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SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
EPA CONTRACT 68-W5-0019

January 17, 2000

Eric Wilson, On-Scene Coordinator
U.S. Environmental Protection Agency
Removal Action Branch
2890 Woodbridge Avenue
Edison, NJ 08837

EPA CONTRACT NO: 68-W5-0019
TDD NO: 02-99-08-0019
DOCUMENT CONTROL NO: START-02-F-03681
SUBJECT: FLOODPLAIN SOIL/SEDIMENT SAMPLING AND ANALYSIS SUMMARY REPORT - CORNELL DUBILIER ELECTRONICS

Dear Mr. Wilson:

Enclosed please find the Floodplain Soil/Sediment Sampling and Analysis Summary Report for the Cornell Dubilier Electronics site located in South Plainfield, Middlesex County, New Jersey. If you have any questions or comments, please call me at (732) 225-6116.

Very truly yours,

ROY F. WESTON, INC.

M. Mahnkopf

Michael Mahnkopf
Project Manager

Enclosure

cc: TDD File

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SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
EPA CONTRACT 68-W5-0019

FLOODPLAIN SOIL/SEDIMENT SAMPLING AND ANALYSIS SUMMARY REPORT

CORNELL DUBILIER ELECTRONICS
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY

Prepared by

Superfund Technical Assessment and Response Team
Roy F. Weston, Inc.
Federal Programs Division
Edison, New Jersey 08837

Prepared for

U.S. Environmental Protection Agency
Region II - Removal Action Branch
Edison, New Jersey 08837

DCN #: START-02-F-03681
TDD #: 02-99-08-0019
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Approved by:

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M. Mahnkopf

Michael Mahnkopf
Project Manager

Date: 01/17/00

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Dan Crouse

Dan Crouse
Group Leader

Date: 01-17-00

EPA

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Eric Wilson
On-Scene Coordinator

Date: _____

In Association with Resource Applications, Inc., R.E. Sarriera Associates, Tetra Tech EM, Inc., C.C. Johnson & Malhotra, P.C., and GRB Environmental Services, Inc.

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1.0 BACKGROUND

The Cornell-Dubilier Site is located at 333 Hamilton Boulevard in South Plainfield, Middlesex County, New Jersey (Attachment A, Figure 1). The site is approximately 25 acres in size. Facing Hamilton Boulevard are several buildings currently occupied by approximately 15 businesses. The rear of the property consists of an open field and adjoining wetlands. The facility is currently known as Hamilton Industrial Park.

The site is bordered by Hamilton Boulevard to the northwest, Spicer Avenue to the southwest, a wetlands area to the southeast, the Bound Brook and Conrail railroad tracks to the northeast. The Bound Brook traverses the southeast section of the site.

Cornell-Dubilier operated at the site from 1936 to 1962, manufacturing electronic components, including capacitors. It is alleged that during its operation, Cornell-Dubilier disposed of polychlorinated biphenyl (PCB) contaminated materials and other hazardous substances at the site.

Previous investigations have identified PCBs and heavy metals at the Cornell-Dubilier site and in the Bound Brook downstream of the site. Water, sediment and fish samples were collected from the Bound Brook at one (1) location adjacent to the site, three (3) locations between the site and New Market Pond, and two (2) locations in New Market Pond. Samples were also collected from one (1) location upstream of the site.

Sampling events were conducted on neighboring residential and commercial areas in June and October, 1997 and April and May, 1998. The purpose was to identify off-site migration of contaminants from the Cornell-Dubilier site on these surrounding areas.

Sampling events were conducted along the Bound Brook in August, September, October, November and December, 1997 to identify PCB contamination upstream, midstream, and/or downstream of the Cornell-Dubilier site.

2.0 OBJECTIVE/SAMPLING APPROACH

The objective of this investigation was to characterize PCB contamination in the floodplain of the Bound Brook in Reaches 5 and 6 (as defined in the "Soil And Sediment Sampling And Analysis Report; Cornell Dubilier Electronics - Bound Brook", dated 09/07/98). Reaches 5 and 6 had the highest mean surface soil PCB concentrations of the areas investigated in August through December 1997.

The areas chosen for this investigation were selected based on their proximity to high use areas. This data will be used for risk assessment and to determine if additional investigations are required to evaluate health concerns.

In accordance with the June 16, 1999 Floodplain Sampling QA/QC Work Plan (DCN: START-02-F-03620), surface (0-2") soil samples were collected from Areas 1-4 described below.

Area 1. Veteran's Memorial Park, bordered by Cedar Brook to the north, residential properties located on Kaine Street to the east, and Bound Brook to the south. Thirty-four (34) surface soil samples were collected from this area of concern. Sample locations were determined in the field utilizing a systematic sampling scheme based on 120' spacing.

Area 2. Area located on the north side of Cedar Brook, between Lowden and Oakmoor Avenues. Seventeen (17) surface soil and four (4) surface sediment samples were collected from this area of concern. Sample locations were determined in the field utilizing a systematic sampling scheme based on 75' spacing.

Area 3. Area located on the north side of Bound Brook in the vicinity of Fred Allen Drive. Twenty-eight (28) surface soil samples were collected from this area of concern. Sample locations were determined in the field utilizing a systematic sampling scheme based on 75' spacing.

Area 4. Area located adjacent to stream 14-14-2-3 (as identified on the Flood Insurance Map for the Township of Piscataway), south of New Market Avenue and 525' east of Highland Avenue. Nineteen (19) surface soil and two (2) surface sediment samples were collected from this area of concern. Sample locations were determined in the field utilizing a systematic sampling scheme based on 50' spacing.

Results of the screening soil samples will be evaluated to determine if additional sampling is required to delineate the horizontal extent of PCB contamination or assess risk.

3.0 SAMPLING & ANALYSIS

Soil sampling activities were performed on June 21, June 22 and June 23, 1999 by the following personnel:

1. Eric Wilson - USEPA, Region II
2. Michael Mahnkopf - START, Region II
3. John Brennan - START, Region II
4. Patrick Austin - START, Region II
5. Jeremy Sawetz - START, Region II

All soil samples were collected utilizing dedicated plastic scoops and/or spatulas. All soil samples were analyzed by Southwest Labs of Oklahoma, 1700 West Albany, Suite C, Broken Arrow, OK, 74012, (918) 251-0545.

For additional information, see the June 29, 1999 Trip Report included as Appendix 2 and project logbook # START-02-209.

3.1 Area 1

Pursuant to the procedures discussed above in Section 2.0, thirty-two (32) surface (0-2") soil samples (A1-01 through A1-18, A1-20 through A1-32, A1-34) were collected and analyzed for total PCBs. Soil sample locations are shown on Figure 2.

QA/QC samples included the collection of two (2) field duplicate samples (A1-19 was the duplicate of A1-18; A1-33 was the duplicate of A1-32) and two (2) matrix spike/matrix spike duplicate samples (A1-20 MS/MSD; A1-29 MS/MSD). Samples A1-19, A1-33, A1-20 MS/MSD and A1-29 MS/MSD were analyzed for total PCBs.

Analytical results indicate soil samples A1-01 through A1-34 exhibited total PCB concentrations which ranged from non-detect (A1-34) to 25 ppm (A1-26). Aroclor-1254 accounted for the total concentration of PCB detected in all samples except A1-14. Aroclor 1248 and Aroclor 1254 were detected in sample A1-14 at 0.21 ppm and 0.17 ppm respectively. Analytical results are summarized in Table 1 and the laboratory Form I's and data validation results are included as Appendix 3.

3.2 Area 2

Pursuant to the procedures discussed above in Section 2.0, sixteen (16) surface (0-2") soil samples (A2-01 through A2-011, A2-13 through A2-17) and four (4) surface (0-2") sediment samples (A2-18 through A2-21) were collected and analyzed for total PCBs. Soil sample locations are shown on Figure 3.

QA/QC samples included the collection of one (1) field duplicate sample (A2-12 was the duplicate of A2-11) and one (1) matrix spike/matrix spike duplicate sample (A2-06 MS/MSD). Samples A2-12 and A2-06 MS/MSD were analyzed for total PCBs.

Analytical results indicate soil samples A2-01 through A2-21 exhibited total PCB concentrations which ranged from 0.060 ppm (A2-18) to 2.0 ppm (A2-17). Aroclor-1254 accounted for the total concentration of PCB detected in all samples. Analytical results are summarized in Table 2 and the laboratory Form I's and data validation results are included as Appendix 3.

3.3 Area 3

Pursuant to the procedures discussed above in Section 2.0, twenty-six (26) surface (0-2") soil samples (A3-01, A3-03 through A3-23, A3-25 through A3-28) were collected and analyzed for total PCBs. Soil sample locations are shown on Figure 4.

QA/QC samples included the collection of two (2) field duplicate samples (A3-02 was the duplicate of A3-01; A3-24 was the duplicate of A3-23) and two (2) matrix spike/matrix spike duplicate samples (A3-04 MS/MSD; A3-21 MS/MSD). Samples A3-02, A3-24, A3-04 MS/MSD and A3-21 MS/MSD were analyzed for total PCBs.

Analytical results indicate soil samples A3-01 through A3-28 exhibited total PCB concentrations which ranged from 2.5 ppm (A3-21) to 7.5 ppm (A3-14). Aroclor-1254 accounted for the total concentration of PCB detected in all samples. Analytical results are summarized in Table 3 and the laboratory Form I's and data validation results are included as Appendix 3.

3.4 Area 4

Pursuant to the procedures discussed above in Section 2.0, eighteen (18) surface (0-2") soil samples (A4-01 through A4-08, A4-10 through A4-19) and two (2) surface (0-2") sediment samples (A4-20, A4-21) were collected and analyzed for total PCBs. Soil sample locations are shown on Figure 5.

QA/QC samples included the collection of one (1) field duplicate sample (A4-09 was the duplicate of A4-08) and one (1) matrix spike/matrix spike duplicate sample (A4-10 MS/MSD). Samples A4-09 and A4-10 MS/MSD were analyzed for total PCBs.

Analytical results indicate soil samples A4-01 through A4-21 exhibited total PCB concentrations which ranged from non-detect (A4-01, A4-02, A4-06, A4-13, A4-18, A4-21) to 0.21 ppm (A4-15). Aroclor-1254 accounted for the total concentration of PCB detected in all samples. Analytical results are summarized in Table 4 and the laboratory Form I's and data validation results are included as Appendix 3.

4.0 CONTROL POINT LOCATIONS

In order to document sample locations, several control points were established in Areas 1 - 4 as follows:

Area 1. Two (2) control points were established utilizing existing structures. Utility pole # 6309SPF served as control point 1 (C1). Utility pole # 7855 served as control point 2 (C2) and was located 480' north of C1. C1 and C2 formed the baseline for 120' grid spacing in this area. See Figure 2 for control point locations.

Area 2. Fence posts were installed along the centerline of the Cedar Brook and designated as control points. Control points 1, 2 and 3 (C1, C2, C3) were installed at the designated 0', 300' and 525' intervals respectively. C1, C2 and C3 formed the baseline for 75' grid spacing in this area. See Figure 3 for control point locations.

Area 3. Fence posts were installed along the centerline of the Bound Brook and designated as control points. Control points 1, 2, 3 and 4 (C1, C2, C3, C4) were installed at the designated 0', 300', 600' and 900' intervals respectively. C1, C2, C3 and C4 formed the baseline for 75' grid spacing in this area. See Figure 4 for control point locations.

Area 4. Two (2) control points were installed in Area 4. Control point 1 (C1) was installed 100' west of the centerline of stream 14-14-2-3 and 14.5' west of utility pole #63498 and is located at the south edge of the sidewalk (south side of New Market Avenue). Control point 2 (C2) is located 290' south of C1. The line formed by control points C1 and C2 is perpendicular to New Market Avenue and serves as the baseline for a 50' sampling grid for this area. See Figure 5 for control point locations.

On June 25, 1999, locational data was obtained for all control points discussed above using a global positioning system (GPS) unit operated by a representative of USEPA's Division of Environmental Science and Assessment (DESA). See Table 5 for locational data.

5.0 SITE SPECIFIC QUALITY ASSURANCE/QUALITY CONTROL PLAN

The objective of this QA/QC plan is to provide analytical results which are legally defensible in a court of law. The QA/QC plan incorporated procedures for field sampling, chain of custody, laboratory analyses, and reporting to assure generation of sound analytical results. Sampling procedures were conducted in accordance with USEPA protocols.

5.1 Sampling Equipment and Methods

Samples were collected at the locations and depths as described in this report. Procedural changes dictated by field conditions were fully documented in the field notes and the trip report.

Equipment utilized for this project were dedicated plastic scoops and spatulas.

All samples were transferred immediately after collection into sample bottles selected by parameter as listed below. Sample bottles used for this project were prepared in accordance with USEPA criteria for polychlorinated biphenyls (PCBs).

The type of sample container required for the Cornell Dubilier Electronics floodplain soil/sediment investigation were as follows:

a. Polychlorinated Biphenyls - 8 oz. glass bottle with teflon closure.

All soil samples were packed on ice immediately following collection.

All samples were labeled with the following information:

a. sample number;
b. date and time of collection;
c. site name;
d. sample collector's initials;
e. analyses required.

Accurate field notes were maintained which included the information listed above. Additional information included, but was not limited to:

a. sample location sketch;
b. sample method;
c. general comments, including any modification from the sample plan.

5.2 Chain of Custody

Chain of custody was maintained for all samples. Chain of custody originated with the collection of the samples and was maintained until the samples were relinquished to the laboratory. The chain of custody form detailed the following information:

a. sample identification number;
b. sample collection date and time;
c. sample matrix;
d. expected contaminant concentration (low, medium, high);
e. sample type (grab or composite);
f. sample preservation;
g. analytical parameters;
h. name(s) and signatures(s) of sampler(s);
i. signatures(s) of individual(s) with control over samples.

5.3 Quality Assurance/Quality Control Samples

The matrix for all samples included in this investigation was soil/sediment. QA/QC samples included the collection of one (1) field duplicate and one (1) matrix spike/matrix spike duplicate sample for each matrix (soil/sediment) per sampling date at a ratio of one (1) per twenty (20) samples. Extra volume was submitted to allow the laboratory to perform matrix spike sample analysis. This analysis provides information about the effect of sample matrix digestion and measurement methodology. Field duplicate samples provide an indication of sample homogeneity and were not identified to the laboratory.

5.4 Sample QA/QC Data

A CLP format deliverable QA/QC package was provided for all samples submitted for analysis.

6.0 DATA VALIDATION

Data was evaluated in accordance with Region II guidelines using the following data validation SOP: SOP HW-6, "USEPA Region II Data Validation SOP for Statement of Work OLCO 3.2, Rev.11, June 1996". Laboratory analytical results were assessed by the data reviewer for compliance with required precision, accuracy, completeness, representativeness, and sensitivity.

Data validation was performed by ESAT, Region II under the USEPA Contract Laboratory Program. Data validation results indicate that the analytical results are valid and acceptable. For specific comments, see the Data Validation Results included as Appendix 3.

TABLE - 1 PCB DATA (Area 1)

SITE NAME: Cornell - Dubilier Electronics
SAMPLING DATE: June 21, 1999
UNITS: ug/kg (unless otherwise indicated)

Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A1-01	A1-02	A1-03	A1-04	A1-05	A1-06	A1-07	A1-08	A1-09	A1-10	A1-11
CLP Sample #	BWZ-06	BWZ-07	BWZ-08	BWZ-09	BWZ-10	BWZ-11	BWZ-12	BWZ-13	BWZ-14	BWZ-15	BWZ-16
Lab ID #	39092.01	39092.02	39092.03	39092.04	39092.05	39092.06	39092.07	39092.08	39092.09	39092.10	39092.11
Percent Moisture	20	12	7	15	12	12	8	12	6	10	9
Dilution Factor	1	1	1	1	1	1	1	1	1	1	1
PCB											
Aroclor-1016	40 U	36 U	33 U	36 U	37 U	37 U	34 U	35 U	34 U	35 U	35 U
Aroclor-1221	82 U	74 U	68 U	74 U	75 U	76 U	68 U	70 U	69 U	72 U	72 U
Aroclor-1232	40 U	36 U	33 U	36 U	37 U	37 U	34 U	35 U	34 U	35 U	35 U
Aroclor-1242	40 U	36 U	33 U	36 U	37 U	37 U	34 U	35 U	34 U	35 U	35 U
Aroclor-1248	40 U	36 U	33 U	36 U	37 U	37 U	34 U	35 U	34 U	35 U	35 U
Aroclor-1254	300 J	280 J	240 J	1300	82 JN	480	150 J	540	120 JN	170 J	120 J
Aroclor-1260	40 U	36 U	33 U	36 U	37 U	37 U	34 U	35 U	34 U	35 U	35 U
Total PCB (mg/kg)	0.30 J	0.28 J	0.24 J	1.3	0.082 JN	0.48	0.15 J	0.54	0.12 JN	0.17 J	0.12 J

Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A1 - 12	A1 - 13	A1 - 14	A1 - 15	A1 - 16	A1 - 17	A1 - 18	A1 - 19	A1 - 20	A1-21	A1-22
CLP Sample #	BWZ-17	BWZ-18	BWZ-19	BWZ-20	BWZ-21	BWZ-22	BWZ-23	BWZ-24	BWZ-25	BWZ-26	BWZ-27
Lab ID #	39092.12	39092.13	39092.14	39092.15	39092.16	39092.17	39092.18	39092.19	39092.20	39092.21	39092.22
Percent Moisture	11	12	8	12	7	8	16	14	20	9	17
Dilution Factor	1	1	1	1	1	1	10	10	1	1	1
PCB											
Aroclor-1016	34 U	36 U	36 U	38 U	35 U	35 U	380 U	380 U	41 U	36 U	38 U
Aroclor-1221	69 U	73 U	72 U	76 U	72 U	71 U	780 U	770 U	84 U	73 U	77 U
Aroclor-1232	34 U	36 U	36 U	38 U	35 U	35 U	380 U	380 U	41 U	36 U	38 U
Aroclor-1242	34 U	36 U	36 U	38 U	35 U	35 U	380 U	380 U	41 U	36 U	38 U
Aroclor-1248	34 U	36 U	210 J	38 U	35 U	35 U	380 U	380 U	41 U	36 U	38 U
Aroclor-1254	310	84	170	380	190 J	200	5500	6300	1600	1000 D	290
Aroclor-1260	34 U	36 U	36 U	38 U	35 U	35 U	380 U	380 U	41 U	36 U	38 U
Total PCB (mg/kg)	0.31	0.084 J	0.38 J	0.38	0.19 J	0.20	5.5	6.3	1.6	1.0 D	0.29

Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A1 - 23	A1 - 24	A1 - 25	A1 - 26	A1 - 27	A1 - 28	A1 - 29	A1 - 30	A1 - 31	A1-32	A1-33	A1-34
CLP Sample #	BWZ-28	BWZ-29	BWZ-30	BWZ-31	BWZ-32	BWZ-33	BWZ-34	BWZ-35	BWZ-36	BWZ-37	BWZ-38	BWZ-39
Lab ID #	39092.23	39092.24	39092.25	39092.26	39092.27	39092.28	39092.29	39092.30	39092.31	39092.32	39092.33	39092.34
Percent Moisture	16	5	11	10	13	8	16	10	13	8	9	9
Dilution Factor	1	1	1	1	1	1	1	1	1	1	1	1
PCB												
Aroclor-1016	39 U	34 U	36 U	35 U	36 U	36 U	39 U	37 U	37 U	34 U	34 U	34 UJ
Aroclor-1221	80 U	70 U	72 U	72 U	74 U	73 U	78 U	74 U	75 U	69 U	69 U	69 UJ
Aroclor-1232	39 U	34 U	36 U	35 U	36 U	36 U	39 U	37 U	37 U	34 U	34 U	34 UJ
Aroclor-1242	39 U	34 U	36 U	35 U	36 U	36 U	39 U	37 U	37 U	34 U	34 U	34 UJ
Aroclor-1248	39 U	34 U	36 U	35 U	36 U	36 U	39 U	37 U	37 U	34 U	34 U	34 UJ
Aroclor-1254	21000 D	6400 D	6600 D	25000 D	3100 D	120	190	120	2700 D	720 J	740 J	34 UJ
Aroclor-1260	39 U	34 U	36 U	35 U	36 U	36 U	39 U	37 U	37 U	34 U	34 U	34 UJ
Total PCB (mg/kg)	21 D	6.4 D	6.6 D	25 D	3.1 D	0.12	0.19	0.12	2.7 D	0.72 J	0.74 J	UJ

U - Non-detected compound.
UJ- Analyte was not detected. The reported quantitation limit is qualified estimated.
J - Estimated Value
JN - Presumptive evidence of a compound at an estimated value.
D- From Dilution

TABLE - 2 PCB DATA (Area 2)

SITE NAME: Cornell - Dubilier Electronics
SAMPLING DATE: June 22, 1999
UNITS: ug/kg (unless otherwise indicated)

Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A2-01	A2-02	A2-03	A2-04	A2-05	A2-06	A2-07	A2-08	A2-09	A2-10	A2-11
CLP Sample #	BWZ-43	BWZ-44	BWZ-45	BWZ-46	BWZ-47	BWZ-48	BWZ-49	BWZ-50	BWZ-51	BWZ-52	BWZ-53
Lab ID #	39116.01	39116.02	39116.03	39116.04	39116.05	39116.06	39116.07	39116.08	39116.09	39116.10	39116.11
Percent Moisture	16	9	20	23	18	21	21	36	39	26	22
Dilution Factor	1	1	1	1	1	1	1	10	10	10	10
PCB											
Aroclor-1016	38 U	34 U	40 U	42 U	40 U	40 U	40 U	480 U	510 U	430 U	420 U
Aroclor-1221	77 U	68 U	81 U	86 U	80 U	82 U	82 U	980 U	1000 U	880 U	860 U
Aroclor-1232	38 U	34 U	40 U	42 U	40 U	40 U	40 U	480 U	510 U	430 U	420 U
Aroclor-1242	38 U	34 U	40 U	42 U	40 U	40 U	40 U	480 U	510 U	430 U	420 U
Aroclor-1248	38 U	34 U	40 U	42 U	40 U	40 U	40 U	480 U	510 U	430 U	420 U
Aroclor-1254	580 D	120	780 D	95	880 D	730 D	940 D	1100 J	800 J	1100	1000
Aroclor-1260	38 U	34 U	40 U	42 U	40 U	40 U	40 U	480 U	510 U	430 U	420 U
Total PCB (mg/kg)	0.58 D	0.12	0.78 D	0.095	0.88 D	0.73 D	0.94 D	1.1 J	0.8 J	1.1	1

Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A2 - 12	A2 - 13	A2 - 14	A2 - 15	A2 - 16	A2 - 17	A2 - 18	A2 - 19	A2 - 20	A2-21
CLP Sample #	BWZ-54	BWZ-55	BWZ-56	BWZ-57	BWZ-58	BWZ-59	BWZ-60	BWZ-61	BWZ-62	BWZ-63
Lab ID #	39116.12	39116.13	39116.14	39116.15	39116.16	39116.17	39116.18	39116.19	39116.20	39116.21
Percent Moisture	23	19	22	24	30	26	21	46	41	26
Dilution Factor	10	10	10	10	10	10	10	10	10	1
PCB										
Aroclor-1016	420 U	410 U	400 U	420 U	460 U	430 U	410 U	610 U	550 U	44 U
Aroclor-1221	860 U	820 U	800 U	850 U	940 U	860 U	840 U	1200 U	1100 U	89 U
Aroclor-1232	420 U	410 U	400 U	420 U	460 U	430 U	410 U	610 U	550 U	44 U
Aroclor-1242	420 U	410 U	400 U	420 U	460 U	430 U	410 U	610 U	550 U	44 U
Aroclor-1248	420 U	410 U	400 U	420 U	460 U	430 U	410 U	610 U	550 U	44 U
Aroclor-1254	1000	380 J	670 J	850	320 J	2000	60 J	580 J	180 J	480 DJ
Aroclor-1260	420 U	410 U	400 U	420 U	460 U	430 U	410 U	610 U	550 U	44 U
Total PCB (mg/kg)	1	0.38 J	0.67 J	0.85	0.32 J	2	0.06 J	0.58 J	0.18 J	0.48 DJ

U - Non-detected compound.
UJ- Analyte was not detected. The reported quantitation limit is qualified estimated.
J - Estimated Value
JN - Presumptive evidence of a compound at an estimated value.
D- From Dilution

TABLE - 3 PCB DATA (Area 3)

SITE NAME: Cornell - Dubilier Electronics
SAMPLING DATE: June 23, 1999
UNITS: ug/kg (unless otherwise indicated)

Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A3-01	A3-02	A3-03	A3-04	A3-05	A3-06	A3-07	A3-08	A3-09	A3-10	A3-11
CLP Sample #	BWZ-64	BWZ-65	BWZ-66	BWZ-67	BWZ-68	BWZ-69	BWZ-70	BWZ-71	BWZ-72	BWZ-73	BWZ-74
Lab ID #	39129.01	39129.02	39129.03	39129.04	39129.05	39129.06	39129.07	39129.08	39129.09	39129.10	39129.11
Percent Moisture	25	25	35	23	38	26	47	23	33	30	18
Dilution Factor	10	10	10	10	10	10	10	10	10	10	10
PCB											
Aroclor-1016	440 U	420 U	510 U	400 U	530 U	430 U	620 U	420 U	480 U	470 U	400 U
Aroclor-1221	890 U	860 U	1000 U	800 U	1100 U	870 U	1200 U	860 U	970 U	950 U	810 U
Aroclor-1232	440 U	420 U	510 U	400 U	530 U	430 U	620 U	420 U	480 U	470 U	400 U
Aroclor-1242	440 U	420 U	510 U	400 U	530 U	430 U	620 U	420 U	480 U	470 U	400 U
Aroclor-1248	440 U	420 U	510 U	400 U	530 U	430 U	620 U	420 U	480 U	470 U	400 U
Aroclor-1254	4600	4700	4000	4500	3400	3700	3800	4900	3800	4400	5200
Aroclor-1260	440 U	420 U	510 U	400 U	530 U	430 U	620 U	420 U	480 U	470 U	400 U
Total PCB (mg/kg)	4.6	4.7	4	4.5	3.4	3.7	3.8	4.9	3.8	4.4	5.2

Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A3 - 12	A3 - 13	A3 - 14	A3 - 15	A3 - 16	A3 - 17	A3 - 18	A3 - 19	A3 - 20	A3-21	A3-22
CLP Sample #	BWZ-75	BWZ-76	BWZ-77	BWZ-78	BWZ-79	BWZ-80	BWZ-81	BWZ-82	BWZ-83	BWZ-84	BWZ-85
Lab ID #	39129.12	39129.13	39129.14	39129.15	39129.16	39129.17	39129.18	39129.19	39129.20	39129.21	39129.22
Percent Moisture	30	29	28	26	33	61	26	55	19	25	34
Dilution Factor	10	10	10	10	10	10	10	10	10	10	10
PCB											
Aroclor-1016	460 U	460 U	440 U	440 U	490 U	820 UJ	440 U	720 UJ	380 U	440 U	480 U
Aroclor-1221	930 U	940 U	900 U	890 U	1000 U	1600 UJ	890 U	1500 UJ	760 U	890 U	980 U
Aroclor-1232	460 U	460 U	440 U	440 U	490 U	820 UJ	440 U	720 UJ	380 U	440 U	480 U
Aroclor-1242	460 U	460 U	440 U	440 U	490 U	820 UJ	440 U	720 UJ	380 U	440 U	480 U
Aroclor-1248	460 U	460 U	440 U	440 U	490 U	820 UJ	440 U	720 UJ	380 U	440 U	480 U
Aroclor-1254	5800	5900	7500	4000	5000	4200 J	4700	4100 J	5700	2500	2700
Aroclor-1260	460 U	460 U	440 U	440 U	490 U	820 UJ	440 U	720 UJ	380 U	440 U	480 U
Total PCB (mg/kg)	5.8	5.9	7.5	4	5	4.2 J	4.7	4.1 J	5.7	2.5	2.7

Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A3 - 23	A3 - 24	A3 - 25	A3 - 26	A3 - 27	A3 - 28
CLP Sample #	BWZ-86	BWZ-87	BWZ-88	BWZ-89	BWZ-90	BWZ-91
Lab ID #	39129.23	39129.24	39129.25	39129.26	39129.27	39129.28
Percent Moisture	68	68	31	52	29	55
Dilution Factor	10	10	10	10	10	10
PCB						
Aroclor-1016	1000 UJ	950 UJ	460 U	670 U	450 U	710 U
Aroclor-1221	2100 UJ	1900 UJ	940 U	1400 U	920 U	1400 U
Aroclor-1232	1000 UJ	950 UJ	460 U	670 U	450 U	710 U
Aroclor-1242	1000 UJ	950 UJ	460 U	670 U	450 U	710 U
Aroclor-1248	1000 UJ	950 UJ	460 U	670 U	450 U	710 U
Aroclor-1254	3700 J	3200 J	3000 J	6000 J	2900 J	3100 J
Aroclor-1260	1000 UJ	950 UJ	460 U	670 U	450 U	710 U
Total PCB (mg/kg)	3.7 J	3.2 J	3 J	6 J	2.9 J	3.1 J

U - Non-detected compound.
UJ- Analyte was not detected. The reported quantitation limit is qualified estimated.
J - Estimated Value
JN - Presumptive evidence of a compound at an estimated value.
D- From Dilution

TABLE - 4 PCB DATA (Area 4)

SITE NAME: Cornell - Dubilier Electronics
SAMPLING DATE: June 21, 1999
UNITS: ug/kg (unless otherwise indicated)

Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A4-01	A4-02	A4-03	A4-04	A4-05	A4-06	A4-07	A4-08	A4-09	A4-10	A4-11
CLP Sample #	BWZ-96	BWZ-97	BWZ-98	BWZ-99	BXA-00	BXA-01	BXA-02	BXA-03	BXA-04	BXA-05	BXA-06
Lab ID #	39116.22	39116.23	39116.24	39116.25	39116.26	39116.27	39116.28	39116.29	39116.30	39116.31	39116.32
Percent Moisture	27	6	16	10	9	8	9	9	7	5	9
Dilution Factor	1	1	1	1	1	1	1	1	1	1	1
PCB											
Aroclor-1016	45 U	35 U	39 U	36 U	36 U	36 U	36 U	36 U	35 U	34 U	35 U
Aroclor-1221	91 U	70 U	80 U	73 U	73 U	72 U	73 U	73 U	72 U	69 U	72 U
Aroclor-1232	45 U	35 U	39 U	36 U	36 U	36 U	36 U	36 U	35 U	34 U	35 U
Aroclor-1242	45 U	35 U	39 U	36 U	36 U	36 U	36 U	36 U	35 U	34 U	35 U
Aroclor-1248	45 U	35 U	39 U	36 U	36 U	36 U	36 U	36 U	35 U	34 U	35 U
Aroclor-1254	45 U	35 U	80 J	100 J	60 J	36 U	74 J	130 J	98 J	55 J	96 J
Aroclor-1260	45 U	35 U	39 U	36 U	36 U	36 U	36 U	36 U	35 U	34 U	35 U
Total PCB (mg/kg)	U	U	0.08 J	0.1 J	0.06 J	U	0.074 J	0.13 J	0.098 J	0.055 J	0.096 J

Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample ID #	A4 - 12	A4 - 13	A4 - 14	A4 - 15	A4 - 16	A4 - 17	A4 - 18	A4 - 19	A4 - 20	A4-21
CLP Sample #	BXA-07	BXA-08	BXA-09	BXA-10	BXA-11	BXA-12	BXA-13	BXA-14	BXA-15	BXA-16
Lab ID #	39116.33	39116.34	39116.35	39116.36	39116.37	39116.38	39116.39	39116.40	39116.41	39092.42
Percent Moisture	7	12	13	12	15	15	12	9	24	18
Dilution Factor	1	1	1	1	1	1	1	1	1	1
PCB										
Aroclor-1016	34 U	38 U	38 U	37 U	37 U	38 U	36 U	35 U	43 U	39 U
Aroclor-1221	68 U	76 U	76 U	74 U	76 U	77 U	74 U	72 U	88 U	79 U
Aroclor-1232	34 U	38 U	38 U	37 U	37 U	38 U	36 U	35 U	43 U	39 U
Aroclor-1242	34 U	38 U	38 U	37 U	37 U	38 U	36 U	35 U	43 U	39 U
Aroclor-1248	34 U	38 U	38 U	37 U	37 U	38 U	36 U	35 U	43 U	39 U
Aroclor-1254	93 J	38 U	140 J	210	140 J	130 J	36 U	40	55	39 U
Aroclor-1260	34 U	38 U	38 U	37 U	37 U	38 U	36 U	35 U	43 U	39 U
Total PCB (mg/kg)	0.093 J	U	0.14J	0.21	0.14 J	0.13 J	U	0.04	0.055	U

U - Non-detected compound.
UJ- Analyte was not detected. The reported quantitation limit is qualified estimated.
J - Estimated Value
JN - Presumptive evidence of a compound at an estimated value.
D- From Dilution

Table 5
GPS Points for cornell-Dubilier Site
Table References Coordinates for
Geographic, WGS84 Projection (Decimal Degrees)
and
NJ State Plane, WGS 84 Projection (feet)

SITE_NAME	POINT_ID	COMMENT	MAD_LAT_DD	MAD_LON_DD	X_COORD NJ State Plane (ft)	Y_COORD NJ State Plane (ft)
Area 1	C1	POLE 6309 SPF	40.580044	-74.415561	515577.94875	636217.99593
Area 1	C2	POLE 7855	-40.581350	-74.415550	515580.57492	636693.50270
Area 2	C1	CENTER LINE CEDEAR BROOK	40.581962	-74.417695	514984.63721	636916.08732
Area 2	C2		40.581787	-74.418741	514694.09647	636851.95905
Area 2	C3		40.581703	-74.419535	514473.59495	636821.14425
Area 4	C1	POLE 63498 SPF	40.579098	-74.424783	513016.91634	635870.89595
Area 4	C2		40.578413	-74.425293	512875.48703	635621.27572
Area 3	C1	AT STREAM 14-14-2-3	40.580933	-74.424671	513047.35671	636539.58521
Area 3	C2		40.580924	-74.425752	512747.22419	636536.02086
Area 3	C3		40.581156	-74.426770	512464.24132	636620.09911
Area 3	C4		40.581358	-74.427821	512172.38676	636693.63551

Notes: Points Collected with Trimble Pro XR GPS unit. Points were differentially corrected using Trimble Pathfinder Software. Corrected points were exported to ArcView Shapefile, in geographic projection and WGS datum. Exported Shapefile was then reprojected (using ArcView reproduction tool) into NJ Stare Plane (feet), WGS84 datum. From there, an ArcView Script (View_AddXYCoordTOFTab) was loaded compiled, and run on the Feature Table (Ftab) of the reprojected shapefile. The above table is an impot of selected fields of the final Ftab.

APPENDIX 1

SITE MAPS/FIGURES

APPENDIX 2

TRIP REPORT - JUNE 29, 1999

Roy F. Weston, Inc.
Federal Programs Division
Suite 201
1090 King Georges Post Road
Edison, New Jersey 08837-3703
732-225-6116 • Fax 732-225-7037

SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
EPA CONTRACT 68-W5-0019

29 June 1999

Mr. Eric Wilson
U.S. Environmental Protection Agency
Removal Action Branch
2890 Woodbridge Avenue
Edison, New Jersey 08837

TDD NO: 02-98-08-0072
DCN NO: START-02-F-03656
SUBJECT: RESIDENTIAL SOIL SAMPLING TRIP REPORT
CORNELL-DUBILIER ELECTRONICS,
SOUTH PLAINFIELD, NEW JERSEY

Dear Mr. Wilson:

Enclosed please find one (1) copy of the Sampling Trip Report for the floodplain soil/sediment sampling episode conducted at Cornell-Dubilier Electronics from 21 - 23 June 1999. If you have any questions or comments, please contact me at (732) 225-6116 or (609) 499-6542.

Sincerely,

ROY F. WESTON, INC.

for
Michael Mahnkopf
Project Manager

cc: John Bulich, Region II ESAT/RSCC

Enclosure

SAMPLING TRIP REPORT

SITE NAME: Cornell-Dubilier Electronics
DCN #: START-02-F-03656
TDD #: 02-98-08-0072

SAMPLE DATES: 21 - 23 June 1999

EPA I.D. NO.: GZ

1. Site Location: Former Cornell-Dubilier Electronics
333 Hamilton Boulevard, South Plainfield, New Jersey

Surface (0-2") soil /sediment samples were collected from the following areas, illustrated in Figure 1:

1. Area A1 - Veteran's Memorial Park
2. Area A2 - North side of Cedar Brook, between Lowden and Oakmoor Avenues
3. Area A3 - North side of Bound Brook in the vicinity of Fred Allen Drive
4. Area A4 - Adjacent to a drainage swale, south of New Market Avenue and approximately 525 feet east of Highland Avenue

2. Sample Descriptions: Ninety-eight (98) surface soil samples and six (6) surface sediment (including field duplicates and MS/MSDs) were collected and submitted for total polychlorinated biphenyl (PCB) analysis (Table 1).

3. Laboratory Receiving Samples:

Analysis	Name and Address of Laboratory
Total PCBs	Southwest Labs of Oklahoma 1700 West Albany, Suite C Broken Arrow, OK 74012 (918) 251-0545

4. Sample Dispatch Data:

On 21 June 1999, fifty-five (55) samples were shipped by Region II START personnel, via Federal Express (airbill No. 802546321349), to Southwest Labs of Oklahoma.

On 22 June 1999, twenty-one (21) samples were shipped by Region II START personnel, via Federal Express (airbill No. 810158220925), to Southwest Labs of Oklahoma.

On 23 June 1999, twenty-eight (28) samples were shipped by Region II START personnel, via Federal Express (airbill No. 810158220936), to Southwest Labs of Oklahoma.

On-Site Personnel:

Name	Representing	Duties on Site
Eric Wilson	U.S. EPA	On-Scene Coordinator
Michael Mahnkopf	Region II START	Project Manager
John Brennan	Region II START	Sample Management
Patrick Austin	Region II START	Sample Technician
Jeremy Sawetz	Region II START	Sample Technician

6. Additional Comments:

From 21 - 23 June 1999, ninety-eight (98) surface soil samples and six (6) surface sediment samples [one hundred and four (104) samples] were collected from Areas A1 through A4. Of these, six (6) of the samples were field duplicates and six (6) samples were designated for MS/MSD analysis. All samples were collected with dedicated plastic scoops/spatulas. Attached are copies of the Organic Traffic Reports and Chain of Custody Records (Appendix A).

7. Report prepared by: Michael Mahnkopf Date: 28 June 1999

8. Report reviewed by: Mark Huston Date: 28 June 1999

TABLE 1 - Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A1-01	BWZ-06	101	Soil	0-2"	06/21/99 0955 hrs	Total PCBs	Area A1
A1-02	BWZ-07	102	Soil	0-2"	06/21/99 0957 hrs	Total PCBs	Area A1
A1-03	BWZ-08	103	Soil	0-2"	06/21/99 0959 hrs	Total PCBs	Area A1
A1-04	BWZ-09	104	Soil	0-2"	06/21/99 1000 hrs	Total PCBs	Area A1
A1-05	BWZ-10	105	Soil	0-2"	06/21/99 1008 hrs	Total PCBs	Area A1
A1-06	BWZ-11	106	Soil	0-2"	06/21/99 1006 hrs	Total PCBs	Area A1
A1-07	BWZ-12	107	Soil	0-2"	06/21/99 1004 hrs	Total PCBs	Area A1
A1-08	BWZ-13	108	Soil	0-2"	06/21/99 1002 hrs	Total PCBs	Area A1

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A1-09	BWZ-14	109	Soil	0-2"	06/21/99 1010 hrs	Total PCBs	Area A1
A1-10	BWZ-15	110	Soil	0-2"	06/21/99 1012 hrs	Total PCBs	Area A1
A1-11	BWZ-16	111	Soil	0-2"	06/21/99 1014 hrs	Total PCBs	Area A1
A1-12	BWZ-17	112	Soil	0-2"	06/21/99 1020 hrs	Total PCBs	Area A1
A1-13	BWZ-18	113	Soil	0-2"	06/21/99 1010 hrs	Total PCBs	Area A1
A1-14	BWZ-19	114	Soil	0-2"	06/21/99 1020 hrs	Total PCBs	Area A1
A1-15	BWZ-20	115	Soil	0-2"	06/21/99 1022 hrs	Total PCBs	Area A1
A1-16	BWZ-21	116	Soil	0-2"	06/21/99 1026 hrs	Total PCBs	Area A1

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A1-17	BWZ-22	117	Soil	0-2"	06/21/99 1024 hrs	Total PCBs	Area A1
A1-18	BWZ-23	118	Soil	0-2"	06/21/99 1000 hrs	Total PCBs	Area A1
A1-19	BWZ-24	119	Soil	0-2"	06/21/99 1005 hrs	Total PCBs	Duplicate of A1-18
A1-20	BWZ-25	120	Soil	0-2"	06/21/99 1010 hrs	Total PCBs	Area A1 MS/MSD
A1-21	BWZ-26	121	Soil	0-2"	06/21/99 1015 hrs	Total PCBs	Area A1
A1-22	BWZ-27	122	Soil	0-2"	06/21/99 1020 hrs	Total PCBs	Area A1
A1-23	BWZ-28	123	Soil	0-2"	06/21/99 1025 hrs	Total PCBs	Area A1
A1-24	BWZ-29	124	Soil	0-2"	06/21/99 1030 hrs	Total PCBs	Area A1

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A1-25	BWZ-30	125	Soil	0-2"	06/21/99 1020 hrs	Total PCBs	Area A1
A1-26	BWZ-31	126	Soil	0-2"	06/21/99 1022 hrs	Total PCBs	Area A1
A1-27	BWZ-32	127	Soil	0-2"	06/21/99 1025 hrs	Total PCBs	Area A1
A1-28	BWZ-33	128	Soil	0-2"	06/21/99 1045 hrs	Total PCBs	Area A1
A1-29	BWZ-34	129	Soil	0-2"	06/21/99 1040 hrs	Total PCBs	Area A1 MS/MSD
A1-30	BWZ-35	130	Soil	0-2"	06/21/99 1035 hrs	Total PCBs	Area A1
A1-31	BWZ-36	131	Soil	0-2"	06/21/99 1025 hrs	Total PCBs	Area A1
A1-32	BWZ-37	132	Soil	0-2"	06/21/99 1010 hrs	Total PCBs	Area A1

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A1-33	BWZ-38	133	Soil	0-2"	06/21/99 1010 hrs	Total PCBs	Duplicate of A1-32
A1-34	BWZ-39	134	Soil	0-2"	06/21/99 1033 hrs	Total PCBs	Area A4
A4-01	BWZ-96	191	Soil	0-2"	06/21/99 1400 hrs	Total PCBs	Area A4
A4-02	BWZ-97	192	Soil	0-2"	06/21/99 1402 hrs	Total PCBs	Area A4
A4-03	BWZ-98	193	Soil	0-2"	06/21/99 1402 hrs	Total PCBs	Area A4
A4-04	BWZ-99	194	Soil	0-2"	06/21/99 1406 hrs	Total PCBs	Area A4
A4-05	BXA-00	195	Soil	0-2"	06/21/99 1412 hrs	Total PCBs	Area A4
A4-06	BXA-01	196	Soil	0-2"	06/21/99 1416 hrs	Total PCBs	Area A4

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A4-07	BXA-02	197	Soil	0-2"	06/21/99 1430 hrs	Total PCBs	Area A4
A4-08	BXA-03	198	Soil	0-2"	06/21/99 1436 hrs	Total PCBs	Area A4
A4-09	BXA-04	199	Soil	0-2"	06/21/99 1438 hrs	Total PCBs	Duplicate of A4-08
A4-10	BXA-05	200	Soil	0-2"	06/21/99 1430 hrs	Total PCBs	Area A4 MS/MSD
A4-11	BXA-06	201	Soil	0-2"	06/21/99 1428 hrs	Total PCBs	Area A4
A4-12	BXA-07	202	Soil	0-2"	06/21/99 1426 hrs	Total PCBs	Area A4
A4-13	BXA-08	203	Soil	0-2"	06/21/99 1420 hrs	Total PCBs	Area A4
A4-14	BXA-09	204	Soil	0-2"	06/21/99 1440 hrs	Total PCBs	Area A4

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A4-15	BXA-10	205	Soil	0-2"	06/21/99 1440 hrs	Total PCBs	Area A4
A4-16	BXA-11	206	Soil	0-2"	06/21/99 1434 hrs	Total PCBs	Area A4
A4-17	BXA-12	207	Soil	0-2"	06/21/99 1430 hrs	Total PCBs	Area A4
A4-18	BXA-13	208	Soil	0-2"	06/21/99 1424 hrs	Total PCBs	Area A4
A4-19	BXA-14	209	Soil	0-2"	06/21/99 1422 hrs	Total PCBs	Area A4
A4-20	BXA-15	210	Sediment	0-2"	06/21/99 1400 hrs	Total PCBs	Area A4
A4-21	BXA-16	211	Sediment	0-2"	06/21/99 1410 hrs	Total PCBs	Area A4
A2-01	BWZ-43	138	Soil	0-2"	06/22/99 1205 hrs	Total PCBs	Area A2

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999.

