RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

DATE: JULY 15, 1999

RECEIVED
JUL 22 1999

SUBJECT: CLP Data Package for Quality Assurance Review
FROM: RSCC / ESAT
TO: George Karras, Hazardous Waste Support Section

Attached is the following ORGANIC Data Package to be reviewed for Quality Assurance

SITE	CORNELL-DUBILIER	CASE#	27133 / SDG# BWZ48
CONTRACTOR	STARTW	#SAMPLES	MATRIX
PHASE	SI	20	SOIL
LAB	SWOK		
TURN-AROUND-TIME	14 DAYS	FRACTION	PCBs
CERCLIS ID #	NJD981557879	SITE SPILL #	GZ

REGION II RSCC DATA TRANSFER LOG

Relinquished By		Received By	
Signature	Date/Time	Signature	Date/Time
		John Badich	7-14-99
John Badich	7-15-99	Mal Jarl	7-15-99
Mal Jarl	7-21-99	John Badich (DCR)	7-21-99
John Badich (DCR)	7/21/99	K. Sagar	7/21/99
K. Sagar	7/22/99		

(over for instructions) revised 3/99

231775

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 27133
LABORATORY: SWOK

SDG No.: BWZ48
SITE: Cornell Dubilier

DATA ASSESSMENT

The current SOP HW-6 (Revision 11) June 1996, USEPA Region II Data Validation SOP for Statement of Work OLMO 3.2 for evaluating organic data have been applied.

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

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

Reviewer's
Signature: Mark Zambrowski Date: July 19, 1999

Verified By: _____ Date: ____/____/199__

CLP DATA ASSESSMENT

SDG 1, BWZ48: PCB ONLY

1. HOLDING TIME:

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

The following action was taken in the samples and analytes shown due to excessive holding time.
PCB: No problems.

2. SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.
PCB: No problems.

3. LABORATORY CONTROL SAMPLE (LCS):

The LCS data is generated from a laboratory quality control sample. LCS data is intended to assess the ability of the contractor to perform the analytical method.
PCB: No problems.

4. BLANK CONTAMINATION:

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

CLP DATA ASSESSMENT

reasons:

A) Method blank contamination:
PCB: No problems.

B) Field or rinse blank contamination:
PCB: No problems.

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".
PCB: No problems.

6. CALIBRATION:

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

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

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

Percent RSD is calculated from the initial calibration and is

CLP DATA ASSESSMENT

used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < ±30% (VOA) or ±25% (BNA). A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

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

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

PCB: No problems.

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.

PCB: No problems.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's

Quantitation Limit Report

SDG NO: **BWZ48** LABORATORY: **SWL-TULSA**

CASE NO: **27133** AGENCY INPUT FILE: **BWZ48.ASF**

CONTRACT REQUIRED SAMPLE QUANTITY

	Water	Low Soil	Med Soil
PES	1000.0 (ML)	30.0 (G)	

DC-158: The following pesticide samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

BWZ48DL
4,4'-DDE, 4,4'-DDD, Methoxychlor

BWZ50DL
Dieldrin, 4,4'-DDE, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ51DL
Dieldrin, 4,4'-DDT, gamma-Chlordane

BWZ52DL
4,4'-DDT, alpha-Chlordane

BWZ53DL
4,4'-DDT, alpha-Chlordane, gamma-Chlordane

BWZ54DL
4,4'-DDT, alpha-Chlordane

BWZ55
4,4'-DDE, Methoxychlor

BWZ56
4,4'-DDE, Endrin

BWZ56DL
4,4'-DDT, alpha-Chlordane, gamma-Chlordane

BWZ57DL
Dieldrin, Aroclor-1254 J

BWZ58
4,4'-DDE

BWZ58DL

alpha-Chlordane

BWZ59
Endosulfan II

BWZ59DL J
Dieldrin, alpha-Chlordane, Aroclor-1254

BWZ60 J
Aroclor-1254

BWZ61
Dieldrin

BWZ61DL J
Aroclor-1254

BWZ62 J
Aroclor-1254

BWZ63
Methoxychlor

BWZ63DL
Dieldrin, 4,4'-DDD, Methoxychlor

BWZ96DL
4,4'-DDT

BWZ97DL
4,4'-DDT

BWZ98DL
4,4'-DDE, 4,4'-DDT

BWZ99DL
Dieldrin, Endrin ketone, Endrin aldehyde

BXA00
4,4'-DDE

DC-422: The following pesticide samples have analytes for which the percent difference between column results exceeds primary criteria. Hits > CRQL are flagged "J." Or: if %D is > 50% and value is < CRQL, sample result is elevated to the CRQL and qualified "U."

BWZ48
Heptachlor epoxide, Endosulfan II, Endrin ketone

BWZ48DL
4,4'-DDE, Endrin, Endosulfan II

BWZ48MS
Heptachlor epoxide, Dieldrin, 4,4'-DDD, Endrin ketone

BWZ48MSD
Aldrin, Heptachlor epoxide, Endosulfan II, 4,4'-DDD
Endrin ketone

BWZ50
gamma-Chlordane

BWZ50DL
Endrin aldehyde

BWZ51
Heptachlor epoxide, gamma-Chlordane

BWZ51DL
gamma-Chlordane

BWZ53
4,4'-DDT, Methoxychlor

BWZ54
4,4'-DDT

BWZ55
Heptachlor epoxide, gamma-Chlordane

BWZ57DL
Dieldrin

BWZ58
4,4'-DDT, Methoxychlor

BWZ59
Endrin

BWZ59DL
Dieldrin

BWZ60 J
Aroclor-1254

BWZ61
gamma-Chlordane

BWZ61DL J
Aroclor-1254

BWZ62
alpha-Chlordane

BWZ63
4,4'-DDT

BWZ63DL
4,4'-DDT, Methoxychlor, gamma-Chlordane

BWZ96
4,4'-DDT, alpha-Chlordane

BWZ97DL
4,4'-DDT

BWZ98
4,4'-DDE, 4,4'-DDT

BWZ99
4,4'-DDT, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ99DL
4,4'-DDT, Endrin ketone, Endrin aldehyde

BXA00
4,4'-DDE, gamma-Chlordane

DC-423: The following pesticide samples have analytes for which the percent difference between column results exceeds expanded criteria. Hits > CRQL are flagged "NJ;" or "R" when %D > 100; or "NJ" when %D is between 100 - 200 (interference detected). Hits < CRQL are elevated to the CRQL and qualified "U."

BWZ48
Dieldrin, Endrin, 4,4'-DDD, Methoxychlor
Endrin aldehyde, gamma-Chlordane

BWZ48DL
4,4'-DDD, Methoxychlor, gamma-Chlordane

BWZ48MS
Aldrin, Endrin, Endosulfan II, Methoxychlor
Endrin aldehyde, gamma-Chlordane

BWZ48MSD
Endrin, Methoxychlor, Endrin aldehyde, gamma-Chlordane

BWZ50
Heptachlor epoxide, 4,4'-DDE, Endrin, 4,4'-DDT
alpha-Chlordane

BWZ50DL
Dieldrin, 4,4'-DDE, alpha-Chlordane, gamma-Chlordane

BWZ51
4,4'-DDE, alpha-Chlordane

BWZ51DL
Dieldrin, alpha-Chlordane

BWZ52
Methoxychlor, alpha-Chlordane

BWZ52DL
alpha-Chlordane

BWZ53
alpha-Chlordane

BWZ53DL
alpha-Chlordane

BWZ54
Methoxychlor, alpha-Chlordane

BWZ54DL
alpha-Chlordane

BWZ55
Dieldrin, 4,4'-DDE, 4,4'-DDT, Methoxychlor
alpha-Chlordane

BWZ56
4,4'-DDE, Endrin, Methoxychlor, Endrin aldehyde

alpha-Chlordane

BWZ56DL
alpha-Chlordane

BWZ57
Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin
alpha-Chlordane, gamma-Chlordane

BWZ57DL J
Aroclor-1254

BWZ58
Dieldrin, 4,4'-DDE, alpha-Chlordane

BWZ58DL
alpha-Chlordane

BWZ59
Heptachlor epoxide, Dieldrin, Endosulfan II, Endrin aldehyde
alpha-Chlordane, gamma-Chlordane

BWZ59DL
alpha-Chlordane

BWZ61
Dieldrin, alpha-Chlordane

BWZ62 J
Aroclor-1254

BWZ63
Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate, Methoxychlor, Endrin aldehyde, alpha-Chlordane
Aroclor-1254 J

BWZ63DL
Dieldrin, 4,4'-DDD, alpha-Chlordane, Aroclor-1254 J

BWZ96
4,4'-DDE, 4,4'-DDD

BWZ96DL
4,4'-DDT

BWZ98
Dieldrin, Endrin aldehyde

BWZ99

Dieldrin, 4,4'-DDE, 4,4'-DDD

BWZ99DL

Dieldrin

BXA00

Dieldrin, 4,4'-DDD, Endrin aldehyde

CLP DATA ASSESSMENT

relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10 ng/ml in the final sample extract.
PCB: The following samples were qualified "J" for Aroclor 1254 due to exceeding % D criteria of 50% between columns: BWZ50, BWZ51, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55, BWZ55DL, BWZ56, BWZ56DL, BWZ57DL, BWZ58, BWZ58DL, BWZ60, BWZ61, BWZ62, BWZ63, BWZ63DL, BWZ98, BWZ98DL, BWZ99, BWZ99DL, BXA00, and BXA00DL.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

PCB: The following samples were not labeled with an "E" (SOW, B-40, Sect. 3.4.2.18) after Aroclor 1254 due to the analyte exceeding calibration criteria (SOW, D-60/Pest, Sect. 10.2.3.3) in the original analysis: BWZ48 and BWZ63.

The following diluted samples were not required since the reported analytes in the orginal samples did not exceed the initial calibration high point standards as required by the SOW, D-59/Pest10.2.3.2 and 10.2.3.3: BWZ50DL, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55DL, BWZ57DL, BWZ58DL, BWZ60DL, BWZ61DL, BWZ62DL, BWZ96DL, BWZ97DL, BWZ98DL, and BXA00DL.

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

The initial data supplied in the final flags spreadsheet did not contain a number of the reported hits for Aroclor 1254 in the samples. These values were corrected, no further action was taken.

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following

CLP DATA ASSESSMENT

Form 1(s) are identified not to be used.

PCB: BWZ48DL, BWZ50DL, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55DL, BWZ56DL, BWZ57DL, BWZ58DL, BWZ59DL, BWZ60DL, BWZ61DL, BWZ62DL, BWZ63DL, BWZ96DL, BWZ97DL, BWZ98DL, BWZ99DL, and BXA00DL.

Holding Time Report

SDG NO: **BWZ48**
CASE NO: **27133**

LABORATORY: **SWL-TULSA**
AGENCY INPUT FILE: **BWZ48.ASF**

HOLDING TIME CRITERIA

Pesticide

	--- Extraction ---		---- Analysis ----	
	Primary	Expanded	Primary	Expanded
Water	7	28	40	60
Soil	7	28	40	60

No problems found for this qualification.

SMC/Surrogate Report

SDG NO: **BWZ48** LABORATORY: **SWL-TULSA**

CASE NO: **27133** AGENCY INPUT FILE: **BWZ48.ASF**

SMC/SURROGATE CRITERIA

Pesticide

Percent Recovery Limits

	--- Water ---		---- Soil ---	
	Lower	Upper	Lower	Upper
Tetrachloro-m-xylene	30.0	150.0	30.0	150.0
Decachlorobiphenyl	30.0	150.0	30.0	150.0

DC-174: The following pesticide samples have surrogate percent recoveries which exceed the upper limit of the criteria window.
If %R for both surrogates on both columns are > contract limit, hits are flagged "J".

BWZ48, BWZ48DL, BWZ48MS, BWZ48MSD, BWZ50, BWZ50DL
BWZ51, BWZ51DL, BWZ52, BWZ53, BWZ54, BWZ55
BWZ56, BWZ56DL, BWZ57, BWZ58, BWZ59, BWZ60
BWZ61, BWZ62, BWZ63, BWZ63DL, BWZ96, BWZ96DL
BWZ98, BWZ98DL, BWZ99, BWZ99DL, BXA00DL

DC-176: The following diluted pesticide samples have surrogate percent recoveries of less than 10%. Professional judgement is recommended.
Hits and non-detects are not flagged.

BWZ50DL, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55DL
BWZ56DL, BWZ57DL, BWZ58DL, BWZ59DL, BWZ60DL, BWZ61
BWZ61DL, BWZ62DL

DC-178: The following pesticide samples are not fully qualified for surrogate RT because of missing RT information. Visual inspection of the data is required. Samples with surrogates falling outside the RT window should be qualified based on professional judgement.

BWZ50DL, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55DL
BWZ56DL, BWZ57DL, BWZ58DL, BWZ59DL, BWZ60DL, BWZ61
BWZ61DL, BWZ62DL

Matrix Spike Report

SDG NO: **BWZ48** LABORATORY: **SWL-TULSA**

CASE NO: **27133** AGENCY INPUT FILE: **BWZ48.ASF**

MATRIX SPIKE CRITERIA

Pesticide

Percent Recovery Limits & RPD

	Water			Soil		
	Lower	Upper	RPD	Lower	Upper	RPD
gamma-BHC (Lindane)	56.0	123.0	15.0	46.0	127.0	50.0
Heptachlor	40.0	131.0	20.0	35.0	130.0	31.0
Aldrin	40.0	120.0	22.0	34.0	132.0	43.0
Dieldrin	52.0	126.0	18.0	31.0	134.0	38.0
Endrin	56.0	121.0	21.0	42.0	139.0	45.0
4,4'-DDT	38.0	127.0	27.0	23.0	134.0	50.0

DC-170: The following pesticide matrix spike/matrix spike duplicate samples have percent recovery outside criteria.
Use professional judgement to qualify the data.

BWZ48MS
4,4'-DDT

BWZ48MSD
4,4'-DDT

Laboratory Blanks Report

SDG NO: **BWZ48**
CASE NO: **27133**

LABORATORY: **SWL-TULSA**
AGENCY INPUT FILE: **BWZ48.ASF**

LABORATORY BLANKS CRITERIA

Pesticide

Method Blank Contamination Threshold Multipliers

	First	Expanded
All compounds	5.00	5.00

No problems found for this qualification.

SDG NO: **BWZ48**
CASE NO: **27133**

LABORATORY: **SWL-TULSA**
AGENCY INPUT FILE: **BWZ48.ASF**

CALIBRATION CRITERIA

Pesticide

Maximum %RSD (initial calibration)	- TCL analytes	20
	- surrogates	30
Maximum RPD (continuing calibration)		25
INDA/INDB percent resolution		90
Continuing calibration sequence time		12

DC-197: The following pesticide samples are not qualified because of missing calibration verification information. Visual inspection of the data is required.

BWZ48, BWZ48DL, BWZ48MS, BWZ48MSD, BWZ50, BWZ50DL
BWZ51, BWZ51DL, BWZ52, BWZ52DL, BWZ53, BWZ53DL
BWZ54, BWZ54DL, BWZ55, BWZ55DL, BWZ56, BWZ56DL
BWZ57, BWZ57DL, BWZ58, BWZ58DL, BWZ59, BWZ59DL
BWZ60, BWZ60DL, BWZ61, BWZ61DL, BWZ62, BWZ62DL
BWZ63, BWZ63DL, BWZ96, BWZ96DL, BWZ97, BWZ97DL
BWZ98, BWZ98DL, BWZ99, BWZ99DL, BXA00, BXA00DL
PBLKSA, PBLKSB, PBLKSC

SDG NO: **BWZ48** LABORATORY: **SWL-TULSA**

CASE NO: **27133** AGENCY INPUT FILE: **BWZ48.ASF**

SYSTEM PERFORMANCE CRITERIA

Resolution & Breakdown Limits

RESC percent resolution	60.00
PEM percent resolution	90.00
4,4'-DDT percent breakdown	20.00
Endrin percent breakdown	20.00
Combined percent breakdown	30.00

DC-215: The following pesticide samples are associated with a continuing PEM in which the RPD between the nominal and calculated amounts for a PEM compound is outside criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BWZ48
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ48MS
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ48MSD
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ50
4,4'-DDT, Methoxychlor

BWZ51
4,4'-DDT, Methoxychlor

BWZ52
4,4'-DDT, Methoxychlor

BWZ53
4,4'-DDT, Methoxychlor

BWZ54
4,4'-DDT, Methoxychlor

BWZ55
4,4'-DDT, Methoxychlor

BWZ56
4,4'-DDT, Methoxychlor

BWZ57
4,4'-DDT, Methoxychlor

BWZ58
4,4'-DDT, Methoxychlor

BWZ59
4,4'-DDT, Methoxychlor

BWZ60
4,4'-DDT, Methoxychlor

BWZ61
4,4'-DDT, Methoxychlor

BWZ62
4,4'-DDT, Methoxychlor

BWZ63
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ96
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ97
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ98
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ99
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BXA00
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

DC-226: The following pesticide samples are associated with a continuing PEM in which the DDT % breakdown exceeds criteria. DDT detected in associated samples is qualified "J".

