructed Ion Chromatogram
X DFTPP Mass Listings

AR302105

Reagent Blank Data

NM * Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
NA TIC Mass Spectra Library Searches

Matrix Spike Data and Matrix Spike Duplicate Data

X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms

Laboratory Control Sample

NA Organic Analysis Data Sheets
Quantitation Reports
Reconstructed Ion Chromatograms
Mass Spectra Printouts
TIC Mass Spectra Library Searches

Comments: At the request of HLA, TICs were not performed. LCSs are not a requirement for CLP organics.

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

None

Holding Times

Were sample extractions performed within holding times?

Yes No

Were sample analyses performed within holding times?

Yes No

Comments:

None

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes No

Comments: All three initial calibrations met the method specified acceptance criteria as well as the validation criteria specified in Functional Guidelines.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

~~Yes~~ No

Did the continuing calibration meet the minimum RRF criteria?

Yes No

Comments: All of the continuing calibrations met the method specified acceptance criteria. For each calibration those compounds exceeding the 25% D validation criterion are summarized on the continuing calibration table. For every calibration, all RRFs were greater than the validation criterion of 0.05.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

~~Yes~~ No KM 1-26-95

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments:

No Matrix spikes were performed for the 3 water samples. Since these water samples are rinseblanks, the matrix most likely would not interfere with the analysis. Therefore qualification of data was not necessary. KM 1-26-95

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No NA

Comments:

None

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were analytes detected in the blanks?

Yes No

If analytes were detected in the blanks, were the same analytes also detected in the associated investigative samples?

Yes No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments: See the method blank table for detected analytes and qualification of associated sample data.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes No NA

Were the LCS recoveries within acceptable limits?

Yes No NA

Comments:

Not applicable.

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were mass spectra provided for the target analytes reported in the investigative samples?

Yes No

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes No

Comments:

None

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes No NA

Were all non-target peaks evaluated as required?

Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes No

Comments: TICs were not ~~analyzed~~ requested.
KM 1-26-95

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes No

Were sample analyses properly documented and performed in accordance with method protocols?

Yes No

Comments: Form IVs and IVs were complete.

AR302112

Calculation Checks

Instrument Tuning CCAL 11/21/94 1615 #P

Relative Abundance: 69 to 70 $\frac{74}{37952} \times 100 = 0.2$ ✓

Initial Calibration 11/10/94 1147 #R

RRF: phenanthrene 50 $\frac{435163}{260213} \times \frac{40}{50} = 1.338$

%RSD: phenanthrene : 1.404, 1.338, 1.240, 1.241, 1.255

$\frac{.073}{1.296} \times 100 = 5.6\%$

Continuing Calibration 11/21/94 1723 #P

RRF: bis(2-ethylhexyl) phthalate $= 1.394 = \frac{512427}{179331} \times \frac{40}{50}$

%D: $\frac{(1.655 - 1.394)}{1.655} \times 100 = 15.8\%$

Surrogate Recovery WSEA1

2-Fluorophenol $= \frac{286495}{101961} \times \frac{40}{1.250} = 89.9$ $\frac{89.9}{150} \times 100 = 59.9\%$ ✓

Matrix Spike Recovery WSEA1 1,4-dichlorobenzene

MS $\frac{162814}{69208} \times \frac{40}{1.600} \times \frac{500}{30} \times \frac{2}{2} \times \frac{1}{.74} = 1324.$ ✓

RPD: $\frac{(1500-1300)}{\left(\frac{1500+1300}{2}\right)} \times 100 = 14.3\ \%$ ✓

Sample Results BSEA1 phenanthrene

CRQL: $\frac{330\ \mu g/kg}{.72} = 460\ \mu g/kg$ ✓

Detected Result: $\frac{10867}{287217} \times \frac{40}{1.137} \times \frac{500}{30.1} \times \frac{2}{2} \times \frac{1}{.72} = 315$

TIC Result NA

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
~~RRBB~~ RBBS1	11/3/94	11/9/94	11/11/94	6	2	NONE
RBBS2	11/4/94	11/9/94	11/12/94	5	3	
RBBS3	11/12/94	11/17/94	11/28/94	5	11	
WSEA1	11/3/94	11/8/94	11/17/94	5	9	
BSEA1	↓		11/17/94	5	9	
WSEA2	11/4/94		11/17/94	4	9	
BSEA2	↓	↓	11/21/94	4	13	
WSEA5	11/12/94	11/15/94	11/22/94	3	7	↓

Comments:

None

AR302115

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier

Comments: All three initial calibrations met method and validation acceptance limits

AR302116

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
11/17/94 1621	#P	2,2-oxybis(1-chloropropane)		36.6	BSEA1, WSEA1, WSEA2	J/UJ
		Hexachlorobutadiene		-30.5	↓	↓
11/21/94 1723	#P	2,2-oxybis(1-chloropropane)		31.7	BSEA2, BSEA5	J/UJ
		Hexachlorobutadiene		-32.4	↓	↓
		Hexachlorocyclopentadiene		-35.9	↓	↓
		Hexachlorobenzene		-25.5	↓	↓
11/28/94 1136	#P	2,2-oxybis(1-chloropropane)		-27.2	RBBS3	J/UJ
		N-Nitrosodi-n-propylamine		-27.0	↓	↓
		Hexachloroethane		-25.9	↓	↓
		Hexachlorocyclopentadiene		-43.0	↓	↓
		2-Nitroaniline		-28.0	RBBS3	J/UJ
11/11/94 1547	#R	No outliers		—	RBDS1, RBBS2	none

Comments: Samples RBBS1 and RBDS2 analyzed on instrument R required no qualification, ~~due to calibration.~~
KM 1-26-95

AR302117

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples
SBLK9J	bis(2-ethylhexyl)phthalate	10 ug/L	100 ug/L	RBBS1, RBBS2
SBLK3K	" "	10 ug/L	100 ug/L	RBBS3.

Comments:
Detections of Bis(2ethylhexyl) phthalate in the associated samples below the action level were qualified as undetected (U). According to the functional guidelines, non-detections below the CRQL were raised to the CRQL.
KM 1-26-95

AR302118

Summary and Conclusions

The investigative soil samples required minor qualification due to calibration criterion exceedance.*1) All three rinsate blanks required qualification due to method blank contamination. *2) None of the investigative soil samples required qualification due to method blank or rinsate blank contamination.

The sample data are considered to be usable as qualified by the reviewer. Accuracy as measured by the surrogate and MS/MSD recoveries were satisfactory. Precision as measured by the RPDs between the MS/MSD recoveries were satisfactory. Completeness defined as the percentage of usable results, including estimated values, ~~was~~ is 100%.

*1) The %D criteria were exceeded in 3 continuing calibrations, the affected analytes in the associated investigative samples were qualified as estimated (J). See table "Continuing Calibration" for samples affected.

*2) Detections of Bis(2 ethylhexyl)phthalate below the action level were qualified as undetected (U), non-detections were raised to the CQRL.

KM 1-26-95

Validator's Signature:	Cynthia H Freeman		
Validator's Initials:	CHF	Validation Date:	1/10/95
QC Reviewer's Signature:	Kristen Meier		
QC Reviewer's Initials	KM	Review Date:	1-26-95

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240299

Sample wt/vol: 30.1 (g/mL) G Lab File ID: P240299S.D

Level: (low/med) LOW Date Received: 11/04/94

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/08/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/17/94

Injection Volume: 2.0(UL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	460	U
111-44-4	bis(-2-Chloroethyl)Ether	460	U
95-57-8	2-Chlorophenol	460	U
541-73-1	1,3-Dichlorobenzene	460	U
106-46-7	1,4-Dichlorobenzene	460	U
95-50-1	1,2-Dichlorobenzene	460	U
95-48-7	2-Methylphenol	460	U
108-60-1	2,2'-oxybis(1-Chloropropane)	460	~~U~~ UJ
106-44-5	4-Methylphenol	460	U
621-64-7	N-Nitroso-di-n-propylamine	460	U
67-72-1	Hexachloroethane	460	U
98-95-3	Nitrobenzene	460	U
78-59-1	Isophorone	460	U
88-75-5	2-Nitrophenol	460	U
105-67-9	2,4-Dimethylphenol	460	U
111-91-1	bis(2-Chloroethoxy)methane	460	U
120-83-2	2,4-Dichlorophenol	460	U
120-82-1	1,2,4-Trichlorobenzene	460	U
91-20-3	Naphthalene	460	U
106-47-8	4-Chloroaniline	460	U
87-68-3	Hexachlorobutadiene	460	~~U~~ UJ
59-50-7	4-Chloro-3-Methylphenol	460	U
91-57-6	2-Methylnaphthalene	460	U
77-47-4	Hexachlorocyclopentadiene	460	U
88-06-2	2,4,6-Trichlorophenol	460	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	460	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	460	U
208-96-8	Acenaphthylene	460	U
606-20-2	2,6-Dinitrotoluene	460	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	460	U

FORM I SV-1 VALIDATED 3/90

Reviewed By CMC

Date 1/12/95

AR302120

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240299

Sample wt/vol: 30.1 (g/mL) G Lab File ID: P240299S.D

Level: (low/med) LOW Date Received: 11/04/94

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/08/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/17/94

Injection Volume: 2.0(UL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	460	U
121-14-2	2,4-Dinitrotoluene	460	U
84-66-2	Diethylphthalate	460	U
7005-72-3	4-Chlorophenyl-phenylether	460	U
86-73-7	Fluorene	460	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-nitrosodiphenylamine (1)	460	U
101-55-3	4-Bromophenyl-phenylether	460	U
118-74-1	Hexachlorobenzene	460	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	31	J
120-12-7	Anthracene	460	U
86-74-8	Carbazole	460	U
84-74-2	Di-n-butylphthalate	460	U
206-44-0	Fluoranthene	72	J
129-00-0	Pyrene	70	J
85-68-7	Butylbenzylphthalate	460	U
91-94-1	3,3'-Dichlorobenzidine	460	U
56-55-3	Benzo(a)anthracene	29	J
218-01-9	Chrysene	60	J
117-81-7	bis(2-Ethylhexyl)phthalate	100	J
117-84-0	Di-n-octylphthalate	460	U
205-99-2	Benzo(b)fluoranthene	56	J
207-08-9	Benzo(k)fluoranthene	46	J
50-32-8	Benzo(a)pyrene	38	J
193-39-5	Indeno(1,2,3-cd)pyrene	37	J
53-70-3	Dibenz(a,h)anthracene	460	U
191-24-2	Benzo(g,h,i)perylene	35	J

(1) - Cannot be separated from Diphenylamine

VALIDATED

FORM I SV-2

Reviewed By CWC 3/90

Date 1/12/95

AR302121

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240304

Sample wt/vol: 30.0 (g/mL) G Lab File ID: P240304S.D

Level: (low/med) LOW Date Received: 11/04/94

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/08/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/17/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	440	U
111-44-4	bis(-2-Chloroethyl)Ether	440	U
95-57-8	2-Chlorophenol	440	U
541-73-1	1,3-Dichlorobenzene	440	U
106-46-7	1,4-Dichlorobenzene	440	U
95-50-1	1,2-Dichlorobenzene	440	U
95-48-7	2-Methylphenol	440	U
108-60-1	2,2'-oxybis(1-Chloropropane)	440	~~U~~ UJ
106-44-5	4-Methylphenol	440	U
621-64-7	N-Nitroso-di-n-propylamine	440	U
67-72-1	Hexachloroethane	440	U
98-95-3	Nitrobenzene	440	U
78-59-1	Isophorone	440	U
88-75-5	2-Nitrophenol	440	U
105-67-9	2,4-Dimethylphenol	440	U
111-91-1	bis(2-Chloroethoxy)methane	440	U
120-83-2	2,4-Dichlorophenol	440	U
120-82-1	1,2,4-Trichlorobenzene	440	U
91-20-3	Naphthalene	440	U
106-47-8	4-Chloroaniline	440	U
87-68-3	Hexachlorobutadiene	440	~~U~~ UJ
59-50-7	4-Chloro-3-Methylphenol	440	U
91-57-6	2-Methylnaphthalene	440	U
77-47-4	Hexachlorocyclopentadiene	440	U
88-06-2	2,4,6-Trichlorophenol	440	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	440	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	440	U
208-96-8	Acenaphthylene	440	U
606-20-2	2,6-Dinitrotoluene	440	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	440	U

FORM I SV-1 90

VALIDATED

Reviewed By CHL

Date 1/12/95

AR302122

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240304

Sample wt/vol: 30.0 (g/mL) G Lab File ID: P240304S.D

Level: (low/med) LOW Date Received: 11/04/94

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/08/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/17/94

Injection Volume: 2.0(UL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	440	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	440	U
120-12-7	Anthracene	440	U
86-74-8	Carbazole	440	U
84-74-2	Di-n-butylphthalate	440	U
206-44-0	Fluoranthene	440	U
129-00-0	Pyrene	440	U
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	440	U
56-55-3	Benzo(a)anthracene	440	U
218-01-9	Chrysene	440	U
117-81-7	bis(2-Ethylhexyl)phthalate	52	J
117-84-0	Di-n-octylphthalate	440	U
205-99-2	Benzo(b)fluoranthene	440	U
207-08-9	Benzo(k)fluoranthene	440	U
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
53-70-3	Dibenz(a,h)anthracene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 3/90

AR302123

VALIDATED

Reviewed By 1/12/95 cm

Date 1/12/95

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240394

Sample wt/vol: 30.0 (g/mL) G Lab File ID: P240394D2S.D

Level: (low/med) LOW Date Received: 11/05/94

% Moisture: 52 decanted: (Y/N) N Date Extracted: 11/08/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/21/94

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1400	U
111-44-4	bis(-2-Chloroethyl)Ether	1400	U
95-57-8	2-Chlorophenol	1400	U
541-73-1	1,3-Dichlorobenzene	1400	U
106-46-7	1,4-Dichlorobenzene	1400	U
95-50-1	1,2-Dichlorobenzene	1400	U
95-48-7	2-Methylphenol	1400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1400	~~U~~ UJ
106-44-5	4-Methylphenol	1400	U
621-64-7	N-Nitroso-di-n-propylamine	1400	U
67-72-1	Hexachloroethane	1400	U
98-95-3	Nitrobenzene	1400	U
78-59-1	Isophorone	1400	U
88-75-5	2-Nitrophenol	1400	U
105-67-9	2,4-Dimethylphenol	1400	U
111-91-1	bis(2-Chloroethoxy)methane	1400	U
120-83-2	2,4-Dichlorophenol	1400	U
120-82-1	1,2,4-Trichlorobenzene	1400	U
91-20-3	Naphthalene	1400	U
106-47-8	4-Chloroaniline	1400	U
87-68-3	Hexachlorobutadiene	1400	~~U~~ UJ
59-50-7	4-Chloro-3-Methylphenol	1400	U
91-57-6	2-Methylnaphthalene	1400	U
77-47-4	Hexachlorocyclopentadiene	1400	~~U~~ UJ
88-06-2	2,4,6-Trichlorophenol	1400	U
95-95-4	2,4,5-Trichlorophenol	3300	U
91-58-7	2-Chloronaphthalene	1400	U
88-74-4	2-Nitroaniline	3300	U
131-11-3	Dimethylphthalate	1400	U
208-96-8	Acenaphthylene	1400	U
606-20-2	2,6-Dinitrotoluene	1400	U
99-09-2	3-Nitroaniline	3300	U
83-32-9	Acenaphthene	1400	U

FORM I SV-1 3/90

VALIDATED

AR302124

Reviewed By [signature]
Date 1/12/95

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240394

Sample wt/vol: 30.0 (g/mL) G Lab File ID: P240394D2S.D

Level: (low/med) LOW Date Received: 11/05/94

% Moisture: 52 decanted: (Y/N) N Date Extracted: 11/08/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/21/94

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	3300	U
100-02-7	4-Nitrophenol	3300	U
132-64-9	Dibenzofuran	1400	U
121-14-2	2,4-Dinitrotoluene	1400	U
84-66-2	Diethylphthalate	1400	U
7005-72-3	4-Chlorophenyl-phenylether	1400	U
86-73-7	Fluorene	1400	U
100-01-6	4-Nitroaniline	3300	U
534-52-1	4,6-Dinitro-2-methylphenol	3300	U
86-30-6	N-nitrosodiphenylamine (1)	1400	U
101-55-3	4-Bromophenyl-phenylether	1400	U
118-74-1	Hexachlorobenzene	1400	~~U~~ UJ
87-86-5	Pentachlorophenol	3300	U
85-01-8	Phenanthrene	220	J
120-12-7	Anthracene	1400	U
86-74-8	Carbazole	1400	U
84-74-2	Di-n-butylphthalate	1400	U
206-44-0	Fluoranthene	550	J
129-00-0	Pyrene	700	J
85-68-7	Butylbenzylphthalate	1400	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)anthracene	250	J
218-01-9	Chrysene	400	J
117-81-7	bis(2-Ethylhexyl)phthalate	1100	J
117-84-0	Di-n-octylphthalate	1400	U
205-99-2	Benzo(b)fluoranthene	370	J
207-08-9	Benzo(k)fluoranthene	380	J
50-32-8	Benzo(a)pyrene	380	J
193-39-5	Indeno(1,2,3-cd)pyrene	360	J
53-70-3	Dibenz(a,h)anthracene	120	J
191-24-2	Benzo(g,h,i)perylene	340	J

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 VALIDATED /90

AR302125 Reviewed By [signature]

Date 1/12/95

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240398

Sample wt/vol: 30.0 (g/mL) G Lab File ID: P240398S.D

Level: (low/med) LOW Date Received: 11/05/94

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/08/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/17/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	460	U
111-44-4	bis(-2-Chloroethyl)Ether	460	U
95-57-8	2-Chlorophenol	460	U
541-73-1	1,3-Dichlorobenzene	460	U
106-46-7	1,4-Dichlorobenzene	460	U
95-50-1	1,2-Dichlorobenzene	460	U
95-48-7	2-Methylphenol	460	U
108-60-1	2,2'-oxybis(1-Chloropropane)	460	~~U~~ UJ
106-44-5	4-Methylphenol	460	U
621-64-7	N-Nitroso-di-n-propylamine	460	U
67-72-1	Hexachloroethane	460	U
98-95-3	Nitrobenzene	460	U
78-59-1	Isophorone	460	U
88-75-5	2-Nitrophenol	460	U
105-67-9	2,4-Dimethylphenol	460	U
111-91-1	bis(2-Chloroethoxy)methane	460	U
120-83-2	2,4-Dichlorophenol	460	U
120-82-1	1,2,4-Trichlorobenzene	460	U
91-20-3	Naphthalene	460	U
106-47-8	4-Chloroaniline	460	U
87-68-3	Hexachlorobutadiene	460	~~U~~ UJ
59-50-7	4-Chloro-3-Methylphenol	460	U
91-57-6	2-Methylnaphthalene	460	U
77-47-4	Hexachlorocyclopentadiene	460	U
88-06-2	2,4,6-Trichlorophenol	460	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	460	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	460	U
208-96-8	Acenaphthylene	460	U
606-20-2	2,6-Dinitrotoluene	460	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	460	U

VALIDATED

Reviewed By CWL

Date 1/12/95

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240398

Sample wt/vol: 30.0 (g/mL) G Lab File ID: P240398S.D

Level: (low/med) LOW Date Received: 11/05/94

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/08/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/17/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	460	U
121-14-2	2,4-Dinitrotoluene	460	U
84-66-2	Diethylphthalate	460	U
7005-72-3	4-Chlorophenyl-phenylether	460	U
86-73-7	Fluorene	460	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-nitrosodiphenylamine (1)	460	U
101-55-3	4-Bromophenyl-phenylether	460	U
118-74-1	Hexachlorobenzene	460	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	24	J
120-12-7	Anthracene	460	U
86-74-8	Carbazole	460	U
84-74-2	Di-n-butylphthalate	460	U
206-44-0	Fluoranthene	56	J
129-00-0	Pyrene	54	J
85-68-7	Butylbenzylphthalate	460	U
91-94-1	3,3'-Dichlorobenzidine	460	U
56-55-3	Benzo(a)anthracene	24	J
218-01-9	Chrysene	39	J
117-81-7	bis(2-Ethylhexyl)phthalate	170	J
117-84-0	Di-n-octylphthalate	460	U
205-99-2	Benzo(b)fluoranthene	32	J
207-08-9	Benzo(k)fluoranthene	35	J
50-32-8	Benzo(a)pyrene	31	J
193-39-5	Indeno(1,2,3-cd)pyrene	26	J
53-70-3	Dibenz(a,h)anthracene	460	U
191-24-2	Benzo(g,h,i)perylene	36	J

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 VALIDATED /90

AR302127 Reviewed By cm

Date 1/12/95

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA5

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 241146

Sample wt/vol: 30.0 (g/mL) G Lab File ID: P241146S.D

Level: (low/med) LOW Date Received: 11/14/94

% Moisture: 22 decanted: (Y/N) N Date Extracted: 11/15/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/22/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	420	U
111-44-4	bis(-2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-oxybis(1-Chloropropane)	420	~~U~~ UJ
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	~~U~~ UJ
59-50-7	4-Chloro-3-Methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	~~U~~ UJ
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	28	J

FORM I SV-1 3/90

VALIDATED

AR302128 Reviewed By CUC
Date 1/12/95

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA5

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 241146

Sample wt/vol: 30.0 (g/mL) G Lab File ID: P241146S.D

Level: (low/med) LOW Date Received: 11/14/94

% Moisture: 22 decanted: (Y/N) N Date Extracted: 11/15/94

Concentrated Extract Volume: 500(UL) Date Analyzed: 11/22/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	20	J
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	43	J
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	~~U~~ UJ
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	830	
120-12-7	Anthracene	100	J
86-74-8	Carbazole	150	J
84-74-2	Di-n-butylphthalate	420	U
206-44-0	Fluoranthene	1600	
129-00-0	Pyrene	1400	
85-68-7	Butylbenzylphthalate	48	J
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo(a)anthracene	570	
218-01-9	Chrysene	800	
117-81-7	bis(2-Ethylhexyl)phthalate	390	J
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo(b)fluoranthene	640	
207-08-9	Benzo(k)fluoranthene	650	
50-32-8	Benzo(a)pyrene	580	
193-39-5	Indeno(1,2,3-cd)pyrene	440	
53-70-3	Dibenz(a,h)anthracene	190	J
191-24-2	Benzo(g,h,i)perylene	130	J

(1) - Cannot be separated from Diphenylamine

VALIDATED

FORM I SV-2 3/90

AR302129

Reviewed By CC

Date 1/12/95

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240300

Sample wt/vol: 995 (g/mL) ML Lab File ID: R240300S.D

Level: (low/med) LOW Date Received: 11/04/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 11/09/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/11/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	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
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	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
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	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
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

FORM I SV-1 VALIDATED 3/90

Reviewed By _____
Date 1/12/95

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240300

Sample wt/vol: 995 (g/mL) ML Lab File ID: R240300S.D

Level: (low/med) LOW Date Received: 11/04/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 11/09/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/11/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/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
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	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
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 ~~8~~	~~JB~~ 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 3/90

VALIDATED

AR302131

Reviewed By cm

Date 1/12/95

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240395

Sample wt/vol: 1000 (g/mL) ML Lab File ID: R240395S.D

Level: (low/med) LOW Date Received: 11/05/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 11/09/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/12/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	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
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	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
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	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
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

Reviewed By CAR

Date 11/12/95

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240395

Sample wt/vol: 1000 (g/mL) ML Lab File ID: R240395S.D

Level: (low/med) LOW Date Received: 11/05/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 11/09/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/12/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/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
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	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
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 ~~7~~	~~JB~~ 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 3/90

VALIDATED

AR302133

Reviewed By cpc

Date 1/12/95

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS3

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 241147

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P241147S.D

Level: (low/med) LOW Date Received: 11/14/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 11/17/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/28/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	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
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	~~U~~ UJ
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	~~U~~ UJ
67-72-1	Hexachloroethane	10	~~U~~ UJ
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
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	~~U~~ UJ
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	~~U~~ UJ
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

FORM I SV-1 3/90

VALIDATED

AR302134

Reviewed By cyc

Date 1/12/95

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS3

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 241147

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P241147S.D

Level: (low/med) LOW Date Received: 11/14/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 11/17/94

Concentrated Extract Volume: 1000(UL) Date Analyzed: 11/28/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: --

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/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
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	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
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 ~~9~~	~~JB~~ 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

VALIDATED 3/90

AR302135

Reviewed By arc

Date 1/12/95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Semivolatile Organic Compounds Analysis
(LOW CONCENTRATION)

Case Number : 94239, SDG# 47430	Project Number: 27654, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec, Inc.	Inchcape Testing Services
Validator: J. Whittle	Validation Date: 12/20/94
QC Reviewer: M. Phillips	Review Date: 1/3/95
Sample Matrix: Surface Water	
Analytical Method: EPA OLC01.0 SOW	

Sample Designations:

SWEA4			
SWEA8			
W10EA8			

Data for the above samples are:

____ Acceptable for use
X Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," (February 1994).

DATA COMPLETENESS CHECKLIST

__X__ Included, no problems
__*__ Included, problems
__O__ Not included
__NA__ Not applicable

Quality Control Summary

__X__ Case Narrative
__X__ Surrogate Recovery Summary
__*__ MS/MSD Summary
__*__ Reagent Blank Summary
__X__ GC/MS Instrument Performance Summary
__*__ Lab Control Sample Summary

Sample Data

__X__ Chain of Custody Forms
__X__ Holding Times
__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms
__X__ Mass Spectra Printouts
__NA__ TIC Mass Spectra Library Searches

Initial Calibration Data

__X__ Calibration Summary
__X__ Standards Quantitation Reports
__X__ Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

__X__ Calibration Summary
__X__ Standards Quantitation Reports
__X__ Standards Reconstructed Ion Chromatograms
__X__ Internal Standards Summary

Instrument Performance Data

__X__ DFTPP Mass Spectra
__X__ Reconstructed Ion Chromatogram
__X__ DFTPP Mass Listings

Reagent Blank Data

__*__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms
__X__ Mass Spectra Printouts
__NA__ TIC Mass Spectra Library Searches

Matrix Spike Data and Matrix Spike Duplicate Data

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms

Laboratory Control Sample

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ Reconstructed Ion Chromatograms
__X__ Mass Spectra Printouts
__NA__ TIC Mass Spectra Library Searches

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

None

Holding Times

Were sample extractions performed within holding times?

Yes No

Were sample analyses performed within holding times?

Yes No

Comments:

Refer to page 12 for summary of sample handling dates.

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes No

Comments:

None

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes No

Did the continuing calibration meet the minimum RRF criteria?

Yes No

Comments:

None

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments: MS/MSD analysis was performed on sample SWEA8, as specified on the COC. MS and MSD recoveries were high for n-nitrso-di-n-propylamine, hexachloroethane, and diethylphthalate. MS and MSD recoveries were low for 4-chloroaniline and benzo(a)pyrene. Recoveries of the surrogates were within limits. MPP 1/3/95 ~~An overall comparison of this data with the available lab QC suggests matrix effects for all but hexachloroethane and benzo(a)pyrene.~~ Qualifications are not recommended on the basis of the MS/MSD results. Refer to the Laboratory Control Sample Comments (page 7) for additional information.

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No NA

Comments:

None

Blank Analyses

Were the appropriate number of blank analyses performed?

(Yes) No

Were analytes detected in the blanks?

(Yes) No

If analytes were detected in the blanks, were the same analytes also detected in the associated investigative samples?

(Yes) No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

(Yes) No

Comments: Bis(2-ethylhexyl)phthalate was detected in both method blanks, affecting all three surface water sample analyses. Samples were qualified as undetected for this compound if less than 5 times the associated blank concentration (see page 15). ~~A review of the lab QC suggests possible high-bias in the sample results. Therefore, this compound, being a common lab contaminant, was also qualified undetected (U) in sample SWEA8, even though the amount was greater than 5 times the associated blank contamination.~~ Also, the sample preparation log indicates that SWEA4 was extracted on 10/25/94 with method blank, SBLKZ4. FORM IV doesn't reflect this. MPP 1/3/95

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

(Yes) No NA

Were the LCS recoveries within acceptable limits?

Yes (No) NA

Comments: LCS recoveries were above the upper control limits for hexachloroethane, 1,2,4-trichlorobenzene, hexachlorobenzene, and benzo(a)pyrene. A comparison of the LCS data with the other lab QC suggests the possibility of high-biased sample results, necessitating the estimation (J) of detected results. However, since there were no sample detects except for lab contaminants, the LCS results have no impact on the data, except as noted in the Blank Analyses section above.

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were mass spectra provided for the target analytes reported in the investigative samples?

Yes No

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes No

Comments:

None

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes No NA

Were all non-target peaks evaluated as required?

Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes No

Comments:

None

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes No

Were sample analyses properly documented and performed in accordance with method protocols?

Yes No

Comments:

None

Calculation Checks

Instrument Tuning 11/28/94, 11:16

Relative Abundance:

$$RA = \frac{\text{Target Peak Abundance}}{\text{Reference Peak Abundance}} = \frac{m/z\ 443}{m/z\ 442} = \frac{18792}{100680} \times 100 = 18.67\%$$

Initial Calibration 11/23/94, RRF5 = RDI005BS.D

RRF:

$$\frac{\text{Compound Response}}{\text{Internal Standard Response}} \times \frac{\text{IS Concentration}}{\text{Compound Concentration}} = RRF$$

$$\frac{31148}{106243} \times \frac{20}{5} = 1.173 \text{ for phenanthrene}$$

%RSD:

$$\frac{\text{Standard Deviation of 5 Response Factors}}{\text{Mean of 5 Response Factors}} \times 100 = \%RSD$$

$$\frac{0.02982}{0.2056} \times 100 = 14.50\% \text{ for 2,4-dinitrophenol}$$

Continuing Calibration 11/28/94, 11:38

RRF: (same as initial calibration)

$$\frac{102612}{146308} \times \frac{20}{20} = 0.7013 \text{ for 2-methylnaphthalene}$$

%D:

$$\frac{\text{Initial RRF} - \text{Continuing RRF}}{\text{Initial Compound RRF}} \times 100 = \%D$$

$$\frac{0.150 - 0.182}{0.150} \times 100 = -21.3\% \text{ for pentachlorophenol}$$

Surrogate Recovery Sample W10EA8

$$\frac{\text{Surrogate Response} \times \text{IS Concentration} \times 100}{\text{IS Response} \times \text{Continuing RRF} \times \text{Surrogate Added}} = \%R$$

$$\frac{103466 \times 20 \times 100}{108990 \times 0.487 \times 40} = 97.47\% \text{ for nitrobenzene-d5}$$

Matrix Spike Recovery $\boxed{\text{Sample SWEA8 MSD}}$

$$\frac{\text{Spike Response} \times \text{IS Concentration} \times 100}{\text{IS Response} \times \text{Continuing RRF} \times \text{Spike Added}} = \%R$$

$$\frac{88219 \times 20 \times 100}{63470 \times 1.384 \times 20} = 100.43\ \%$$ for diethylphthalate

RPD:

$$(\text{MS Recovery} - \text{MSD Recovery}) \div \frac{\text{MS Recovery} + \text{MSD Recovery}}{2} \times 100$$

$$(8.790 - 6.662) \div (7.726) \times 100 = 27.54\ \%$$ for benzo(a)pyrene

Sample Results $\boxed{\text{Sample SWEA4}}$

CRQL:

Base CRQL × Dilution Factor = Reported CRQL

$5\ \mu g \times 1 = 5\ \mu g/l$ for phenol

Detected Result:

$$\frac{\text{Detect Response}}{\text{Internal Standard Response}} \times \frac{\text{IS Concentration}}{\text{Continuing RRF}} = \text{Compound Concentration}$$

$$\frac{48747}{170070} \times \frac{20}{1.275} = 4.496\ \mu g/l$$ for bis(2-ethylhexyl)phthalate

TIC Result

(Not Reported)

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
SWEA4	10/20/94	10/25/94	11/8/94	7 days	40 days	(None)
SWEA8	11/2/94	11/8/94	11/28/94	↓	↓	↓
W10EA8	11/2/94	11/8/94	11/28/94	↓	↓	↓

Comments:

AR302147

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
10/27/94, 1354	R	(None)	—	—	SWEA4	(None)
11/23/94, 1959	R	(None)	—	—	SWEA8, W10EA8	(None)

Comments:

AR302148

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier
11/8/94, 2047	R	(None)	—	—	SWEA4	(None)
11/28/94, 1138	R	(None)	—	—	SWEA8, W10 EA8	(None)

Comments:

AR302149

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples
SBLKZ4	bis(2-ethylhexyl)phthalate	5 µg/l	50 µg/l	SWEA4
SBLKZ9	bis(2-ethylhexyl)phthalate	3 µg/l	30 µg/l	SWEA8, W1DEA8

Comments:

AR302150

Summary and Conclusions

All necessary data were present for a full validation of the low concentration semivolatile analysis, and all holding times were met. Surrogate, instrument performance, internal standard, initial and continuing calibration data all met required quality control criteria. Calculation checks and data review did not suggest errors in compound identification or quantitation.

Review of the MS/MSD and laboratory control sample data showed several compounds outside recovery limits, and taken together suggests the possibility of high bias in the sample results. However, since there were no sample detects except for laboratory blank contamination, data were not qualified on the basis of these results.

Samples were qualified for bis(2-ethylhexyl) phthalate as a result of laboratory ~~and field~~ blank contamination (see page 15). Sample results for this compound were qualified as undetected (U), since the values were less than 10 ~~5~~ times the greatest contamination values in the associated blanks.

Validator's Signature: Joyce E. Whittle	
Validator's Initials: JW	Validation Date: 12/20/94
QC Reviewer's Signature: Michael P. Phillips	
QC Reviewer's Initials MPP	Review Date: 1/3/95

1LCB

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA4

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 238832 Date Received: 10/21/94

Lab File ID: R238832I3S.D Date Extracted: 10/25/94

Sample Volume: 1005 Date Analyzed: 11/08/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(-2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U

VALIDATED

Reviewed By Joyce S. Whittle

Date 12/20/94

FORM I LCSV-1 10/92

1LCC

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA4

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 238832 Date Received: 10/21/94

Lab File ID: R238832I3S.D Date Extracted: 10/25/94

Sample Volume: 1005 Date Analyzed: 11/08/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	5 ~~4~~	~~J~~ U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenz(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

VALIDATED

Reviewed By Joyce S. Whittle

Date 12/20/94

(1) - Cannot be separated from Diphenylamine

1LCB

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 240145 Date Received: 11/03/94

Lab File ID: R240145S.D Date Extracted: 11/08/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(-2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/20/94

FORM I LCSV-1 10/92

1LCC

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 240145 Date Received: 11/03/94

Lab File ID: R240145S.D Date Extracted: 11/08/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	20	~~B~~ U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenz(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/20/94

(1) - Cannot be separated from Diphenylamine

FORM I LCSV-2 10/92

1LCB

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W10EA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 240146 Date Received: 11/03/94

Lab File ID: R240146S.D Date Extracted: 11/08/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(-2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/20/94

FORM I LCSV-1 10/92

1LCC

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W10EA8

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Lab Sample ID: 240146 Date Received: 11/03/94

Lab File ID: R240146S.D Date Extracted: 11/08/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	9	~~B~~ U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenz(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

VALIDATED

Reviewed By Joyce S. Whittle

Date 12/20/94

(1) - Cannot be separated from Diphenylamine

FORM I LCSV-2 10/92

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Semivolatile Organic Compounds Analysis

Case Number: 94239, SDG# 47744	Project Number: 27654 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec	
Validator: Cindy Lucarelli	Validation Date: 1/13/95
QC Reviewer: Kirsten Meier	Review Date: 1-26-95
Sample Matrix: Water	
Analytical Method: Low Concentration BNA's	

Sample Designations:

SWEA1			
SWEA11			
SWEA2			
SWEA5			
SWEA10			
~~SWEA2~~			

Data for the above samples are:

_____ Acceptable for use
_X_ Acceptable for use as qualified
_____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

MPP 1-31-95 ~~Now~~

bna_1.doc
10141994 1034

Form BNA 1.0

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
X Surrogate Recovery Summary
KH * MS/MSD Summary
X Reagent Blank Summary
X GC/MS Instrument Performance Summary

Sample Data

X Chain of Custody Forms
X Holding Times
X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
NA TIC Mass Spectra Library Searches

Initial Calibration Data

X Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms

Continuing Calibration Data

X Calibration Summary
X Standards Quantitation Reports
X Standards Reconstructed Ion Chromatograms
X Internal Standards Summary

Instrument Performance Data

X DFTPP Mass Spectra
X Reconstructed Ion Chromatogram
X DFTPP Mass Listings

AR302159

Reagent Blank Data

X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
N/A TIC Mass Spectra Library Searches

Matrix Spike Data and Matrix Spike Duplicate Data

X Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms

Laboratory Control Sample

KM * Organic Analysis Data Sheets
X Quantitation Reports
X Reconstructed Ion Chromatograms
X Mass Spectra Printouts
N/A TIC Mass Spectra Library Searches

Comments: MS/MSD is not required by the method.

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

None

Holding Times

Were sample extractions performed within holding times?

Yes No

Were sample analyses performed within holding times?

Yes No

Comments:

None

Instrument Tuning

Did the instrument performance checks meet acceptance criteria?

Yes No

Were samples analyzed within the 12-hour period following an acceptable performance check?

Yes No

Comments:

None

Initial Calibration

Did the laboratory meet the method requirements regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes No

Did the initial calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No

Did the initial calibration meet the minimum relative response factor (RRF) criteria?

Yes No

Comments: The initial calibration met the method specified and validation criteria so that no data qualification was necessary.

Continuing Calibration

Did the continuing calibration curves meet the linearity criteria for maximum percent difference (%D)?

Yes No

Did the continuing calibration meet the minimum RRF criteria?

Yes No

Comments: The continuing calibration met all the method and validation criteria, and no data qualification was required.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA

Comments:

None

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in the sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments: An MS/MSD was analyzed on sample SWE411, though it is not required by the method. In the following table the target compounds which exceeded the laboratory specified MS/MSD limits, their recoveries, RPDs and acceptance criteria are listed below.
(continue page 6.2)

Internal Standards

Were the internal standard areas and retention times within the required limits?

Yes No

If the internal standard requirements were not met, were the samples reanalyzed?

Yes No NA

Comments:

None

Harding Lawson Associates
Engineering and
Environmental Services

SHEET 1 OF
JOB NO.
DATE 1/13/95
COMPUTED BY CJR
CHECKED BY

PROJECT Kaye and Lombard
SUBJECT Low Concentration BNA's Data Validation.

MS/MSD

Target Compound	MS / MSD recovery	% RPD	Acceptance Limits % Rec
4-Chloroaniline	31*% / 46 %	40 %	35-95 %
N-Nitroso-di-n-propylamine	74 / 114 *	42	34-102 %
1,2,4-Trichlorobenzene	64 / 100 *	43	44-96 %
Hexachloroethane	59 / 92 *	43	32-77 %
Diethylphthalate	92 / 116 *	23	76-104 %
Hexachlorobenzene	79 / 107 *	30	30-95 %
Benzo(a)pyrene	76 / 95 *	22	55-92 %

Please note the laboratory did not provide acceptance limits for % RPD. No sample data have been qualified due to MS/MSD recoveries. MS/MSD data is not required under the low concentration CLP method.

KH 1-26-95

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were analytes detected in the blanks?

Yes No

If analytes were detected in the blanks, were the same analytes also detected in the associated investigative samples?

Yes No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments: See the blank summary table for the samples requiring qualification due to method blank contamination.

Laboratory Control Samples

Were laboratory control sample (LCS) analyses performed at the correct frequency?

Yes No NA

Were the LCS recoveries within acceptable limits?

Yes No NA

Comments: The LCS had five compounds whose recoveries exceeded the acceptance limits. The target compounds exceeding these limits, their recoveries and the acceptance limits are listed below.

Target Compound	% Rec.	Acceptance limits %
N-Nitrosodi-n-propylamine	104	(34-102)
1,2,4-Trichlorobenzene	100	(44-96)
2,4,6-Trichlorophenol	100	(35-95)
Hexachlorobenzene	112	(30-95)
Benzo(a)pyrene	97	(55-92)

None of these compounds were reported as detected in the associated sample data and no qualification of the sample data was necessary.

AR302165

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were mass spectra provided for the target analytes reported in the investigative samples?

Yes No

Were the mass spectra of acceptable quality and analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate internal standards and were the relative retention times (RRTs) acceptable?

Yes No

Comments:

None

Tentatively Identified Compounds

Were tentatively identified compound (TIC) searches conducted for all sample analyses?

Yes No NA

Were all non-target peaks evaluated as required?

Yes No

Were the TIC mass spectra, searches, identifications, and quantitated results acceptable?

Yes No

Comments: TICs were not a required deliverable.

Log Books

Were sample preparations properly documented and performed in accordance with method protocols?

Yes No

Were sample analyses properly documented and performed in accordance with method protocols?

Yes No

Comments: Forms IV and V were complete.

AR302167

Calculation Checks

Instrument Tuning CCAL 11/28/94 1116 #R

Relative Abundance: Ion 69 = 54.1 % = $\frac{119184}{220480} \times 100$

Initial Calibration bis(2-ethylhexyl)phthalate

RRF: [5] $\frac{25555}{53822} \times \frac{20}{5} = 1.234$

%RSD: 1.234, 1.207, 1.265, 1.158, 1.155

$\frac{.049}{1.204} \times 100 = 4.1\ \%$ ✓ satisfactory rounding errors.

Continuing Calibration Hexachloroethane CCAL 11/28/94 1138 #R

RRF: $\frac{34706}{47811} \times \frac{20}{20} = .726$

%D: $\frac{(.640 - .726)}{.640} \times 100 = -13.4\ \%$

Surrogate Recovery SWE 45

2,4,6-Tribromophenol $\frac{75858}{51054} \times \frac{20}{(.195)} = 145.8$

$\frac{143.8}{120} \times 100 = 120\ \%$

Matrix Spike Recovery SWEA11MS

4-Chloroaniline $\frac{42781}{151350} \times \frac{20}{.457} = 12.4$ $\frac{12.4}{40} \times 100 = 31\%$

RPD: $\frac{(46-31)}{\left(\frac{46+31}{2}\right)} \times 100 = 3.9\%$ ✓ ok although different due to rounding errors.

Sample Results SWEA5

CRQL: Method specified 5 µg/L for most analytes.

Detected Result: Diethylphthalate

$\frac{14392}{54084} \times \frac{20}{1.384} = 4\ J$ ✓

TIC Result NA.

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
SWEA1	11/3/94	11/8/94	11/28/94	5	20	NONE
SWEA11	↓	↓		5	20	
SWEA2	11/4/94	11/10/94		6	18	
SWEA5	11/12/94	11/17/94		5	~~18~~ 11	
SWEA10	↓	↓	↓	5	11	↓

Comments:

None

AR302170

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier

Comments: No control exceeded method or validation criteria.

AR302171

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	%D	Samples Affected	Qualifier

Comments: No compounds exceeded method or validation criteria.

AR302172

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples
SBLKZ9	bis(2-ethylhexyl)phthalate	3 µg/L	30 µg/L	SWEA1, SWEA11
SBLK18	" "	7 µg/L	70 µg/L	SWEA5, SWEA10

Comments:
Positive detections of Bis(2-ethylhexyl)phthalate in the associated samples below the action level were qualified as undetected (U).
KM 1-26-95

AR302173

Summary and Conclusions

Sample data required minor qualification due to method blank contamination. Sample data are considered to be useable as qualified by the reviewer. Accuracy as measured by the surrogate and LCS recoveries met acceptance criteria with a few exceptions indicating satisfactory performance. Completeness defined as the percentage of useable results, including those qualified as estimated, is 100%

The detections of Bis(2ethylhexyl)phthalate in the investigative samples SWEA1, SWEA11, SWEA5 and SWEA10 were qualified as undetected (U) due to blank contamination.

KM 1-26-95

Validator's Signature: Cynthia H Joseph	
Validator's Initials: CH	Validation Date: 1/13/95
QC Reviewer's Signature: Kirsten Meier	
QC Reviewer's Initials KM	Review Date: 1-26-95

1LCB

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240301 Date Received: 11/04/94

Lab File ID: R240301S.D Date Extracted: 11/08/94

Sample Volume: 1002 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(-2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U

VALIDATED

Reviewed By CJC

Date 1/13/95

1LCC

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA1

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240301 Date Received: 11/04/94

Lab File ID: R240301S.D Date Extracted: 11/08/94

Sample Volume: 1002 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	18	~~B~~ U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenz(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

VALIDATED

Reviewed By cm

Date 1/13/95

(1) - Cannot be separated from Diphenylamine

1LCB

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA11

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240302 Date Received: 11/04/94

Lab File ID: R240302S.D Date Extracted: 11/08/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(-2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U

VALIDATED

Reviewed By CEK

Date 1/13/95

FORM I LCSV-1 10/92

AR302177

1LCC

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA11

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240302 Date Received: 11/04/94

Lab File ID: R240302S.D Date Extracted: 11/08/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	7	~~B~~ U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenz(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

VALIDATED

Reviewed By CR

Date 1/13/95

(1) - Cannot be separated from Diphenylamine

1LCB

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240396 Date Received: 11/05/94

Lab File ID: R240396S.D Date Extracted: 11/10/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(-2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U

VALIDATED

Reviewed By CLR

Date 1/13/95

1LCC

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA2

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 240396 Date Received: 11/05/94

Lab File ID: R240396S.D Date Extracted: 11/10/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	5	U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenz(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

VALIDATED

Reviewed By CAC

Date 1/13/95

(1) - Cannot be separated from Diphenylamine

1LCB

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA5

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 241148 Date Received: 11/14/94

Lab File ID: R241148S.D Date Extracted: 11/17/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(-2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U

VALIDATED

Reviewed By CAC

Date 1/13/95

1LCC

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA5

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 241148 Date Received: 11/14/94

Lab File ID: R241148S.D Date Extracted: 11/17/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	4	J
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	8	~~B~~ U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenz(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

VALIDATED

Reviewed By CRC

Date 1/13/95

(1) - Cannot be separated from Diphenylamine

1LCB

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA10

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 241149 Date Received: 11/14/94

Lab File ID: R241149S.D Date Extracted: 11/17/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
108-95-2	Phenol	5	U
111-44-4	bis(-2-Chloroethyl)Ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-Methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U

VALIDATED

Reviewed By CJR

Date 1/13/95

1LCC

LOW CONC. WATER SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SWEA10

Lab Name: AQUATEC, INC. Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Lab Sample ID: 241149 Date Received: 11/14/94

Lab File ID: R241149S.D Date Extracted: 11/17/94

Sample Volume: 1000 Date Analyzed: 11/28/94

Concentrated Extract Volume: 1000(UL) Dilution Factor: 1.0

Injection Volume: 1.0(uL) pH:

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	1	J
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	16	~~B~~ U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenz(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

VALIDATED

Reviewed By CHC

Date 1/13/95

(1) - Cannot be separated from Diphenylamine

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Organochlorine Pesticides and Polychlorinated Biphenyls Analysis

Case Number: 94239, SDG# 47430	Project Number: 27654, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec, Inc.	Inchcape Testing Services
Validator: J. Whittle	Validation Date: 12/30/94
QC Reviewer: Michael P. Phillipi	Review Date: 1/17/95
Sample Matrix: Soil/Sediment (11), Water QC (3)	
Analytical Method: EPA OLM01.0 SOW	

Sample Designations:

BSEA4	W10EA7	BFB	
BSEA9	BSEA8	BSFB	
WSEA4	S10EA8	RBBS	
BEA3	WSEA8		
BEA7			
B10EA3			
WEA7			

Data for the above samples are:

____ Acceptable for use
_X_ Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," (February 1994).

DATA COMPLETENESS CHECKLIST

__X__ Included, no problems
__*__ Included, problems
__O__ Not included
__NA__ Not applicable

Quality Control Summary

__X__ Case Narrative
__*__ Surrogate Recovery Summary
__X__ MS/MSD Summary
__X__ Reagent Blank Summary

Sample Data

__*__ Chain of Custody Forms
__X__ Holding Times
__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ GC/EC Chromatograms
__*__ Pesticide/PCB Identification (for positive detections)

Instrument Calibration and Performance Data

__X__ Initial Calibration Retention Time Summary
__*__ Initial Calibration Response Factor Summary
__X__ Performance Evaluation Mix Summary
__X__ Continuing Calibration Verification Summary
__X__ Analytical Run Sequence Summary
__X__ GPC Calibration and Florisil Cartridge Check Summary
__X__ Pesticide/PCB Standards Quantitation Reports
__X__ Pesticide/PCB Standards GC/EC Chromatograms

Reagent and Instrument Blank Data

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ GC/EC Chromatograms
__X__ Pesticide/PCB Identification (for positive detections)

Matrix Spike Data

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ GC/EC Chromatograms

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

(Yes) No

Comments: Sample identifications differ from the COC reports to the laboratory sample identifications. The lab indicates that sample labels also did not match the COCs. There appeared to be no problem in correctly identifying the samples, however. The IDs appearing in the data package are truncated versions of the COC IDs, in some cases:

COC Number	EPA Number
SW10EA8	S10EA8
BS10EA8	B10EA8
BS10EA3	B10EA3
BSEA7	BEA7
BSEA3	BEA3
WSEA7	WEA7
WS10EA7	W10EA7
BSFB (10/21/94)	BFB

Holding Times

Were sample extractions performed within holding times?

(Yes) No

Were sample analyses performed within holding times?

(Yes) No

Comments:

None

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

(Yes) No

Were the calibration standards analyzed at the correct concentrations?

(Yes) No

Did the calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes (No)

Were retention time windows provided and correctly calculated?

(Yes) No

Were peak resolutions acceptable?

(Yes) No

Comments: Methoxychlor showed a %RSD of 20.4% on the primary column (RTX-35) for the initial calibration performed on 11/21/94. All results for methoxychlor in the associated samples (BSFB, BEA7) should be considered estimated (UJ/J), since the initial calibration is used as the primary source of calibration for these samples.

Individual Mix Standards (Continuing Calibration)

Did the individual mix standards meet the linearity criteria for maximum percent difference (%D)?

(Yes) No

Did the individual mix standards meet the retention time criteria?

(Yes) No

Comments:

None

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes No

Did the performance evaluation mix standards meet the retention time criteria?

Yes No

None

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?

Yes No

None

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No

Comments: Recoveries of tetrachloro-m-xylene were low on both columns for samples B10EA3, BEA3, BEA7, BSEA4, BSEA9, W10EA7, and WSEA4, but greater than 10% in all cases. Detected results should be considered estimated (J) in these samples, and non-detects estimated at the detection levels (UJ). Samples RBBS and WSEA8 also had recoveries slightly below the lower control level, but since there were no sample detects and/or since the outlier concerned the confirmation column, no qualifiers are recommended for these samples. The MS/MSD analyses also showed low tetrachloro-m-xylene recoveries and high decachlorobiphenyl recoveries, but since the original samples showed acceptable recoveries, no action is [illegible]

AR302190

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments: Samples WEA7 and BSEA8 were used for MS/MSD analyses. All recoveries and RPDs were within QC limits.