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A2-02	BWZ-44	139	Soil	0-2"	06/22/99 1210 hrs	Total PCBs	Area A2
A2-03	BWZ-45	140	Soil	0-2"	06/22/99 1155 hrs	Total PCBs	Area A2
A2-04	BWZ-46	141	Soil	0-2"	06/22/99 1200 hrs	Total PCBs	Area A2
A2-05	BWZ-47	142	Soil	0-2"	06/22/99 1205 hrs	Total PCBs	Area A2
A2-06	BWZ-48	143	Soil	0-2"	06/22/99 1210 hrs	Total PCBs	Area A2 MS/MSD
A2-07	BWZ-49	144	Soil	0-2"	06/22/99 1205 hrs	Total PCBs	Area A2
A2-08	BWZ-50	145	Soil	0-2"	06/22/99 1200 hrs	Total PCBs	Area A2
A2-09	BWZ-51	146	Soil	0-2"	06/22/99 1205 hrs	Total PCBs	Area A2

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A2-10	BWZ-52	147	Soil	0-2"	06/22/99 1200 hrs	Total PCBs	Area A2
A2-11	BWZ-53	148	Soil	0-2"	06/22/99 1150 hrs	Total PCBs	Area A2
A2-12	BWZ-54	149	Soil	0-2"	06/22/99 1155 hrs	Total PCBs	Duplicate of A2-11
A2-13	BWZ-55	150	Soil	0-2"	06/22/99 1146 hrs	Total PCBs	Area A2
A2-14	BWZ-56	151	Soil	0-2"	06/22/99 1140 hrs	Total PCBs	Area A2
A2-15	BWZ-57	152	Soil	0-2"	06/22/99 1145 hrs	Total PCBs	Area A2
A2-16	BWZ-58	153	Soil	0-2"	06/22/99 1135 hrs	Total PCBs	Area A2
A2-17	BWZ-59	154	Soil	0-2"	06/22/99 1140 hrs	Total PCBs	Area A2

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A2-18	BWZ-60	155	Sediment	0-2"	06/22/99 1135 hrs	Total PCBs	Area A2
A2-19	BWZ-61	156	Sediment	0-2"	06/22/99 1155 hrs	Total PCBs	Area A2
A2-20	BWZ-62	157	Sediment	0-2"	06/22/99 1210 hrs	Total PCBs	Area A2
A2-21	BWZ-63	158	Sediment	0-2"	06/22/99 1215 hrs	Total PCBs	Area A2
A3-01	BWZ-64	159	Soil	0-2"	06/23/99 1110 hrs	Total PCBs	Area A3
A3-02	BWZ-65	160	Soil	0-2"	06/23/99 1115 hrs	Total PCBs	Duplicate of A3-01
A3-03	BWZ-66	161	Soil	0-2"	06/23/99 1120 hrs	Total PCBs	Area A3
A3-04	BWZ-67	162	Soil	0-2"	06/23/99 1120 hrs	Total PCBs	Area A3 MS/MSD

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A3-05	BWZ-68	163	Soil	0-2"	06/23/99 1125 hrs	Total PCBs	Area A3
A3-06	BWZ-69	164	Soil	0-2"	06/23/99 1130 hrs	Total PCBs	Area A3
A3-07	BWZ-70	165	Soil	0-2"	06/23/99 1135 hrs	Total PCBs	Area A3
A3-08	BWZ-71	166	Soil	0-2"	06/23/99 1140 hrs	Total PCBs	Area A3
A3-09	BWZ-72	167	Soil	0-2"	06/23/99 1140 hrs	Total PCBs	Area A3
A3-10	BWZ-73	168	Soil	0-2"	06/23/99 1142 hrs	Total PCBs	Area A3
A3-11	BWZ-74	169	Soil	0-2"	06/23/99 1142 hrs	Total PCBs	Area A3
A3-12	BWZ-75	170	Soil	0-2"	06/23/99 1146 hrs	Total PCBs	Area A3

TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A3-13	BWZ-76	171	Soil	0-2"	06/23/99 1146 hrs	Total PCBs	Area A3
A3-14	BWZ-77	172	Soil	0-2"	06/23/99 1155 hrs	Total PCBs	Area A3
A3-15	BWZ-78	173	Soil	0-2"	06/23/99 1158 hrs	Total PCBs	Area A3
A3-16	BWZ-79	174	Soil	0-2"	06/23/99 1201 hrs	Total PCBs	Area A3
A3-17	BWZ-80	175	Soil	0-2"	06/23/99 1202 hrs	Total PCBs	Area A3
A3-18	BWZ-81	176	Soil	0-2"	06/23/99 1215 hrs	Total PCBs	Area A3
A3-19	BWZ-82	177	Soil	0-2"	06/23/99 1212 hrs	Total PCBs	Area A3
A3-20	BWZ-83	178	Soil	0-2"	06/23/99 1230 hrs	Total PCBs	Area A3

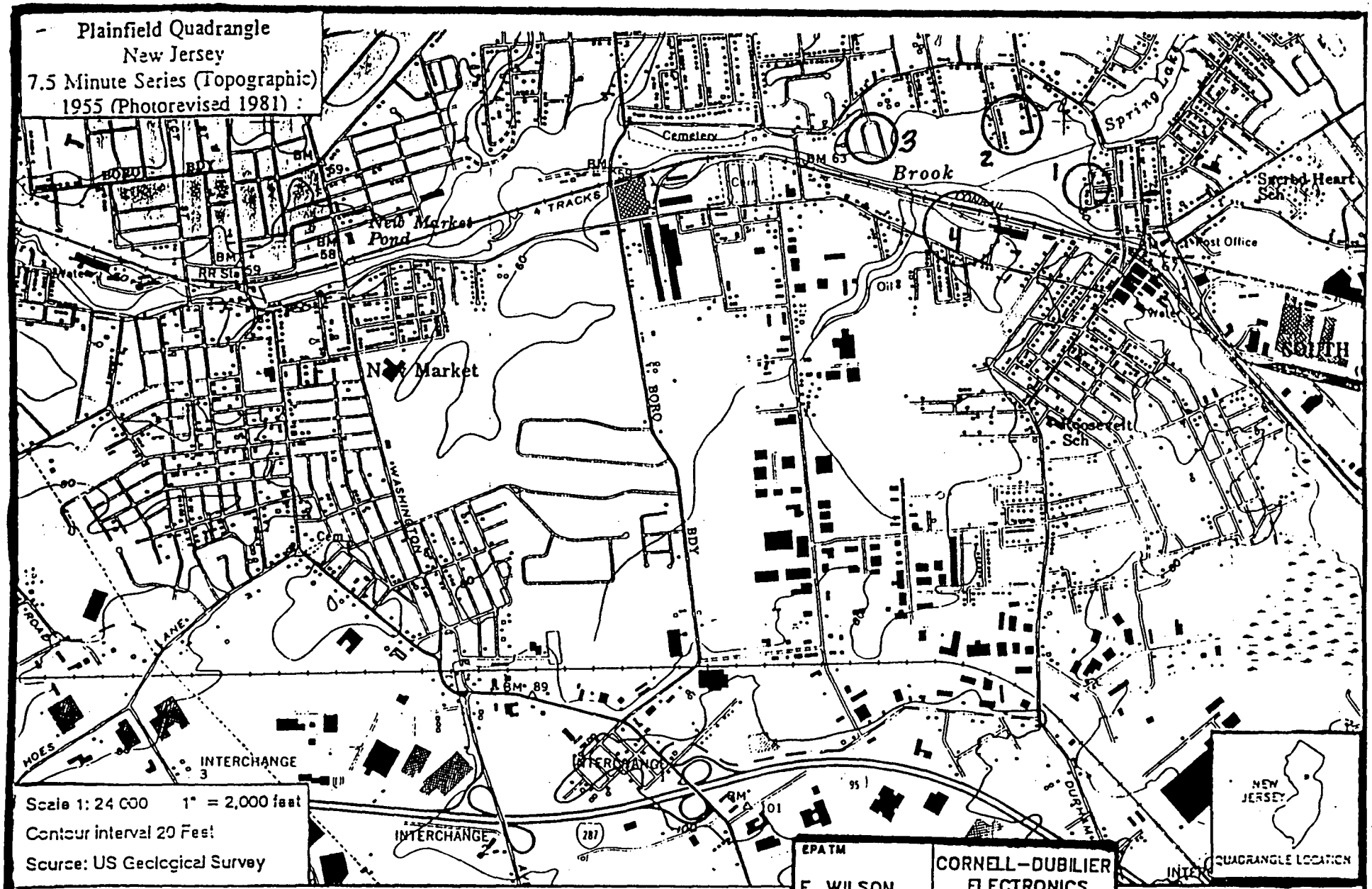
TABLE 1 (cont'd.) Floodplain Soil/Sediment Sample Description and Analysis
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Field Sample ID	CLP Sample No.	Tag No.	Matrix	Depth	Date/Time	Analysis	Location *
A3-21	BWZ-84	179	Soil	0-2"	06/23/99 1230 hrs	Total PCBs	Area A3 MS/MSD
A3-22	BWZ-85	180	Soil	0-2"	06/23/99 1245 hrs	Total PCBs	Area A3
A3-23	BWZ-86	181	Soil	0-2"	06/23/99 1255 hrs	Total PCBs	Area A3
A3-24	BWZ-87	182	Soil	0-2"	06/23/99 1250 hrs	Total PCBs	Duplicate of A3-23
A3-25	BWZ-88	183	Soil	0-2"	06/23/99 1300 hrs	Total PCBs	Area A3
A3-26	BWZ-89	184	Soil	0-2"	06/23/99 1300 hrs	Total PCBs	Area A3
A3-27	BWZ-90	185	Soil	0-2"	06/23/99 1305 hrs	Total PCBs	Area A3
A3-28	BWZ-91	186	Soil	0-2"	06/23/99 1305 hrs	Total PCBs	Area A3

* Area A1 - Veteran's Memorial Park; Area A2 - North side of Cedar Brook, between Lowden and Oakmoor Avenues; Area A3 - North side of Bound Brook in the vicinity of Fred Allen Drive; and Area A4 - Adjacent to drainage swale, south of New Market Ave. and approximately 525 feet east of Highland Ave.

FIGURE 1

Location Plan
Cornell-Dubilier Electronics
South Plainfield, NJ



WESTON

Roy F. Weston, Inc.
FEDERAL PROGRAMS DIVISION

IN ASSOCIATION WITH RESOURCE APPLICATION, Inc.
C.C. JOHNSON & MALHOTRA, P.C., R.E. SARRIERA ASSOCIATES,
PRC ENVIRONMENTAL MANAGEMENT, AND GRB ENVIRONMENTAL SERVICES, INC.

EPA TM E. WILSON	CORNELL-DUBILIER ELECTRONICS S. PLAINFIELD, NJ
START PM M. MAHNKOPF	FIGURE 1 SITE LOCATION MAP

APPENDIX A

Organic Traffic Reports & Chain of Custody Records
Cornell-Dubilier Electronics
South Plainfield, NJ
21 - 23 June 1999

Cooler

EPA United States Environmental Protection Agency, Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	WESTON START	6-21-99	FED EX

Regional Information: NJD981557879

Sampler (Name): J. BRENNAN

Airbill Number: 802546321349

Non-Superfund Program:

Sampler Signature: [signature]

Site Name: CORNELL - DUBILIER

City, State: S. PLAINFIELD, NJ

Site Spill ID: G2

3. Purpose*: Lead [X] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

5. Ship To: SOUTHWEST LABS OF OKLAHOMA, 1700 WEST ALBANY, SUITE C, BROKEN ARROW, OK 74012, (918) 251-0545

ATTN: HARRY BORG

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp. Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BW2-06	5	4m	G	5			X		101	A1-01	6/21/99 0955	N/A	JB	
BW2-07									102	A1-02	0957			
BW2-08									103	A1-03	0959			
BW2-09									104	A1-04	1000			
BW2-10									105	A1-05	1008			
BW2-11									106	A1-06	1006			
BW2-12									107	A1-07	1004			
BW2-13									108	A1-08	1002			
BW2-14									109	A1-09	1010			
BW2-15									110	A1-10	1012			

Shipment for Case Complete? (Y/N): Y

Page 1 of 4

Sample(s) to be Used for Laboratory QC: None

Additional Sampler Signatures:

Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/21/99 1630				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

367383

Cover #1

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	WESTON START	6-21-99	FED EX

Regional Information: NJD981557879

Sampler (Name): J. BRENNAN

Airbill Number: 802546321349

Non-Superfund Program:

Sampler Signature: [signature]

Site Name: CORNELL - DUBILIER

City, State: S. PLAINFIELD, NJ

Site Spill ID: G2

3. Purpose*: Lead [X] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

5. Ship To: SOUTHWEST LABS OF OKLAHOMA, 1700 WEST ALBANY, SUITE C, BROKEN ARROW, OK 74012, (918) 251-0545, ATTN: HARRY BORG

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other	B Conc. Low Med High	C Sample Type: Comp/Grab	D Preservative (from Box 7) Other	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BW2-16	5	4/M	G	5			X		111	A1-11	6/21/99 1014	N/A	JB	
BW2-17									112	A1-12	1020			
BW2-18									113	A1-13	1010			
BW2-19									114	A1-14	1020			
BW2-20									115	A1-15	1022			
BW2-21									116	A1-16	1026			
BW2-22									117	A1-17	1024			
BW2-23									118	A1-18	1000			
BW2-24									119	A1-19	1005			D
BW2-25									120	A1-20	1010			MS/MSD

Shipment for Case Complete? (Y/N): Y

Page 2 of 4

Sample(s) to be Used for Laboratory QC: BW2-25 (MS/MSD)

Additional Sampler Signatures:

Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/21/99 1630				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

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A21-012-15 REV.

367384

Cooler #

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	WESTON/START	6-21-99	FED EX

Regional Information: NJD 981557879

Sampler (Name): J. Brennan

Airbill Number: 8025463213 49

Non-Superfund Program

Sampler Signature:

5. Ship To: SOUTHWEST LABS OF OKLAHOMA, 1700 WEST ALBANY, SUITE C, BROKEN ARROW, OK 74012, (918) 251-0545, ATTN: HARRY BORG

Site Name: CERCLA - DUBILIER

City, State: SPRINGFIELD, NJ

Site Spill ID: G2

3. Purpose*: Lead: [X] SF, [ ] PRP, [ ] ST, [ ] FED. Early Action: [ ] CLEM, [ ] PA, [ ] REM, [ ] RI, [X] SI, [ ] ESI. Long-Term Action: [ ] FS, [ ] RD, [ ] RA, [ ] O&M, [ ] NPLD

6. Matrix (Enter in Column A): 1. Surface Water, 2. Ground Water, 3. Leachate, 4. Field QC, 5. Soil/Sediment, 6. Oil (High only), 7. Waste (High only), 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl, 2. HNO3, 3. NaHSO4, 4. H2SO4, 5. Ice only, 6. Other (Specify in Column D), N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6)	B Conc. Low Med High	C Sample Type: Comp. Grab	D Preservative (from Box 7)	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BW2-26	5	4m	G	5			X		121	A1-21	6/21/99 1015	N/A	JB	
BW2-27									122	A1-22	1020			
BW2-28									123	A1-23	1025			
BW2-29									124	A1-24	1030			
BW2-30									125	A1-25	1020			
BW2-31									126	A1-26	1022			
BW2-32									127	A1-27	1025			
BW2-33									128	A1-28	1045			
BW2-34									129	A1-29	1040			MS/MSD
BW2-35									130	A1-30	1035			

Shipment for Case Complete? (Y/N): Y

Page 3 of 4

Sample(s) to be Used for Laboratory QC: BW2-34 (MS/MSD)

Additional Sampler Signatures:

Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	6/21/99 1630				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

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A21-012-15, REV. 7

267205

Cooler #

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	WESTON START	6-21-99	FED EX

Regional Information: NJD 981557879

Sampler (Name): J. Brennan

Airbill Number: 802 546 321 349

Non-Superfund Program:

Sampler Signature: [signature]

Site Name: Cornell - Dubilier

City, State: S. Plainfield, NJ

Site Spill ID: G2

3. Purpose*: Lead [X] SF [ ] PRP [ ] ST [ ] FED; Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

5. Ship To: Southwest Labs of Oklahoma, 1700 West Albany, Suite C, Broken Arrow, OK 74012, (918) 251-0545, ATTN: Harry Borg

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp. Grab	D Preservative (from Box 7) Other:	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BW2-36	5	4m	G	5			X		131	A1-31	6/21/99 1025	N/A	JB	
BW2-37	↓	↓	↓	↓			↓		132	A1-32	1010	↓	↓	
BW2-38	↓	↓	↓	↓			↓		133	A1-33	1010	↓	↓	D
BW2-39	↓	↓	↓	↓			↓		134	A1-34	1033	↓	↓	

JB

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	4 of 4	None		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/21/99 1630				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

367386

Cooler # 2

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	Weston START	6.21.99	Fed Ex

Regional Information	Sampler (Name)	Airbill Number
NJD 981557879	J. Brennan	802546321349

Non-Superfund Program	Sampler Signature	5. Ship To
	[signature]	Southwest Labs of Oklahoma, 1700 West Albany, Suite C, Broken Arrow, OK 74012, (918) 251-0545, ATTN: Harry Borg

Site Name	City/State	Site Spill ID
Cornell Dubilier	Stanfield, NJ	G2

3. Purpose*: Lead: [X] SF, [ ] PRP, [ ] ST, [ ] FED; Early Action: [ ] CLEM, [ ] PA, [ ] REM, [ ] RI, [X] SI, [ ] ESI; Long-Term Action: [ ] FS, [ ] RD, [ ] RA, [ ] O&M, [ ] NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp. Grab	D Preservative (from Box 7) Other:	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BWZ-96	5	L/M	G	5			X		191	A4-01	6/21/99 1400	N/A	JB	
BWZ-97									192	A4-02	1402			
BWZ-98									193	A4-03	1402			
BWZ-99									194	A4-04	1406			
BXA-00									195	A4-05	1412			
BXA-01									196	A4-06	1416			
BXA-02									197	A4-07	1430			
BXA-03									198	A4-08	1436			
BXA-04									199	A4-09	1438			D
BXA-05									200	A4-10	1430			MS/MSD

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	1 of 3	BXA-05 (MS/MSD)		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/21/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

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A21-012-15 REV

267308

Cooler #2

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	Weston-Start	6-21-99	Fed Ex

Regional Information	Sampler (Name)	Airbill Number
NJD 981557879	J. Brennan	802546321349

Non-Superfund Program	Sampler Signature	5. Ship To
	[signature]	Southwest Labs of Oklahoma 1700 West Albany, Suite C Broken Arrow, OK 74012 (918) 251-0545 ATTN: Harry Borg

Site Name: Cornell-Dubilier

City, State: Plainfield, NJ

Site Spill ID: G2

3. Purpose*: Lead [X] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXA-06	5	L/M	G	5			X		201	A4-11	6/21/99 1426	N/A	JB	
BXA-07									202	A4-12	1426			
BXA-08									203	A4-13	1420			
BXA-09									204	A4-14	1440			
BXA-10									205	A4-15	1440			
BXA-11									206	A4-16	1434			
BXA-12									207	A4-17	1430			
BXA-13									208	A4-18	1424			
BXA-14									209	A4-19	1422			
BXA-15									210	A4-20	1400			

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	2 of 3	—None—		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/21/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

367387

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27135

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	Western Start	6-21-99	Fed Ex

Regional Information	Sampler (Name)	Airbill Number
NJD981557879	J. Brennan	802 546 321-349

Non-Superfund Program	Sampler Signature	5. Ship To
	[signature]	Southwest Labs of Oklahoma 1700 West Albany Suite Broken Arrow OK 74012 (918) 251-0547 ATTN: Harry Borg

Site Name	3. Purpose*	Early Action	Long-Term Action
Cornell-Dubilier	Lead: [X] SF [ ] PRP [ ] ST [ ] FED	[ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI	[ ] FS [ ] RD [ ] RA [ ] O&M [ ] NRLD

City, State	Site Spill ID
Splanfield, NJ	GT2

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp. Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BXA-16	5	4m	G	5			X		211	AY-21	6/21/99 1410	N/A	JB	

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	3 of 3	None		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/21/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks - Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

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A21-012-15 REV

383828

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code: Account Code:
2. Region No.: 2. Sampling Co.: Weston START
4. Date Shipped: 6-22-94 Carrier: FED EX
Regional Information: NJD 981557879
Sampler (Name): J. BRENNAN
Airbill Number: 810158220925
Non-Superfund Program
Sampler Signature:
5. Ship To: SOUTHWEST LAB OF OKLAHOMA, 1700 WEST ALBANY, SUITE C, BROKEN ARROW, OK 74012 (918) 251-0545 ATTN: HARRY BORG
Site Name: Cornell-Dubilier
3. Purpose*: Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD
City, State: Plainfield, NJ
Site Spill ID: G2