BWZ48, BWZ48MS, BWZ48MSD, BWZ50, BWZ52, BWZ53
BWZ54, BWZ55, BWZ56, BWZ58, BWZ59, BWZ61
BWZ63, BWZ96, BWZ98, BWZ99, BXA00

DC-226: The following pesticide samples are associated with a continuing PEM in which the DDT % breakdown exceeds criteria. DDD and/or

DDE was detected in the sample, but DDT was not detected.
Non-detect DDT in associated samples is qualified "R".

BWZ51, BWZ57

DC-228: The following pesticide samples are associated with a continuing PEM in which the DDT % breakdown exceeds criteria.
DDD and DDE detected in associated samples are qualified "NJ".

BWZ48, BWZ48MS, BWZ48MSD, BWZ50, BWZ55, BWZ56
BWZ58, BWZ59, BWZ63, BWZ96, BWZ98, BWZ99
BXA00

DC-229: The following pesticide samples are associated with a continuing PEM in which the endrin % breakdown exceeds criteria.
Endrin detected in associated samples is qualified "J".

BWZ48, BWZ48MS, BWZ48MSD

DC-231: The following pesticide samples are associated with a continuing PEM in which the endrin % breakdown exceeds criteria. Endrin aldehyde and/or endrin ketone detected in associated samples are qualified "NJ".

BWZ48, BWZ48MS, BWZ48MSD

Percent Moisture Report

SDG NO: **BWZ48**
CASE NO: **27133**

LABORATORY: **SWL-TULSA**
AGENCY INPUT FILE: **BWZ48.ASF**

PERCENT MOISTURE LIMITS

	Primary	Expanded
PES	50%	90%

No problems found for this qualification.

DPO: []ACTION []FYI REGION__2_

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO._27133__ LABORATORY_SWOK_____

SDG NO. BWZ48 _ DATA USER___EPA/Region II_____

SOW_OLMO 3.2 _____ REVIEW COMPLETION DATE_7/19/99___

NO. OF SAMPLES_____WATER ____20___SOIL _____OTHER

REVIEWER: [] ESD [x] ESAT [] OTHER, CONTRACTOR_____

QC ITEM	VOA	BNA	PEST		
HOLDING TIMES			O		
GC-MS PERFORMANCE			O		
INITIAL CALIBRATIONS			O		
CONTINUING CALIBRATIONS			O		
FIELD BLANKS(F = N/A)			O		
LABORATORY BLANKS			O		
SURROGATES			O		
MATRIX SPIKE/DUPLICATES			O		
QC SAMPLES(LCS, PVS)			O		
INTERNAL STANDARDS			F		
COMPOUND IDENTIFICATION			M		
COMPOUND QUANTITATION			X		
SYSTEM PERFORMANCE			O		
OVERALL ASSESSMENT			M		

O = No problems or minor problems that do not affect data usability.
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as either estimated or unusable.
Z = More than about 5% of the data points are qualified as unusable.

DATA REJECTION SUMMARY

Type of Review: Organic Date: 7/19/99 Case No.27133, SDG# BWZ48

Site Name: Cornell-Dubilier Lab Name: SWOK Reviewer's Initials: MZ

Number of Samples: H_2O, 20 soils, +QC + reanalyses/dilutions

Analytes Rejected Due To Exceeding Review Criteria For:

No. of Compounds/No. of Fractions(Samples)

	Surrogates	Holding Times	Calibrat-ion	Contam-ination	ID	Internal Standards	Other	Total # Samples	Total # Rejected/ Total # in All Samples
VOA(41)	0	0	0	0	0	0	0	0	NA
ACID(14)	0	0	0	0	0	0	0	0	NA
B/N(45)	0	0	0	0	0	0	0	0	NA
PEST(21)	0	0	0	0	0	0	0	0	NA
PCB(7)	0	0	0	0	0	0	0	45	0/315 = 0%

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITIERIA.

Analytes Estimated Due To Exceeding Review Criteria For:

No. of Compounds/No. of Fractions(Samples)

	Surrogates	Holding Times	Calibrat-ion	Contam-ination	ID	Internal Standards	Other	Total # Samples	Total # estimated/ Total # in All Samples
VOA(41)	0	0	0	0	0	0	0	0	NA
ACID(14)	0	0	0	0	0	0	0	0	NA
B/N(45)	0	0	0	0	0	0	0	0	NA
PEST(21)	0	0	0	0	0	0	0	0	NA
PCB(7)	0	0	0	0	24	0	5	45	29/315 = 10%

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITIERIA.

YES NO N/A

NOTE: Single-peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. Use professional judgement to decide whether a large discrepancy indicates the presence of an interfering compound. If an interfering compound is visible on the chromatogram, the lower of the two values should be reported and qualified as presumptively present at an approximated quantity "JN". This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has interfered with the evaluation of the second column confirmation.

12.2 Are the CRQLs adjusted to reflect sample dilutions? [✓] ___ ___

ACTION: If large errors exist, take action as specified in section 3.6 above.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQLs from the diluted sample). Replace concentrations which exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with the result from the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including those in the data summary package.

ACTION: Quantitation limits affected by large, off-scale peaks should be qualified as unusable (R). If the interference is on-scale, the reviewer may offer an approximated quantitation limit (UJ) for each affected compound.

NOTE: If a sample required greater than a 10 times dilution, then a 10 times more concentrated analysis must also be performed and submitted (see SOW, page D-60/PEST, section 10.2.3.5).

ACTION: If a more concentrated analysis is unavailable, document in the Contract Problems/Non-Compliance section of the Data Assessment. Use professional judgement to qualify non-detects and positive hits below the CRQL.

	YES	NO	N/A
c. Blanks?	✓		
d. Instrument Blanks (per column & analysis)?	✓		
11.2 Are the Pest chromatograms and quant. reports included in the sample data package for each of the following:-			
a. Samples and/or fractions as appropriate?	✓		
b. Matrix spikes and matrix spike duplicates?	✓		
c. Blanks?	✓		
d. Instrument Blanks (per column & analysis)?	✓		
ACTION: If any data are missing, take action specified in 3.2 above.			
11.3 Are the calibration factors shown in the quant. reports?		✓	
11.4 Is chromatographic performance acceptable with respect to:			
a. Baseline stability?	✓		
b. Resolution?	✓		
c. Peak shape?	✓		
d. Full-scale graph attenuation?	✓		
e. Other: _____?	✓		✓
11.5 Were any electropositive displacement (negative peaks) or unusual peaks seen?		✓	
ACTION: Use professional judgement to determine the acceptability of the data. Address comments under System Performance section of the Data Assessment.			

12.0 Compound Quantitation and Reported Detection Limits

	YES	NO	N/A
12.1 Are there any transcription/calculation errors in Form I results? Check at least two positive results. Were any errors found?		✓	

YES NO N/

% Difference	Qualifier
0 - 25%	None
25 - 70%	"J"
70 - 100%	"JN"
> 100%	"R"
100 - 200% (Interference detected)*	"JN"
> 50% (Pesticide value is < CRQL)**	"U"

* When the reported %D is 100 - 200%, but interference is detected on either column, qualify the data with "J".

** When the reported pesticide value is lower than the CRQL, and the %D is > 50%, raise the value to the CRQL and qualify "U", undetected.

NOTE: For Aroclors, if the %D is > 50%, but the pattern of GC peaks on both columns indicates a specific Aroclor is present, qualify that Aroclor "J".

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher result was more acceptable, the reviewer should replace the value and indicate the reason for the change in the Data Assessment.

10.6 Check chromatograms for false negatives, especially the multiple-peak compounds (Toxaphene and the PCBs). Were there any false negatives? ___ ✓ ___

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed within 72 hrs. of the sample(s) in question, qualify the data unusable "R".

Also note in Data Assessment under Contract Problems/Non-Compliance if the lab failed to analyze Aroclor standards when required.

11.0 Target Compound List (TCL) Analytes

11.1 Are the Organic Analysis Data Sheets (Form I Pest) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate? ✓ ___ ___

b. Matrix spikes and matrix spike duplicates? ✓ ___ ___

	YES	NO	N/A
10.2 Are all sample chromatograms properly scaled, attenuated, etc. as required for proper identification of single and multi-component analytes? (Refer to SOW sections 11.3.7.1 thru 11.3.7.8, page D-70/Pest for specific details.)	[✓]		

NOTE: Proper verification of Pest/PCB results depends on clear, legible presentation of the raw data. Single component pesticides and all peaks chosen for quantitation of multi-component analytes must appear at less than full scale. Toxaphene and PCB patterns must be clearly visible to enable comparison with standard chromatograms.

ACTION: If retention times or apex of peaks cannot be verified, or if multi-component peak patterns cannot be discerned, contact the WAM to obtain rescaled chromatograms from the lab.

10.3 Are there any transcription/calculation errors between raw data and Forms 10A and 10B?		[✓]	

ACTION: If large errors exist, take action as specified in section 3.6 above.

10.4 Are RTs of sample compounds within the established RT windows for analyses on both columns?	[✓]		
Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/mℓ in the final extract)?	[ ]		✓

ACTION: Use professional judgement to qualify positive results which were not confirmed by GC/MS analysis. Qualify as unusable (R) all positive results which were not confirmed on a second GC column. Also qualify as unusable (R) all positive results which do not meet RT window criteria, unless associated standard compounds are similarly biased. Use professional judgement to assign an appropriate quantitation limit.

10.5 Is the percent difference (%D) calculated for the positive sample results on both columns > 25.0%?	✓	[ ]	

ACTION: If the reviewer finds neither column shows interference for the positive hits, the data should be flagged as follows:

	YES	NO	N/A
9.3 If GPC Cleanup was performed (mandatory for all soil sample extracts), is Form IX Pest-2 present?	[✓]		
Are all soil samples listed on Form IX Pest-2?	[✓]		

ACTION: If no, take action specified in 3.2 above. If data suggests GPC clean-up was not performed when required, document in the Data Assessment under the Contract Problems/Non-Compliance section and Organic Regional Data Assessment Summary.

	YES	NO	N/A
Are the %REC values for all pesticides in the GPC calibration solution between 80 - 110%?	[✓]		

ACTION: Qualify only those analytes which failed the recovery criteria as follows:

If %REC are < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 110%.

NOTE: An Aroclor mixture containing Aroclors 1016 and 1260 is also analyzed during GPC calibration; however, Aroclor data is not listed on Form IX PEST-2. The raw GPC data for Aroclors 1016/1260 must be evaluated for pattern similarity with previously analyzed Aroclor standards.

9.4 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-35, sec. 3.3.7.8 and 3.3.7.9 of the SOW for further information.

	YES	NO	N/A
Was the correct identification scheme used for GPC and Florisil blanks?	[✓]		

10.0 Pesticide/PCB Identification

	YES	NO	N/A
10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	[✓]		

ACTION: If no, take action specified in 3.2 above.

	YES	NO	N/A
sample and within a valid 12 hour sequence?	[✓]		

NOTE: This additional standard is for identification purposes only. Positive results for Aroclors and Toxaphene are quantitated from the initial calibration.

ACTION: If no, document in the Data Assessment under Contract Problems/Non-Compliance and on the Organic Regional Data Assessment Summary form.

9.0 Cleanup Efficiency Verification (Form IX)

	YES	NO	N/A
9.1 Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts.)	[✓]		
Are all samples listed on the Pesticide Florisil Cartridge Check Form?	[✓]		

ACTION: If no, take action specified in 3.2 above. If data suggests florisil clean-up was not performed, document in the Data Assessment under the Contract Non-compliance section.

	YES	NO	N/A
9.2 Are percent recoveries (%REC) of the pesticide and surrogate compounds used to check the efficiency of the florisil clean-up procedure within QC limits of 80 - 120%?	[✓]		

ACTION: Qualify only the analyte(s) which failed the recovery criteria as follows:

If %REC is < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 120%.

NOTE: Sample data should be evaluated for potential interferences if recovery of 2,4,5-trichlorophenol was > 5% in the Florisil Cartridge Performance Check analysis. Document any problems found in the Data Assessment under the Contract Problems/Non-Compliance section.

	YES	NO	N/A
RT window, qualify all positive results and non-detects as unusable (R).			
7.17 Are all %D values for INDA and INDB calibration verification compounds ≥ -25.0% and ≤ +25.0%?	✓		
ACTION: If the %D is outside the ±25.0% range for any compound(s), qualify associated positive results for that compound "J" and non-detects "UJ". The "associated samples" are those which followed the <u>last in-control standard</u> up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).			
8.0 <u>Analytical Sequence Check (Form VIII-PEST)</u>			
8.1 Is Form VIII present and complete for each column and each period of analyses?	✓		
ACTION: If no, take action specified in 3.2 above.			
8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses, and all standards analyzed at the required frequency for each GC/EC instrument used.? (See SOW pages D-23 & D-58/PEST.)	✓		
ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Generally, the effect is negligible unless the sequence was grossly altered and/or the calibration was out of QC limits.			
8.3 Were all samples analyzed within a 12 hour time period beginning with the injection of an instrument blank and bracketed by acceptable analyses of the proper standards?	✓		
ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Document in the Data Assessment under Contract Problems/Non-Compliance and Organic Regional Data Assessment Summary.			
8.4 If a multi-component analyte was detected in a sample, was a matching multi-component standard analyzed within 72 hours of the injection of the			

	YES	NO	N/A
"R". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable "R".			
ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity "JN". Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".			
7.13 Are all percent difference (%D) values for PEM analytes and surrogates on both columns ≥ -25% and ≤ +25.0%? (See Form VII PEST-1.)	✓		

ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".

NOTE: If the failing PEM is part of the initial calibration, all samples are potentially affected. If the offending standard is a calibration verification, the associated samples are those which followed the last in-control standard until the next passing standard.

7.14 Is Form VII Pest-2 present and complete for each INDA and INDB calibration verification analyzed?	✓		

ACTION: If no, take action specified in 3.2 above.

7.15 Are there any transcription/calculation errors between raw data and Form VII Pest-2?		✓	

ACTION: If large errors exists, take action as specified in section 3.6 above.

7.16 Do all standard retention times for each INDA and INDB calibration verification fall within the RT windows established during the initial calibration sequence? (See Form VII PEST-2.)	✓		

ACTION: If no, beginning with the samples which followed the <u>last in-control standard</u>, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised

YES NO N/

exceeded 30.0% in any PEM on either column (required for all PEM analyses)? [ ]

ACTION: 1. If any percent breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the initial calibration sequence (page D-28/Pest, sec. 9.2.5.6 in the SOW), qualify all samples in the entire analytical sequence as described in sections 2.a, b and c below.

2. If any percent breakdown failed the QC criteria in a PEM calibration verification analysis, review data beginning with the samples which followed the last in-control standard until the next acceptable PEM and qualify the data as described below.

a. 4,4'-DDT Breakdown: If DDT breakdown was > 20.0%:

i. Qualify all positive results for DDT with "J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT unusable, "R".

ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

b. Endrin Breakdown: If endrin breakdown was > 20.0%:

i. Qualify all positive results for endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for Endrin as unusable "R".