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were instrument blanks analyzed at the correct frequency?

Yes No

Were analytes reported in the blanks?

Yes No

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?

Yes No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments:

None

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?

Yes No

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?

Yes No

Comments:

None

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?

Yes No

Was the GPC column check acceptable?

Yes No NA

Was a Florisil cartridge check performed?

Yes No

Was the Florisil cartridge check acceptable?

Yes No NA

None

Laboratory Control Samples

Were LCS analyses performed?

Yes (No)

Were the LCS recoveries within acceptable limits?

Yes No (NA)

None

Sample Results

Were target analytes reported in the investigative samples?

(Yes) No

Were chromatograms provided for all target analytes reported in the investigative samples?

(Yes) No

Were chromatograms of acceptable quality and were analytes correctly identified?

(Yes) No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?

(Yes) No

Comments: Heptachlor in sample BEA3 and delta-BHC in sample WEA7MSD were reported outside their retention time windows, but to a degree consistent with surrogate shifting. The compounds are correctly identified. Percent differences between the quantitated amounts on both columns were sometimes quite large for individual compounds. The detected compounds with %D values greater than 100% were qualified as estimated. Further, detected compounds with retention times eluting within the range of detected arochlors were also considered estimated (J).

Calculation Check

Initial Calibration 11/17/94

Retention Time Window:

Average 3 Standard Retention Times ± 0.05 minutes = Window

$$\frac{9.85 + 9.86 + 9.85}{3} \pm 0.05 = [9.80 - 9.90] \text{ minutes for heptachlor}$$

%RSD:

$$\frac{\text{Standard Deviation of 3 Calibration Factors}}{\text{Mean of 3 Calibration Factors}} \times 100 = \%\text{RSD}$$

$$[1250000, 1370000, 1640000] = \frac{19,9750}{1420000} \times 100 = 14.1\% \text{ for delta-BHC}$$

Continuing Calibration 11/17/94, 12:51

%D:

$$\frac{\text{INDAMK1 Concentration} - \text{INDAMK2 Concentration}}{\text{INDAMK1 Concentration}} \times 100$$

$$\frac{0.0200 - 0.0194}{0.0200} = 3.0\%\text{ D for alpha-BHC}$$

Surrogate Recovery Sample W10EA7

$$\frac{\text{Surrogate Concentration in Sample}}{\text{Concentration Injected}} \times 100 = \%R$$

$$\frac{0.01913}{0.040} \times 100 = 47.8\% \text{ for tetrachloro-m-xylene}$$
(48%)

Matrix Spike Recovery

$$\frac{\text{MS Concentration}^{①}}{\text{Spike Added}} \times 100 = \%R$$

① Concentration = MS Conc. − Sample Conc.

$$\frac{40.8}{59.5} \times 100 = 68.6\% \text{ for 4,4'-DDT}$$

RPD:

$$\frac{\text{MS \%Recovery} - \text{MSD \%Recovery}}{[\text{MS \%R} + \text{MSD \%R}] \div 2} = \text{RPD}$$

$$\frac{69 - 76}{72.5} = 9.7\% \text{ for 4,4'-DDT}$$
(10%)

Form OCP 1.0

Sample Results Sample BSEA9

CRQL:

$$\frac{\text{Base CRQL} \times \text{Extract Volume} \times \text{Dil. Factor}}{\%\ \text{Solids} \times \text{Sample Weight}} = \text{Adjusted CRQL}$$

$$\frac{0.01 \times 5000 \times 1}{0.94 \times 30} = 1.8\ \mu g/Kg$$

Positive Result:

$$\frac{\text{Compound height} \times \text{Extract Vol.} \times \text{DF} \times 2.0}{\text{Calibration Factor} \times \%\text{Solids} \times \text{Sample Weight}} = \text{Compound Concentration}$$

$$\frac{8419 \times 5000 \times 1 \times 2.0}{11{,}0000 \times 0.94 \times 30} = 2.7\ \mu g/Kg \text{ for gamma-chlordane}$$

MPP
1/12/95

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
(All holding time requirements were met)						

Comments:

AR302196

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier (+/-)
11/21/94	RTX-35	Methoxychlor	—	20.4	BSFB, BEA7	J/UJ

Comments:

AR302197

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Samples Affected	Qualifier
(All QC limits were met)					

Comments:

AR302198

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Associated Samples	Qualifier
(No instrument or method or field blank contaminations found)						

Comments:

AR302199

Summary and Conclusions

All material was present for a full validation of this case for organochlorine pesticides and PCBs, and all holding times were met. Calculation checks and data review suggested no errors in compound identification or quantitation, and sample CRQLs and detects were correctly adjusted for moisture content and dilution.

However, data review did suggest arochlor interferences that could have introduced bias into the pesticide sample results. The most significant indication of these are the high percent differences between column results for sample detects. Compounds greater than 100% in difference between primary and confirmation column concentrations were qualified as estimated (J). Further, detected compounds eluting within the retention time range of detected arochlors were also considered estimated. No qualifying action was taken for detects below the CRQL, since they are already considered estimated.

Methoxychlor was qualified in samples BSFB and BEA7 (UJ/J), and all compounds were qualified in B10EA3, BEA3, BEA7, BSEA4, BSEA9, W10EA7, and WSEA4 because of calibration and surrogate problems, respectively. (UJ/J)

Validator's Signature:	Joyce E. Whittle		
Validator's Initials:	JW	Validation Date:	1/10/95
QC Reviewer's Signature:	Michael P. Phillips		
QC Reviewer's Initials	MPP	Review Date:	1/17/95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10EA3

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238911

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 39 decanted: (Y/N) N Date Received: 10/22/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/24/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	2.8	U	J
319-85-7	beta-BHC	2.8	U	J
319-86-8	delta-BHC	2.8	U	J
58-89-9	gamma-BHC (Lindane)	2.8	U	J
76-44-8	Heptachlor	2.8	U	J
309-00-2	Aldrin	2.8	U	J
1024-57-3	Heptachlor epoxide	2.8	U	J
959-98-8	Endosulfan I	2.8	U	J
60-57-1	Dieldrin	4.4	JPZ	
72-55-9	4,4'-DDE	4.3	JZ	
72-20-8	Endrin	5.4	U	J
33213-65-9	Endosulfan II	5.4	U	J
72-54-8	4,4'-DDD	5.4	U	J
1031-07-8	Endosulfan sulfate	5.4	U	J
50-29-3	4,4'-DDT	3.0	JPZ	
72-43-5	Methoxychlor	11	JPZ	
53494-70-5	Endrin ketone	5.4	U	J
7421-93-4	Endrin aldehyde	5.4	U	J
5103-71-9	alpha-Chlordane	5.6	PZ	J
5103-74-2	gamma-Chlordane	5.5	Z	J
8001-35-2	Toxaphene	280	U	J
12674-11-2	Aroclor-1016	54	U	J
11104-28-2	Aroclor-1221	110	U	J
11141-16-5	Aroclor-1232	54	U	J
53469-21-9	Aroclor-1242	54	U	J
12672-29-6	Aroclor-1248	54	U	J
11097-69-1	Aroclor-1254	48	JP	
11096-82-5	Aroclor-1260	51	JP	

VALIDATED

Reviewed By Joyce Y. Wattle

Date 1/10/95

FORM I PEST 3/90

AR302201

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA3

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238909

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 42 decanted: (Y/N) N Date Received: 10/22/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/24/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	2.9	U	J
319-85-7	beta-BHC	2.9	U	J
319-86-8	delta-BHC	2.9	U	J
58-89-9	gamma-BHC (Lindane)	2.9	U	J
76-44-8	Heptachlor	0.51	JP	
309-00-2	Aldrin	2.9	U	J
1024-57-3	Heptachlor epoxide	1.5	JPZ	
959-98-8	Endosulfan I	2.9	U	J
60-57-1	Dieldrin	5.1	JPZ	
72-55-9	4,4'-DDE	4.4	JZ	
72-20-8	Endrin	5.7	U	J
33213-65-9	Endosulfan II	5.7	U	J
72-54-8	4,4'-DDD	5.7	U	J
1031-07-8	Endosulfan sulfate	5.7	U	J
50-29-3	4,4'-DDT	4.5	JPZ	
72-43-5	Methoxychlor	29	U	J
53494-70-5	Endrin ketone	5.7	U	J
7421-93-4	Endrin aldehyde	5.7	U	J
5103-71-9	alpha-Chlordane	6.5	PZ	J
5103-74-2	gamma-Chlordane	6.4	Z	J
8001-35-2	Toxaphene	290	U	J
12674-11-2	Aroclor-1016	57	U	J
11104-28-2	Aroclor-1221	120	U	J
11141-16-5	Aroclor-1232	57	U	J
53469-21-9	Aroclor-1242	57	U	J
12672-29-6	Aroclor-1248	57	U	J
11097-69-1	Aroclor-1254	46	JP	
11096-82-5	Aroclor-1260	67		J

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/10/95

FORM I PEST 3/90

AR302202

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA7

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238910

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 45 decanted: (Y/N) N Date Received: 10/22/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/24/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/22/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	3.1	U	J
319-85-7	beta-BHC	3.1	U	J
319-86-8	delta-BHC	3.1	U	J
58-89-9	gamma-BHC (Lindane)	3.1	U	J
76-44-8	Heptachlor	5.5	P	J
309-00-2	Aldrin	3.2	P	J
1024-57-3	Heptachlor epoxide	3.1	U	J
959-98-8	Endosulfan I	3.1	U	J
60-57-1	Dieldrin	20	Z	J
72-55-9	4,4'-DDE	6.1	PZ	J
72-20-8	Endrin	4.3	JZ	
33213-65-9	Endosulfan II	4.6	JPZ	
72-54-8	4,4'-DDD	6.0	U	J
1031-07-8	Endosulfan sulfate	6.0	U	J
50-29-3	4,4'-DDT	6.0	U	J
72-43-5	Methoxychlor	31	U	J
53494-70-5	Endrin ketone	6.0	U	J
7421-93-4	Endrin aldehyde	6.0	U	J
5103-71-9	alpha-Chlordane	21	PZ	J
5103-74-2	gamma-Chlordane	38	Z	J
8001-35-2	Toxaphene	310	U	J
12674-11-2	Aroclor-1016	60	U	J
11104-28-2	Aroclor-1221	120	U	J
11141-16-5	Aroclor-1232	60	U	J
53469-21-9	Aroclor-1242	60	U	J
12672-29-6	Aroclor-1248	60	U	J
11097-69-1	Aroclor-1254	60	U	J
11096-82-5	Aroclor-1260	79	P	J

VALIDATED
Reviewed By Joyce E. Whittle
Date 1/10/95

AR302203 FORM I PEST 3/90

001524

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFB

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 238912

Sample wt/vol: 500.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 10/22/94

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 10/25/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.10	U
319-85-7	beta-BHC	0.10	U
319-86-8	delta-BHC	0.10	U
58-89-9	gamma-BHC (Lindane)	0.10	U
76-44-8	Heptachlor	0.10	U
309-00-2	Aldrin	0.10	U
1024-57-3	Heptachlor epoxide	0.10	U
959-98-8	Endosulfan I	0.10	U
60-57-1	Dieldrin	0.20	U
72-55-9	4,4'-DDE	0.20	U
72-20-8	Endrin	0.20	U
33213-65-9	Endosulfan II	0.20	U
72-54-8	4,4'-DDD	0.20	U
1031-07-8	Endosulfan sulfate	0.20	U
50-29-3	4,4'-DDT	0.20	U
72-43-5	Methoxychlor	1.0	U
53494-70-5	Endrin ketone	0.20	U
7421-93-4	Endrin aldehyde	0.20	U
5103-71-9	alpha-Chlordane	0.10	U
5103-74-2	gamma-Chlordane	0.10	U
8001-35-2	Toxaphene	10	U
12674-11-2	Aroclor-1016	2.0	U
11104-28-2	Aroclor-1221	4.0	U
11141-16-5	Aroclor-1232	2.0	U
53469-21-9	Aroclor-1242	2.0	U
12672-29-6	Aroclor-1248	2.0	U
11097-69-1	Aroclor-1254	2.0	U
11096-82-5	Aroclor-1260	2.0	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/10/95

FORM I PEST 3/90

001535

AR302204

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA4

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238829

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 22 decanted: (Y/N) N Date Received: 10/21/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/24/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 5.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	2.2	U	5
319-85-7	beta-BHC	2.2	U	5
319-86-8	delta-BHC	2.2	U	5
58-89-9	gamma-BHC (Lindane)	2.2	U	5
76-44-8	Heptachlor	2.2	U	5
309-00-2	Aldrin	2.2	U	5
1024-57-3	Heptachlor epoxide	2.2	U	5
959-98-8	Endosulfan I	2.2	U	5
60-57-1	Dieldrin	4.2	U	5
72-55-9	4,4'-DDE	4.4	Z	5
72-20-8	Endrin	4.2	U	5
33213-65-9	Endosulfan II	4.2	U	5
72-54-8	4,4'-DDD	4.2	U	5
1031-07-8	Endosulfan sulfate	4.2	U	5
50-29-3	4,4'-DDT	4.2	U	5
72-43-5	Methoxychlor	22	U	5
53494-70-5	Endrin ketone	4.2	U	5
7421-93-4	Endrin aldehyde	4.2	U	5
5103-71-9	alpha-Chlordane	3.5	PZ	5
5103-74-2	gamma-Chlordane	3.1	Z	5
8001-35-2	Toxaphene	220	U	5
12674-11-2	Aroclor-1016	42	U	5
11104-28-2	Aroclor-1221	86	U	5
11141-16-5	Aroclor-1232	42	U	5
53469-21-9	Aroclor-1242	42	U	5
12672-29-6	Aroclor-1248	42	U	5
11097-69-1	Aroclor-1254	46	P	5
11096-82-5	Aroclor-1260	42	U	5

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/10/95

FORM I PEST 3/90

AR302205

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA8

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240142

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 44 decanted: (Y/N) N Date Received: 11/03/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/06/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 3.00

GPC Cleanup: (Y/N) Y pH: 7.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	9.1	U
319-85-7	beta-BHC	9.1	U
319-86-8	delta-BHC	9.1	U
58-89-9	gamma-BHC (Lindane)	9.1	U
76-44-8	Heptachlor	9.1	U
309-00-2	Aldrin	9.1	U
1024-57-3	Heptachlor epoxide	9.1	U
959-98-8	Endosulfan I	9.1	U
60-57-1	Dieldrin	18	U
72-55-9	4,4'-DDE	26	PZ
72-20-8	Endrin	18	U
33213-65-9	Endosulfan II	17	JPZ
72-54-8	4,4'-DDD	18	U
1031-07-8	Endosulfan sulfate	13	JP
50-29-3	4,4'-DDT	18	U
72-43-5	Methoxychlor	91	U
53494-70-5	Endrin ketone	18	U
7421-93-4	Endrin aldehyde	18	U
5103-71-9	alpha-Chlordane	6.2	JPZ
5103-74-2	gamma-Chlordane	9.1	U
8001-35-2	Toxaphene	910	U
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	360	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	870	
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	180	U
11096-82-5	Aroclor-1260	770	

VALIDATED

Reviewed By Joyce J. Whittle

Date 1/16/95

FORM I PEST 3/90

001556

AR302206

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA9

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238830

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 6 decanted: (Y/N) N Date Received: 10/21/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/24/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	1.8	U	J
319-85-7	beta-BHC	1.8	U	J
319-86-8	delta-BHC	1.8	U	J
58-89-9	gamma-BHC (Lindane)	1.8	U	J
76-44-8	Heptachlor	1.8	U	J
309-00-2	Aldrin	1.8	U	J
1024-57-3	Heptachlor epoxide	1.0	JP	
959-98-8	Endosulfan I	1.8	U	J
60-57-1	Dieldrin	4.4	P	J
72-55-9	4,4'-DDE	13		J
72-20-8	Endrin	1.7	JP	
33213-65-9	Endosulfan II	2.6	JP	
72-54-8	4,4'-DDD	3.5	U	J
1031-07-8	Endosulfan sulfate	4.2	P	J
50-29-3	4,4'-DDT	3.5	U	J
72-43-5	Methoxychlor	22	P	J
53494-70-5	Endrin ketone	3.1	JP	
7421-93-4	Endrin aldehyde	3.5	U	J
5103-71-9	alpha-Chlordane	2.1	P	J
5103-74-2	gamma-Chlordane	2.7		J
8001-35-2	Toxaphene	180	U	J
12674-11-2	Aroclor-1016	35	U	J
11104-28-2	Aroclor-1221	71	U	J
11141-16-5	Aroclor-1232	35	U	J
53469-21-9	Aroclor-1242	35	U	J
12672-29-6	Aroclor-1248	35	U	J
11097-69-1	Aroclor-1254	35	U	J
11096-82-5	Aroclor-1260	35	U	J

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/10/95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSFB

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 238831

Sample wt/vol: 500.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 10/21/94

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 10/25/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 11/22/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.10	U
319-85-7	beta-BHC	0.10	U
319-86-8	delta-BHC	0.10	U
58-89-9	gamma-BHC (Lindane)	0.10	U
76-44-8	Heptachlor	0.10	U
309-00-2	Aldrin	0.10	U
1024-57-3	Heptachlor epoxide	0.10	U
959-98-8	Endosulfan I	0.10	U
60-57-1	Dieldrin	0.20	U
72-55-9	4,4'-DDE	0.20	U
72-20-8	Endrin	0.20	U
33213-65-9	Endosulfan II	0.20	U
72-54-8	4,4'-DDD	0.20	U
1031-07-8	Endosulfan sulfate	0.20	U
50-29-3	4,4'-DDT	0.20	U
72-43-5	Methoxychlor	1.0	U J
53494-70-5	Endrin ketone	0.20	U
7421-93-4	Endrin aldehyde	0.20	U
5103-71-9	alpha-Chlordane	0.10	U
5103-74-2	gamma-Chlordane	0.10	U
8001-35-2	Toxaphene	10	U
12674-11-2	Aroclor-1016	2.0	U
11104-28-2	Aroclor-1221	4.0	U
11141-16-5	Aroclor-1232	2.0	U
53469-21-9	Aroclor-1242	2.0	U
12672-29-6	Aroclor-1248	2.0	U
11097-69-1	Aroclor-1254	2.0	U
11096-82-5	Aroclor-1260	2.0	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/10/95

FORM I PEST 3/90

001582

AR302208

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) WATER Lab Sample ID: 240144

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 11/03/94

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/08/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/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 (Lindane)	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

VALIDATED

Reviewed By Joyce E. Whittle

Date 01/10/95

AR302209

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S10EA8

Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240143

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 39 decanted: (Y/N) N Date Received: 11/03/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/06/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 2.00

GPC Cleanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	5.6	U
319-85-7	beta-BHC	5.6	U
319-86-8	delta-BHC	5.6	U
58-89-9	gamma-BHC (Lindane)	5.6	U
76-44-8	Heptachlor	5.6	U
309-00-2	Aldrin	5.6	U
1024-57-3	Heptachlor epoxide	5.6	U
959-98-8	Endosulfan I	5.6	U
60-57-1	Dieldrin	11	U
72-55-9	4,4'-DDE	27	Z
72-20-8	Endrin	11	U
33213-65-9	Endosulfan II	19	PZ
72-54-8	4,4'-DDD	28	P
1031-07-8	Endosulfan sulfate	15	P
50-29-3	4,4'-DDT	12	PZ
72-43-5	Methoxychlor	63	PZ
53494-70-5	Endrin ketone	7.0	JPZ
7421-93-4	Endrin aldehyde	11	U
5103-71-9	alpha-Chlordane	5.5	JPZ
5103-74-2	gamma-Chlordane	5.6	U
8001-35-2	Toxaphene	560	U
12674-11-2	Aroclor-1016	110	U
11104-28-2	Aroclor-1221	220	U
11141-16-5	Aroclor-1232	110	U
53469-21-9	Aroclor-1242	810	
12672-29-6	Aroclor-1248	110	U
11097-69-1	Aroclor-1254	110	U
11096-82-5	Aroclor-1260	720	

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/10/95

FORM I PEST 3/90

AR302210

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W10EA7

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238915

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 42 decanted: (Y/N) N Date Received: 10/22/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/24/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCFNTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	2.9	U	J
319-85-7	beta-BHC	2.9	U	J
319-86-8	delta-BHC	1.9	JP	
58-89-9	gamma-BHC (Lindane)	2.9	U	J
76-44-8	Heptachlor	2.1	JP	
309-00-2	Aldrin	2.2	JP	
1024-57-3	Heptachlor epoxide	1.5	JP	
959-98-8	Endosulfan I	2.9	U	J
60-57-1	Dieldrin	30	Z	J
72-55-9	4,4'-DDE	5.5	JZ	
72-20-8	Endrin	5.7	U	J
33213-65-9	Endosulfan II	4.3	JPZ	
72-54-8	4,4'-DDD	6.3	Z	J
1031-07-8	Endosulfan sulfate	5.7	U	J
50-29-3	4,4'-DDT	5.7	U	J
72-43-5	Methoxychlor	29	U	J
53494-70-5	Endrin ketone	5.7	U	J
7421-93-4	Endrin aldehyde	5.7	U	J
5103-71-9	alpha-Chlordane	14	PZ	J
5103-74-2	gamma-Chlordane	26	Z	J
8001-35-2	Toxaphene	290	U	J
12674-11-2	Aroclor-1016	57	U	J
11104-28-2	Aroclor-1221	120	U	J
11141-16-5	Aroclor-1232	57	U	J
53469-21-9	Aroclor-1242	57	U	J
12672-29-6	Aroclor-1248	57	U	J
11097-69-1	Aroclor-1254	57	U	J
11096-82-5	Aroclor-1260	53	JP	

VALIDATED

Reviewed By Joyce E. Whitt

Date 1/10/95

FORM I PEST 3/90

AR302211

001615

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WEA7

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238914

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 44 decanted: (Y/N) N Date Received: 10/22/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/24/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	3.0	U	
319-85-7	beta-BHC	3.0	U	
319-86-8	delta-BHC	1.5	JP	
58-89-9	gamma-BHC (Lindane)	3.0	U	
76-44-8	Heptachlor	2.2	JP	
309-00-2	Aldrin	2.5	JP	
1024-57-3	Heptachlor epoxide	1.7	JP	
959-98-8	Endosulfan I	3.0	U	
60-57-1	Dieldrin	35	Z	
72-55-9	4,4'-DDE	6.7	Z	
72-20-8	Endrin	2.9	JZ	
33213-65-9	Endosulfan II	3.7	JPZ	
72-54-8	4,4'-DDD	7.1	P	J
1031-07-8	Endosulfan sulfate	5.9	U	
50-29-3	4,4'-DDT	5.9	U	
72-43-5	Methoxychlor	30	U	
53494-70-5	Endrin ketone	5.9	U	
7421-93-4	Endrin aldehyde	5.9	U	
5103-71-9	alpha-Chlordane	18	PZ	
5103-74-2	gamma-Chlordane	32	Z	
8001-35-2	Toxaphene	300	U	
12674-11-2	Aroclor-1016	59	U	
11104-28-2	Aroclor-1221	120	U	
11141-16-5	Aroclor-1232	59	U	
53469-21-9	Aroclor-1242	59	U	
12672-29-6	Aroclor-1248	59	U	
11097-69-1	Aroclor-1254	59	U	
11096-82-5	Aroclor-1260	84		

VALIDATED

Reviewed By Joyce E. Whittle

FORM I PEST Date 1/10/95 3/90

001629

AR302212

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA4

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 238833

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 8 decanted: (Y/N) N Date Received: 10/21/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/24/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC (Lindane)	1.8	U
76-44-8	Heptachlor	1.2	JP
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.6	JP
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	2.7	JPZ
72-55-9	4,4'-DDE	10	Z
72-20-8	Endrin	3.6	U
33213-65-9	Endosulfan II	3.3	JPZ
72-54-8	4,4'-DDD	3.6	U
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	3.1	JPZ
72-43-5	Methoxychlor	23	PZ
53494-70-5	Endrin ketone	2.8	JPZ
7421-93-4	Endrin aldehyde	3.6	U
5103-71-9	alpha-Chlordane	6.4	PZ
5103-74-2	gamma-Chlordane	7.6	Z
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	36	U
11104-28-2	Aroclor-1221	73	U
11141-16-5	Aroclor-1232	36	U
53469-21-9	Aroclor-1242	36	U
12672-29-6	Aroclor-1248	36	U
11097-69-1	Aroclor-1254	36	U
11096-82-5	Aroclor-1260	56	

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/16/95

FORM I PEST 3/90

AR302213

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA8

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47430

Matrix: (soil/water) SOIL Lab Sample ID: 240147

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 21 decanted: (Y/N) N Date Received: 11/03/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/06/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/17/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/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 (Lindane)	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	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	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	41	J
12672-29-6	Aroclor-1248	42	U
11097-69-1	Aroclor-1254	42	U
11096-82-5	Aroclor-1260	32	J

VALIDATED

FORM I PEST Reviewed By Joyce E. White 3/90

Date 1/10/95

001655

AR302214

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Organochlorine Pesticides and Polychlorinated Biphenyls Analysis

Case Number: 94239, SDG #47744	Project Number: 27654 3.4.2.2
Site: Hare and Lombard	
Contractor Laboratory: Aquatec	
Validator: Cindy Lucangioli	Validation Date: 1/12/95
QC Reviewer: Michael R. Phillips	Review Date: 1/27/95
Sample Matrix: 3 low waters and 5 low soils.	
Analytical Method: EPA OLM01.0 SOW	

Sample Designations:

RBBS1	WSEA2		
RBBS2			
RBBS3			
BSEA1			
BSEA2			
BSEA5			
WSEA1			

Data for the above samples are:

_____ Acceptable for use
_X_ Acceptable for use as qualified
_____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", Feb. 1994.

MP 1/27/95

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
X Surrogate Recovery Summary
X MS/MSD Summary
X Reagent Blank Summary

Sample Data

X Chain of Custody Forms
X Holding Times
X Organic Analysis Data Sheets
X Quantitation Reports
X GC/EC Chromatograms
* Pesticide/PCB Identification (for positive detections)

Instrument Calibration and Performance Data

X Initial Calibration Retention Time Summary
X Initial Calibration Response Factor Summary
X Performance Evaluation Mix Summary
* Continuing Calibration Verification Summary
* Analytical Run Sequence Summary
X GPC Calibration and Florisil Cartridge Check Summary
X Pesticide/PCB Standards Quantitation Reports
X Pesticide/PCB Standards GC/EC Chromatograms

Reagent and Instrument Blank Data

* Organic Analysis Data Sheets
X Quantitation Reports
X GC/EC Chromatograms
* Pesticide/PCB Identification (for positive detections)

Matrix Spike Data

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ GC/EC Chromatograms

Comments: See text for discussion of problems indicated above.

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?
Yes No

Comments:

Holding Times

Were sample extractions performed within holding times?
Yes No

Were sample analyses performed within holding times?
Yes No

Comments:

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes No

Were the calibration standards analyzed at the correct concentrations?

Yes No

Did the calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No

Were retention time windows provided and correctly calculated?

Yes No

Were peak resolutions acceptable?

Yes No

Comments: The laboratory met the method specified acceptance limits, however, several compounds exceeded the 20% RSD validation criterion. Please reference the initial calibration summary table for outlying compounds and associated sample data.

Individual Mix Standards (Continuing Calibration)

Did the individual mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes No

Did the individual mix standards meet the retention time criteria?

Yes No

MDF 1-27-95

Comments: The compounds endosulfan sulfate, and endrin decachlorobiphenyl (surrogate) before exceeded the retention time windows by -0.01 minutes in the standard INDBMSS. Expanded retention time windows were used for identification of any potential target compounds in the associated sample data and no data qualification was considered necessary. However, the laboratory did not re-analyze the samples bracketed by the unsatisfactory standard INDBMSS and is non-compliant with the requirements of the method.

AR302219

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes No

Did the performance evaluation mix standards meet the retention time criteria?

Yes No

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?

Yes No

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No NA

Comments:

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments:

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were instrument blanks analyzed at the correct frequency?

Yes No

Were analytes reported in the blanks?

Yes No

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?

Yes No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments: 4,4'-DDE was detected above the CRQL in the method blank PBLKC1 and in its associated sample BSEAS. The laboratory analyzed the pre-Florosil extracts as PBLKIC and BSEAS re and no blank contamination was found. Only samples PBLKIC and BSEASRE are used for reporting purposes. The laboratory did not re-extract the method blank and the associated sample as required by the method and is non-compliant.

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?

Yes No

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?

Yes No

Comments:

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?

Yes No

Was the GPC column check acceptable?

Yes No NA

Was a Florisil cartridge check performed?

Yes No

Was the Florisil cartridge check acceptable?

Yes No NA

Laboratory Control Samples

Were LCS analyses performed?
Yes (No)

Were the LCS recoveries within acceptable limits?
Yes No (NA)

Sample Results

Were target analytes reported in the investigative samples?
(Yes) No

Were chromatograms provided for all target analytes reported in the investigative samples?
(Yes) No

Were chromatograms of acceptable quality and were analytes correctly identified?
(Yes) No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?
(Yes) No

Comments: The aroclor 1254 was present in all of the investigative soil samples below the CRQL as noted by the reviewer. 1254 was only reported as detected below the CRQL in sample BSEA1. Since the 1254 results for the other soil sample data was reported by the laboratory are still valid, no further action was taken by the reviewer.

AR302223

Calculation Check

Initial Calibration

Retention Time Window: 11/28/94 RTX-35

α-BHC : 8.37, 8.37, 8.37 mean = 8.37

RTW = 8.32 - 8.42

%RSD: Methoxychlor 11.5 %

207000
200000
166000

$RSD = \frac{21932}{191000} \times 100 = 11.5\ \%$

Continuing Calibration 12/16/94 1701

%D: Heptachlor $\frac{(.0226 - .02)}{.02} \times 100 = 13.0\ \%$

Surrogate Recovery BSEA1

$TCX(2) = \frac{20749}{726000} = .029$ $\frac{.029}{.04} \times 100 = 72\ \%$

Matrix Spike Recovery BSEA1 DDT RTX-35

$4,4'DDT = \frac{55444}{501000} \times \frac{5000}{30.2} \times \frac{2}{1} \times \frac{1}{.72} = 50.9\ \frac{ng}{g}$ $\frac{50.9}{46} \times 100 = 111\ \%$

RPD: $\frac{(114 - 111)}{\left(\frac{114 + 111}{2}\right)} \times 100 = 3\ \%$

Sample Results Soil BSEA2

CRQL: $\frac{1.7\,\mu g/kg}{.48} = 3.5\,\mu g/kg$

Positive Result: BSEA1 aroclor 1254 RTX-35

$F = \frac{5000}{30.1} \times \frac{2}{.72} = 461.4$

12.74 $\frac{1221}{25500}(461.4) = 22.1$

13.00 $\frac{1646}{34600}(461.4) = 22.0$

14.26 $\frac{2635}{\cancel{48}\,45600}(461.4) = 26.7$

14.68 $\frac{1891}{31800}(461.4) = 27.4$

16.13 $\frac{2975}{33800}(461.4) = 40.6$

$\bar{x} = 27.8$ 2 sig figs → 28

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
RBBS 1	11/3/94	11/8/94	11/29/94	5	21	NONE
RBBS 2	11/4/94	11/8/94	11/29/94	4	21	
RBBS 3	11/12/94	11/17/94	11/29/94	5	12	
BSEA 1	11/3/94	11/8/94	12/16/94	5	38	
BSEA 2	11/4/94	11/8/94	12/16/94	4	38	
BSEA 5	11/12/94	11/15/94	11/29/94	3	14	
WSEA 1	11/3/94	11/8/94	12/16/94	5	38	
WSEA 2	11/4/94	11/8/94	12/16/94	4	38	
BSEA5 RE	11/12/94	11/15/94	12/10/94	3	25	

Comments:

AR302226

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
11/28/94	0850-2	α-BHC		21.8	RBBS1, RBBS2, RBBS3	J/UJ
		δ-BHC		24.7	↓	↓
12/10/94	1319-1	α-BHC		21.0	BSEASRE	J/UJ
		δ-BHC		20.4	↓	↓

Comments:

3R302227

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Samples Affected	Qualifier

Comments: All PEM check standards and INDA and INDB mixes met the 25 To D acceptance criteria.

AR302228

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Associated Samples	Qualifier
PBLKC1	4,4'-DDE	4.7	ug/kg	23.5	WSE15	NA

Comments: Sample WSE15 was not chosen for reporting due to the contamination of 4,4'-DDE in the sample and its method blank. Sample WSE15RE was used instead. All the rinsate blanks were non-detect so no qualification of the associated sample data was required.

ocp_1.doc
10141994 1032

AR302229

Summary and Conclusions

Sample data required minor qualification due to calibration criterion exceedance. No other qualification of sample data was necessary.

The instrument blank PIBCR08 and the INDBMS5 standard had surrogates outside of retention time windows, presumably due to the heavy hydrocarbon build-up on the column from sample analysis. No corrective action was taken by the laboratory, nor were the affected samples BSEA1, BSEA2, WSEA1, WSEA2 and the MS/MSD samples re-analyzed. With the laboratory is non-compliant with the method requirements that all sample data be bracketed by standards ~~not~~ meeting acceptance criteria. No sample data were qualified due to this procedural error.

The sample data are considered to be acceptable as qualified by the reviewer. Any sample data flagged with a 'P' by the laboratory indicating a greater than 25% RD between results have been qualified as estimated. Accuracy, as measured by the surrogate and MS/MSD recoveries is satisfactory. Precision as measured by the RPDs between MS/MSD recoveries is satisfactory. Completeness defined as the percentage of useable results, including those qualified as estimated, is 100%.

Validator's Signature: Cynthia H. Joseph	
Validator's Initials: CHJ	Validation Date: 1/12/95
QC Reviewer's Signature: Michael P. Phillips	
QC Reviewer's Initials MPP	Review Date: 1/27/95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA1

b Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240299

Sample wt/vol: 30.1 (g/mL) G Lab File ID:

% Moisture: 28 decanted: (Y/N) N Date Received: 11/04/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/08/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/16/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.4	U
319-85-7	beta-BHC	2.4	U
319-86-8	delta-BHC	2.4	U
58-89-9	gamma-BHC (Lindane)	2.4	U
76-44-8	Heptachlor	2.4	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
959-98-8	Endosulfan I	2.4	U
60-57-1	Dieldrin	4.6	U
72-55-9	4,4'-DDE	3.0	JZ
72-20-8	Endrin	4.6	U
33213-65-9	Endosulfan II	4.6	U
72-54-8	4,4'-DDD	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
50-29-3	4,4'-DDT	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
5103-71-9	alpha-Chlordane	1.1	JZ
5103-74-2	gamma-Chlordane	2.4	U
8001-35-2	Toxaphene	240	U
12674-11-2	Aroclor-1016	46	U
11104-28-2	Aroclor-1221	93	U
11141-16-5	Aroclor-1232	46	U
53469-21-9	Aroclor-1242	46	U
12672-29-6	Aroclor-1248	46	U
11097-69-1	Aroclor-1254	28	J
11096-82-5	Aroclor-1260	46	U

VALIDATED

Reviewed By CPL
Date 1/12/95

FORM I PEST 3/90

AR302231

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA2

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240394

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 52 decanted: (Y/N) N Date Received: 11/05/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/08/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/16/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	3.5	U	
319-85-7	beta-BHC	3.5	U	
319-86-8	delta-BHC	3.5	U	
58-89-9	gamma-BHC (Lindane)	3.5	U	
76-44-8	Heptachlor	3.5	U	
309-00-2	Aldrin	3.5	U	
1024-57-3	Heptachlor epoxide	3.5	U	
959-98-8	Endosulfan I	3.5	U	
60-57-1	Dieldrin	4.6	J	
72-55-9	4,4'-DDE	3.5	JP	
72-20-8	Endrin	6.9	U	
33213-65-9	Endosulfan II	4.6	JP	
72-54-8	4,4'-DDD	6.9	U	
1031-07-8	Endosulfan sulfate	4.0	JP	
50-29-3	4,4'-DDT	6.9	U	
72-43-5	Methoxychlor	35	U	
53494-70-5	Endrin ketone	6.9	U	
7421-93-4	Endrin aldehyde	6.9	U	
5103-71-9	alpha-Chlordane	7.5	P	J
5103-74-2	gamma-Chlordane	5.0	P	J
8001-35-2	Toxaphene	350	U	
12674-11-2	Aroclor-1016	69	U	
11104-28-2	Aroclor-1221	140	U	
11141-16-5	Aroclor-1232	69	U	
53469-21-9	Aroclor-1242	69	U	
12672-29-6	Aroclor-1248	69	U	
11097-69-1	Aroclor-1254	69	U	
11096-82-5	Aroclor-1260	69	U	

VALIDATED

Reviewed By Michael P. Phillips for CHL

Date 1-27-95

FORM I PEST 3/90

AR302232

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA5RE

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 241146R1

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 22 decanted: (Y/N) N Date Received: 11/14/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/10/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	2.2	U	J
319-85-7	beta-BHC	2.2	U	
319-86-8	delta-BHC	2.2	U	J
58-89-9	gamma-BHC (Lindane)	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	Methoxychlor	22	U	
53494-70-5	Endrin ketone	4.2	U	
7421-93-4	Endrin aldehyde	4.2	U	
5103-71-9	alpha-Chlordane	3.7	P	J
5103-74-2	gamma-Chlordane	2.1	J	
8001-35-2	Toxaphene	220	U	
12674-11-2	Aroclor-1016	42	U	
11104-28-2	Aroclor-1221	86	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	

VALIDATED

Reviewed By Michael W. Phillips for CHL

Date 1-27-95

FORM I PEST 3/90

AR302233

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA1

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240304

Sample wt/vol: 30.2 (g/mL) G Lab File ID:

% Moisture: 26 decanted: (Y/N) N Date Received: 11/04/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/08/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/16/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.3	U
319-85-7	beta-BHC	2.3	U
319-86-8	delta-BHC	2.3	U
58-89-9	gamma-BHC (Lindane)	2.3	U
76-44-8	Heptachlor	2.3	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
959-98-8	Endosulfan I	2.3	U
60-57-1	Dieldrin	4.4	U
72-55-9	4,4'-DDE	4.4	U
72-20-8	Endrin	4.4	U
33213-65-9	Endosulfan II	4.4	U
72-54-8	4,4'-DDD	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
50-29-3	4,4'-DDT	4.4	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.4	U
7421-93-4	Endrin aldehyde	4.4	U
5103-71-9	alpha-Chlordane	1.1	J
5103-74-2	gamma-Chlordane	2.3	U
8001-35-2	Toxaphene	230	U
12674-11-2	Aroclor-1016	44	U
11104-28-2	Aroclor-1221	90	U
11141-16-5	Aroclor-1232	44	U
53469-21-9	Aroclor-1242	44	U
12672-29-6	Aroclor-1248	44	U
11097-69-1	Aroclor-1254	44	U
11096-82-5	Aroclor-1260	44	U

VALIDATED

Reviewed By CK

Date 1/12/95

AR302234

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA2

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) SOIL Lab Sample ID: 240398

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 28 decanted: (Y/N) N Date Received: 11/05/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/08/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/16/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.4	U
319-85-7	beta-BHC	2.4	U
319-86-8	delta-BHC	2.4	U
58-89-9	gamma-BHC (Lindane)	2.4	U
76-44-8	Heptachlor	2.4	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
959-98-8	Endosulfan I	2.4	U
60-57-1	Dieldrin	4.6	U
72-55-9	4,4'-DDE	4.6	U
72-20-8	Endrin	5.5	P J
33213-65-9	Endosulfan II	4.6	U
72-54-8	4,4'-DDD	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
50-29-3	4,4'-DDT	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
5103-71-9	alpha-Chlordane	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
8001-35-2	Toxaphene	240	U
12674-11-2	Aroclor-1016	46	U
11104-28-2	Aroclor-1221	93	U
11141-16-5	Aroclor-1232	46	U
53469-21-9	Aroclor-1242	46	U
12672-29-6	Aroclor-1248	46	U
11097-69-1	Aroclor-1254	46	U
11096-82-5	Aroclor-1260	46	U

VALIDATED

Reviewed By CWC
Date 1/12/95

FORM I PEST 3/90

AR302235

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS1

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240300

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 11/04/94

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/08/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 11/29/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
319-84-6	alpha-BHC	0.050	U	J
319-85-7	beta-BHC	0.050	U	
319-86-8	delta-BHC	0.050	U	J
58-89-9	gamma-BHC (Lindane)	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	

VALIDATED

Reviewed By Michael R. Phillips for CHL

Date 1-27-95

FORM I PEST 3/90

AR302236

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS2

Job Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240395

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 11/05/94

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/08/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 11/29/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
319-84-6	alpha-BHC	0.050	U	J
319-85-7	beta-BHC	0.050	U	
319-86-8	delta-BHC	0.050	U	J
58-89-9	gamma-BHC (Lindane)	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	

VALIDATED

Reviewed By Michael R. Phillips for CHL

Date 1-27-95

FORM I PEST 3/90

AR302237

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS3

Lab Name: AQUATEC INC Contract: 94239

Lab Code: AQUAI Case No.: 94239 SAS No.: SDG No.: 47744

Matrix: (soil/water) WATER Lab Sample ID: 241147

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 11/14/94

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/17/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 11/29/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
319-84-6	alpha-BHC	0.050	U	J
319-85-7	beta-BHC	0.050	U	
319-86-8	delta-BHC	0.050	U	J
58-89-9	gamma-BHC (Lindane)	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	

VALIDATED

Reviewed By Michael P. Phillips for CHL

Date 1-27-95

FORM I PEST 3/90

AR302238

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

~~Organochlorine Pesticides and Polychlorinated Biphenyls Analysis~~
CARBAMATE PESTICIDES ANALYSIS

Case Number: 94239, SDG 47430	Project Number: 27654, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec, Inc. Inchcape Testing Services	
Validator: J. Whittle	Validation Date: 12/31/94
QC Reviewer: Michael R. Phillips	Review Date: 1/18/95
Sample Matrix: Soil/Sediment (11), Water QC (3)	
Analytical Method: EPA Method 8318	

Sample Designations:

BSEA4	W10EA7	BFB	
BSEA9	BSEA8	BSFB	
WSEA4	S10EA8	RBBS	
BEA3	WSEA8		
BEA7			
B10EA3			
WEA7			

Data for the above samples are:

____ Acceptable for use
_X_ Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," (February 1994), in conjunction with EPA Method 8318.

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
* Surrogate Recovery Summary
* MS/MSD Summary
* Reagent Blank Summary
* Quality Control Check Summary

Sample Data

* Chain of Custody Forms
* Holding Times
X Organic Analysis Data Sheets
X Quantitation Reports
X ~~GC/EC~~ Chromatograms
NA Pesticide/~~PCB~~ Identification (for positive detections)

Instrument Calibration and Performance Data

* Initial Calibration Retention Time Summary
* Initial Calibration Response Factor Summary
NA Performance Evaluation Mix Summary
* Continuing Calibration Verification Summary
X Analytical Run Sequence Summary
NA GPC Calibration and Florisil Cartridge Check Summary
X ~~Pesticide/PCB~~ Standards Quantitation Reports
X ~~Pesticide/PCB~~ Standards ~~GC/EC~~ Chromatograms

Reagent and Instrument Blank Data

X Organic Analysis Data Sheets
X Quantitation Reports
X ~~GC/EC~~ Chromatograms
NA Pesticide/~~PCB~~ Identification (for positive detections)

Matrix Spike Data

___*___ Organic Analysis Data Sheets
___*___ Quantitation Reports
___*___ ~~GC/EC~~ Chromatograms

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

(Yes) No

Comments: Samples BFB and BSFB were not preserved in the field, but were preserved by the lab on 10/22/94 with chloroacetic acid, according to method requirements. Since the samples were properly cooled and shipped in amber containers, the lack of preservative for 1-2 days should not have had any significant affect.

Holding Times

Were sample extractions performed within holding times?

(Yes) ~~No~~ (gw)

Were sample analyses performed within holding times?

(Yes) No

Comments: The field blanks, BFB, BSFB, and RBBS, were not extracted, but were analyzed by direct column injection. A higher injection volume (800 µl rather than 20 µl) was used in order to achieve sample detection levels of 5 µg/l. All samples were analyzed within required holding times.

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

(Yes) No

Were the calibration standards analyzed at the correct concentrations?

(Yes) No

Did the calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes (No)

Were retention time windows provided and correctly calculated?

Yes (No)

Were peak resolutions acceptable?

(Yes) No

Comments: Calculations made of the %RSD of the compound response factors in the initial calibrations showed all values to be less than the method-required 20%, except for aldicarb in the 11/28/94 calibration (see page 5B). This calibration associates with the water blank analyses and no qualifying action is recommended, since no detections were indicated. Retention time windows were not provided, either, in the data package. Calculations are provided on page 5B and an example on page 10 of this report. Some quantitations were made outside these windows, but review of the raw data did not suggest false identifications or false nondetects. Qualifiers are not recommended, since no detections were reported.

Individual Mix Standards (Continuing Calibration)

Did the individual mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes (No)

Did the individual mix standards meet the retention time criteria?

Yes (No)

Comments: 3-Hydroxycarbofuran, carbofuran, and carbaryl were outside the retention time windows in the final 500ppb check standard for the soil samples. This has the possible effect of false identifications for these compounds in samples W10EA7, BSEA8, S10EA8, and WSEA8, even though the preceding 500 ppb standard was within the windows. The differences between %D values of the final standard and the standard preceding these samples show a similar trend, with some values exceeding the method-required 15% control limit.

(cont. on p. 5C)

MPP 1/18/95

~~Continuing calibration results suggest the possibility of bias toward the end of the sample analyses on 11/28/94 and 11/29/94 but review of the data does not indicate false nondetects. Since no detections are reported, qualification is not needed.~~

MPP 1/18/95

AR302243

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Environmental Services

SHEET _____ OF _____
JOB NO. 27654, 3.4.2.2
DATE 1/4/95
COMPUTED BY J. Whittle
CHECKED BY _____

PROJECT Kane and Lombard
SUBJECT Data Validation

INITIAL CALIBRATIONS

COMPOUND	11/28/94 CALIBRATION ①		11/30/94 CALIBRATION ②	
	% RSD	RT WINDOW	% RSD	RT WINDOW
Aldicarb sulfone	4.0	3.680-3.748	10.4	3.060-3.228
Methomyl	7.7	4.656-5.032	11.9	4.235-4.401
3-Hydroxycarbofuran	4.0	10.888-10.972	7.4	10.773-10.823
Aldicarb	33.6	12.919-13.085	11.4	12.799-13.053
Baygon	3.9	15.151-15.241	3.9	15.170-15.230
Carbofuran	4.6	15.529-15.571	4.7	15.528-15.560
Carbaryl	1.8	16.484-16.572	3.5	16.525-16.551
Methiocarb	6.1	19.530-19.590	16.4	19.563-19.641
Promecarb	5.5	19.933-19.983	7.4	19.970-20.03

① Applies to water samples BFB, BSFB, and RBBS.
② Applies to all soil samples.

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SUBJECT Data Validation

Continuing Calibrations

Several target compounds exceeded the acceptance criterion of 15 % D. See the continuing calibration qualification summary form on page 14 of this report for the specific analytes and affected samples. All results for these analytes in the affected samples were qualified as estimated (J/UJ).

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes No NA

Did the performance evaluation mix standards meet the retention time criteria?

Yes No NA

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?

Yes No

None

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No

Comments: Refer to page 6B for discussion of surrogate results.

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JOB NO. 27654, 3.4.2.2
DATE 1/4/95
COMPUTED BY J. Whittle
CHECKED BY _____

PROJECT Kane and Lombard
SUBJECT Data Validation

SURROGATE RECOVERY COMMENTS

The carbamate pesticide surrogate, BDMC, co-elutes with promecarb, therefore was not included in the calibration mix. BDMC was identified and quantitated in all the soil samples as promecarb. A 500 ppb solution of BDMC and a 500 ppb solution of promecarb were each analyzed in order to determine a calibration factor for quantitation. Using the determined factor (346 ppb of promecarb = 500 ppb of BDMC), the concentration of BDMC as promecarb was adjusted and the surrogate recovery calculated for each sample. Promecarb would be discernable as a "shoulder" against the BDMC peak, but was not evident in any of the samples. The lab indicates that the presence of methiocarb and promecarb initially detected in some of the samples was subsequently shown to be due to natural fluorescence, as seen in sample preparation chromatograms.

Recoveries of BDMC (as promecarb) were above the control limit (50-150%) in samples W10EA7, WEA7MS, and WEA7MSD.

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JOB NO. 27654, 3.4.2.2
DATE 1/4/95
COMPUTED BY J. Whittle
CHECKED BY _____

PROJECT Kane and Lombard
SUBJECT Data Validation

Since there were no detects in sample W10EA7, and since sample WEA7 surrogate recovery was acceptable, qualifiers were not necessary on the basis of surrogate recoveries.

The field blanks and water method blank were not spiked with the surrogate. The lab explained that this was to avoid the potential masking of promecarb; the soil samples had already been spiked when the issue of BDMC/promecarb co-elution was recognized. However, a matrix spike of sample BFB was done, which included all target compounds, and all recoveries were within control limits. Surrogates were recovered acceptably in the soil samples, so no action to qualify the water samples on the basis of surrogate recoveries is recommended, since there is no evidence in the data of poor analytical performance. No compounds were detected above the detection limits in the field or method blanks.

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments: A matrix spike was performed on water blank, BFB, but not a matrix spike duplicate. Spike recoveries were acceptable. Sample WEA7 was indicated as a spike sample; however, spike compounds were not added. Sample BSEA8 was spiked for MS/MSD analysis, with 8 out of 16 spike recoveries being below the lower control limit. The outages were not excessive, however, so that qualifiers were not necessary on the basis of matrix spike/duplicate results. Two matrix spike blanks were analyzed with the soil samples, and recoveries were within control limits.

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were instrument blanks analyzed at the correct frequency?

Yes No

Were analytes reported in the blanks?

Yes No

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?

Yes No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments: A method blank summary for water blank, LBLKA1, was not contained in the data package. Raw data were present, however, and the analysis log indicating that the ~~None~~ blank was run in proper sequence with the samples.

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?

Yes No NA

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?

Yes No NA

Comments:

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?

Yes No

Was the GPC column check acceptable?

Yes No NA

Was a Florisil cartridge check performed?

Yes No

Was the Florisil cartridge check acceptable?

Yes No NA

Laboratory Control Samples

Were LCS analyses performed?

(Yes) No

Were the LCS recoveries within acceptable limits?

Yes (No) NA

A QCS summary was not provided in the data package for the soil samples. Calculations were made from the raw data and included as page 9B of this report. Recovery of 3-hydroxycarbofuran was slightly below the control limit, but data review doesn't suggest any negative effect. Recoveries for four compounds were slightly above the control limit in the QCS sample run with the water blanks. Since all sample detections were below the detection limits in the field blanks, qualifiers are not recommended on the basis of QCS sample results.

Sample Results

Were target analytes reported in the investigative samples?