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only: ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BW2-43	5	L/M	G	5			X		138	A2-01	6/22/94 1205	N/A	JB	
BW2-44									139	A2-02	1210			
BW2-45									140	A2-03	1155			
BW2-46									141	A2-04	1200			
BW2-47									142	A2-05	1205			
BW2-48									143	A2-06	1210			MS/MSD
BW2-49									144	A2-07	1205			
BW2-50									145	A2-08	1200			
BW2-51									146	A2-09	1205			
BW2-52									147	A2-10	1200			

Shipment for Case Complete? (Y/N): Y
Page 1 of 3
Sample(s) to be Used for Laboratory QC: BW2-48 (MS/MSD)
Additional Sampler Signatures:
Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	6/22/94 1530				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

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A21-012-15 REV

383829

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No. 2	Sampling Co. Weston-START	4. Date Shipped 6-22-99	Carrier Fed Ex
Regional Information NJD 981557879		Sampler (Name) J. BRENNAN		Airbill Number 810158220925	
Non-Superfund Program		Sampler Signature		5. Ship To SOUTHWEST LABS OF OKLAHOMA 1700 WEST ALBANY, SUITE C BROKEN ARROW, OK 74012 (918) 251-0545 ATTN: HARRY BOLG	
Site Name Cornell-Dubilier		3. Purpose* Lead: [X] SF [ ] PRP [ ] ST [ ] FED; Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD			
City, State S. PLAINFIELD, NJ	Site Spill ID G2				

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp. Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BW2-53	S	L/M	G	S			X		148	A2-11	6/22/99 1150	N/A	JB	
BW2-54									149	A2-12	1155			D
BW2-55									150	A2-13	1146			
BW2-56									151	A2-14	1140			
BW2-57									152	A2-15	1145			
BW2-58									153	A2-16	1135			
BW2-59									154	A2-17	1140			
BW2-60									155	A2-18	1135			
BW2-61									156	A2-19	1155			
BW2-62									157	A2-20	1210			

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	2 of 3	—NONE—		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	6/22/99 1530				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-15 REV

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383830

Cooler #

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	Weston START	6-22-99	Fed Ex

Regional Information	Sampler (Name)	Airbill Number
NJD 981557879	J Brennen	810158220925

Non-Superfund Program	Sampler Signature	5. Ship To
	[signature]	SOUTHWEST LABS OF OKLAHOMA 1700 WEST ALBANY, SUITE C BROKEN ARROW, OK 74012 (918) 251-0545 ATTN: HARRY BORG

Site Name	City, State	Site Spill ID
Cornell-Dubilier	SPLAINFIELD, NJ	G2

3. Purpose*: Lead [X] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BW2-63	5	Lm	G	5			X		158	A2-21	6/22/99 1215	N/A	JB	

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
N	3 of 3	— None —		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/22/99 1530				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2 (2/98)

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A21-012-15 REV

383831

Cooler #7

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	Weston START	6-23-99	Fed Ex

Regional Information: NJD 981557879

Sampler (Name): J. BRENNAN

Airbill Number: 8101582 20936

Non-Superfund Program

Sampler Signature: [signature]

5. Ship To: SOUTHWEST LABS OF OKLAHOMA, 1700 WEST ALBANY, SUITE C, BROKEN ARROW, OK 74012, (918) 251-0545, ATTN: HARRY BORG

Site Name: Cornell Dubilier

City, State: S. PLAINFIELD, NJ

Site Spill ID: G2

3. Purpose*: Lead [X] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

I CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp. Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	PCB/PEST	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BW2-64	S	Lm	G	5			X		159	A3-01	6/23/99 1110	N/A	JB	
BW2-65									160	A3-02	1115			D
BW2-66									161	A3-03	1120			
BW2-67									162	A3-04	1120			MS/MSD
BW2-68									163	A3-05	1125			
BW2-69									164	A3-06	1130			
BW2-70									165	A3-07	1135			
BW2-71									166	A3-08	1140			
BW2-72									167	A3-09	1140			
BW2-73									168	A3-10	1142			

Shipment for Case Complete? (Y/N): Y

Page 1 of 3

Sample(s) to be Used for Laboratory QC: BW2-67 (MS/MSD)

Additional Sampler Signatures:

Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/23/99 1500				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none

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383832

Cooler #4

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	Weston START	6-23-99	Fed Ex

Regional Information: NJD 981557879

Sampler (Name): J. Brennan

Airbill Number: 810158220936

Non-Superfund Program

Sampler Signature: [signature]

Site Name: Cornell-Dubilier

City, State: Skainfield, NJ

Site Spill ID: G2

3. Purpose*: Lead [X] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

5. Ship To: Southwest Labs of Oklahoma, 1700 West Albany, Suite C, Broken Arrow, OK 74012, (918) 251-0545, ATTN: Harry Borg

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low-Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BW2-74	5	4m	G	5			X		169	A3-11	6/23/99 1142	N/A	JB	
BW2-75									170	A3-12	1146			
BW2-76									171	A3-13	1146			
BW2-77									172	A3-14	1155			
BW2-78									173	A3-15	1158			
BW2-79									174	A3-16	1201			
BW2-80									175	A3-17	1202			
BW2-81									176	A3-18	1215			
BW2-82									177	A3-19	1212			
BW2-83									178	A3-20	1230			

Shipment for Case Complete? (Y/N): Y

Page: 2 of 3

Sample(s) to be Used for Laboratory QC: — None —

Additional Sampler Signatures:

Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/23/99 1500				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-15 REV

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2 (2/98)

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383833

Code #4

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 27133

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	Weston-START	6-23-99	Fed Ex

Regional Information: NJD981557879
Sampler (Name): J. Brennan
Airbill Number: 810158220936
Non-Superfund Program:
Sampler Signature: [signature]
Site Name: Cornell-Dubilier
City, State: S. Plainfield, NJ
Site Spill ID: G2

3. Purpose*: Lead [X] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

5. Ship To: Southwest Labs of Oklahoma, 1700 West Albany, Suite C, Broken Arrow, OK 74012, (918) 251-0545
ATTN: Harry Borg

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BW2-84	5	L/m	G	5			X		179	A3-21	6/23/99 1230	N/A	JB	MS/MSD
BW2-85									180	A3-22	JB ~~1230~~ 1245			
BW2-86									181	A3-23	JB ~~1245~~ 1255			
BW2-87									182	A3-24	JB ~~1255~~ 1250			D
BW2-88									183	A3-25	JB ~~1250~~ 1300			
BW2-89									184	A3-26	1300			
BW2-90									185	A3-27	1305			
BW2-91									186	A3-28	1305			

Shipment for Case Complete? (Y/N): Y
Page 3 of 3
Sample(s) to be Used for Laboratory QC: BW2-84 (MS/MSD)
Additional Sampler Signatures:
Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/23/99 1500				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

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EPA Form 9110-2 (2/98)

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383834

APPENDIX 3

ANALYTICAL RESULTS (FORM I's)
&
DATA VALIDATION RESULTS

RECORD OF COMMUNICATION

TO: mike MAHNKOPS

FROM: *JANET TROTTER*
Region II ESAT/RSCC

DATE: July 16, 1999

SUBJECT: QUALITY ASSURED DATA

MESSAGE * SDG# BWZ84

PLEASE SIGN BELOW IN ACKNOWLEDGEMENT OF RECEIPT OF THE FOLLOWING AND RETURN ONE COPY OF THIS RECORD OF COMMUNICATION TO THE RSCC-REGION II.

(1) Cornell Dubilier 27133 SWOK Org + soils

REPLY BY:

SIGNATURE: M. Mahnkopf DATE: 7/19/99

DATE RECEIVED BY RSCC: / /

cc: EPA TASK MONITOR
ESAT, MANAGER
file

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

DATE: JULY 12, 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 # BW284
CONTRACTOR	STARTW	#SAMPLES	MATRIX
PHASE	SI	4	SOIL
LAB	SWOK		
TURN-AROUND-TIME	14 DAYS	FRACTION	PCB
CERCLIS ID #	NJD 981557879	SITE SPILL #	GZ

REGION II RSCC DATA TRANSFER LOG

Relinquished By		Received By	
Signature	Date/Time	Signature	Date/Time
		John Balicki	7-9-99
John Balicki	7-12-99	[illegible]	7/13/99
[illegible]	7/14/99	J. Trutter	7/14/99
J. Trutter	7/14/99 (DCR)	G. Karras	7/14/99
G. Karras	7/15/99	J. Trutter	7/15/99

(over for instructions) revised 3/99

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 27133 **SDG No.:** BWZ84 **LABORATORY:** SWOK

SITE: Cornell-Dublier

DATA ASSESSMENT

The current SOP HW-6 (Revision 11) June 1996, USEPA Region II Data Validation SOP for Statement of Work OLMO3.2 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 at an estimated value) flag. All action is detailed on the attached sheets.

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

Reviewer's Signature: _____ **Date** 7/14/99

Verified By: _____ **Date** 7/14/99

CLP DATA ASSESSMENT

1. HOLDING TIME:

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

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

Technical and contractual holding times were met.

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.

All surrogates in all samples were diluted below the CRQL.

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

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

No qualification of the data was necessary.

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

CLP DATA ASSESSMENT

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" (or "R" where indicated) for these reasons:

A) Method blank contamination:

No problems.

5. CALIBRATION:

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

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

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

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

No quqalification of the PCB data was necessary.

6. COMPOUND IDENTIFICATION:

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

CLP DATA ASSESSMENT

concentration exceeds 10ng/ml in the final sample extract.

a. %Difference (dual column):

See attached CADRE Quantitaiton Limit Report for a list of samples qualified for this criteria.

7. CONTRACT PROBLEMS NON-COMPLIANCE:

a. Dilutions Not Required:

BWZ90DL, BWZ91DL - These analyses were not required, as the initial samples did not contain any hits exceeding the intial calibration range (SOW Sec. 10.2.3.6, page D-60/PEST).

b. Initial Analysis Too Dilute:

BWZ91 - This sample was analyzed at a ten-fold dilution; however, there were no target analytes on either column exceeding the initial calibration range (SOW Sec. 10.2.3.2, page D-59/PEST)."

8. FIELD DOCUMENTATION:

9. OTHER PROBLEMS:

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

BWZ84DL, BWZ89DL - The corresponding undiluted analyses were used, instead.

BWZ90DL, BWZ91DL - These analyses were not required, as the initial samples did not contain any hits exceeding the intial calibration range.

4A

Heptachlor epoxide, Dieldrin, 4,4'-DDE, 4,4'-DDD
Methoxychlor, alpha-Chlordane, gamma-Chlordane, Aroclor-1254

PBLKSI
Heptachlor, gamma-Chlordane

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."

BWZ84
Dieldrin, Endrin

~~BWZ84DL~~
~~4,4'-DDE, alpha-Chlordane, Aroclor-1254~~ - %D was <25.0

BWZ84MS
alpha-BHC, Heptachlor, Heptachlor epoxide, Dieldrin
Aroclor-1254 - J

BWZ84MSD
gamma-BHC (Lindane), Heptachlor, Aldrin, Heptachlor epoxide
Dieldrin, Aroclor-1254 - J

BWZ89
Dieldrin, 4,4'-DDE, 4,4'-DDT, Endrin aldehyde, Ar-1254 - J

~~BWZ89DL~~
~~Endrin, Aroclor-1254~~ - %D <25

BWZ90
Dieldrin, 4,4'-DDE, Endrin, 4,4'-DDT
Endrin aldehyde, gamma-Chlordane, Aroclor-1254 - J

BWZ90DL
4,4'-DDE, alpha-Chlordane

BWZ91
4,4'-DDE, Endrin, Aroclor-1254 - J

BWZ91DL
alpha-Chlordane

PBLKSI

SOP NO. HW-6

Revision #11

May 1996

CLP ORGANICS DATA REVIEW AND PRELIMINARY REVIEW (CLP/SOW OLMO 3.2)

By: George Karras Date: 6/12/96
George Karras, Work Assignment Manager/Chemist
Toxic and Hazardous Waste Section

By: Karen Taylor Date: 6/17/96
Karen Taylor, Chemist
Toxic and Hazardous Waste Section

CONCURRED BY: Kevin W. Kubik Date: 6/18/96
Kevin Kubik, Chief
Toxic and Hazardous Waste Section

APPROVED BY: Robert M. Runyon Date: 6/18/96
Robert Runyon, Chief
Monitoring Management Branch

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CLP Data Assessment . . . . . Attachment 1

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INTRODUCTION

Scope and Applicability

This SOP offers detailed guidance in evaluating laboratory data generated according to the methods in the "USEPA Contract Laboratory Program Statement of Work for Organics Analysis OLM03.2," August 1994. The validation methods and actions discussed in this document are based on the requirements set forth in the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994. This document attempts to cover technical as well as contractual problems specific to each fraction and sample matrix; however, situations may arise where data limitations must be assessed based on the reviewer's professional judgement.

In addition to technical requirements, contractual requirements are also covered in this document. While it is important that instances of contract non-compliance be addressed in the Data Assessment, the technical criteria are always used to qualify the analytical data.

Summary of Method

To ensure a thorough evaluation of each result in a data case, the reviewer must complete the checklist within this SOP, answering specific questions while performing the prescribed "ACTIONS" in each section. Qualifiers (or flags) are applied to questionable or unusable results as instructed. The data qualifiers discussed in this document are defined on page 4 of the National Functional Guidelines mentioned above.

The reviewer must prepare a detailed data assessment to be submitted along with the completed SOP checklist. The Data Assessment must list all data qualifications, reasons for qualifications, instances of missing data and contract non-compliance. This information is further summarized on the Organic Regional Data Assessment Summary and Data Rejection Summary forms (see attached).

CADRE reports, when available, are to be incorporated into the Data Assessment. To generate CADRE reports for a particular SDG, follow the SOP for Validating RAS/CLP Data Cases with MAGIC, CARD and CADRE (see attached).

Reviewer Qualifications

This SOP is intended for use by organic data validators who have successfully completed the USEPA Region II data validation training program. Data reviewers must possess a working knowledge of the USEPA Statement of Work and National Functional Guidelines mentioned above.

DEFINITIONS

Acronyms

BFB - bromofluorobenzene
BHC - benzene hexachloride
BNA - base neutral acid
CADRE - Computer Aided Data Review and Evaluation
CARD - CLP Analytical Results Database
CCS - contract compliance screening
CLASS - Contract Laboratory Analytical Services Support
CLP - Contract Laboratory Program
CRQL - Contract Required Quantitation Limit
%D - percent difference
DCB -decachlorobiphenyl
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenylethane
DDT - dichlorodiphenyltrichloroethane
GC - gas chromatography
GC/EC - gas chromatograph/electron capture detector
GC/MS - gas chromatograph/mass spectrometer
GPC - gel permeation chromatography
IS - internal standard
kg - kilogram
µg - microgram
MAGIC - Mainframe Access Graphical Interface with CARD
MS - matrix spike
MSD - matrix spike duplicate
ℓ - liter
mℓ - mililiter
PCB - polychlorinated biphenyl
PE - performance evaluation
PEM - Performance Evaluation Mixture
QC - quality control
RAS - Routine Analytical Services
RIC - reconstructed ion chromatogram
RPD - relative percent difference
RRF - relative response factor
$\overline{\text{RRF}}$ - average relative response factor (from initial calibration)
RRT - relative retention time
RSD - relative standard deviation
RT - retention time
RSCC - Regional Sample Control Center
SDG - sample delivery group
SMC - system monitoring compound
SOP - standard operating procedure
SOW - Statement of Work
SVOA - semivolatile organic acid
TCL - Target Compound List
TCLP - Toxicity Characteristics Leachate Procedure
TCX -tetrachloro-m-xylene
TIC - tentatively identified compound

Acronyms (cont'd.)

TPO - technical project officer
VOA - volatile organic acid
VTSR - validated time of sample receipt
WAM - EPA Work Assignment Manager

Data Qualifiers

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively dienrified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality contrrol criteria. The presence or absence of the analyte cannot be verified.

YES NO N/

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 27133 LABORATORY: SWOK

SITE NAME: Cornell-Dubilier SDG Number(s): BWZ84

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? [ ] ✓ ___

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

	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
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

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".

ACTION: If samples were not iced, or if the ice was melted upon arrival at the laboratory, and the temperature of the cooler was elevated > 10^0 C, flag all positive results "J" and all non-detects "UJ".

ACTION: Check aqueous extraction log for sample pH, if adjustment was needed, it should have been noted in the SDG Narrative. If more information is needed, notify the 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 reliability of the data and the effects of

YES NO N/A

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
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%)?		[✓]	

All diluted o

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

1. When surrogates on both columns are diluted out.

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

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

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

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)?	[✓]	___	___

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?	[ ]	___	[✓]

	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
NA out of 12	6 out of 12

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

Water	Soil
0 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/A
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 Chromatography: review the blank raw data - chromatograms, quant. reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable?	✓		
ACTION: Use professional judgement to determine the effect on the data.			

6.0 Contamination

	YES	NO	N/A
NOTE: "Water blanks", "distilled water blanks" and "drilling water blanks" are validated like any other sample and are not used to qualify the data. Do not confuse them with the other QC blanks discussed below.			
6.1 Do any method/reagent, instrument, or cleanup blanks show positive hits for pest/PCBs?		✓	
6.2 If any method blanks and/or sulfur clean-up blanks contain "hits" for target compounds, are these hits greater than the CRQL for that			

	YES	NO	N/
analyte?	___	[✓]	___
6.3 In any instrument blanks, is the concentration of any target hit > 0.5 times CRQL for that analyte (see SOW, section 12.1.4.4.2, 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.

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 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate are used to prepare each soil reagent/method blank as instructed on page D-72/PEST, section 12.1.2.3.1. Ask the WAM

YES NO N/A

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

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

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

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

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

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

7.0 Calibration and GC Performance

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

a. Peak resolution check? [ ] ___ ___

b. Performance evaluation mixtures? [ ] ___ ___

c. Aroclor 1016/1260? [✓] ___ ___

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

e. Toxaphene? [✓] ___ ___

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

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

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

	YES	NO	N/
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.

7.3 Are Forms VI PEST 1-7 present and complete for each column-and each analytical sequence?	[✓]	___	___

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

7.4 Are there any transcription/ calculation errors between raw data and Forms VI?	___	[✓]	___

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

7.5 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the Initial Calibration (see Form VI PEST-1)?	[ ]	___	___

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

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 <u>both initial and continuing</u> calibrations (see SOW section 3.12.4.4, page B-52)? [ ] ___ ___

	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

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

"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/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 last in-control standard up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses? [✓] ___ ___

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

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
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
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.

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.			
Was the correct identification scheme used for GPC and Florisil blanks?	[✓]	___	___

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	[✓]	___	___

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

	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.

	YES	NO	N/A
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.

	YES	NO	N/A
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.

	YES	NO	N/A
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

% Difference	Qualifier
0 - 25%	None
25 - 70%	"J"
70 - 100%	"JN"
> 100% (No interference)	"R"
100 - 200% (Interference detected)*	"JN"
> 50% (Pesticide value is < CRQL)**	"U"
> 200%	"R"

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

DPO: [X]ACTION [ ]FYI REGION II

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO.: 27133 LABORATORY: SWL-TULSA

SDG NO.: BWZ84 DATA USER: EPA Region II

SOW: OLM03.2 REVIEW COMPLETION DATE: 7/14/99

NO. OF SAMPLES: ___ WATER 4 SOIL ___ OTHER

REVIEWER: [ ] ESD [X] ESAT [ ] OTHER, CONTRACTOR: _____

QC ITEM	PEST	
HOLDING TIMES	O	
GC-MS PERFORMANCE	NA	
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)	NA	
INTERNAL STANDARDS	NA	
COMPOUND IDENTIFICATION	M	
COMPOUND QUANTITATION	O	
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.

DPO ACTION ITEMS:

SWOK continues to dilute samples unnecessarily. Even the initial analyses in this SDG were analyzed at a ten-fold dilution, with no target hits exceeding the initial calibration range.

AREAS OF CONCERN:

DATA REJECTION SUMMARY

Type of Review: Organic **Date:** 7/14/99 **Case/SDG No.:** BWZ84

Site Name: Cornell-Dublier **Lab Name:** SWL-TULSA

Reviewer's Initials: **Number of Samples, including REs, DLs and QC:** 10

Analytes Rejected Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0/0	=	%
ACID(14)									0/0	=	%
B/N(50)									0/0	=	%
PEST(21)									0/0	=	%
PCB(7)								10	0/70	=	0%

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

Analytes Estimated Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0/0	=	%
ACID(14)									0/0	=	%
B/N(50)									0/0	=	%
PEST(21)									0/0	=	%
PCB(7)					5			10	5/70	=	7%

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

RECEIVED
JUL 0 9 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: BWZ84

SAMPLES: BWZ84, BWZ89, BWZ90, BWZ91, BWZ84DL, BWZ89DL, BWZ90DL, BWZ91DL

FRACTION: Pesticide/PCB

This SDG consisted of 4 soil samples that were analyzed for pesticide/PCBs, by EPA SOW OLM03.2. The samples were analyzed on Restek dual analytical columns, RTX-PEST and RTX-PEST2 (the phases of both columns 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 of the cooler(s) was noted at 3 ° 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. However, this may lead to false positives. The end data user should be aware of the limitations of the method and take appropriate care.

When analyzed at a 10x dilution the samples in this SDG caused breakdown of 4,4'-DDT in the calibration verification standards following their injection. The calibration verification standards analyzed before these samples met OLM03.2 continuing calibration criteria. When diluted 100X (samples BWZ84 and BWZ89 required this dilution to bring target analytes within calibration range) the samples met OLM03.2 acceptance criteria. A non-compliant 10x dilution analysis and a compliant 100x dilution analysis was 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. 6 out of 12 recoveries wee outside of control limits due to matrix interference. The raw data for the 100x 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 8, 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). BWZ84 Sample Receipt Date: 06/24/99 (MM/DD/YY)

Last Sample in SDG: (Highest EPA Sample Number in last shipment of samples received under SDG). BWZ91 Sample Receipt Date: 06/24/99

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

1) BWZ84	11)
2) BWZ89	12)
3) BWZ90	13)
4) BWZ91	14)
5)	15)
6)	16)
7)	17)
8)	18)
9)	19)
10)	20)

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).