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity "JN".

c. Combined Breakdown: If the combined 4,4'-DDT and endrin breakdown is greater than 30.0%:

i. Qualify all positive results for DDT and Endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable

	YES	NO	N/A
ACTION: If no, take action as specified in section 3.2 above.			
7.9 For each PEM standard, was the resolution between each pair of adjacent peaks ≥ 90.0% on both columns?	/		
ACTION: Qualify positive results for compounds not adequately resolved estimated (J). Qualify non-detects based on professional judgement.			
7.10 Have Forms VI PEST-6 & PEST-7 been completed for all midpoint Individual Standards A and B used for initial calibration?	/		
For each standard, was the resolution between each pair of adjacent peaks ≥ 90.0% on both columns?	/		
ACTION: If no, qualify positive results for compounds that were not adequately resolved estimated (J). Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable "R".			
7.11 Is Form VII Pest-1 present and complete for each PEM standard analyzed during the analytical sequence for both columns?	/		
Was the %Breakdown of DDT and Endrin calculated using the equations given on page D-26/PEST, sec. 9.2.4.8 in the SOW?	/		
Were all pesticides and surrogates in each PEM standard within the RT windows established during the Initial Calibration?	/		
ACTION: If no, take action as specified in 3.2 above.			
7.12 Has the individual percent breakdown for DDT/Endrin exceeded 20.0% in any PEM on either column? (See Form VII PEST-1.)			
- for 4,4'-DDT?	/		
- for Endrin?	/		
Has the combined percent breakdown for DDT/Endrin			

YES NO N/A

retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results "JN" and non-detects as unusable (R). For aroclors, the RT may be outside the window, but the aroclor may still be identified from its distinctive pattern.

7.6 Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (%RSD must be ≤ 25.0 for alpha and delta BHC, ≤ 30.0 for the two surrogates and ≤ 20% for all other analytes.) [ ] / ___

NOTE: Contractual requirements allow up to two single component TCL compounds, but not surrogates, on each column to exceed the criteria provided the %RSD is ≤ 30%. (See page D-28/Pest, sec. 9.2.5.7 in the SOW.) Technical criteria, however, are the same for all analytes.

ACTION: If technical criteria were not met, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects "UJ". When %RSD > 90%, flag all non-detect results for that analyte "R" (unusable).

ACTION: If more than two analytes failed %RSD, document in the Data Assessment Contract Problems/Non-Compliance section and Organic Regional Data Assessment Summary form.

7.7 Is the resolution between each pair of adjacent peaks in the Resolution Check Mixture ≥ 60.0% for both columns? (See Form VI PEST-4.) [/] ___ ___

ACTION: If no, qualify positive results for compounds that were not adequately resolved "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable (R).

7.8 Is Form VI PEST-5 present and complete for each Performance Evaluation Mixture (PEM) standard used for both initial and continuing calibrations (see SOW section 3.12.4.4, page B-52)? [/] ___ ___

	YES	NO	N/A
i. Instrument blanks?	✓		
j. Were the appropriate GC columns used as specified on pg. D-11/PEST, sections 6.23.3.1 to 6.23.3.7, in the SOW?	✓		
7.2 Do the chromatograms for all Individual Standard Mixtures and PEM analyses display single component analytes at > 10% but < 100% of full scale (see sections 9.3.5.8.1 thru 9.3.5.8.4, pages D-32 & 33/PEST)?	✓		
Have chromatograms for Individual Standard Mixtures and PEM analyses been replotted, showing scaling factor(s), to meet the above requirements when necessary?			✓

NOTE: All standard chromatograms must clearly display all peaks at > 10% but < 100% of full scale, and replotted if necessary to accommodate peaks not properly scaled in the initial chromatogram(s). Both the initial and replotted chromatograms must be submitted with the data package.

ACTION: If all single component peaks are not clearly displayed on chromatograms for all Individual Standard Mixtures and PEM analyses, notify the WAM to obtain resubmittal of the necessary data.

	YES	NO	N/A
7.3 Are Forms VI PEST 1-7 present and complete for each column and each analytical sequence?	✓		

ACTION: If no, take action as specified in 3.2 above.

	YES	NO	N/A
7.4 Are there any transcription/ calculation errors between raw data and Forms VI?		✓	

ACTION: If large errors exist, take action as specified in section 3.6 above.

	YES	NO	N/A
7.5 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the Initial Calibration (see Form VI PEST-1)?	✓		

ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected

YES NO N

to contact the laboratory if the soil blanks are not reported in soil units (µg/kg).

Flag sample result with a "U":	Report CRQL & qualify "U":	No qualification is needed:
Sample conc. > CRQL, but ≤ 5x blank.	Sample conc. < CRQL & is ≤ 5x blank value.	Sample conc. > CRQL & > 5x blank value.

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as "R", unusable.

6.5 Are there field/rinse/equipment blanks associated with every sample? [ ] ✓ ___

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For analytes with high concentrations, use professional judgement to qualify these values and document in the Data Assessment.

<u>Exception</u>: samples taken from a drinking water tap do not have associated field blanks.

7.0 Calibration and GC Performance

7.1 Are the following Gas Chromatograms and Data Systems Printouts for both columns present for all samples, blanks and MS/MSD:

a. Peak resolution check? [✓] ___ ___

b. Performance evaluation mixtures? [✓] ___ ___

c. Aroclor 1016/1260? [✓] ___ ___

d. Aroclors 1221, 1232, 1242, 1248, 1254? [✓] ___ ___

e. Toxaphene? [✓] ___ ___

f. Low points individual mixtures A & B? [✓] ___ ___

g. Med points individual mixtures A & B? [✓] ___ ___

h. High points individual mixtures A & B? [✓] ___ ___

	YES	NO	N/A
analyte?		/	
6.3 In any instrument blanks, is the concentration of any target hit > 0.5 times CRQL for that analyte (see SOW, section 13.1.4.4.2, page D-77/PEST)?		/	

NOTE: Most labs will report 0.5 times CRQLs on the instrument blank Form I instead of the actual method CRQLs. If the lab reported the actual CRQLs, then check if any detected hits are above 0.5 times the CRQLs reported on the Form I.

ACTION: If yes to any of the above questions: note in the Data Assessment under Contract Problems/Non-Compliance if any method or clean-up blanks contain hits > the CRQL, or of instrument blank contained hits > 0.5 times CRQL for that analyte.

	YES	NO	N/A
6.4 Do any field/rinse blanks have positive pest/PCB results?			

ACTION: Prepare a list of the samples associated with each contaminated blank. (Attach a separate sheet)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Do not convert <u>field blank</u> results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, and/or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

NOTE: When applied as directed in the table below, the contaminant concentration in method/instrument/reagent/cleanup blanks is multiplied by the sample dilution factor, where necessary.

If the laboratory has not already done so, the contaminant concentration in <u>soil</u> blanks is multiplied by 10 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate are used to prepare each soil reagent/method blank as instructed on page D-72/PEST, section 13.1.2.3.1. Ask the WAM

	YES	NO	N/
blank, and once under the sulfur clean-up blank (PCBLK). Was this additional blank raw data and Form IV submitted when required?	[ ]		/
ACTION: If sulfur clean-up blank data and Form IV are missing, take action as specified in 3.2 above.			
5.4 Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following the initial calibration sequence (minimum contract requirement)?	[/]		
ACTION: If any blank data are missing, take action as specified in section 3.2 above.			
5.5 Was the correct identification scheme used for all Pest/PCB blanks? (See page B-33, sec. 3.3.7.3 of the SOW for further information.)	[/]		
ACTION: Contact the WAM to obtain resubmittals or make the required corrections on the forms. Document in the Data Assessment under Contract Problems/Non-Compliance all corrections made by the validator.			
5.6 <u>Chromatography</u>: review the blank raw data - chromatograms, quant. reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable?	[/]		
ACTION: Use professional judgement to determine the effect on the data.			

6.0 Contamination

NOTE: "Water blanks", "distilled water blanks" and "drilling water blanks" are validated like any other sample and are <u>not</u> used to qualify the data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/reagent, instrument, or cleanup blanks show positive hits for pest/PCBs?		[/]	
6.2 If any method blanks and/or sulfur clean-up blanks contain "hits" for target compounds, are these hits greater than the CRQL for that			

	YES	NO	N/A
b. Soil?	✓		

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

ACTION: Circle all outliers with red pencil.

4.3 How many PEST/PCB spike recoveries are outside QC limits?

Water	Soil
_____ out of 12	2 out of 12

4,4'DDT 0% on both

4.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soil
_____ out of 6	0 out of 6

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

	YES	NO	N/A
5.1 Is the Method Blank Summary (Form IV) present?	✓		
5.2 Frequency of Analysis: Has a reagent/method blank been analyzed for each SDG, every 20 samples of similar matrix and concentration level or each extraction batch, whichever is more frequent?	✓		

ACTION: If any blank data are missing, take action as specified above in section 3.2. If blank data is not available, reject "R" all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.

5.3 A separate Form IV should be present if part of an extraction batch required sulfur removal. In such cases some samples will be listed on two blank summary forms - once under the method

YES NO N/

If recoveries are above the contract limit for both surrogates on both columns, then qualify positive values "J".

If both surrogates on one column are below the contract limit but above 10%, then use the data from the other column, providing both surrogates on that column are within contract limits. The validator must check from which column the concentration is reported for each analyte. If the value is reported from the failed column, then cross it out and use the value from the other column. Document this change in the Data Assessment.

If recovery is below 10% for either surrogate on any column, qualify positive results "J" and flag non-detects "R".

3.5 Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of Individual Standard Mixture A (see Form VI Pest-1)? OK mg [✓] / ___

ACTION: If the RT limits are not met, positive results and non-detects for that sample may be qualified unusable, "R", based on professional judgement.

3.6 Are there any transcription/calculation errors between raw data and Form II? ___ [✓] ___

ACTION: If large errors exist, contact the WAM to obtain an explanation or resubmittal of corrected deliverables from the laboratory. Make any necessary corrections and document the effect in the Data Assessment.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [✓] ___ ___

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices (one MS/MSD must be performed for every 20 samples of similar matrix or concentration level):

a. Low Water? mg [✓] ___ /

	YES	NO	N/A
a. Low Water?	[ ]		✓
b. Soil?	[✓]		

ACTION: Contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3 Were outliers marked correctly with an asterisk?	[✓]		

ACTION: Circle all outliers with red pencil.

3.4 Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample, method blank or sulfur clean-up blank (30-150%)?	✓	[ ]	

ACTION: In the absence of matrix interference, qualification of the data is not required in the following three situations:

1. When surrogates on both columns are diluted out.

2. When one surrogate on one column was outside (either above or below) the contract limits but above 10%. → BW296, 98, 99

3. When the same surrogate on both columns is above the contract limit. BW263 BW248 BW248MS BW248MS

If the same surrogate on both columns is below the contract limit but above 10%, check chromatograms for interference. The reviewer may use professional judgement, and qualify only those analytes which elute in the region of the GC chromatogram where interference was observed.

If the same surrogate on both columns is below the contract limit but above 10% (with no interference), qualify non-detects and positive hits "J" (estimated).

If recoveries for both surrogates on both columns are below the contract limit but above 10%, flag positive results and non-detects for that sample "J".

YES NO N/A

PART C: PESTICIDE/PCB ANALYSIS

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody Records or SDG Narrative indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? / [ ] ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be qualified as estimated "J". If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable "R".

continuing calibration verification

ACTION: If samples were not iced, or if the ice was melted upon arrival at the laboratory, and the temperature of the cooler was elevated > 10° C, flag all positive results "J" and all non-detects "UJ".

ACTION: Check aqueous extraction log for sample pH, if adjustment was needed, it should have been noted in the SDG Narrative. If more information is needed, notify the WAM to contact the lab.

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded? ___ / [ ] ___

NOTE: Technical Holding Times: Water and soil samples for PEST/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction.

ACTION: If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits "UJ" and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the

YES NO N/

reliability of the data and the effects of additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable "R".

Table of Holding Time Violations
(See Chain-of-Custody Records)

Sample Analyzed	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed

NOTE: Contractual Holding Times: Extraction of water samples must be completed within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Extracts of water and soil/sediment samples must be analyzed within 40 days following start of extraction.

ACTION: If contractual holding times are exceeded, document in the Data Assessment and Organic Regional Data Assessment Summary form.

NOTE: The data reviewer must note in the Data Assessment whether or not technical and contractual holding times were met.

3.0 Surrogate Recovery (Form II)

3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water? [ ] ___ ___

b. Soil? [✓] ___ ___

3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summary for each of the following matrices:

	YES	NO	N/A
4.0 Data Validation Checklist			
4.1 Check the package for the following discrepancies:			
a. Is the package paginated in ascending order starting from the SDG narrative?	[✓]	___	___
b. Are all forms and copies legible?	[✓]	___	___
c. Is each fraction assembled in the order set forth in the SOW?	[✓]	___	___
d. Is a Sample Data Summary Package submitted immediately preceding the Sample Data Package?	[✓]	___	___

The following checklist is divided into three parts. Part A is for any VOA analyses, Part B is for BNAs and Part C is Pesticide/PCBs.

Does this package contain:

VOA Data?	___	✓	
BNA Data?	___	✓	
Pesticide/PCB data?	✓	___	

ACTION: Complete corresponding parts of checklist.

	YES	NO	N/A
ACTION: If yes, contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the laboratory.			
3.0 Cover Letter SDG Narrative			
3.1 Is the Narrative or Cover Letter Present?	✓		
3.2 Are case number, SDG number and contract number contained in the SDG Narrative or cover letter (see SOW, Exhibit B, section 2.6.1)?	✓		
3.3 Does the narrative contain the following information:			
VOA: description of trap and columns used during sample analyses?			✓
BNA: description of columns used during sample analyses?			✓
Pest: description of columns used during sample analyses?	✓		
NOTE: As per section 6.23.3.1 SOW/p. D-11/Pest, Packed columns are not permitted.			
3.4 Does the narrative, VOA and BNA sections, contain a list of all TICs identified as alkanes and their estimated concentrations?			✓
3.5 Does the narrative contain a record of all cooler temperatures? If the temperature of a cooler was exceeded, > 10° C, the lab must list by fraction and sample number, all affected samples.	✓		
3.6 Does the narrative contain a list of the pH values determined for each water sample submitted for volatile analysis (SOW Exhibit B, section 2.6.1.2)?			✓
3.7 Does the Case Narrative contain the statement, "verbatim", as required in Section B of the SOW?	✓		

ACTION: If "No", to any question in this section, contact the WAM to obtain all necessary resubmittals. If information is not available, document in the Data Assessment under Contract Problems/Non-Compliance section.

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 27133 LABORATORY: SWOK

SITE NAME: Cornell-Dubilier SDG Number(s): BW248

1.0 Chain of Custody and Sampling Trip Reports

1.1 Are the Traffic Reports/Chain-of-Custody Records present for all samples? [✓] ___ ___

ACTION: If no, contact RSCC, or contact the WAM to obtain replacement of missing or illegible copies from the lab.

1.2 Is the Sampling Trip Report present for all samples and all fractions? [✓] ___ ___

ACTION: If no, contact either RSCC or ask the WAM to obtain this information from the prime contractor.

2.0 Data Completeness and Deliverables

2.1 Have any missing deliverables been received and added to the data package? ✓ ___

NOTE: The lab is required to submit data for only two analyses, for each fraction. (i.e., the original sample and one dilution, or the most concentrated dilution analyzed and one further dilution.)

ACTION: Contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the lab. If lab cannot provide them, note the effect on the review of the package in the Contract Problems/Non-compliance section of the Data Assessment and the Organic Regional Data Assessment Summary form.

2.2 Was CLASS CCS checklist included with package? [ ] ✓ ___

.3 Are there any discrepancies between the Traffic Reports/Chain-of-Custody Records, Sampling Report and Sample Tags? ___ [✓] ___

DATA REJECTION SUMMARY

Type of Review: Organic Date: 7/19/99 Case No. 27133, SDG# BWZ48

Site Name: Cornell-Dubilier Lab Name: SWOK Reviewer's Initials: MZ

Number of Samples: H_2O, 20 soils, +QC + reanalyses/dilutions

Analytes Rejected Due To Exceeding Review Criteria For:

No. of Compounds/No. of Fractions(Samples)

	Surrogates	Holding Times	Calibrat-ion	Contam-ination	ID	Internal Standards	Other	Total # Samples	Total # Rejected/ Total # in All Samples
VOA(41)	0	0	0	0	0	0	0	0	NA
ACID(14)	0	0	0	0	0	0	0	0	NA
B/N(45)	0	0	0	0	0	0	0	0	NA
PEST(21)	0	0	0	0	0	0	0	0	NA
PCB(7)	0	0	0	0	0	0	0	45	0/315 = 0%

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITIERIA.