Yes (No)

Were chromatograms provided for all target analytes reported in the investigative samples?

(Yes) No

Were chromatograms of acceptable quality and were analytes correctly identified?

(Yes) No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?

(Yes) No

Comments: Retention time windows were not specified in the data package. Windows were calculated by the reviewer and included on page 5B of this report. Some compound identifications were made outside these windows by the lab, on the basis of professional judgment. Since all amounts quantified were below the reporting limits, and since review of the chromatograms did not indicate false negatives, further review of quantified peaks and qualification of the data were not necessary.

Harding Lawson Associates
Engineering and
Environmental Services

SHEET _____ OF _____
JOB NO. 27654, 3.4.2.2
DATE 1/4/95
COMPUTED BY J. Whittle
CHECKED BY _____

PROJECT Kane and Lombard
SUBJECT Data Validation

QUALITY CONTROL CHECK SAMPLE RECOVERY 11/30/94, 3:05

COMPOUND	SPIKE ADDED	QCS CONCENTRATION	QCS % REC	QC LIMITS
A. sulfone	1000	962	96 %	85-115
Methomyl	1000	1007	101 %	85-115
3-OH carbofuran	1000	830	83 %	85-115
Aldicarb	1000	867	87 %	85-115
Baygon	1000	901	90 %	85-115
Carbofuran	1000	909	91 %	85-115
Carbaryl	1000	881	88 %	85-115
Methiocarb	1000	882	88 %	85-115
Promecarb	1000	971	97 %	85-115

Calculation Check

Initial Calibration 11/30/94

Retention Time Window:

Average of 5 RetentionTimes ± (Std.Dev. of 5 RTs x 3) = Window

19.602 ± (0.01304 x 3) = [19.563 – 19.641] minutes for methiocarb

OK ~~%RSD:~~ $\frac{\text{Standard Deviation of 5 Response Factors}}{\text{Mean of 5 Response Factors}} \times 100 = \%RSD$

$\frac{1.09096}{9.5395} \times 100 = 11.4\%$ for Aldicarb

Continuing Calibration LB112922, 11/30/94, 1212

%D: $\frac{\text{IC Concentration} - \text{CC Concentration}}{\text{IC Concentration}} \times 100 = \%D$

$\frac{500\text{ ppb} - 444\text{ ppb}}{500} \times 100 = 11.2\ \%D$ for Methiocarb

Surrogate Recovery Samples WSEA4

$\frac{2.203914 \times 10^2 + [1.063318 \times \text{peak height}]}{(\text{injection volume})(\text{Surr. conc.})} \times 100 = \%\text{Recovery}$

$\frac{220.3914 + [1.063318 \times 4393]}{(20) \times (172)} \times 100 = 142\ \%R$ for Promecarb

Matrix Spike Recovery Sample BSEA8 (MS)

$\frac{3.719192 \times 10^2 + [9.420184 \times \text{peak height}]}{(\text{inj. volume})(\text{amount factor})(\text{spike added})} \times 100 = \%\text{ recovery}$

$\frac{371.9192 + [9.420184 \times 626]}{(20) \times (1.140) \times (439)} \times 100 = 62.6\ \%R$ for Aldicarb

RPD: $\frac{MS\ \%R - MSD\ \%R}{[MS\ \%R + MSD\ \%R] \div 2} = \frac{58 - 68}{63} \times 100 = 16\%$ for Baygon

Form OCP 1.0

AR302253

Sample Results $\boxed{\text{Sample BSEA4}}$

CRQL:

Base CRQL ÷ % Solids × Dilution Factor

$50 \div 0.78 \times 1 = 65\ \mu g/Kg$

Positive Result:

$$\frac{3.4306 \times 10^2 + [1.30156 \times \text{peak height}]}{(\text{amount factor})(\text{inj. vol.})} \times \frac{\text{dilution}}{\text{factor}}$$

$$\frac{343.06 + [1.30156 \times 810]}{(1.560)(20)} \times 1 = 44.79\ \mu g/Kg \text{ Baygon}$$

(below detection limit)

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
(All holding times were met)						

Comments:

AR302255

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier (+/-)
11/28/94	LC1488	Aldicarb	—	33.6	BFB, BSFB, RBBS	J/—

Comments:

AR302256

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Samples Affected	Qualifier (+/-)	
11/28/94,	LC1488	Aldicarb	18.4	BFB, BSFB, RBBS	J/+UJ	MPP 1/18/95
0750		Methiocarb	18.0	↓	↓	
		Promecarb	15.8	↓	↓	
11/30/94,	LC1488	Methiocarb	17.0 (+)	~~All~~ W10EA7, BSEA8,	J/+UJ	MPP 1/18/95
1954				S10EA8, WSEA8		

Comments:

AR302257

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Associated Samples	Qualifier
(No blank contaminants)						

Comments:

AR302258

Summary and Conclusions

All raw data were present for a complete review of this data package, though summary material was incomplete. Numerous calculations had to be made by the reviewer, complicating the validation process. In some cases, the laboratory had to be contacted to provide key information to complete the evaluation of the data.

MPP 1/18/95 ~~Even though there were problems associated with most of the QC results, all of which are detailed in this report, review of the raw data and sample results did not indicate the need for data qualification.~~ Calculations did not show errors and data review confirms that no target compounds were reported above the detection limits.

MPP 1/18/95 For the continuing calibration analyses, several target compounds exceeded the acceptance criterion of 15% RD (see table on p. 14 for details). All results for these analytes in the affected samples were qualified as estimated (J/UJ).

Validator's Signature: Joyce R. Whittle	
Validator's Initials: JW	Validation Date: 1/6/95
QC Reviewer's Signature: Michael P. Phillips	
QC Reviewer's Initials MPP	Review Date: 1/18/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA3

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.0 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 42

Extraction: Tumble

Lab Sample ID: 238909

Date Received: 10/22/94

Date Extracted: 10/27/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	87	U
16752-77-5	Methomyl	87	U
16655-82-6	3-Hydroxycarbofuran	87	U
116-06-3	Aldicarb	87	U
114-26-1	Baygon	87	U
1563-66-2	Carbofuran	87	U
63-25-2	Carbaryl	87	U
2032-65-7	Methiocarb	87	U
2631-37-0	Promecarb	87	U

VALIDATED

Reviewed By Joyce E. Whitt

Date 1/26/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFB

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Water Lab Sample ID: 238912

Injection Volume: 800 (uL) Date Received: 10/22/94

Level: (low/med) Low Date Analyzed: 11/29/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/L	Q	
1646-88-4	Aldicarb sulfone	5.0	U	
16752-77-5	Methomyl	5.0	U	
16655-82-6	3-Hydroxycarbofuran	5.0	U	
116-06-3	Aldicarb	5.0	U	J
114-26-1	Baygon	5.0	U	
1563-66-2	Carbofuran	5.0	U	
63-25-2	Carbaryl	5.0	U	
2032-65-7	Methiocarb	5.0	U	J
2631-37-0	Promecarb	5.0	U	J

VALIDATED

Reviewed By Joyce S. Whittle

Date 1/6/95

002531

AR302261

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEA7

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.1 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 45

Extraction: Tumble

Lab Sample ID: 238910

Date Received: 10/22/94

Date Extracted: 10/27/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	91	U
16752-77-5	Methomyl	91	U
16655-82-6	3-Hydroxycarbofuran	91	U
116-06-3	Aldicarb	91	U
114-26-1	Baygon	91	U
1563-66-2	Carbofuran	91	U
63-25-2	Carbaryl	91	U
2032-65-7	Methiocarb	91	U
2631-37-0	Promecarb	91	U

VALIDATED

Reviewed By Joyce G. Whittle

Date 1/6/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA4

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.0 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 22

Extraction: Tumble

Lab Sample ID: 238829

Date Received: 10/21/94

Date Extracted: 10/27/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	65	U
16752-77-5	Methomyl	65	U
16655-82-6	3-Hydroxycarbofuran	65	U
116-06-3	Aldicarb	65	U
114-26-1	Baygon	65	U
1563-66-2	Carbofuran	65	U
63-25-2	Carbaryl	65	U
2032-65-7	Methiocarb	65	U
2631-37-0	Promecarb	65	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/6/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA8

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.0 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 43

Extraction: Tumble

Lab Sample ID: 240142

Date Received: 11/03/94

Date Extracted: 11/07/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	88	U
16752-77-5	Methomyl	88	U
16655-82-6	3-Hydroxycarbofuran	88	U
116-06-3	Aldicarb	88	U
114-26-1	Baygon	88	U
1563-66-2	Carbofuran	88	U
63-25-2	Carbaryl	88	U
2032-65-7	Methiocarb	88	U J
2631-37-0	Promecarb	88	U

VALIDATED

Reviewed By Joyce J. Whittle

Date 1/26/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA9

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.1 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 6

Extraction: Tumble

Lab Sample ID: 238830

Date Received: 10/21/94

Date Extracted: 10/27/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	53	U
16752-77-5	Methomyl	53	U
16655-82-6	3-Hydroxycarbofuran	53	U
116-06-3	Aldicarb	53	U
114-26-1	Baygon	53	U
1563-66-2	Carbofuran	53	U
63-25-2	Carbaryl	53	U
2032-65-7	Methiocarb	53	U
2631-37-0	Promecarb	53	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/6/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSFB

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Water Lab Sample ID: 238831

Injection Volume: 800 (uL) Date Received: 10/21/94

Level: (low/med) Low Date Analyzed: 11/29/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/L	Q	
1646-88-4	Aldicarb sulfone	5.0	U	
16752-77-5	Methomyl	5.0	U	
16655-82-6	3-Hydroxycarbofuran	5.0	U	
116-06-3	Aldicarb	5.0	U	J
114-26-1	Baygon	5.0	U	
1563-66-2	Carbofuran	5.0	U	
63-25-2	Carbaryl	5.0	U	
2032-65-7	Methiocarb	5.0	U	J
2631-37-0	Promecarb	5.0	U	J

VALIDATED

Reviewed By Joyce E. White

Date 1/6/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

B10EA3

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.0 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 39

Extraction: Tumble

Lab Sample ID: 238911

Date Received: 10/22/94

Date Extracted: 10/27/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	82	U
16752-77-5	Methomyl	82	U
16655-82-6	3-Hydroxycarbofuran	82	U
116-06-3	Aldicarb	82	U
114-26-1	Baygon	82	U
1563-66-2	Carbofuran	82	U
63-25-2	Carbaryl	82	U
2032-65-7	Methiocarb	82	U
2631-37-0	Promecarb	82	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/6/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Water Lab Sample ID: 240144

Injection Volume: 800 (uL) Date Received: 11/03/94

Level: (low/med) Low Date Analyzed: 11/29/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/L	Q	
1646-88-4	Aldicarb sulfone	5.0	U	
16752-77-5	Methomyl	5.0	U	
16655-82-6	3-Hydroxycarbofuran	5.0	U	
116-06-3	Aldicarb	5.0	U	J
114-26-1	Baygon	5.0	U	
1563-66-2	Carbofuran	5.0	U	
63-25-2	Carbaryl	5.0	U	
2032-65-7	Methiocarb	5.0	U	J
2631-37-0	Promecarb	5.0	U	J

VALIDATED

Reviewed By Joyce E. Whitt

Date 1/6/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

S10EA8

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.0 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 33

Extraction: Tumble

Lab Sample ID: 240143

Date Received: 11/03/94

Date Extracted: 11/07/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	82	U
16752-77-5	Methomyl	82	U
16655-82-6	3-Hydroxycarbofuran	82	U
116-06-3	Aldicarb	82	U
114-26-1	Baygon	82	U
1563-66-2	Carbofuran	82	U
63-25-2	Carbaryl	82	U
2032-65-7	Methiocarb	82	U J
2631-37-0	Promecarb	82	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 1/6/95

002552

AR302269

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

WEA7

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.0 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 44

Extraction: Tumble

Lab Sample ID: 238914

Date Received: 10/22/94

Date Extracted: 10/27/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	90	U
16752-77-5	Methomyl	90	U
16655-82-6	3-Hydroxycarbofuran	90	U
116-06-3	Aldicarb	90	U
114-26-1	Baygon	90	U
1563-66-2	Carbofuran	90	U
63-25-2	Carbaryl	90	U
2032-65-7	Methiocarb	90	U
2631-37-0	Promecarb	90	U

VALIDATED

Reviewed By Joyce E. White

Date 1/6/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA4

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.1 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 8

Extraction: Tumble

Lab Sample ID: 238833

Date Received: 10/21/94

Date Extracted: 10/27/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	55	U
16752-77-5	Methomyl	55	U
16655-82-6	3-Hydroxycarbofuran	55	U
116-06-3	Aldicarb	55	U
114-26-1	Baygon	55	U
1563-66-2	Carbofuran	55	U
63-25-2	Carbaryl	55	U
2032-65-7	Methiocarb	55	U
2631-37-0	Promecarb	55	U

VALIDATED

Reviewed By Joyce E. Whistle

Date 1/6/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA8

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.0 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 21

Extraction: Tumble

Lab Sample ID: 240147

Date Received: 11/03/94

Date Extracted: 11/07/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	64	U
16752-77-5	Methomyl	64	U
16655-82-6	3-Hydroxycarbofuran	64	U
116-06-3	Aldicarb	64	U
114-26-1	Baygon	64	U
1563-66-2	Carbofuran	64	U
63-25-2	Carbaryl	64	U
2032-65-7	Methiocarb	64	U J
2631-37-0	Promecarb	64	U

VALIDATED

Reviewed By Joyce E. Whittle

Date 01/06/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

W10EA7

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47430

Matrix: (soil/water) Soil

Sample Weight: 20.1 g

Injection Volume: 20 (uL)

Level: (low/med) Low

% Moisture: 41

Extraction: Tumble

Lab Sample ID: 238915

Date Received: 10/22/94

Date Extracted: 10/27/94

Date Analyzed: 11/30/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q
1646-88-4	Aldicarb sulfone	84	U
16752-77-5	Methomyl	84	U
16655-82-6	3-Hydroxycarbofuran	84	U
116-06-3	Aldicarb	84	U
114-26-1	Baygon	84	U
1563-66-2	Carbofuran	84	U
63-25-2	Carbaryl	84	U
2032-65-7	Methiocarb	84	U J
2631-37-0	Promecarb	84	U

VALIDATED

Reviewed By Joyce E. Whitley

Date 1/6/95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

~~Organochlorine Pesticides and Polychlorinated Biphenyls Analysis~~
N-Methylcarbamate Pesticides

Case Number: 94239, SDG # 47744	Project Number: 27654 3.4.2.2
Site: Hare and Lombard	
Contractor Laboratory: Aquatec	
Validator: Cindy Lucangioli	Validation Date: 1/19/95
QC Reviewer: Michael R. Phillips	Review Date: 1/25/95
Sample Matrix: 3 waters and 5 soils	
Analytical Method: Carbamate Pesticides SW-846 8318.	

Sample Designations:

BSEA1	RBBS3		
BSEA2			
BSEA5			
WSEA1			
WSEA2			
RBBS1			
RBBS2			

Data for the above samples are:

_____ Acceptable for use
_X_ Acceptable for use as qualified
_____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994, in conjunction with EPA Method 8318.

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
* Surrogate Recovery Summary
* MS/MSD Summary
X Reagent Blank Summary

Sample Data

X Chain of Custody Forms
X Holding Times
X Organic Analysis Data Sheets
X Quantitation Reports
X ~~GC/EC~~ Chromatograms HPLC
X Pesticide/~~PCB~~ Identification (for positive detections)

Instrument Calibration and Performance Data

O Initial Calibration Retention Time Summary
X Initial Calibration Response Factor Summary
NA Performance Evaluation Mix Summary
* Continuing Calibration Verification Summary
X Analytical Run Sequence Summary
NA GPC Calibration and Florisil Cartridge Check Summary
X Pesticide/~~PCB~~ Standards Quantitation Reports
X Pesticide/~~PCB~~ Standards ~~GC/EC~~ Chromatograms HPLC

Reagent and Instrument Blank Data

X Organic Analysis Data Sheets
X Quantitation Reports
X ~~GC/EC~~ Chromatograms HPLC
X Pesticide/~~PCB~~ Identification (for positive detections)

Matrix Spike Data

X Organic Analysis Data Sheets
X Quantitation Reports
X ~~GC/EC~~ Chromatograms HPLC

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Comments:

Holding Times

Were sample extractions performed within holding times?

Yes No

Were sample analyses performed within holding times?

Yes No

Comments:

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

(Yes) No

Were the calibration standards analyzed at the correct concentrations?

(Yes) No

Did the calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

(Yes) No

Were retention time windows provided and correctly calculated?

Yes (No)

Were peak resolutions acceptable?

Yes No (NA)

Comments: The laboratory used linear regression to calculate a calibration curve for each compound of interest. For every initial calibration, the correlation coefficients for each analyte was greater than 0.995, demonstrating acceptable linearity. No qualification of sample data was necessary on the basis of linearity.
Retention time windows were not provided, however, the retention times for detected compounds were found to be ~~so~~ similar to the retention times for the same compound in the associated calibration standards. In addition, complex sample matrices can

(cont. on p. 5.2)

~~Individual Mix Standards~~ (Continuing Calibration)

MPP 1-25-95

Did the individual mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes (No)

Did the individual mix standards meet the retention time criteria?

Yes (No)

Comments: There were three continuing calibrations associated with sample data. ~~Ea~~ Each continuing calibration had one ~~one~~ or more target compounds exceeding the ~~cri~~ criterion of 15% D. See the continuing calibration summary table for outliers and associated samples.

See the initial calibration section regarding retention time criteria.

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PROJECT Kane and Lombard SDG 47744
SUBJECT Carbamate Pesticides Data Validation

Initial Calibration continued.

cause shifts in the retention time during HPLC analysis. Therefore, no further action was taken by the reviewer.

AR302279

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes No

Did the performance evaluation mix standards meet the retention time criteria?

Yes No NA

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?

Yes No

Samples were bracketted by calibration standards and analyzed within a 12 hour period.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes ~~No~~ NA

Comments: The samples listed below and their outlying surrogate recoveries were outside of the 50-150% accepted limit. As all the outlying recoveries were biased low the sample data have been qualified as estimated (J/UJ) due to low surrogate recoveries. (cont. on p. 6.2)

MPN 1/25/95

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SUBJECT Carbamate Pesticides Data Validation

Surrogate Recoveries Cont.

WSEA1	43 %
BSEA2	43 %
WSEA2	40 %.

Reanalysis of a sample with a low surrogate recovery is not a requirement of SW-846.

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments: Samples DSEA1 and WSEA1 were used for MS/MSD and both had recoveries outside of the 60-120% recovery limit and one had an RPD above the 50% acceptance limit. The outlying recoveries and RPDs are listed on the following page. The LCS recoveries were similar indicating a problem with sample preparation and/or analysis rather than sample matrix. No sample data have been qualified on the basis of MS/MSD performance. (cont. on page 7.2)

MPP
1/25/95

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were instrument blanks analyzed at the correct frequency?

Yes No NA

Were analytes reported in the blanks?

Yes No

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?

Yes No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No NA

Comments:

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PROJECT Kane and Lombard SDG 47744
SUBJECT Carbamate Pesticides Data Validation

Matrix Spikes continued.

BSEA1 MS/MSD		% Recoveries MS/MSD	% RPD
3-Hydroxycarbofuran		33*/48*	37
Aldicarb		26*/44*	51*
Bayson		37*/48*	[illegible]
Carbofuran	MPV 1/25/95	40*/57*	30
Carbaryl		49*/61	[illegible]
Methiocarb		43*/54*	[illegible]

* Outside acceptance criteria (60-120 %)/50 % [illegible]

WSEA1 MS/MSD	% Recoveries MS/MSD	% RPD
3-Hydroxycarbofuran	40*/45*	[illegible]
Aldicarb	28*/28*	[illegible]
Bayson	37*/44*	[illegible]
Carbofuran	40*/46*	14
Carbaryl	49*/59*	19
Methiocarb	44*/50*	13

* Outside acceptance criteria (60-120 %)/50 % [illegible]

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?

Yes No

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?

Yes No

Comments: NA

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?

Yes No

Was the GPC column check acceptable?

Yes No NA

Was a Florisil cartridge check performed?

Yes No

Was the Florisil cartridge check acceptable?

Yes No NA

NA

Laboratory Control Samples

Were LCS analyses performed?

Yes No

Were the LCS recoveries within acceptable limits?

Yes No NA

MPP 1-25-95 Both the ~~water and~~ the soil LCS's had recoveries below the 60-120% acceptance limit. Soil samples have been qualified as estimated for the compounds with outlying LCS soil recoveries. ~~and water samples similarly qualified for outlying water LCS recoveries~~. MPP 1-25-95. The LCS samples and the compounds and their outlying recoveries are listed on the following page.

(cont. on p. 9.2)

MPP 1/25/95

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were chromatograms provided for all target analytes reported in the investigative samples?

Yes No

Were chromatograms of acceptable quality and were analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?

Yes No

Comments:

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PROJECT Home and Lombard SDG 47744
SUBJECT Carbamate Pesticides Data Validation.

LCSs continued.

LCS soil (MSB-C2) MPP 1-25-95 — % Recovery

3-Hydroxycarbofuran	50
Aldicarb	47
Baygon	54
Carbofuran	56
Carbaryl	58
Methiocarb	58

LCS ~~water~~ soil (MSB-W1) MPP 1-25-95 — % Recovery

Aldicarb	45
Baygon	~~57~~ 58

MPP 1-25-95

Calculation Check

Initial Calibration

Retention Time Window: See ICAL test.

ICAL 11/28/94 Aldicarb

r ~~%RSD~~	
2.5	531
5	897
10	1128
25	2323
50	5069

r = .995

Continuing Calibration Methiocarb 12/3/94

%D: 7807 $\xrightarrow{LR}$ 412.9 $\frac{(500-412.9)}{500} \times 100 = 17.4\%$

Surrogate Recovery BSEA2

2316 $\xrightarrow{LR}$ 73.8 ml from case narrative

$\frac{500}{346} = \frac{X}{73.8}$ X = 106.6 $\frac{106.6}{250} \times 100 = 43\%$

Matrix Spike Recovery BSEA1 Aldicarb Sample prep factor = 1.44

621 $\xrightarrow{LR}$ $\frac{130.4}{1.44} = 90.6$ $\frac{90.6}{347} \times 100 = 26\%$

RPD: $\frac{(44-26)}{\left(\frac{44+26}{2}\right)} \times 100 = \cancel{44}\ 51\%$

MIP 1/25/95

Sample Results BSEA2

CRQL: soil = 50 $\frac{50}{.52}$ $\frac{50}{.48}$ = 104.1 raised to 110 ok rounding errors

Positive Result: ~~BSEA5~~ NA

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
BSEA1	11/3/94	11/7/94	12/3/94	4	26	NONE
RBBS1	↓	—	11/29/94	—	26	↓
WSEA1	↓	11/7/94	12/4/94	4	27	↓
BSEA2	11/4/94	11/7/94	12/4/94	3	27	↓
RBBS2	↓	—	11/29/94	—	26	↓
WSEA2	↓	11/7/94	12/4/94	3	27	↓
BSEA5	11/12/94	11/16/94	12/6/94	4	20	↓
RBBS3	↓	—	11/29/94	—	17	↓

Comments:

AR302289

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
11/28/94 19:35	LC1488				RBBS1, RBBS2, RBBS3	NONE
12/3/94 17:54	LC1488				BSEA1, BSEA1MS, BSEA1MSD	
					WSEA1, WSEA1MS, WSEA1MSD	
					BSEA2, WSEA2	
12/6/94 11:25	LC1488				BSEA5	

Comments:

AR302290

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Samples Affected	Qualifier	
11/28/94 0750	LC1458	Aldicarb	18.4	RBD51, RBD52, RBD53	J/UJ	
		Methiocarb	18.0	↓	J/UJ	
		Promecarb	15.8	↓	~~NONE~~	J/UJ MPP 1/25/95
12/3/94 0631	LC1458	Aldicarb	16.2	BSEA1, WSEA1, BSEA2, WSEA2	J/UJ	
		Baygon	16.8	↓	↓	
		Methiocarb	17.4	↓	↓	
		Promecarb	16.4	↓	~~NONE~~	J/UJ MPP 1/25/95
12/6/94, 1125	LC1458	Aldicarb	25.0	BSEA5	J/UJ	

Comments: ~~Promecarb is the surrogate and does not require qualification.~~ MPP 1/25/95

AR302291

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Associated Samples	Qualifier

Comments:

AR302292

Summary and Conclusions

Sample data required minor qualification due to calibration criterion exceedance. LCS recoveries indicated an extraction and/or analysis problem with several target compounds and required qualification due to low recoveries. Accuracy, as measured by the surrogate, MS/MSD and LCS recoveries were within acceptance limits with the exceptions ~~noted~~ previously noted, ~~indicating~~ is satisfactory. Precision measured by the % RPD between MS/MSD recoveries was satisfactory with the exception of aldicarb IN BSEAI. Completeness, defined as the percentage of useable sample data, including estimated values, is 100%. The sample data are considered to be useable as qualified by the reviewer

Validator's Signature:	Cynthia H Jacquoli		
Validator's Initials:	CHJ	Validation Date:	1/19/95
QC Reviewer's Signature:	Michael P. Phillips		
QC Reviewer's Initials	MPP	Review Date:	1/25/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA1

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47744

Matrix: (soil/water) SOIL

Sample Weight: 20.0 g/

Injection Volume: 20 (uL)

Level: (low/med) LOW

% Moisture: 28

Extraction: Tumble

Lab Sample ID: 240299

Date Received: 11/04/94

Date Extracted: 11/07/94

Date Analyzed: 12/03/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q	
1646-88-4	Aldicarb sulfone	70	U	
16752-77-5	Methomyl	70	U	
16655-82-6	3-Hydroxycarbofuran	70	U	J
116-06-3	Aldicarb	70	U	J
114-26-1	Baygon	70	U	J
1563-66-2	Carbofuran	70	U	J
63-25-2	Carbaryl	70	U	J
2032-65-7	Methiocarb	70	U	J
2631-37-0	Promecarb	70	U	J

VALIDATED

Reviewed By Michael F. Shelly for CHL

Date 1/25/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA2

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47744

Matrix: (soil/water) SOIL

Sample Weight: 20.0 g/

Injection Volume: 20 (uL)

Level: (low/med) LOW

% Moisture: 52

Extraction: Tumble

Lab Sample ID: 240394

Date Received: 11/04/94

Date Extracted: 11/07/94

Date Analyzed: 12/04/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q	
1646-88-4	Aldicarb sulfone	110	U	J
16752-77-5	Methomyl	110	U	J
16655-82-6	3-Hydroxycarbofuran	110	U	J
116-06-3	Aldicarb	110	U	J
114-26-1	Baygon	110	U	J
1563-66-2	Carbofuran	110	U	J
63-25-2	Carbaryl	110	U	J
2032-65-7	Methiocarb	110	U	J
2631-37-0	Promecarb	110	U	J

VALIDATED

Reviewed By Michael P. Phillips for CHL

Date 1/25/95

AR302295

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSEA5

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47744

Matrix: (soil/water) SOIL

Sample Weight: 20.0 g/

Injection Volume: 20 (uL)

Level: (low/med) LOW

% Moisture: 22

Extraction: Tumble

Lab Sample ID: 241146

Date Received: 11/14/94

Date Extracted: 11/16/94

Date Analyzed: 12/06/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q	
1646-88-4	Aldicarb sulfone	65	U	
16752-77-5	Methomyl	65	U	
16655-82-6	3-Hydroxycarbofuran	65	U	J
116-06-3	Aldicarb	65	U	J
114-26-1	Baygon	65	U	J
1563-66-2	Carbofuran	65	U	J
63-25-2	Carbaryl	65	U	J
2032-65-7	Methiocarb	65	U	J
2631-37-0	Promecarb	65	U	

VALIDATED

Reviewed By Michael R. Phillips for CHL

Date 1/25/95

AR302296

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA1

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47744

Matrix: (soil/water) SOIL

Sample Weight: 20.0 g/

Injection Volume: 20 (uL)

Level: (low/med) LOW

% Moisture: 26

Extraction: Tumble

Lab Sample ID: 240304

Date Received: 11/04/94

Date Extracted: 11/07/94

Date Analyzed: 12/04/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q	
1646-88-4	Aldicarb sulfone	68	U	J
16752-77-5	Methomyl	68	U	J
16655-82-6	3-Hydroxycarbofuran	68	U	J
116-06-3	Aldicarb	68	U	J
114-26-1	Baygon	68	U	J
1563-66-2	Carbofuran	68	U	J
63-25-2	Carbaryl	68	U	J
2032-65-7	Methiocarb	68	U	J
2631-37-0	Promecarb	68	U	J

VALIDATED

Reviewed By Michael N. Phillips for CHL

Date 1/25/95

AR302297

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSEA2

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47744

Matrix: (soil/water) SOIL

Sample Weight: 20.0 g/

Injection Volume: 20 (uL)

Level: (low/med) LOW

% Moisture: 28

Extraction: Tumble

Lab Sample ID: 240398

Date Received: 11/04/94

Date Extracted: 11/07/94

Date Analyzed: 12/04/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q	
1646-88-4	Aldicarb sulfone	70	U	J
16752-77-5	Methomyl	70	U	J
16655-82-6	3-Hydroxycarbofuran	70	U	J
116-06-3	Aldicarb	70	U	J
114-26-1	Baygon	70	U	J
1563-66-2	Carbofuran	70	U	J
63-25-2	Carbaryl	70	U	J
2032-65-7	Methiocarb	70	U	J
2631-37-0	Promecarb	70	U	J

VALIDATED

Reviewed By Michael R. Phillips for CHL

Date 1/25/95

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

RB6S-1

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240360

Injection Volume: 800 (uL) Date Received: 11/24/94

Level: (low/med) LOW Date Analyzed: 11/29/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	
1646-88-4	Aldicarb sulfone	5.0	
16752-77-5	Methomyl	5.0	
16655-82-6	3-Hydroxycarbofuran	5.0	
116-06-3	Aldicarb	5.0	
114-26-1	Baygon	5.0	
1563-66-2	Carbofuran	5.0	
63-25-2	Carbaryl	5.0	
2032-65-7	Methiocarb	5.0	
2631-37-0	Promecarb	5.0	

Reviewed:

Date

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS-2

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47744

Matrix: (soil/water) WATER Lab Sample ID: 240395

Injection Volume: 800 (uL) Date Received: 11/05/94

Level: (low/med) LOW Date Analyzed: 11/29/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q	
1646-88-4	Aldicarb sulfone	5.0	U	
16752-77-5	Methomyl	5.0	U	
16655-82-6	3-Hydroxycarbofuran	5.0	U	
116-06-3	Aldicarb	5.0	U	J
114-26-1	Baygon	5.0	U	
1563-66-2	Carbofuran	5.0	U	
63-25-2	Carbaryl	5.0	U	
2032-65-7	Methiocarb	5.0	U	J
2631-37-0	Promecarb	5.0	U	J

VALIDATED

Reviewed By Michael F. Phillips for CHL

Date 1/25/95

AR302300

FORM 1
METHOD 8318
N-METHYLCARBAMATE PESTICIDES
ANALYSIS DATA SHEET

EPA SAMPLE NO.

RBBS-3

Lab Name: Aquatec, Inc. Lab Code: AQUAI

Contract: 94239 Case: 94239 SDG: 47744

Matrix: (soil/water) WATER

Injection Volume: 800 (uL)

Level: (low/med) LOW

Lab Sample ID: 241147

Date Received: 11/14/94

Date Analyzed: 11/29/94

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q	
1646-88-4	Aldicarb sulfone	5.0	U	
16752-77-5	Methomyl	5.0	U	
16655-82-6	3-Hydroxycarbofuran	5.0	U	
116-06-3	Aldicarb	5.0	U	J
114-26-1	Baygon	5.0	U	
1563-66-2	Carbofuran	5.0	U	
63-25-2	Carbaryl	5.0	U	
2032-65-7	Methiocarb	5.0	U	J
2631-37-0	Promecarb	5.0	U	J

VALIDATED

Reviewed By Michael R. Phillips for CHL

Date 1/25/95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

~~Organochlorine Pesticides and Polychlorinated Biphenyls Analysis~~
ORGANOPHOSPHORUS PESTICIDES ANALYSIS

Case Number : 94239, SDG # 47430	Project Number: 27654, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec, Inc. Inchcape Testing Services	
Validator: J. Whittle	Validation Date: 1/8/95
QC Reviewer: Michael R. Phillips	Review Date: 1/23/95
Sample Matrix: Soil/Sediment (11), Water QC (1)	
Analytical Method: EPA Method 8140	

Sample Designations:

BSEA4	W10EA7	RBBS	
BSEA9	BSEA8		
WSEA4	S10EA8		
BEA3	WSEA8		
BEA7			
B10EA3			
WEA7			

Data for the above samples are:

____ Acceptable for use
X Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were qualified using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," (February 1994) in conjunction with EPA Methods 8140 and 8000.

DATA COMPLETENESS CHECKLIST

__X__ Included, no problems
__*__ Included, problems
__O__ Not included
__NA__ Not applicable

Quality Control Summary

__X__ Case Narrative
__*__ Surrogate Recovery Summary
__*__ MS/MSD Summary
__X__ Reagent Blank Summary
__*__ Laboratory Control Sample Summary

Sample Data

__X__ Chain of Custody Forms
__X__ Holding Times
__*__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ GC/~~EC~~ Chromatograms
__*__ Pesticide/~~PCB~~ Identification (for positive detections)

Instrument Calibration and Performance Data

__*__ Initial Calibration Retention Time Summary
__*__ Initial Calibration Response Factor Summary
__NA__ Performance Evaluation Mix Summary
__*__ Continuing Calibration Verification Summary
__X__ Analytical Run Sequence Summary
__NA__ GPC Calibration and Florisil Cartridge Check Summary
__*__ ~~Pesticide/PCB~~ Standards Quantitation Reports
__X__ ~~Pesticide/PCB~~ Standards GC/~~EC~~ Chromatograms

Reagent and Instrument Blank Data

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ GC/~~EC~~ Chromatograms
__X__ Pesticide/~~PCB~~ Identification (for positive detections)

Matrix Spike Data

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ GC/~~EC~~ Chromatograms

Comments:

LABORATORY CONTROL SAMPLE DATA

__X__ Organic Analysis Data Sheets
__X__ Quantitation Reports
__X__ GC/~~EC~~ Chromatograms

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Comments:

None

Holding Times

Were sample extractions performed within holding times?

Yes No

Were sample analyses performed within holding times?

Yes No

Comments:

None

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

(Yes) No

Were the calibration standards analyzed at the correct concentrations?

(Yes) No

Did the calibration curves meet the linearity criteria for ~~maximum percent relative standard deviation (%RSD)~~ minimum correlation coefficients?

Yes (No)

Were retention time windows provided and correctly calculated?

Yes (No)

Were peak resolutions acceptable?

(Yes) No

Comments:

Refer to pages 5E, 5F, and 5G for calibration discussion and associated qualifiers.

Individual Mix Standards (Continuing Calibration)

Did the individual mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes (No)

Did the individual mix standards meet the retention time criteria?

(Yes) No

Comments: Some compounds exceeded the 15% control limit for percent differences, as outlined on page 14 of this report. However, for various reasons they did not affect sample results. Therefore, no qualifiers are recommended on the basis of these results. Not all target compounds were ~~were~~ included in the 400 ppb calibration checks, however. The compounds not included should be considered estimated in samples S10EA8 and WSEA8, which are the only samples directly affected by calibration checks. The excluded compounds are listed on page 5G of this report.

Harding Lawson Associates
Engineering and Environmental Services

SHEET _____ OF _____
JOB NO. 27654, 3.4.2.2
DATE 1/12/95
COMPUTED BY J. Whittle
CHECKED BY _____

PROJECT Kane and Lombard
SUBJECT Data Validation

FENSULFOTHION N CALIBRATION

11/9/94 Initial Calibration

Concentration	Response ①	Response Factor ②
100 ppb	0.0089362	11185.490
200 ppb	0.0134920	14818.300
400 ppb	0.0405020	9875.828
800 ppb	0.1018089	7857.603
1600 ppb	0.3498843	4572.976

Correlation coefficient = 0.9807278
Relative Standard Deviation = 39.4%

DIMETHOATE N CALIBRATION

11/9/94 Initial Calibration

Concentration	Response ①	Response Factor ②
100 ppb	0.0388848	2571.809
200 ppb	0.0743341	2690.667
400 ppb	0.2563324	1560.452
800 ppb	0.~~6614869~~ 6322219 (4)	1265.372
1600 ppb	1.7968326	890.458

Correlation Coefficient = 0.9913826
Relative Standard Deviation = 44.5%

① Response = $\frac{\text{Area of Compound}}{\text{Area of Int. Std.}}$

② Response Factor = $\frac{1}{\text{Response}} \times \text{Concentration}$ ~~100~~

AR302307

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PROJECT Kane and Lombard
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SUBJECT Data Validation
CHECKED BY _____

FENSULFOTHION F CALIBRATION 11/9/94 IC

Concentration	Response	Response Factor
100 ppb	0.0074356	13447.732
200 ppb	0.0127799	15650.966
400 ppb	0.0490917	8147.937
800 ppb	0.1223897	6536.539
1600 ppb	0.4210430	3800.090

Correlation coefficient = 0.9820359
Relative Standard Deviation = 51.6%

DIMETHOATE F CALIBRATION 11/9/94 IC

Concentration	Response	Response Factor
100 ppb	0.0353357	2829.975
200 ppb	0.0641295	3118.741
400 ppb	0.2519140	1587.842
800 ppb	0.6125690	1305.976
1600 ppb	1.9201177	833.282

Correlation coefficient = 0.9870333
Relative Standard Deviation = 51.2%

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RETENTION TIME WINDOWS — NPD COLUMN

Compound	11/9/94 Initial Calibration Average RT	11/9/94 Initial Calibration RT Window	11/22/94 Initial Calibration Average RT	11/22/94 Initial Calibration RT Window
Dichlorovos	7.263	7.223-7.303	7.298	7.258-7.338
Mevinphos	11.400	11.360-11.440	11.454	11.414-11.494
Demeton-O	13.680	13.640-13.720	13.732	13.692-13.772
Ethoprop	14.103	14.063-14.143	14.165	14.125-14.205
Nalad	14.927 (gw)	14.886-14.967	14.995	14.955-15.035 (gw)
Phorate	15.008	14.968-15.048	15.060	15.020-15.100
Sulfotepp	15.353	15.313-15.393	15.412	15.372-15.452
Demeton-S	16.262	16.222-16.302	16.307	16.267-16.347
Diazinon	16.606	16.566-16.646	16.673	16.633-16.713
Disulfoton	17.035	16.995-17.075	17.090	17.050-17.130
Dimethoate	18.348	18.308-18.388	18.410	18.370-18.450
Ronnel	18.653	18.613-18.693	18.733	18.693-18.773
M. Parathion	19.687	19.647-19.727	19.744	19.704-19.784
Chlorpyrofos	19.772	19.732-19.812	19.831	19.791-19.871
Trichloronate				
Fenthion	20.256	20.216-20.296	20.335	20.295-20.375
Malathion	20.452	20.412-20.492	20.503	20.463-20.543
E. Parathion	21.042	21.002-21.082	21.119	21.079-21.159
Tokuthion	22.155	22.115-22.195	22.244	22.204-22.284
Merphos	22.310	22.270-22.350	22.380	22.340-22.420
Stirophos	22.645	22.605-22.685	22.732	22.692-22.772
Bolstar	24.600	24.560-24.640	24.687	24.647-24.727
Fensulfothion	25.763	25.723-25.803	25.825	25.785-25.865
EPN	27.575	27.535-27.615	27.647	27.607-27.687
Azinphos M.	28.947	28.907-28.987	29.033	28.993-29.073
Coumaphos	31.444 (gw)	31.404-31.484	31.525	31.485-31.565

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RETENTION TIME WINDOWS — FPD COLUMN

Compound	11/9/94 Initial Calibration Average RT	11/9/94 Initial Calibration RT Window	11/22/94 Initial Calibration Average RT	11/22/94 Initial Calibration RT Window
Dichlorovos	4.610	4.570-4.650	4.635	4.595-4.675
Mevinphos	7.995	7.955-8.035	8.047	8.007-8.087
Demeton-O	11.210	11.170-11.250	11.262	11.222-11.302
Ethoprop	11.545	11.505-11.595	11.610	11.570-11.650
Naled	11.898	11.858-11.938	11.972	11.932-12.012
Phorate	12.547	12.507-12.587	12.606	12.566-12.646
Sulfotepp	12.583	12.543-12.623	12.648	12.608-12.688
Demeton-S	13.175	13.135-13.215	13.237	13.197-13.277
Diazinon	14.572	14.532-14.612	14.645	14.605-14.685
Disulfoton	14.497	14.457-14.537	14.562	14.522-14.602
Dimethoate	13.210	13.170-13.250	13.295	13.255-13.335
Ronnel	16.253	16.213-16.293	16.340	16.300-16.380
M. Parathion	15.860	15.820-15.900	15.932	15.892-15.972
Chlorpyrofos	17.406	17.366-17.446	17.480	17.440-17.520
Trichloronate	17.678	17.638-17.718	17.753	17.713-17.793
Fenthion	17.370	17.330-17.410	17.458	17.418-17.498
Malathion	17.238	17.198-17.278	17.303	17.263-17.343
E. Parathion	17.437	17.397-17.477	17.523	17.483-17.563
Tokuthion	19.933	19.893-19.973	20.028	19.988-20.068
Merphos	20.187	20.147-20.227	20.267	20.227-20.307
Stirophos	19.500	19.460-19.540	19.592	19.552-19.632
Bolstar	21.905	21.865-21.945	22.007	21.967-22.047
Fensulfothion	21.350	21.310-21.390	21.426	21.386-21.466
EPN	23.960	23.920-24.000	24.052	24.012-24.092
Azinphos M.	24.933	24.893-24.973	25.047	25.007-25.087
Coumaphos	27.088	27.048-27.128	27.192	27.152-27.232

JW

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INITIAL CALIBRATION

On the basis of laboratory communication, retention time windows were based on ±0.04 minutes.* Windows were calculated based on the average retention times of the initial calibrations and included as pages 5C and 5D.

Calibration curves were calculated for each target compound with correlation coefficients, as provided for by EPA Method 8000, and corr. coeff. were greater than 0.995. However, one or two standards were sometimes dropped from the 5-point curves for the individual compounds. Since accurate recalculations cannot be made, due to the computer-generated values, in order to investigate linearity, it must be assumed that the 5-point curves in these cases are not linear. Subtracting concentrations from the curve restricts, and in some cases negates, the laboratory's ability to detect compounds at certain concentration levels, and is not in compliance with method requirements. In cases where the low standard (100 ppb) was dropped, nondetects should be rejected (R), since the lower

detection limit is uncertain. In all other cases where the 200, 400, 800, or 1600 ppb standard was dropped, all associated samples for those compounds should be considered estimated (UJ/J). Refer to the table below.

The calibration reports presented in the data package for fensulfothion and dimethoate associated with the 11/9/94 calibration did not correspond to the raw data. Calculations were made based on the raw data values and included as pages 5A and 5B of this report. Correlation coefficients were less than 0.995 and values for RSD were greater than 20%. Samples RBBS, BSEA4, BSEA9, WSEA4, and BEA3 were associated with this calibration and should be considered estimated (UJ) for these compounds.

The following summarizes initial calibration qualifications:

INITIAL CALIBRATION	COMPOUND	Affected Samples	(-/+) Qualifier
11/9/94	Mevinphos	RBBS, BSEA4, BEA3,	R/J
	Nalad	BSEA9, WSEA4	R/J
	Azinphos methyl		UJ/J

(continued)

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INITIAL CALIBRATION	COMPOUND	Affected Samples	(-/+) Qualifier
11/22/94	Dichlorovos	BEA7, B10EA3, WEA7, W10EA7, BSEA8, S10EA8, WSEA8	R/J
	Mevinphos		R/J
	Dementon-O		UJ/J
	Dementon-S		R/J
	Nalad		UJ/J
	Dimethoate		R/J
	Stirophos		R/J
	Fensulfothion		UJ/J
	Azinphos methyl		R/J
	Coumaphos		R/J

CONTINUING CALIBRATIONS

Compounds not included in the continuing calibration checks should be considered estimated (UJ):

Dichlorovos	Methyl parathion	Fensulfothion
Dementon-O	Chlorpyrofos	EPN
Phorate	Trichloronate	Coumaphos
Dementon-S	Malathion	
Disulfoton	Merphos	

AR302313

* Information supplied subsequent to the writing of this report, now contained in the data package, shows the 0.04 minute retention time to be more an average. However, another look at the sample data did not show any problems ~~in the~~ slight individual retention time differences. JW 1/25/95

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes No NA

Did the performance evaluation mix standards meet the retention time criteria?

Yes No NA

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?

Yes No

None

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No

Comments: Recovery of DMNB in soil sample BSEA4 was below the lower control limit of 60-150%. Detected compounds were not quantitated and confirmed. Undetected compounds should be considered estimated (UJ).

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments: MS/MSD analyses were performed on samples WEA7 and BSEA8. 16 out of 50 recoveries in sample WEA7 and 20 out of 50 recoveries in sample BSEA8 were outside the control range of 60-140 % recovery. It's not evident that the problems were due to matrix effects, since surrogate recoveries were good and LCS recoveries were not. Qualifiers are not recommended on the basis of MS/MSD data. Refer to the LCS discussion (page 9) for further information.

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were instrument blanks analyzed at the correct frequency?

Yes No

Were analytes reported in the blanks?

Yes No

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?

Yes No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments:

None

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?

Yes No NA

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?

Yes No NA

Comments:

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?

Yes No

Was the GPC column check acceptable?

Yes No NA

Was a Florisil cartridge check performed?

Yes No

Was the Florisil cartridge check acceptable?

Yes No NA

Laboratory Control Samples

Were LCS analyses performed?

Yes No

Were the LCS recoveries within acceptable limits?

Yes No NA

LCS results were outside recovery limits for several compounds in all three control samples indicating sample analysis problems. Compounds, associated investigative samples, and resulting qualifiers are summarized on page 9A. Recoveries above the control limit (60-140%) were qualified estimated for detected compounds (J); recoveries below the control limit were qualified estimated for all results (UJ/J); Recoveries below 10% ~~(or very near)~~ were rejected for nondetects and estimated for detects (R/J).

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were chromatograms provided for all target analytes reported in the investigative samples?

Yes No

Were chromatograms of acceptable quality and were analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?

Yes No

Comments: EPN was noted as a detected compound in sample WSEA8, which is unsubstantiated from the raw data. Stirophos was detected at 280 µg/Kg, but was not noted on the data sheet. These changes were made to the raw data on the basis of the laboratory's data identification log and data review. Professional judgment by the lab was used to identify compounds outside retention time windows. No changes in compound identification are recommended on the basis of data review. Verification of quantitated amounts could not be made, due to the complication of the software by which they were derived.

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LABORATORY CONTROL SAMPLES

LCS I.D.	Compound	%R	Affected Samples	(-/+) Qualifiers
LCS	Dementon-O	41	RBBS, BSEA4, BEA3, BSEA9, WSEA4.	UJ/J
	Nalad	44		UJ/J
	Diazinon	7		R/J
	Fensulfothion	302		-/J
	EPN	42		UJ/J
PLCSA6	Dichlorovos	161	BEA7, B10EA3, WEA7, W10EA7, BSEA8, S10EA8, WSEA8	-/J
	Mevinphos	170		-/J
	Dementon-O	42		UJ/J
	Nalad	12		UJ ~~R~~/J
	Dementon-S	147		-/J
	Diazinon	0		R/J
	Dimethoate	279		-/J
	Fensulfothion	748		-/J
	EPN	37		UJ/J
PLCSA9	Dichlorovos	147	BEA7, B10EA3, WEA7, W10EA7, BSEA8, S10EA8, WSEA8	-/J
	Mevinphos	155		-/J
	Dementon-O	38		UJ/J
	Nalad	12		UJ ~~R~~/J
	Diazinon	6		R/J
	Dimethoate	159		-/J
	Fensulfothion	731		-/J
	EPN	35		UJ/J

Calculation Check

Initial Calibration $\boxed{11/9/94}$

Retention Time Window:

[Average of 5 IC Retention Times] ± 0.04 = Window

$$\frac{7.267 + 7.267 + 7.267 + 7.258 + 7.258}{5} \pm 0.04 = [7.223 - 7.303]$$

for dichlorovos on NPD column

~~%RSD:~~ Correlation Coefficient:

(computer-generated value that cannot be reproduced by hand with accuracy)

Continuing Calibration $\boxed{AG112125,\ 11/22/94,\ 1144}$

%D: $$\frac{\text{IC Concentration} - \text{CC Concentration}}{\text{IC Concentration}} \times 100 = \%D$$

$$\frac{400 - 444}{400} \times 100 = 11.0\%$$ for diazinon

Surrogate Recovery $\boxed{\text{Sample WSEA4}}$

$$\frac{\text{Amount Recovered}}{\text{Amount Injected}} \times 100 = \frac{379\ \mu g/l}{500\ \mu g/l} = 75.8\%$$ for DMNB

Matrix Spike Recovery $\boxed{\text{Sample WEA7}}$

$$\frac{\text{Spike Amount Recovered}}{\text{Spike Amount Added}} \times 100 = \frac{18.14}{237} = 7.6\%$$ for diazinon

RPD: $$\frac{\text{MS Rec.} - \text{MSD Rec.}}{\frac{\text{MS Rec.} + \text{MSD Rec.}}{2}} = \frac{7-8}{7.5} = 13\%$$ for diazinon

Sample Results Sample BEA3

CRQL:

Base CRQL ÷ % Solids x Dilution Factor

$34 \div 0.58 \times 1 = 58.6\ \mu g/Kg$

Positive Result:

(Computer-generated value that cannot be reproduced by hand with accuracy)

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
(All holding time criteria were met)						

Comments:

AR302321

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
(Refer to pages 5E, 5F, and 5G for summary)						

Comments:

AR302322

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Samples Affected	Qualifier
11/10/94, 1°, 11:20	HP846	Ethoprop	30.5	(None)	(None)
		Naled	36.6		
11/10/94, 2°, 11:20	HP846	Naled	58.0	(None)	(None)
11/22/94, 1°, 11:44	HP846	(None)	—	S10EA8, WSEA8	(None)
11/22/94 1°, 20:44	HP846	Naled	79.8	(None)	(None)
11/22/94 2°, 11:44	HP846	Demeton-S	18.5	S10EA8, WSEA8	(None)

~~Comments:~~

11/22/94 2°, 20:44	HP846	Naled	89.6	(None)	(None)
		Dimethoate	25.2		

ocp_1.doc
10141994 1032

Form OCP 1.0

AR302323

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Associated Samples	Qualifier
(No detects)						

Comments:

AR302324

Summary and Conclusions

Significant problems with the data deliverables for the organophosphorus pesticides analysis necessitated extensive qualifications. The lab was required to supply additional information in many cases so that data review could be completed, and in some cases extensive calculations by the reviewer had to be done when information was not provided.