006

Harry M Roy
Sample Custodian

6-29-99
Date

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ84

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ84

Matrix: (soil/water) SOIL Lab Sample ID: 39129.21

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

% Moisture: 25 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 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	82	P
959-98-8	Endosulfan I	21	PJ
60-57-1	Dieldrin	230	P
72-55-9	4,4'-DDE	120	
72-20-8	Endrin	64	P
33213-65-9	Endosulfan II	30	PJ
72-54-8	4,4'-DDD	44	U
1031-07-8	Endosulfan sulfate	44	U
50-29-3	4,4'-DDT	720	E
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	44	U
7421-93-4	Endrin aldehyde	33	PJ
5103-71-9	alpha-Chlordane	120	P
5103-74-2	gamma-Chlordane	73	PB
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	2500	
11096-82-5	Aroclor-1260	440	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

DO NOT USE

EPA SAMPLE NO.

BWZ84DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ84

Matrix: (soil/water) SOIL Lab Sample ID: 39129.21DL

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

% Moisture: 25 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 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	100	DPJ
959-98-8	Endosulfan I	220	U
60-57-1	Dieldrin	280	DPJ
72-55-9	4,4'-DDE	160	DPJ
72-20-8	Endrin	83	DPJ
33213-65-9	Endosulfan II	45	DPJ
72-54-8	4,4'-DDD	440	U
1031-07-8	Endosulfan sulfate	440	U
50-29-3	4,4'-DDT	1000	D
72-43-5	Methoxychlor	140	DPJ
53494-70-5	Endrin ketone	440	U
7421-93-4	Endrin aldehyde	440	U
5103-71-9	alpha-Chlordane	220	DP
5103-74-2	gamma-Chlordane	93	DPJB
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4400	U
11104-28-2	Aroclor-1221	8900	U
11141-16-5	Aroclor-1232	4400	U
53469-21-9	Aroclor-1242	4400	U
12672-29-6	Aroclor-1248	4400	U
11097-69-1	Aroclor-1254	3800	DJP
11096-82-5	Aroclor-1260	4400	U

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ89

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ84

Matrix: (soil/water) SOIL Lab Sample ID: 39129.26

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 52 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	34	U
319-85-7	beta-BHC	34	U
319-86-8	delta-BHC	34	U
58-89-9	gamma-BHC (Lindane)	34	U
76-44-8	Heptachlor	34	U
309-00-2	Aldrin	34	U
1024-57-3	Heptachlor epoxide	150	P
959-98-8	Endosulfan I	42	P
60-57-1	Dieldrin	420	P
72-55-9	4,4'-DDE	220	P
72-20-8	Endrin	130	
33213-65-9	Endosulfan II	94	P
72-54-8	4,4'-DDD	100	P
1031-07-8	Endosulfan sulfate	67	U
50-29-3	4,4'-DDT	1100	PE
72-43-5	Methoxychlor	340	U
53494-70-5	Endrin ketone	26	PJ
7421-93-4	Endrin aldehyde	68	P
5103-71-9	alpha-Chlordane	610	PE
5103-74-2	gamma-Chlordane	720	EB
8001-35-2	Toxaphene	3400	U
12674-11-2	Aroclor-1016	670	U
11104-28-2	Aroclor-1221	1400	U
11141-16-5	Aroclor-1232	670	U
53469-21-9	Aroclor-1242	670	U
12672-29-6	Aroclor-1248	670	U
11097-69-1	Aroclor-1254	6000	~~P~~ J
11096-82-5	Aroclor-1260	670	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ89DL

Do not use

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ84

Matrix: (soil/water) SOIL Lab Sample ID: 39129.26DL

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 52 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	340	U
319-85-7	beta-BHC	340	U
319-86-8	delta-BHC	340	U
58-89-9	gamma-BHC (Lindane)	340	U
76-44-8	Heptachlor	340	U
309-00-2	Aldrin	340	U
1024-57-3	Heptachlor epoxide	190	DPJ
959-98-8	Endosulfan I	77	DPJ
60-57-1	Dieldrin	560	DPJ
72-55-9	4,4'-DDE	400	DJ
72-20-8	Endrin	160	DPJ
33213-65-9	Endosulfan II	100	DPJ
72-54-8	4,4'-DDD	130	DPJ
1031-07-8	Endosulfan sulfate	670	U
50-29-3	4,4'-DDT	1800	D
72-43-5	Methoxychlor	180	DPJ
53494-70-5	Endrin ketone	670	U
7421-93-4	Endrin aldehyde	670	U
5103-71-9	alpha-Chlordane	920	DP
5103-74-2	gamma-Chlordane	970	DB
8001-35-2	Toxaphene	34000	U
12674-11-2	Aroclor-1016	6700	U
11104-28-2	Aroclor-1221	14000	U
11141-16-5	Aroclor-1232	6700	U
53469-21-9	Aroclor-1242	6700	U
12672-29-6	Aroclor-1248	6700	U
11097-69-1	Aroclor-1254	9800	D
11096-82-5	Aroclor-1260	6700	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ90

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ84

Matrix: (soil/water) SOIL Lab Sample ID: 39129.27

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 29 decanted: (Y/N) N Date Received: 06/24/99

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	0.98	PJ
319-85-7	beta-BHC	23	U
319-86-8	delta-BHC	23	U
58-89-9	gamma-BHC (Lindane)	5.7	PJ
76-44-8	Heptachlor	20	JB
309-00-2	Aldrin	23	U
1024-57-3	Heptachlor epoxide	86	P
959-98-8	Endosulfan I	22	PJ
60-57-1	Dieldrin	250	P
72-55-9	4,4'-DDE	140	P
72-20-8	Endrin	63	P
33213-65-9	Endosulfan II	42	PJ
72-54-8	4,4'-DDD	36	PJ
1031-07-8	Endosulfan sulfate	45	U
50-29-3	4,4'-DDT	670	P
72-43-5	Methoxychlor	230	U
53494-70-5	Endrin ketone	29	PJ
7421-93-4	Endrin aldehyde	46	P
5103-71-9	alpha-Chlordane	130	P
5103-74-2	gamma-Chlordane	130	PB
8001-35-2	Toxaphene	2300	U
12674-11-2	Aroclor-1016	450	U
11104-28-2	Aroclor-1221	920	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	2900	~~R~~ J
11096-82-5	Aroclor-1260	450	U

042

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ90DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ84

Matrix: (soil/water) SOIL Lab Sample ID: 39129.27DL

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 29 decanted: (Y/N) N Date Received: 06/24/99

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	230	U
319-85-7	beta-BHC	230	U
319-86-8	delta-BHC	230	U
58-89-9	gamma-BHC (Lindane)	230	U
76-44-8	Heptachlor	230	U
309-00-2	Aldrin	230	U
1024-57-3	Heptachlor epoxide	120	DPJ
959-98-8	Endosulfan I	230	U
60-57-1	Dieldrin	380	DPJ
72-55-9	4,4'-DDE	270	DPJ
72-20-8	Endrin	95	DPJ
33213-65-9	Endosulfan II	50	DPJ
72-54-8	4,4'-DDD	450	U
1031-07-8	Endosulfan sulfate	450	U
50-29-3	4,4'-DDT	1200	D
72-43-5	Methoxychlor	160	DPJ
53494-70-5	Endrin ketone	450	U
7421-93-4	Endrin aldehyde	44	DPJ
5103-71-9	alpha-Chlordane	300	DP
5103-74-2	gamma-Chlordane	170	DPJB
8001-35-2	Toxaphene	23000	U
12674-11-2	Aroclor-1016	4500	U
11104-28-2	Aroclor-1221	9200	U
11141-16-5	Aroclor-1232	4500	U
53469-21-9	Aroclor-1242	4500	U
12672-29-6	Aroclor-1248	4500	U
11097-69-1	Aroclor-1254	5900	D
11096-82-5	Aroclor-1260	4500	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ91

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ84

Matrix: (soil/water) SOIL Lab Sample ID: 39129.28

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

% Moisture: 55 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	37	U
319-85-7	beta-BHC	88	
319-86-8	delta-BHC	37	U
58-89-9	gamma-BHC (Lindane)	15	PJ
76-44-8	Heptachlor	37	U
309-00-2	Aldrin	37	U
1024-57-3	Heptachlor epoxide	85	P
959-98-8	Endosulfan I	40	P
60-57-1	Dieldrin	240	P
72-55-9	4,4'-DDE	160	P
72-20-8	Endrin	68	PJ
33213-65-9	Endosulfan II	45	PJ
72-54-8	4,4'-DDD	52	PJ
1031-07-8	Endosulfan sulfate	71	U
50-29-3	4,4'-DDT	710	
72-43-5	Methoxychlor	370	U
53494-70-5	Endrin ketone	44	PJ
7421-93-4	Endrin aldehyde	30	PJ
5103-71-9	alpha-Chlordane	120	P
5103-74-2	gamma-Chlordane	100	PB
8001-35-2	Toxaphene	3700	U
12674-11-2	Aroclor-1016	710	U
11104-28-2	Aroclor-1221	1400	U
11141-16-5	Aroclor-1232	710	U
53469-21-9	Aroclor-1242	710	U
12672-29-6	Aroclor-1248	710	U
11097-69-1	Aroclor-1254	3100	~~R~~ J
11096-82-5	Aroclor-1260	710	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

D OBWZ91DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ84

Matrix: (soil/water) SOIL Lab Sample ID: 39129.28DL

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

% Moisture: 55 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	370	U
319-85-7	beta-BHC	370	U
319-86-8	delta-BHC	370	U
58-89-9	gamma-BHC (Lindane)	370	U
76-44-8	Heptachlor	370	U
309-00-2	Aldrin	370	U
1024-57-3	Heptachlor epoxide	130	DPJ
959-98-8	Endosulfan I	370	U
60-57-1	Dieldrin	320	DPJ
72-55-9	4,4'-DDE	310	DJ
72-20-8	Endrin	710	U
33213-65-9	Endosulfan II	710	U
72-54-8	4,4'-DDD	75	DPJ
1031-07-8	Endosulfan sulfate	710	U
50-29-3	4,4'-DDT	1200	D
72-43-5	Methoxychlor	150	DPJ
53494-70-5	Endrin ketone	710	U
7421-93-4	Endrin aldehyde	710	U
5103-71-9	alpha-Chlordane	270	DPJ
5103-74-2	gamma-Chlordane	140	DPJB
8001-35-2	Toxaphene	37000	U
12674-11-2	Aroclor-1016	7100	U
11104-28-2	Aroclor-1221	14000	U
11141-16-5	Aroclor-1232	7100	U
53469-21-9	Aroclor-1242	7100	U
12672-29-6	Aroclor-1248	7100	U
11097-69-1	Aroclor-1254	6600	DJ
11096-82-5	Aroclor-1260	7100	U

RECORD OF COMMUNICATION

TO: Mike MAHNKOPS

FROM: *JANET TROTTER*
Region II ESAT/RSCC

DATE: July 20, 1999

SUBJECT: QUALITY ASSURED DATA

MESSAGE * SDG # BWZ26

PLEASE SIGN BELOW IN ACKNOWLEDGEMENT OF RECEIPT OF THE FOLLOWING AND RETURN ONE COPY OF THIS RECORD OF COMMUNICATION TO THE RSCC-REGION II.

1) Cornell Dubilier 27133 SWOK Org 20 Soils

REPLY BY: _____

SIGNATURE: _____ DATE: _____

DATE RECEIVED BY RSCC: ____/____/____

cc: EPA TASK MONITOR
ESAT, MANAGER
file

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 27133 SDG No.: BWZ26
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 15, 1999

Verified By: [signature] Date: 7/19/1999

CLP DATA ASSESSMENT

SDG 1, BWZ26: 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: The following analytes were qualified "UJ" in sample BWZ39 due to surrogate recoveries less than criteria: Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, and Aroclor 1260.

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

SMC/Surrogate Report

SDG NO: BWZ26
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ26.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".

BWZ26DL, BWZ27, BWZ27DL, BWZ28, BWZ28DL, BWZ29
BWZ29DL, BWZ31, BWZ31DL, BWZ32, BWZ32DL, BWZ33DL
BWZ34DL, BWZ35DL, BWZ36DL, BWZ37, BWZ38, BWZ43
BWZ43DL, BWZ44, BWZ44DL, BWZ45, BWZ45DL, BWZ46
BWZ46DL, BWZ47, BWZ47DL, BWZ49, BWZ49DL

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.

BWZ28DL, BWZ29DL, BWZ30DL, BWZ31DL, BWZ37DL, BWZ38DL

DC-177: The following pesticide samples have surrogate percent recoveries outside the lower limit of the criteria window, but > 10%. Hits & non-detects are qualified "J" only for same surr. on both columns with no interference. Use professional judgement when interference is detected. Remove "J" when 1 surr. on 1 column is out.

BWZ39

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.

BWZ28DL, BWZ29DL, BWZ30DL, BWZ31DL, BWZ37DL, BWZ38DL

CLP DATA ASSESSMENT

contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:
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

CLP DATA ASSESSMENT

Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < ±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:

CLP DATA ASSESSMENT

A) Volatile and Semi-Volatile Fractions:

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

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 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: BWZ33DL, BWZ44DL, and BWZ46DL.

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: BWZ26, BWZ28, BWZ29, BWZ30, BWZ31, BWZ32, BWZ36, BWZ37, BWZ38, BWZ43, BWZ45, and BWZ47.

The following samples were qualified "J" for Aroclor 1254 in the original analysis since the analyte exceeded the calibration curve (SOW, D-60/Pest, Sect. 10.2.3.3) but the associated dilutions reported Aroclor 1254 below the CRQL. The value was not transferred from the dilution. The area responses for Aroclor 1254 in the dilutions were reported below the target window of the midpoint and high point initial calibration as required by the above mentioned SOW citation: BWZ37 and BWZ38.

Sample dilution of the following samples was not required since the reported analytes 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: BWZ33DL, BWZ35DL, BWZ39DL, and BWZ46DL.

11. FIELD DOCUMENTATION:

Quantitation Limit Report

SDG NO: **BWZ26**
CASE NO: **27133**

LABORATORY: **SWL-TULSA**
AGENCY INPUT FILE: **BWZ26.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".

BWZ26DL
Aldrin, Dieldrin, 4,4'-DDE, 4,4'-DDD
Methoxychlor, Endrin ketone, Endrin aldehyde

BWZ27DL
Aldrin, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate, Methoxychlor, Endrin ketone, Endrin aldehyde

BWZ28DL
Heptachlor epoxide, Dieldrin, 4,4'-DDE, 4,4'-DDD
Methoxychlor, Endrin aldehyde

BWZ29DL
Dieldrin, 4,4'-DDE, 4,4'-DDD, Methoxychlor
Endrin aldehyde, gamma-Chlordane

BWZ30DL
Dieldrin, 4,4'-DDE, 4,4'-DDD, Endrin aldehyde

BWZ31DL
Heptachlor epoxide, Dieldrin, 4,4'-DDE, 4,4'-DDD
Methoxychlor, Endrin aldehyde

BWZ32DL
Aldrin, Heptachlor epoxide, Dieldrin, 4,4'-DDD
Endosulfan sulfate, Methoxychlor, Endrin ketone, Endrin aldehyde

BWZ33
Dieldrin, 4,4'-DDD, Endrin aldehyde

BWZ33DL
Dieldrin, 4,4'-DDE, Endrin, Endosulfan II
4,4'-DDD, Methoxychlor, Endrin ketone, Endrin aldehyde
alpha-Chlordane, Aroclor-1254

J

BWZ34DL
Heptachlor epoxide, Endosulfan I, Dieldrin, 4,4'-DDE
Endrin, 4,4'-DDD, Methoxychlor, Endrin ketone
Endrin aldehyde, gamma-Chlordane, Aroclor-1254
J

BWZ35
Dieldrin, 4,4'-DDE, 4,4'-DDD, Methoxychlor
Endrin ketone, Endrin aldehyde

BWZ35DL
Dieldrin, 4,4'-DDE, Endrin, Endosulfan II
4,4'-DDD, Methoxychlor, Endrin ketone, Endrin aldehyde
alpha-Chlordane, gamma-Chlordane, Aroclor-1254
J

BWZ37DL
Dieldrin, 4,4'-DDE, Endrin, Endosulfan II
4,4'-DDD, Endosulfan sulfate, Methoxychlor, alpha-Chlordane
gamma-Chlordane, Aroclor-1254
J

BWZ38
gamma-BHC (Lindane)

BWZ38DL
J
Aroclor-1254

BWZ43DL
4,4'-DDD, Methoxychlor

BWZ44DL
Endrin, gamma-Chlordane

BWZ45DL
4,4'-DDE, Endrin, 4,4'-DDD, Methoxychlor

BWZ46DL
J
Aroclor-1254

BWZ47DL
Dieldrin, 4,4'-DDE, Endrin, 4,4'-DDD

BWZ49DL
Endrin

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."

BWZ26
Endosulfan II

BWZ26DL
Endosulfan II

BWZ27
Endrin ketone, alpha-Chlordane

BWZ27DL
Endrin, Endosulfan II, Endrin ketone

BWZ28
Endosulfan II

BWZ28DL
Endosulfan II

BWZ29
Heptachlor epoxide, Endosulfan II, 4,4'-DDD

BWZ29DL
Endosulfan II, Methoxychlor

BWZ30
Endosulfan II, Methoxychlor, Endrin aldehyde

BWZ30DL
Endosulfan II

BWZ31
4,4'-DDE, Endosulfan II, Methoxychlor, Endrin aldehyde

BWZ31DL
Endrin aldehyde

BWZ32
delta-BHC, 4,4'-DDE, Endosulfan II, Endrin aldehyde

BWZ32DL
Endosulfan II, Endrin aldehyde, Aroclor-1254

BWZ33
Aldrin, Endosulfan II

BWZ33DL
Endrin, Endrin ketone, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane Aroclor-1254 J

BWZ34
Heptachlor epoxide, Endosulfan II, Methoxychlor

BWZ34DL
Heptachlor epoxide, 4,4'-DDE, 4,4'-DDT

BWZ34MS
Heptachlor epoxide, Dieldrin, Endrin, Endrin ketone

BWZ34MSD
Heptachlor epoxide, Dieldrin, Endrin

BWZ35
Heptachlor epoxide, Endrin, Endosulfan II

BWZ35DL
Endrin, Endrin ketone, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ36
Endosulfan sulfate

BWZ37
Endosulfan II, 4,4'-DDT

BWZ37DL
gamma-Chlordane

BWZ38
delta-BHC, 4,4'-DDE, 4,4'-DDT

BWZ43
Heptachlor epoxide

BWZ43DL
Endosulfan II, Endrin ketone

BWZ44
4,4'-DDD, Endrin ketone, alpha-Chlordane, ~~Aroclor~~-1254 MJ

BWZ44DL Aroclor-1254
4,4'-DDT J

BWZ45
Heptachlor, Heptachlor epoxide, Endosulfan II, Endrin aldehyde

BWZ45DL
4,4'-DDE, Endosulfan II, 4,4'-DDD

BWZ46
Endrin aldehyde, alpha-Chlordane, Aroclor-1254

BWZ46DL
Endrin ketone

BWZ47
Heptachlor epoxide, Endosulfan II

BWZ47DL
4,4'-DDE, Endosulfan II

BWZ49
Heptachlor epoxide, 4,4'-DDE, 4,4'-DDD, 4,4'-DDT
Endrin ketone, gamma-Chlordane

BWZ49DL
Heptachlor epoxide, Endrin, Endosulfan II, 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."