Analytes Estimated Due To Exceeding Review Criteria For:

No. of Compounds/No. of Fractions(Samples)

	Surrogates	Holding Times	Calibrat-ion	Contam-ination	ID	Internal Standards	Other	Total # Samples	Total # estimated/ Total # in All Samples
VOA(41)	0	0	0	0	0	0	0	0	NA
ACID(14)	0	0	0	0	0	0	0	0	NA
B/N(45)	0	0	0	0	0	0	0	0	NA
PEST(21)	0	0	0	0	0	0	0	0	NA
PCB(7)	0	0	0	0	24	0	5	45	29/315 = 10%

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITIERIA.

DPO: []ACTION []FYI REGION 2

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 27133 LABORATORY SWOK

SDG NO. BWZ48 DATA USER EPA/Region II

SOW OLMO 3.2 REVIEW COMPLETION DATE 7/19/99

NO. OF SAMPLES WATER 20 SOIL OTHER

REVIEWER: [] ESD [x] ESAT [] OTHER, CONTRACTOR

QC ITEM	VOA	BNA	PEST		
HOLDING TIMES			O		
GC-MS PERFORMANCE			O		
INITIAL CALIBRATIONS			O		
CONTINUING CALIBRATIONS			O		
FIELD BLANKS(F = N/A)			O		
LABORATORY BLANKS			O		
SURROGATES			O		
MATRIX SPIKE/DUPLICATES			O		
QC SAMPLES(LCS, PVS)			O		
INTERNAL STANDARDS			F		
COMPOUND IDENTIFICATION			M		
COMPOUND QUANTITATION			X		
SYSTEM PERFORMANCE			O		
OVERALL ASSESSMENT			M		

O = No problems or minor problems that do not affect data usability.
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as either estimated or unusable.
Z = More than about 5% of the data points are qualified as unusable.

DATA REJECTION SUMMARY

Type of Review: Organic Date: 7/19/99 Case No.27133, SDG# BWZ48

Site Name: Cornell-Dubilier Lab Name: SWOK Reviewer's Initials: MZ

Number of Samples: H_2O, 20 soils, +QC + reanalyses/dilutions

Analytes Rejected Due To Exceeding Review Criteria For:

No. of Compounds/No. of Fractions(Samples)

	Surrogates	Holding Times	Calibrat-ion	Contam-ination	ID	Internal Standards	Other	Total # Samples	Total # Rejected/ Total # in All Samples
VOA(41)	0	0	0	0	0	0	0	0	NA
ACID(14)	0	0	0	0	0	0	0	0	NA
B/N(45)	0	0	0	0	0	0	0	0	NA
PEST(21)	0	0	0	0	0	0	0	0	NA
PCB(7)	0	0	0	0	0	0	0	45	0/315 = 0%

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITIERIA.

Analytes Estimated Due To Exceeding Review Criteria For:

No. of Compounds/No. of Fractions(Samples)

	Surrogates	Holding Times	Calibrat-ion	Contam-ination	ID	Internal Standards	Other	Total # Samples	Total # estimated/ Total # in All Samples
VOA(41)	0	0	0	0	0	0	0	0	NA
ACID(14)	0	0	0	0	0	0	0	0	NA
B/N(45)	0	0	0	0	0	0	0	0	NA
PEST(21)	0	0	0	0	0	0	0	0	NA
PCB(7)	0	0	0	0	24	0	5	45	29/315 = 10%

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITIERIA.

DPO: [ ]ACTION [ ]FYI REGION__2_

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO._27133__ LABORATORY_SWOK_____

SDG NO. BWZ48 _ DATA USER___EPA/Region II_____

SOW_OLMO 3.2 _____ REVIEW COMPLETION DATE_7/19/99___

NO. OF SAMPLES_____WATER ____20___SOIL _____OTHER

REVIEWER: [ ] ESD [x] ESAT [ ] OTHER, CONTRACTOR_____

QC ITEM	VOA	BNA	PEST		
HOLDING TIMES			O		
GC-MS PERFORMANCE			O		
INITIAL CALIBRATIONS			O		
CONTINUING CALIBRATIONS			O		
FIELD BLANKS(F = N/A)			O		
LABORATORY BLANKS			O		
SURROGATES			O		
MATRIX SPIKE/DUPLICATES			O		
QC SAMPLES(LCS, PVS)			O		
INTERNAL STANDARDS			F		
COMPOUND IDENTIFICATION			M		
COMPOUND QUANTITATION			X		
SYSTEM PERFORMANCE			O		
OVERALL ASSESSMENT			M		

O = No problems or minor problems that do not affect data usability.
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as either estimated or unusable.
Z = More than about 5% of the data points are qualified as unusable.

Percent Moisture Report

SDG NO: BWZ48
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ48.ASF

PERCENT MOISTURE LIMITS

	Primary	Expanded
PES	50%	90%

No problems found for this qualification.

DDE was detected in the sample, but DDT was not detected.
Non-detect DDT in associated samples is qualified "R".

BWZ51, BWZ57

DC-228: The following pesticide samples are associated with a continuing PEM in which the DDT % breakdown exceeds criteria.
DDD and DDE detected in associated samples are qualified "NJ".

BWZ48, BWZ48MS, BWZ48MSD, BWZ50, BWZ55, BWZ56
BWZ58, BWZ59, BWZ63, BWZ96, BWZ98, BWZ99
BXA00

DC-229: The following pesticide samples are associated with a continuing PEM in which the endrin % breakdown exceeds criteria.
Endrin detected in associated samples is qualified "J".

BWZ48, BWZ48MS, BWZ48MSD

DC-231: The following pesticide samples are associated with a continuing PEM in which the endrin % breakdown exceeds criteria. Endrin aldehyde and/or endrin ketone detected in associated samples are qualified "NJ".

BWZ48, BWZ48MS, BWZ48MSD

BWZ99

Dieldrin, 4,4'-DDE, 4,4'-DDD

BWZ99DL

Dieldrin

BXA00

Dieldrin, 4,4'-DDD, Endrin aldehyde

CLP DATA ASSESSMENT

relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10 ng/ml in the final sample extract.
PCB: The following samples were qualified "J" for Aroclor 1254 due to exceeding % D criteria of 50% between columns: BWZ50, BWZ51, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55, BWZ55DL, BWZ56, BWZ56DL, BWZ57DL, BWZ58, BWZ58DL, BWZ60, BWZ61, BWZ62, BWZ63, BWZ63DL, BWZ98, BWZ98DL, BWZ99, BWZ99DL, BXA00, and BXA00DL.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

PCB: The following samples were not labeled with an "E" (SOW, B-40, Sect. 3.4.2.18) after Aroclor 1254 due to the analyte exceeding calibration criteria (SOW, D-60/Pest, Sect. 10.2.3.3) in the original analysis: BWZ48 and BWZ63.

The following diluted samples were not required since the reported analytes in the orginal samples did not exceed the initial calibration high point standards as required by the SOW, D-59/Pest10.2.3.2 and 10.2.3.3: BWZ50DL, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55DL, BWZ57DL, BWZ58DL, BWZ60DL, BWZ61DL, BWZ62DL, BWZ96DL, BWZ97DL, BWZ98DL, and BXA00DL.

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

The initial data supplied in the final flags spreadsheet did not contain a number of the reported hits for Aroclor 1254 in the samples. These values were corrected, no further action was taken.

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following

CLP DATA ASSESSMENT

Form 1(s) are identified not to be used.

PCB: BWZ48DL, BWZ50DL, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55DL, BWZ56DL, BWZ57DL, BWZ58DL, BWZ59DL, BWZ60DL, BWZ61DL, BWZ62DL, BWZ63DL, BWZ96DL, BWZ97DL, BWZ98DL, BWZ99DL, and BXA00DL.

Holding Time Report

SDG NO: **BWZ48** LABORATORY: **SWL-TULSA**

CASE NO: **27133** AGENCY INPUT FILE: **BWZ48.ASF**

HOLDING TIME CRITERIA

Pesticide

	--- Extraction ---		---- Analysis ----	
	Primary	Expanded	Primary	Expanded
Water	7	28	40	60
Soil	7	28	40	60

No problems found for this qualification.

SDG NO: BWZ48 LABORATORY: SWL-TULSA
CASE NO: 27133 AGENCY INPUT FILE: BWZ48.ASF

SMC/SURROGATE CRITERIA

Pesticide

Percent Recovery Limits

	--- Water ---		---- Soil ---	
	Lower	Upper	Lower	Upper
Tetrachloro-m-xylene	30.0	150.0	30.0	150.0
Decachlorobiphenyl	30.0	150.0	30.0	150.0

DC-174: The following pesticide samples have surrogate percent recoveries which exceed the upper limit of the criteria window.
If %R for both surrogates on both columns are > contract limit, hits are flagged "J".

BWZ48, BWZ48DL, BWZ48MS, BWZ48MSD, BWZ50, BWZ50DL
BWZ51, BWZ51DL, BWZ52, BWZ53, BWZ54, BWZ55
BWZ56, BWZ56DL, BWZ57, BWZ58, BWZ59, BWZ60
BWZ61, BWZ62, BWZ63, BWZ63DL, BWZ96, BWZ96DL
BWZ98, BWZ98DL, BWZ99, BWZ99DL, BXA00DL

DC-176: The following diluted pesticide samples have surrogate percent recoveries of less than 10%. Professional judgement is recommended.
Hits and non-detects are not flagged.

BWZ50DL, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55DL
BWZ56DL, BWZ57DL, BWZ58DL, BWZ59DL, BWZ60DL, BWZ61
BWZ61DL, BWZ62DL

DC-178: The following pesticide samples are not fully qualified for surrogate RT because of missing RT information. Visual inspection of the data is required. Samples with surrogates falling outside the RT window should be qualified based on professional judgement.

BWZ50DL, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55DL
BWZ56DL, BWZ57DL, BWZ58DL, BWZ59DL, BWZ60DL, BWZ61
BWZ61DL, BWZ62DL

Matrix Spike Report

SDG NO: **BWZ48** LABORATORY: **SWL-TULSA**

CASE NO: **27133** AGENCY INPUT FILE: **BWZ48.ASF**

MATRIX SPIKE CRITERIA

Pesticide

Percent Recovery Limits & RPD

	Water			Soil		
	Lower	Upper	RPD	Lower	Upper	RPD
gamma-BHC (Lindane)	56.0	123.0	15.0	46.0	127.0	50.0
Heptachlor	40.0	131.0	20.0	35.0	130.0	31.0
Aldrin	40.0	120.0	22.0	34.0	132.0	43.0
Dieldrin	52.0	126.0	18.0	31.0	134.0	38.0
Endrin	56.0	121.0	21.0	42.0	139.0	45.0
4,4'-DDT	38.0	127.0	27.0	23.0	134.0	50.0

DC-170: The following pesticide matrix spike/matrix spike duplicate samples have percent recovery outside criteria.
Use professional judgement to qualify the data.

BWZ48MS
4,4'-DDT

BWZ48MSD
4,4'-DDT

Laboratory Blanks Report

SDG NO: BWZ48
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ48.ASF

LABORATORY BLANKS CRITERIA

Pesticide

Method Blank Contamination Threshold Multipliers

	First	Expanded
All compounds	5.00	5.00

No problems found for this qualification.

CALIBRATION CRITERIA

Pesticide

Maximum %RSD (initial calibration)	- TCL analytes	20
	- surrogates	30
Maximum RPD (continuing calibration)		25
INDA/INDB percent resolution		90
Continuing calibration sequence time		12

DC-197: The following pesticide samples are not qualified because of missing calibration verification information. Visual inspection of the data is required.

BWZ48, BWZ48DL, BWZ48MS, BWZ48MSD, BWZ50, BWZ50DL
BWZ51, BWZ51DL, BWZ52, BWZ52DL, BWZ53, BWZ53DL
BWZ54, BWZ54DL, BWZ55, BWZ55DL, BWZ56, BWZ56DL
BWZ57, BWZ57DL, BWZ58, BWZ58DL, BWZ59, BWZ59DL
BWZ60, BWZ60DL, BWZ61, BWZ61DL, BWZ62, BWZ62DL
BWZ63, BWZ63DL, BWZ96, BWZ96DL, BWZ97, BWZ97DL
BWZ98, BWZ98DL, BWZ99, BWZ99DL, BXA00, BXA00DL
PBLKSA, PBLKSB, PBLKSC

SDG NO: BWZ48
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ48.ASF

SYSTEM PERFORMANCE CRITERIA

Resolution & Breakdown Limits

RESC percent resolution	60.00
PEM percent resolution	90.00
4,4'-DDT percent breakdown	20.00
Endrin percent breakdown	20.00
Combined percent breakdown	30.00

DC-215: The following pesticide samples are associated with a continuing PEM in which the RPD between the nominal and calculated amounts for a PEM compound is outside criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BWZ48
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ48MS
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ48MSD
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ50
4,4'-DDT, Methoxychlor

BWZ51
4,4'-DDT, Methoxychlor

BWZ52
4,4'-DDT, Methoxychlor

BWZ53
4,4'-DDT, Methoxychlor

BWZ54
4,4'-DDT, Methoxychlor

BWZ55
4,4'-DDT, Methoxychlor

BWZ56
4,4'-DDT, Methoxychlor

BWZ57
4,4'-DDT, Methoxychlor

BWZ58
4,4'-DDT, Methoxychlor

BWZ59
4,4'-DDT, Methoxychlor

BWZ60
4,4'-DDT, Methoxychlor

BWZ61
4,4'-DDT, Methoxychlor

BWZ62
4,4'-DDT, Methoxychlor

BWZ63
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ96
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ97
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ98
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ99
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BXA00
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

DC-226: The following pesticide samples are associated with a continuing PEM in which the DDT % breakdown exceeds criteria. DDT detected in associated samples is qualified "J".

BWZ48, BWZ48MS, BWZ48MSD, BWZ50, BWZ52, BWZ53
BWZ54, BWZ55, BWZ56, BWZ58, BWZ59, BWZ61
BWZ63, BWZ96, BWZ98, BWZ99, BXA00

DC-227: The following pesticide samples are associated with a continuing PEM in which the DDT % breakdown exceeds criteria. DDD and/or

alpha-Chlordane

BWZ56DL
alpha-Chlordane

BWZ57
Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin
alpha-Chlordane, gamma-Chlordane

BWZ57DL J
Aroclor-1254

BWZ58
Dieldrin, 4,4'-DDE, alpha-Chlordane

BWZ58DL
alpha-Chlordane

BWZ59
Heptachlor epoxide, Dieldrin, Endosulfan II, Endrin aldehyde
alpha-Chlordane, gamma-Chlordane

BWZ59DL
alpha-Chlordane

BWZ61
Dieldrin, alpha-Chlordane

BWZ62 J
Aroclor-1254

BWZ63
Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate, Methoxychlor, Endrin aldehyde, alpha-Chlordane
Aroclor-1254 J

BWZ63DL J
Dieldrin, 4,4'-DDD, alpha-Chlordane, Aroclor-1254

BWZ96
4,4'-DDE, 4,4'-DDD

BWZ96DL
4,4'-DDT

BWZ98
Dieldrin, Endrin aldehyde

BWZ48DL

4,4'-DDD, Methoxychlor, gamma-Chlordane

BWZ48MS

Aldrin, Endrin, Endosulfan II, Methoxychlor
Endrin aldehyde, gamma-Chlordane

BWZ48MSD

Endrin, Methoxychlor, Endrin aldehyde, gamma-Chlordane

BWZ50

Heptachlor epoxide, 4,4'-DDE, Endrin, 4,4'-DDT
alpha-Chlordane

BWZ50DL

Dieldrin, 4,4'-DDE, alpha-Chlordane, gamma-Chlordane

BWZ51

4,4'-DDE, alpha-Chlordane

BWZ51DL

Dieldrin, alpha-Chlordane

BWZ52

Methoxychlor, alpha-Chlordane

BWZ52DL

alpha-Chlordane

BWZ53

alpha-Chlordane

BWZ53DL

alpha-Chlordane

BWZ54

Methoxychlor, alpha-Chlordane

BWZ54DL

alpha-Chlordane

BWZ55

Dieldrin, 4,4'-DDE, 4,4'-DDT, Methoxychlor
alpha-Chlordane

BWZ56

4,4'-DDE, Endrin, Methoxychlor, Endrin aldehyde

BWZ60 J

Aroclor-1254

BWZ61

gamma-Chlordane

BWZ61DL J

Aroclor-1254

BWZ62

alpha-Chlordane

BWZ63

4,4'-DDT

BWZ63DL

4,4'-DDT, Methoxychlor, gamma-Chlordane

BWZ96

4,4'-DDT, alpha-Chlordane

BWZ97DL

4,4'-DDT

BWZ98

4,4'-DDE, 4,4'-DDT

BWZ99

4,4'-DDT, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ99DL

4,4'-DDT, Endrin ketone, Endrin aldehyde

BXA00

4,4'-DDE, gamma-Chlordane

DC-423: The following pesticide samples have analytes for which the percent difference between column results exceeds expanded criteria. Hits > CRQL are flagged "NJ;" or "R" when %D > 100; or "NJ" when %D is between 100 - 200 (interference detected). Hits < CRQL are elevated to the CRQL and qualified "U."