Affected compounds in all samples had to be rejected (R) or estimated (UJ/J) based on calibration problems. Pages 5, 5E, 5F, and 5G provide a detailed summary. Additional compounds had to be rejected or estimated, as well, based on laboratory control sample problems, as listed on page 9A of this report. Matrix spike problems were noted, but data were not qualified on the basis of these results, since matrix effects were not an evident problem, but rather laboratory analytical processes.

Sample BSEA4 was qualified as estimated (UJ) because of low surrogate recovery, and sample WSEA8 was adjusted to reflect a detection of stirophos instead of EPN, as indicated by the raw data.

Validator's Signature: Joyce E. Whittle	
Validator's Initials: JW	Validation Date: 1/18/95
QC Reviewer's Signature: Michael P. Phillips	
QC Reviewer's Initials MPP	Review Date: 1/23/95

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	RBBS
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
Matrix Type:	WATER	Lab Sample ID:	240144
Sample Weight:	1000 ml	Date Received:	11/03/94
Extraction:	SEPF	Date Extracted:	11/08/94
Dilution Factor:	1.0	Date Analyzed:	11/10/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/L	Q	
62-73-7	Dichlorovos	1.0	U	
7786-34-7	Mevinphos	1.0	U	R
8065-48-3	Demeton-O	1.0	U	J
13194-48-4	Ethoprop	1.0	U	
300-76-5	Nalad	1.0	U	R
298-02-2	Phorate	1.0	U	
3689-24-5	Sulfotepp	1.0	U	
8065-48-3	Demeton-S	1.0	U	
1.03-41-5	Diazinon	1.0	U	R
298-04-4	Disulfoton	1.0	U	
60-51-5	Dimethoate	1.0	U	J
299-84-3	Ronnel	1.0	U	
298-00-0	Methyl Parathion	1.0	U	
2921-88-2	Chlorpyrofos	1.0	U	
327-98-0	Trichloronate	1.0	U	
55-38-9	Fenthion	1.0	U	
121-75-5	Malathion	1.0	U	
56-38-2	Ethyl Parathion	1.0	U	
34643-46-4	Tokuthion	1.0	U	
150-50-5	Merphos	1.0	U	
22248-79-9	Stirophos	1.0	U	
35400-43-2	Bolstar	1.0	U	
115-90-2	Fensulfothion	1.0	U	J
2104-64-5	EPN	1.0	U	J
86-50-0	Azinphos Methyl	1.0	U	J
56-72-4	Coumaphos	1.0	U	

VALIDATED

Reviewed By Michael F. Phillips Jr. JW

Date 1/23/95

AR302326

002665

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	BEA3
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

Matrix Type:	SOIL	Lab Sample ID:	238909
Sample Weight:	30.0 g	Date Received:	10/22/94
Extraction:	SONC	Date Extracted:	10/27/94
Dilution Factor:	1.0	Date Analyzed:	11/10/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)
% Solids:	58		

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	58	U	
7786-34-7	Mevinphos	58	U	R
8065-48-3	Demeton-O	58	U	J
13194-48-4	Ethoprop	58	U	
300-76-5	Nalad	58	U	R
298-02-2	Phorate	58	U	
3689-24-5	Sulfotepp	58	U	
8065-48-3	Demeton-S	58	U	
1.03-41-5	Diazinon	58	U	R
298-04-4	Disulfoton	58	U	
60-51-5	Dimethoate	58	U	J
299-84-3	Ronnel	58	U	
298-00-0	Methyl Parathion	58	U	
2921-88-2	Chlorpyrofos	58	U	
327-98-0	Trichloronate	58	U	
55-38-9	Fenthion	58	U	
121-75-5	Malathion	58	U	
56-38-2	Ethyl Parathion	58	U	
34643-46-4	Tokuthion	58	U	
150-50-5	Merphos	58	U	
22248-79-9	Stirophos	58	U	
35400-43-2	Bolstar	58	U	
115-90-2	Fensulfothion	58	U	J
2104-64-5	EPN	58	U	J
86-50-0	Azinphos Methyl	58	U	J
56-72-4	Coumaphos	58	U	

VALIDATED

Reviewed By Michael P. Phillips for JW

Date 1/28/95

AR302327

002669

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	BEA7
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

Matrix Type:	SOIL	Lab Sample ID:	238910
Sample Weight:	30.1 g	Date Received:	10/22/94
Extraction:	SONC	Date Extracted:	10/27/94
Dilution Factor:	1.0	Date Analyzed:	11/22/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)
% Solids:	55		

CAS NO.	COMPOUND	CONCENTRATION ug/kg	Q	
62-73-7	Dichlorovos	61	U	R
7786-34-7	Mevinphos	61	U	R
8065-48-3	Demeton-O	61	U	J
13194-48-4	Ethoprop	61	U	
300-76-5	Nalad	61	U	J
298-02-2	Phorate	61	U	
3689-24-5	Sulfotepp	61	U	
8065-48-3	Demeton-S	61	U	R
1.03-41-5	Diazinon	61	U	R
298-04-4	Disulfoton	61	U	
60-51-5	Dimethoate	61	U	R
299-84-3	Ronnel	61	U	
298-00-0	Methyl Parathion	61	U	
2921-88-2	Chlorpyrofos	61	U	
327-98-0	Trichloronate	61	U	
55-38-9	Fenthion	61	U	
121-75-5	Malathion	61	U	
56-38-2	Ethyl Parathion	61	U	
34643-46-4	Tokuthion	61	U	
150-50-5	Merphos	61	U	
22248-79-9	Stirophos	61	U	R
35400-43-2	Bolstar	61	U	
115-90-2	Fensulfothion	61	U	J
2104-64-5	EPN	61	U	J
86-50-0	Azinphos Methyl	61	U	R
56-72-4	Coumaphos	61	U	R

VALIDATED

Reviewed By Michael K. Shelly for JW

Date 1/23/95

002674

AR302328

FORM 1

ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	BSEA4
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

Matrix Type:	SOIL	Lab Sample ID:	238829
Sample Weight:	30.1 g	Date Received:	10/21/94
Extraction:	SONC	Date Extracted:	10/27/94
Dilution Factor:	1.0	Date Analyzed:	11/10/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)
% Solids:	78		

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	44	U	J
7786-34-7	Mevinphos	44	U	R
8065-48-3	Demeton-O	44	U	J
13194-48-4	Ethoprop	44	U	J
300-76-5	Nalad	44	U	R
298-02-2	Phorate	44	U	J
3689-24-5	Sulfotepp	44	U	J
8065-48-3	Demeton-S	44	U	J
1.03-41-5	Diazinon	44	U	R
298-04-4	Disulfoton	44	U	J
60-51-5	Dimethoate	44	U	
299-84-3	Ronnel	44	U	
298-00-0	Methyl Parathion	44	U	
2921-88-2	Chlorpyrofos	44	U	
327-98-0	Trichloronate	44	U	
55-38-9	Fenthion	44	U	
121-75-5	Malathion	44	U	
56-38-2	Ethyl Parathion	44	U	
34643-46-4	Tokuthion	44	U	
150-50-5	Merphos	44	U	
22248-79-9	Stirophos	44	U	
35400-43-2	Bolstar	44	U	
115-90-2	Fensulfothion	44	U	
2104-64-5	EPN	44	U	
86-50-0	Azinphos Methyl	44	U	
56-72-4	Coumaphos	44	U	

VALIDATED

Reviewed By Michael K. Phillips for JW

Date 1/23/95

AR302329

002678

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	BSEA8
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
Matrix Type:	SOIL	Lab Sample ID:	240142
Sample Weight:	30.1 g	Date Received:	11/03/94
Extraction:	SONC	Date Extracted:	11/07/94
Dilution Factor:	1.0	Date Analyzed:	11/22/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)
% Solids:	57		

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	59	U	R
7786-34-7	Mevinphos	59	U	R
8065-48-3	Demeton-O	59	U	J
13194-48-4	Ethoprop	59	U	
300-76-5	Nalad	59	U	J
298-02-2	Phorate	59	U	
3689-24-5	Sulfotepp	59	U	
8065-48-3	Demeton-S	59	U	R
1.03-41-5	Diazinon	59	U	R
298-04-4	Disulfoton	59	U	
60-51-5	Dimethoate	59	U	R
299-84-3	Ronnel	59	U	
298-00-0	Methyl Parathion	59	U	
2921-88-2	Chlorpyrofos	59	U	
327-98-0	Trichloronate	59	U	
55-38-9	Fenthion	59	U	
121-75-5	Malathion	59	U	
56-38-2	Ethyl Parathion	59	U	
34643-46-4	Tokuthion	59	U	
150-50-5	Merphos	59	U	
22248-79-9	Stirophos	270		J
35400-43-2	Bolstar	59	U	
115-90-2	Fensulfothion	59	U	J
2104-64-5	EPN	59	U	J
86-50-0	Azinphos Methyl	59	U	R
56-72-4	Coumaphos	59	U	R

VALIDATED

Reviewed By Michael R. Phillips

Date 1/23/95

AR302330

002682

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	BSEA9
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

Matrix Type:	SOIL	Lab Sample ID:	238830
Sample Weight:	30.1 g	Date Received:	10/21/94
Extraction:	SONC	Date Extracted:	10/27/94
Dilution Factor:	1.0	Date Analyzed:	11/10/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)
% Solids:	94		

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	37	U	
7786-34-7	Mevinphos	37	U	R
8065-48-3	Demeton-O	37	U	J
13194-48-4	Ethoprop	37	U	
300-76-5	Nalad	37	U	R
298-02-2	Phorate	37	U	
3689-24-5	Sulfotepp	37	U	
8065-48-3	Demeton-S	37	U	
1.03-41-5	Diazinon	37	U	R
298-04-4	Disulfoton	37	U	
60-51-5	Dimethoate	37	U	J
299-84-3	Ronnel	37	U	
298-00-0	Methyl Parathion	37	U	
2921-88-2	Chlorpyrofos	37	U	
327-98-0	Trichloronate	37	U	
55-38-9	Fenthion	37	U	
121-75-5	Malathion	37	U	
56-38-2	Ethyl Parathion	37	U	
34643-46-4	Tokuthion	37	U	
150-50-5	Merphos	37	U	
22248-79-9	Stirophos	37	U	
35400-43-2	Bolstar	37	U	
115-90-2	Fensulfothion	37	U	J
2104-64-5	EPN	37	U	J
86-50-0	Azinphos Methyl	37	U	J
56-72-4	Coumaphos	37	U	

VALIDATED

Reviewed By Michael P. Phillips for JW

Date 1/23/95

AR302331

002688

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Client ID No.: B10EA3

Lab Name:	Aquatec, Inc.		
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
Matrix Type:	SOIL	Lab Sample ID:	238911
Sample Weight:	30.1 g	Date Received:	10/22/94
Extraction:	SONC	Date Extracted:	10/27/94
Dilution Factor:	1.0	Date Analyzed:	11/22/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)
% Solids:	61		

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	55	U	R
7786-34-7	Mevinphos	55	U	R
8065-48-3	Demeton-O	55	U	J
13194-48-4	Ethoprop	55	U	
300-76-5	Nalad	55	U	J
298-02-2	Phorate	55	U	
3689-24-5	Sulfotepp	55	U	
8065-48-3	Demeton-S	55	U	R
1.03-41-5	Diazinon	55	U	R
298-04-4	Disulfoton	55	U	
60-51-5	Dimethoate	55	U	R
299-84-3	Ronnel	55	U	
298-00-0	Methyl Parathion	55	U	
2921-88-2	Chlorpyrofos	55	U	
327-98-0	Trichloronate	55	U	
55-38-9	Fenthion	55	U	
121-75-5	Malathion	55	U	
56-38-2	Ethyl Parathion	55	U	
34643-46-4	Tokuthion	55	U	
150-50-5	Merphos	55	U	
22248-79-9	Stirophos	55	U	R
35400-43-2	Bolstar	55	U	
115-90-2	Fensulfothion	55	U	J
2104-64-5	EPN	55	U	J
86-50-0	Azinphos Methyl	55	U	R
56-72-4	Coumaphos	55	U	R

VALIDATED.

Reviewed By Michael P. Phillips for JW

Date 1/27/95

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Client ID No.: S10EA8

Lab Name:	Aquatec, Inc.		
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
Matrix Type:	SOIL	Lab Sample ID:	240143
Sample Weight:	30.3 g	Date Received:	11/03/94
Extraction:	SONC	Date Extracted:	11/07/94
Dilution Factor:	1.0	Date Analyzed:	11/22/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)
% Solids:	61		

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	55	U	R
7786-34-7	Mevinphos	55	U	R
8065-48-3	Demeton-O	55	U	J
13194-48-4	Ethoprop	55	U	
300-76-5	Nalad	55	U	J
298-02-2	Phorate	55	U	J
3689-24-5	Sulfotepp	55	U	
8065-48-3	Demeton-S	55	U	R
1.03-41-5	Diazinon	55	U	R
298-04-4	Disulfoton	55	U	J
60-51-5	Dimethoate	55	U	R
299-84-3	Ronnel	55	U	
298-00-0	Methyl Parathion	55	U	J
2921-88-2	Chlorpyrofos	55	U	J
327-98-0	Trichloronate	55	U	J
55-38-9	Fenthion	55	U	
121-75-5	Malathion	55	U	J
56-38-2	Ethyl Parathion	55	U	
34643-46-4	Tokuthion	55	U	
150-50-5	Merphos	55	U	J
22248-79-9	Stirophos	55	U	R
35400-43-2	Bolstar	55	U	
115-90-2	Fensulfothion	55	U	J
2104-64-5	EPN	55	U	J
86-50-0	Azinphos Methyl	55	U	R
56-72-4	Coumaphos	55	U	R

VALIDATED

Reviewed By Michael R. Phillips for JW

Date 1/23/95

AR302333

002697

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	WEA7
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

Matrix Type:	SOIL	Lab Sample ID:	238914	
Sample Weight:	30.1 g	Date Received:	10/22/94	
Extraction:	SONC	Date Extracted:	10/27/94	
Dilution Factor:	1.0	Date Analyzed:	11/22/94	
Level: (low/med)	LOW	Silica Gel Cleanup:	N	(Y/N)
% Solids:	56			

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	60	U	R
7786-34-7	Mevinphos	60	U	R
8065-48-3	Demeton-O	60	U	J
13194-48-4	Ethoprop	60	U	
300-76-5	Nalad	60	U	J
298-02-2	Phorate	60	U	
3689-24-5	Sulfotepp	60	U	
8065-48-3	Demeton-S	60	U	R
1.03-41-5	Diazinon	60	U	R
298-04-4	Disulfoton	60	U	
60-51-5	Dimethoate	60	U	R
299-84-3	Ronnel	60	U	
298-00-0	Methyl Parathion	60	U	
2921-88-2	Chlorpyrofos	60	U	
327-98-0	Trichloronate	60	U	
55-38-9	Fenthion	60	U	
121-75-5	Malathion	60	U	
56-38-2	Ethyl Parathion	60	U	
34643-46-4	Tokuthion	60	U	
150-50-5	Merphos	60	U	
22248-79-9	Stirophos	60	U	R
35400-43-2	Bolstar	60	U	
115-90-2	Fensulfothion	60	U	J
2104-64-5	EPN	60	U	J
86-50-0	Azinphos Methyl	60	U	R
56-72-4	Coumaphos	60	U	R

VALIDATED

Reviewed By Michael R. Phillips for JW

Date 1/23/95

002704

AR302334

FORM I
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	WSEA4
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
Matrix Type:	SOIL	Lab Sample ID:	238833
Sample Weight:	30.0 g	Date Received:	10/21/94
Extraction:	SONC	Date Extracted:	10/27/94
Dilution Factor:	1.0	Date Analyzed:	11/10/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)
% Solids:	92		

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	37	U	
7786-34-7	Mevinphos	37	U	R
8065-48-3	Demeton-O	37	U	J
13194-48-4	Ethoprop	37	U	
300-76-5	Nalad	37	U	R
298-02-2	Phorate	37	U	
3689-24-5	Sulfotepp	37	U	
8065-48-3	Demeton-S	37	U	
1.03-41-5	Diazinon	37	U	R
298-04-4	Disulfoton	37	U	
60-51-5	Dimethoate	37	U	J
299-84-3	Ronnel	37	U	
298-00-0	Methyl Parathion	37	U	
2921-88-2	Chlorpyrofos	37	U	
327-98-0	Trichloronate	37	U	
55-38-9	Fenthion	37	U	
121-75-5	Malathion	37	U	
56-38-2	Ethyl Parathion	37	U	
34643-46-4	Tokuthion	37	U	
150-50-5	Merphos	37	U	
22248-79-9	Stirophos	37	U	
35400-43-2	Bolstar	37	U	
115-90-2	Fensulfothion	37	U	J
2104-64-5	EPN	37	U	J
86-50-0	Azinphos Methyl	37	U	J
56-72-4	Coumaphos	37	U	

VALIDATED

Reviewed By Michael P. Phillips for JW

Date 1/23/95

AR302335

002709

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	W10EA7
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

Matrix Type:	SOIL	Lab Sample ID:	238915	
Sample Weight:	30.0 g	Date Received:	10/22/94	
Extraction:	SONC	Date Extracted:	10/27/94	
Dilution Factor:	1.0	Date Analyzed:	11/22/94	
Level: (low/med)	LOW	Silica Gel Cleanup:	N	(Y/N)
% Solids:	59			

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	57	U	R
7786-34-7	Mevinphos	57	U	R
8065-48-3	Demeton-O	57	U	J
13194-48-4	Ethoprop	57	U	
300-76-5	Nalad	57	U	J
298-02-2	Phorate	57	U	
3689-24-5	Sulfotepp	57	U	
8065-48-3	Demeton-S	57	U	R
1.03-41-5	Diazinon	57	U	R
298-04-4	Disulfoton	57	U	
60-51-5	Dimethoate	57	U	R
299-84-3	Ronnel	57	U	
298-00-0	Methyl Parathion	57	U	
2921-88-2	Chlorpyrofos	57	U	
327-98-0	Trichloronate	57	U	
55-38-9	Fenthion	57	U	
121-75-5	Malathion	57	U	
56-38-2	Ethyl Parathion	57	U	
34643-46-4	Tokuthion	57	U	
150-50-5	Merphos	57	U	
22248-79-9	Stirophos	57	U	R
35400-43-2	Bolstar	57	U	
115-90-2	Fensulfothion	57	U	J
2104-64-5	EPN	57	U	J
86-50-0	Azinphos Methyl	57	U	R
56-72-4	Coumaphos	57	U	R

VALIDATED

Reviewed By Michael R. Phillips for JW

Date 1/23/95

AR302336

002714

FORM 1
ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	WSEA8
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

Matrix Type:	SOIL	Lab Sample ID:	240147
Sample Weight:	30.2 g	Date Received:	11/03/94
Extraction:	SONC	Date Extracted:	11/07/94
Dilution Factor:	1.0	Date Analyzed:	11/22/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)
% Solids:	79		

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	Q	
62-73-7	Dichlorovos	43	U	R
7786-34-7	Mevinphos	43	U	R
8065-48-3	Demeton-O	43	U	J
13194-48-4	Ethoprop	43	U	
300-76-5	Nalad	43	U	J
298-02-2	Phorate	43	U	J
3689-24-5	Sulfotepp	43	U	
8065-48-3	Demeton-S	43	U	R
1.03-41-5	Diazinon	43	U	R
298-04-4	Disulfoton	43	U	J
60-51-5	Dimethoate	43	U	R
299-84-3	Ronnel	43	U	
298-00-0	Methyl Parathion	43	U	J
2921-88-2	Chlorpyrofos	43	U	J
327-98-0	Trichloronate	43	U	J
55-38-9	Fenthion	43	U	
121-75-5	Malathion	43	U	J
56-38-2	Ethyl Parathion	43	U	
34643-46-4	Tokuthion	43	U	
150-50-5	Merphos	43	U	J
22248-79-9	Stirophos	280 ~~43~~	~~U~~	J
35400-43-2	Bolstar	43	U	
115-90-2	Fensulfothion	43	U	J
2104-64-5	EPN	43 ~~230~~	U	J
86-50-0	Azinphos Methyl	43	U	R
56-72-4	Coumaphos	43	U	R

VALIDATED

Reviewed By Michael F. Shelly for JW

Date 1/23/95

AR302337

002719

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Organophosphorous Pesticides

Case Number:	94239, SDG 47744	Project Number:	27654 3.4.2.2
Site:	Kane and Lombard		
Contractor Lab:	Inchcape, Aquatec, Colchester, Vermont		
Validator:	Cindy Lucangioli	Validation Date:	1/18/95
QC Reviewer:	Kirsten Meier	Review Date:	2-7-95
Sample Matrix:	5 soils and 3 waters		
Analytical Method:	Organophosphorous Pesticides, EPA method 8140		

Sample Designations:

BSEA1	RBBS3		
BSEA2			
BSEA5			
WSEA1			
WSEA2			
RBBS1			
RBBS2			

Data for the above samples are:

[ ] Acceptable for use
[X] Acceptable for use as qualified
[ ] Unacceptable for use

Is action required by the Project Manager?

Yes[x] No

Comments: The validator used SW-846 method 8140 and Functional Guidelines as applicable to the method for qualification of the sample data as necessary.

DATA COMPLETENESS CHECKLIST

[x] Included, no problems
[*] Included, problems
[O] Not included
[NA] Not applicable

Quality Control Summary

___X___ Case Narrative
___*___ Surrogate Recovery Summary
___*___ MS/MSD Summary
___X___ Reagent Blank Summary

Sample Data

___X___ Chain of Custody Forms
___X___ Holding Times
___X___ Organic Analysis Data Sheets
___X___ Quantitation Reports
___X___ GC/~~EC~~ Chromatograms
___X___ Pesticide/~~PCB~~ Identification (for positive detections)

Instrument Calibration and Performance Data

___*___ Initial Calibration Retention Time Summary
___X___ Initial Calibration Response Factor Summary
___NA___ Performance Evaluation Mix Summary
___*___ Continuing Calibration Verification Summary
___X___ Analytical Run Sequence Summary
___NA___ GPC Calibration and Florisil Cartridge Check Summary
___X___ Pesticide/~~PCB~~ Standards Quantitation Reports
___X___ Pesticide/~~PCB~~ Standards GC/EC Chromatograms

Reagent and Instrument Blank Data

___X___ Organic Analysis Data Sheets
___X___ Quantitation Reports
___X___ GC/~~EC~~ Chromatograms
___NA___ Pesticide/~~PCB~~ Identification (for positive detections)

Matrix Spike Data

___X___ Organic Analysis Data Sheets
___X___ Quantitation Reports
___X___ GC/EC Chromatograms

Comments:

None

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?
Yes [X] No

Comments:
None

Holding Times

Were sample extractions performed within holding times?
Yes [X] No

Were sample analyses performed within holding times?
Yes [X] No

Comments:
None

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes No [X]

Were the calibration standards analyzed at the correct concentrations?

Yes [X] No

Did the calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No [X]

Were retention time windows provided and correctly calculated?

Yes No [X]

Were peak resolutions acceptable?

Yes No NA [X]

Comments:

The laboratory used a $1/X^2$ weighted internal standard linear regression to determine the linearity of a given compound and to quantitate unknown values. In the instance where all five calibration standards were used, correlation coefficients were evaluated by the reviewer. Correlation coefficients greater than 0.995 were considered to provide satisfactory linearity. This method of calculation cannot be reproduced without the software algorithm. The reviewer has assumed that the algorithm calculations are technically valid and that the values reported in the sample and QC raw data are correct. The laboratory quantitated values for the target compounds from the NPD detector with the exception of Chlorpyrofos and Trichloronate which coelute on the NPD detector and were reported from the FPD detector.

For the initial calibration analyzed on instrument HP846 on 11/9/94, four of the target compounds had one of the initial calibration standards omitted from the calibration curve in order to obtain a satisfactory correlation coefficient. This is not considered to be good laboratory practice and is non-compliant with the method requirements that a minimum of five calibration points be used to demonstrate acceptable linearity. The compounds and concentration levels that were omitted are as follows: Mevinphos-100 μg/L, Disulfoton-100 μg/L, Dimethoate-800 μg/L, and Azinphos methyl-1600 μg/L. The compounds for which a calibration standard was omitted, other than the low-level 100 μg/L standard, have been qualified as estimated (J) in the associated sample data. Mevinphos and Disulfoton sample data were non-detect and have been rejected (R) due to the inability to meet the reporting limit as the low level 100 μg/L standard was omitted from the calibration curve. The samples associated with this initial calibration were: RBBS1 and RBBS2.

For the initial calibration analyzed on instrument HP846 on 11/21/94, eleven of the target compounds had one or more of the initial calibration standards omitted from the calibration curve in order to obtain a satisfactory correlation coefficient. This is not considered to be good laboratory practice and is non-compliant with the method requirements that a minimum of five calibration points be used to demonstrate acceptable linearity. The compounds and concentration levels that were omitted are as follows: 1,3-Dimethyl-2-Nitrobenzene (surrogate)-400 μg/L; Dichlorovos-100 μg/L; Mevinphos-100 μg/L, 1600 μg/L; Demeton-O-400 μg/L; Naled-400 μg/L; Demeton-S-100 μg/L, 800 μg/L; Dimethoate-100 μg/L, 800 μg/L; Stirophos-100 μg/L; Fensulfothion-200 μg/L, 1600 μg/L; Azinphos methyl-100 μg/L; and Coumaphos-100 μg/L. The compounds for which a calibration standard was omitted other than the low-level 100 μg/L standard, have been qualified as estimated (J) in the associated sample data. Due to the omission of the low-level standard the laboratory was unable to meet the reporting limit for these compounds: Dichlorovos, Mevinphos, Demeton-S, Dimethoate, Stirophos, Azinphos methyl and Coumaphos; the associated sample data have been rejected (R) for these analytes as the reported values were non-detect. The samples associated with this initial calibration were: BSEA1, WSEA1 and their associated MS/MSDs.

For the initial calibration analyzed on instrument HP846 on 11/23/94, fifteen of the target compounds had one or more of the initial calibration standards omitted from the calibration curve in order to obtain a satisfactory correlation coefficient. This is not considered to be good laboratory practice and is non-compliant with the method requirements that a minimum of five calibration points be used to demonstrate acceptable linearity. The compounds and concentration levels that were omitted are as follows: Dichlorovos-200 μg/L; Mevinphos-100 μg/L, 800 μg/L; Demeton-O-200 μg/L; Naled-100 μg/L, 400 μg/L; Demeton-S-200 μg/L, 1600 μg/L; Disulfoton-100 μg/L; Trichloronate-1600 μg/L, Dimethoate-200 μg/L, 1600 μg/L; Ronnel-1600 μg/L; Fenthion-400 μg/L; Malathion-200 μg/L; Ethyl Parathion-400 μg/L; Stirophos-200 μg/L; Fensulfothion-200 μg/L, 1600 μg/L; and Azinphos methyl-100 μg/L. The compounds for which a calibration standard was omitted other than the low-level 100 μg/L standard, have been qualified as estimated (J) in the associated sample data. Due to the omission of the low-level standard the laboratory was unable to meet the reporting limit for these compounds: Mevinphos, Naled, Disulfoton, and Azinphos methyl. The associated sample data have been rejected (R) for these analytes listed above as the reported values were non-detect. The samples associated with this initial calibration were: BSEA2, BSEA5, WSEA2 and RBBS3.

Individual Mix Standards (Continuing Calibration)

Did the individual mix standards meet the linearity criteria for maximum percent difference (%D)?
Yes No [X]

Did the individual mix standards meet the retention time criteria?
Yes [X] No

Comments:

The continuing calibration analyzed on 11/9/94 @ 11:20 contained only half of the target compounds. The following compounds were missing from the calibration check: Dichlorovos, Demeton-O, Phorate, Demeton-S, Disulfoton, Methyl Parathion, Malathion, Merphos, Fensulfothion, EPN, Coumaphos, Chlorpyrofos, and Trichloronate. All of the target compounds are required to be analyzed in the continuing calibration verification standard and their omission is non-compliant with the requirements of the method. These compounds listed above have been qualified as estimated (J) as it was not possible to evaluate the response of these compounds as compared to the average response in the initial calibration. In addition, the compounds Ethoprop and Naled exceeded the 15% Difference criterion with 30.5%D and 36.8%D, respectively. These compounds have been qualified as estimated (J) in the associated sample data due to calibration criterion exceedance. The samples associated with this continuing calibration are: RBBS1 and RBBS2.

For the continuing calibration analyzed on 11/22/94 @ 11:44 and 11/22/94 @ 20:44, the first standard contained one half of the target compounds while the second contained the other half. All target compounds have been qualified as estimated as their was no way to evaluate the response of the analytes for each of the calibration check standards. All of the target compounds are required to be analyzed in each of the continuing calibration verification standards and their omission is non-compliant with the requirements of the method. The samples associated with these calibrations are: BSEA1, WSEA1 and the associated MS/MSD samples. In addition, Sulfotepp exceeded the 15%D acceptance criterion, however this compound was already qualified and no additional qualification was necessary.

For the continuing calibration analyzed on 11/23/94 @ 5:53 the following compounds were missing: Dichlorovos, Demeton-O, Phorate, Demeton-S, Disulfoton, Methyl Parathion, Malathion, Merphos, Fensulfothion, EPN, Coumaphos, Chlorpyrofos, and Trichloronate. All of the target compounds are required to be analyzed in the continuing calibration verification standard and their omission is non-compliant with the requirements of the method. The results for the above listed compounds have been qualified as estimated (J) as it was not possible to evaluate the response of these compounds as compared to the average response in the initial calibration. In addition, the compounds Naled exceeded the 15% Difference criterion with 45%D and has been qualified as estimated (J) in the associated sample data due to calibration criterion exceedance. The associated samples are: BSEA2, WSEA2, BSEA5 and RBBS3.

AR302344

The laboratory did not determine retention time windows as specified by method 8140. Rather, the laboratory used the initial calibration to establish retention times for a given compound and used a window of ± 0.10 for identification of the target compounds in the computer. The analyst then evaluated the sample data on an individual basis with the following procedure: 1) The surrogate and the internal standard retention times were compared to the average retention time in the initial calibration to determine if any shifting had occurred, 2) the analyst then re-evaluated the peaks found by the computer using a fixed window of $\pm$ 0.05 minutes around the expected retention time if no shift had occurred. 3) If a shift had occurred the reviewer used relative retention times using the surrogate and internal standard for reference for target compound identification. The reviewer considers this method identification of target compounds to be satisfactory. Continuing calibration standards were within retention time windows and no errors were found regarding target compound identification.

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes No NA [X]

Did the performance evaluation mix standards meet the retention time criteria?

Yes No NA [X]

Comments:

None

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?

Yes [X] No

Comments:

Samples were bracketed by calibration standards and analyzed within a 12 hour period.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

Yes No [X]

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No [X]

Comments:

The surrogate recovery for sample WSEA1MS was 56%, below the 60-150% acceptance limit. The surrogate recoveries for the sample WSEA1 and its MSD were within acceptance limits which suggests a preparation problem and not an indication of sample matrix. No sample data was qualified due to the low surrogate recovery in the matrix spike sample.

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

Yes No [X]

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No [X]

Comments: No matrix spike/matrix spike duplicate (MS/MSD) sample was analyzed for the water matrix. The water LCS was used to evaluate accuracy for the water samples. For the soil samples, the acceptance limits for MS/MSD recoveries and percent RPDs are 60-140% and 30%, respectively. Both MS/MSD samples had outlying MS/MSD recoveries and one had an outlying %RPD. The MS/MSD outliers are summarized in the tables below. The LCSs associated with the soil sample data also had outlying spike recoveries and RPDs and in the professional judgement of the reviewer are not considered to be an indication of sample matrix but rather an indication of problems occurring during sample extraction. No qualification of data based on matrix spike recoveries. KK 2-7-95

BSEA1

Target Compound	% Recovery MS/MSD	%RPD
Dichlorovos	142* / 134	6
Mevinphos	153* / 142*	8
Naled	12* / 11*	4
Diazinon	6* / 6*	1
Chlorpyrofos	35* / 31*	13
Merphos	58* / 58*	0
Fensulfothion	592* / 540*	9
EPN	30* / 24*	24
Demeton-O	67 / 37*	3

* Outside of acceptance limits.

WSEA1

Target Compound	% Recovery MS/MSD	%RPD
Demeton-O	31* / 36*	13
Naled	10* / 12*	17
Diazinon	5* / 6*	10
Chlorpyrofos	41* / 64	44*
Merphos	58* / 62	6
Fensulfothion	561* / 583*	4
EPN	29* / 29*	2
Mevinphos	136 / 145*	7

* Outside of acceptance limits.

Blank Analyses

Were the appropriate number of blank analyses performed?
Yes [X] No

Were instrument blanks analyzed at the correct frequency?
Yes No NA [X]

Were analytes reported in the blanks?
Yes No [X]

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?
Yes No NA [X]

Did the sample results require qualification due to the presence of analytes in the associated blank samples?
Yes No [X]

Comments: The associated prep blanks had no detections, qualification of data was not necessary.
The rinsate blank results for RBBS1, RBBS2 and RBBS3 were all non-detect and qualification of sample data due to rinsate blank contamination was not necessary.

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?
Yes No NA [X]

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?
Yes No NA [X]

Comments: Not applicable.

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?
Yes No NA [X]

Was the GPC column check acceptable?
Yes No NA [X]

Was a Florisil cartridge check performed?
Yes No NA [X]

Was the Florisil cartridge check acceptable?
Yes No NA [X]

Comments: Not applicable

Laboratory Control Samples

Were LCS analyses performed?
Yes [X] No

Were the LCS recoveries within acceptable limits?
Yes No [X] NA

Comments:

Both soil LCSs and the water LCS had recoveries for some of the target compounds outside of the acceptance limits of 60-140% recovery. The recovery outliers in the LCSs are an indication of a potential extraction and/or analysis problem. The LCS recovery outliers are listed in the tables below. The recoveries above the upper acceptance limit have been qualified as estimated for detected results. LCS recoveries between 10 and 140% have been qualified as estimated in the sample data for both detected and non-detected results. LCS recoveries less than 10% detected results have been qualified as estimated and non-detected results have been rejected due to exceeding low recoveries.

LCS1 (water)

Target Compound	% Recovery
Demeton-O	40%
Naled	45%
Diazinon	7%
Chlorpyrofos	40%
Fensulfothion	300%
EPN	43%

Associated samples: RBBS1, RBBS2 and RBBS3.

LCS2 (soil)

Target Compound	% Recovery
Dichlorovos	147%
Mevinphos	155%
Naled	12%
Diazinon	6%
Dimethoate	159%
Fensulfothion	732%
EPN	35%

Associated samples: BSEA1, WSEA1, BSEA2, WSEA2 and both MS/MSDs.

LCS3 (soil)

Target Compound	% Recovery
Demeton-O	36%
Naled	43%
Diazinon	9%
Dimethoate	183%
Fensulfothion	645%
EPN	43%

Associated samples: BSEA5.

Sample Results

Were target analytes reported in the investigative samples?
Yes No [X]

Were chromatograms provided for all target analytes reported in the investigative samples?
Yes [X] No

Were chromatograms of acceptable quality and were analytes correctly identified?
Yes [X] No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?
Yes [X] No

Comments:
None

Calculation Check

Initial Calibration

Retention Time Window: Naled (NPD) 11/21/94 15.01 ±0.05 minutes

%RSD: The laboratory used a $1/X^2$ weighted internal standard linear regression software algorithm to calculate calibration standards and all compounds of interest. Without the software algorithm the reported values could not be reproduced. The reviewer has assumed that all calculations using this algorithm are correct.

Continuing Calibration 11/21/94 11:44 NPD

$$\%D: \text{Fensulfothion} = \frac{(400 - 455)}{400} \times 100 = 13.8\%$$

Surrogate Recovery

Matrix Spike Recovery / WSEA1 Chlorpyrofos

$$\frac{(73.2 - 0)}{180} \times 100 = 41\%$$

$$\text{RPD: absolute value of } \frac{(41 - 64)}{((41 + 64)/2)} \times 100 = 44\%$$

Sample Results

Positive Result: No detections were reported.

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
BSEA1	11/3/94	11/7/94	11/22/94	4	15	NONE
RBBS1	11/3/94	11/8/94	11/10/94	5	2	NONE
WSEA1	11/3/94	11/7/94	11/22/94	4	15	NONE
BSEA2	11/4/94	11/7/94	11/22/94	3	15	NONE
RBBS2	11/4/94	11/8/94	11/10/94	4	2	NONE
WSEA2	11/4/94	11/7/94	11/22/94	3	15	NONE
BSEA5	11/12/94	11/16/94	11/24/94	4	8	NONE
RBBS3	11/12/94	11/17/94	11/24/94	5	7	NONE

Comments:
None

AR302351

Case Number: 94239, SDG 47744
Project Number: 27654 3.4.2.2
Site ID: Kane and Lombard

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
11-9-94	HP846	Mevinphos, 100 ug/l			RBBS1, RBBS2	J/R
		Disulfoton, 100 ug/l			RBBS1, RBBS2	J/R
		Dimethoate, 800 ug/l			RBBS1, RBBS2	J/UJ
		Azinphosmethyl, 1600 ug/l			RBBS1, RBBS2	J/UJ
11-21-94	HP846	Dichlorovos, 100 ug/l			BSEA1, WSEA1	J/R
		Mevinphos, 100 ug/l			BSEA1, WSEA1	J/R
		Mevinphos, 1600 ug/l			BSEA1, WSEA1	qualified
		Demeton-O, 400 ug/l			BSEA1, WSEA1	J/UJ
		Naled, 400 ug/l			BSEA1, WSEA1	J/UJ
		Demeton-S, 100 ug/l			BSEA1, WSEA1	J/R
		Demeton-S, 800 ug/l			BSEA1, WSEA1	qualified
		Dimethoate, 100 ug/l			BSEA1, WSEA1	J/R
		Dimethoate, 800 ug/l			BSEA1, WSEA1	qualified
		Stirophos, 100 ug/l			BSEA1, WSEA1	J/R
		Fensulfothion, 200 ug/l			BSEA1, WSEA1	J/UJ
		Fensulfothion, 1600 ug/l			BSEA1, WSEA1	J/UJ

Comments: The listed analytes at the specific concentrations were omitted from the initial calibration. See text for discussion.

AR302352

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
		Azinphos methyl, 100 ug/l			BSEA1, WSEA1	J/R
		Coumaphos, 100 ug/l			BSEA1, WSEA1	J/R
11-23-94	HP846	Dichlorovos, 200 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Mevinphos, 100 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/R
		Mevinphos 800 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	qualified
		Demeton-O, 200 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Naled, 100 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/R
		Naled, 400 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	~~J~~ qualified KM
		Demeton-S, 200 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Demeton-S, 1600 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ KM 2-7-95
		Disulfoton, 100 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/R
		Trichloronate, 1600 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Dimethoate, 200 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Dimethoate, 1600 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ KM
		Ronnel, 1600 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Fenthion, 400 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ

Comments: See above.

AR302353

Case Number: 94239, SDG 47744
Project Number: 27654 3.4.2.2
Site ID: Kane and Lombard

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
		Malathion, 200 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Ethyl parathion, 400 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Stirophos, 200 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Fensulfothion, 200 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Fensulfothion, 1600 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/UJ
		Azinphos methyl, 100 ug/l			BSEA2, BSEA5, WSEA2, RBBS3	J/R

Comments: ~~None.~~ See above. KH 2-7-95

AR302354

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Samples Affected	Qualifier

Comments: See page 7 for detailed discussion of outliers and associated quaifiers.

AR302355

Case Number: 94239, SDG 47744
Project Number: 27654 3.4.2.2
Site ID: Kane and Lombard

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Associated Samples	Qualifier

Comments: None

AR302356

Case Number: 94239
ProjectNumber: 27654
Site ID: Kane and Lombard

Summary and Conclusions

The investigative samples were qualified as estimated due to the omission of calibration standards from the initial calibration and suspected unsatisfactory linearity had all five calibration standards been used. In the instances where the low calibration standard (100 μg/L) was omitted for a given analyte, sample data which were all non-detect, were rejected as the laboratory was not able to meet the reporting limit. *1)

Sample data were qualified as estimated for some or all of the target compounds due to the lack of continuing calibration verification (CCV). For those compounds that were analyzed in a CCV standard, several compounds exceeded the 15%D method criterion and were qualified as estimated in the associated sample data. KM

Sample data were qualified as estimated for most LCS outliers and rejected for ~~Naled~~ Diazinon KM for samples associated with LCS1 ~~and~~, LCS2 and LCS3 KM due to a potential laboratory extraction and/or analysis problem.

Accuracy as measured by the surrogate recoveries, MS/MSD recoveries and LCS recoveries were for some part within acceptance limits, with the exceptions noted in the text and in most instances a sufficient level of accuracy to provide useable sample data. Precision as measured by the percent RPDs between MS/MSD recoveries were within acceptance limits with the exception of Chlorpyrofos in WSEA1, indicating sufficient level of precision. Completeness defined as the percentage of useable sample data, including those values qualified as estimated, is 78.9%. With the exceptions noted in the text, the sample data are considered to be useable as qualified by the reviewer.

*1) In the instances, where a different calibration standard than the 100 µg/l was omitted, the results for that compound were qualified as estimated (J). KM 2-7-95

Validator's Signature:	Cynthia K Frazier		
Validator's Initials:	CKL	Validation Date:	2/1/95
QC Reviewer's Signature:	Kristen Meier		
QC Reviewer's Initials:	KM	Review Date:	2-7-95

ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.		Client ID No.
Lab Code:	AQUAI		RBBS-1
Contract:	94239		
Case:	94239		
SDG:	47744		
Matrix Type:	Water	Lab Sample Id:	240300
Sample Weight:	1000 ml	Date Received:	11/04/94
Extraction:	SEPF	Date Extracted:	11/08/94
Dilution Factor:	1.0	Date Analyzed:	11/10/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
62-73-7	Dichlorovos	1.0	U J
7786-34-7	Mevinphos	1.0	U R
8065-48-3	Demeton-O	1.0	U J
13194-48-4	Ethoprop	1.0	U J
300-76-5	Nalad	1.0	U J
298-02-2	Phorate	1.0	U J
3689-24-5	Sulfotepp	1.0	U
8065-48-3	Demeton-S	1.0	U J
1.03-41-5	Diazinon	1.0	U R
298-04-4	Disulfoton	1.0	U R
60-51-5	Dimethoate	1.0	U J
299-84-3	Ronnel	1.0	U
298-00-0	Methyl Parathion	1.0	U J
2921-88-2	Chlorpyrofos	1.0	U J
327-98-0	Trichloronate	1.0	U J
55-38-9	Fenthion	1.0	U
121-75-5	Malathion	1.0	U J
56-38-2	Ethyl Parathion	1.0	U
34643-46-4	Tokuthion	1.0	U
150-50-5	Merphos	1.0	U J
22248-79-9	Stirophos	1.0	U
35400-43-2	Bolstar	1.0	U
115-90-2	Fensulfothion	1.0	U J
2104-64-5	EPN	1.0	U J
86-50-0	Azinphos Methyl	1.0	U J
56-72-4	Coumaphos	1.0	U J

VALIDATED

Reviewed By CK

Date 2/1/95

ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.		Client ID No.
Lab Code:	AQUAI		RBBS-2
Contract:	94239		
Case:	94239		
SDG:	47744		
Matrix Type:	Water	Lab Sample Id:	240395
Sample Weight:	1000 ml	Date Received:	11/05/94
Extraction:	SEPF	Date Extracted:	11/08/94
Dilution Factor:	1.0	Date Analyzed:	11/10/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
62-73-7	Dichlorovos	1.0	U J
7786-34-7	Mevinphos	1.0	U R
8065-48-3	Demeton-O	1.0	U J
13194-48-4	Ethoprop	1.0	U J
300-76-5	Nalad	1.0	U J
298-02-2	Phorate	1.0	U J
3689-24-5	Sulfotepp	1.0	U
8065-48-3	Demeton-S	1.0	U J
1.03-41-5	Diazinon	1.0	U R
298-04-4	Disulfoton	1.0	U R
60-51-5	Dimethoate	1.0	U J
299-84-3	Ronnel	1.0	U
298-00-0	Methyl Parathion	1.0	U J
2921-88-2	Chlorpyrofos	1.0	U J
327-98-0	Trichloronate	1.0	U J
55-38-9	Fenthion	1.0	U
121-75-5	Malathion	1.0	U J
56-38-2	Ethyl Parathion	1.0	U
34643-46-4	Tokuthion	1.0	U
150-50-5	Merphos	1.0	U J
22248-79-9	Stirophos	1.0	U
35400-43-2	Bolstar	1.0	U
115-90-2	Fensulfothion	1.0	U J
2104-64-5	EPN	1.0	U J
86-50-0	Azinphos Methyl	1.0	U J
56-72-4	Coumaphos	1.0	U J

VALIDATED

Reviewed By CK

Date 2/1/95

ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.		Client ID No.
Lab Code:	AQUAI		BSEA1
Contract:	94239		
Case:	94239		
SDG:	47744		
Matrix Type:	Soil	Lab Sample Id:	240299
Sample Weight:	30.1 g	Level: (low/med	LOW
Extraction:	SONC	Date Received:	11/04/94
Dilution Factor:	1.0	Date Extracted:	11/07/94
% Solids	72	Date Analyzed:	11/22/94
		Silica Gel Cleanup:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
62-73-7	Dichlorovos	48	U R
7786-34-7	Mevinphos	48	U R
8065-48-3	Demeton-O	48	U J
13194-48-4	Ethoprop	48	U J
300-76-5	Nalad	48	U J
298-02-2	Phorate	48	U J
3689-24-5	Sulfotepp	48	U J
8065-48-3	Demeton-S	48	U R
1.03-41-5	Diazinon	48	U ~~J~~ R
298-04-4	Disulfoton	48	U J
60-51-5	Dimethoate	48	U R
299-84-3	Ronnel	48	U J
298-00-0	Methyl Parathion	48	U J
2921-88-2	Chlorpyrofos	48	U J
327-98-0	Trichloronate	48	U J
55-38-9	Fenthion	48	U J
121-75-5	Malathion	48	U J
56-38-2	Ethyl Parathion	48	U J
34643-46-4	Tokuthion	48	U J
150-50-5	Merphos	48	U J
22248-79-9	Stirophos	48	U R
35400-43-2	Bolstar	48	U J
115-90-2	Fensulfothion	48	U J
2104-64-5	EPN	48	U J
86-50-0	Azinphos Methyl	48	U R
56-72-4	Coumaphos	48	U R

VALIDATED

Reviewed By CAC

Date 2/1/95

AR302360

ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.		Client ID No.
Lab Code:	AQUAI		WSEA1
Contract:	94239		
Case:	94239		
SDG:	47744		
Matrix Type:	Soil	Lab Sample Id:	240304
Sample Weight:	30.3 g	Level: (low/med	LOW
Extraction:	SONC	Date Received:	11/04/94
Dilution Factor:	1.0	Date Extracted:	11/07/94
% Solids	74	Date Analyzed:	11/22/94
		Silica Gel Cleanup:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
62-73-7	Dichlorovos	46	U R
7786-34-7	Mevinphos	46	U R
8065-48-3	Demeton-O	46	U J
13194-48-4	Ethoprop	46	U J
300-76-5	Nalad	46	U J
298-02-2	Phorate	46	U J
3689-24-5	Sulfotepp	46	U J
8065-48-3	Demeton-S	46	U R
1.03-41-5	Diazinon	46	U ~~J~~ R
298-04-4	Disulfoton	46	U J
60-51-5	Dimethoate	46	U R
299-84-3	Ronnel	46	U J
298-00-0	Methyl Parathion	46	U J
2921-88-2	Chlorpyrofos	46	U J
327-98-0	Trichloronate	46	U J
55-38-9	Fenthion	46	U J
121-75-5	Malathion	46	U J
56-38-2	Ethyl Parathion	46	U J
34643-46-4	Tokuthion	46	U J
150-50-5	Merphos	46	U J
22248-79-9	Stirophos	46	U R
35400-43-2	Bolstar	46	U J
115-90-2	Fensulfothion	46	U J
2104-64-5	EPN	46	U J
86-50-0	Azinphos Methyl	46	U R
56-72-4	Coumaphos	46	U R

VALIDATED

Reviewed By CAC

Date 2/1/95

ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.		Client ID No.
Lab Code:	AQUAI		BSEA2
Contract:	94239		
Case:	94239		
SDG:	47744		
Matrix Type:	Soil	Lab Sample Id:	230394
Sample Weight:	30.3 g	Level: (low/med	LOW
Extraction:	SONC	Date Received:	11/05/94
Dilution Factor:	1.0	Date Extracted:	11/07/94
% Solids	48	Date Analyzed:	11/24/94
		Silica Gel Cleanup:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
62-73-7	Dichlorovos	71	U J
7786-34-7	Mevinphos	71	U R
8065-48-3	Demeton-O	71	U J
13194-48-4	Ethoprop	71	U
300-76-5	Nalad	71	U R
298-02-2	Phorate	71	U J
3689-24-5	Sulfotepp	71	U
8065-48-3	Demeton-S	71	U J
1.03-41-5	Diazinon	71	U R
298-04-4	Disulfoton	71	U R
60-51-5	Dimethoate	71	U J
299-84-3	Ronnel	71	U J
298-00-0	Methyl Parathion	71	U J
2921-88-2	Chlorpyrofos	71	U J
327-98-0	Trichloronate	71	U J
55-38-9	Fenthion	71	U J
121-75-5	Malathion	71	U J
56-38-2	Ethyl Parathion	71	U J
34643-46-4	Tokuthion	71	U
150-50-5	Merphos	71	U J
22248-79-9	Stirophos	71	U J
35400-43-2	Bolstar	71	U
115-90-2	Fensulfothion	71	U J
2104-64-5	EPN	71	U J
86-50-0	Azinphos Methyl	71	U R
56-72-4	Coumaphos	71	U J

VALIDATED

Reviewed By ak

Date 2/1/95

1

ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.		Client ID No.
Lab Code:	AQUAI		WSEA2
Contract:	94239		
Case:	94239		
SDG:	47744		
Matrix Type:	Soil	Lab Sample Id:	230398
Sample Weight:	30.1 g	Level: (low/med	LOW
Extraction:	SONC	Date Received:	11/05/94
Dilution Factor:	1.0	Date Extracted:	11/07/94
% Solids	72	Date Analyzed:	11/24/94
		Silica Gel Cleanup:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
62-73-7	Dichlorovos	48	UJ
7786-34-7	Mevinphos	48	UR
8065-48-3	Demeton-O	48	UJ
13194-48-4	Ethoprop	48	U
300-76-5	Nalad	48	UR
298-02-2	Phorate	48	UJ
3689-24-5	Sulfotepp	48	U
8065-48-3	Demeton-S	48	UJ
1.03-41-5	Diazinon	48	UR
298-04-4	Disulfoton	48	UR
60-51-5	Dimethoate	48	UJ
299-84-3	Ronnel	48	UJ
298-00-0	Methyl Parathion	48	UJ
2921-88-2	Chlorpyrofos	48	UJ
327-98-0	Trichloronate	48	UJ
55-38-9	Fenthion	48	UJ
121-75-5	Malathion	48	UJ
56-38-2	Ethyl Parathion	48	UJ
34643-46-4	Tokuthion	48	U
150-50-5	Merphos	48	UJ
22248-79-9	Stirophos	48	UJ
35400-43-2	Bolstar	48	U
115-90-2	Fensulfothion	48	UJ
2104-64-5	EPN	48	UJ
86-50-0	Azinphos Methyl	48	UR
56-72-4	Coumaphos	48	UJ

VALIDATED

Reviewed By CHC

Date 2/1/95

ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.		Client ID No.
Lab Code:	AQUAI		RBBS-3
Contract:	94239		
Case:	94239		
SDG:	47744		
Matrix Type:	Water	Lab Sample Id:	241147
Sample Weight:	1000 ml	Date Received:	11/14/94
Extraction:	SEPF	Date Extracted:	11/17/94
Dilution Factor:	1.0	Date Analyzed:	11/24/94
Level: (low/med)	LOW	Silica Gel Cleanup:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
62-73-7	Dichlorovos	1.0	U J
7786-34-7	Mevinphos	1.0	U R
8065-48-3	Demeton-O	1.0	U J
13194-48-4	Ethoprop	1.0	U
300-76-5	Naled	1.0	U R
298-02-2	Phorate	1.0	U J
3689-24-5	Sulfotepp	1.0	U
8065-48-3	Demeton-S	1.0	U J
1.03-41-5	Diazinon	1.0	U R
298-04-4	Disulfoton	1.0	U R
60-51-5	Dimethoate	1.0	U J
299-84-3	Ronnel	1.0	U J
298-00-0	Methyl Parathion	1.0	U J
2921-88-2	Chlorpyrofos	1.0	U J
327-98-0	Trichloronate	1.0	U J
55-38-9	Fenthion	1.0	U J
121-75-5	Malathion	1.0	U J
56-38-2	Ethyl Parathion	1.0	U J
34643-46-4	Tokuthion	1.0	U
150-50-5	Merphos	1.0	U J
22248-79-9	Stirophos	1.0	U J
35400-43-2	Bolstar	1.0	U
115-90-2	Fensulfothion	1.0	U J
2104-64-5	EPN	1.0	U J
86-50-0	Azinphos Methyl	1.0	U R
56-72-4	Coumaphos	1.0	U J

VALIDATED

Reviewed By CM

Date 2/1/95

ORGANOPHOSPHORUS PESTICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.		Client ID No.
Lab Code:	AQUAI		BSEA5
Contract:	94239		
Case:	94239		
SDG:	47744		
Matrix Type:	Soil	Lab Sample Id:	241146
Sample Weight:	30.0 g	Level: (low/med	LOW
Extraction:	SONC	Date Received:	11/14/94
Dilution Factor:	1.0	Date Extracted:	11/16/94
% Solids	78	Date Analyzed:	11/24/94
		Silica Gel Cleanup:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
62-73-7	Dichlorovos	44	U J
7786-34-7	Mevinphos	44	U R
8065-48-3	Demeton-O	44	U J
13194-48-4	Ethoprop	44	U
300-76-5	Nalad	44	U R
298-02-2	Phorate	44	U J
3689-24-5	Sulfotepp	44	U
8065-48-3	Demeton-S	44	U J
1.03-41-5	Diazinon	44	U R
298-04-4	Disulfoton	44	U R
60-51-5	Dimethoate	44	U J
299-84-3	Ronnel	44	U J
298-00-0	Methyl Parathion	44	U J
2921-88-2	Chlorpyrofos	44	U J
327-98-0	Trichloronate	44	U J
55-38-9	Fenthion	44	U J
121-75-5	Malathion	44	U J
56-38-2	Ethyl Parathion	44	U J
34643-46-4	Tokuthion	44	U
150-50-5	Merphos	44	U J
22248-79-9	Stirophos	44	U J
35400-43-2	Bolstar	44	U
115-90-2	Fensulfothion	44	U J
2104-64-5	EPN	44	U J
86-50-0	Azinphos Methyl	44	U R
56-72-4	Coumaphos	44	U J

VALIDATED

Reviewed By CPC

Date 2/1/95

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

~~Organochlorine Pesticides and Polychlorinated Biphenyl~~s Analysis
Chlorinated Herbicide

Case Number: 94239, SDG # 47470	Project Number: 27654, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec Inc. / Inchcape Testing Services	
Validator: Kaprie S. Core Kirsten Meier	Validation Date: 1/11/95 2-1-95
QC Reviewer: Michael P. Phillips	Review Date: 1/17/95, 2/6/95
Sample Matrix: SOIL/sediment (11), water QC (1)	
Analytical Method: EPA method 8150	

Sample Designations:

BS/EA-9	WS/10EA-7		
BS/EA-4	BS/10EA-8		
WS/EA-4	RBBS/110294		
BS/EA3	WS/EA8		
BS/10EA3	BS/EA8		
BS/EA7			
WS/EA-7			

Data for the above samples are:

_____ Acceptable for use
__X__ Acceptable for use as qualified
_____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were qualified using the "USEPA Contract Laboratory Program, National Functional Guidelines for Organic Data Review," February 1994.