BWZ26
Aldrin, Dieldrin, 4,4'-DDE, 4,4'-DDD
Methoxychlor, Endrin ketone, Endrin aldehyde

BWZ26DL
Aldrin, Dieldrin, 4,4'-DDE, 4,4'-DDD
Endrin ketone, Endrin aldehyde

BWZ27
Dieldrin, 4,4'-DDE, Endrin, 4,4'-DDD
Methoxychlor, Endrin aldehyde, gamma-Chlordane

BWZ27DL
Dieldrin, 4,4'-DDE, 4,4'-DDD, Endosulfan sulfate

Methoxychlor, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ28
delta-BHC, gamma-BHC (Lindane), Aldrin, Heptachlor epoxide
Dieldrin, 4,4'-DDD, Endosulfan sulfate, Endrin ketone
Endrin aldehyde

BWZ28DL
Heptachlor epoxide, Dieldrin, 4,4'-DDE, 4,4'-DDD
Methoxychlor, Endrin aldehyde

BWZ29
delta-BHC, gamma-BHC (Lindane), Aldrin, Dieldrin
4,4'-DDE, Endosulfan sulfate, Methoxychlor, Endrin ketone
Endrin aldehyde, gamma-Chlordane

BWZ29DL
Dieldrin, 4,4'-DDE, 4,4'-DDD, Endrin aldehyde
gamma-Chlordane

BWZ30
delta-BHC, Aldrin, Heptachlor epoxide, Dieldrin
4,4'-DDE, 4,4'-DDD, Endosulfan sulfate

BWZ30DL
Dieldrin, 4,4'-DDE, 4,4'-DDD, Endrin aldehyde

BWZ31
delta-BHC, gamma-BHC (Lindane), Aldrin, Heptachlor epoxide
Dieldrin, 4,4'-DDD, Endosulfan sulfate

BWZ31DL
delta-BHC, Heptachlor epoxide, Dieldrin, 4,4'-DDE
Endosulfan II, 4,4'-DDD

BWZ32
Heptachlor epoxide, Dieldrin, 4,4'-DDD, Methoxychlor
Endrin ketone

BWZ32DL
delta-BHC, Aldrin, Heptachlor epoxide, Dieldrin
4,4'-DDE, 4,4'-DDD, Endosulfan sulfate, Methoxychlor
Endrin ketone

BWZ33
Endosulfan I, Dieldrin, 4,4'-DDE, 4,4'-DDD
Methoxychlor, Endrin ketone, Endrin aldehyde, alpha-Chlordane

gamma-Chlordane

BWZ33DL
Dieldrin, 4,4'-DDE, Endosulfan II, 4,4'-DDD
4,4'-DDT, Aroclor-1254

BWZ34
Endosulfan I, Dieldrin, 4,4'-DDE, Endrin
4,4'-DDD, Endrin ketone, Endrin aldehyde, gamma-Chlordane

BWZ34DL
Endosulfan I, Dieldrin, Endrin, 4,4'-DDD
Methoxychlor, Endrin ketone, Endrin aldehyde, gamma-Chlordane

BWZ34MS
Endosulfan I, 4,4'-DDE, 4,4'-DDD, Methoxychlor
Endrin aldehyde, gamma-Chlordane

BWZ34MSD
Endosulfan I, 4,4'-DDE, 4,4'-DDD, Methoxychlor
Endrin ketone, Endrin aldehyde, gamma-Chlordane

BWZ35
Dieldrin, 4,4'-DDE, 4,4'-DDD, Methoxychlor
Endrin ketone, Endrin aldehyde, gamma-Chlordane

BWZ35DL
Dieldrin, 4,4'-DDE, Endosulfan II, 4,4'-DDD
Methoxychlor

BWZ36
Aldrin, Heptachlor epoxide, Dieldrin, 4,4'-DDE
Endrin aldehyde, gamma-Chlordane

BWZ36DL
Dieldrin, 4,4'-DDE, 4,4'-DDD, Endrin aldehyde

BWZ37
Aldrin, Heptachlor epoxide, Dieldrin, 4,4'-DDE
4,4'-DDD, Endosulfan sulfate, Endrin ketone, Endrin aldehyde

BWZ37DL
Dieldrin, 4,4'-DDE, Endosulfan II, 4,4'-DDD
Endosulfan sulfate, Methoxychlor

BWZ38
gamma-BHC (Lindane), Aldrin, Heptachlor epoxide, Dieldrin

Endosulfan II, 4,4'-DDD, Endosulfan sulfate, Endrin ketone
Endrin aldehyde, gamma-Chlordane

BWZ43
Dieldrin, 4,4'-DDD, Methoxychlor, Endrin ketone
Endrin aldehyde, gamma-Chlordane

BWZ43DL
4,4'-DDD, Methoxychlor, gamma-Chlordane

BWZ44
4,4'-DDE, Endrin, Methoxychlor, Endrin aldehyde
gamma-Chlordane

BWZ44DL
gamma-Chlordane

BWZ45
Dieldrin, Endrin, 4,4'-DDD, Methoxychlor
Endrin ketone, gamma-Chlordane

BWZ45DL
Endrin, Methoxychlor, Endrin ketone, gamma-Chlordane

BWZ46
Endrin, Methoxychlor, Endrin ketone, gamma-Chlordane

BWZ46DL 5
Aroclor-1254

BWZ47
Dieldrin, Endrin, 4,4'-DDD, Methoxychlor
Endrin ketone, Endrin aldehyde, gamma-Chlordane

BWZ47DL
Dieldrin, 4,4'-DDD, Methoxychlor, Endrin ketone
gamma-Chlordane

BWZ49
Aldrin, Dieldrin, Endrin, Endosulfan II
Endosulfan sulfate, Methoxychlor

BWZ49DL
Methoxychlor, Endrin ketone, Endrin aldehyde

CLP DATA ASSESSMENT

12. OTHER PROBLEMS:
PCB: From the laboratory supplied chromatograms samples BWZ26, BWZ28, and BWZ30 appear to have Aroclor 1248 present in the appropriate retention time windows and with the proper peak pattern(SOW, D-62/Pest, 11.1.1.3). The quantitation reports submitted in the data package do not contain retention time list with area responses for all peaks in the chromatograms, only the peaks used for quantitation. It is not possible for someone reviewing the data to perform manual calculations and determine the concentration of other analytes which may be interfering or present. No further action was taken.

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

PCB: BWZ26DL, BWZ27DL, BWZ28DL, BWZ29DL, BWZ30DL, BWZ31DL, BWZ32DL, BWZ33DL, BWZ34DL, BWZ35DL, BWZ36DL, BWZ37DL, BWZ38DL, BWZ39DL, BWZ43DL, BWZ44DL, BWZ45DL, BWZ46DL, BWZ47DL, and BWZ49DL.

DPO: []ACTION []FYI REGION__2_

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO._27133__ LABORATORY_SWOK_____

SDG NO. BWZ26 _ DATA USER___EPA/Region II_____

SOW_OLMO 3.2 _____ REVIEW COMPLETION DATE_7/15/99___

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			X		
MATRIX SPIKE/DUPLICATES			O		
QC SAMPLES(LCS, PVS)			O		
INTERNAL STANDARDS			F		
COMPOUND IDENTIFICATION			X		
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: 7/15/99 Case No.27133, SDG# BWZ26

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	44	0/308 = 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)	7	0	0	0	3	0	6	44	16/308 = 6%

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

Holding Time Report

SDG NO: BWZ26
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ26.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.

Matrix Spike Report

SDG NO: **BWZ26**
CASE NO: **27133**

LABORATORY: **SWL-TULSA**
AGENCY INPUT FILE: **BWZ26.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

No problems found for this qualification.

Laboratory Blanks Report

SDG NO: BWZ26
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ26.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 Report

SDG NO: BWZ26 LABORATORY: SWL-TULSA

CASE NO: 27133 AGENCY INPUT FILE: BWZ26.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.

BWZ26, BWZ26DL, BWZ27, BWZ27DL, BWZ28, BWZ28DL
BWZ29, BWZ29DL, BWZ30, BWZ30DL, BWZ31, BWZ31DL
BWZ32, BWZ32DL, BWZ33, BWZ33DL, BWZ34, BWZ34DL
BWZ34MS, BWZ34MSD, BWZ35, BWZ35DL, BWZ36, BWZ36DL
BWZ37, BWZ37DL, BWZ38, BWZ38DL, BWZ39, BWZ39DL
BWZ43, BWZ43DL, BWZ44, BWZ44DL, BWZ45, BWZ45DL
BWZ46, BWZ46DL, BWZ47, BWZ47DL, BWZ49, BWZ49DL
PBLKSA, PBLKSK

SDG NO: BWZ26
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ26.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".

BWZ26
4,4'-DDT, Methoxychlor

BWZ27
4,4'-DDT, Methoxychlor

BWZ28
4,4'-DDT, Methoxychlor

BWZ29
4,4'-DDT, Methoxychlor

BWZ30
4,4'-DDT, Methoxychlor

BWZ31
4,4'-DDT, Methoxychlor

BWZ32
4,4'-DDT, Methoxychlor

BWZ33
4,4'-DDT, Methoxychlor

BWZ34
4,4'-DDT, Methoxychlor

BWZ34MS
4,4'-DDT, Methoxychlor

BWZ34MSD
4,4'-DDT, Methoxychlor

BWZ35
4,4'-DDT, Methoxychlor

BWZ36
4,4'-DDT, Methoxychlor

BWZ37
4,4'-DDT, Methoxychlor

BWZ38
4,4'-DDT, Methoxychlor

BWZ39
4,4'-DDT, Methoxychlor

BWZ43
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ44
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ45
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ46
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ47
beta-BHC, Endrin, 4,4'-DDT, Methoxychlor

BWZ49
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".

BWZ26, BWZ27, BWZ28, BWZ29, BWZ30, BWZ31
BWZ32, BWZ33, BWZ34, BWZ34MS, BWZ34MSD, BWZ35
BWZ36, BWZ37, BWZ38, BWZ43, BWZ44, BWZ45
BWZ46, BWZ47, BWZ49

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".

BWZ26, BWZ27, BWZ28, BWZ29, BWZ30, BWZ31
BWZ32, BWZ33, BWZ34, BWZ34MS, BWZ34MSD, BWZ35
BWZ36, BWZ37, BWZ38, BWZ43, BWZ44, BWZ45
BWZ47, BWZ49

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".

BWZ43, BWZ44, BWZ45, BWZ46, BWZ47, BWZ49

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".

BWZ43, BWZ44, BWZ45, BWZ46, BWZ47, BWZ49

Percent Moisture Report

SDG NO: BWZ26
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ26.ASF

PERCENT MOISTURE LIMITS

	Primary	Expanded
PES	50%	90%

No problems found for this qualification.

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 27133 LABORATORY: SWOK

SITE NAME: Cornell-Dubilier SDG Number(s): BW226

1.0 Chain of Custody and Sampling Trip Reports

	YES	NO	N/A
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.

	YES	NO	N/A
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

	YES	NO	N/A
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.

	YES	NO	N/A
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?		✓	

	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
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

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".

calibration
initiate
breakdown

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
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%. BW244 BW232 BW245 BW237 BW238 BW231

3. When the same surrogate on both columns is above the contract limit. BW227 BW226 BW229

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). BW239 UJ all analytes no hits

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,

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)? [ ] ✓ ___

O2 recovery is out others are OK

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? [ ] ___ ✓

	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	0 out of 12

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/
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 3-33, 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 Chromatography: review the blank raw data - chromatograms, quant. reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable?	[/]		
ACTION: Use professional judgement to determine the effect on the data.			

6.0 Contamination

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

	YES	NO	N/
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
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.

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.

BW237 } Dupl
BW238

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. 10 grams of sodium sulfate are used to prepare each soil reagent/method blank as instructed on page D-72/PEST, section 13.1.3.1.1. Ask the WAM

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.

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

7.0 Calibration and GC Performance

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

a. Peak resolution check? [/] ___ ___

b. Performance evaluation mixtures? [/] ___ ___

c. Aroclor 1016/1260? [/] ___ ___

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

e. Toxaphene? [/] ___ ___

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

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

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

	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/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 E-52)? [✓] ___ ___

	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/

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

"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/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 last in-control standard up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses? ✓ ___ ___

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

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
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
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.

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.			
Was the correct identification scheme used for GPC and Florisil blanks?	✓		

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	✓		

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

	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.

	YES	NO	N/A
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.

	YES	NO	N/A
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.

	YES	NO	N/A
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 interferance for the positive hits, the data should be flagged as follows:

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".

Aroclor 1248 ?

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
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/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
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.

CW0237
BL0230

RECEIVED
JUL 0 9 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: BWZ26

SAMPLES: BWZ26, BWZ27, BWZ28, BWZ29, BWZ30, BWZ31, BWZ32, BWZ33, BWZ34, BWZ35, BWZ36, BWZ37, BWZ38, BWZ39, BWZ43, BWZ44, BWZ45, BWZ46, BWZ47, BWZ49, WZ26DL, BWZ27DL, BWZ28DL, BWZ29DL, BWZ30DL, BWZ31DL, BWZ32DL, BWZ33DL, BWZ34DL, BWZ35DL, BWZ36DL, BWZ37DL, BWZ38DL, BWZ39DL, BWZ43DL, BWZ44DL, BWZ45DL, BWZ46DL, BWZ47DL, BWZ49DL

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 J&W dual analytical columns, DB-17MS and DB-XLB. The DB-17MS phase consists of (50%-Phenyl) Methylpolysiloxane and the DB-XLB is a proprietary phase. 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 of the coolers was noted at 5 ° C.

The matrix of these soil samples caused problems with their analysis by introducing interference peaks in the sample chromatograms and degrading instrument performance. Most 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 calibration verification standards following their injection. The calibration verification standards analyzed before these samples met OLM03.2 continuing calibration criteria.

When diluted (All of the samples except BWZ34, BWZ35, and BWZ39 required dilution to bring target analytes within calibration range) the samples met OLM03.2 acceptance criteria. A non-compliant undiluted analysis and a compliant dilution analysis was performed for all 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. The raw data for the 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 8, 1999

05

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: BWZ26 Sample Receipt Date: 06/22/99
(Lowest EPA Sample Number in first shipment of samples received under SDG). (MM/DD/YY)

Last Sample in SDG: BWZ49 Sample Receipt Date: 06/23/99
(Highest EPA Sample Number in last shipment of samples received under SDG).

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

1) BWZ26	11) BWZ36
2) BWZ27	12) BWZ37
3) BWZ28	13) BWZ38
4) BWZ29	14) BWZ39
5) BWZ30	15) BWZ43
6) BWZ31	16) BWZ44
7) BWZ32	17) BWZ45
8) BWZ33	18) BWZ46
9) BWZ34	19) BWZ47
10) BWZ35	20) BWZ49

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).

Harry L. Bory
Sample Custodian

6-28-99
Date

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ26

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.21

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

% Moisture: 9 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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		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		6.3	P
1024-57-3	Heptachlor epoxide		1.8	U
959-98-8	Endosulfan I		1.8	U
60-57-1	Dieldrin		12	P
72-55-9	4,4'-DDE		8.2	P
72-20-8	Endrin		77	E
33213-65-9	Endosulfan II		75	PE
72-54-8	4,4'-DDD		5.0	P
1031-07-8	Endosulfan sulfate		3.6	U
50-29-3	4,4'-DDT		140	E
72-43-5	Methoxychlor		29	P
53494-70-5	Endrin ketone		6.6	P
7421-93-4	Endrin aldehyde		12	P
5103-71-9	alpha-Chlordane		43	E
5103-74-2	gamma-Chlordane		37	E
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 *	1000	~~760~~	
11096-82-5	Aroclor-1260		36	U

* From Dilution

ONLY PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

DO NOT USE

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ26DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.21DL

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

% Moisture: 9 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

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	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	8.8	DPJ
1024-57-3	Heptachlor epoxide	18	U
959-98-8	Endosulfan I	18	U
60-57-1	Dieldrin	16	DPJ
72-55-9	4,4'-DDE	10	DPJ
72-20-8	Endrin	110	D
33213-65-9	Endosulfan II	100	DP
72-54-8	4,4'-DDD	7.0	DPJ
1031-07-8	Endosulfan sulfate	36	U
50-29-3	4,4'-DDT	190	D
72-43-5	Methoxychlor	53	DJ
53494-70-5	Endrin ketone	10	DPJ
7421-93-4	Endrin aldehyde	14	DPJ
5103-71-9	alpha-Chlordane	58	D
5103-74-2	gamma-Chlordane	47	D
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 *	1000	D
11096-82-5	Aroclor-1260	360	U

* To original

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ27

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.22

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

% Moisture: 17 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	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	4.2	P
72-55-9	4,4'-DDE	21	P
72-20-8	Endrin	17	P
33213-65-9	Endosulfan II	6.4	
72-54-8	4,4'-DDD	38	P
1031-07-8	Endosulfan sulfate	16	
50-29-3	4,4'-DDT	71	E
72-43-5	Methoxychlor	41	P
53494-70-5	Endrin ketone	24	P
7421-93-4	Endrin aldehyde	19	P
5103-71-9	alpha-Chlordane	15	P
5103-74-2	gamma-Chlordane	11	P
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	77	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	290	
11096-82-5	Aroclor-1260	38	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ27DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.22DL

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

% Moisture: 17 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	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	7.2	DJ
1024-57-3	Heptachlor epoxide	20	U
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	6.1	DPJ
72-55-9	4,4'-DDE	20	DPJ
72-20-8	Endrin	28	DPJ
33213-65-9	Endosulfan II	58	DP
72-54-8	4,4'-DDD	40	DP
1031-07-8	Endosulfan sulfate	19	DPJ
50-29-3	4,4'-DDT	85	D
72-43-5	Methoxychlor	47	DPJ
53494-70-5	Endrin ketone	34	DPJ
7421-93-4	Endrin aldehyde	23	DPJ
5103-71-9	alpha-Chlordane	21	DP
5103-74-2	gamma-Chlordane	37	DP
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	380	U
11104-28-2	Aroclor-1221	770	U
11141-16-5	Aroclor-1232	380	U
53469-21-9	Aroclor-1242	380	U
12672-29-6	Aroclor-1248	380	U
11097-69-1	Aroclor-1254	410	~~D~~
11096-82-5	Aroclor-1260	380	U

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EPA SAMPLE NO.

BWZ28

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.23

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

% Moisture: 16 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 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		31	P
58-89-9	gamma-BHC (Lindane)		3.3	P
76-44-8	Heptachlor		2.0	U
309-00-2	Aldrin		8.9	P
1024-57-3	Heptachlor epoxide		42	PE
959-98-8	Endosulfan I		2.0	U
60-57-1	Dieldrin		150	PE
72-55-9	4,4'-DDE		230	E
72-20-8	Endrin		1300	E
33213-65-9	Endosulfan II		950	PE
72-54-8	4,4'-DDD		49	P
1031-07-8	Endosulfan sulfate		41	P
50-29-3	4,4'-DDT		2000	E
72-43-5	Methoxychlor		180	
53494-70-5	Endrin ketone		47	P
7421-93-4	Endrin aldehyde		160	PE
5103-71-9	alpha-Chlordane		760	E
5103-74-2	gamma-Chlordane		770	E
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 *	21000	~~13000~~	
11096-82-5	Aroclor-1260		39	U

* From Dilution

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EPA SAMPLE NO.

BWZ28DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.23DL

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

% Moisture: 16 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	64	DPJ
959-98-8	Endosulfan I	200	U
60-57-1	Dieldrin	150	DPJ
72-55-9	4,4'-DDE	220	DPJ
72-20-8	Endrin	2000	D
33213-65-9	Endosulfan II	1300	DP
72-54-8	4,4'-DDD	280	DPJ
1031-07-8	Endosulfan sulfate	390	U
50-29-3	4,4'-DDT	2500	D
72-43-5	Methoxychlor	250	DPJ
53494-70-5	Endrin ketone	390	U
7421-93-4	Endrin aldehyde	180	DPJ
5103-71-9	alpha-Chlordane	1100	D
5103-74-2	gamma-Chlordane	200	U
8001-35-2	Toxaphene	20000	U
12674-11-2	Aroclor-1016	3900	U
11104-28-2	Aroclor-1221	8000	U
11141-16-5	Aroclor-1232	3900	U
53469-21-9	Aroclor-1242	3900	U
12672-29-6	Aroclor-1248	3900	U
11097-69-1	Aroclor-1254 *	21000	~~D~~
11096-82-5	Aroclor-1260	3900	U

* To Original

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EPA SAMPLE NO.

BWZ29

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.24

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

% Moisture: 5 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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		1.8	U
319-85-7	beta-BHC		1.8	U
319-86-8	delta-BHC		6.8	P
58-89-9	gamma-BHC (Lindane)		2.4	P
76-44-8	Heptachlor		1.8	U
309-00-2	Aldrin		8.4	P
1024-57-3	Heptachlor epoxide		22	P
959-98-8	Endosulfan I		1.8	U
60-57-1	Dieldrin		14	P
72-55-9	4,4'-DDE		81	PE
72-20-8	Endrin		450	E
33213-65-9	Endosulfan II		380	PE
72-54-8	4,4'-DDD		34	P
1031-07-8	Endosulfan sulfate		19	P
50-29-3	4,4'-DDT		780	E
72-43-5	Methoxychlor		54	P
53494-70-5	Endrin ketone		33	P
7421-93-4	Endrin aldehyde		69	PE
5103-71-9	alpha-Chlordane		310	E
5103-74-2	gamma-Chlordane		94	PE
8001-35-2	Toxaphene		180	U
12674-11-2	Aroclor-1016		34	U
11104-28-2	Aroclor-1221		70	U
11141-16-5	Aroclor-1232		34	U
53469-21-9	Aroclor-1242		34	U
12672-29-6	Aroclor-1248		34	U
11097-69-1	Aroclor-1254 *	6400	~~3900~~	
11096-82-5	Aroclor-1260		34	U

* From Dilution

ONLY PCB DATA WERE VALIDATED

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EPA SAMPLE NO.