BWZ48

Dieldrin, Endrin, 4,4'-DDD, Methoxychlor

Endrin aldehyde, gamma-Chlordane

BWZ48

Heptachlor epoxide, Endosulfan II, Endrin ketone

BWZ48DL

4,4'-DDE, Endrin, Endosulfan II

BWZ48MS

Heptachlor epoxide, Dieldrin, 4,4'-DDD, Endrin ketone

BWZ48MSD

Aldrin, Heptachlor epoxide, Endosulfan II, 4,4'-DDD
Endrin ketone

BWZ50

gamma-Chlordane

BWZ50DL

Endrin aldehyde

BWZ51

Heptachlor epoxide, gamma-Chlordane

BWZ51DL

gamma-Chlordane

BWZ53

4,4'-DDT, Methoxychlor

BWZ54

4,4'-DDT

BWZ55

Heptachlor epoxide, gamma-Chlordane

BWZ57DL

Dieldrin

BWZ58

4,4'-DDT, Methoxychlor

BWZ59

Endrin

BWZ59DL

Dieldrin

alpha-Chlordane

BWZ59
Endosulfan II

BWZ59DL
Dieldrin, alpha-Chlordane, Aroclor-1254

BWZ60
Aroclor-1254

BWZ61
Dieldrin

BWZ61DL
Aroclor-1254

BWZ62
Aroclor-1254

BWZ63
Methoxychlor

BWZ63DL
Dieldrin, 4,4'-DDD, Methoxychlor

BWZ96DL
4,4'-DDT

BWZ97DL
4,4'-DDT

BWZ98DL
4,4'-DDE, 4,4'-DDT

BWZ99DL
Dieldrin, Endrin ketone, Endrin aldehyde

BXA00
4,4'-DDE

DC-422: The following pesticide samples have analytes for which the percent difference between column results exceeds primary criteria. Hits > CRQL are flagged "J." Or: if %D is > 50% and value is < CRQL, sample result is elevated to the CRQL and qualified "U."

Quantitation Limit Report

SDG NO: **BWZ48** LABORATORY: **SWL-TULSA**

CASE NO: **27133** AGENCY INPUT FILE: **BWZ48.ASF**

CONTRACT REQUIRED SAMPLE QUANTITY

	Water	Low Soil	Med Soil
PES	1000.0 (ML)	30.0 (G)	

DC-158: The following pesticide samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

BWZ48DL
4,4'-DDE, 4,4'-DDD, Methoxychlor

BWZ50DL
Dieldrin, 4,4'-DDE, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ51DL
Dieldrin, 4,4'-DDT, gamma-Chlordane

BWZ52DL
4,4'-DDT, alpha-Chlordane

BWZ53DL
4,4'-DDT, alpha-Chlordane, gamma-Chlordane

BWZ54DL
4,4'-DDT, alpha-Chlordane

BWZ55
4,4'-DDE, Methoxychlor

BWZ56
4,4'-DDE, Endrin

BWZ56DL
4,4'-DDT, alpha-Chlordane, gamma-Chlordane

BWZ57DL
Dieldrin, Aroclor-1254

BWZ58
4,4'-DDE

BWZ58DL

CLP DATA ASSESSMENT

used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < ±30% (VOA) or ±25% (BNA). A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

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

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

PCB: No problems.

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.

PCB: No problems.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's

CLP DATA ASSESSMENT

reasons:

A) Method blank contamination:
PCB: No problems.

B) Field or rinse blank contamination:
PCB: No problems.

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".
PCB: No problems.

6. CALIBRATION:

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

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

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

Percent RSD is calculated from the initial calibration and is

CLP DATA ASSESSMENT

SDG 1, BWZ48: PCB ONLY

1. HOLDING TIME:

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

The following action was taken in the samples and analytes shown due to excessive holding time.
PCB: No problems.

2. SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.
PCB: No problems.

3. LABORATORY CONTROL SAMPLE (LCS):

The LCS data is generated from a laboratory quality control sample. LCS data is intended to assess the ability of the contractor to perform the analytical method.
PCB: No problems.

4. BLANK CONTAMINATION:

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

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 27133 SDG No.: BWZ48
LABORATORY: SWOK SITE: Cornell Dubilier

DATA ASSESSMENT

The current SOP HW-6 (Revision 11) June 1996, USEPA Region II Data Validation SOP for Statement of Work OLMO 3.2 for evaluating organic data have been applied.

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

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

Reviewer's
Signature: Mark Zambrowski Date: July 19, 1999

Verified By: _____ Date: ____/____/199__

	YES	NO	N/A
13.0 Field Duplicates			
13.1 Were any field duplicates submitted?	[✓]	___	___

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

BW253/BW254

RECEIVED
JUL 14 1999.

SOUTHWEST LABORATORY OF OKLAHOMA
(SWL-TULSA)
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

CONTRACT: 68-D5-0026

CASE NO: 27133

SDG NO: BWZ48

SAMPLES: BWZ48, BWZ50, BWZ51, BWZ52, BWZ53, BWZ54, BWZ55, BWZ56, BWZ57, BWZ58, BWZ59, BWZ60, BWZ61, BWZ62, BWZ63, BWZ96, BWZ97, BWZ98 BWZ99, BWA00, BWZ48DL, BWZ50DL, BWZ51DL, BWZ52DL, BWZ53DL, BWZ54DL, BWZ55DL, BWZ56DL, BWZ57DL, BWZ58DL, BWZ59DL, BWZ60DL, BWZ61DL, BWZ62DL, BWZ63DL, BWZ96DL, BWZ97DL, BWZ98DL, BWZ99DL, BWA00DL,

FRACTION: Pesticide/PCB

This SDG consisted of 20 soil samples that were analyzed for pesticide/PCBs, by EPA SOW OLM03.2. The samples were analyzed on Restek and J&W dual analytical columns. The Restek columns were RTX-PEST/RTX-PEST2. The J&W columns were DB-17MS/DB-XLB. The DB-17MS phase consists of (50%-Phenyl) Methylpolysiloxane. The DB-XLB, RTX-PEST and RTX-PEST 2 phases are proprietary. These columns were specifically designed for pesticide/PCB separation as required by the EPA's SOW. All applicable manufacturer's instructions were followed for the analysis of pesticides/PCBs. Manufacturer provided information on the performance characteristics of the columns are kept on site. Hydrogen was used as the carrier gas for all instruments except HP-6 and HP-8 (helium). The temperature(s) of the cooler(s) were noted at 7 and 9 ° C.

The matrix of these soil samples caused problems with their analysis by introducing interference peaks in the sample chromatograms and degrading instrument performance. All of the samples also contained degraded arochlor patterns. It should be noted that when multi-responding compounds and/or large numbers of "interference" peaks are present in a sample, false positives of single response compounds are common. Since ECD detection is not a definitive means of detection, single-response analytes in the presence of multi-responders or interference will be reported, per the method, if a peak is within a target analyte's retention time window on both columns, then it is reported as that target analyte). This alleviates the possibility that false negative results will be reported. <u>However, this may lead to false positives.</u> The end data user should be aware of the limitations of the method and take appropriate care.

When analyzed undiluted the samples in this SDG caused breakdown of 4,4'-DDT in the

01

calibration verification standards following their injection. The calibration verification standards analyzed before these samples met OLM03.2 continuing calibration criteria. When diluted 10X, or 100X for some samples, the samples met OLM03.2 acceptance criteria. A non-compliant analysis and a compliant higher dilution analysis were performed for these samples. Forms for the compliant and non-compliant data have been submitted.

Blanks: No corrective action required.

Surrogates: No corrective action required.

Matrix Spikes: No corrective action required. 2 out of 12 recoveries wee outside of control limits due to matrix interference. The raw data for the 10x dilution analysis of the matrix spikes was included as miscellaneous data.

The following tables list the total nanograms injected on column for each calibration standard based upon amount injected, 0.5µL, 1µL, or 2µL:

RESOLUTION CHECK

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
gamma-Chlordane	0.005	0.01	0.02
Endosulfan I	0.005	0.01	0.02
4,4'-DDE	0.01	0.02	0.04
Dieldrin	0.01	0.02	0.04
Endosulfan Sulfate	0.01	0.02	0.04
Endrin Ketone	0.01	0.02	0.04
Methoxychlor	0.5	0.1	0.2
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.01	0.02	0.04

PERFORMANCE EVALUATION

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
gamma-BHC	0.005	0.01	0.02
alpha-BHC	0.005	0.01	0.02
4,4'-DDT	0.05	0.1	.02
beta-BHC	0.005	0.01	0.02
Endrin	0.025	0.05	0.1
Methoxychlor	0.125	0.25	0.5
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.01	0.02	0.04

INDIVIDUAL STANDARD MIXTURE A -- LOW

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
alpha-BHC	0.0025	0.005	0.01
Heptachlor	0.0025	0.005	0.01
gamma-BHC	0.0025	0.005	0.01
Endosulfan I	0.0025	0.005	0.01
Dieldrin	0.005	0.01	0.02
Endrin	0.005	0.01	0.02
4,4'-DDD	0.005	0.01	0.02
4,4'-DDT	0.005	0.01	0.02
Methoxychlor	0.025	0.05	0.1
Tetrachloro-m-xylene	0.0025	0.005	0.01
Decachlorobiphenyl	0.005	0.01	0.02

INDIVIDUAL STANDARD MIXTURE B -- LOW

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
beta-BHC	0.0025	0.005	0.01
delta-BHC	0.0025	0.005	0.01
Aldrin	0.0025	0.005	0.01
Heptachlor epoxide	0.0025	0.005	0.01
alpha-Chlordane	0.0025	0.005	0.01
gamma-Chlordane	0.0025	0.005	0.01
4,4'-DDE	0.005	0.01	0.02
Endosulfan sulfate	0.005	0.01	0.02
Endrin aldehyde	0.005	0.01	0.02
Endrin ketone	0.005	0.01	0.02
Endosulfan II	0.005	0.01	0.02
Tetrachloro-m-xylene	0.0025	0.005	0.01
Decachlorobiphenyl	0.005	0.01	0.02

INDIVIDUAL STANDARD MIXTURE A -- MEDIUM

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
alpha-BHC	0.01	0.02	0.04
Heptachlor	0.01	0.02	0.04
gamma-BHC	0.01	0.02	0.04
Endosulfan I	0.01	0.02	0.04
Dieldrin	0.02	0.04	0.08
Endrin	0.02	0.04	0.08
4,4'-DDD	0.02	0.04	0.08
4,4'-DDT	0.02	0.04	0.08
Methoxychlor	0.1	0.2	0.4
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.02	0.04	0.08

INDIVIDUAL STANDARD MIXTURE B -- MEDIUM

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
beta-BHC	0.01	0.02	0.04
delta-BHC	0.01	0.02	0.04
Aldrin	0.01	0.02	0.04
Heptachlor epoxide	0.01	0.02	0.04
alpha-Chlordane	0.01	0.02	0.04
gamma-Chlordane	0.01	0.02	0.04
4,4'-DDE	0.02	0.04	0.08
Endosulfan sulfate	0.02	0.04	0.08
Endrin aldehyde	0.02	0.04	0.08
Endrin ketone	0.02	0.04	0.08
Endosulfan II	0.02	0.04	0.08
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.02	0.04	0.08

INDIVIDUAL STANDARD MIXTURE A -- HIGH

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
alpha-BHC	0.04	0.08	0.16
Heptachlor	0.04	0.08	0.16
gamma-BHC	0.04	0.08	0.16
Endosulfan I	0.04	0.08	0.16
Dieldrin	0.08	0.16	0.32
Endrin	0.08	0.16	0.32
4,4'-DDD	0.08	0.16	0.32
4,4'-DDT	0.08	0.16	0.32
Methoxychlor	0.4	0.8	1.6
Tetrachloro-m-xylene	0.04	0.08	0.16
Decachlorobiphenyl	0.08	0.16	0.32

INDIVIDUAL STANDARD MIXTURE B -- HIGH

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
beta-BHC	0.04	0.08	0.16
delta-BHC	0.04	0.08	0.16
Aldrin	0.04	0.08	0.16
Heptachlor epoxide	0.04	0.08	0.16
alpha-Chlordane	0.04	0.08	0.16
gamma-Chlordane	0.04	0.08	0.16
4,4'-DDE	0.08	0.16	0.32
Endosulfan sulfate	0.08	0.16	0.32
Endrin aldehyde	0.08	0.16	0.32
Endrin ketone	0.08	0.16	0.32
Endosulfan II	0.08	0.16	0.32
Tetrachloro-m-xylene	0.04	0.08	0.16
Decachlorobiphenyl	0.08	0.16	0.32

MULTI-RESPONSE STANDARD MIXTURES

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
Aroclor-1016	0.05	0.1	0.2
Aroclor-1221	0.1	0.2	0.4
Aroclor-1232	0.05	0.1	0.2
Aroclor-1242	0.05	0.1	0.2
Aroclor-1248	0.05	0.1	0.2
Aroclor-1254	0.05	0.1	0.2
Aroclor-1260	0.05	0.1	0.2
Toxaphene	0.25	0.5	1.0

All manual integrations in this data package for GC/EC have been performed for one of the following reasons:

a. Data system missed a peak during processing.
b. Data system improperly integrated a peak.