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

* Case Narrative
X Surrogate Recovery Summary
X MS/MSD Summary
X Reagent Blank Summary

Sample Data

* Chain of Custody Forms
X Holding Times
* Organic Analysis Data Sheets
X Quantitation Reports
X GC/EC Chromatograms
X ~~Pesticide/PCB Identification~~ (for positive detections) Confirmations
BJL 1/10/95

Instrument Calibration and Performance Data

X Initial Calibration Retention Time Summary
X Initial Calibration Response Factor Summary
NA Performance Evaluation Mix Summary
* Continuing Calibration Verification Summary
X Analytical Run Sequence Summary
NA GPC Calibration and Florisil Cartridge Check Summary
X ® ~~Pesticide/PCB~~ Standards Quantitation Reports
X ® ~~Pesticide/PCB~~ Standards GC/EC Chromatograms
® Chlorinated Herbicides BJL 1/10/95

Reagent and Instrument Blank Data

X Organic Analysis Data Sheets
X Quantitation Reports
X GC/EC Chromatograms
NA ~~X~~ ~~Pesticide/PCB Identification (for positive detections)~~ Confirmations
BJL 1/10/95 BJL 1/10/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	S10EAB
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

		Lab Sample Id:	240143
Matrix Type:	Soil	Date Received:	11/03/94
Sample Volume:	50.8	Date Extracted:	11/09/94
Level: (low/med)	Low	Date Analyzed:	11/28/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)
% Solids:	61		

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	76	UJ
94-82-6	2,4-DB	78	UJ
93-76-5	2,4,5-T	7.8	UJ
93-72-1	2,4,5-TP (silvex)	7.8	UJ
75-99-0	Dalapon	200	UJ
1918-00-9	Dicamba	7.6	UJ
120-36-5	Dichlorprop	78	U
88-85-7	Dinoseb	39	UJ
94-74-6	MCPA	7600	U ~~J~~ KM
93-65-2	MCPP	7600	U ~~J~~ KM

VALIDATED

Reviewed By Kristen Meier

Date 2-7-95

003116

Revised WBX 02/06/95

1

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Client ID No.: WEA7

Lab Name:	Aquatec, Inc.		
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
		Lab Sample Id:	238914
Matrix Type:	Soil	Date Received:	10/22/94
Sample Volume:	50.1 g	Date Extracted:	10/27/94
Level: (low/med)	Low	Date Analyzed:	11/29/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)
% Solids:	56		

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	84	U J
94-82-6	2,4-DB	86	U J
93-76-5	2,4,5-T	8.6	U J
93-72-1	2,4,5-TP (silvex)	8.6	U J
75-99-0	Dalapon	220	U J
1918-00-9	Dicamba	8.4	U J
120-36-5	Dichlorprop	86	U
88-85-7	Dinoseb	42	U J
94-74-6	MCPA	8400	U J
93-65-2	MCPP	8300	U J

VALIDATED

Reviewed By Kristen Meier

Date 2-7-95

003133

Revised MBM 02/06/95

AR302369

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	WSEA4
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

		Lab Sample Id:	238833	
Matrix Type:	Soil	Date Received:	10/21/94	
Sample Volume:	50.0 g	Date Extracted:	10/27/94	
Level: (low/med)	Low	Date Analyzed:	11/29/94	
Dilution Factor:	1.0	Silica Gel Clean-up:	N	(Y/N)
% Solids:	92			

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	52	U J
94-82-6	2,4-DB	53	U J
93-76-5	2,4,5-T	5.3	U J
93-72-1	2,4,5-TP (silvex)	5.3	U J
75-99-0	Dalapon	1000	R
1918-00-9	Dicamba	5.2	U J
120-36-5	Dichlorprop	53	U
88-85-7	Dinoseb	26	U J
94-74-6	MCPA	5200	U J
93-65-2	MCPP	5100	U J

VALIDATED

Reviewed By Kristen Meier

Date 2-7-95

003149

Revised WSH 02/06/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	WSEA8
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
		Lab Sample Id:	240147
Matrix Type:	Soil	Date Received:	11/03/94
Sample Volume:	50.1 g	Date Extracted:	11/09/94
Level: (low/med)	Low	Date Analyzed:	11/28/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)
% Solids:	79		

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	60	U J
94-82-6	2,4-DB	110	J
93-76-5	2,4,5-T	6.1	U J
93-72-1	2,4,5-TP (silvex)	6.1	U J
75-99-0	Dalapon	160	U J
1918-00-9	Dicamba	6.0	U J
120-36-5	Dichlorprop	61	U
88-85-7	Dinoseb	30	U J
94-74-6	MCPA	6000	U
93-65-2	MCPP	5900	U

VALIDATED

Reviewed By Kristen Keie

Date 2-7-95

003166

Revised MBR 02/06/95

Matrix Spike Data

X Organic Analysis Data Sheets
X Quantitation Reports
X GC/EC Chromatograms

Comments:
The following samples were miss-identified (incorrect name) ~~on~~ in the case narrative and on all analysis reports, chromatograms and form I's associated with these samples. mc 1/11/95

Chain of Custody	Lab
BS/10EA 8	S10EA8
BS/EA3	BEA3
BS/10EA3	B10EA3
BS/EA-7	BEA7
WS/EA-7	WEA7
WS/10EA-7	W10EA7

The concentration units reported on the form I's for all soil samples are incorrect. The units should be ug/kg and not ug/L.
The lab was notified on 2-1-95 to submit corrected Form Is. KM 2-1-95
Resubmittals were received on 2-6-95. KM 2-7-95

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

(Yes) No

Comments: The cooler temperature for samples received on 10/21/94 was not documented for 1/1/95 on the chain of custody, but was documented on the sample log-in sheet. ~~No qualification of data~~ no qualification of data.

Holding Times

Were sample extractions performed within holding times?

(Yes) No

Were sample analyses performed within holding times?

(Yes) No

Comments: none.

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

(Yes) No

Were the calibration standards analyzed at the correct concentrations?

(Yes) No

Did the calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes (No)

Were retention time windows provided and correctly calculated?

(Yes) No

Were peak resolutions acceptable?

(Yes) No

Comments: The natural log of the peak height versus the natural log of the standard's concentration was used to plot the calibration curve and to calculate sample concentrations. This is a deviation from the method requirements. To evaluate the linearity of the initial calibration, the method allows for an alternative review: the %RSD of the calibration factors has to be less or equal to 20.0%. The following analytes exceeded this criteria on the primary GC column: Dicamba (29.6%), 2,4-D (24.5%), Silvex (32.7%), 2,4,5-T (32.3%) and 2,4-DB (34.9%). Therefore, results for these analytes in the investigative samples were qualified as estimated (J/UJ). On the secondary column, in addition, the %RSD for Dalapon (22.2%) was exceeded. The possibility of false negative identification exists, therefore non-detections of Dalapon were qualified as estimated (UJ).

KM 2-1-95 ~~Individual Mix Standards~~ (Continuing Calibration)

Did the ~~individual mix~~ continuing calibration standards meet the linearity criteria for maximum percent difference (%D)?

KM 2-1-95 Yes (No)

Did the ~~individual mix~~ continuing calibration standards meet the retention time criteria?

KM 2-1-95 (Yes) No

Comments: Analytes exceeding the criteria for maximum percent difference (%D) are listed in the cont. calibration table. The results for the listed analytes, exceeding ± 15%D, were qualified as estimated (J/UJ). Qualification is only necessary for analytes not meeting this criteria on the primary column, since the secondary column was only used for confirmation.

AR302374 Kristen Meier 2-1-95

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes No (NA)

Did the performance evaluation mix standards meet the retention time criteria?

Yes No

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?

(Yes) No

none.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?

(Yes) No

If the spike recoveries were unacceptable, were the samples reanalyzed?

Yes No (NA)

Comments: none.

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

Yes No

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No

Comments: The spike recoveries for silvex are 38% and 38%, below the requirement of 40%. The RPD for Dinoseb is 40%, exceeding the requirement of 30%. Therefore, the results for Silvex and Dinoseb in the investigative samples were qualified as estimated (J/UJ).

Blank Analyses

Were the appropriate number of blank analyses performed?

Yes No

Were instrument blanks analyzed at the correct frequency?

Yes No

Were analytes reported in the blanks?

Yes No

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?

Yes No NA

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments:

None

AR302376 Kristen Meier 2-1-95

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?

Yes No NA

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?

Yes No NA

Comments: none.

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?

Yes No NA

Was the GPC column check acceptable?

Yes No NA

Was a Florisil cartridge check performed?

Yes No

Was the Florisil cartridge check acceptable?

Yes No NA

Laboratory Control Samples

Were LCS analyses performed?

Yes No

Were the LCS recoveries within acceptable limits?

Yes No NA

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were chromatograms provided for all target analytes reported in the investigative samples?

Yes No

Were chromatograms of acceptable quality and were analytes correctly identified?

Yes No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?

Yes No

Comments:

The reporting limits for Dicamba and Dichloroprop ~~or~~ KM 1/11/95 for sample BSEA9 KM 1/11/95 are incorrect at 50 and 5.1 ug/kg. The correct values for the reporting limits should be 5.0 and 51, respectively. The incorrect reporting limits ~~are rejected (R) on the form I.~~ KM 2-1-95 ~~were crossed off on the Form I and qualification of data was not necessary~~ were corrected by the lab, new Form Is were submitted on 2-6-95. KM

The reporting limit for Dichloroprop for sample WSEA4 is incorrect at 5.3 ug/kg; the limit should be 53 ug/kg. The incorrect reporting limit ~~is rejected (R) on the form I.~~ KM 2-1-95 were corrected ~~was crossed off on the Form I~~, no qualification of data.

The result for dalapon for sample WSEA4 is incorrect at 1000 ug/kg; the value should be 420 ug/kg. The value from the confirming column was originally used instead of from the primary column. The dalapon value for this sample is qualified as rejected (R).

The values for the samples were taken from the primary column, RTx-1701. Positive detects were confirmed on the RTx-35 column.

Calculation Check

Initial Calibration

Retention Time Window:

2,4-DB RTX-1701: RT=19.72 min [illegible]

KSC 1/11/95 ~~%RSD:~~ Correlation Coefficient;

RTX-1701 : 2, 4-DA = 0.99758 ; ~~Dalapon~~ [illegible] 1/11/95 Dicamba = [illegible]

RTX-35: Dicamba = 0.9977 ✓

Continuing Calibration

%D: NOV 28, 1994 RTX-35 = $\frac{1068-910}{910} \times 100 = 17.4\%$ D Dalapon

NOV 28, 1994 RTX-1701 = $\frac{48.4-38.0}{38.0} \times 100 = 27.4\%$ D 2,4,5-T

Surrogate Recovery

RBBS 1701-RTX: $\frac{5.921}{8.00} \times 100 = 74\%$ (water) ✓

BEA3 RTX-1701: $\frac{485.182}{\cancel{0.58\ moist}\ \text{KSC } 1/11/95} \times \frac{0.58\ moist}{320} \times 100 = 88\%$ (SOIL) ✓

Matrix Spike Recovery

BSEAB: 2,4,5-T: $\frac{42.9}{105} \times 100 = 41\%$ (40.9) MS

$\frac{42.3}{103} \times 100 = 41.\%$ (41.1) MSD

RPD: $\frac{41.1-40.9}{41.0} \times 100 = 0.5\%$ ✓

Sample Results

CRQL: WSEA4

Dichloroprop: $\frac{\cancel{48.8}\ 49.\ \text{[illegible] 1/11/95}}{0.92\ \text{moist.}} = 53\ \text{ug/kg}$ * off by 10 factor

Positive Result: Dalapon WSEA4, RTX-1701

$$\ln\overset{x}{(103040)} \Rightarrow e^{\overset{y}{(\ln(6.6589))}} = 779.7$$

$$\frac{779.72}{(2 \times 0.92)} = 423.8\ \text{ug/kg}$$ ✓

0.92 = moisture

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier

Comments:

AR302381

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
11-28-94	CE 2745	Dicamba		29.6 %	all investigative samples	J/UJ
		2,4-D		24.5%		J/UJ
		Silvex		32.7%		J/UJ
		2,4,5-T		32.3%		J/UJ
		2,4-DB		34.9%		J/UJ
		Dalapon		22.2%	all investigative samples	—/UJ

Comments:

AR302382

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Samples Affected	Qualifier
6:57 11-29-94	CE 2745	Dalapon	18.7	BSEA 9, WSEA4, BSEA 3,	J/UJ
	/RTX1701	Dicamba	18.4	BSEA7, BS10EA3, WSEA7,	
		MCPP	15.8	WS10 EA7	
		MCPA	21.6		
		2,4-D	23.2		
		2,4,5-TP (Silvex)	21.8		
		2,4,5-T	27.4		
		2,4-DB	16.0		

Comments:

Secondary column only used for confirmation.

AR302383

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Associated Samples	Qualifier

Comments:

AR302384

Summary and Conclusions

SDG: 47430

The analytical results for chlorinated herbicides are acceptable as qualified. KM 1/12/95

Dalapon, Dicamba, MCPP, MCPA, 2,4-D, Silvex, 2,4-DB, KM 2-1-95

Results for 2,4,5-T for samples BSEA9, WSEA4, BSEA3, BSEA7, BS10EA3, WSEA7, and WS10EA7 are qualified as estimated (J) for positive detections and as estimated reporting limit (UJ) for non-detections due to continuing calibration results exceeding QC criteria. ~~Of these samples, BSEA3 is the only sample with a positive detection for 2,4,5-T.~~ KM 2-1-95

The reporting limits for dichlorprop for sample WSEA4 is incorrect. ~~and qualified as rejected (R)~~ KM 2-1-95 The reporting limit should be 53 ug/kg, corrections were made on the Form I and lab has been notified for re-submission. KM 2-1-95 Lab resubmitted corrected forms, which have been used for this report. KM 2-7-95 for 1/12/95

The result for dalapon for sample WSEA4 is incorrect. The correct value is 420 ug/kg. The value for dalapon on form I for this sample is qualified as rejected (R). for 1/12/95

The reporting limits for dichlorprop and dicamba for sample BSEA9 are incorrect. ~~and qualified as~~ KM 2-1-95

Validator's Signature:	Kaprie S. Cone Kristen Meier		
Validator's Initials:	KSC KM	Validation Date:	1/12/95 2-1-95
QC Reviewer's Signature:	Michael R. Phillips		
QC Reviewer's Initials	MPP	Review Date:	1/17/95

Summary and Conclusions Continued SDG: 47430

KM 2-1-95
~~rejected (R).~~ The correct reporting limit values are 51 ug/kg and 5.0 ug/kg respectively, ~~corrections were made on the Form I. KM 2-1-95~~ Corrected Forms were used. KM 2-7-95

The Concentration units reported on the form I's ~~for~~ 1/12/95 for all soil samples ~~and QC~~ 1/12/95 are incorrect. The units should be ug/kg and not ug/L. Corrected Form Is have been requested from the lab. KM 2-1-95 and have been used. KM 2-7-95

2-1-95 KM: The initial calibration exceeded the linearity criteria for % RSD ≤ 20% for the following compounds: Dicamba, 2,4-D, Silvex, 2,4,5-T and 2,4-DB on the primary column. Results for these analytes were qualified as estimated (J/UJ). Dalapon exceeded the % RSD criteria on the secondary (confirmation only) column. The possibility of false negative identification excists, therefore, non-detections of Dalapon were qualified as estimated (UJ). KM 2-1-95

2-1-95 KM The results for Silvex and Dinoseb were qualified as estimated (J/UJ) due to exceeding matrix spike criteria. 2-1-95

Validator's Signature: Kaprie S. Cone, Kirsten Meier	
Validator's Initials: KC KM	Validation Date: 1/12/95 2-1-95
QC Reviewer's Signature: Michael P. Phillips	
QC Reviewer's Initials MPP	Review Date: 1/17/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Client ID No.: RBBS

Lab Name:	Aquatec, Inc.		
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
		Lab Sample Id:	240144
Matrix Type:	Water	Date Received:	11/03/94
Sample Volume:	1000 ml	Date Extracted:	11/08/94
Level: (low/med)	Low	Date Analyzed:	11/28/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
94-75-7	2,4-D	0.94	UJ
94-82-6	2,4-DB	0.94	UJ
93-76-5	2,4,5-T	0.095	UJ
93-72-1	2,4,5-TP (silvex)	0.095	UJ
75-99-0	Dalapon	2.3	UJ
1918-00-9	Dicamba	0.094	UJ
120-36-5	Dichlorprop	0.94	U
88-85-7	Dinoseb	0.47	UJ
94-74-6	MCPA	94	U
93-65-2	MCPP	93	U

VALIDATED

Reviewed By Kirsten Muir

Date 2-7-95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Client ID No.: BEA3

Lab Name:	Aquatec, Inc.
Lab Code:	AQUAI
Contract:	94239
Case:	94239
SDG:	47430
Lab Sample Id:	238909
Matrix Type:	Soil
Date Received:	10/22/94
Sample Volume:	50.3 g
Date Extracted:	10/27/94
Level: (low/med)	Low
Date Analyzed:	10/29/94
Dilution Factor:	1.0
Silica Gel Clean-up:	N (Y/N)
% Solids:	58

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	81	UJ
94-82-6	2,4-DB	83	UJ
93-76-5	2,4,5-T	20	J
93-72-1	2,4,5-TP (silvex)	8.3	UJ
75-99-0	Dalapon	210	UJ
1918-00-9	Dicamba	8.1	UJ
120-36-5	Dichlorprop	83	U
88-85-7	Dinoseb	42	UJ
94-74-6	MCPA	8100	UJ
93-65-2	MCPP	8000	UJ

VALIDATED

F Kristen Meier

Date 2-7-95

Ø003017

Revised

2/6/95

AR302388

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	BEA7
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
		Lab Sample Id:	238910
Matrix Type:	Soil	Date Received:	10/22/94
Sample Volume:	50.3 g	Date Extracted:	10/27/94
Level: (low/med)	Low	Date Analyzed:	11/29/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)
% Solids:	55		

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	85	U J
94-82-6	2,4-DB	87	U J
93-76-5	2,4,5-T	8.7	U J
93-72-1	2,4,5-TP (silvex)	8.7	U J
75-99-0	Dalapon	220	U J
1918-00-9	Dicamba	8.5	U J
120-36-5	Dichlorprop	87	U
88-85-7	Dinoseb	43	U J
94-74-6	MCPA	8500	U J
93-65-2	MCPP	8500	U J

VALIDATED

Reviewed By Kristen Reier

Date 2-7-95

003034

Revised MBC 02/06/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	BSEA4
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430

		Lab Sample Id:	238829	
Matrix Type:	Soil	Date Received:	10/21/94	
Sample Volume:	50.1 g	Date Extracted:	10/27/94	
Level: (low/med)	Low	Date Analyzed:	11/28/94	
Dilution Factor:	1.0	Silica Gel Clean-up:	N	(Y/N)
% Solids:	78			

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	61	U J
94-82-6	2,4-DB	62	U J
93-76-5	2,4,5-T	14	J
93-72-1	2,4,5-TP (silvex)	6.2	U J
75-99-0	Dalapon	160	U J
1918-00-9	Dicamba	6.1	U J
120-36-5	Dichlorprop	62	U
88-85-7	Dinoseb	31	U J
94-74-6	MCPA	6100	U ~~J~~ KH
93-65-2	MCPP	6000	U ~~J~~ KH

VALIDATED

Reviewed By Kristen Meier

Date 2-7-95

003051

WBR 02/06/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	BSEA8
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
		Lab Sample Id:	240142
Matrix Type:	Soil	Date Received:	11/03/94
Sample Volume:	50.4 g	Date Extracted:	11/09/94
Level: (low/med)	Low	Date Analyzed:	11/28/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)
% Solids:	57		

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	82	U J
94-82-6	2,4-DB	84	U J
93-76-5	2,4,5-T	8.4	U J
93-72-1	2,4,5-TP (silvex)	8.4	U J
75-99-0	Dalapon	210	U J
1918-00-9	Dicamba	8.2	U J
120-36-5	Dichlorprop	84	U
88-85-7	Dinoseb	41	U J
94-74-6	MCPA	8200	U ~~J~~ KH
93-65-2	MCPP	8100	U ~~J~~ KH

VALIDATED

Reviewed By Kristen Meier

Date 2-7-95

003067

Revised WBR 02/06/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

		Client ID No.	BSEA9
Lab Name:	Aquatec, Inc.		
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
		Lab Sample Id:	238830
Matrix Type:	Soil	Date Received:	10/21/94
Sample Volume:	50.2 g	Date Extracted:	10/27/94
Level: (low/med)	Low	Date Analyzed:	11/29/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)
% Solids:	94		

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	50	U J
94-82-6	2,4-DB	51	U J
93-76-5	2,4,5-T	5.1	U J
93-72-1	2,4,5-TP (silvex)	5.1	U J
75-99-0	Dalapon	130	U J
1918-00-9	Dicamba	5.0	U J
120-36-5	Dichlorprop	51	U
88-85-7	Dinoseb	25	U J
94-74-6	MCPA	5000	U J
93-65-2	MCPP	5000	U J

VALIDATED

Reviewed By Kristen Meier

Date 2-7-95

003084

Revised NBZ 02/06/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Lab Name:	Aquatec, Inc.	Client ID No.	B10EA3
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47430
		Lab Sample Id:	238911
Matrix Type:	Soil	Date Received:	10/22/94
Sample Volume:	50.1 g	Date Extracted:	10/27/94
Level: (low/med)	Low	Date Analyzed:	11/29/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)
% Solids:	61		

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	77	U J
94-82-6	2,4-DB	79	U J
93-76-5	2,4,5-T	7.9	U J
93-72-1	2,4,5-TP (silvex)	7.9	U J
75-99-0	Dalapon	200	U J
1918-00-9	Dicamba	7.7	U J
120-36-5	Dichlorprop	79	U
88-85-7	Dinoseb	39	U J
94-74-6	MCPA	7700	U J
93-65-2	MCPP	7700	U J

VALIDATED

Reviewed By Kirsten Keie

Date 2-7-95

003100

Revised WOR 02/06/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

Client ID No.: W10EA7

Lab Name:	Aquatec, Inc.
Lab Code:	AQUAI
Contract:	94239
Case:	94239
SDG:	47430
Lab Sample Id:	238915
Matrix Type:	Soil
Date Received:	10/22/94
Sample Volume:	50.1 g
Date Extracted:	10/27/94
Level: (low/med)	Low
Date Analyzed:	10/29/94
Dilution Factor:	1.0
Silica Gel Clean-up:	N (Y/N)
% Solids:	59

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	80	U J
94-82-6	2,4-DB	82	U J
93-76-5	2,4,5-T	8.2	U J
93-72-1	2,4,5-TP (silvex)	8.2	U J
75-99-0	Dalapon	210	U J
1918-00-9	Dicamba	13	J
120-36-5	Dichlorprop	82	U
88-85-7	Dinoseb	40	U J
94-74-6	MCPA	8000	U J
93-65-2	MCPP	7900	U J

VALIDATED

Reviewed By Kristen Meier

Date 2-27-95

003182

Revised

MBR 02/06/95

AR302394

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Herbicides

Case Number:	94239 SDG 47744	Project Number:	27654 3.4.2.2
Site:	Kane and Lombard		
Contractor Lab:	Indicape Aquatec, Coldester Vermont		
Validator:	Cindy Lucangioli	Validation Date:	2/2/95
QC Reviewer:	Kirsten Meier	Review Date:	2-6-95
Sample Matrix:	5 soils and 3 waters		
Analytical Method:	SW-846 8150 Herbicides		

Sample Designations:

BSEA1	RBBS3		
BSEA2			
BSEA5			
WSEA1			
WSEA2			
RBBS1			
RBBS2			

Data for the above samples are:

[ ] Acceptable for use
[X] Acceptable for use as qualified
[ ] Unacceptable for use

Is action required by the Project Manager?

Yes No [X]

Comments: Data were qualified using the "EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994, as applied to the method, and the criteria contained in EPA method 8150.

DATA COMPLETENESS CHECKLIST

[x] Included, no problems
[*] Included, problems
[O] Not included
[NA] Not applicable

Quality Control Summary

___X___ Case Narrative
___X___ Surrogate Recovery Summary
___*___ MS/MSD Summary
___*___ Reagent Blank Summary

Sample Data

___X___ Chain of Custody Forms
___X___ Holding Times
___X___ Organic Analysis Data Sheets
___X___ Quantitation Reports
___X___ GC/EC Chromatograms
___X___ Pesticide/PCB Identification (for positive detections)

Instrument Calibration and Performance Data

___X___ Initial Calibration Retention Time Summary
___*___ Initial Calibration Response Factor Summary
___NA___ Performance Evaluation Mix Summary
___*___ Continuing Calibration Verification Summary
___X___ Analytical Run Sequence Summary
___NA___ GPC Calibration and Florisil Cartridge Check Summary
___X___ Pesticide/PCB Standards Quantitation Reports
___X___ Pesticide/PCB Standards GC/EC Chromatograms

Reagent and Instrument Blank Data

___X___ Organic Analysis Data Sheets
___X___ Quantitation Reports
___X___ GC/EC Chromatograms
___NA___ Pesticide/PCB Identification (for positive detections)

Matrix Spike Data

___X___ Organic Analysis Data Sheets
___X___ Quantitation Reports
___X___ GC/EC Chromatograms

Comments: None.

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?
Yes [X] No

Comments: None.

Holding Times

Were sample extractions performed within holding times?
Yes [X] No

Were sample analyses performed within holding times?
Yes [X] No

Comments: None.

Initial Calibration

Did the laboratory meet the guidelines regarding the minimum number of calibration standards for an acceptable initial calibration?

Yes [X] No

Were the calibration standards analyzed at the correct concentrations?

Yes [X] No

Did the calibration curves meet the linearity criteria for maximum percent relative standard deviation (%RSD)?

Yes No [X]

Were retention time windows provided and correctly calculated?

Yes [X] No

Were peak resolutions acceptable?

Yes [X] No

Comments: The initial calibrations were calculated using the natural log of the concentrations and the natural log of the peak height by linear regression. In the reviewers professional judgement, this is too much manipulation of the calibration curve in order to produce satisfactory linearity. Additionally the calibration method (SW-846 8000) does not allow for this type of manipulation and is non-compliant with the method. The reviewer calculated the %RSDs for each compound on both columns. The following four compounds exceeded the method specified 20%RSD criterion: Dicamba 25.1%, Silvex 25.8%, 2,4,5-T 28.2%, and 2,4-DB 31.1%. These compounds have been qualified as estimated (J).

Individual Mix Standards (Continuing Calibration)

Did the individual mix standards meet the linearity criteria for maximum percent difference (%D)?

Yes No [X]

Did the individual mix standards meet the retention time criteria?

Yes [X] No

Comments: The following compounds exceeded the 15%D method criterion on the confirmation column: Dalapon 28.6%, Dicamba 18.9%, MCPP 18.7%, MCPA 21.9%, Silvex 16.3% and Dinoseb 16.3%. Since this column was used only for confirmation of target compounds no qualification of sample data is necessary.

Performance Evaluation Mix Standards (Continuing Calibration)

Did the performance evaluation mix standards meet the linearity criteria for maximum percent difference (%D)?
Yes No NA [X]

Did the performance evaluation mix standards meet the retention time criteria?
Yes No NA [X]

Comments:

Analytical Sequence

Were standard and sample analyses performed following the correct analytical sequence?
Yes [X] No

Comments: None.

Surrogate Recoveries

Were the surrogate spike recoveries within acceptance limits?
Yes [X] No

If the spike recoveries were unacceptable, were the samples reanalyzed?
Yes No NA [X]

Comments: None.

Matrix Spikes

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this sample delivery group (SDG)?

Yes No [X]

Were the matrix spike recoveries and relative percent differences (RPDs) within acceptance criteria?

Yes No [X]

Comments: No water MS/MSD sample was prepared or analyzed in association with the water samples. The aqueous LCS was used by the reviewer to evaluate accuracy. The two soil MS/MSD samples both had recoveries outside of the 60-140% acceptance limit. The percent RPDs were within the 30% criterion. Recoveries for the soil LCS analytes were also outside of acceptance limits, indicating a potential problem during the extraction of the samples. However, none of the target compounds outside of acceptance limits in the LCSs exhibited problems in either of the MS/MSD samples. Therefore, sample data have been qualified as estimated (J) due to MS/MSD recovery outliers. The MS/MSD recoveries outside of acceptance limits are listed in the tables below.

BSEA1	% Recovery	
Target Compound	MS /MSD	% RPD
2,4-D	57* / 67	6
silvex	40* / 50*	22
2,4,5-T	44* / 50*	13

* = outside of acceptance limits
Associated samples: BSEA1, BSEA2, BSEA5.

WSEA1	% Recovery	
Target Compound	MS /MSD	% RPD
silvex	44* / 49*	11
2,4,5-T	51* / 51*	0

* = outside of acceptance limits
Associated samples: WSEA1, WSEA2.

Blank Analyses

Were the appropriate number of blank analyses performed?
Yes [X] No

Were instrument blanks analyzed at the correct frequency?
Yes No NA [X]

Were analytes reported in the blanks?
Yes [X] No

If analytes were reported in the blanks, were the same analytes also reported in the associated investigative samples?
Yes No [X]

Did the sample results require qualification due to the presence of analytes in the associated blank samples?
Yes No [X]

Comments: Dichloroprop was reported as detected at 51 $\mu g/kg$ in the method blank HBLKCU. The samples associated with this blank, BSEA2 and WSEA2, were non-detect for this analyte so that no qualification of sample data was required.

Instrument Performance

Were the percent breakdowns for 4,4'-DDT and endrin correctly reported?
Yes No NA [X]

Were the percent breakdowns for 4,4'-DDT and endrin within acceptance limits?
Yes No NA [X]

Comments: None.

GPC and Florisil Cartridge Check

Was GPC cleanup performed on the sample extracts?
Yes No NA [X]

Was the GPC column check acceptable?
Yes No NA [X]

Was a Florisil cartridge check performed?
Yes No NA [X]

Was the Florisil cartridge check acceptable?
Yes No NA [X]

Comments: None.

Laboratory Control Samples

Were LCS analyses performed?

Yes [X] No

Were the LCS recoveries within acceptable limits?

Yes No [X] NA

Comments: All five LCSs associated with the investigative sample data had recoveries outside of the 60-140% acceptance limits, 0-40% for dinoseb. The samples associated with the LCS have been qualified as estimated for the target compounds with recoveries greater than 140% for detected results, and estimated for recoveries between 10-140%. In the professional judgment of the reviewer, the recoveries less than 10% are unsatisifactory and detected results for those compounds with less than 10% recovery have been qualified as esimated while non-detected results have been rejected. The tables below summarize the target compounds, the recoveries and the associated samples with each LCS.

LCS RECOVERIES

LCS Identification	Analyte	% Recovery	Samples Affected	Qualifier
LCS1	Dalapon	218	RBBS1, RBBS2	J / -
	Dinoseb	0.53	RBBS1, RBBS2	J / R
LCS2	Dalapon	676	BSEA1, WSEA1	J / -
	Dicamba	150	BSEA1, WSEA1	J / -
	MCPA	200	BSEA1, WSEA1	J / -
	Dinoseb	45	BSEA1, WSEA1	J / UJ
LCS3	Dalapon	368	BSEA2, WSEA2	J / -
	Dicamba	169	BSEA2, WSEA2	J / -
	Dinoseb	5	BSEA2, WSEA2	J / R
LCS4	Dalapon	215	BSEA5	J / -
	Dinoseb	5	BSEA5	J / R
LCS5	Dalapon	400	RBBS3	J / -
	Dinoseb	7	RBBS3	J / R

Comments: See text.

Sample Results

Were target analytes reported in the investigative samples?

Yes [X] No

Were chromatograms provided for all target analytes reported in the investigative samples?

Yes [X] No

Were chromatograms of acceptable quality and were analytes correctly identified?

Yes [X] No

Were the quantitated results for target analytes calculated using the appropriate standard and were the retention times (RTs) acceptable?

Yes [X] No

Comments: None.

Calculation Check

Initial Calibration

Retention Time Window: 2,4,5-T 18.96 ± 0.04 = 18.92 - 19.00

%RSD: 2,4,5-T

concentration	peak height	calibration factor
9.5	5304	558.32
19	13807	726.68
38	26410	695.00
95	82901	872.64
190	218733	1151.23

$$\%RSD = \frac{225.52}{800.77} \times 100 = 28.2\%$$

For the purpose of calculating sample results the natural logs of the concentration and peak height are listed below.

ln concentration	ln peak height
2.25	8.576
2.90	9.5329
3.64	10.182
4.55	11.3254
5.25	12.2956

Continuing Calibration 2,4,5-T 11/30/94 @ 13:24

%D: Peak Height 32671 $\xrightarrow{\ln}$ 10.3942 $\xrightarrow{\text{curve}}$ 3.7278 $\xrightarrow{e^x}$ 41.6 = 42

$$\frac{(38-42)}{38} \times 100 = 10.5\%D$$

Surrogate Recovery	ln conc	ln height r = 0.994
	4.605	10.598
	5.298	11.317
	5.992	11.854
	6.908	12.761
	7.601	13.764

ln curve e^x

Peak Height 65842→→→→11.0950→→→→→→→6.3353→→→→564.13

$$\frac{564.13}{800} \times 100 = 70\%$$

Matrix Spike Recovery 2,4,5-T curve from above

ln curve e^x

Peak Height 67358→→→→11.1178→→→→→→→4.3251→→→→75.57

$$\frac{(75.57\text{ ng})(25\text{ ml})}{(50.3\text{ g})(.72)} = 52.2\text{ ng/g} \quad \frac{(52.2 - 10.4)(100)}{80.9} = 51.6\%$$

Close enough, errors due to the use of natural log and rounding.

RPD: From their reported recoveries.

$$\frac{(51 - 51)}{(51 + 51/2)} \times 100 = 0\%$$

Sample Results BSEA5

CRQL: 2,4-D 47 µg/kg = 62.6→→60

Positive Result: 2,4,5-T (previous curve)

ln curve e^x

Peak Height 6380→→→→8.7609→→→→→→→→2.3795→→→→10.7998(25 ml) = 7.15

(50.3 g)(.75)

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Date Sampled	Date Prepared	Date Analyzed	Prep. Holding Time	Analysis Holding Time	Qualifier
BSEA1	11/4/94	11/9/94	11/30/94	5	21	NONE
BSEA2	11/5/94	11/16/94	11/30/94	11	14	NONE
BSEA5	11/12/94	11/17/94	11/30/94	5	13	NONE
WSEA1	11/4/94	11/9/94	11/30/94	5	21	NONE
WSEA2	11/5/94	11/16/94	11/30/94	11	14	NONE
RBBS1	11/4/94	11/9/94	11/30/94	5	21	NONE
RBBS2	11/5/94	11/5/94	11/30/94	0	25	NONE
RBBS3	11/12/94	11/16/94	11/30/94	4	14	NONE

Comments: None.

AR302410

INITIAL CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	RF	RSD	Samples Affected	Qualifier
11/29/94	CE2745	Dicamba		25.1	All investigative samples	J / UJ
		Silvex		25.8	All investigative samples	J / UJ
		2,4,5-T		28.2	All investigative samples	J / UJ
		2,4-DB		31.1	All investigative samples	J / UJ

Comments: None.

AR302411

Case Number: 94239 SDG 47744
ProjectNumber: 27654 3.4.2.2
Site ID: Kane and Lombard

CONTINUING CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%D	Samples Affected	Qualifier

Comments: See text.

AR302412

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Units	5 x Result	Associated Samples	Qualifier
HBLKCU	Dichloroprop	51	µg/kg	255	BSEA2, WSEA2	NONE

Comments: Dichloroprop was non-detect in the two associated samples and no data qualification was required.

AR302413

Summary and Conclusions

Sample data required minor qualification due to calibration criterion exceedance for the initial calibration.

Sample data were also qualified as estimated due to MS/MSD and LCS recoveries, with the exception of dinoseb, which was estimated for samples BSEA1 and WSEA1 and rejected in all other associated sample data.

With the exception of most of the LCS dinoseb results, the MS/MSD and LCS spike recoveries with a few exceptions indicating reasonable accuracy. Precision as measured by the RPDs between the MS/MSD recoveries was satisfactory. Completeness defined as the percentage of useable sample results, including those values qualified as estimated, was 92.5%. With the exception of six dinoseb results which were rejected due to exceedingly low LCS recoveries. The sample data are considered to be useable as qualified by the reviewer.

Validator's Signature:	Cynthia H Tucciarelli		
Validator's Initials:	CHT	Validation Date:	2/2/95
QC Reviewer's Signature:	Kirsten Meier		
QC Reviewer's Initials:	KM	Review Date:	2-6-95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

			Client ID No.
Lab Name:	Aquatec, Inc.		RBBS-1
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47744
		Lab Sample Id:	240300
Matrix Type:	Water	Date Received:	11/04/94
Sample Volume:	1001	Date Extracted:	11/08/94
Level: (low/med)	Low	Date Analyzed:	11/30/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
94-75-7	2,4-D	0.94	U ~~J~~ J 2/5/95
94-82-6	2,4-DB	0.94	U J
93-76-5	2,4,5-T	0.094	U J
93-72-1	2,4,5-TP (silvex)	0.094	U J
75-99-0	Dalapon	2.3	U J
1918-00-9	Dicamba	0.094	U J
120-36-5	Dichlorprop	0.94	U
88-85-7	Dinoseb	0.47	U R
94-74-6	MCPA	93	U
93-65-2	MCPP	94	U

VALIDATED

Reviewed By CAL

Date 2/5/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

			Client ID No.
Lab Name:	Aquatec, Inc.		RBBS2
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47744

		Lab Sample Id:	240395	
Matrix Type:	Water	Date Received:	11/05/94	
Sample Volume:	1000	Date Extracted:	11/05/94	
Level: (low/med)	Low	Date Analyzed:	11/30/94	
Dilution Factor:	1.0	Silica Gel Clean-up:	N	(Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
94-75-7	2,4-D	0.94	U
94-82-6	2,4-DB	0.94	U J
93-76-5	2,4,5-T	0.094	U J
93-72-1	2,4,5-TP (silvex)	0.094	U J
75-99-0	Dalapon	2.3	U J
1918-00-9	Dicamba	0.094	U J
120-36-5	Dichlorprop	0.94	U
88-85-7	Dinoseb	0.47	U R
94-74-6	MCPA	93	U
93-65-2	MCPP	94	U

VALIDATED

Reviewed By cm

Date 2/5/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

			Client ID No.
Lab Name:	Aquatec, Inc.		RBBS-3
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47744
		Lab Sample Id:	241147
Matrix Type:	Water	Date Received:	11/14/94
Sample Volume:	1000	Date Extracted:	11/16/94
Level: (low/med)	Low	Date Analyzed:	11/30/94
Dilution Factor:	1.0	Silica Gel Clean-up:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
94-75-7	2,4-D	0.94	U
94-82-6	2,4-DB	0.94	U J
93-76-5	2,4,5-T	0.094	U J
93-72-1	2,4,5-TP (silvex)	0.094	U J
75-99-0	Dalapon	2.3	U J
1918-00-9	Dicamba	0.094	U J
120-36-5	Dichlorprop	0.94	U
88-85-7	Dinoseb	0.47	U R
94-74-6	MCPA	93	U
93-65-2	MCPP	94	U

VALIDATED

Reviewed By CJK

Date 2/5/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

			Client ID No.
Lab Name:	Aquatec, Inc.		BSEA1
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47744
Matrix Type:	Soil	Lab Sample Id:	240299
Sample Weight:	50.4 g	Date Received:	11/04/94
Level: (low/med)	LOW	Date Extracted:	11/09/94
Dilution Factor:	1.0	Date Analyzed:	11/30/94
% Solids:	72	Silica Gel Clean-up:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	65	U J
94-82-6	2,4-DB	65	U J
93-76-5	2,4,5-T	6.5	U J
93-72-1	2,4,5-TP (silvex)	6.5	U J
75-99-0	Dalapon	170	U
1918-00-9	Dicamba	6.5	U J
120-36-5	Dichlorprop	65	U
88-85-7	Dinoseb	33	U J
94-74-6	MCPA	6400	U
93-65-2	MCPP	6500	U

VALIDATED

Reviewed By _____ 2/3/95

Date _____

AR302418

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

			Client ID No.
Lab Name:	Aquatec, Inc.		BSEA2
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47744
Matrix Type:	Soil	Lab Sample Id:	240394
Sample Weight:	50.7 g	Date Received:	11/05/94
Level: (low/med)	LOW	Date Extracted:	11/16/94
Dilution Factor:	1.0	Date Analyzed:	11/30/94
% Solids:	48	Silica Gel Clean-up:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	97	U J
94-82-6	2,4-DB	97	U J
93-76-5	2,4,5-T	12	J
93-72-1	2,4,5-TP (silvex)	9.7	U J
75-99-0	Dalapon	250	U
1918-00-9	Dicamba	9.7	U J
120-36-5	Dichlorprop	97	U
88-85-7	Dinoseb	50	U J R
94-74-6	MCPA	9500	U
93-65-2	MCPP	9700	U

CAR 2/15/95

VALIDATED

Reviewed By CAR

Date 2/15/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

		Client ID No.	
Lab Name:	Aquatec, Inc.		BSEA5
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47744
Matrix Type:	Soil	Lab Sample Id:	241146
Sample Weight:	50.3 g	Date Received:	11/14/94
Level: (low/med)	LOW	Date Extracted:	11/17/94
Dilution Factor:	1.0	Date Analyzed:	11/30/94
% Solids:	75	Silica Gel Clean-up:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	60	U J
94-82-6	2,4-DB	60	U J
93-76-5	2,4,5-T	7.0	J
93-72-1	2,4,5-TP (silvex)	6.0	U J
75-99-0	Dalapon	160	U
1918-00-9	Dicamba	6.0	U J
120-36-5	Dichlorprop	60	U
88-85-7	Dinoseb	31	U R
94-74-6	MCPA	5900	U
93-65-2	MCPP	6000	U

VALIDATED

Reviewed By CAP

Date 2/5/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

			Client ID No.
Lab Name:	Aquatec, Inc.		WSEA1
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47744
Matrix Type:	Soil	Lab Sample Id:	240304
Sample Weight:	50.3 g	Date Received:	11/04/94
Level: (low/med)	LOW	Date Extracted:	11/09/94
Dilution Factor:	1.0	Date Analyzed:	11/30/94
% Solids:	74	Silica Gel Clean-up:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	64	U J
94-82-6	2,4-DB	64	U J
93-76-5	2,4,5-T	10	J
93-72-1	2,4,5-TP (silvex)	6.4	U J
75-99-0	Dalapon	170	U
1918-00-9	Dicamba	14	J
120-36-5	Dichlorprop	64	U
88-85-7	Dinoseb	33	U R
94-74-6	MCPA	6200	U
93-65-2	MCPP	13000	

VALIDATED

Reviewed By ar

Date 2/3/95

CHLORINATED HERBICIDES ANALYSIS DATA SHEET

			Client ID No.
Lab Name:	Aquatec, Inc.		WSEA2
Lab Code:	AQUAI		
Contract:	94239		
Case:	94239	SDG:	47744

Matrix Type:	Soil	Lab Sample Id:	240398
Sample Weight:	50.1 g	Date Received:	11/05/94
Level: (low/med)	LOW	Date Extracted:	11/16/94
Dilution Factor:	1.0	Date Analyzed:	11/30/94
% Solids:	72	Silica Gel Clean-up:	N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION (ug/Kg)	Q
94-75-7	2,4-D	65	U J
94-82-6	2,4-DB	65	U J
93-76-5	2,4,5-T	6.5	U J
93-72-1	2,4,5-TP (silvex)	6.5	U J
75-99-0	Dalapon	170	U
1918-00-9	Dicamba	6.5	U J
120-36-5	Dichlorprop	65	U
88-85-7	Dinoseb	34	U R
94-74-6	MCPA	6400	U
93-65-2	MCPP	6600	U

VALIDATED

Reviewed By _____ 2/15/95

Date _____

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
Metals Analysis

Case Number: 94239, SDG#47430	Project Number: 27654, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec, Inc. Inchcape Testing Services	
Validator: J. Whittle	Validation Date: 12/27/94
QC Reviewer: Michael R. Phillips	Review Date: 1/20/95
Sample Matrix: Soil/Sediment (11), Surface Water (3), Water QC (3)	
Analytical Methods: CLP Metals, Cyanide, Mercury	

Sample Designations:

BSEA4	W10EA7	SWEA4	BFB
BSEA9	BSEA8	SWEA8	BSFB
WSEA4	S10EA8	W10EA8	RBBS
BEA3	WSEA8		
BEA7			
B10EA3			
WEA7			

Data for the above samples are:

____ Acceptable for use
_X_ Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," (February 1994).

DATA COMPLETENESS CHECKLIST

__X__ Included, no problems
__*__ Included, problems
__O__ Not included
__NA__ Not applicable

Quality Control Summary

__X__ Case Narrative
__X__ Chain of Custody Forms
__X__ Cover Page
__X__ Holding Times
__X__ Inorganic Analysis Data Sheets
__*__ Initial and Continuing Calibration Summary
__X__ ICP and AA CRDL Check Standard Summary
__X__ Linear Range Verification Standard Summary
__*__ Calibration and Preparation Blank Summary
__X__ ICP Interference Check Sample Summary
__*__ Matrix Spike Summary
__X__ Post Digestion Spike Sample Summary
__X__ Duplicate Sample Summary
__X__ Laboratory Control Sample Summary
__X__ Method of Standard Additions Summary
__*__ ICP Serial Dilution Summary
__X__ Quarterly Instrument Detection Limits Summary
__X__ Annual Interelement Correction Factors Summary
__X__ Quarterly ICP Linear Range Summary
__X__ Sample Preparation Log Summary
__X__ Sample Analysis Run Log Summary

Sample Raw Data

__X__ ICP Raw Data
__NA__ GFAA Raw Data
__X__ Mercury Raw Data
__X__ Cyanide Raw Data

Comments:

AR302424

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

(Yes) No

Were custody transfers correctly and completely documented?