BWZ29DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.24DL

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

% Moisture: 5 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	180	U
319-85-7	beta-BHC	180	U
319-86-8	delta-BHC	180	U
58-89-9	gamma-BHC (Lindane)	180	U
76-44-8	Heptachlor	180	U
309-00-2	Aldrin	180	U
1024-57-3	Heptachlor epoxide	180	U
959-98-8	Endosulfan I	180	U
60-57-1	Dieldrin	95	DPJ
72-55-9	4,4'-DDE	50	DPJ
72-20-8	Endrin	710	D
33213-65-9	Endosulfan II	540	DP
72-54-8	4,4'-DDD	140	DPJ
1031-07-8	Endosulfan sulfate	340	U
50-29-3	4,4'-DDT	1100	D
72-43-5	Methoxychlor	380	DPJ
53494-70-5	Endrin ketone	340	U
7421-93-4	Endrin aldehyde	82	DPJ
5103-71-9	alpha-Chlordane	450	D
5103-74-2	gamma-Chlordane	160	DPJ
8001-35-2	Toxaphene	18000	U
12674-11-2	Aroclor-1016	3400	U
11104-28-2	Aroclor-1221	7000	U
11141-16-5	Aroclor-1232	3400	U
53469-21-9	Aroclor-1242	3400	U
12672-29-6	Aroclor-1248	3400	U
11097-69-1	Aroclor-1254 *	6400	~~D~~
11096-82-5	Aroclor-1260	3400	U

* To Original

ONLY PCB DATA WERE VALIDATED

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ30

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.25

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

% Moisture: 11 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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		1.8	U
319-85-7	beta-BHC		1.8	U
319-86-8	delta-BHC		36	P
58-89-9	gamma-BHC (Lindane)		1.8	U
76-44-8	Heptachlor		1.8	U
309-00-2	Aldrin		8.4	P
1024-57-3	Heptachlor epoxide		11	P
959-98-8	Endosulfan I		1.8	U
60-57-1	Dieldrin		47	P
72-55-9	4,4'-DDE		56	P
72-20-8	Endrin		360	E
33213-65-9	Endosulfan II		280	PE
72-54-8	4,4'-DDD		15	P
1031-07-8	Endosulfan sulfate		8.0	P
50-29-3	4,4'-DDT		530	E
72-43-5	Methoxychlor		47	P
53494-70-5	Endrin ketone		3.6	U
7421-93-4	Endrin aldehyde		42	P
5103-71-9	alpha-Chlordane		230	E
5103-74-2	gamma-Chlordane		200	E
8001-35-2	Toxaphene		180	U
12674-11-2	Aroclor-1016		36	U
11104-28-2	Aroclor-1221		72	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 *	6600	~~3700~~	
11096-82-5	Aroclor-1260		36	U

* From Dilution

ONLY PCB DATA WERE VALIDATED

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ30DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.25DL

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

% Moisture: 11 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	180	U
319-85-7	beta-BHC	180	U
319-86-8	delta-BHC	180	U
58-89-9	gamma-BHC (Lindane)	180	U
76-44-8	Heptachlor	180	U
309-00-2	Aldrin	180	U
1024-57-3	Heptachlor epoxide	180	U
959-98-8	Endosulfan I	180	U
60-57-1	Dieldrin	52	DPJ
72-55-9	4,4'-DDE	52	DPJ
72-20-8	Endrin	580	D
33213-65-9	Endosulfan II	400	DP
72-54-8	4,4'-DDD	84	DPJ
1031-07-8	Endosulfan sulfate	360	U
50-29-3	4,4'-DDT	720	D
72-43-5	Methoxychlor	1800	U
53494-70-5	Endrin ketone	360	U
7421-93-4	Endrin aldehyde	82	DPJ
5103-71-9	alpha-Chlordane	350	D
5103-74-2	gamma-Chlordane	180	U
8001-35-2	Toxaphene	18000	U
12674-11-2	Aroclor-1016	3600	U
11104-28-2	Aroclor-1221	7200	U
11141-16-5	Aroclor-1232	3600	U
53469-21-9	Aroclor-1242	3600	U
12672-29-6	Aroclor-1248	3600	U
11097-69-1	Aroclor-1254 *	6600	~~U~~
11096-82-5	Aroclor-1260	3600	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ31

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.26

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

% Moisture: 10 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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		1.8	U
319-85-7	beta-BHC		1.8	U
319-86-8	delta-BHC		130	PE
58-89-9	gamma-BHC (Lindane)		2.5	P
76-44-8	Heptachlor		1.8	U
309-00-2	Aldrin		5.7	P
1024-57-3	Heptachlor epoxide		36	PE
959-98-8	Endosulfan I		1.8	U
60-57-1	Dieldrin		160	PE
72-55-9	4,4'-DDE		200	PE
72-20-8	Endrin		1300	E
33213-65-9	Endosulfan II		950	PE
72-54-8	4,4'-DDD		52	P
1031-07-8	Endosulfan sulfate		26	P
50-29-3	4,4'-DDT		1900	E
72-43-5	Methoxychlor		160	P
53494-70-5	Endrin ketone		3.5	U
7421-93-4	Endrin aldehyde		140	PE
5103-71-9	alpha-Chlordane		790	E
5103-74-2	gamma-Chlordane		690	E
8001-35-2	Toxaphene		180	U
12674-11-2	Aroclor-1016		35	U
11104-28-2	Aroclor-1221		72	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 *	25000	~~14000~~	
11096-82-5	Aroclor-1260		35	U

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EPA SAMPLE NO.

BWZ31DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.26DL

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

% Moisture: 10 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	180	U
319-85-7	beta-BHC	180	U
319-86-8	delta-BHC	250	DP
58-89-9	gamma-BHC (Lindane)	180	U
76-44-8	Heptachlor	180	U
309-00-2	Aldrin	180	U
1024-57-3	Heptachlor epoxide	55	DPJ
959-98-8	Endosulfan I	180	U
60-57-1	Dieldrin	200	DPJ
72-55-9	4,4'-DDE	250	DPJ
72-20-8	Endrin	2200	D
33213-65-9	Endosulfan II	1400	DP
72-54-8	4,4'-DDD	21	DPJ
1031-07-8	Endosulfan sulfate	350	U
50-29-3	4,4'-DDT	2800	D
72-43-5	Methoxychlor	250	DJ
53494-70-5	Endrin ketone	350	U
7421-93-4	Endrin aldehyde	180	DPJ
5103-71-9	alpha-Chlordane	1300	D
5103-74-2	gamma-Chlordane	180	U
8001-35-2	Toxaphene	18000	U
12674-11-2	Aroclor-1016	3500	U
11104-28-2	Aroclor-1221	7200	U
11141-16-5	Aroclor-1232	3500	U
53469-21-9	Aroclor-1242	3500	U
12672-29-6	Aroclor-1248	3500	U
11097-69-1	Aroclor-1254 *	~~25000~~	~~D~~
11096-82-5	Aroclor-1260	3500	U

* To Original

ONLY PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ32

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.27

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

% Moisture: 13 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
319-84-6	alpha-BHC		1.9	U
319-85-7	beta-BHC		1.9	U
319-86-8	delta-BHC		21	P
58-89-9	gamma-BHC (Lindane)		1.9	U
76-44-8	Heptachlor		1.9	U
309-00-2	Aldrin		1.9	U
1024-57-3	Heptachlor epoxide		5.7	P
959-98-8	Endosulfan I		1.9	U
60-57-1	Dieldrin		30	P
72-55-9	4,4'-DDE		55	P
72-20-8	Endrin		210	E
33213-65-9	Endosulfan II		160	PE
72-54-8	4,4'-DDD		21	P
1031-07-8	Endosulfan sulfate		3.6	U
50-29-3	4,4'-DDT		310	E
72-43-5	Methoxychlor		35	P
53494-70-5	Endrin ketone		19	P
7421-93-4	Endrin aldehyde		29	P
5103-71-9	alpha-Chlordane		130	E
5103-74-2	gamma-Chlordane		140	E
8001-35-2	Toxaphene		190	U
12674-11-2	Aroclor-1016		36	U
11104-28-2	Aroclor-1221		74	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 *	3100	~~2100~~	
11096-82-5	Aroclor-1260		36	U

* From Dilution

ONLY RED DATA WERE INVALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ32DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.27DL

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

% Moisture: 13 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	34	DP
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	7.5	DPJ
1024-57-3	Heptachlor epoxide	6.6	DPJ
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	34	DPJ
72-55-9	4,4'-DDE	52	DP
72-20-8	Endrin	320	D
33213-65-9	Endosulfan II	210	DP
72-54-8	4,4'-DDD	24	DPJ
1031-07-8	Endosulfan sulfate	2.9	DPJ
50-29-3	4,4'-DDT	450	D
72-43-5	Methoxychlor	35	DPJ
53494-70-5	Endrin ketone	31	DPJ
7421-93-4	Endrin aldehyde	33	DPJ
5103-71-9	alpha-Chlordane	200	D
5103-74-2	gamma-Chlordane	200	D
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	360	U
11104-28-2	Aroclor-1221	740	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 *	3100	~~DP~~
11096-82-5	Aroclor-1260	360	U

* To Original

ONLY PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ33

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.28

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

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	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	2.3	P
1024-57-3	Heptachlor epoxide	3.0	
959-98-8	Endosulfan I	2.0	P
60-57-1	Dieldrin	2.2	PJ
72-55-9	4,4'-DDE	3.9	P
72-20-8	Endrin	18	
33213-65-9	Endosulfan II	15	P
72-54-8	4,4'-DDD	2.8	PJ
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	27	
72-43-5	Methoxychlor	19	P
53494-70-5	Endrin ketone	6.9	P
7421-93-4	Endrin aldehyde	3.1	PJ
5103-71-9	alpha-Chlordane	5.0	P
5103-74-2	gamma-Chlordane	6.6	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	120	
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ33DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.28DL

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

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	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	3.3	DPJ
72-55-9	4,4'-DDE	4.9	DPJ
72-20-8	Endrin	28	DPJ
33213-65-9	Endosulfan II	6.1	DPJ
72-54-8	4,4'-DDD	8.0	DPJ
1031-07-8	Endosulfan sulfate	36	U
50-29-3	4,4'-DDT	48	DP
72-43-5	Methoxychlor	100	DJ
53494-70-5	Endrin ketone	23	DPJ
7421-93-4	Endrin aldehyde	35	DPJ
5103-71-9	alpha-Chlordane	14	DPJ
5103-74-2	gamma-Chlordane	22	DP
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	190	~~DPJ~~ J
11096-82-5	Aroclor-1260	360	U

ONLY FCL DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ34

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.29

Sample wt/vol: 30.5 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	7.3	P
959-98-8	Endosulfan I	4.7	P
60-57-1	Dieldrin	7.7	P
72-55-9	4,4'-DDE	17	P
72-20-8	Endrin	7.8	P
33213-65-9	Endosulfan II	30	P
72-54-8	4,4'-DDD	7.2	P
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	57	
72-43-5	Methoxychlor	42	P
53494-70-5	Endrin ketone	10	P
7421-93-4	Endrin aldehyde	4.5	P
5103-71-9	alpha-Chlordane	29	
5103-74-2	gamma-Chlordane	12	P
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	39	U
11104-28-2	Aroclor-1221	78	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	190	
11096-82-5	Aroclor-1260	39	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ34DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.29DL

Sample wt/vol: 30.5 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	10	DPJ
959-98-8	Endosulfan I	7.6	DPJ
60-57-1	Dieldrin	8.6	DPJ
72-55-9	4,4'-DDE	28	DPJ
72-20-8	Endrin	8.7	DPJ
33213-65-9	Endosulfan II	54	D
72-54-8	4,4'-DDD	17	DPJ
1031-07-8	Endosulfan sulfate	39	U
50-29-3	4,4'-DDT	98	DP
72-43-5	Methoxychlor	83	DPJ
53494-70-5	Endrin ketone	23	DPJ
7421-93-4	Endrin aldehyde	8.3	DPJ
5103-71-9	alpha-Chlordane	33	D
5103-74-2	gamma-Chlordane	14	DPJ
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	390	U
11104-28-2	Aroclor-1221	780	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	300	~~DJ~~
11096-82-5	Aroclor-1260	390	U

ONLY RE DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ35

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.30

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

% Moisture: 10 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	2.0	P
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	2.9	PJ
72-55-9	4,4'-DDE	3.0	PJ
72-20-8	Endrin	16	P
33213-65-9	Endosulfan II	16	P
72-54-8	4,4'-DDD	2.5	PJ
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	31	
72-43-5	Methoxychlor	12	PJ
53494-70-5	Endrin ketone	2.7	PJ
7421-93-4	Endrin aldehyde	2.6	PJ
5103-71-9	alpha-Chlordane	9.3	
5103-74-2	gamma-Chlordane	5.1	P
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	74	U
11141-16-5	Aroclor-1232	37	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	120	
11096-82-5	Aroclor-1260	37	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ35DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.30DL

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

% Moisture: 10 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	4.0	DPJ
72-55-9	4,4'-DDE	3.1	DPJ
72-20-8	Endrin	22	DPJ
33213-65-9	Endosulfan II	6.9	DPJ
72-54-8	4,4'-DDD	8.1	DPJ
1031-07-8	Endosulfan sulfate	37	U
50-29-3	4,4'-DDT	55	D
72-43-5	Methoxychlor	32	DPJ
53494-70-5	Endrin ketone	14	DPJ
7421-93-4	Endrin aldehyde	22	DPJ
5103-71-9	alpha-Chlordane	9.9	DPJ
5103-74-2	gamma-Chlordane	16	DPJ
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	370	U
11104-28-2	Aroclor-1221	740	U
11141-16-5	Aroclor-1232	370	U
53469-21-9	Aroclor-1242	370	U
12672-29-6	Aroclor-1248	370	U
11097-69-1	Aroclor-1254	180	EJ
11096-82-5	Aroclor-1260	370	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ36

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.31

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 13 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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		1.9	U
319-85-7	beta-BHC		1.9	U
319-86-8	delta-BHC		1.9	U
58-89-9	gamma-BHC (Lindane)		1.9	U
76-44-8	Heptachlor		1.9	U
309-00-2	Aldrin		54	PE
1024-57-3	Heptachlor epoxide		12	P
959-98-8	Endosulfan I		1.9	U
60-57-1	Dieldrin		35	P
72-55-9	4,4'-DDE		89	PE
72-20-8	Endrin		200	E
33213-65-9	Endosulfan II		210	E
72-54-8	4,4'-DDD		18	
1031-07-8	Endosulfan sulfate		33	P
50-29-3	4,4'-DDT		370	E
72-43-5	Methoxychlor		72	
53494-70-5	Endrin ketone		61	E
7421-93-4	Endrin aldehyde		30	P
5103-71-9	alpha-Chlordane		97	E
5103-74-2	gamma-Chlordane		29	P
8001-35-2	Toxaphene		190	U
12674-11-2	Aroclor-1016		37	U
11104-28-2	Aroclor-1221		75	U
11141-16-5	Aroclor-1232		37	U
53469-21-9	Aroclor-1242		37	U
12672-29-6	Aroclor-1248		37	U
11097-69-1	Aroclor-1254 *	2700	~~1900~~	
11096-82-5	Aroclor-1260		37	U

* From Dilution

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ36DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.31DL

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 13 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	40	DP
72-55-9	4,4'-DDE	100	DP
72-20-8	Endrin	270	D
33213-65-9	Endosulfan II	270	D
72-54-8	4,4'-DDD	59	DP
1031-07-8	Endosulfan sulfate	37	U
50-29-3	4,4'-DDT	410	D
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	37	U
7421-93-4	Endrin aldehyde	78	DP
5103-71-9	alpha-Chlordane	130	D
5103-74-2	gamma-Chlordane	130	D
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	370	U
11104-28-2	Aroclor-1221	750	U
11141-16-5	Aroclor-1232	370	U
53469-21-9	Aroclor-1242	370	U
12672-29-6	Aroclor-1248	370	U
11097-69-1	Aroclor-1254 *	2700	~~D~~
11096-82-5	Aroclor-1260	370	U

* To Original

ONLY PCB DATA WERE VALIDATED

FORM I PEST

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ37

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.32

Sample wt/vol: 31.7 (g/mL) G Lab File ID: _____

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	8.8	P
1024-57-3	Heptachlor epoxide	3.6	P
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	18	P
72-55-9	4,4'-DDE	68	PE
72-20-8	Endrin	79	E
33213-65-9	Endosulfan II	86	PE
72-54-8	4,4'-DDD	12	P
1031-07-8	Endosulfan sulfate	19	P
50-29-3	4,4'-DDT	130	PE
72-43-5	Methoxychlor	88	
53494-70-5	Endrin ketone	47	P
7421-93-4	Endrin aldehyde	6.0	P
5103-71-9	alpha-Chlordane	37	E
5103-74-2	gamma-Chlordane	34	E
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	34	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	34	U
53469-21-9	Aroclor-1242	34	U
12672-29-6	Aroclor-1248	34	U
11097-69-1	Aroclor-1254	720	U
11096-82-5	Aroclor-1260	34	U

ONLY RLD DATA WERE VALIDATED

DO NOT USE

1D
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EPA SAMPLE NO.

BWZ37DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.32DL

Sample wt/vol: 31.7 (g/mL) G Lab File ID: _____

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	170	U
319-85-7	beta-BHC	170	U
319-86-8	delta-BHC	170	U
58-89-9	gamma-BHC (Lindane)	170	U
76-44-8	Heptachlor	170	U
309-00-2	Aldrin	170	U
1024-57-3	Heptachlor epoxide	170	U
959-98-8	Endosulfan I	170	U
60-57-1	Dieldrin	19	DPJ
72-55-9	4,4'-DDE	100	DPJ
72-20-8	Endrin	150	DJ
33213-65-9	Endosulfan II	38	DPJ
72-54-8	4,4'-DDD	30	DPJ
1031-07-8	Endosulfan sulfate	180	DPJ
50-29-3	4,4'-DDT	440	D
72-43-5	Methoxychlor	920	DPJ
53494-70-5	Endrin ketone	340	U
7421-93-4	Endrin aldehyde	340	U
5103-71-9	alpha-Chlordane	68	DJ
5103-74-2	gamma-Chlordane	46	DPJ
8001-35-2	Toxaphene	17000	U
12674-11-2	Aroclor-1016	3400	U
11104-28-2	Aroclor-1221	6900	U
11141-16-5	Aroclor-1232	3400	U
53469-21-9	Aroclor-1242	3400	U
12672-29-6	Aroclor-1248	3400	U
11097-69-1	Aroclor-1254	1700	~~D~~J
11096-82-5	Aroclor-1260	3400	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

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EPA SAMPLE NO.

BWZ38

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.33

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

% Moisture: 9 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	3.7	P
58-89-9	gamma-BHC (Lindane)	1.5	PJ
76-44-8	Heptachlor	2.9	
309-00-2	Aldrin	7.7	P
1024-57-3	Heptachlor epoxide	5.8	P
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	18	P
72-55-9	4,4'-DDE	76	PE
72-20-8	Endrin	72	E
33213-65-9	Endosulfan II	16	P
72-54-8	4,4'-DDD	15	P
1031-07-8	Endosulfan sulfate	50	P
50-29-3	4,4'-DDT	150	PE
72-43-5	Methoxychlor	120	
53494-70-5	Endrin ketone	70	PE
7421-93-4	Endrin aldehyde	16	P
5103-71-9	alpha-Chlordane	38	E
5103-74-2	gamma-Chlordane	19	P
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	34	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	34	U
53469-21-9	Aroclor-1242	34	U
12672-29-6	Aroclor-1248	34	U
11097-69-1	Aroclor-1254	740	J
11096-82-5	Aroclor-1260	34	U

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EPA SAMPLE NO.

BWZ38DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.33DL

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

% Moisture: 9 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	180	U
319-85-7	beta-BHC	180	U
319-86-8	delta-BHC	180	U
58-89-9	gamma-BHC (Lindane)	180	U
76-44-8	Heptachlor	180	U
309-00-2	Aldrin	180	U
1024-57-3	Heptachlor epoxide	180	U
959-98-8	Endosulfan I	180	U
60-57-1	Dieldrin	340	U
72-55-9	4,4'-DDE	340	U
72-20-8	Endrin	340	U
33213-65-9	Endosulfan II	340	U
72-54-8	4,4'-DDD	340	U
1031-07-8	Endosulfan sulfate	340	U
50-29-3	4,4'-DDT	340	U
72-43-5	Methoxychlor	1800	U
53494-70-5	Endrin ketone	340	U
7421-93-4	Endrin aldehyde	340	U
5103-71-9	alpha-Chlordane	180	U
5103-74-2	gamma-Chlordane	180	U
8001-35-2	Toxaphene	18000	U
12674-11-2	Aroclor-1016	3400	U
11104-28-2	Aroclor-1221	6900	U
11141-16-5	Aroclor-1232	3400	U
53469-21-9	Aroclor-1242	3400	U
12672-29-6	Aroclor-1248	3400	U
11097-69-1	Aroclor-1254	1600	ØJ
11096-82-5	Aroclor-1260	3400	U

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EPA SAMPLE NO.

BWZ39

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.34

Sample wt/vol: 31.8 (g/mL) G Lab File ID: _____

% Moisture: 9 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	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	3.4	U
72-55-9	4,4'-DDE	3.4	U
72-20-8	Endrin	3.4	U
33213-65-9	Endosulfan II	3.4	U
72-54-8	4,4'-DDD	3.4	U
1031-07-8	Endosulfan sulfate	3.4	U
50-29-3	4,4'-DDT	3.4	U
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.4	U
7421-93-4	Endrin aldehyde	3.4	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	34	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	34	U
53469-21-9	Aroclor-1242	34	U
12672-29-6	Aroclor-1248	34	U
11097-69-1	Aroclor-1254	34	U
11096-82-5	Aroclor-1260	34	U

ONLY PCB DATA WERE VALIDATED

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EPA SAMPLE NO.

BWZ39DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39092.34DL

Sample wt/vol: 31.8 (g/mL) G Lab File ID: _____

% Moisture: 9 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	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	34	U
72-55-9	4,4'-DDE	34	U
72-20-8	Endrin	34	U
33213-65-9	Endosulfan II	34	U
72-54-8	4,4'-DDD	34	U
1031-07-8	Endosulfan sulfate	34	U
50-29-3	4,4'-DDT	34	U
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	34	U
7421-93-4	Endrin aldehyde	34	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	340	U
11104-28-2	Aroclor-1221	690	U
11141-16-5	Aroclor-1232	340	U
53469-21-9	Aroclor-1242	340	U
12672-29-6	Aroclor-1248	340	U
11097-69-1	Aroclor-1254	340	U
11096-82-5	Aroclor-1260	340	U

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EPA SAMPLE NO.

BWZ43

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.01

Sample wt/vol: 30.9 (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: 07/07/99

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		2.0	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		14	P
959-98-8	Endosulfan I		2.0	U
60-57-1	Dieldrin		18	P
72-55-9	4,4'-DDE		20	
72-20-8	Endrin		21	
33213-65-9	Endosulfan II		73	E
72-54-8	4,4'-DDD		33	P
1031-07-8	Endosulfan sulfate		3.8	U
50-29-3	4,4'-DDT		230	E
72-43-5	Methoxychlor		100	P
53494-70-5	Endrin ketone		38	P
7421-93-4	Endrin aldehyde		25	P
5103-71-9	alpha-Chlordane		92	E
5103-74-2	gamma-Chlordane		64	PE
8001-35-2	Toxaphene		200	U
12674-11-2	Aroclor-1016		38	U
11104-28-2	Aroclor-1221		77	U
11141-16-5	Aroclor-1232		38	U
53469-21-9	Aroclor-1242		38	U
12672-29-6	Aroclor-1248		38	U
11097-69-1	Aroclor-1254	* 590	~~580~~	
11096-82-5	Aroclor-1260		38	U

* From Dilution

ONLY RB WERE VALIDATED

FORM I PEST

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ43DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.01DL

Sample wt/vol: 30.9 (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: 07/07/99

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	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	38	U
72-55-9	4,4'-DDE	38	U
72-20-8	Endrin	57	D
33213-65-9	Endosulfan II	90	DP
72-54-8	4,4'-DDD	25	DPJ
1031-07-8	Endosulfan sulfate	38	U
50-29-3	4,4'-DDT	190	D
72-43-5	Methoxychlor	110	DPJ
53494-70-5	Endrin ketone	47	DP
7421-93-4	Endrin aldehyde	38	U
5103-71-9	alpha-Chlordane	88	D
5103-74-2	gamma-Chlordane	62	DP
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	380	U
11104-28-2	Aroclor-1221	770	U
11141-16-5	Aroclor-1232	380	U
53469-21-9	Aroclor-1242	380	U
12672-29-6	Aroclor-1248	380	U
11097-69-1	Aroclor-1254	580	~~DP~~
11096-82-5	Aroclor-1260	380	U

* To original

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EPA SAMPLE NO.