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

Drew Cowan
GC Supervisor
Dc

July 12, 1999

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA CONTRACT NO.: 68-D5-0026

LAB CODE: SWOK CASE NO.: 27133 SAS NO.:

FULL SAMPLE ANALYSIS PRICE IN CONTRACT:

SDG No./First Sample in SDG: (Lowest EPA Sample Number in first shipment of samples received under SDG). BWZ48 Sample Receipt Date: 06/23/99 (MM/DD/YY)

Last Sample in SDG: (Highest EPA Sample Number in last shipment of samples received under SDG). BXA00 Sample Receipt Date: 06/23/99

EPA Sample Numbers in the SDG (listed in alphanumeric order):

1) BWZ48
2) BWZ50
3) BWZ51
4) BWZ52
5) BWZ53
6) BWZ54
7) BWZ55
8) BWZ56
9) BWZ57
10) BWZ58
11) BWZ59
12) BWZ60
13) BWZ61
14) BWZ62
15) BWZ63
16) BWZ96
17) BWZ97
18) BWZ98
19) BWZ99
20) BXA00

Note: There are a maximum of 20 field samples in a SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

06

Harry M Cory
Sample Custodian

6-28-99
Date

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ48

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.06

Sample wt/vol: 31.2 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/07/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.1	U
319-85-7	beta-BHC	2.1	U
319-86-8	delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	18	P
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	24	P
72-55-9	4,4'-DDE	36	
72-20-8	Endrin	29	P
33213-65-9	Endosulfan II	82	PE
72-54-8	4,4'-DDD	68	PE
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	210	E
72-43-5	Methoxychlor	33	P
53494-70-5	Endrin ketone	60	P
7421-93-4	Endrin aldehyde	37	P
5103-71-9	alpha-Chlordane	140	E
5103-74-2	gamma-Chlordane	100	PE
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	82	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254 *	730 ~~590~~	
11096-82-5	Aroclor-1260	40	U

* From Dilution

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ48DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.06DL

Sample wt/vol: 31.2 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/07/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	21	U
319-85-7	beta-BHC	21	U
319-86-8	delta-BHC	21	U
58-89-9	gamma-BHC (Lindane)	21	U
76-44-8	Heptachlor	21	U
309-00-2	Aldrin	21	U
1024-57-3	Heptachlor epoxide	26	D
959-98-8	Endosulfan I	21	U
60-57-1	Dieldrin	40	U
72-55-9	4,4'-DDE	28	DPJ
72-20-8	Endrin	60	DP
33213-65-9	Endosulfan II	110	DP
72-54-8	4,4'-DDD	39	DPJ
1031-07-8	Endosulfan sulfate	40	U
50-29-3	4,4'-DDT	280	D
72-43-5	Methoxychlor	110	DPJ
53494-70-5	Endrin ketone	110	D
7421-93-4	Endrin aldehyde	40	U
5103-71-9	alpha-Chlordane	120	D
5103-74-2	gamma-Chlordane	92	DP
8001-35-2	Toxaphene	2100	U
12674-11-2	Aroclor-1016	400	U
11104-28-2	Aroclor-1221	820	U
11141-16-5	Aroclor-1232	400	U
53469-21-9	Aroclor-1242	400	U
12672-29-6	Aroclor-1248	400	U
11097-69-1	Aroclor-1254 *	730	~~D~~
11096-82-5	Aroclor-1260	400	U

* To Original

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ50

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.08

Sample wt/vol: 31.9 (g/mL) G Lab File ID: _____

% Moisture: 36 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	25	U
319-85-7	beta-BHC	25	U
319-86-8	delta-BHC	25	U
58-89-9	gamma-BHC (Lindane)	25	U
76-44-8	Heptachlor	25	U
309-00-2	Aldrin	25	U
1024-57-3	Heptachlor epoxide	48	P
959-98-8	Endosulfan I	25	U
60-57-1	Dieldrin	48	U
72-55-9	4,4'-DDE	93	P
72-20-8	Endrin	61	P
33213-65-9	Endosulfan II	48	U
72-54-8	4,4'-DDD	48	U
1031-07-8	Endosulfan sulfate	48	U
50-29-3	4,4'-DDT	200	P
72-43-5	Methoxychlor	250	U
53494-70-5	Endrin ketone	48	U
7421-93-4	Endrin aldehyde	48	U
5103-71-9	alpha-Chlordane	150	P
5103-74-2	gamma-Chlordane	130	P
8001-35-2	Toxaphene	2500	U
12674-11-2	Aroclor-1016	480	U
11104-28-2	Aroclor-1221	980	U
11141-16-5	Aroclor-1232	480	U
53469-21-9	Aroclor-1242	480	U
12672-29-6	Aroclor-1248	480	U
11097-69-1	Aroclor-1254	1100	~~P~~ U
11096-82-5	Aroclor-1260	480	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ50DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.08DL

Sample wt/vol: 31.9 (g/mL) G Lab File ID: _____

% Moisture: 36 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/09/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	250	U
319-85-7	beta-BHC	250	U
319-86-8	delta-BHC	250	U
58-89-9	gamma-BHC (Lindane)	250	U
76-44-8	Heptachlor	250	U
309-00-2	Aldrin	250	U
1024-57-3	Heptachlor epoxide	250	U
959-98-8	Endosulfan I	250	U
60-57-1	Dieldrin	200	DPJ
72-55-9	4,4'-DDE	130	DPJ
72-20-8	Endrin	480	U
33213-65-9	Endosulfan II	480	U
72-54-8	4,4'-DDD	480	U
1031-07-8	Endosulfan sulfate	480	U
50-29-3	4,4'-DDT	710	D
72-43-5	Methoxychlor	2500	U
53494-70-5	Endrin ketone	480	U
7421-93-4	Endrin aldehyde	210	DPJ
5103-71-9	alpha-Chlordane	230	DPJ
5103-74-2	gamma-Chlordane	180	DPJ
8001-35-2	Toxaphene	25000	U
12674-11-2	Aroclor-1016	4800	U
11104-28-2	Aroclor-1221	9800	U
11141-16-5	Aroclor-1232	4800	U
53469-21-9	Aroclor-1242	4800	U
12672-29-6	Aroclor-1248	4800	U
11097-69-1	Aroclor-1254	3900	DJ
11096-82-5	Aroclor-1260	4800	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ51

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.09

Sample wt/vol: 31.9 (g/mL) G Lab File ID: _____

% Moisture: 39 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	26	U
319-85-7	beta-BHC	26	U
319-86-8	delta-BHC	26	U
58-89-9	gamma-BHC (Lindane)	26	U
76-44-8	Heptachlor	26	U
309-00-2	Aldrin	26	U
1024-57-3	Heptachlor epoxide	48	P
959-98-8	Endosulfan I	26	U
60-57-1	Dieldrin	51	U
72-55-9	4,4'-DDE	59	P
72-20-8	Endrin	51	U
33213-65-9	Endosulfan II	51	U
72-54-8	4,4'-DDD	51	U
1031-07-8	Endosulfan sulfate	51	U
50-29-3	4,4'-DDT	51	U
72-43-5	Methoxychlor	310	
53494-70-5	Endrin ketone	51	U
7421-93-4	Endrin aldehyde	51	U
5103-71-9	alpha-Chlordane	170	P
5103-74-2	gamma-Chlordane	150	P
8001-35-2	Toxaphene	2600	U
12674-11-2	Aroclor-1016	510	U
11104-28-2	Aroclor-1221	1000	U
11141-16-5	Aroclor-1232	510	U
53469-21-9	Aroclor-1242	510	U
12672-29-6	Aroclor-1248	510	U
11097-69-1	Aroclor-1254	800	P
11096-82-5	Aroclor-1260	510	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ51DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.09DL

Sample wt/vol: 31.9 (g/mL) G Lab File ID: _____

% Moisture: 39 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/10/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	260	U
319-85-7	beta-BHC	260	U
319-86-8	delta-BHC	260	U
58-89-9	gamma-BHC (Lindane)	260	U
76-44-8	Heptachlor	260	U
309-00-2	Aldrin	260	U
1024-57-3	Heptachlor epoxide	260	U
959-98-8	Endosulfan I	260	U
60-57-1	Dieldrin	190	DPJ
72-55-9	4,4'-DDE	510	U
72-20-8	Endrin	510	U
33213-65-9	Endosulfan II	510	U
72-54-8	4,4'-DDD	510	U
1031-07-8	Endosulfan sulfate	510	U
50-29-3	4,4'-DDT	480	DJ
72-43-5	Methoxychlor	2600	U
53494-70-5	Endrin ketone	510	U
7421-93-4	Endrin aldehyde	510	U
5103-71-9	alpha-Chlordane	260	DP
5103-74-2	gamma-Chlordane	210	DPJ
8001-35-2	Toxaphene	26000	U
12674-11-2	Aroclor-1016	5100	U
11104-28-2	Aroclor-1221	10000	U
11141-16-5	Aroclor-1232	5100	U
53469-21-9	Aroclor-1242	5100	U
12672-29-6	Aroclor-1248	5100	U
11097-69-1	Aroclor-1254	2500	DJP
11096-82-5	Aroclor-1260	5100	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ52

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.10

Sample wt/vol: 30.9 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	37	
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	43	U
72-55-9	4,4'-DDE	43	U
72-20-8	Endrin	43	U
33213-65-9	Endosulfan II	43	U
72-54-8	4,4'-DDD	43	U
1031-07-8	Endosulfan sulfate	43	U
50-29-3	4,4'-DDT	270	
72-43-5	Methoxychlor	300	P
53494-70-5	Endrin ketone	43	U
7421-93-4	Endrin aldehyde	43	U
5103-71-9	alpha-Chlordane	130	P
5103-74-2	gamma-Chlordane	98	
8001-35-2	Toxaphene	2200	U
12674-11-2	Aroclor-1016	430	U
11104-28-2	Aroclor-1221	880	U
11141-16-5	Aroclor-1232	430	U
53469-21-9	Aroclor-1242	430	U
12672-29-6	Aroclor-1248	430	U
11097-69-1	Aroclor-1254	1100	P
11096-82-5	Aroclor-1260	430	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ52DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.10DL

Sample wt/vol: 30.9 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/07/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	220	U
319-85-7	beta-BHC	220	U
319-86-8	delta-BHC	220	U
58-89-9	gamma-BHC (Lindane)	220	U
76-44-8	Heptachlor	220	U
309-00-2	Aldrin	220	U
1024-57-3	Heptachlor epoxide	220	U
959-98-8	Endosulfan I	220	U
60-57-1	Dieldrin	430	U
72-55-9	4,4'-DDE	430	U
72-20-8	Endrin	430	U
33213-65-9	Endosulfan II	430	U
72-54-8	4,4'-DDD	430	U
1031-07-8	Endosulfan sulfate	430	U
50-29-3	4,4'-DDT	250	DJ
72-43-5	Methoxychlor	2200	U
53494-70-5	Endrin ketone	430	U
7421-93-4	Endrin aldehyde	430	U
5103-71-9	alpha-Chlordane	140	DPJ
5103-74-2	gamma-Chlordane	220	U
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4300	U
11104-28-2	Aroclor-1221	8800	U
11141-16-5	Aroclor-1232	4300	U
53469-21-9	Aroclor-1242	4300	U
12672-29-6	Aroclor-1248	4300	U
11097-69-1	Aroclor-1254	770	~~DJP~~ J
11096-82-5	Aroclor-1260	4300	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ53

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.11

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

% Moisture: 22 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

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	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	40	
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	42	U
72-55-9	4,4'-DDE	42	U
72-20-8	Endrin	42	U
33213-65-9	Endosulfan II	42	U
72-54-8	4,4'-DDD	42	U
1031-07-8	Endosulfan sulfate	42	U
50-29-3	4,4'-DDT	220	P
72-43-5	Methoxychlor	290	P
53494-70-5	Endrin ketone	42	U
7421-93-4	Endrin aldehyde	42	U
5103-71-9	alpha-Chlordane	130	P
5103-74-2	gamma-Chlordane	120	
8001-35-2	Toxaphene	2200	U
12674-11-2	Aroclor-1016	420	U
11104-28-2	Aroclor-1221	860	U
11141-16-5	Aroclor-1232	420	U
53469-21-9	Aroclor-1242	420	U
12672-29-6	Aroclor-1248	420	U
11097-69-1	Aroclor-1254	1000	
11096-82-5	Aroclor-1260	420	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ53DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.11DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

% Moisture: 22 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/07/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

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	220	U
319-85-7	beta-BHC	220	U
319-86-8	delta-BHC	220	U
58-89-9	gamma-BHC (Lindane)	220	U
76-44-8	Heptachlor	220	U
309-00-2	Aldrin	220	U
1024-57-3	Heptachlor epoxide	220	U
959-98-8	Endosulfan I	220	U
60-57-1	Dieldrin	420	U
72-55-9	4,4'-DDE	420	U
72-20-8	Endrin	420	U
33213-65-9	Endosulfan II	420	U
72-54-8	4,4'-DDD	420	U
1031-07-8	Endosulfan sulfate	420	U
50-29-3	4,4'-DDT	220	DJ
72-43-5	Methoxychlor	2200	U
53494-70-5	Endrin ketone	420	U
7421-93-4	Endrin aldehyde	420	U
5103-71-9	alpha-Chlordane	140	DPJ
5103-74-2	gamma-Chlordane	120	DJ
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4200	U
11104-28-2	Aroclor-1221	8600	U
11141-16-5	Aroclor-1232	4200	U
53469-21-9	Aroclor-1242	4200	U
12672-29-6	Aroclor-1248	4200	U
11097-69-1	Aroclor-1254	450	~~DJP~~ J
11096-82-5	Aroclor-1260	4200	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ54

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.12

Sample wt/vol: 30.2 (g/mL) G Lab File ID: _____

% Moisture: 23 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	40	
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	42	U
72-55-9	4,4'-DDE	42	U
72-20-8	Endrin	42	U
33213-65-9	Endosulfan II	42	U
72-54-8	4,4'-DDD	42	U
1031-07-8	Endosulfan sulfate	42	U
50-29-3	4,4'-DDT	210	P
72-43-5	Methoxychlor	250	P
53494-70-5	Endrin ketone	42	U
7421-93-4	Endrin aldehyde	42	U
5103-71-9	alpha-Chlordane	130	P
5103-74-2	gamma-Chlordane	120	
8001-35-2	Toxaphene	2200	U
12674-11-2	Aroclor-1016	420	U
11104-28-2	Aroclor-1221	860	U
11141-16-5	Aroclor-1232	420	U
53469-21-9	Aroclor-1242	420	U
12672-29-6	Aroclor-1248	420	U
11097-69-1	Aroclor-1254	1000	
11096-82-5	Aroclor-1260	420	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ54DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.12DL

Sample wt/vol: 30.2 (g/mL) G Lab File ID: _____

% Moisture: 23 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/07/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	220	U
319-85-7	beta-BHC	220	U
319-86-8	delta-BHC	220	U
58-89-9	gamma-BHC (Lindane)	220	U
76-44-8	Heptachlor	220	U
309-00-2	Aldrin	220	U
1024-57-3	Heptachlor epoxide	220	U
959-98-8	Endosulfan I	220	U
60-57-1	Dieldrin	420	U
72-55-9	4,4'-DDE	420	U
72-20-8	Endrin	420	U
33213-65-9	Endosulfan II	420	U
72-54-8	4,4'-DDD	420	U
1031-07-8	Endosulfan sulfate	420	U
50-29-3	4,4'-DDT	200	DJ
72-43-5	Methoxychlor	2200	U
53494-70-5	Endrin ketone	420	U
7421-93-4	Endrin aldehyde	420	U
5103-71-9	alpha-Chlordane	130	DPJ
5103-74-2	gamma-Chlordane	220	U
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4200	U
11104-28-2	Aroclor-1221	8600	U
11141-16-5	Aroclor-1232	4200	U
53469-21-9	Aroclor-1242	4200	U
12672-29-6	Aroclor-1248	4200	U
11097-69-1	Aroclor-1254	720	~~DJP~~ J
11096-82-5	Aroclor-1260	4200	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ55

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.13

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

% Moisture: 19 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	21	U
319-85-7	beta-BHC	21	U
319-86-8	delta-BHC	21	U
58-89-9	gamma-BHC (Lindane)	21	U
76-44-8	Heptachlor	21	U
309-00-2	Aldrin	21	U
1024-57-3	Heptachlor epoxide	27	P
959-98-8	Endosulfan I	21	U
60-57-1	Dieldrin	60	P
72-55-9	4,4'-DDE	27	PJ
72-20-8	Endrin	41	U
33213-65-9	Endosulfan II	41	U
72-54-8	4,4'-DDD	41	U
1031-07-8	Endosulfan sulfate	41	U
50-29-3	4,4'-DDT	76	P
72-43-5	Methoxychlor	140	PJ
53494-70-5	Endrin ketone	41	U
7421-93-4	Endrin aldehyde	41	U
5103-71-9	alpha-Chlordane	54	P
5103-74-2	gamma-Chlordane	51	P
8001-35-2	Toxaphene	2100	U
12674-11-2	Aroclor-1016	410	U
11104-28-2	Aroclor-1221	820	U
11141-16-5	Aroclor-1232	410	U
53469-21-9	Aroclor-1242	410	U
12672-29-6	Aroclor-1248	410	U
11097-69-1	Aroclor-1254	380	~~JP~~ J
11096-82-5	Aroclor-1260	410	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

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EPA SAMPLE NO.