(Yes) No

Comments: Samples SWEA4 and BSFB were preserved for metals and cyanide at the laboratory after shipment. Other discrepancies were noted by the lab, but none seemed to have an adverse effect on sample identification, quality, or analysis. Sample numbers are not identical with the COC, possibly due lab truncation. The lab indicates that sample tags do not match the COC sample identifications, either.

Holding Times

Were sample preparations and analyses performed within holding times?

(Yes) No

Comments:

None

Instrument Calibration

Were instruments calibrated daily and each time that sample analyses were performed?

(Yes) No

Were the instruments calibrated using the minimum required numbers of blanks and standards?

(Yes) No

For the GFAA methods was one standard analyzed at the Contract Required Detection Limit (CRDL)?

(Yes) No (for Hg)

For the applicable methods did the correlation coefficients meet the minimum requirement of 0.995?

(Yes) No NA

For the cyanide analyses was a midrange standard distilled and analyzed?

(Yes) No

Comments:

None

Initial and Continuing Calibration Verification

Were the calibration standards and blanks analyzed at the required frequencies?

(Yes) No

Were the standard recoveries within QC limits?

Yes (No)

MPP 1-18-95 Comments: Initial and Continuing calibration recoveries for mercury were ~~above~~ outside MPP 1-18-95 the control range of 80-120%. The %R values and samples affected are noted below. Results >IDL are qualified unusable (R).

MPP 1-18-95

	ICV or CCBV	% R	Samples Affected
MPP 1-18-95	CCV2	166.7	BSEA4, BSEA9, WSEA4, BEA3, BEA7, B10EA3, WEA7
MPP 1-18-95	CCV3	163.3	W10EA7, BSEA8, S10EA8, WSEA8, BFB
MPP 1-18-95	CCV4	168.9	RBBS, SWEA8, W10EA8, BSFB, SWEA4
MPP 1-18-95	CCV 5	168.9	RBBS, SWEA8, W10EA8, BSFB, SWEA4
MPP 1-18-95	ICV	62.3	All samples

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Form MET 1.0

AR302426

CRDL Standards

Were CRDL standards (CRI and CRA) analyzed at the required frequency?

(Yes) No

Were the ICP standards (CRI) analyzed at the required levels?

(Yes) No

For the low concentration method, were the CRDL results acceptable?

Yes No (NA)

Comments:

None

Matrix Spike

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this SDG?

(Yes) No

Were field or rinse blanks used for the spike analysis sample?

Yes (No)

Were the matrix spike recoveries within acceptance criteria?

Yes (No)

Were post-digestion spikes performed when required?

(Yes) No NA

Comments: Samples BSEA8 and WEA7 were used for soil spike analysis, and sample SWEA8 was used for spiking the water matrix. The following analytes in the associated sample were qualified as noted for failing the 75-125 %R control limit.

Spike Sample	Analyte	%R	Affected Samples	Qualifiers (+/-)
BSEA8	Antimony	25.5	All soil samples	J/R
"	Mercury	52.3	"	J/UJ
SWEA8	Aluminum	178.9	All water samples	J/-
WEA7	Antimony	17.4	All soil samples	J/R
"	Mercury	71.6	"	J/UJ
"	Thallium	72.8	"	J/UJ

AR302427

Laboratory Control Sample

Were laboratory control sample analyses performed at the required frequency?

Yes No

Were laboratory control sample recovery results acceptable?

Yes No

Comments:

None

ICP Interference Check Sample

Were ICP interference check samples (ICS) analysed at the required frequency?

Yes No

Were the ICS recovery criteria met?

Yes No

Were results greater than the IDL reported for elements not present in the ICS solution?

Yes No MPP 1/19/95

Were negative results with absolute values greater than the IDL reported for elements not present in the ICS solution?

Yes No MPP 1/19/95

Were the concentrations of metals in the investigative samples similar to the concentrations of the ICS solution?

Yes No

Did the sample results require qualification due to interference problems?

Yes No

Comments:

None

Duplicate Sample Results

Were duplicate sample analyses performed at the required frequency?

Yes No

Did the duplicate sample results meet acceptance criteria?

Yes No

Comments:

None

Blank Analyses

Were preparation and calibration blank analyses performed at the required frequency?

Yes No

Were elements reported in the blanks at levels above the CRDL?

Yes No

Were elements reported in the blanks at levels between the IDL and the CRDL?

Yes No

Were negative results with absolute values greater than the IDL reported in the blanks?

Yes No

If analytes were reported in the blanks, were the same analytes also reported for the associated investigative samples?

Yes No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments:

Refer to page 12 for a blank Contamination summary. (12A, 12B, 12C)

ICP Serial Dilution

Were serial dilution analyses performed at the required frequency?

(Yes) No

For analytes with concentrations greater than 50 times the IDL, were the percent differences within acceptance criteria?

Yes (No)

Comments: Serial dilutions were performed on soil samples BSEA8 and WEA7, and on water sample SWEA8. For those analytes showing at least 50 times the IDL in the original sample, potassium, sodium, lead, and nickel demonstrated a %D between the initial and dilution samples greater than 10%. Refer to page 8B for a summary of results and qualifiers. Review of the sample results did not suggest negative interference.

GFAA QC

Were duplicate injections performed for each GFAA sample analysis?

Yes No

For results greater than the CRDL were the percent RSD results calculated correctly and within control limits?

Yes No NA

Were the GFAA analytical spike (post-digestion spike) recoveries within acceptance criteria?

Yes No

If the GFAA analytical spike recoveries were not acceptable, were samples diluted and reanalyzed when required?

Yes No

Was the method of standard additions (MSA) used for GFAA analysis when required?

Yes No

When MSA analyses were performed, were the correlation coefficients and spiking levels acceptable?

Yes No

Comments:

Samples were analyzed by ICP trace analysis.

Harding Lawson Associates
Engineering and
Environmental Services

SHEET _____ OF _____
JOB NO. 27656, 3.4.2.2
DATE 12/27/94
COMPUTED BY J. Whittle
CHECKED BY _____

PROJECT Kane and Lombard
SUBJECT Data Validation

SERIAL DILUTION SUMMARY

Dilution Sample	Analyte	%D	Affected Samples	Qualifiers
BSEA8	Potassium	22.9	All soil samples	J
WEA7	Lead	12.0	All soil samples	J
	Nickel	11.3	"	J
	Potassium	22.6	"	J
SWEA8	Potassium	21.5	All water samples	J
	Sodium	16.5	"	J

AR302431

ICP Interelement Correction Factors

Were annual interelement correction factors provided for each instrument used for sample analysis and were they current?

Yes No

Comments:

None

ICP Linear Ranges

Were linear ranges provided for each instrument used for sample analysis and were they current?

Yes No

Was a quarterly linear range verification analysis performed and if so, were the results acceptable?

Yes No

For the low concentration method was a linear range standard analysis performed as required, and if so, were the results acceptable?

Yes No NA

Comments:

None

Log Books

Were all sample preparations properly documented and performed in accordance with method protocols?

Yes No

Were all sample analyses properly documented and performed in accordance with method protocols?

Yes No

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were the quantitated results for target analytes calculated and reported correctly?

Yes No NA

For the applicable methods, were peak integrations performed correctly?

Yes No NA

Were detection limits provided for the reported target analytes, and if so, were they current and acceptable?

Yes No

Comments:

None

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Analysis Holding Time	Qualifier
(All holding times were met for CLP metals, mercury, and cyanide)						

Comments:

AR302434

BLANK SUMMARY FORM
(WATER)

Blank ID	Analyte	Blank Result (units)	Action Level (ug/l)	Associated Samples	Qualifier (+/-)
CCB	Antimony	6.7 ug/l	33.5	SWEA4, SWEA8, RBBS,	-/U
CCB	Arsenic	-1.7 ug/l	8.5	W10EA8, BFB, BSFB	
CCB	Beryllium	0.5 ug/l	2.5		
CCB	Cadmium	0.5 ug/l	2.5		
CCB	Cobalt	1.2 ug/l	6.0		
CCB	Manganese	0.7 ug/l	3.5		
CCB	Mercury	0.1 ug/l	0.5		
CCB	Nickel	1.5 ug/l	7.5		
CCB	Selenium	3.9 ug/l	19.5		
CCB	Silver	3.8 ug/l	19.0		
PBW	Sodium	-308 ug/l	1540.0		
PBW	Zinc	1.1 ug/l	5.5		

Comments:

AR302435

BLANK SUMMARY FORM
(SOIL)

Blank ID	Analyte	Blank Result (units)	Action Level (mg/kg)	Associated Samples	Qualifier (+/-)
CCB	Arsenic	-3.2 ug/l	3.3	BSEA4, BSEA9, WSEA4,	-/U
CCB	Mercury	0.1 ug/l	0.1	BEA3, BEA7, B10EA3,	↓
PBS	Thallium	-0.5 mg/kg	2.5	WEA7, W10EA7, BSEA8,	↓
				S10EA8, WSEA8	

Comments:

AR302436

BLANK SUMMARY FORM
(WATER and SOIL)

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples	Qualifier (+/-)
RBBS	Aluminum	8.9 µg/l	44.5 µg/l 8.9 mg/Kg	SWEA8, W10EA8, BSEA8,	-/U
	Mercury	0.1 µg/l	0.5 µg/l 0.1 mg/Kg	WSEA8, S10EA8	-/U
BSFB	Aluminum	18.6 µg/l	93.0 µg/l 18.6 mg/Kg	BSEA9, SWEA4, BSEA4,	-/U
	Calcium	137 µg/l	685 µg/l 137 mg/Kg	WSEA4	
	Copper	3.2 µg/l	16 µg/l 3.2 mg/Kg		
	Sodium	303 µg/l	1515 µg/l 303 mg/Kg		
	Zinc	2.2 µg/l	11 µg/l 2.2 mg/Kg		
BFB	Mercury	0.1 µg/l	0.1 mg/Kg	BEA3, B10EA3, BEA7,	-/U
	Zinc	0.9 µg/l	0.9 mg/Kg	WEA7, W10EA7	-/U

Comments:

AR302437

Summary and Conclusions

Necessary data were present for a full validation of the metals analysis, and all holding times were met. Data review did not show any errors in compound quantitation, and values were corrected for moisture content. Qualification of the data was necessary on the basis of continuing calibrations, blank contamination, and spike and serial dilution analyses.

MPP 1-18-95

All detected data for mercury had to be qualified unusable (R) because of continuing and initial calibration recoveries above 135% or less than 65% affecting all samples.

Lead, nickel, and potassium were qualified estimated (J) in the soil samples because of serial dilution percent differences greater than 10% for compounds greater than 50 times the IDL in the initial sample. Potassium and sodium were likewise qualified in the water samples.

Antimony, mercury, and thallium were qualified estimated (UJ/J) in the soil samples because of spike recoveries exceeding the 75-125% control range. Recoveries for antimony in both spike samples were below 30%, necessitating the rejection (R)

(continued)

Validator's Signature:	
Validator's Initials:	Validation Date:
QC Reviewer's Signature:	
QC Reviewer's Initials	Review Date:

Summary and Conclusions

of undetected. However, all soil samples showed antimony detection, so the values were estimated (J). Also, only undetected data for mercury were qualified on the basis of spike results, since detected data were rejected (R) on the basis of calibration problems. For the water samples, detected results for aluminum were qualified estimated (J) because of spike results greater than 125%. Undetected results were left unqualified.

Qualifications of the data were made on the basis of laboratory and field blanks, in that, sample values less than 5 times the greatest blank contamination for any analyte were qualified undetected (U). Refer to pages 12A, 12B, and 12C for a summary of the blanks. The outcome in the samples was that: BEA7, BSEA8, B10EA3, S10EA8, WEA7, and W10EA7 were qualified for thallium; BFB and BSFB were qualified for zinc; WSEA4 and BSFB were qualified for sodium; W10EA8 and SWEA8 were qualified for selenium; W10EA8, BSEA9, SWEA4, and WSEA8 were qualified for arsenic; SWEA4 for cobalt; and SWEA8 and W10EA8 were qualified for antimony, beryllium, and cadmium. The copper result for sample SWEA4 was also qualified as undetected (U).

MPP 1/20/95

Validator's Signature: Joyce E. Whittle	
Validator's Initials: JW	Validation Date: 12/28/94
QC Reviewer's Signature: Michael P. Phillips	
QC Reviewer's Initials MPP	Review Date: 1/20/95

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BEA3

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 238909

Level (low/med): LOW__ Date Received: 10/22/94

% Solids: _58.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9430			P	
7440-36-0	Antimony	2.3	B	N	P	J
7440-38-2	Arsenic	5.1			P	
7440-39-3	Barium	121			P	
7440-41-7	Beryllium	1.3			P	
7440-43-9	Cadmium	3.7			P	
7440-70-2	Calcium	33900			P	
7440-47-3	Chromium	49.3			P	
7440-48-4	Cobalt	47.7			P	
7440-50-8	Copper	78.8			P	
7439-89-6	Iron	25800			P	
7439-92-1	Lead	148		E	P	J
7439-95-4	Magnesium	14200			P	
7439-96-5	Manganese	472			P	
7439-97-6	Mercury	0.23		N	CV	R
7440-02-0	Nickel	75.2		E	P	J
7440-09-7	Potassium	2230		E	P	J
7782-49-2	Selenium	2.0			P	
7440-22-4	Silver	0.33	U		P	
7440-23-5	Sodium	57.0	U		P	
7440-28-0	Thallium	0.62	U	N	P	J
7440-62-2	Vanadium	54.4			P	
7440-66-6	Zinc	702			P	
	Cyanide	1.1			AS	

Color Before: BROWN____ Clarity Before: _____ Texture: COARSE

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:
STICKS_WERE_PRESENT.

FORM I - IN ILM02.1

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/28/94

AR302440

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

W10EA8

Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): WATER Lab Sample ID: 240146

Level (low/med): LOW__ Date Received: 11/03/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum_	6360		N	P	J
7440-36-0	Antimony_	4.4	B		P	U
7440-38-2	Arsenic__	7.1	B		P	U
7440-39-3	Barium___	87.5	B		P	
7440-41-7	Beryllium	0.22	B		P	U
7440-43-9	Cadmium__	0.49	B		P	U
7440-70-2	Calcium__	54700			P	
7440-47-3	Chromium_	36.8			P	
7440-48-4	Cobalt___	8.0	B		P	
7440-50-8	Copper___	69.6			P	
7439-89-6	Iron____	14800			P	
7439-92-1	Lead____	81.8			P	
7439-95-4	Magnesium	11400			P	
7439-96-5	Manganese	307			P	
7439-97-6	Mercury__	0.07	U		CV	
7440-02-0	Nickel___	37.4	B		P	
7440-09-7	Potassium	6470		E	P	J
7782-49-2	Selenium_	4.9	B		P	U
7440-22-4	Silver___	1.3	U		P	
7440-23-5	Sodium___	21000		E	P	J
7440-28-0	Thallium_	2.4	U		P	
7440-62-2	Vanadium_	24.0	B		P	
7440-66-6	Zinc____	259			P	
	Cyanide__	5.0	U		AS	

Color Before: GRAY_____ Clarity Before: OPAQUE Texture: _____

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN ILM02.1

VALIDATED

Reviewed By Joyce E. Whitel

Date 12/28/94

AR302441

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SWEA8

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): WATER Lab Sample ID: 240145

Level (low/med): LOW__ Date Received: 11/03/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7500		N	P	J
7440-36-0	Antimony	3.8	B		P	U
7440-38-2	Arsenic	10.8			P	
7440-39-3	Barium	91.9	B		P	
7440-41-7	Beryllium	0.25	B		P	U
7440-43-9	Cadmium	0.65	B		P	U
7440-70-2	Calcium	54800			P	
7440-47-3	Chromium	42.1			P	
7440-48-4	Cobalt	9.0	B		P	
7440-50-8	Copper	72.0			P	
7439-89-6	Iron	16800			P	
7439-92-1	Lead	86.0			P	
7439-95-4	Magnesium	11900			P	
7439-96-5	Manganese	323			P	
7439-97-6	Mercury	0.19	B		CV	R
7440-02-0	Nickel	39.9	B		P	
7440-09-7	Potassium	6540		E	P	J
7782-49-2	Selenium	5.6			P	U
7440-22-4	Silver	1.3	U		P	
7440-23-5	Sodium	20900		E	P	J
7440-28-0	Thallium	2.4	U		P	
7440-62-2	Vanadium	27.5	B		P	
7440-66-6	Zinc	277			P	
	Cyanide	5.0	U		AS	

Color Before: GRAY_____ Clarity Before: OPAQUE Texture: _____

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN ILM02.1

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/29/94

AR302142

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BEA7

1 Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 238910

Level (low/med): LOW__ Date Received: 10/22/94

% Solids: _55.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	14400			P	
7440-36-0	Antimony	8.2	B	N	P	J
7440-38-2	Arsenic	5.5			P	
7440-39-3	Barium	252			P	
7440-41-7	Beryllium	0.76	B		P	
7440-43-9	Cadmium	1.4	B		P	
7440-70-2	Calcium	143000			P	
7440-47-3	Chromium	50.4			P	
7440-48-4	Cobalt	8.4	B		P	
7440-50-8	Copper	69.1			P	
7439-89-6	Iron	21100			P	
7439-92-1	Lead	195		E	P	J
7439-95-4	Magnesium	29500			P	
7439-96-5	Manganese	583			P	
7439-97-6	Mercury	0.05	U	N	CV	J
7440-02-0	Nickel	26.4		E	P	J
7440-09-7	Potassium	5980		E	P	J
7782-49-2	Selenium	1.5	B		P	
7440-22-4	Silver	0.47	U		P	
7440-23-5	Sodium	80.7	U		P	
7440-28-0	Thallium	1.3	B	N	P	UJ
7440-62-2	Vanadium	56.1			P	
7440-66-6	Zinc	899			P	
	Cyanide	1.0	U		AS	

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:
ROOTS_WERE_PRESENT.

FORM I - IN ILM02.1

VALIDATED

Reviewed By Joyce E. Whitle

Date 12/28/94

AR302443

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BFB

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): WATER Lab Sample ID: 238912

Level (low/med): LOW__ Date Received: 10/22/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	8.0	U	N	P	
7440-36-0	Antimony	2.0	U		P	
7440-38-2	Arsenic	1.5	U		P	
7440-39-3	Barium	2.8	U		P	
7440-41-7	Beryllium	0.08	U		P	
7440-43-9	Cadmium	0.30	U		P	
7440-70-2	Calcium	71.4	U		P	
7440-47-3	Chromium	0.89	U		P	
7440-48-4	Cobalt	0.79	U		P	
7440-50-8	Copper	0.89	U		P	
7439-89-6	Iron	19.0	U		P	
7439-92-1	Lead	1.3	U		P	
7439-95-4	Magnesium	72.3	U		P	
7439-96-5	Manganese	0.30	U		P	
7439-97-6	Mercury	0.10	B		CV	R
7440-02-0	Nickel	0.99	U		P	
7440-09-7	Potassium	58.7	U	E	P	J
7782-49-2	Selenium	3.0	U		P	
7440-22-4	Silver	1.3	U		P	
7440-23-5	Sodium	220	U	E	P	J
7440-28-0	Thallium	2.4	U		P	
7440-62-2	Vanadium	1.3	U		P	
7440-66-6	Zinc	0.91	B		P	U
	Cyanide	17.9	U		AS	

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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VALIDATED

Reviewed By Joyce E. Whittle

Date 12/28/94

AR302444

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BSEA4

Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 238829

Level (low/med): LOW__ Date Received: 10/21/94

% Solids: _78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2120			P	
7440-36-0	Antimony	1.1	B	N	P	J
7440-38-2	Arsenic	5.7			P	
7440-39-3	Barium	37.9	B		P	
7440-41-7	Beryllium	0.24	B		P	
7440-43-9	Cadmium	0.25	B		P	
7440-70-2	Calcium	17800			P	
7440-47-3	Chromium	15.5			P	
7440-48-4	Cobalt	3.1	B		P	
7440-50-8	Copper	29.1			P	
7439-89-6	Iron	11800			P	
7439-92-1	Lead	73.2		E	P	J
7439-95-4	Magnesium	5130			P	
7439-96-5	Manganese	177			P	
7439-97-6	Mercury	0.09		N	CV	R
7440-02-0	Nickel	13.2		E	P	J
7440-09-7	Potassium	242	B	E	P	J
7782-49-2	Selenium	2.2			P	
7440-22-4	Silver	0.30	U		P	
7440-23-5	Sodium	50.8	U		P	
7440-28-0	Thallium	0.55	U	N	P	J
7440-62-2	Vanadium	12.9			P	
7440-66-6	Zinc	136			P	
	Cyanide	0.58	U		AS	

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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VALIDATED

AR302445 Reviewed By Joyce E. Whittle

Date 12/28/94

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BSEA8

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 240142

Level (low/med): LOW__ Date Received: 11/03/94

% Solids: _56.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	13900			P	
7440-36-0	Antimony	2.2	B	N	P	J
7440-38-2	Arsenic	12.6			P	
7440-39-3	Barium	137			P	
7440-41-7	Beryllium	0.70	B		P	
7440-43-9	Cadmium	1.2	B		P	
7440-70-2	Calcium	28800			P	
7440-47-3	Chromium	62.4			P	
7440-48-4	Cobalt	15.5			P	
7440-50-8	Copper	117			P	
7439-89-6	Iron	33800			P	
7439-92-1	Lead	168		E	P	J
7439-95-4	Magnesium	17600			P	
7439-96-5	Manganese	532			P	
7439-97-6	Mercury	0.23		N	CV	R
7440-02-0	Nickel	52.7		E	P	J
7440-09-7	Potassium	1810		E	P	J
7782-49-2	Selenium	3.8			P	
7440-22-4	Silver	0.37	U		P	
7440-23-5	Sodium	62.3	U		P	
7440-28-0	Thallium	0.74	B	N	P	UJ
7440-62-2	Vanadium	56.3			P	
7440-66-6	Zinc	448			P	
	Cyanide	0.64	U		AS	

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN ILM02.1

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/28/94

AR302446

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B10EA3

Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 238911

Level (low/med): LOW__ Date Received: 10/22/94

% Solids: _60.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9570			P	
7440-36-0	Antimony	1.8	B	N	P	J
7440-38-2	Arsenic	5.4			P	
7440-39-3	Barium	115			P	
7440-41-7	Beryllium	1.3			P	
7440-43-9	Cadmium	3.9			P	
7440-70-2	Calcium	29100			P	
7440-47-3	Chromium	48.6			P	
7440-48-4	Cobalt	51.6			P	
7440-50-8	Copper	77.5			P	
7439-89-6	Iron	25500			P	
7439-92-1	Lead	148		E	P	J
7439-95-4	Magnesium	14000			P	
7439-96-5	Manganese	392			P	
7439-97-6	Mercury	0.24		N	CV	R
7440-02-0	Nickel	85.0		E	P	J
7440-09-7	Potassium	2210		E	P	J
7782-49-2	Selenium	2.4			P	
7440-22-4	Silver	0.27	U		P	
7440-23-5	Sodium	46.4	U		P	
7440-28-0	Thallium	0.74	B	N	P	UJ
7440-62-2	Vanadium	54.5			P	
7440-66-6	Zinc	697			P	
	Cyanide	1.2			AS	

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:
ROOTS_WERE_PRESENT.

FORM I - IN ILM02.1

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/28/94

AR302447

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RBBS

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): WATER Lab Sample ID: 240144

Level (low/med): LOW__ Date Received: 11/03/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum_	8.9	B	N	P	J
7440-36-0	Antimony_	2.0	U		P	
7440-38-2	Arsenic__	1.5	U		P	
7440-39-3	Barium___	2.8	U		P	
7440-41-7	Beryllium	0.08	U		P	
7440-43-9	Cadmium__	0.30	U		P	
7440-70-2	Calcium__	71.4	U		P	
7440-47-3	Chromium_	0.89	U		P	
7440-48-4	Cobalt___	0.79	U		P	
7440-50-8	Copper___	0.89	U		P	
7439-89-6	Iron____	19.0	U		P	
7439-92-1	Lead____	1.3	U		P	
7439-95-4	Magnesium	72.3	U		P	
7439-96-5	Manganese	0.30	U		P	
7439-97-6	Mercury__	0.10	B		CV	R
7440-02-0	Nickel___	0.99	U		P	
7440-09-7	Potassium	58.7	U	E	P	J
7782-49-2	Selenium_	3.0	U		P	
7440-22-4	Silver___	1.3	U		P	
7440-23-5	Sodium___	220	U	E	P	J
7440-28-0	Thallium_	2.4	U		P	
7440-62-2	Vanadium_	1.3	U		P	
7440-66-6	Zinc____	0.60	U		P	
	Cyanide__	5.0	U		AS	

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN ILM02.1

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/23/94

AR302448

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

S10EA8

1 Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 240143

Level (low/med): LOW__ Date Received: 11/03/94

% Solids: _61.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	13300			P	
7440-36-0	Antimony	1.7	B	N	P	J
7440-38-2	Arsenic	10.9			P	
7440-39-3	Barium	122			P	
7440-41-7	Beryllium	0.67	B		P	
7440-43-9	Cadmium	1.3			P	
7440-70-2	Calcium	21300			P	
7440-47-3	Chromium	54.6			P	
7440-48-4	Cobalt	12.8			P	
7440-50-8	Copper	103			P	
7439-89-6	Iron	29100			P	
7439-92-1	Lead	155		E	P	J
7439-95-4	Magnesium	13200			P	
7439-96-5	Manganese	377			P	
7439-97-6	Mercury	0.11		N	CV	R
7440-02-0	Nickel	45.1		E	P	J
7440-09-7	Potassium	1460		E	P	J
7782-49-2	Selenium	4.1			P	
7440-22-4	Silver	0.33	U		P	
7440-23-5	Sodium	56.4	U		P	
7440-28-0	Thallium	1.4	B	N	P	UJ
7440-62-2	Vanadium	51.6			P	
7440-66-6	Zinc	400			P	
	Cyanide	0.72	U		AS	

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN ILM02.1

VALIDATED

Reviewed By: Joyce E. Whitley

Date: 12/28/94

AR302449

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

WEA7

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 238914

Level (low/med): LOW__ Date Received: 10/22/94

% Solids: _56.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum_	16800			P	
7440-36-0	Antimony_	8.6	B	N	P	J
7440-38-2	Arsenic__	7.4			P	
7440-39-3	Barium___	263			P	
7440-41-7	Beryllium	0.79	B		P	
7440-43-9	Cadmium__	1.5			P	
7440-70-2	Calcium__	197000			P	
7440-47-3	Chromium_	52.8			P	
7440-48-4	Cobalt___	8.6	B		P	
7440-50-8	Copper___	76.6			P	
7439-89-6	Iron____	21700			P	
7439-92-1	Lead____	181		E	P	J
7439-95-4	Magnesium	32000			P	
7439-96-5	Manganese	621			P	
7439-97-6	Mercury__	0.04	U	N	CV	J
7440-02-0	Nickel___	30.5		E	P	J
7440-09-7	Potassium	7010		E	P	J
7782-49-2	Selenium_	1.8			P	
7440-22-4	Silver___	0.35	U		P	
7440-23-5	Sodium___	60.5	U		P	
7440-28-0	Thallium_	1.1	B	N	P	UJ
7440-62-2	Vanadium_	63.5			P	
7440-66-6	Zinc____	839			P	
	Cyanide__	0.62	U		AS	

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:
ROOTS_WERE_PRESENT.

FORM I - IN ILM02.1

VALIDATED

Reviewed By Joyce E. Whittle

Date 12/28/94

AR302450

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

W10EA7

Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 238915

Level (low/med): LOW__ Date Received: 10/22/94

% Solids: _58.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	15800			P	
7440-36-0	Antimony	7.6	B	N	P	J
7440-38-2	Arsenic	6.5			P	
7440-39-3	Barium	264			P	
7440-41-7	Beryllium	0.77	B		P	
7440-43-9	Cadmium	1.4	B		P	
7440-70-2	Calcium	170000			P	
7440-47-3	Chromium	56.8			P	
7440-48-4	Cobalt	8.3	B		P	
7440-50-8	Copper	80.6			P	
7439-89-6	Iron	21900			P	
7439-92-1	Lead	193		E	P	J
7439-95-4	Magnesium	35900			P	
7439-96-5	Manganese	655			P	
7439-97-6	Mercury	0.03	U	N	CV	J
7440-02-0	Nickel	32.1		E	P	J
7440-09-7	Potassium	7210		E	P	J
7782-49-2	Selenium	2.2			P	
7440-22-4	Silver	0.38	U		P	
7440-23-5	Sodium	65.4	U		P	
7440-28-0	Thallium	1.1	B	N	P	UJ
7440-62-2	Vanadium	73.5			P	
7440-66-6	Zinc	910			P	
	Cyanide	0.60	U		AS	

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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VALIDATED

Reviewed By Joyce E. Whittle

Date 12/28/94

AR302451

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BSFB

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): WATER Lab Sample ID: 238831

Level (low/med): LOW__ Date Received: 10/21/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	18.6	B	N	P	J
7440-36-0	Antimony	2.0	U		P	
7440-38-2	Arsenic	1.5	U		P	
7440-39-3	Barium	2.8	U		P	
7440-41-7	Beryllium	0.08	U		P	
7440-43-9	Cadmium	0.30	U		P	
7440-70-2	Calcium	137	B		P	
7440-47-3	Chromium	0.90	U		P	
7440-48-4	Cobalt	0.80	U		P	
7440-50-8	Copper	3.2	B		P	
7439-89-6	Iron	19.0	U		P	
7439-92-1	Lead	1.3	U		P	
7439-95-4	Magnesium	72.6	U		P	
7439-96-5	Manganese	0.30	U		P	
7439-97-6	Mercury	0.07	U		CV	
7440-02-0	Nickel	1.00	U		P	
7440-09-7	Potassium	58.9	U	E	P	J
7782-49-2	Selenium	3.0	U		P	
7440-22-4	Silver	1.3	U		P	
7440-23-5	Sodium	303	B	E	P	UJ
7440-28-0	Thallium	2.4	U		P	
7440-62-2	Vanadium	1.3	U		P	
7440-66-6	Zinc	2.2	B		P	U
	Cyanide	5.0	U		AS	

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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VALIDATED

Reviewed By Joyce J. Whittle

Date 12/28/94

AR302452

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

WSEA4

Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 238833

Level (low/med): LOW__ Date Received: 10/21/94

% Solids: _91.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4730			P	
7440-36-0	Antimony	2.3	B	N	P	J
7440-38-2	Arsenic	5.0			P	
7440-39-3	Barium	102			P	
7440-41-7	Beryllium	0.59	B		P	
7440-43-9	Cadmium	1.1			P	
7440-70-2	Calcium	31400			P	
7440-47-3	Chromium	62.7			P	
7440-48-4	Cobalt	8.3	B		P	
7440-50-8	Copper	315			P	
7439-89-6	Iron	22100			P	
7439-92-1	Lead	130		E	P	J
7439-95-4	Magnesium	11500			P	
7439-96-5	Manganese	561			P	
7439-97-6	Mercury	0.09	B	N	CV	R
7440-02-0	Nickel	33.1		E	P	J
7440-09-7	Potassium	527	B	E	P	J
7782-49-2	Selenium	2.8			P	
7440-22-4	Silver	0.23	U		P	
7440-23-5	Sodium	55.3	B		P	U
7440-28-0	Thallium	0.42	U	N	P	J
7440-62-2	Vanadium	27.6			P	
7440-66-6	Zinc	391			P	
	Cyanide	0.53	U		AS	

Color Before: BROWN____ Clarity Before: _____ Texture: COARSE

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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VALIDATED

Reviewed By Joyce E. Whittle

Date 12/28/94

AR302453

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BSEA9

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 238830

Level (low/med): LOW__ Date Received: 10/21/94

% Solids: _93.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2240			P	
7440-36-0	Antimony	0.55	B	N	P	J
7440-38-2	Arsenic	3.1			P	U
7440-39-3	Barium	21.2	B		P	
7440-41-7	Beryllium	0.12	B		P	
7440-43-9	Cadmium	0.09	B		P	
7440-70-2	Calcium	86000			P	
7440-47-3	Chromium	12.0			P	
7440-48-4	Cobalt	2.8	B		P	
7440-50-8	Copper	17.6			P	
7439-89-6	Iron	8980			P	
7439-92-1	Lead	46.1		E	P	J
7439-95-4	Magnesium	30800			P	
7439-96-5	Manganese	148			P	
7439-97-6	Mercury	0.05	B	N	CV	R
7440-02-0	Nickel	9.4		E	P	J
7440-09-7	Potassium	645	B	E	P	J
7782-49-2	Selenium	1.3			P	
7440-22-4	Silver	0.26	U		P	
7440-23-5	Sodium	44.6	U		P	
7440-28-0	Thallium	0.48	U	N	P	J
7440-62-2	Vanadium	13.3			P	
7440-66-6	Zinc	79.0			P	
	Cyanide	0.51	U		AS	

Color Before: BROWN____ Clarity Before: _____ Texture: COARSE

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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VALIDATED

Reviewed By Joyce E. Whittle

Date 12/28/94

AR302454

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

WSEA8

L Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): SOIL_ Lab Sample ID: 240147

Level (low/med): LOW__ Date Received: 11/03/94

% Solids: _78.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5580			P	
7440-36-0	Antimony	0.75	B	N	P	J
7440-38-2	Arsenic	2.8			P	U
7440-39-3	Barium	31.0	B		P	
7440-41-7	Beryllium	0.24	B		P	
7440-43-9	Cadmium	0.08	B		P	
7440-70-2	Calcium	1950			P	
7440-47-3	Chromium	14.2			P	
7440-48-4	Cobalt	3.7	B		P	
7440-50-8	Copper	16.0			P	
7439-89-6	Iron	11100			P	
7439-92-1	Lead	32.3		E	P	J
7439-95-4	Magnesium	1330			P	
7439-96-5	Manganese	58.6			P	
7439-97-6	Mercury	0.04	U	N	CV	J
7440-02-0	Nickel	7.2	B	E	P	J
7440-09-7	Potassium	349	B	E	P	J
7782-49-2	Selenium	1.2			P	
7440-22-4	Silver	0.30	U		P	
7440-23-5	Sodium	51.8	U		P	
7440-28-0	Thallium	0.56	U	N	P	J
7440-62-2	Vanadium	19.2			P	
7440-66-6	Zinc	65.7			P	
	Cyanide	0.55	U		AS	

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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VALIDATED

Reviewed By Joyce E. Whittle

Date 12/28/94

AR302455

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SWEA4

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47430_

Matrix (soil/water): WATER Lab Sample ID: 238832

Level (low/med): LOW__ Date Received: 10/21/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	194	B	N	P	J
7440-36-0	Antimony	2.0	U		P	
7440-38-2	Arsenic	1.6	B		P	U
7440-39-3	Barium	37.0	B		P	
7440-41-7	Beryllium	0.08	U		P	
7440-43-9	Cadmium	0.30	U		P	
7440-70-2	Calcium	51400			P	
7440-47-3	Chromium	0.89	U		P	
7440-48-4	Cobalt	1.8	B		P	U
7440-50-8	Copper	6.4	B		P	U
7439-89-6	Iron	1800			P	
7439-92-1	Lead	1.3	B		P	
7439-95-4	Magnesium	11100			P	
7439-96-5	Manganese	352			P	
7439-97-6	Mercury	0.10	B		CV	R
7440-02-0	Nickel	21.8	B		P	
7440-09-7	Potassium	5440		E	P	J
7782-49-2	Selenium	3.0	U		P	
7440-22-4	Silver	1.3	U		P	
7440-23-5	Sodium	26300		E	P	J
7440-28-0	Thallium	2.4	U		P	
7440-62-2	Vanadium	1.3	U		P	
7440-66-6	Zinc	60.0			P	
	Cyanide	5.0	U		AS	

Color Before: YELLOW___ Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN ILM02.1

VALIDATED

Reviewed By Joyce T. Whittle

Date 12/28/94

AR302456

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY

Metals Analysis

Case Number:	24293, SDG 47744	Project Number:	27654 3.4.2.2
Site:	Kane and Lombard		
Contractor Lab:	Inchcape, Aquatec, Colchester, Vermont		
Validator:	Cindy Lucangioli	Validation Date:	2/2/95
QC Reviewer:	Kirsten Meier	Review Date:	2-6-95
Sample Matrix:	Five soils and eight waters		
Analytical Method:	ICP metals, Mercury and Cyanide		

Sample Designations:

BSEA1	SWEA5		
BSEA2	SWEA10		
BSEA5	SWEA11		
WSEA1	RBBS1		
WSEA2	RBBS2		
SWEA1	RBBS3		
SWEA2			

Data for the above samples are:

[ ] Acceptable for use
[X] Acceptable for use as qualified
[ ] Unacceptable for use

Is action required by the Project Manager?

Yes No [X]

Comments: The ILM02.0 and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994 were used to evaluate and qualify the sample data.

DATA COMPLETENESS CHECKLIST

[x] Included, no problems
[*] Included, problems
[O] Not included
[NA] Not applicable

Quality Control Summary

__X__ Case Narrative
__X__ Chain of Custody Forms
__X__ Cover Page
__X__ Holding Times
__X__ Inorganic Analysis Data Sheets
__X__ Initial and Continuing Calibration Summary
__X__ ICP and AA CRDL Check Standard Summary
__X__ Linear Range Verification Standard Summary
__*__ Calibration and Preparation Blank Summary
__*__ ICP Interference Check Sample Summary
__*__ Matrix Spike Summary
__X__ Post Digestion Spike Sample Summary
__*__ Duplicate Sample Summary
__X__ Laboratory Control Sample Summary
__NA__ Method of Standard Additions Summary
__*__ ICP Serial Dilution Summary
__*__ Quarterly Instrument Detection Limits Summary
__X__ Annual Interelement Correction Factors Summary
__X__ Quarterly ICP Linear Range Summary
__X__ Sample Preparation Log Summary
__X__ Sample Analysis Run Log Summary

Sample Raw Data

__X__ ICP Raw Data
__NA__ GFAA Raw Data
__X__ Mercury Raw Data
__X__ Cyanide Raw Data

Comments:
None

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?
Yes [X] No

Were custody transfers correctly and completely documented?
Yes [X] No

Comments: None

Holding Times

Were sample preparations and analyses performed within holding times?
Yes [X] No

Comments: None

Instrument Calibration

Were instruments calibrated daily and each time that sample analyses were performed?
Yes [X] No

Were the instruments calibrated using the minimum required numbers of blanks and standards?
Yes [X] No

For the GFAA methods was one standard analyzed at the Contract Required Detection Limit (CRDL)?
Yes No NA [X]

For the applicable methods did the correlation coefficients meet the minimum requirement of 0.995?
Yes [X] No NA

For the cyanide analyses was a midrange standard distilled and analyzed?
Yes [X] No NA

Comments: None

Initial and Continuing Calibration Verification

Were the calibration standards and blanks analyzed at the required frequencies?
Yes [X] No

Were the standard recoveries within QC limits?
Yes [X] No

Comments: None

CRDL Standards

Were CRDL standards (CRI and CRA) analyzed at the required frequency?
Yes [X] No

Were the ICP standards (CRI) analyzed at the required levels?
Yes [X] No

For the low concentration method, were the CRDL results acceptable?
Yes No NA [X]

Comments: None

Matrix Spike

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this SDG?
Yes [X] No

Were field or rinse blanks used for the spike analysis sample?
Yes No [X]

Were the matrix spike recoveries within acceptance criteria?
Yes No [X]

Were post-digestion spikes performed when required?
Yes [X] No NA

Comments: Spike recoveries for sample SWEA11 were within acceptance limits and no qualification of water sample data was necessary. The soil spike recoveries for antimony for samples BSEA1 and WSEA1 were below the 75-125% acceptance limit with recoveries of 44.6% and 30.7%, respectively. The antimony data for the investigate soil samples have been qualified as estimated (J). The manganese spike recovery in sample BSEA1 was 127.4% exceeding the upper acceptance limit of 125%. The detected manganese results in the investigate soils samples have been qualified as estimated (J). The zinc spike recovery in sample WSEA1 was 130.6% exceeding the upper acceptance limit of 125%. The detected zinc results in the investigative soil samples have been qualified as estimated (J).

Laboratory Control Sample

Were laboratory control sample analyses performed at the required frequency?
Yes [X] No

Were laboratory control sample recovery results acceptable?
Yes [X] No

Comments: None

ICP Interference Check Sample

Were ICP interference check samples (ICS) analysed at the required frequency?
Yes [X] No

Were the ICS recovery criteria met?
Yes [X] No

Were results greater than the IDL reported for elements not present in the ICS solution?
Yes [X] No

Were negative results with absolute values greater than the IDL reported for elements not present in the ICS solution?
Yes [X] No

Were the concentrations of metals in the investigative samples similar to the concentrations of the ICS solution?
Yes No [X]

Did the sample results require qualification due to interference problems?
Yes No [X]

Comments: Both positive and absolute values of the negative results greater than the IDLs and not present in the ICS solution were found in the ICS. However, only calcium in samples SWEA5 and BSEA5 were within a magnitude of the interferent concentration in the ICS solution. Samples SWEA5 abd BSEA5 were evaluated for interference and the levels were determined to be insignificant when compared to the reported values. In the professional judgement of the reviewer no qualification of sample data was required as the concentrations of the interferents in the sample data were a magnitude below those found in the ICS solution, with the exceptions noted above.

Duplicate Sample Results

Were duplicate sample analyses performed at the required frequency?
Yes [X] No

Did the duplicate sample results meet acceptance criteria?
Yes No [X]

Comments: Aluminum, chromium, lead, and zinc exceeded the 20%RPD/±CRDL limit for duplicates in sample BSEA1. Nickel and zinc exceeded the duplicate criteria in sample WSEA1. These analytes have been qualified as estimated in the investigative soil samples due to field duplicate criteria exceedance.

Blank Analyses

Were preparation and calibration blank analyses performed at the required frequency?
Yes [X] No

Were elements reported in the blanks at levels above the CRDL?
Yes No [X]

Were elements reported in the blanks at levels between the IDL and the CRDL?
Yes [X] No

Were negative results with absolute values greater than the IDL reported in the blanks?
Yes [X] No

If analytes were reported in the blanks, were the same analytes also reported for the associated investigative samples?
Yes [X] No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?
Yes [x] No

Comments: See table "Blank Summary Form" for blank contamination and qualifiers added.

ICP Serial Dilution

Were serial dilution analyses performed at the required frequency?
Yes [X] No

For analytes with concentrations greater than 50 times the IDL, were the percent differences within acceptance criteria?
Yes No [X]

Comments: Sample BSEA1 reported nickle with a 30.6%D. For sample SWEA11 potassium and sodium were outside of the acceptance limit with percent differences of 26.4% and 15.7%, respectively. Sample WSEA1 had nickle and potassium outside of acceptance limits with a percent difference of 12.5% and 21.9%, respectively. The results for nickle and potassium have been qualified as estimated (J) in the associated soil samples: BSEA1, BSEA2, BSEA5, WSEA1 and WSEA2. Sodium and potassium results in the water samples SWEA1, SWEA2, SWEA5, SWEA10, SWEA11, RBBS1, RBBS2 and RBBS3 have been qualified as estimated (J).

GFAA QC

Were duplicate injections performed for each GFAA sample analysis?
Yes No NA [X]

For results greater than the CRDL were the percent RSD results calculated correctly and within control limits?
Yes[x] No NA [X]

Were the GFAA analytical spike (post-digestion spike) recoveries within acceptance criteria?
Yes[x] No NA [X]

If the GFAA analytical spike recoveries were not acceptable, were samples diluted and reanalyzed when required?
Yes[x] No NA [X]

Was the method of standard additions (MSA) used for GFAA analysis when required?
Yes No NA [X]

When MSA analyses were performed, were the correlation coefficients and spiking levels acceptable?
Yes No NA [X]

Comments: No GFAA analyses were performed.

ICP Interelement Correction Factors

Were annual interelement correction factors provided for each instrument used for sample analysis and were they current?

Yes [X] No

Comments: None

ICP Linear Ranges

Were linear ranges provided for each instrument used for sample analysis and were they current?

Yes [X] No

Was a quarterly linear range verification analysis performed and if so, were the results acceptable?

Yes [X] No

For the low concentration method was a linear range standard analysis performed as required, and if so, were the results acceptable?

Yes No NA [X]

Comments: None

Log Books

Were all sample preparations properly documented and performed in accordance with method protocols?

Yes [X] No

Were all sample analyses properly documented and performed in accordance with method protocols?

Yes [X] No

Comments:
None

Sample Results

Were target analytes reported in the investigative samples?
Yes [X] No

Were the quantitated results for target analytes calculated and reported correctly?
Yes [X] No NA

For the applicable methods, were peak measurements performed correctly?
Yes No NA [X]

Were detection limits provided for the reported target analytes, and if so, were they current and acceptable?
Yes [X] No

Comments: No IDL was reported for cyanide. No sample data have been qualified due to the omission of a cyanide IDL.

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Analysis Holding Time	Qualifier
BSEA1	ICP METALS	11/3/94	12/6/94	12/7/94	34	NONE
RBBS1	ICP METALS	11/3/94	12/6/94	12/7/94	34	NONE
SWEA1	ICP METALS	11/3/94	12/6/94	12/7/94	34	NONE
WSEA1	ICP METALS	11/3/94	12/6/94	12/7/94	34	NONE
BSEA2	ICP METALS	11/4/94	12/6/94	12/7/94	33	NONE
RBBS2	ICP METALS	11/4/94	12/6/94	12/7/94	33	NONE
SWEA2	ICP METALS	11/4/94	12/6/94	12/7/94	33	NONE
WSEA2	ICP METALS	11/4/94	12/6/94	12/7/94	33	NONE
BSEA5	ICP METALS	11/12/94	12/6/94	12/7/94	25	NONE
RBBS3	ICP METALS	11/12/94	12/6/94	12/7/94	25	NONE
SWEA5	ICP METALS	11/12/94	12/6/94	12/7/94	25	NONE
SWEA10	ICP METALS	11/12/94	12/6/94	12/7/94	25	NONE
SWEA11	ICP METALS	11/3/94	12/6/94	12/7/94	34	NONE

Comments: None

AR302467

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Analysis Holding Time	Qualifier
BSEA1	MERCURY	11/3/94	12/21/94	11/23/94	20	NONE
RBBS1	MERCURY	11/3/94	12/21/94	11/23/94	20	NONE
SWEA1	MERCURY	11/3/94	12/21/94	11/23/94	20	NONE
WSEA1	MERCURY	11/3/94	12/21/94	11/23/94	20	NONE
BSEA2	MERCURY	11/4/94	12/21/94	11/23/94	19	NONE
RBBS2	MERCURY	11/4/94	12/21/94	11/23/94	19	NONE
SWEA2	MERCURY	11/4/94	12/21/94	11/23/94	19	NONE
WSEA2	MERCURY	11/4/94	12/21/94	11/23/94	19	NONE
BSEA5	MERCURY	11/12/94	12/21/94	11/23/94	11	NONE
RBBS3	MERCURY	11/12/94	12/21/94	11/23/94	11	NONE
SWEA5	MERCURY	11/12/94	12/21/94	11/23/94	11	NONE
SWEA10	MERCURY	11/12/94	12/21/94	11/23/94	11	NONE
SWEA11	MERCURY	11/3/94	12/21/94	11/23/94	20	NONE

Comments: None

AR302468

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Analysis Holding Time	Qualifier
BSEA1	CYANIDE	11/3/94	11/8/94	11/8/94	5	NONE
RBBS1	CYANIDE	11/3/94	11/8/94	11/8/94	5	NONE
SWEA1	CYANIDE	11/3/94	11/8/94	11/8/94	5	NONE
WSEA1	CYANIDE	11/3/94	11/8/94	11/8/94	5	NONE
BSEA2	CYANIDE	11/4/94	11/8/94	11/8/94	4	NONE
RBBS2	CYANIDE	11/4/94	11/8/94	11/8/94	4	NONE
SWEA2	CYANIDE	11/4/94	11/8/94	11/8/94	4	NONE
WSEA2	CYANIDE	11/4/94	11/8/94	11/8/94	4	NONE
BSEA5	CYANIDE	11/12/94	11/8/94	11/15/94	3	NONE
RBBS3	CYANIDE	11/12/94	11/8/94	11/15/94	3	NONE
SWEA5	CYANIDE	11/12/94	11/8/94	11/15/94	3	NONE
SWEA10	CYANIDE	11/12/94	11/8/94	11/15/94	3	NONE
SWEA11	CYANIDE	11/3/94	11/8/94	11/8/94	5	NONE

Comments: None

AR302469

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result	Action Level [ug/l]	Associated Samples	Qualifier
PBLK WATER	ARSENIC	-3.89 ug/l	19.45 ug/l	ALL WATER SAMPLES	U
	NICKEL	-4.17 ug/l	20.89 ug/l	ALL WATER SAMPLES	U
	THALLIUM	3.85 ug/l	19.23 ug/l	ALL WATER SAMPLES	U
ICB/CCB	ARSENIC	-2.9 ug/l	14.5 ug/l = 2.9 mg/kg	ALL INVESTIGATIVE SAMPLES	U
	BERYLLIUM	0.2 ug/l	1.0 ug/l = 0.2 mg/kg	ALL INVESTIGATIVE SAMPLES	U
	NICKEL	-5.1 ug/l	25.5 ug/l = 5.1 mg/kg	ALL INVESTIGATIVE SAMPLES	U
	THALLIUM	4.1 ug/l	20.5 ug/l = 4.1 mg/kg	ALL INVESTIGATIVE SAMPLES	U
PBLK SOIL	LEAD	0.202 mg/kg	1.01 mg/kg	ALL SOIL SAMPLES	U
	NICKEL	-0.730 mg/kg	3.65 mg/kg	ALL SOIL SAMPLES	U
	ZINC	0.224 mg/kg	1.12 mg/kg	ALL SOIL SAMPLES	U

Comments: Detections of the listed analytes in the investigative sample below the action level were qualified as undetected (U) due to blank contamination.

AR302470

Summary and Conclusions

Sample data required qualification as non-detect due to blank contamination for thallium, nickel and arsenic. Soil sample data required qualification as estimated for antimony, manganese and zinc due to spike recoveries outside of the 75-125% acceptance limit. Aluminum, chromium, lead, nickel and zinc soil sample data were qualified as estimated due to duplicate RPDs exceeding the 20% RPD/±CRDL acceptance limits. Soil sample data required qualification as estimated for nickel and potassium due to ICP serial dilution criterion exceedance. Water sample data required qualification as estimated for potassium and sodium due to ICP serial dilution criterion exceedance. Sample data are considered to be useable as qualified by the reviewer. With the exceptions noted in this report, accuracy and precision were satisfactory. Completeness defined as the percentage of useable results, including those values qualified as estimated, is 100%.

Validator's Signature: Cynthia H Jacovgeli.	
Validator's Initials: CHL	Validation Date: 2/2/95
QC Reviewer's Signature: Kristen Meier	
QC Reviewer's Initials: KM	Review Date: 2-6-95

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BSEA1

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): SOIL_ Lab Sample ID: 240299

Level (low/med): LOW__ Date Received: 11/04/94

% Solids: _72.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2700		* J	P
7440-36-0	Antimony	0.53	U	N J	P
7440-38-2	Arsenic	1.7	~~B~~	U	P
7440-39-3	Barium	16.8	B		P
7440-41-7	Beryllium	0.44	B		P
7440-43-9	Cadmium	0.42	B		P
7440-70-2	Calcium	1280	B		P
7440-47-3	Chromium	10.4		* J	P
7440-48-4	Cobalt	12.3	B		P
7440-50-8	Copper	12.7			P
7439-89-6	Iron	10300			P
7439-92-1	Lead	13.2		* J	P
7439-95-4	Magnesium	588	B		P
7439-96-5	Manganese	46.0		N J	P
7439-97-6	Mercury	0.05	B		CV
7440-02-0	Nickel	15.5		E* J	P
7440-09-7	Potassium	313	B	E J	P
7782-49-2	Selenium	0.79	U		P
7440-22-4	Silver	0.34	U		P
7440-23-5	Sodium	58.5	U		P
7440-28-0	Thallium	1.5	~~B~~	U	P
7440-62-2	Vanadium	18.5			P
7440-66-6	Zinc	73.6		N* J	P
	Cyanide	0.64	U		AS

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

Reviewed By CAR

Date 2/3/95

FORM I - IN ILM02.1

AR302472

000053

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BSEA2

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): SOIL_ Lab Sample ID: 240394

Level (low/med): LOW__ Date Received: 11/05/94

% Solids: _48.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7450		* J	P
7440-36-0	Antimony	1.2	B	N J	P
7440-38-2	Arsenic	3.9		U	P
7440-39-3	Barium	56.7	B		P
7440-41-7	Beryllium	1.0	B		P
7440-43-9	Cadmium	2.2			P
7440-70-2	Calcium	18200			P
7440-47-3	Chromium	28.0		* J	P
7440-48-4	Cobalt	24.7			P
7440-50-8	Copper	33.0			P
7439-89-6	Iron	18800			P
7439-92-1	Lead	51.1		* J	P
7439-95-4	Magnesium	6050			P
7439-96-5	Manganese	322		N J	P
7439-97-6	Mercury	0.11			CV
7440-02-0	Nickel	36.0		E* J	P
7440-09-7	Potassium	1120	B	E J	P
7782-49-2	Selenium	1.9			P
7440-22-4	Silver	0.40	U		P
7440-23-5	Sodium	69.1	U		P
7440-28-0	Thallium	0.75	U		P
7440-62-2	Vanadium	47.1			P
7440-66-6	Zinc	323		N* J	P
	Cyanide	0.78	U		AS

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

Date 2/3/95

FORM I - IN ILM02.1

AR302473

000054

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BSEA5

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): SOIL_ Lab Sample ID: 241146

Level (low/med): LOW__ Date Received: 11/14/94

% Solids: _78.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2690		* J	P
7440-36-0	Antimony	0.93	B	N J	P
7440-38-2	Arsenic	0.67	~~B~~	V	P
7440-39-3	Barium	41.6	B		P
7440-41-7	Beryllium	0.28	B		P
7440-43-9	Cadmium	0.46	B		P
7440-70-2	Calcium	30100			P
7440-47-3	Chromium	42.5		* J	P
7440-48-4	Cobalt	2.0	B		P
7440-50-8	Copper	33.3			P
7439-89-6	Iron	17600			P
7439-92-1	Lead	33.4		* J	P
7439-95-4	Magnesium	10200			P
7439-96-5	Manganese	736		N J	P
7439-97-6	Mercury	0.03	U		CV
7440-02-0	Nickel	21.5		E* J	P
7440-09-7	Potassium	269	B	E J	P
7782-49-2	Selenium	1.4			P
7440-22-4	Silver	0.30	U		P
7440-23-5	Sodium	74.4	B		P
7440-28-0	Thallium	0.55	U		P
7440-62-2	Vanadium	11.8			P
7440-66-6	Zinc	109		N* J	P
	Cyanide	0.69	U		AS

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR Artifacts: _____

Comments:

VALIDATED

Reviewed By CAR

Date 2/3/95

FORM I - IN ILM02.1

AR302474

000055

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

WSEA1

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): SOIL_ Lab Sample ID: 240304

Level (low/med): LOW__ Date Received: 11/04/94

% Solids: _73.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9000		* J	P
7440-36-0	Antimony	0.48	B	N J	P
7440-38-2	Arsenic	5.4			P
7440-39-3	Barium	62.8			P
7440-41-7	Beryllium	1.1			P
7440-43-9	Cadmium	0.58	B		P
7440-70-2	Calcium	1870			P
7440-47-3	Chromium	25.2		* J	P
7440-48-4	Cobalt	19.6			P
7440-50-8	Copper	45.1			P
7439-89-6	Iron	26000			P
7439-92-1	Lead	36.4		* J	P
7439-95-4	Magnesium	1020			P
7439-96-5	Manganese	134		N J	P
7439-97-6	Mercury	0.07	B		CV
7440-02-0	Nickel	26.4		E* J	P
7440-09-7	Potassium	746	B	E J	P
7782-49-2	Selenium	2.1			P
7440-22-4	Silver	0.25	U		P
7440-23-5	Sodium	43.0	U		P
7440-28-0	Thallium	1.7	~~B~~	U	P
7440-62-2	Vanadium	45.3			P
7440-66-6	Zinc	99.1		N* J	P
	Cyanide	0.65	U		AS

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

Reviewed By: CLR 2/3/95

Date:

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

WSEA2

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): SOIL_ Lab Sample ID: 240398

Level (low/med): LOW__ Date Received: 11/05/94

% Solids: _71.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6620		* J	P
7440-36-0	Antimony	0.77	B	N J	P
7440-38-2	Arsenic	2.7		U	P
7440-39-3	Barium	43.8			P
7440-41-7	Beryllium	2.5			P
7440-43-9	Cadmium	0.67	B		P
7440-70-2	Calcium	2960			P
7440-47-3	Chromium	33.4		* J	P
7440-48-4	Cobalt	16.4			P
7440-50-8	Copper	26.1			P
7439-89-6	Iron	40600			P
7439-92-1	Lead	36.5		* J	P
7439-95-4	Magnesium	1000			P
7439-96-5	Manganese	217		N J	P
7439-97-6	Mercury	0.04	U		CV
7440-02-0	Nickel	38.6		E* J	P
7440-09-7	Potassium	660	B	E J	P
7782-49-2	Selenium	2.6			P
7440-22-4	Silver	0.22	U		P
7440-23-5	Sodium	38.4	B		P
7440-28-0	Thallium	1.9		U	P
7440-62-2	Vanadium	51.8			P
7440-66-6	Zinc	118		N* J	P
	Cyanide	0.67	U		AS

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:
ROOTS_WERE_PRESENT.

VALIDATED

Reviewed By CLK 2/3/95

Date

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AR302476

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RBBS-1

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): WATER Lab Sample ID: 240300

Level (low/med): LOW__ Date Received: 11/04/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8.1	U		P
7440-36-0	Antimony	2.0	U		P
7440-38-2	Arsenic	1.5	U		P
7440-39-3	Barium	2.8	U		P
7440-41-7	Beryllium	0.08	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	68.9	U		P
7440-47-3	Chromium	0.89	U		P
7440-48-4	Cobalt	0.80	U		P
7440-50-8	Copper	0.89	U		P
7439-89-6	Iron	19.0	U		P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	72.4	U		P
7439-96-5	Manganese	0.30	U		P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	0.99	U		P
7440-09-7	Potassium	58.8	U	E J	P
7782-49-2	Selenium	3.0	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	221	U	E J	P
7440-28-0	Thallium	2.4	U		P
7440-62-2	Vanadium	1.3	U		P
7440-66-6	Zinc	1.3	B		P
	Cyanide	5.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

Reviewed By CAC 2/3/95

Date

FORM I - IN ILM02.1

AR302477

000056

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RBBS-2

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): WATER Lab Sample ID: 240395

Level (low/med): LOW__ Date Received: 11/05/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	8.0	U		P
7440-36-0	Antimony_	2.0	U		P
7440-38-2	Arsenic__	1.5	U		P
7440-39-3	Barium__	2.8	U		P
7440-41-7	Beryllium	0.08	U		P
7440-43-9	Cadmium__	0.30	U		P
7440-70-2	Calcium__	68.8	U		P
7440-47-3	Chromium_	0.89	U		P
7440-48-4	Cobalt___	0.79	U		P
7440-50-8	Copper___	0.89	U		P
7439-89-6	Iron____	19.0	U		P
7439-92-1	Lead____	1.3	U		P
7439-95-4	Magnesium	72.3	U		P
7439-96-5	Manganese	0.30	U		P
7439-97-6	Mercury__	0.07	U		CV
7440-02-0	Nickel___	0.99	U		P
7440-09-7	Potassium	58.7	U	E J	P
7782-49-2	Selenium_	3.0	U		P
7440-22-4	Silver___	1.3	U		P
7440-23-5	Sodium___	220	U	E J	P
7440-28-0	Thallium_	3.2	~~B~~	U	P
7440-62-2	Vanadium_	1.3	U		P
7440-66-6	Zinc____	1.8	B		P
	Cyanide__	5.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

CM 2/3/95

FORM I - IN ILM02.1

AR302478

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RBBS-3

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): WATER Lab Sample ID: 241147

Level (low/med): LOW__ Date Received: 11/14/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8.1	U		P
7440-36-0	Antimony	2.0	U		P
7440-38-2	Arsenic	1.5	U		P
7440-39-3	Barium	2.8	U		P
7440-41-7	Beryllium	0.08	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	69.2	U		P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	0.80	U		P
7440-50-8	Copper	0.91	B		P
7439-89-6	Iron	19.1	U		P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	72.7	U		P
7439-96-5	Manganese	0.30	U		P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	1.00	U		P
7440-09-7	Potassium	59.0	U	E J	P
7782-49-2	Selenium	3.0	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	221	U	E J	P
7440-28-0	Thallium	4.0	~~B~~	V	P
7440-62-2	Vanadium	1.3	U		P
7440-66-6	Zinc	1.3	B		P
	Cyanide	5.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

Reviewed By cac

Date 2/5/95

FORM I - IN ILM02.1

AR302479 000058

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SWEA1

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): WATER Lab Sample ID: 240301

Level (low/med): LOW__ Date Received: 11/04/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	57.1	B		P
7440-36-0	Antimony	2.0	U		P
7440-38-2	Arsenic	1.5	U		P
7440-39-3	Barium	50.6	B		P
7440-41-7	Beryllium	0.08	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	68000			P
7440-47-3	Chromium	0.89	U		P
7440-48-4	Cobalt	1.5	B		P
7440-50-8	Copper	4.8	B		P
7439-89-6	Iron	83.7	B		P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	14100			P
7439-96-5	Manganese	10.4	B		P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	3.2	~~B~~	U	P
7440-09-7	Potassium	5400		E J	P
7782-49-2	Selenium	3.0	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	15900		E J	P
7440-28-0	Thallium	2.6	~~B~~	U	P
7440-62-2	Vanadium	1.6	B		P
7440-66-6	Zinc	30.1			P
	Cyanide	5.0	U		AS

Color Before: BROWN____ Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: YES___

Comments:
GRASS_WAS_PRESENT.

VALIDATED

Reviewed By 2/3/95

Date

FORM I - IN ILM02.1

AR302480

000059

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SWEA10

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): WATER Lab Sample ID: 241149

Level (low/med): LOW__ Date Received: 11/14/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	22.3	B		P
7440-36-0	Antimony	2.0	U		P
7440-38-2	Arsenic	1.5	U		P
7440-39-3	Barium	40.5	B		P
7440-41-7	Beryllium	0.08	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	65300			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	1.4	B		P
7440-50-8	Copper	6.4	B		P
7439-89-6	Iron	440			P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	12800			P
7439-96-5	Manganese	254			P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	11.9	~~B~~	U	P
7440-09-7	Potassium	7600		E J	P
7782-49-2	Selenium	3.0	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	34800		E J	P
7440-28-0	Thallium	2.1	U		P
7440-62-2	Vanadium	1.3	U		P
7440-66-6	Zinc	66.6			P
	Cyanide	5.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

Reviewed By 2/3/95

Date

FORM I - IN ILM02.1

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SWEA11

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): WATER Lab Sample ID: 240302

Level (low/med): LOW__ Date Received: 11/04/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	129	B		P
7440-36-0	Antimony_	2.0	U		P
7440-38-2	Arsenic__	1.5	U		P
7440-39-3	Barium___	33.5	B		P
7440-41-7	Beryllium	0.08	U		P
7440-43-9	Cadmium__	0.30	U		P
7440-70-2	Calcium__	47000			P
7440-47-3	Chromium_	0.90	U		P
7440-48-4	Cobalt___	0.80	U		P
7440-50-8	Copper___	14.8	B		P
7439-89-6	Iron____	808			P
7439-92-1	Lead____	4.2			P
7439-95-4	Magnesium	10100			P
7439-96-5	Manganese	63.1			P
7439-97-6	Mercury__	0.07	U		CV
7440-02-0	Nickel___	1.6	~~B~~	U	P
7440-09-7	Potassium	5260		E J	P
7782-49-2	Selenium_	4.3	B		P
7440-22-4	Silver___	1.3	U		P
7440-23-5	Sodium___	39200		E J	P
7440-28-0	Thallium_	2.6	~~B~~	U	P
7440-62-2	Vanadium_	1.3	U		P
7440-66-6	Zinc____	107			P
	Cyanide__	5.0	U		AS

Color Before: BROWN____ Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

Reviewed By 2/3/95

Date

FORM I - IN ILM02.1

AR302482

000061

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SWEA2

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): WATER Lab Sample ID: 240396

Level (low/med): LOW__ Date Received: 11/05/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	92.9	B		P
7440-36-0	Antimony	2.0	U		P
7440-38-2	Arsenic	1.5	U		P
7440-39-3	Barium	45.7	B		P
7440-41-7	Beryllium	0.08	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	72000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	0.80	U		P
7440-50-8	Copper	6.4	B		P
7439-89-6	Iron	112			P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	11100			P
7439-96-5	Manganese	9.4	B		P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	4.8	~~B~~	U	P
7440-09-7	Potassium	7320		E J	P
7782-49-2	Selenium	3.0	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	13200		E J	P
7440-28-0	Thallium	3.4	~~B~~	U	P
7440-62-2	Vanadium	2.8	B		P
7440-66-6	Zinc	35.7			P
	Cyanide	5.0	U		AS

Color Before: YELLOW___ Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

Reviewed By ar

Date 2/3/95

FORM I - IN ILM02.1

AR302483

000062

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SWEA5

Lab Name: ITS_AQUATEC_LABORATORIES_ Contract: 94239_____

Lab Code: AQUAI_ Case No.: 94239_ SAS No.: _____ SDG No.: 47744_

Matrix (soil/water): WATER Lab Sample ID: 241148

Level (low/med): LOW__ Date Received: 11/14/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	790			P
7440-36-0	Antimony	3.6	B		P
7440-38-2	Arsenic	1.5	U		P
7440-39-3	Barium	59.4	B		P
7440-41-7	Beryllium	0.08	U		P
7440-43-9	Cadmium	0.31	B		P
7440-70-2	Calcium	118000			P
7440-47-3	Chromium	7.8	B		P
7440-48-4	Cobalt	7.1	B		P
7440-50-8	Copper	42.3			P
7439-89-6	Iron	3910			P
7439-92-1	Lead	22.2			P
7439-95-4	Magnesium	18200			P
7439-96-5	Manganese	715			P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	94.6			P
7440-09-7	Potassium	7540		E J	P
7782-49-2	Selenium	16.4			P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	44600		E J	P
7440-28-0	Thallium	2.4	U		P
7440-62-2	Vanadium	2.8	B		P
7440-66-6	Zinc	176			P
	Cyanide	5.0	U		AS

Color Before: GRAY_____ Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

By CHC 2/3/95

Date

FORM I - IN ILM02.1

AR302484

000063

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
General Chemistry Analyses

Case Number: 94239, SDG # 47430	Project Number: 27654, 3.4.2.2
Site: Kane and Lombard	
Contractor Laboratory: Aquatec, Inc. Inchcape Testing Services	
Validator: J. Whittle	Validation Date: 12/27/94
QC Reviewer: Michael W. Shillger	Review Date: 1/20/95
Sample Matrix: Soil/Sediment (11), Surface Water (3), Water QC (2)	
Analytical Methods: TOC, Alkalinity, BOD_5, COD, Hardness, pH, TDS, TSS, Specific gravity/grain size, Redox Potential	

Sample Designations:

BSEA4	W10EA7	SWEA4	BFB
BSEA9	BSEA8	SWEA8	RBBS
WSEA4	S10EA8	W10EA8	
BEA3	WSEA8		
BEA7			
B10EA3			
WEA7			

Data for the above samples are:

MPP 1-20-95 ___X___ Acceptable for use
___X___ Acceptable for use as qualified
_____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments: Data were evaluated using the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," (February 1994).

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
X Chain of Custody Forms
X Cover Page
X Holding Times
* Analysis Data Sheets
X Initial Calibration Summary
X Continuing Calibration Summary
* Calibration and Preparation Blank Summary
X Matrix Spike Summary
X Duplicate Sample Summary
X Laboratory Control Sample Summary
X Method Detection Limits Summary
X Sample Preparation Log Summary
X Sample Analysis Run Log Summary

Sample Raw Data

X Quantitation Reports
X Sample Chromatograms
X Laboratory Bench Sheets
X Standard Preparation Logs

Comments:

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

None

Holding Times

Were all sample preparations and analyses performed within holding times?

Yes No

Comments:

None

Instrument Calibration

Were all instruments calibrated daily and each time that sample analyses were performed?

Yes No

Were the instruments calibrated using the minimum required numbers of blanks and standards?

Yes No

For the applicable methods did the correlation coefficients meet the minimum requirement of 0.995?

Yes No

Was a midrange standard distilled and analyzed for cyanide analyses?

Yes No

Comments:

None

Initial and Continuing Calibration Verification

Were the calibration standards and blanks analyzed at the required frequencies?

Yes No

Were the standard recoveries within QC limits?

Yes No

Comments:

None

Matrix Spike

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this SDG?

(Yes) No

Were field or rinse blanks used for the spike analysis sample?

Yes (No)

Were the matrix spike recoveries within acceptance criteria?

(Yes) No

Comments:

None

Blank Analyses

Were preparation and calibration blank analyses performed at the required frequency?

(Yes) No

If analytes were reported in the blanks, were the same analytes also reported for the associated investigative samples?

(Yes) No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes (No)

Comments: Blank contamination was noted for TDS and TSS, but sample quantities were greater than 5 times the blanks, so qualification is unnecessary.

Duplicate Sample Results

Were duplicate sample analyses performed at the required frequency?

(Yes) No

Did the duplicate sample results meet acceptance criteria?

(Yes) No

Comments:

None

Laboratory Control Sample

Were laboratory control sample analyses performed at the required frequency?

(Yes) No

Were laboratory control sample recovery results acceptable?

(Yes) No

Comments:

None

Log Books

Were all sample preparations properly documented and performed in accordance with method protocols?

(Yes) No

Were all sample analyses properly documented and performed in accordance with method protocols?

(Yes) No

Comments:

None

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were the quantitated results for target analytes calculated and reported correctly?

Yes No NA

For the applicable methods, were peak integrations performed correctly?

Yes No NA

Were detection limits provided for the reported target analytes, and if so, were they current and acceptable?

Yes No

Comments: Bicarbonate alkalinity was incorrectly reported on the analytical report as <1 for sample SWEA4. The value was corrected to 96mg/l from the raw data. Results for Total Hardness should also be moved down in the sequence, so as not to be associated with Alkalinity in sample SWEA4.

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Preparation Holding Time	Analysis Holding Time	Qualifier
(All analysis holding times were met)							

Comments:

AR302492

CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%R	Corr. Coef.	Samples Affected	Qualifier
(All calibration criteria were met)						

Comments:

AR300463

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples	Qualifier (+/-)
Blank 23	TDS	33 mg/l	165 mg/l	SWEA4	u/-
Blank 2	TDS	5 mg/l	25 mg/l	SWEA8, W10EA8	u/-
Blank 1	TSS	0.2 mg/l	1.0 mg/l	SWEA4	u/-
Blank 15	TSS	0.1 mg/l	0.5 mg/l	SWEA8, W10EA8	u/-

Comments:

AR302494

Summary and Conclusions

All necessary supporting materials were present for a full validation of the general chemistry analyses, and all holding times were met. Calculation checks and raw data review did not show any quantitation errors. However, bicarbonate alkalinity was incorrectly noted on the analytical report as <1 for sample SWEA4, and total hardness was incorrectly associated with alkalinity. Bicarbonate alkalinity was corrected to 96 mg/l from the raw data, and total hardness data was moved to the bottom of the reporting sequence for sample SWEA4.

All required QC checks and standards were performed, and were within acceptable limits. No qualification of the analytical results was necessary.

Validator's Signature:	Joyce E. Whittle		
Validator's Initials:	JW	Validation Date:	12/29/94
QC Reviewer's Signature:	Michael P. Phillips		
QC Reviewer's Initials	MPP	Review Date:	1/20/95

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 11/16/94
ETR Number : 47692
Project No.: 94239
No. Samples: 13
Arrived : 11/03/94

Attention : Jason Schindler

Case:94239 SDG:47430

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter		Result
240145	SWEA8:11/02/94 (Water)		
	415.1	Organic Carbon, Total	17.4
	405.1	BOD5	11
	410.1	Chemical Oxygen Demand	120
	160.2	Total Suspended Solids	246
	160.1	Total Dissolved Solids	354
	310.1	Alkalinity (as CaCO3)	81
	QSIA	- Hydroxide Alkalinity	<1
	QSIA	- Carbonate Alkalinity	<1
	QSIA	- Bicarbonate Alkalinity	81
	130.2	Total Hardness as CaCO3	148
240145MS	SWEA8MS:[MS]11/02/94 (Water)		
	415.1	Organic Carbon, Total	28.5
	405.1	BOD5	250
	410.1	Chemical Oxygen Demand	192
240145DP	SWEA8REP:[REP]11/02/94 (Water)		
	415.1	Organic Carbon, Total	17.9
	405.1	BOD5	11
	410.1	Chemical Oxygen Demand	123
	160.2	Total Suspended Solids	249
	160.1	Total Dissolved Solids	355
	310.1	Alkalinity (as CaCO3)	78
	QSIA	- Hydroxide Alkalinity	<1
	QSIA	- Carbonate Alkalinity	<1
	QSIA	- Bicarbonate Alkalinity	78
	130.2	Total Hardness as CaCO3	148

AR302496

VALIDATED

Reviewed By Joyce E. Whittle
Date 12/29/94

< Cont. Next Page >

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Aquatec Laboratories

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55 South Park Drive
Colchester, VT 05446

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New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 11/16/94
ETR Number : 47692
Project No.: 94239
No. Samples: 13
Arrived : 11/03/94

Attention : Jason Schindler

Case:94239 SDG:47430

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
240146	W10EA8:11/02/94 (Water)	
415.1	Organic Carbon, Total	17.8
405.1	BOD5	<10
410.1	Chemical Oxygen Demand	131
160.2	Total Suspended Solids	246
160.1	Total Dissolved Solids	346
310.1	Alkalinity (as CaCO3)	77
QSIA	- Hydroxide Alkalinity	<1
QSIA	- Carbonate Alkalinity	<1
QSIA	- Bicarbonate Alkalinity	77
130.2	Total Hardness as CaCO3	154
240147	WSEA8:11/02/94 (Soil)	
IN623	Solids, Total	78.6 c
9045	Soil pH (std. units)	7.72 j
IN847	TOC by Lloyd Kahn	0.50 h

VALIDATED
Reviewed By Joyce S. Whitel
Date 12/29/94

Comments/Notes

c = %W/W as received
j = pH measured on the slurry of 1 part sample to 1 part DI water.
h = % W/W dry

< Last Page > Submitted By : Karen R. Chrigin Aquatec Inc.

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

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South Burlington, VT 05403

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New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 11/16/94
ETR Number : 47430
Project No.: 94239
No. Samples: 7
Arrived : 10/21/94

Attention : Jason Schindler

Page 1

Case:94239 SDG:47430 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
238829	BSEA4:10/20/94 (Soil)	
IN623	Solids, Total	78.0 c
QSOA	Redox Potential/Sediments	-20mV
IN847	TOC by Lloyd Kahn	1.13 h
238830	BSEA9:10/20/94 (Soil)	
IN623	Solids, Total	93.9 c
QSOA	Redox Potential/Sediments	-20mV
IN847	TOC by Lloyd Kahn	4.6 h
238832	SWEA4:10/20/94 (Water)	
415.1	Organic Carbon, Total	7.4
405.1	BOD5	7.0
410.1	Chemical Oxygen Demand	25
160.2	Total Suspended Solids	11.1
160.1	Total Dissolved Solids	308
310.1	Alkalinity (as CaCO3)	96
130.2	Total Hardness as CaCO3	168
QSIA	- Hydroxide Alkalinity	<1
QSIA	- Carbonate Alkalinity	<1
QSIA	- Bicarbonate Alkalinity	96 ~~<1~~
238833	WSEA4:10/20/94 (Soil)	
IN623	Solids, Total	91.7 c
9045	Soil pH (std. units)	8.18 j

Comments/Notes

c = %W/W as received
h = % W/W dry
j = pH measured on the slurry of 1 part sample to 1 part DI water.

< Cont. Next Page >

VALIDATED
Reviewed By Joyce E. Whittle
Date 12/29/94

Inchcape Testing Services
Aquatec Laboratories

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150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 11/16/94
ETR Number : 47430
Project No.: 94239
No. Samples: 7
Arrived : 10/21/94

Attention : Jason Schindler

Case:94239 SDG:47430 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
238833	WSEA4:10/20/94 (Soil)	
QSOA	Redox Potential/Sediments	20mV
IN847	TOC by Lloyd Kahn	1.37 h

VALIDATED
Reviewed By Joyce E. Whittle
Date 12/29/94

Comments/Notes

h = % W/W dry

< Last Page > Submitted By : Karen R. Chrisman Aquatec Inc.

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
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Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 11/16/94
ETR Number : 47448
Project No.: 94239
No. Samples: 10
Arrived : 10/22/94

Attention : Jason Schindler

Case:94239 SDG:47430 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter		Result
238909	BEA3:10/21/94 (Soil)		
	IN623	Solids, Total	58.1 c
	QSOA	Redox Potential/Sediments	20mV
	IN847	TOC by Lloyd Kahn	7.2 h
238910	BEA7:10/21/94 (Soil)		
	IN623	Solids, Total	55.0 c
	QSOA	Redox Potential/Sediments	-20mV
	IN847	TOC by Lloyd Kahn	8.4 h
238911	B10EA3:10/21/94 (Soil)		
	IN623	Solids, Total	60.9 c
	QSOA	Redox Potential/Sediments	20mV
	IN847	TOC by Lloyd Kahn	6.4 h
238912	BFB:10/21/94 (Water)		
	415.1	Organic Carbon, Total	<0.5
238914	WEA7:10/21/94 (Soil)		
	IN623	Solids, Total	56.0 c
	9045	Soil pH (std. units)	8.16 j
	QSOA	Redox Potential/Sediments	-30mV
	IN847	TOC by Lloyd Kahn	8.2 h

Comments/Notes

c = %W/W as received
h = % W/W dry
j = pH measured on the slurry of 1 part sample to 1 part DI water

VALIDATED

Reviewed By Joyce E. Whittle
Date 12/29/94

< Cont. Next Page >

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
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Colchester, VT 05446

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150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 11/16/94
ETR Number : 47448
Project No.: 94239
No. Samples: 10
Arrived : 10/22/94

Attention : Jason Schindler

Case:94239 SDG:47430 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
238914MS	WEA7MS:[MS]10/21/94 (Soil)	
IN623	Solids, Total	56.0 c
IN847	TOC by Lloyd Kahn	10.0 h
238914MD	WEA7MSD:[MSD]10/21/94 (Soil)	
IN623	Solids, Total	56.0 c
238914DP	WEA7REP:[REP]10/21/94 (Soil)	
IN623	Solids, Total	58.3 c
9045	Soil pH (std. units)	8.18 j
QSOA	Redox Potential/Sediments	-30mV
IN847	TOC by Lloyd Kahn	7.0 h
238915	W10EA7:10/21/94 (Soil)	
IN623	Solids, Total	58.5 c
9045	Soil pH (std. units)	8.18 j
QSOA	Redox Potential/Sediments	-30mV
IN847	TOC by Lloyd Kahn	7.3 h

VALIDATED

Comments/Notes

Reviewed By Joyce E. Wittel
Date 12/29/94

c = %W/W as received
h = % W/W dry
j = pH measured on the slurry of 1 part sample to 1 part DI water.

< Last Page > Submitted By : Karen R. Chrisman Aquatec Inc.

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 11/16/94
ETR Number : 47692
Project No.: 94239
No. Samples: 13
Arrived : 11/03/94

Attention : Jason Schindler

Case:94239 SDG:47430

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/	Parameter	Result
240142	BSEA8:11/02/94 (Soil)		
	IN623	Solids, Total	56.5 c
	IN847	TOC by Lloyd Kahn	9.8 h
240142MS	BSEA8MS:[MS]11/02/94 (Soil)		
	IN623	Solids, Total	56.5 c
	IN847	TOC by Lloyd Kahn	14.7 h
240142MD	BSEA8MSD:[MSD]11/02/94 (Soil)		
	IN623	Solids, Total	56.5 c
240142DP	BSEA8REP:[REP]11/02/94 (Soil)		
	IN623	Solids, Total	62.1 c
	IN847	TOC by Lloyd Kahn	11.3 h
240143	S10EA8:11/02/94 (Soil)		
	IN623	Solids, Total	61.0 c
	IN847	TOC by Lloyd Kahn	7.9 h
240144	RBBS:11/02/94 (Water)		
	415.1	Organic Carbon, Total	<0.5
	9040	pH (std. units)	8.72

Comments/Notes

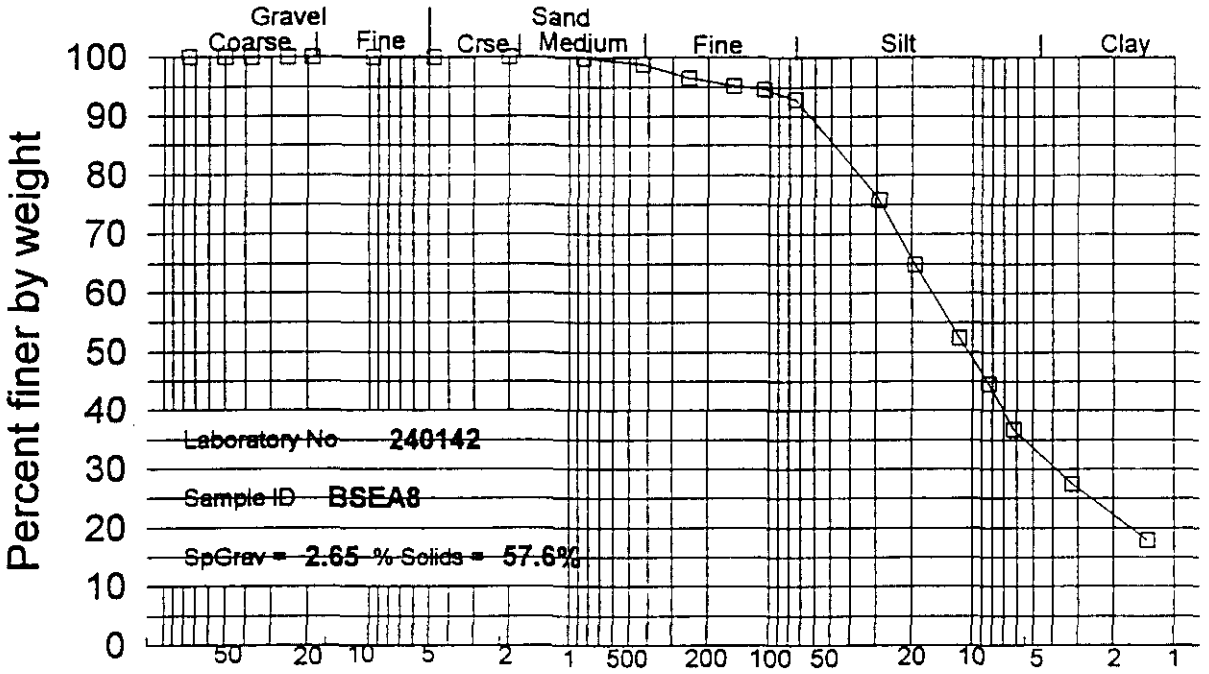
c = %W/W as received
h = % W/W dry

< Cont. Next Page >

VALIDATED
Reviewed By Joyce S. Whittle
Date 12/29/94

AR302562

Inchcape ASTM D422 Particle Size Analysis **Sample ID** BSEA8



Particle Size, millimeters (mm) and microns (um)

VALIDATED
Reviewed By Joyce L. Whittle
Date

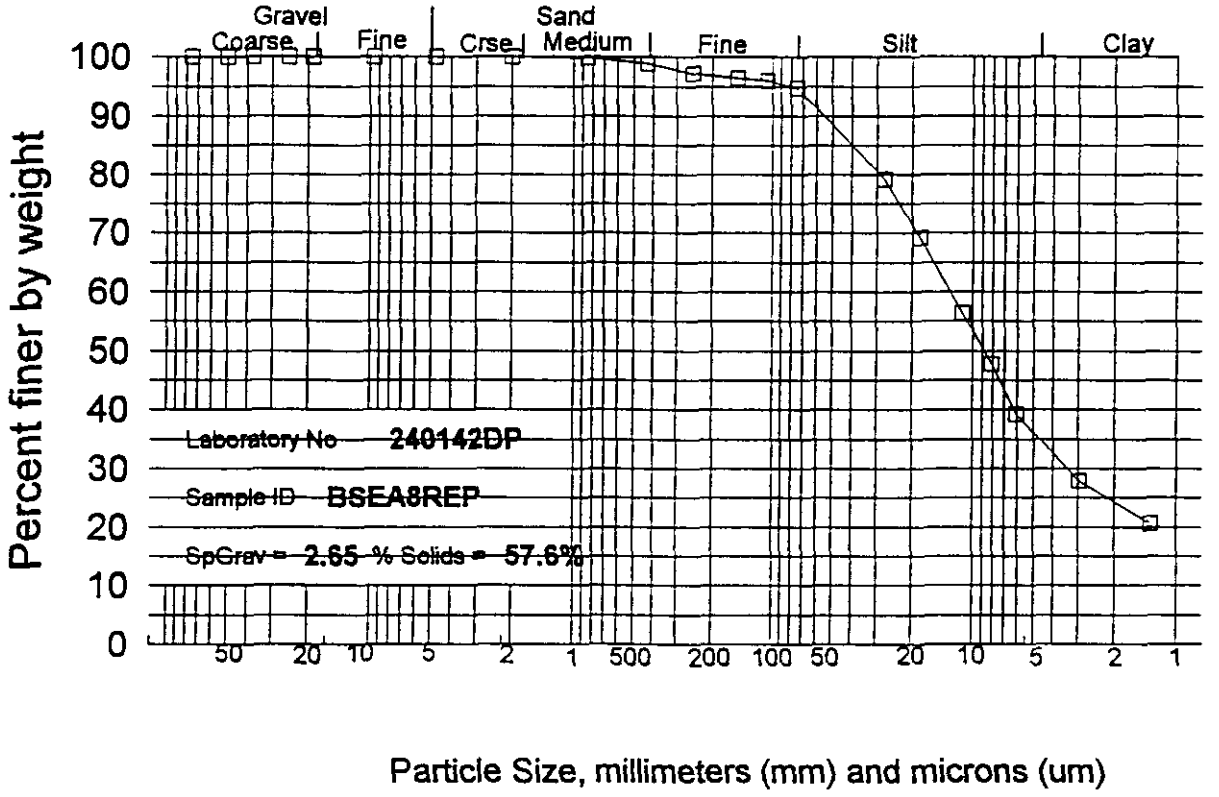
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	100.0	0.0	
#40	425.0	98.8	1.2	
#60	250.0	96.5	2.3	
#80	150.0	95.1	1.4	
#100	106.0	94.7	0.4	
#200	75.0	92.9	1.8	
Hydrometer	29.0	75.8	17.1	Dispersion of soil
|	19.2	64.8	10.9	for hydrometer test
|	11.7	52.3	12.5	by mechanical mixer
|	8.4	44.5	7.8	with metal paddle
|	6.2	36.7	7.8	operated for five
|	3.2	27.5	9.2	minute within a
|	1.3	17.9	9.6	dispersion cup.

Printed by 10:39 on 21-Nov-94

Set 89
Lab No. 240142

AR302503

Inchcape ASTM D422 Particle Size Analysis **Sample ID** BSEA8REP



VALIDATED
Reviewed By Grace E. Wheeler
Date 12/29/94

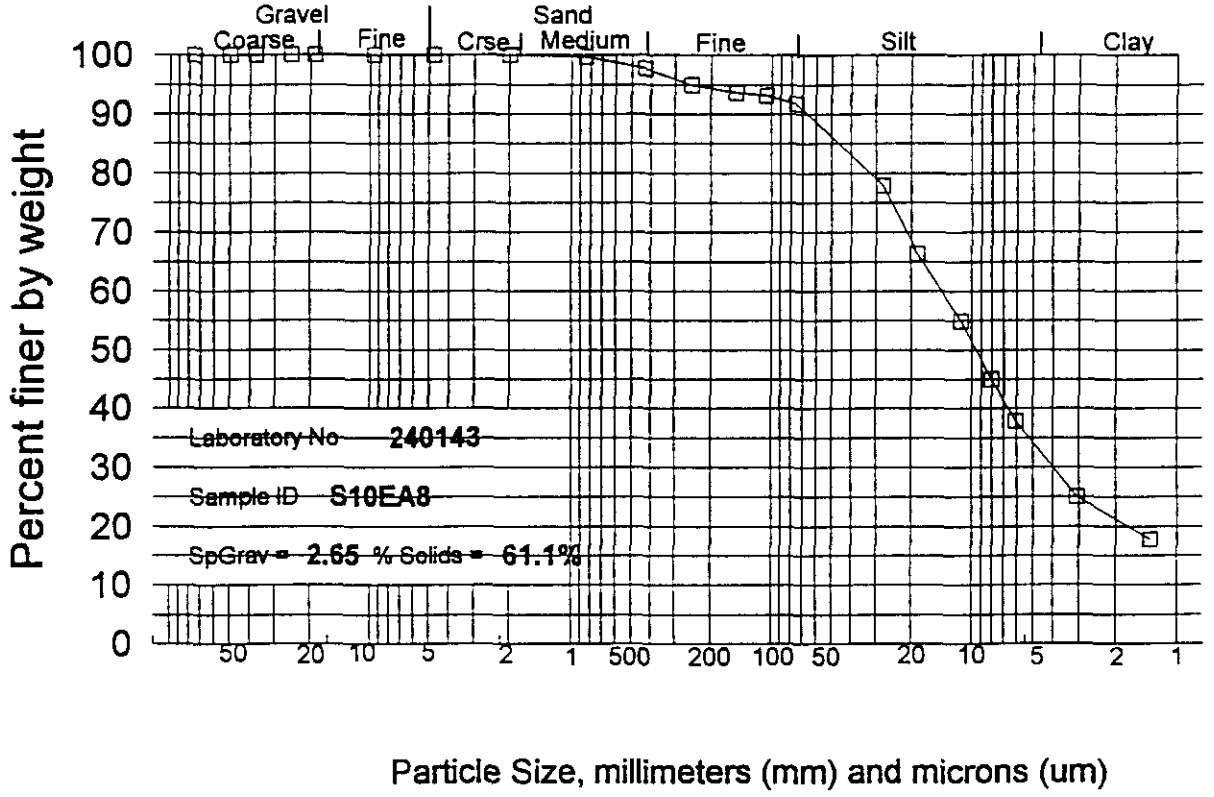
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	99.8	0.2	
#40	425.0	98.9	0.9	
#60	250.0	97.2	1.7	
#80	150.0	96.3	0.9	
#100	106.0	96.0	0.4	
#200	75.0	94.7	1.2	
Hydrometer	27.4	79.1	15.6	Dispersion of soil
|	18.3	69.2	10.0	for hydrometer test
|	11.2	56.3	12.8	by mechanical mixer
|	8.1	47.8	8.6	with metal paddle
|	6.1	39.3	8.5	operated for five
|	3.0	28.0	11.3	minute within a
|	1.3	20.7	7.3	dispersion cup.

Printed by [signature] 10:40 on 21-Nov-94

Set 89
Lab No. 240142DP

AR302504

Inchcape ASTM D422 Particle Size Analysis Sample ID S10EA8



VALIDATED
Reviewed By Joyce E. Whittle
Date 12/29/94

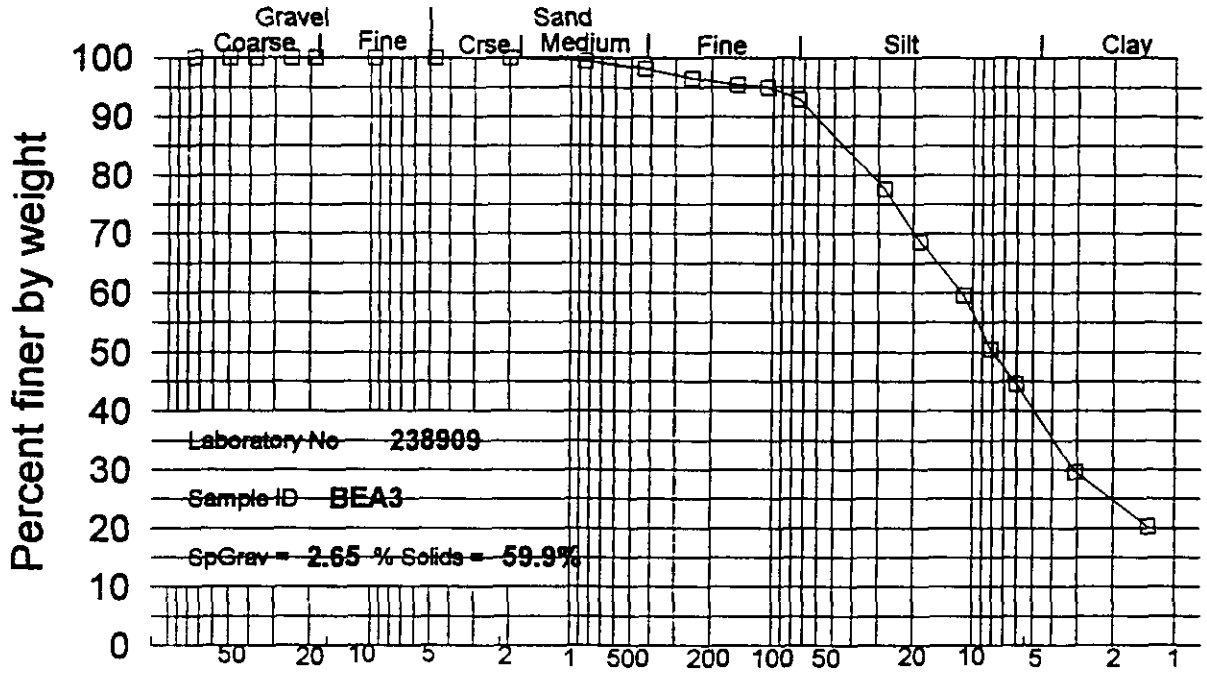
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	99.7	0.3	
#40	425.0	97.8	1.9	
#60	250.0	94.9	2.8	
#80	150.0	93.6	1.3	
#100	106.0	93.2	0.4	
#200	75.0	91.7	1.5	
Hydrometer	27.7	77.8	13.9	Dispersion of soil
|	18.6	66.4	11.4	for hydrometer test
|	11.3	55.0	11.4	by mechanical mixer
|	8.1	45.0	10.0	with metal paddle
|	6.1	37.8	7.1	operated for five
|	3.1	25.0	12.8	minute within a
|	1.3	17.8	7.2	dispersion cup.

Printed by 10:41 on 21-Nov-94

Set 89
Lab No. 240143

AR302505

Inchcape ASTM D422 Particle Size Analysis **Sample ID** BEA3



Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	99.5	0.5	
#40	425.0	98.1	1.4	
#60	250.0	96.5	1.6	
#80	150.0	95.4	1.0	
#100	106.0	94.9	0.5	
#200	75.0	93.0	1.9	
Hydrometer	28.1	77.6	15.4	Dispersion of soil
	18.6	68.6	9.0	for hydrometer test
	11.2	59.6	9.0	by mechanical mixer
	8.2	50.6	9.0	with metal paddle
	6.1	44.5	6.0	operated for five
	3.1	29.6	15.0	minute within a
	1.3	20.4	9.2	dispersion cup.

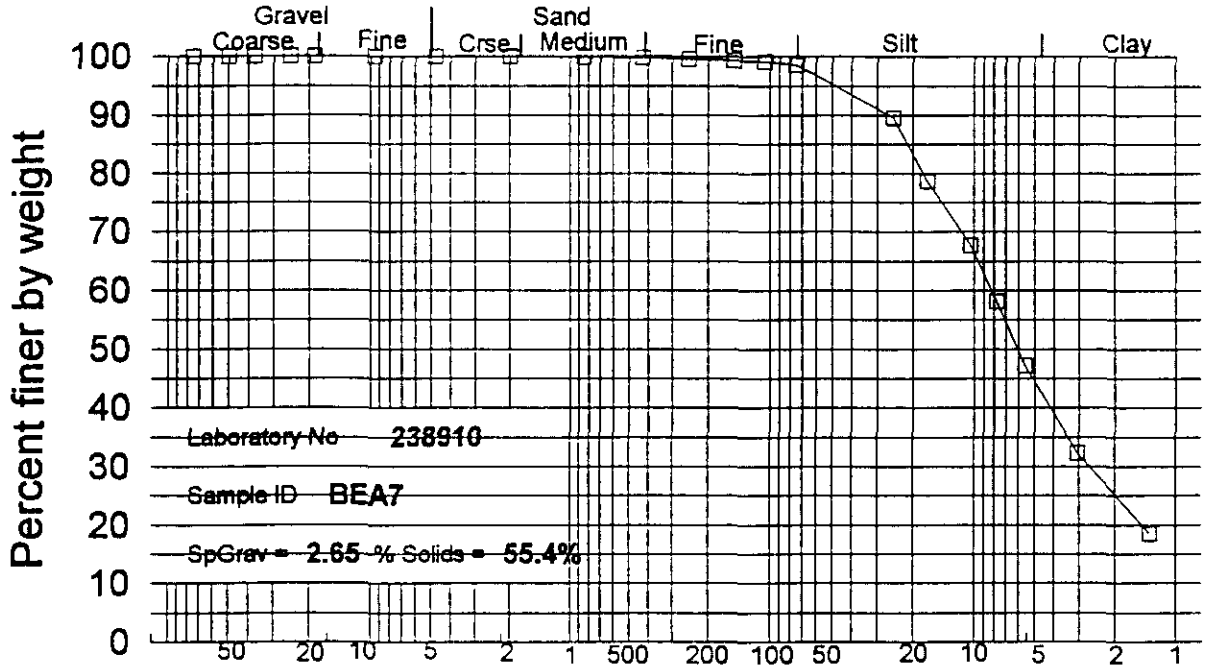
VALIDATED
Reviewed By Joyce E. Whitt
Date 12/29/94

Printed by [signature] 09:39 on 07-Nov-94

Set 76
Lab No. 238909

AR302506

Inchcape ASTM D422 Particle Size Analysis **Sample ID** BEA7



VALIDATED
Reviewed By Joyce L. Whitlock
Date 12/29/94

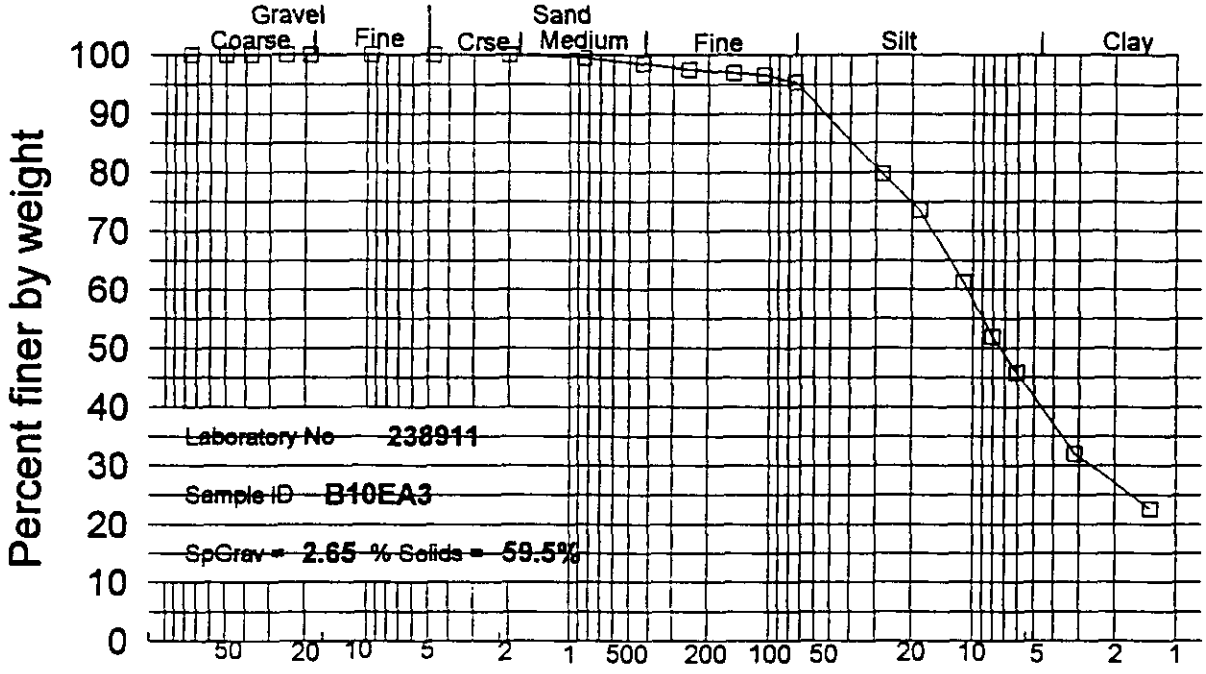
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	100.0	0.0	
#40	425.0	99.8	0.2	
#60	250.0	99.5	0.3	
#80	150.0	99.4	0.2	
#100	106.0	99.2	0.2	
#200	75.0	98.6	0.6	
Hydrometer	24.9	89.5	9.1	Dispersion of soil
|	16.9	78.6	10.9	for hydrometer test
|	10.4	67.7	10.9	by mechanical mixer
|	7.7	58.1	9.6	with metal paddle
|	5.6	47.2	10.9	operated for five
|	3.0	32.3	14.9	minute within a
|	1.3	18.5	13.8	dispersion cup.