BWZ55DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.13DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

% Moisture: 19 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/07/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	210	U
319-85-7	beta-BHC	210	U
319-86-8	delta-BHC	210	U
58-89-9	gamma-BHC (Lindane)	210	U
76-44-8	Heptachlor	210	U
309-00-2	Aldrin	210	U
1024-57-3	Heptachlor epoxide	210	U
959-98-8	Endosulfan I	210	U
60-57-1	Dieldrin	410	U
72-55-9	4,4'-DDE	410	U
72-20-8	Endrin	410	U
33213-65-9	Endosulfan II	410	U
72-54-8	4,4'-DDD	410	U
1031-07-8	Endosulfan sulfate	410	U
50-29-3	4,4'-DDT	410	U
72-43-5	Methoxychlor	2100	U
53494-70-5	Endrin ketone	410	U
7421-93-4	Endrin aldehyde	410	U
5103-71-9	alpha-Chlordane	210	U
5103-74-2	gamma-Chlordane	210	U
8001-35-2	Toxaphene	21000	U
12674-11-2	Aroclor-1016	4100	U
11104-28-2	Aroclor-1221	8200	U
11141-16-5	Aroclor-1232	4100	U
53469-21-9	Aroclor-1242	4100	U
12672-29-6	Aroclor-1248	4100	U
11097-69-1	Aroclor-1254	570	~~DJP~~ J
11096-82-5	Aroclor-1260	4100	U

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90

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EPA SAMPLE NO.

BWZ56

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.14

Sample wt/vol: 32.0 (g/mL) G Lab File ID: _____

% Moisture: 22 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	20	U
319-85-7	beta-BHC	20	U
319-86-8	delta-BHC	20	U
58-89-9	gamma-BHC (Lindane)	20	U
76-44-8	Heptachlor	20	U
309-00-2	Aldrin	20	U
1024-57-3	Heptachlor epoxide	43	
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	40	U
72-55-9	4,4'-DDE	27	PJ
72-20-8	Endrin	32	PJ
33213-65-9	Endosulfan II	40	U
72-54-8	4,4'-DDD	40	U
1031-07-8	Endosulfan sulfate	40	U
50-29-3	4,4'-DDT	360	
72-43-5	Methoxychlor	220	P
53494-70-5	Endrin ketone	40	U
7421-93-4	Endrin aldehyde	51	P
5103-71-9	alpha-Chlordane	150	P
5103-74-2	gamma-Chlordane	130	
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	400	U
11104-28-2	Aroclor-1221	800	U
11141-16-5	Aroclor-1232	400	U
53469-21-9	Aroclor-1242	400	U
12672-29-6	Aroclor-1248	400	U
11097-69-1	Aroclor-1254	670	~~P~~ J
11096-82-5	Aroclor-1260	400	U

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EPA SAMPLE NO.

BWZ56DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.14DL

Sample wt/vol: 32.0 (g/mL) G Lab File ID:

% Moisture: 22 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/07/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	200	U
319-85-7	beta-BHC	200	U
319-86-8	delta-BHC	200	U
58-89-9	gamma-BHC (Lindane)	200	U
76-44-8	Heptachlor	200	U
309-00-2	Aldrin	200	U
1024-57-3	Heptachlor epoxide	200	U
959-98-8	Endosulfan I	200	U
60-57-1	Dieldrin	400	U
72-55-9	4,4'-DDE	400	U
72-20-8	Endrin	400	U
33213-65-9	Endosulfan II	400	U
72-54-8	4,4'-DDD	400	U
1031-07-8	Endosulfan sulfate	400	U
50-29-3	4,4'-DDT	370	DJ
72-43-5	Methoxychlor	2000	U
53494-70-5	Endrin ketone	400	U
7421-93-4	Endrin aldehyde	400	U
5103-71-9	alpha-Chlordane	160	DPJ
5103-74-2	gamma-Chlordane	140	DJ
8001-35-2	Toxaphene	20000	U
12674-11-2	Aroclor-1016	4000	U
11104-28-2	Aroclor-1221	8000	U
11141-16-5	Aroclor-1232	4000	U
53469-21-9	Aroclor-1242	4000	U
12672-29-6	Aroclor-1248	4000	U
11097-69-1	Aroclor-1254	520	~~DJP~~ J
11096-82-5	Aroclor-1260	4000	U

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EPA SAMPLE NO.

BWZ57

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.15

Sample wt/vol: 31.1 (g/mL) G Lab File ID: _____

% Moisture: 24 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	33	P
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	120	P
72-55-9	4,4'-DDE	51	P
72-20-8	Endrin	50	P
33213-65-9	Endosulfan II	42	U
72-54-8	4,4'-DDD	42	U
1031-07-8	Endosulfan sulfate	42	U
50-29-3	4,4'-DDT	42	U
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	42	U
7421-93-4	Endrin aldehyde	63	
5103-71-9	alpha-Chlordane	56	P
5103-74-2	gamma-Chlordane	57	P
8001-35-2	Toxaphene	2200	U
12674-11-2	Aroclor-1016	420	U
11104-28-2	Aroclor-1221	850	U
11141-16-5	Aroclor-1232	420	U
53469-21-9	Aroclor-1242	420	U
12672-29-6	Aroclor-1248	420	U
11097-69-1	Aroclor-1254	850	~~P~~
11096-82-5	Aroclor-1260	420	U

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EPA SAMPLE NO.

BWZ57DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.15DL

Sample wt/vol: 31.1 (g/mL) G Lab File ID: _____

% Moisture: 24 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	220	U
319-85-7	beta-BHC	220	U
319-86-8	delta-BHC	220	U
58-89-9	gamma-BHC (Lindane)	220	U
76-44-8	Heptachlor	220	U
309-00-2	Aldrin	220	U
1024-57-3	Heptachlor epoxide	220	U
959-98-8	Endosulfan I	220	U
60-57-1	Dieldrin	130	DPJ
72-55-9	4,4'-DDE	420	U
72-20-8	Endrin	420	U
33213-65-9	Endosulfan II	420	U
72-54-8	4,4'-DDD	420	U
1031-07-8	Endosulfan sulfate	420	U
50-29-3	4,4'-DDT	420	U
72-43-5	Methoxychlor	2200	U
53494-70-5	Endrin ketone	420	U
7421-93-4	Endrin aldehyde	420	U
5103-71-9	alpha-Chlordane	220	U
5103-74-2	gamma-Chlordane	220	U
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4200	U
11104-28-2	Aroclor-1221	8500	U
11141-16-5	Aroclor-1232	4200	U
53469-21-9	Aroclor-1242	4200	U
12672-29-6	Aroclor-1248	4200	U
11097-69-1	Aroclor-1254	740	~~DJP~~ J
11096-82-5	Aroclor-1260	4200	U

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EPA SAMPLE NO.

BWZ58

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.16

Sample wt/vol: 30.4 (g/mL) G Lab File ID: _____

% Moisture: 30 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

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	24	U
319-85-7	beta-BHC	24	U
319-86-8	delta-BHC	24	U
58-89-9	gamma-BHC (Lindane)	24	U
76-44-8	Heptachlor	24	U
309-00-2	Aldrin	24	U
1024-57-3	Heptachlor epoxide	45	
959-98-8	Endosulfan I	24	U
60-57-1	Dieldrin	76	P
72-55-9	4,4'-DDE	34	PJ
72-20-8	Endrin	46	U
33213-65-9	Endosulfan II	46	U
72-54-8	4,4'-DDD	46	U
1031-07-8	Endosulfan sulfate	46	U
50-29-3	4,4'-DDT	140	P
72-43-5	Methoxychlor	250	P
53494-70-5	Endrin ketone	46	U
7421-93-4	Endrin aldehyde	46	U
5103-71-9	alpha-Chlordane	100	P
5103-74-2	gamma-Chlordane	100	
8001-35-2	Toxaphene	2400	U
12674-11-2	Aroclor-1016	460	U
11104-28-2	Aroclor-1221	940	U
11141-16-5	Aroclor-1232	460	U
53469-21-9	Aroclor-1242	460	U
12672-29-6	Aroclor-1248	460	U
11097-69-1	Aroclor-1254	320	~~JP~~ J
11096-82-5	Aroclor-1260	460	U

(ONLY PCB DATA WERE VALIDATED)

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EPA SAMPLE NO.

BWZ58DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.16DL

Sample wt/vol: 30.4 (g/mL) G Lab File ID: _____

% Moisture: 30 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

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	240	U
319-85-7	beta-BHC	240	U
319-86-8	delta-BHC	240	U
58-89-9	gamma-BHC (Lindane)	240	U
76-44-8	Heptachlor	240	U
309-00-2	Aldrin	240	U
1024-57-3	Heptachlor epoxide	240	U
959-98-8	Endosulfan I	240	U
60-57-1	Dieldrin	460	U
72-55-9	4,4'-DDE	460	U
72-20-8	Endrin	460	U
33213-65-9	Endosulfan II	460	U
72-54-8	4,4'-DDD	460	U
1031-07-8	Endosulfan sulfate	460	U
50-29-3	4,4'-DDT	460	U
72-43-5	Methoxychlor	2400	U
53494-70-5	Endrin ketone	460	U
7421-93-4	Endrin aldehyde	460	U
5103-71-9	alpha-Chlordane	110	DPJ
5103-74-2	gamma-Chlordane	240	U
8001-35-2	Toxaphene	24000	U
12674-11-2	Aroclor-1016	4600	U
11104-28-2	Aroclor-1221	9400	U
11141-16-5	Aroclor-1232	4600	U
53469-21-9	Aroclor-1242	4600	U
12672-29-6	Aroclor-1248	4600	U
11097-69-1	Aroclor-1254	480	~~DJP~~ J
11096-82-5	Aroclor-1260	4600	U

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EPA SAMPLE NO.

BWZ59

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.17

Sample wt/vol: 31.4 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

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	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	63	P
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	220	P
72-55-9	4,4'-DDE	140	
72-20-8	Endrin	110	P
33213-65-9	Endosulfan II	31	PJ
72-54-8	4,4'-DDD	43	U
1031-07-8	Endosulfan sulfate	43	U
50-29-3	4,4'-DDT	670	
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	43	U
7421-93-4	Endrin aldehyde	45	P
5103-71-9	alpha-Chlordane	170	P
5103-74-2	gamma-Chlordane	150	P
8001-35-2	Toxaphene	2200	U
12674-11-2	Aroclor-1016	430	U
11104-28-2	Aroclor-1221	860	U
11141-16-5	Aroclor-1232	430	U
53469-21-9	Aroclor-1242	430	U
12672-29-6	Aroclor-1248	430	U
11097-69-1	Aroclor-1254	2000	
11096-82-5	Aroclor-1260	430	U

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EPA SAMPLE NO.

BWZ59DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.17DL

Sample wt/vol: 31.4 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

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	220	U
319-85-7	beta-BHC	220	U
319-86-8	delta-BHC	220	U
58-89-9	gamma-BHC (Lindane)	220	U
76-44-8	Heptachlor	220	U
309-00-2	Aldrin	220	U
1024-57-3	Heptachlor epoxide	220	U
959-98-8	Endosulfan I	220	U
60-57-1	Dieldrin	270	DPJ
72-55-9	4,4'-DDE	430	U
72-20-8	Endrin	430	U
33213-65-9	Endosulfan II	430	U
72-54-8	4,4'-DDD	430	U
1031-07-8	Endosulfan sulfate	430	U
50-29-3	4,4'-DDT	430	U
72-43-5	Methoxychlor	2200	U
53494-70-5	Endrin ketone	430	U
7421-93-4	Endrin aldehyde	430	U
5103-71-9	alpha-Chlordane	160	DPJ
5103-74-2	gamma-Chlordane	220	U
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4300	U
11104-28-2	Aroclor-1221	8600	U
11141-16-5	Aroclor-1232	4300	U
53469-21-9	Aroclor-1242	4300	U
12672-29-6	Aroclor-1248	4300	U
11097-69-1	Aroclor-1254	2600	DJ
11096-82-5	Aroclor-1260	4300	U

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EPA SAMPLE NO.

BWZ60

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.18

Sample wt/vol: 30.4 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	21	U
319-85-7	beta-BHC	21	U
319-86-8	delta-BHC	21	U
58-89-9	gamma-BHC (Lindane)	21	U
76-44-8	Heptachlor	21	U
309-00-2	Aldrin	21	U
1024-57-3	Heptachlor epoxide	21	U
959-98-8	Endosulfan I	21	U
60-57-1	Dieldrin	41	U
72-55-9	4,4'-DDE	41	U
72-20-8	Endrin	41	U
33213-65-9	Endosulfan II	41	U
72-54-8	4,4'-DDD	41	U
1031-07-8	Endosulfan sulfate	41	U
50-29-3	4,4'-DDT	41	U
72-43-5	Methoxychlor	210	U
53494-70-5	Endrin ketone	41	U
7421-93-4	Endrin aldehyde	41	U
5103-71-9	alpha-Chlordane	21	U
5103-74-2	gamma-Chlordane	21	U
8001-35-2	Toxaphene	2100	U
12674-11-2	Aroclor-1016	410	U
11104-28-2	Aroclor-1221	840	U
11141-16-5	Aroclor-1232	410	U
53469-21-9	Aroclor-1242	410	U
12672-29-6	Aroclor-1248	410	U
11097-69-1	Aroclor-1254	60	~~UP~~ J
11096-82-5	Aroclor-1260	410	U

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EPA SAMPLE NO.

BWZ60DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.18DL

Sample wt/vol: 30.4 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	210	U
319-85-7	beta-BHC	210	U
319-86-8	delta-BHC	210	U
58-89-9	gamma-BHC (Lindane)	210	U
76-44-8	Heptachlor	210	U
309-00-2	Aldrin	210	U
1024-57-3	Heptachlor epoxide	210	U
959-98-8	Endosulfan I	210	U
60-57-1	Dieldrin	410	U
72-55-9	4,4'-DDE	410	U
72-20-8	Endrin	410	U
33213-65-9	Endosulfan II	410	U
72-54-8	4,4'-DDD	410	U
1031-07-8	Endosulfan sulfate	410	U
50-29-3	4,4'-DDT	410	U
72-43-5	Methoxychlor	2100	U
53494-70-5	Endrin ketone	410	U
7421-93-4	Endrin aldehyde	410	U
5103-71-9	alpha-Chlordane	210	U
5103-74-2	gamma-Chlordane	210	U
8001-35-2	Toxaphene	21000	U
12674-11-2	Aroclor-1016	4100	U
11104-28-2	Aroclor-1221	8400	U
11141-16-5	Aroclor-1232	4100	U
53469-21-9	Aroclor-1242	4100	U
12672-29-6	Aroclor-1248	4100	U
11097-69-1	Aroclor-1254	200	DJ
11096-82-5	Aroclor-1260	4100	U

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ONLY LAB DATA (NOT VALIDATED)

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ61

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.19

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

% Moisture: 46 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 07/08/99

Injection Volume: 0.5 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	31	U
319-85-7	beta-BHC	31	U
319-86-8	delta-BHC	31	U
58-89-9	gamma-BHC (Lindane)	31	U
76-44-8	Heptachlor	31	U
309-00-2	Aldrin	31	U
1024-57-3	Heptachlor epoxide	31	U
959-98-8	Endosulfan I	31	U
60-57-1	Dieldrin	48	PJ
72-55-9	4,4'-DDE	61	U
72-20-8	Endrin	61	U
33213-65-9	Endosulfan II	61	U
72-54-8	4,4'-DDD	61	U
1031-07-8	Endosulfan sulfate	61	U
50-29-3	4,4'-DDT	170	
72-43-5	Methoxychlor	310	U
53494-70-5	Endrin ketone	61	U
7421-93-4	Endrin aldehyde	61	U
5103-71-9	alpha-Chlordane	56	P
5103-74-2	gamma-Chlordane	48	P
8001-35-2	Toxaphene	3100	U
12674-11-2	Aroclor-1016	610	U
11104-28-2	Aroclor-1221	1200	U
11141-16-5	Aroclor-1232	610	U
53469-21-9	Aroclor-1242	610	U
12672-29-6	Aroclor-1248	610	U
11097-69-1	Aroclor-1254	580	~~P~~ J
11096-82-5	Aroclor-1260	610	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ61DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.19DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