Printed by [signature] 09:40 on 07-Nov-94

Set 76
Lab No. 238910

AR302507

Inchcape ASTM D422 Particle Size Analysis **Sample ID** B10EA3



VALIDATED
Reviewed By Joyce S. Whittle
Date 12/29/94

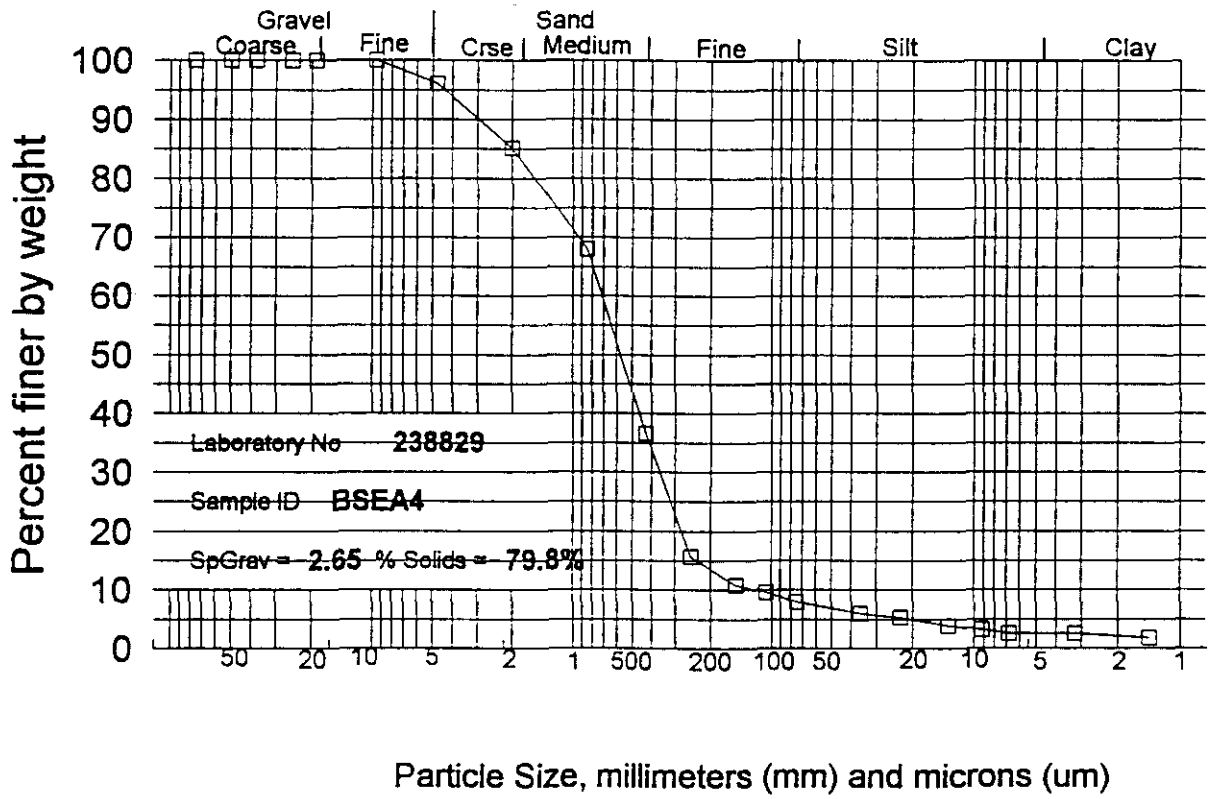
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	99.5	0.5	
#40	425.0	98.5	1.0	
#60	250.0	97.5	1.0	
#80	150.0	97.0	0.5	
#100	106.0	96.6	0.4	
#200	75.0	95.3	1.3	
Hydrometer	28.1	79.8	15.5	Dispersion of soil
|	18.3	73.6	6.2	for hydrometer test
|	11.2	61.2	12.4	by mechanical mixer
|	8.1	52.0	9.3	with metal paddle
|	6.1	45.8	6.2	operated for five
|	3.1	32.0	13.8	minute within a
|	1.3	22.6	9.3	dispersion cup.

Printed by [signature] 09:41 on 07-Nov-94

Set 76
Lab No. 238911

AR302508

Inchcape ASTM D422 Particle Size Analysis Sample ID BSEA4



VALIDATED
Reviewed By
Date 12/29/94

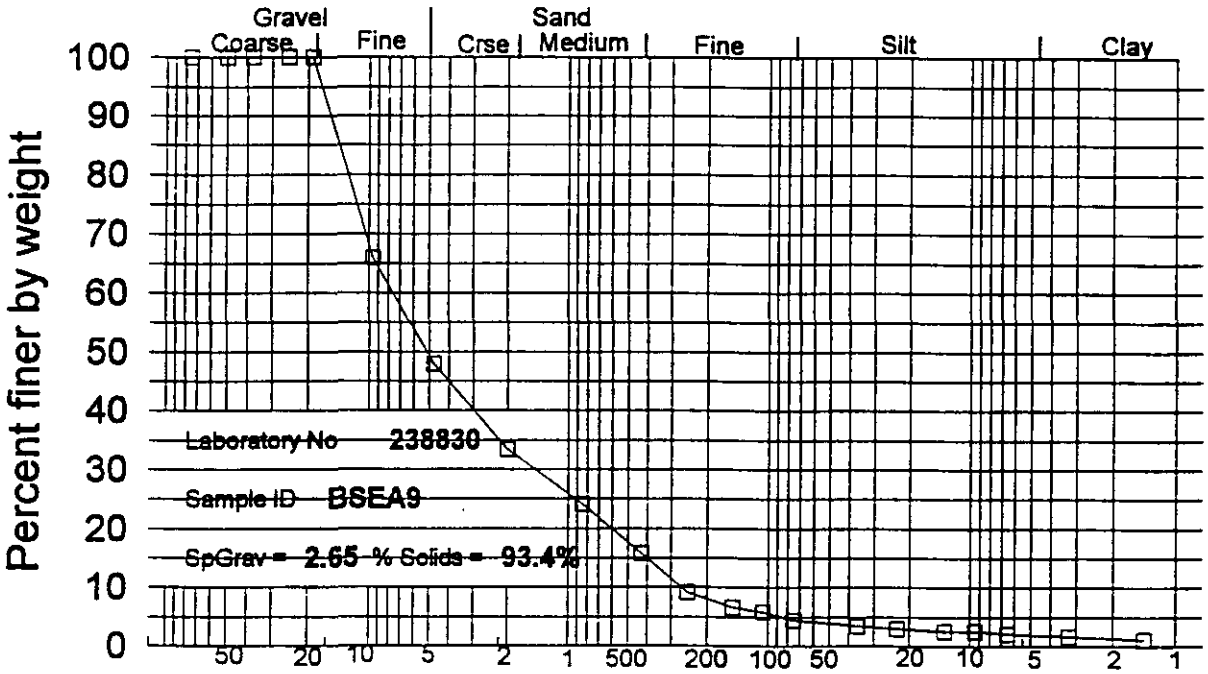
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	96.0	4.0	
#10	2.00	85.1	10.9	
#20	850.0 um	68.1	17.0	
#40	425.0	36.6	31.5	
#60	250.0	15.7	20.9	
#80	150.0	10.9	4.9	
#100	106.0	9.7	1.2	
#200	75.0	8.0	1.7	
Hydrometer	36.2	6.0	2.0	Dispersion of soil
|	23.0	5.3	0.7	for hydrometer test
|	13.4	3.9	1.4	by mechanical mixer
|	9.2	3.2	0.7	with metal paddle
|	6.8	2.5	0.7	operated for five
|	3.2	2.5	-0.0	minute within a
|	1.4	1.7	0.8	dispersion cup.

Printed by 22:20 on 09-Nov-94

Set 76
Lab No. 238829

AR302509

Inchcape ASTM D422 Particle Size Analysis **Sample ID** **BSEA9**



Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	66.0	34.0	
#4	4.75	48.0	18.0	
#10	2.00	33.4	14.6	
#20	850.0 um	24.1	9.3	
#40	425.0	15.8	8.4	
#60	250.0	9.1	6.6	
#80	150.0	6.6	2.5	
#100	106.0	5.9	0.7	
#200	75.0	4.4	1.4	
Hydrometer	36.3	3.5	1.0	Dispersion of soil
|	23.1	3.0	0.5	for hydrometer test
|	13.4	2.5	0.5	by mechanical mixer
|	9.5	2.5	0.0	with metal paddle
|	6.6	2.1	0.4	operated for five
|	3.3	1.7	0.4	minute within a
|	1.4	1.1	0.5	dispersion cup.

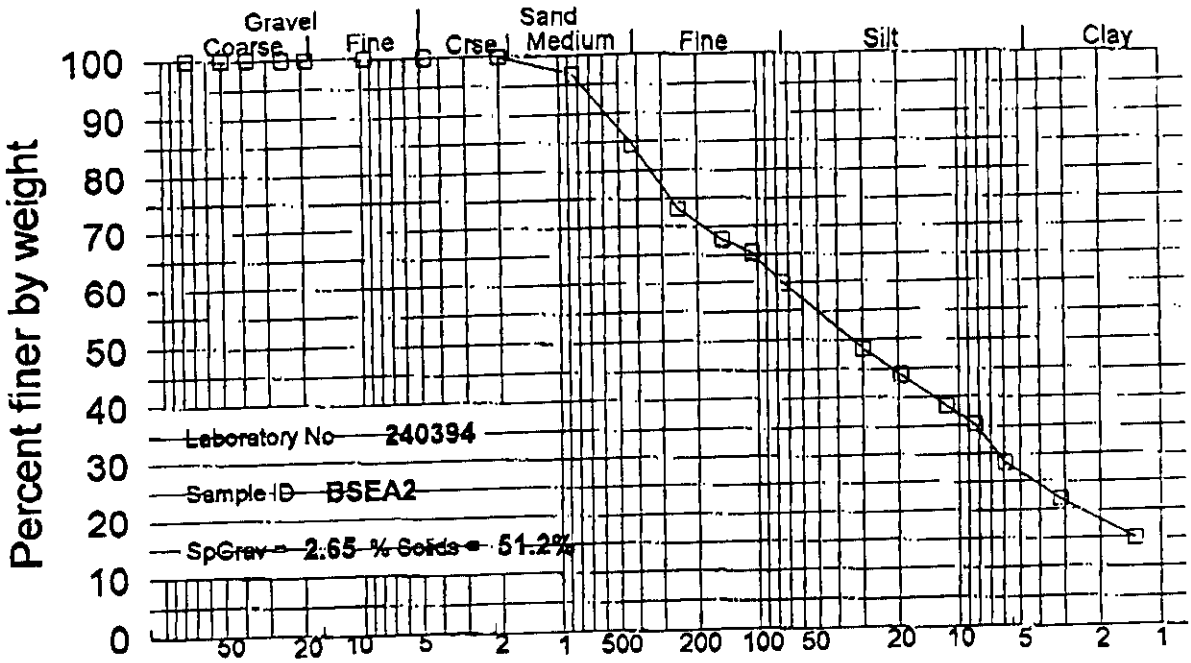
VALIDATED
Reviewed By Joyce R. Whittle
Date 12/29/94

Printed by 09:36 on 07-Nov-94

Set 76
Lab No. 238830

AR302510

Inchcape ASTM D422 Particle Size Analysis Sample ID BSEA2



Particle Size, millimeters (mm) and microns (um)

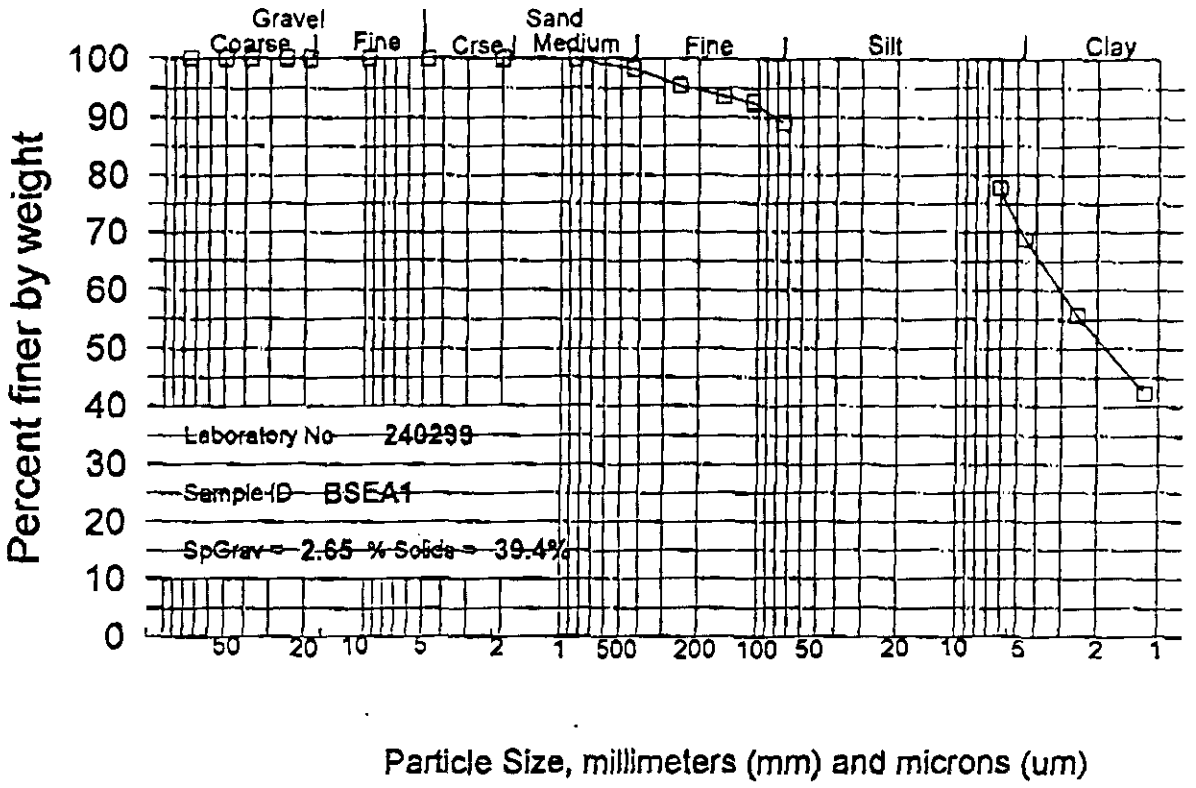
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	96.7	3.3	
#40	425.0	84.6	12.1	
#60	250.0	73.3	11.4	
#80	150.0	67.7	5.6	
#100	106.0	65.3	2.3	
#200	75.0	59.8	5.5	
Hydrometer	30.0	48.5	11.3	Dispersion of soil
	19.5	44.0	4.5	for hydrometer test
	11.6	38.5	5.6	by mechanical mixer
	8.3	35.1	3.3	with metal paddle
	6.0	28.5	6.7	operated for five
	3.1	21.8	6.6	minute within a
	1.3	15.1	6.8	dispersion cup.

Set 89
Lab No. 240394

Printed by 10:49 on 21-Nov-94

AR302511

Inchcape ASTM D422 Particle Size Analysis Sample ID BSEA1



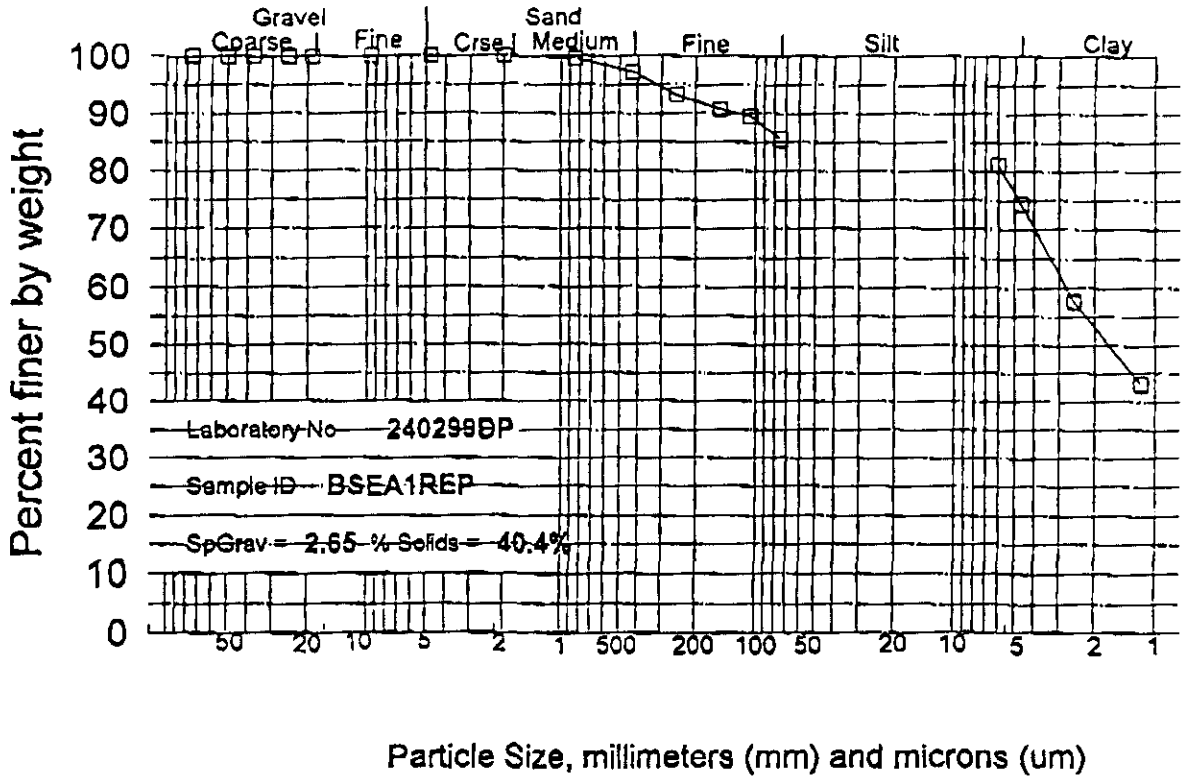
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	99.9	0.1	
#40	425.0	98.3	1.6	
#60	250.0	95.4	2.9	
#80	150.0	93.5	1.9	
#100	106.0	92.6	0.9	
#200	75.0	89.0	3.5	
Hydrometer	21.4			Dispersion of soil
	13.9			for hydrometer test
	8.3			by mechanical mixer
	6.1	77.6	11.4	with metal paddle
	4.6	68.8	8.8	operated for five
	2.5	55.7	13.1	minute within a
	1.2	42.4	13.3	dispersion cup.

Printed by [illegible] 14:43 on 28-Nov-94

Set 89
Lab No. 240299

AR302512

Inchcape ASTM D422 Particle Size Analysis Sample ID BSEA1REP



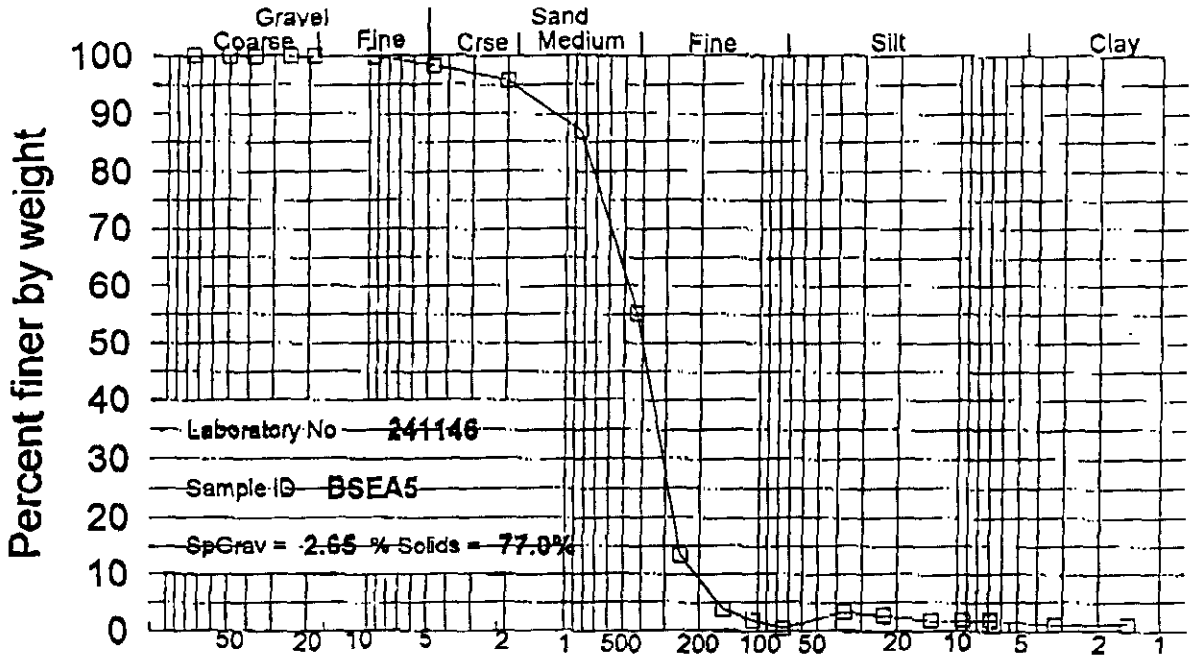
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	99.6	0.4	
#40	425.0	97.1	2.5	
#60	250.0	93.2	3.9	
#80	150.0	90.8	2.5	
#100	106.0	89.6	1.2	
#200	75.0	85.5	4.1	
Hydrometer	22.0			Dispersion of soil
|	14.2			for hydrometer test
|	8.2			by mechanical mixer
|	6.0	81.0	4.5	with metal paddle
|	4.7	74.3	6.7	operated for five
|	2.5	57.6	16.7	minute within a
|	1.2	43.0	14.6	dispersion cup.

Printed by 14:44 on 28-Nov-94

Set 89
Lab No. 240299DP

AR302513

Inchcape ASTM D422 Particle Size Analysis Sample ID BSEA5



Particle Size, millimeters (mm) and microns (um)

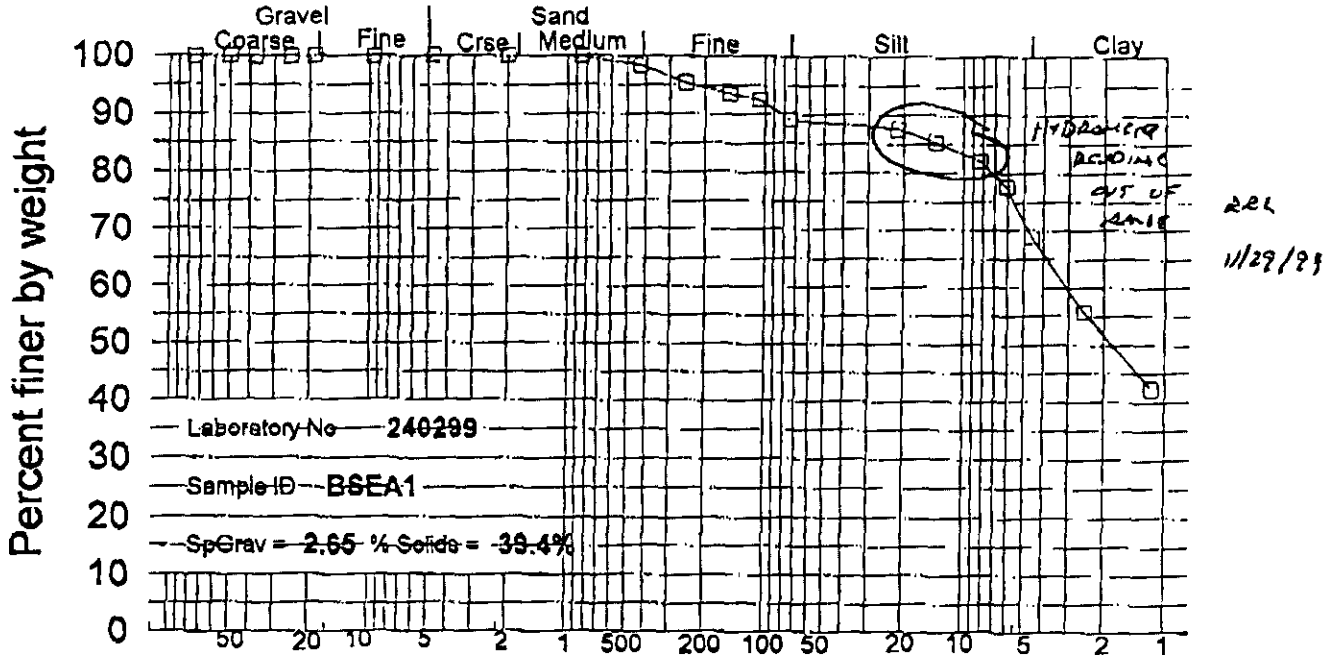
Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	98.4	1.6	
#10	2.00	95.7	2.7	
#20	850.0 um	86.9	8.8	
#40	425.0	55.3	31.6	
#60	250.0	13.3	42.0	
#80	150.0	3.7	9.6	
#100	106.0	1.9	1.8	
#200	75.0	0.6	1.3	
Hydrometer	36.6	3.4	-2.8	Dispersion of soil
|	23.3	2.6	0.7	for hydrometer test
|	13.5	1.9	0.7	by mechanical mixer
|	9.4	1.9	0.0	with metal paddle
|	6.8	1.9	0.0	operated for five
|	3.3	1.1	0.8	minute within a
|	1.4	1.0	0.1	dispersion cup.

Printed by [signature] (For) Robert Farley 11:19 on 28-Nov-94

Set 91
Lab No. 241146

AR302514

Inchcape ASTM D422 Particle Size Analysis Sample ID BSEA1



Particle Size, millimeters (mm) and microns (um)

Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	99.9	0.1	
#40	425.0	98.3	1.6	
#60	250.0	95.4	2.9	
#80	150.0	93.5	1.9	
#100	106.0	92.6	0.9	
#200	75.0	89.0	3.5	
Hydrometer	21.4	87.5	1.5	Dispersion of soil
|	13.9	85.3	2.2	for hydrometer test
|	8.3	82.0	3.3	by mechanical mixer
|	6.1	77.6	4.4	with metal paddle
|	4.6	68.8	8.8	operated for five
|	2.5	55.7	13.1	minute within a
|	1.2	42.4	13.3	dispersion cup.

Printed by [signature] 10:45 on 21-Nov-94

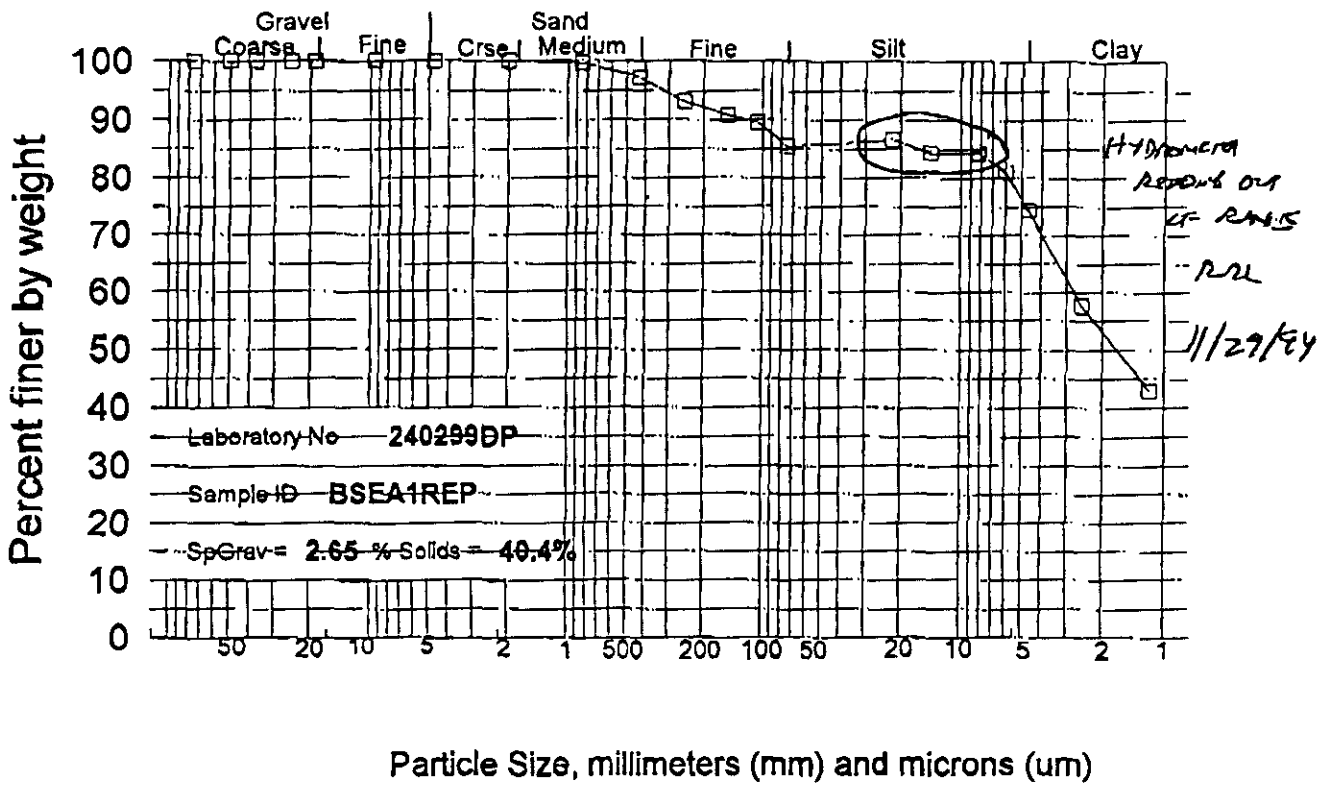
Set 89
Lab No. 240299

AR302515

000049

~~000045~~ 401

Inchcape ASTM D422 Particle Size Analysis Sample ID BSEA1REP



Sieve size	Particle Size	Percent finer	Incremental percent	Specific Gravity assumed
3 inch	75.00 m	100.0	0.0	
2 inch	50.00	100.0	0.0	
1.5 inch	37.50	100.0	0.0	
1 inch	25.00	100.0	0.0	
3/4 inch	19.00	100.0	0.0	
3/8 inch	9.50	100.0	0.0	
#4	4.75	100.0	0.0	
#10	2.00	100.0	0.0	
#20	850.0 um	99.6	0.4	
#40	425.0	97.1	2.5	
#60	250.0	93.2	3.9	
#80	150.0	90.8	2.5	
#100	106.0	89.6	1.2	
#200	75.0	85.5	4.1	
Hydrometer	22.0	86.6	-1.1	Dispersion of soil
|	14.2	84.4	2.2	for hydrometer test
|	8.2	84.4	0.0	by mechanical mixer
|	6.0	81.0	3.4	with metal paddle
|	4.7	74.3	6.7	operated for five
|	2.5	57.6	16.7	minute within a
|	1.2	43.0	14.6	dispersion cup.

Printed by [signature] 10:46 on 21-Nov-94

Set 89
Lab No. 240299DP

AR302516

HLA DATA QUALITY ASSURANCE REVIEW SUMMARY
General Chemistry Analyses

Case Number : 94239, SDG # 47744	Project Number: 27654 3.4.2.2
Site: Blue and Lookout	
Contractor Laboratory: Aquatec	
Validator: Cindy Lucangioli	Validation Date: 1/18/95
QC Reviewer: Kirsten Meier	Review Date: 1-26-95
Sample Matrix: 5 low soils and 5 low waters	
Analytical Methods: pH, alkalinity, hardness, BOD5, COD, TOC, TSS, TDS and redox potential	

Sample Designations:

BSEA1	SWEA5		
BSEA2	SWEA10		
BSEA5	SWEA11		
WSEA1	RBBS1		
WSEA2	RBBS2		
SWEA1	RBBS3		
SWEA2			

Data for the above samples are:

____ Acceptable for use
_X_ Acceptable for use as qualified
____ Unacceptable for use

Is action required by the Project Manager?
Yes (No)

Comments:
None

DATA COMPLETENESS CHECKLIST

X Included, no problems
* Included, problems
O Not included
NA Not applicable

Quality Control Summary

X Case Narrative
X Chain of Custody Forms
NA ~~X~~ KM Cover Page
* ~~X~~ KM Holding Times
X Analysis Data Sheets
X Initial Calibration Summary
X Continuing Calibration Summary
* KM Calibration and Preparation Blank Summary
X Matrix Spike Summary
X Duplicate Sample Summary
X Laboratory Control Sample Summary
O Method Detection Limits Summary
X Sample Preparation Log Summary
* KM Sample Analysis Run Log Summary

Sample Raw Data

X Quantitation Reports
X Sample Chromatograms
X Laboratory Bench Sheets
X Standard Preparation Logs

Comments: TOC soil analysis data and redox potential data ~~was~~ were not included. ~~regarding calculations from redox potentials~~ lab was contacted on 1-26-95 to resubmit data. KM 1-26-95
Data received on 2-1-95. KM

SPECIFIC COMMENTS REGARDING ANALYSES

Chain Of Custody

Were samples properly preserved and received in good condition?

Yes No

Were custody transfers correctly and completely documented?

Yes No

Comments:

None

Holding Times

Were all sample preparations and analyses performed within holding times?

Yes No

Comments: ~~pHs for samples RBBS2 and WSEA2 were exceeded and qualified as estimated.~~

The hold time for pH for the water sample RBBS2 was exceeded by one day and therefore, the result was qualified as estimated (J).

No hold time criteria are established for pH soil samples, no qualification applies.

KH 1-26-95

Instrument Calibration

Were all instruments calibrated daily and each time that sample analyses were performed?

Yes No

Were the instruments calibrated using the minimum required numbers of blanks and standards?

~~Yes~~ No

For the applicable methods did the correlation coefficients meet the minimum requirement of 0.995?

Yes No

Was a midrange standard distilled and analyzed for cyanide analyses?

~~Yes~~ No NA

Comments: ~~The ICV and LCS were distilled and analyzed.~~

None KM 1-26-95

Initial and Continuing Calibration Verification

Were the calibration standards and blanks analyzed at the required frequencies?

Yes No

Were the standard recoveries within QC limits?

Yes No

Comments:

No independent standard was analyzed with the TSS analyses. The blank and duplicate data was acceptable, no qualification of data.

KM 1-26-95

Matrix Spike

Were matrix spike analyses performed at the correct frequency and on a sample matrix representative of the samples in this SDG?

Yes No

Were field or rinse blanks used for the spike analysis sample?

Yes No

Were the matrix spike recoveries within acceptance criteria?

Yes No

Comments: Spike recoveries were within ~ 55.2 – 115.4 %.

Blank Analyses

Were preparation and calibration blank analyses performed at the required frequency?

Yes No

If analytes were reported in the blanks, were the same analytes also reported for the associated investigative samples?

Yes No

Did the sample results require qualification due to the presence of analytes in the associated blank samples?

Yes No

Comments: No sample data required qualification due to method blanks, however, RC was detected at 0.6 ug/L in ~~RB~~ the rinsate blank RBB51. For the qualification of associated sample data please see the blank summary form.

Duplicate Sample Results

Were duplicate sample analyses performed at the required frequency?
Yes No

Did the duplicate sample results meet acceptance criteria?
Yes No

Comments: Duplicate results were less than 24 % RPD for soils and less than 2.7 % for water samples.

Laboratory Control Sample

Were laboratory control sample analyses performed at the required frequency?
Yes No

Were laboratory control sample recovery results acceptable?
Yes No

Comments: LCS recoveries were between 92.3 % and 105 % which is considered to be satisfactory.

Log Books

Were all sample preparations properly documented and performed in accordance with method protocols?
Yes No

Were all sample analyses properly documented and performed in accordance with method protocols?
~~Yes~~ No HM 1-26-95

Comments:
The analyses for hardness were performed on the non-preserved samples SWEA1 and SWEA11, no pH was recorded for the samples SWEA2, SWEA5 and SWEA10, Therefore, the results for these investigative samples for hardness were qualified as estimated (J). 1-26-95 HM

Sample Results

Were target analytes reported in the investigative samples?

Yes No

Were the quantitated results for target analytes calculated and reported correctly?

Yes No NA

For the applicable methods, were peak integrations performed correctly?

Yes No NA

Were detection limits provided for the reported target analytes, and if so, were they current and acceptable?

Yes No

Comments: ~~Detection limits were not provided but were within method requirements~~

A summary of the method detection limits were not provided. The results for the non-detections are acceptable and within the method performance.

KM 1-26-95

Lab submitted requested data. The redox potential of a sample should be measured immediately in the field. Any exposure to air, temperature change and pressure change to CO_2 saturation has a strong affect on the redox potential. The lab performed the measurments 2-12 days after sampling. Therefore, the measurements obtained for the redox potential were qualified as estimated (J).

2-1-95 KM

AR302523

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Preparation Holding Time	Analysis Holding Time	Qualifier
BSEA 1	TS	11/3/94		11/8/94		5	NONE
	Redox	↓		11/4/94		1	↓
	TOC	↓		11/8/94		5	↓
WM ~~RBBS1~~ RBBS1	pH	11/3/94		11/4/94		1	↓
	Redox	↓		11/4/94		1	↓
	TOC	↓		11/16/94		7	↓
SWEA 1	TOC	11/3/94		11/10/94		7	↓
	BOD5	↓		11/4/94		1	↓
	COD	↓		11/10/94		7	↓
	TSS	↓		11/7/94		4	↓
	TDS	↓		11/4/94		1	↓
	Alkalinity	↓		11/7/94		4	↓
	Hardness	↓		11/7/94		4	↓
SWEA 11	TOC	11/3/94		11/10/94		7	↓

Comments: ~~BSEA~~ No Holding times are specified for TOC soils or redox potential

AR302524

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Preparation Holding Time	Analysis Holding Time	Qualifier
SWEA 11	BOD 5	11/3/94		11/4/94		1	NONE
	COD			11/10/94		7	
	TSS			11/7/94		4	
	TDS			11/4/94		1	
	Alkalinity			11/7/94		4	
	Hardness			11/7/94		4	
KH ~~S~~ WSEA 1	~~11/3~~ TS	11/3/94		11/8/94		5	
	pH			11/4/94		1	
	Redox			11/4/94		1	
	TOC			11/8/94		5	
BSEA 2	TS	11/4/94		11/8/94		4	
	Redox			11/4/94		KH ~~0~~ 0	
	TOC			11/8/94		4	
RBBS 2	pH	11/4/94		11/6/94		2	J

Comments:

Form GEN 1.0

AR302525

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Preparation Holding Time	Analysis Holding Time	Qualifier
RBBS2	TOC	11/4/94		11/10/94	~~6~~	6	NONE
SWEA2	TOC			11/10/94		6	
	BOD5			11/6/94		2	
	COD			11/10/94		~~4~~ 6	
	TSS			11/8/94		4	
	TDS			11/8/94		4	
	Alkalinity			11/10/94		6	
	Hardness			11/10/94		6	
WSEA2	TS	11/4/94		11/8/94		4	
	pH			11/6/94		2	KM ~~J~~ None
	Redox			11/4/94		0	NONE
	TOC			11/8/94		4	
BSEA5	TS	11/12/94		11/15/94		3	
	Redox			12/2/94		20	

Comments:

AR302526

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Preparation Holding Time	Analysis Holding Time	Qualifier
BSEA5	TOC	11/12/94		12/2/94		20	NONE
RBBS3	TOC	11/12/94		11/15/94		3	
SWEA5	TOC	11/12/94		11/15/94		3	
	BOD5			11/14/94		2	
	COD			12/2/94		20	
	TSS			11/14/94		2	
	TDS			11/14/94		2	
	Alkalinity			11/16/94		4	
	Hardness					4	
SWEA10	TOC	11/13/94		11/15/94		2	
	BOD5			11/14/94		1	
	COD			12/2/94		20	
	TSS			11/14/94		1	
	TDS			11/14/94		1	

Comments:

AR302527

HOLDING TIME QUALIFICATION SUMMARY FORM

Sample Identification	Analyte	Date Sampled	Date Prepared	Date Analyzed	Preparation Holding Time	Analysis Holding Time	Qualifier
SWEA10	TDS	11/13/94		11/14/94	1	1	NONE
	Alkalinity	↓		11/16/94	2	2	↓
	Hardness	↓		↓	2	2	↓

Comments:

AR302528

CALIBRATION QUALIFICATION SUMMARY FORM

Date/Time	Instrument	Analyte	%R	Corr. Coef.	Samples Affected	Qualifier

KM 1-26-95

Comments: ~~None~~ All calibrations were within ±10% of the true value and no data qualification was required.

AR302529

BLANK SUMMARY FORM

Blank ID	Analyte	Blank Result (units)	Action Level	Associated Samples	Qualifier
RBBS1	TOC	0.6 mg/L	3.0 mg/L	SWEA1, SWEA11	NONE

No blank contamination was observed for TOC

Comments: ~~Re-associated~~ soil samples BSEA1 and WSEA1. ~~were not qualified, as their was no raw data for verification~~ ~~because the reported detections were above the action level.~~

KM 1-26-95

AR302530

Summary and Conclusions

Sample data required some minor qualifications. Samples ~~BSEA2~~ RBBS20 ~~and WSEA2~~ KM 1-26-95 exceeded holding times for pH and ~~were~~ was qualified as estimated. ~~No other qualifications of sample data was necessary.~~ Accuracy and precision as measured by the matrix spiked, duplicates and LCSs met acceptance criteria indicating satisfactory performance. Completeness, defined as the percentage of useable sample data, including those values qualified as estimated, is 100%.

The hardness results for the investigative samples SWEA1, SWEA11, SWEA2, SWEA5 and SWEA10 were qualified as estimated (J), since the analysis was performed on unpreserved samples. KM 1-26-95

The results for the redox potential were qualified as estimated (J). Samples were exposed to conditions that can alter the potential drastically. KM 2-1-95

Validator's Signature:	Cynthia H Jaeger		
Validator's Initials:	CHJ	Validation Date:	1/18/95
QC Reviewer's Signature:	Kristen Meier		
QC Reviewer's Initials	KM	Review Date:	2-1-95

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 12/14/94
ETR Number : 47744
Project No.: 94239
No. Samples: 16
Arrived : 11/04/94

Attention : Jason Schindler

Case:94239 SDG:47744 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/	Parameter	Result
240299	BSEA1:11/03/94 (Soil)		
	IN623	Solids, Total	72.2 c
	QSOA	Redox Potential/Sediments	0Mv J
	IN847	TOC by Lloyd Kahn	0.44 h
~~240299MS~~	~~BSEA1MS:[MS]11/03/94 (Soil)~~		
	~~IN623~~	~~Solids, Total~~	~~72.2 c~~
	~~IN847~~	~~TOC by Lloyd Kahn~~	~~2.4 h~~
~~240299MD~~	~~BSEA1MSD:[MSD]11/03/94 (Soil)~~		
	~~IN623~~	~~Solids, Total~~	~~72.2 c~~
~~240299DP~~	~~BSEA1REP:[REP]11/03/94 (Soil)~~		
	IN623	Solids, Total	52.1 c
	QSOA	~~Redox Potential~~/Sediments	0Mv
	~~IN847~~	~~TOC by Lloyd Kahn~~	~~0.44 h~~
240300	RBBS:11/03/94 (Water)		
	9040	pH (std. units)	6.69
	QSOA	Redox Potential/Water	430Mv J
	415.1	Organic Carbon, Total	0.6
240301	SWEA1:11/03/94 (Water)		
	415.1	Organic Carbon, Total	9.8
	405.1	BOD5	1.8

Comments/Notes

c = %W/W as received
h = % W/W dry

VALIDATED

Reviewed By CHL
Date 1/18/95

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AR302532

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 12/14/94
ETR Number : 47744
Project No.: 94239
No. Samples: 16
Arrived : 11/04/94

Attention : Jason Schindler

Case:94239 SDG:47744 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter		Result
240301	SWEA1:11/03/94 (Water)		
	410.1	Chemical Oxygen Demand	25
	160.2	Total Suspended Solids	3.7
	160.1	Total Dissolved Solids	296
	310.1	Alkalinity (as CaCO3)	119
	QSIA	- Hydroxide Alkalinity	<1
	QSIA	- Carbonate Alkalinity	<1
	QSIA	- Bicarbonate Alkalinity	119
	130.2	Total Hardness as CaCO3	215 J
240302	SWEA11:11/03/94 (Water)		
	415.1	Organic Carbon, Total	6.1
	405.1	BOD5	3.8
	410.1	Chemical Oxygen Demand	13
	160.2	Total Suspended Solids	4.6
	160.1	Total Dissolved Solids	288
	310.1	Alkalinity (as CaCO3)	124
	QSIA	- Hydroxide Alkalinity	<1
	QSIA	- Carbonate Alkalinity	<1
	QSIA	- Bicarbonate Alkalinity	124
	130.2	Total Hardness as CaCO3	176 J
~~240302MS~~	~~SWEA11MS:[MS]11/03/94 (Water)~~		
	415.1	Organic Carbon, Total	11.0
	405.1	BOD5	220
	410.1	Chemical Oxygen Demand	58
	130.2	Total Hardness as CaCO3	244

VALIDATED

Reviewed By CAL
Date 1/18/95

1R302533

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Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 12/14/94
ETR Number : 47744
Project No.: 94239
No. Samples: 16
Arrived : 11/04/94

Attention : Jason Schindler

Case:94239 SDG:47744 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
~~240302DP SWEA11REP:[REP]11/03/94 (Water)~~		
415.1	Organic Carbon, Total	6.1
405.1	BOD5	3.7
410.1	Chemical Oxygen Demand	13
160.2	Total Suspended Solids	4.6
160.1	Total Dissolved Solids	292
310.1	Alkalinity (as CaCO3)	123
QSIA	- Hydroxide Alkalinity	<1
QSIA	- Carbonate Alkalinity	<1
QSIA	- Bicarbonate Alkalinity	123
130.2	Total Hardness as CaCO3	180
240304 WSEA1:11/03/94 (Soil)		
IN623	Solids, Total	73.7 c
9045	Soil pH (std. units)	7.42 j
QSOA	Redox Potential/Sediments	460Mv J
IN847	TOC by Lloyd Kahn	1.5 h
~~240304MS WSEA1MS:[MS]11/03/94 (Soil)~~		
IN623	Solids, Total	73.7 c
IN847	TOC by Lloyd Kahn	6.0 h

AR302534

Comments/Notes

c = %W/W as received
j = pH measured on the slurry of 1 part sample to 1 part DI water.
h = % W/W dry

VALIDATED

Reviewed By CR
Date 1/18/95

< Cont. Next Page >

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 12/14/94
ETR Number : 47744
Project No.: 94239
No. Samples: 16
Arrived : 11/04/94

Attention : Jason Schindler

Case:94239 SDG:47744 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
~~240304MD WSEA1MSD:[MSD]11/03/94 (Soil)~~		
IN623	Solids, Total	73.7 c
~~240304DP WSEA1REP:[REP]11/03/94 (Soil)~~		
IN623	Solids, Total	72.9 c
9045	Soil pH (std. units)	7.47 j
QSOA	Redox Potential/Sediments	510Mv
IN847	TOC by Lloyd Kahn	1.91 h

VALIDATED

Reviewed By cur

Date 1/18/95

Comments/Notes

c = %W/W as received
j = pH measured on the slurry of 1 part sample to 1 part DI water.
h = % W/W dry

< Last Page > Submitted By : Aquatec Inc.

AR302535

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 12/21/94
ETR Number : 47756
Project No.: 94239
No. Samples: 5
Arrived : 11/05/94

Attention : Jason Schindler

Case:94239 SDG:47744 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter		Result
240394	BSEA2:11/04/94 (Soil)		
	IN623	Solids, Total	48.3 c
	QSOA	Redox Potential/Sediments	85Mv J
	IN847	TOC by Lloyd Kahn	6.0 h
240395	RBBS:11/04/94 (Water)		
	9040	pH (std. units)	6.71 J
	415.1	Organic Carbon, Total	<0.5
240396	SWEA2:11/04/94 (Water)		
	415.1	Organic Carbon, Total	13.2
	405.1	BOD5	2.4
	410.1	Chemical Oxygen Demand	40
	160.2	Total Suspended Solids	13
	160.1	Total Dissolved Solids	289
	310.1	Alkalinity (as CaCO3)	128
	QSIA	- Hydroxide Alkalinity	<1
	QSIA	- Carbonate Alkalinity	<1
	QSIA	- Bicarbonate Alkalinity	128
	130.2	Total Hardness as CaCO3	213 J
240398	WSEA2:11/04/94 (Soil)		
	IN623	Solids, Total	71.7 c
	9045	Soil pH (std. units)	7.13 j

AR302536

1-26-95

Comments/Notes

c = %W/W as received
h = % W/W dry
j = pH measured on the slurry of 1 part sample to 1 part DI water.

VALIDATED

< Cont. Next Page >

Reviewed By CHL
Date 1/18/95

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 12/21/94
ETR Number : 47756
Project No.: 94239
No. Samples: 5
Arrived : 11/05/94

Attention : Jason Schindler

Case:94239 SDG:47744 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
240398	WSEA2:11/04/94 (Soil)	
QSOA	Redox Potential/Sediments	530Mv J
IN847	TOC by Lloyd Kahn	2.9 h

VALIDATED
Reviewed By CRL
Date 11/8/95

AR302537

Comments/Notes

h = % W/W dry

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Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Harding Lawson Associates
131 North Third Street
Philadelphia, PA 19106

Date : 12/14/94
ETR Number : 47902
Project No.: 94239
No. Samples: 5
Arrived : 11/14/94

Attention : Jason Schindler

Case:94239 SDG:47744 Kane & Lombard

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter		Result
241146	BSEA5:11/12/94 (Soil)		
	IN623	Solids, Total	78.2 c
	QSOA	Redox Potential/Sediments	350Mv J
	IN847	TOC by Lloyd Kahn	0.88 h
241147	RBBS:11/12/94 (Water)		
	415.1	Organic Carbon, Total	<0.5
241148	SWEA5:11/12/94 (Water)		
	415.1	Organic Carbon, Total	9.4
	405.1	BOD5	2.7
	410.1	Chemical Oxygen Demand	24
	160.2	Total Suspended Solids	29.7
	160.1	Total Dissolved Solids	500
	310.1	Alkalinity (as CaCO3)	183
	QSIA	- Hydroxide Alkalinity	<1
	QSIA	- Carbonate Alkalinity	<1
	QSIA	- Bicarbonate Alkalinity	183
	130.2	Total Hardness as CaCO3	320 J
241149	SWEA10:11/13/94 (Water)		
	415.1	Organic Carbon, Total	7.6
	405.1	BOD5	5.6
	410.1	Chemical Oxygen Demand	16
	160.2	Total Suspended Solids	4.6

Comments/Notes

c = %W/W as received
h = % W/W dry

VALIDATED

Reviewed By CRC
Date 1/18/95

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Lab No./ Method No.	Sample Description/ Parameter	Result
241149	SWEA10:11/13/94 (Water)	
160.1	Total Dissolved Solids	320
310.1	Alkalinity (as CaCO3)	140
QSIA	- Hydroxide Alkalinity	<1
QSIA	- Carbonate Alkalinity	<1
QSIA	- Bicarbonate Alkalinity	140
130.2	Total Hardness as CaCO3	208 J

VALIDATED
Reviewed By CGL
Date 1/18/95

AR302539

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