% Moisture: 46 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	310	U
319-85-7	beta-BHC	310	U
319-86-8	delta-BHC	310	U
58-89-9	gamma-BHC (Lindane)	310	U
76-44-8	Heptachlor	310	U
309-00-2	Aldrin	310	U
1024-57-3	Heptachlor epoxide	310	U
959-98-8	Endosulfan I	310	U
60-57-1	Dieldrin	610	U
72-55-9	4,4'-DDE	610	U
72-20-8	Endrin	610	U
33213-65-9	Endosulfan II	610	U
72-54-8	4,4'-DDD	610	U
1031-07-8	Endosulfan sulfate	610	U
50-29-3	4,4'-DDT	610	U
72-43-5	Methoxychlor	3100	U
53494-70-5	Endrin ketone	610	U
7421-93-4	Endrin aldehyde	610	U
5103-71-9	alpha-Chlordane	310	U
5103-74-2	gamma-Chlordane	310	U
8001-35-2	Toxaphene	31000	U
12674-11-2	Aroclor-1016	6100	U
11104-28-2	Aroclor-1221	12000	U
11141-16-5	Aroclor-1232	6100	U
53469-21-9	Aroclor-1242	6100	U
12672-29-6	Aroclor-1248	6100	U
11097-69-1	Aroclor-1254	670	PJ
11096-82-5	Aroclor-1260	6100	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ62

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.20

Sample wt/vol: 30.3 (g/mL) G Lab File ID: _____

% Moisture: 41 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

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	28	U
319-85-7	beta-BHC	28	U
319-86-8	delta-BHC	28	U
58-89-9	gamma-BHC (Lindane)	28	U
76-44-8	Heptachlor	28	U
309-00-2	Aldrin	28	U
1024-57-3	Heptachlor epoxide	28	U
959-98-8	Endosulfan I	28	U
60-57-1	Dieldrin	55	U
72-55-9	4,4'-DDE	55	U
72-20-8	Endrin	55	U
33213-65-9	Endosulfan II	55	U
72-54-8	4,4'-DDD	55	U
1031-07-8	Endosulfan sulfate	55	U
50-29-3	4,4'-DDT	55	U
72-43-5	Methoxychlor	280	U
53494-70-5	Endrin ketone	55	U
7421-93-4	Endrin aldehyde	55	U
5103-71-9	alpha-Chlordane	34	P
5103-74-2	gamma-Chlordane	28	U
8001-35-2	Toxaphene	2800	U
12674-11-2	Aroclor-1016	550	U
11104-28-2	Aroclor-1221	1100	U
11141-16-5	Aroclor-1232	550	U
53469-21-9	Aroclor-1242	550	U
12672-29-6	Aroclor-1248	550	U
11097-69-1	Aroclor-1254	180	~~JP~~ J
11096-82-5	Aroclor-1260	550	U

ONLY ~~PB~~ DATA WERE VALIDATED

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FORM I PEST

OLM03.0

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ62DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.20DL

Sample wt/vol: 30.3 (g/mL) G Lab File ID: _____

% Moisture: 41 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/08/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

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	280	U
319-85-7	beta-BHC	280	U
319-86-8	delta-BHC	280	U
58-89-9	gamma-BHC (Lindane)	280	U
76-44-8	Heptachlor	280	U
309-00-2	Aldrin	280	U
1024-57-3	Heptachlor epoxide	280	U
959-98-8	Endosulfan I	280	U
60-57-1	Dieldrin	550	U
72-55-9	4,4'-DDE	550	U
72-20-8	Endrin	550	U
33213-65-9	Endosulfan II	550	U
72-54-8	4,4'-DDD	550	U
1031-07-8	Endosulfan sulfate	550	U
50-29-3	4,4'-DDT	550	U
72-43-5	Methoxychlor	2800	U
53494-70-5	Endrin ketone	550	U
7421-93-4	Endrin aldehyde	550	U
5103-71-9	alpha-Chlordane	280	U
5103-74-2	gamma-Chlordane	280	U
8001-35-2	Toxaphene	28000	U
12674-11-2	Aroclor-1016	5500	U
11104-28-2	Aroclor-1221	11000	U
11141-16-5	Aroclor-1232	5500	U
53469-21-9	Aroclor-1242	5500	U
12672-29-6	Aroclor-1248	5500	U
11097-69-1	Aroclor-1254	2100	~~U~~J
11096-82-5	Aroclor-1260	5500	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ63

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.21

Sample wt/vol: 30.6 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/10/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.2 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	8.7	P
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	14	P
72-55-9	4,4'-DDE	12	P
72-20-8	Endrin	6.7	P
33213-65-9	Endosulfan II	4.4	U
72-54-8	4,4'-DDD	4.4	U
1031-07-8	Endosulfan sulfate	9.5	P
50-29-3	4,4'-DDT	33	P
72-43-5	Methoxychlor	15	PJ
53494-70-5	Endrin ketone	4.4	U
7421-93-4	Endrin aldehyde	9.4	P
5103-71-9	alpha-Chlordane	24	P
5103-74-2	gamma-Chlordane	25	
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	44	U
11104-28-2	Aroclor-1221	89	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 *	480 ~~360~~	~~P~~ J
11096-82-5	Aroclor-1260	44	U

* From Dilution

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ63DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.21DL

Sample wt/vol: 30.6 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 07/09/99

Injection Volume: 0.5 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	22	U
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	18	DPJ
72-55-9	4,4'-DDE	44	U
72-20-8	Endrin	44	U
33213-65-9	Endosulfan II	44	U
72-54-8	4,4'-DDD	25	DPJ
1031-07-8	Endosulfan sulfate	44	U
50-29-3	4,4'-DDT	48	DP
72-43-5	Methoxychlor	90	DPJ
53494-70-5	Endrin ketone	44	U
7421-93-4	Endrin aldehyde	44	U
5103-71-9	alpha-Chlordane	31	DP
5103-74-2	gamma-Chlordane	22	DP
8001-35-2	Toxaphene	2200	U
~~12674-11-2~~	~~Aroclor-1016~~	440	U
~~11104-28-2~~	~~Aroclor-1221~~	890	U
~~11141-16-5~~	~~Aroclor-1232~~	440	U
~~53469-21-9~~	~~Aroclor-1242~~	440	U
~~12672-29-6~~	~~Aroclor-1248~~	440	U
~~11097-69-1~~	~~Aroclor-1254~~ *	480	~~DP~~ J
~~11096-82-5~~	~~Aroclor-1260~~	440	U

* To Original

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ96

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.22

Sample wt/vol: 30.2 (g/mL) G Lab File ID: _____

% Moisture: 27 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/10/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	2.3	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	4.5	U
72-55-9	4,4'-DDE	4.5	P
72-20-8	Endrin	9.2	
33213-65-9	Endosulfan II	10	
72-54-8	4,4'-DDD	9.8	P
1031-07-8	Endosulfan sulfate	4.5	U
50-29-3	4,4'-DDT	23	P
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.5	U
7421-93-4	Endrin aldehyde	4.5	U
5103-71-9	alpha-Chlordane	4.4	P
5103-74-2	gamma-Chlordane	2.3	U
8001-35-2	Toxaphene	230	U
12674-11-2	Aroclor-1016	45	U
11104-28-2	Aroclor-1221	91	U
11141-16-5	Aroclor-1232	45	U
53469-21-9	Aroclor-1242	45	U
12672-29-6	Aroclor-1248	45	U
11097-69-1	Aroclor-1254	45	U
11096-82-5	Aroclor-1260	45	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ96DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.22DL

Sample wt/vol: 30.2 (g/mL) G Lab File ID: _____

% Moisture: 27 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/09/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

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	23	U
319-85-7	beta-BHC	23	U
319-86-8	delta-BHC	23	U
58-89-9	gamma-BHC (Lindane)	23	U
76-44-8	Heptachlor	23	U
309-00-2	Aldrin	23	U
1024-57-3	Heptachlor epoxide	23	U
959-98-8	Endosulfan I	23	U
60-57-1	Dieldrin	45	U
72-55-9	4,4'-DDE	45	U
72-20-8	Endrin	45	U
33213-65-9	Endosulfan II	45	U
72-54-8	4,4'-DDD	45	U
1031-07-8	Endosulfan sulfate	45	U
50-29-3	4,4'-DDT	20	DPJ
72-43-5	Methoxychlor	230	U
53494-70-5	Endrin ketone	45	U
7421-93-4	Endrin aldehyde	45	U
5103-71-9	alpha-Chlordane	23	U
5103-74-2	gamma-Chlordane	23	U
8001-35-2	Toxaphene	2300	U
12674-11-2	Aroclor-1016	450	U
11104-28-2	Aroclor-1221	910	U
11141-16-5	Aroclor-1232	450	U
53469-21-9	Aroclor-1242	450	U
12672-29-6	Aroclor-1248	450	U
11097-69-1	Aroclor-1254	450	U
11096-82-5	Aroclor-1260	450	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ97

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.23

Sample wt/vol: 30.4 (g/mL) G Lab File ID: _____

% Moisture: 6 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/10/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4 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	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	3.5	U
72-55-9	4,4'-DDE	3.5	U
72-20-8	Endrin	3.5	U
33213-65-9	Endosulfan II	3.5	U
72-54-8	4,4'-DDD	3.5	U
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	3.5	U
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.5	U
7421-93-4	Endrin aldehyde	3.5	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	1.8	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	70	U
11141-16-5	Aroclor-1232	35	U
53469-21-9	Aroclor-1242	35	U
12672-29-6	Aroclor-1248	35	U
11097-69-1	Aroclor-1254	35	U
11096-82-5	Aroclor-1260	35	U

ONLY PLB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ97DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.23DL

Sample wt/vol: 30.4 (g/mL) G Lab File ID: _____

% Moisture: 6 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/09/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	18	U
319-85-7	beta-BHC	18	U
319-86-8	delta-BHC	18	U
58-89-9	gamma-BHC (Lindane)	18	U
76-44-8	Heptachlor	18	U
309-00-2	Aldrin	18	U
1024-57-3	Heptachlor epoxide	18	U
959-98-8	Endosulfan I	18	U
60-57-1	Dieldrin	35	U
72-55-9	4,4'-DDE	35	U
72-20-8	Endrin	35	U
33213-65-9	Endosulfan II	35	U
72-54-8	4,4'-DDD	35	U
1031-07-8	Endosulfan sulfate	35	U
50-29-3	4,4'-DDT	8.9	DPJ
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	35	U
7421-93-4	Endrin aldehyde	35	U
5103-71-9	alpha-Chlordane	18	U
5103-74-2	gamma-Chlordane	18	U
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	350	U
11104-28-2	Aroclor-1221	700	U
11141-16-5	Aroclor-1232	350	U
53469-21-9	Aroclor-1242	350	U
12672-29-6	Aroclor-1248	350	U
11097-69-1	Aroclor-1254	350	U
11096-82-5	Aroclor-1260	350	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ98

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.24

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/10/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.3	P
72-55-9	4,4'-DDE	19	P
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	U
72-54-8	4,4'-DDD	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	28	P
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	3.9	U
7421-93-4	Endrin aldehyde	5.2	P
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	39	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	39	U
53469-21-9	Aroclor-1242	39	U
12672-29-6	Aroclor-1248	39	U
11097-69-1	Aroclor-1254	80	U
11096-82-5	Aroclor-1260	39	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ98DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.24DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/09/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	20	U
319-85-7	beta-BHC	20	U
319-86-8	delta-BHC	20	U
58-89-9	gamma-BHC (Lindane)	20	U
76-44-8	Heptachlor	20	U
309-00-2	Aldrin	20	U
1024-57-3	Heptachlor epoxide	20	U
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	39	U
72-55-9	4,4'-DDE	17	DJ
72-20-8	Endrin	39	U
33213-65-9	Endosulfan II	39	U
72-54-8	4,4'-DDD	39	U
1031-07-8	Endosulfan sulfate	39	U
50-29-3	4,4'-DDT	34	DJ
72-43-5	Methoxychlor	200	U
53494-70-5	Endrin ketone	39	U
7421-93-4	Endrin aldehyde	39	U
5103-71-9	alpha-Chlordane	20	U
5103-74-2	gamma-Chlordane	20	U
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	390	U
11104-28-2	Aroclor-1221	800	U
11141-16-5	Aroclor-1232	390	U
53469-21-9	Aroclor-1242	390	U
12672-29-6	Aroclor-1248	390	U
11097-69-1	Aroclor-1254	96	~~DJP~~ J
11096-82-5	Aroclor-1260	390	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ99

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.25

Sample wt/vol: 30.6 (g/mL) G Lab File ID: _____

% Moisture: 10 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 07/10/99

Injection Volume: 0.5 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4 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	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	7.3	P
72-55-9	4,4'-DDE	7.3	P
72-20-8	Endrin	3.6	U
33213-65-9	Endosulfan II	3.6	U
72-54-8	4,4'-DDD	7.5	P
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	30	P
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	8.3	P
5103-71-9	alpha-Chlordane	4.5	P
5103-74-2	gamma-Chlordane	5.4	P
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	100	~~P~~ J
11096-82-5	Aroclor-1260	36	U

ONLY MB DATA WERE VALIDATED

FORM I PEST

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ99DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.25DL

Sample wt/vol: 30.6 (g/mL) G Lab File ID: _____

% Moisture: 10 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/09/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	18	U
319-85-7	beta-BHC	18	U
319-86-8	delta-BHC	18	U
58-89-9	gamma-BHC (Lindane)	18	U
76-44-8	Heptachlor	18	U
309-00-2	Aldrin	18	U
1024-57-3	Heptachlor epoxide	18	U
959-98-8	Endosulfan I	18	U
60-57-1	Dieldrin	12	DPJ
72-55-9	4,4'-DDE	36	U
72-20-8	Endrin	36	U
33213-65-9	Endosulfan II	36	U
72-54-8	4,4'-DDD	36	U
1031-07-8	Endosulfan sulfate	36	U
50-29-3	4,4'-DDT	40	DP
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	12	DPJ
7421-93-4	Endrin aldehyde	8.5	DPJ
5103-71-9	alpha-Chlordane	18	U
5103-74-2	gamma-Chlordane	18	U
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	360	U
11104-28-2	Aroclor-1221	730	U
11141-16-5	Aroclor-1232	360	U
53469-21-9	Aroclor-1242	360	U
12672-29-6	Aroclor-1248	360	U
11097-69-1	Aroclor-1254	160	~~DJP~~ J
11096-82-5	Aroclor-1260	360	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA00

ab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.26

Sample wt/vol: 30.2 (g/mL) G Lab File ID: _____

% Moisture: 9 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/10/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4 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	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	3.6	P
72-55-9	4,4'-DDE	2.8	PJ
72-20-8	Endrin	3.6	U
33213-65-9	Endosulfan II	3.6	U
72-54-8	4,4'-DDD	4.9	P
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	40	
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	4.3	P
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	2.8	P
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	60	P
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA00DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ48

Matrix: (soil/water) SOIL Lab Sample ID: 39116.26DL

Sample wt/vol: 30.2 (g/mL) G Lab File ID: _____

% Moisture: 9 decanted: (Y/N) N Date Received: 06/23/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/24/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/09/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	18	U
319-85-7	beta-BHC	18	U
319-86-8	delta-BHC	18	U
58-89-9	gamma-BHC (Lindane)	18	U
76-44-8	Heptachlor	18	U
309-00-2	Aldrin	18	U
1024-57-3	Heptachlor epoxide	18	U
959-98-8	Endosulfan I	18	U
60-57-1	Dieldrin	36	U
72-55-9	4,4'-DDE	36	U
72-20-8	Endrin	36	U
33213-65-9	Endosulfan II	36	U
72-54-8	4,4'-DDD	36	U
1031-07-8	Endosulfan sulfate	36	U
50-29-3	4,4'-DDT	42	D
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	36	U
7421-93-4	Endrin aldehyde	36	U
5103-71-9	alpha-Chlordane	18	U
5103-74-2	gamma-Chlordane	18	U
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	360	U
11104-28-2	Aroclor-1221	730	U
11141-16-5	Aroclor-1232	360	U
53469-21-9	Aroclor-1242	360	U
12672-29-6	Aroclor-1248	360	U
11097-69-1	Aroclor-1254	99	~~DJP~~ J
11096-82-5	Aroclor-1260	360	U

ONLY PCB DATA WERE VALIDATED