BWZ44

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.02

Sample wt/vol: 32.3 (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: 07/07/99

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	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.4	U
72-55-9	4,4'-DDE	6.3	P
72-20-8	Endrin	17	P
33213-65-9	Endosulfan II	32	
72-54-8	4,4'-DDD	12	P
1031-07-8	Endosulfan sulfate	3.4	U
50-29-3	4,4'-DDT	62	E
72-43-5	Methoxychlor	52	P
53494-70-5	Endrin ketone	17	P
7421-93-4	Endrin aldehyde	9.6	P
5103-71-9	alpha-Chlordane	14	P
5103-74-2	gamma-Chlordane	9.2	P
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	34	U
11104-28-2	Aroclor-1221	68	U
11141-16-5	Aroclor-1232	34	U
53469-21-9	Aroclor-1242	34	U
12672-29-6	Aroclor-1248	34	U
11097-69-1	Aroclor-1254	120	P
11096-82-5	Aroclor-1260	34	U

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EPA SAMPLE NO.

BWZ44DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.02DL

Sample wt/vol: 32.3 (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: 07/07/99

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	17	U
319-85-7	beta-BHC	17	U
319-86-8	delta-BHC	17	U
58-89-9	gamma-BHC (Lindane)	17	U
76-44-8	Heptachlor	17	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
959-98-8	Endosulfan I	17	U
60-57-1	Dieldrin	34	U
72-55-9	4,4'-DDE	34	U
72-20-8	Endrin	23	DJ
33213-65-9	Endosulfan II	42	D
72-54-8	4,4'-DDD	34	U
1031-07-8	Endosulfan sulfate	34	U
50-29-3	4,4'-DDT	52	DP
72-43-5	Methoxychlor	170	U
53494-70-5	Endrin ketone	56	D
7421-93-4	Endrin aldehyde	34	U
5103-71-9	alpha-Chlordane	17	U
5103-74-2	gamma-Chlordane	8.1	DPJ
8001-35-2	Toxaphene	1700	U
12674-11-2	Aroclor-1016	340	U
11104-28-2	Aroclor-1221	680	U
11141-16-5	Aroclor-1232	340	U
53469-21-9	Aroclor-1242	340	U
12672-29-6	Aroclor-1248	340	U
11097-69-1	Aroclor-1254	170	~~DJP~~ J
11096-82-5	Aroclor-1260	340	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ45

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.03

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

% Moisture: 20 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		5.2	P
309-00-2	Aldrin		2.1	U
1024-57-3	Heptachlor epoxide		21	P
959-98-8	Endosulfan I		2.1	U
60-57-1	Dieldrin		26	P
72-55-9	4,4'-DDE		31	
72-20-8	Endrin		33	P
33213-65-9	Endosulfan II		83	PE
72-54-8	4,4'-DDD		56	P
1031-07-8	Endosulfan sulfate		4.0	U
50-29-3	4,4'-DDT		310	E
72-43-5	Methoxychlor		35	P
53494-70-5	Endrin ketone		63	P
7421-93-4	Endrin aldehyde		30	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		81	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 *	780	~~690~~	
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.

BWZ45DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.03DL

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

% Moisture: 20 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	25	DPJ
72-20-8	Endrin	36	DPJ
33213-65-9	Endosulfan II	110	DP
72-54-8	4,4'-DDD	37	DPJ
1031-07-8	Endosulfan sulfate	40	U
50-29-3	4,4'-DDT	270	D
72-43-5	Methoxychlor	180	DPJ
53494-70-5	Endrin ketone	61	DP
7421-93-4	Endrin aldehyde	40	U
5103-71-9	alpha-Chlordane	120	D
5103-74-2	gamma-Chlordane	96	DP
8001-35-2	Toxaphene	2100	U
~~12674-11-2~~	~~Aroclor-1016~~	~~400~~	~~U~~
~~11104-28-2~~	~~Aroclor-1221~~	~~810~~	~~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~~ *	~~780~~	~~DP~~
~~11096-82-5~~	~~Aroclor-1260~~	~~400~~	~~U~~

* To Original

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ46

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.04

Sample wt/vol: 30.4 (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: 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	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'-DDE	4.2	U
72-20-8	Endrin	10	P
33213-65-9	Endosulfan II	27	
72-54-8	4,4'-DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'-DDT	50	
72-43-5	Methoxychlor	39	P
53494-70-5	Endrin ketone	27	P
7421-93-4	Endrin aldehyde	20	P
5103-71-9	alpha-Chlordane	6.4	P
5103-74-2	gamma-Chlordane	5.5	P
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	42	U
11104-28-2	Aroclor-1221	86	U
11141-16-5	Aroclor-1232	42	U
53469-21-9	Aroclor-1242	42	U
12672-29-6	Aroclor-1248	42	U
11097-69-1	Aroclor-1254	95	P
11096-82-5	Aroclor-1260	42	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ46DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.04DL

Sample wt/vol: 30.4 (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: 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	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	42	U
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	75	DP
7421-93-4	Endrin aldehyde	42	U
5103-71-9	alpha-Chlordane	22	U
5103-74-2	gamma-Chlordane	22	U
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	76	~~DP~~ J
11096-82-5	Aroclor-1260	420	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ47

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.05

Sample wt/vol: 30.5 (g/mL) G Lab File ID: _____

% Moisture: 18 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: 5.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
319-84-6	alpha-BHC		2.0	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		24	P
959-98-8	Endosulfan I		2.0	U
60-57-1	Dieldrin		27	P
72-55-9	4,4'-DDE		30	
72-20-8	Endrin		31	P
33213-65-9	Endosulfan II		75	PE
72-54-8	4,4'-DDD		74	PE
1031-07-8	Endosulfan sulfate		4.0	U
50-29-3	4,4'-DDT		200	E
72-43-5	Methoxychlor		140	P
53494-70-5	Endrin ketone		55	P
7421-93-4	Endrin aldehyde		34	P
5103-71-9	alpha-Chlordane		130	E
5103-74-2	gamma-Chlordane		100	PE
8001-35-2	Toxaphene		200	U
12674-11-2	Aroclor-1016		40	U
11104-28-2	Aroclor-1221		80	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 *	880	~~500~~	
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.

BWZ47DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.05DL

Sample wt/vol: 30.5 (g/mL) G Lab File ID: _____

% Moisture: 18 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: 5.3 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	24	D
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	20	DPJ
72-55-9	4,4'-DDE	24	DPJ
72-20-8	Endrin	34	DJ
33213-65-9	Endosulfan II	100	DP
72-54-8	4,4'-DDD	34	DPJ
1031-07-8	Endosulfan sulfate	40	U
50-29-3	4,4'-DDT	260	D
72-43-5	Methoxychlor	200	DP
53494-70-5	Endrin ketone	64	DP
7421-93-4	Endrin aldehyde	40	U
5103-71-9	alpha-Chlordane	120	D
5103-74-2	gamma-Chlordane	97	DP
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 *	880	~~D~~
11096-82-5	Aroclor-1260	400	U

* To Original

ONLY PCB DATA WERE VALIDATED

FORM I PEST OLM03.0

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ49

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.07

Sample wt/vol: 30.9 (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: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
319-84-6	alpha-BHC		2.1	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		7.5	
309-00-2	Aldrin		4.9	P
1024-57-3	Heptachlor epoxide		41	PE
959-98-8	Endosulfan I		2.1	U
60-57-1	Dieldrin		51	P
72-55-9	4,4'-DDE		40	P
72-20-8	Endrin		44	P
33213-65-9	Endosulfan II		19	P
72-54-8	4,4'-DDD		140	PE
1031-07-8	Endosulfan sulfate		21	P
50-29-3	4,4'-DDT		190	PE
72-43-5	Methoxychlor		38	P
53494-70-5	Endrin ketone		74	PE
7421-93-4	Endrin aldehyde		48	
5103-71-9	alpha-Chlordane		240	E
5103-74-2	gamma-Chlordane		280	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 *	940	~~720~~	
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.

BWZ49DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ26

Matrix: (soil/water) SOIL Lab Sample ID: 39116.07DL

Sample wt/vol: 30.9 (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: 5.4 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	34	DP
959-98-8	Endosulfan I	21	U
60-57-1	Dieldrin	40	U
72-55-9	4,4'-DDE	40	U
72-20-8	Endrin	35	DPJ
33213-65-9	Endosulfan II	140	DP
72-54-8	4,4'-DDD	66	D
1031-07-8	Endosulfan sulfate	40	U
50-29-3	4,4'-DDT	350	D
72-43-5	Methoxychlor	260	DP
53494-70-5	Endrin ketone	92	DP
7421-93-4	Endrin aldehyde	58	DP
5103-71-9	alpha-Chlordane	200	D
5103-74-2	gamma-Chlordane	240	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 *	940	~~DP~~
11096-82-5	Aroclor-1260	400	U

* To Original

ONLY ~~PES~~ DATA WERE VALIDATED

FORM I PEST

OLM03.0

232

RECORD OF COMMUNICATION

TO: mike mathukops

FROM: *JANET TROTTER*
Region II ESAT/RSCC

DATE: July 23, 1999

SUBJECT: QUALITY ASSURED DATA

MESSAGE Organic

PLEASE SIGN BELOW IN ACKNOWLEDGEMENT OF RECEIPT OF THE FOLLOWING AND RETURN ONE COPY OF THIS RECORD OF COMMUNICATION TO THE RSCC-REGION II.

(1) Cornell Dubilier 27133 SWOK SDG# BWZ67 20 soil
(2) Cornell Dubilier 27133 SWOK SDG# BWZ48 20 soi

REPLY BY: _____

SIGNATURE: _____ DATE: _____

DATE RECEIVED BY RSCC: ____/____/____

cc: EPA TASK MONITOR
ESAT, MANAGER
file

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

RECEIVED
JUL 22 1999

DATE: JULY 15, 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 # BWZ67
CONTRACTOR	STARTW	#SAMPLES	MATRIX
PHASE	SI	20	SOIL
LAB	SWOK		
TURN-AROUND-TIME	14 DAYS	FRACTION	PCBs
CERCLIS ID #	NJD 981557879	SITE SPILL #	GZ

REGION II RSCC DATA TRANSFER LOG

Relinquished By		Received By	
Signature	Date/Time	Signature	Date/Time
		John Barlicky	7-14-99
John Barlicky	7-15-99	Mark Jall	7-19-99
Mark Jall	7-21-99	John Barlicky (DCR)	7-21-99
John Barlicky (DCR)	7/21/99	K Fayer	7/21/99
K Fayer	7/22/99		

(over for instructions) revised 3/99

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 27133 SDG No.: BWZ67
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 21, 1999

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

CLP DATA ASSESSMENT

SDG 1, BWZ67: 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: The following samples were qualified "J" for hits and "UJ" for non-detects due to the sample exceeding % moisture criteria: BWZ80, BWZ80DL, BWZ82, BWZ82DL, BWZ86, BWZ86DL, BWZ87, and BWZ87DL.

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

Percent Moisture Report

SDG NO: **BWZ67**
CASE NO: **27133**

LABORATORY: **SWL-TULSA**
AGENCY INPUT FILE: **BWZ67.ASF**

PERCENT MOISTURE LIMITS

	Primary	Expanded
PES	50%	90%

DC-184: Percent moisture content of the following pesticide soil samples exceeds primary criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BWZ80, BWZ80DL, BWZ82, BWZ82DL, BWZ86, BWZ86DL
BWZ87, BWZ87DL

CLP DATA ASSESSMENT

contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:
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

CLP DATA ASSESSMENT

Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < ±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:

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".

BWZ67
Heptachlor epoxide, Endosulfan II, Methoxychlor

BWZ67DL
Dieldrin, 4,4'-DDE, Endosulfan sulfate, Endrin aldehyde

BWZ67MS
gamma-BHC (Lindane), Heptachlor, Aldrin, Methoxychlor

BWZ67MSD
gamma-BHC (Lindane), Heptachlor, Aldrin, Endosulfan II
Methoxychlor

BWZ69
Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ69DL
Dieldrin, Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane

BWZ70
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Endrin aldehyde

BWZ70DL
alpha-Chlordane, gamma-Chlordane, Aroclor-1254

BWZ71
Heptachlor epoxide, Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ71DL
Dieldrin, 4,4'-DDE, Endosulfan sulfate, Endrin aldehyde

BWZ72
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor
Endrin aldehyde

BWZ72DL
Dieldrin, Endrin aldehyde, alpha-Chlordane

BWZ73
Heptachlor epoxide, Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ73DL
Dieldrin, 4,4'-DDE, Endosulfan sulfate, Endrin aldehyde

BWZ74DL
Endosulfan I, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ75
Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ75DL
Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate, Endrin aldehyde

BWZ76
Methoxychlor

BWZ76DL
Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate, Endrin aldehyde

BWZ77
Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ77DL
Dieldrin, 4,4'-DDE, Endrin, Endosulfan sulfate
Endrin aldehyde

BWZ78
Heptachlor epoxide, Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ78DL
Heptachlor epoxide, Endosulfan I, Dieldrin, 4,4'-DDE
Endrin, Endosulfan sulfate, 4,4'-DDT, Endrin aldehyde
gamma-Chlordane

BWZ79
Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ79DL
Endosulfan I, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ80

Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor

Endrin aldehyde

BWZ80DL

Endosulfan I, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

Aroclor-1254

J

BWZ81

Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ81DL

Endosulfan I, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ82

Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor

Endrin aldehyde

BWZ82DL

Endosulfan I, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

Aroclor-1254

J

BWZ83

Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ83DL

Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde

BWZ85

Endosulfan I, Endrin aldehyde

BWZ85DL

Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin

alpha-Chlordane, gamma-Chlordane

BWZ86

Endrin, Endosulfan II, 4,4'-DDD, Endrin aldehyde

BWZ86DL

Heptachlor epoxide, Dieldrin, 4,4'-DDE, alpha-Chlordane

gamma-Chlordane, Aroclor-1254

J

BWZ87
Endrin, Endosulfan II, 4,4'-DDD, Endrin aldehyde

BWZ87DL
Heptachlor epoxide, Dieldrin, 4,4'-DDE, alpha-Chlordane
gamma-Chlordane, Aroclor-1254

BWZ88DL
Heptachlor epoxide, Dieldrin, 4,4'-DDE, gamma-Chlordane

PBLKSI
Heptachlor, gamma-Chlordane

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."

BWZ67
Endosulfan sulfate, Methoxychlor

BWZ67MS
Endrin

BWZ67MSD
Endrin, Methoxychlor

BWZ69DL
Endosulfan sulfate

BWZ73DL
4,4'-DDE

BWZ74DL
4,4'-DDE, Endosulfan sulfate, alpha-Chlordane

BWZ75
Endosulfan sulfate

BWZ75DL
Endosulfan sulfate, gamma-Chlordane

BWZ76
Endosulfan sulfate

BWZ76DL
4,4'-DDE, Endosulfan sulfate, gamma-Chlordane

BWZ77DL
Endosulfan I, Endosulfan sulfate

BWZ78DL
Dieldrin, Endrin, Endosulfan sulfate, Endrin aldehyde

BWZ79DL
Dieldrin, Endosulfan sulfate, gamma-Chlordane

BWZ80
Endrin

BWZ80DL
Endrin aldehyde, gamma-Chlordane, Aroclor-1254

BWZ81DL
Endosulfan sulfate, gamma-Chlordane

BWZ82
4,4'-DDD, gamma-Chlordane

BWZ83
Methoxychlor

BWZ83DL
Endosulfan sulfate, gamma-Chlordane

BWZ85
Dieldrin, 4,4'-DDE, 4,4'-DDT, Endrin aldehyde
Aroclor-1254

BWZ85DL
alpha-Chlordane

BWZ86
Dieldrin, 4,4'-DDE, Endrin aldehyde

BWZ86DL
4,4'-DDE, alpha-Chlordane

BWZ87
Dieldrin, 4,4'-DDE, 4,4'-DDT, Endrin aldehyde

BWZ87DL
4,4'-DDE, alpha-Chlordane

BWZ88
Dieldrin, 4,4'-DDE, 4,4'-DDT, Endrin aldehyde
gamma-Chlordane, Aroclor-1254

PBLKSI
Heptachlor

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."

BWZ67
Heptachlor epoxide, Dieldrin, Endosulfan II, 4,4'-DDD
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ67DL
Dieldrin, 4,4'-DDE, Endosulfan sulfate, gamma-Chlordane

BWZ67MS
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ67MSD
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Endrin aldehyde
alpha-Chlordane, gamma-Chlordane

BWZ69
Dieldrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Methoxychlor, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ69DL
Dieldrin, Endrin aldehyde, gamma-Chlordane

BWZ70
Dieldrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ70DL
gamma-Chlordane

BWZ71
Heptachlor epoxide, Dieldrin, Endosulfan II, 4,4'-DDD
4,4'-DDT, Methoxychlor, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ71DL
4,4'-DDE, Endosulfan sulfate, Endrin aldehyde, gamma-Chlordane

BWZ72
Dieldrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Methoxychlor, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ72DL
Dieldrin, Endrin aldehyde, gamma-Chlordane

BWZ73
Heptachlor epoxide, Dieldrin, Endosulfan II, 4,4'-DDD
4,4'-DDT, Methoxychlor, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ73DL
Dieldrin, Endosulfan sulfate, Endrin aldehyde, gamma-Chlordane

BWZ74
Endrin, Endosulfan sulfate, 4,4'-DDT, Endrin aldehyde
alpha-Chlordane, gamma-Chlordane

BWZ74DL
Endrin, Endrin aldehyde, gamma-Chlordane

BWZ75
Endrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ75DL
Heptachlor epoxide, 4,4'-DDE, Endrin, Endrin aldehyde

BWZ76
Endrin, 4,4'-DDT, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ76DL
Heptachlor epoxide, Endrin, Endrin aldehyde

BWZ77
Endosulfan I, Endrin, Endosulfan II, 4,4'-DDD

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

BWZ77DL
4,4'-DDE, Endrin, Endrin aldehyde, gamma-Chlordane

BWZ78
Heptachlor epoxide, Endosulfan I, Endosulfan II, 4,4'-DDD
4,4'-DDT, Methoxychlor, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ78DL
Endosulfan I, 4,4'-DDT

BWZ79
Endrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ79DL
4,4'-DDE, Endrin, Endrin aldehyde

BWZ80
Endosulfan I, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ80DL
Endosulfan I, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate

BWZ81
Endrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ81DL
4,4'-DDE, Endrin, Endrin aldehyde

BWZ82
Endosulfan I, Endosulfan II, 4,4'-DDT, Endrin aldehyde
alpha-Chlordane

BWZ82DL
Endosulfan I, Endrin, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ83
Endrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ83DL

Heptachlor epoxide, 4,4'-DDE, Endrin, Endrin aldehyde

BWZ85

Heptachlor epoxide, Endosulfan I, alpha-Chlordane, gamma-Chlordane

BWZ85DL

Heptachlor epoxide, Dieldrin, Endrin, gamma-Chlordane

BWZ86

Heptachlor epoxide, Endosulfan II, 4,4'-DDD, alpha-Chlordane

BWZ86DL

Heptachlor epoxide, Dieldrin, gamma-Chlordane

BWZ87

Heptachlor epoxide, Endosulfan II, 4,4'-DDD, alpha-Chlordane

BWZ87DL

Heptachlor epoxide, Dieldrin, gamma-Chlordane

BWZ88

Heptachlor epoxide, Endosulfan I, Endosulfan II, alpha-Chlordane

BWZ88DL

Heptachlor epoxide, Dieldrin, gamma-Chlordane

PBLKSI

gamma-Chlordane

CLP DATA ASSESSMENT

A) Volatile and Semi-Volatile Fractions:

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

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10 ng/ml in the final sample extract.
PCB: The following sample was qualified "J" for Aroclor 1254 due to exceeding % D criteria of 50% between columns: BWZ88.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

PCB: 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: BWZ69DL, BWZ70DL, BWZ72DL, BWZ78DL, BWZ79DL, BWZ80DL, BWZ81DL, BWZ82DL, BWZ85DL, BWZ86DL, and BWZ87DL.

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

PCB: Do not use pages 623 and 624, these two pages are duplicates of PEM6K. PEM6K was corrected for the original integration of endrin ketone on the quantitation report and the chromatograms.

The quantitation report for INDBL6D did not have a page number. This page is located between 641 and 642.

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

PCB: BWZ67DL, BWZ69DL, BWZ70DL, BWZ71DL, BWZ72DL, BWZ73DL,

CLP DATA ASSESSMENT

BWZ74DL, BWZ75DL, BWZ76DL, BWZ77DL, BWZ78DL, BWZ79DL, BWZ80DL, BWZ81DL, BWZ82DL, BWZ83DL, BWZ85DL, BWZ86DL, BWZ87DL, and BWZ88DL.

Holding Time Report

SDG NO: BWZ67
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ67.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: BWZ67
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ67.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".

BWZ67, BWZ67DL, BWZ67MS, BWZ67MSD, BWZ69, BWZ69DL
BWZ70, BWZ71, BWZ71DL, BWZ72, BWZ72DL, BWZ73
BWZ73DL, BWZ74, BWZ74DL, BWZ75, BWZ75DL, BWZ76
BWZ76DL, BWZ77, BWZ77DL, BWZ78, BWZ78DL, BWZ79
BWZ79DL, BWZ80, BWZ80DL, BWZ81, BWZ81DL, BWZ82
BWZ82DL, BWZ83, BWZ83DL, BWZ85, BWZ85DL, BWZ86
BWZ86DL, BWZ87, BWZ87DL, BWZ88

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.

BWZ67DL, BWZ69DL, BWZ70DL, BWZ71DL, BWZ72DL, BWZ73DL
BWZ74DL, BWZ75DL, BWZ76DL, BWZ77DL, BWZ78DL, BWZ79DL
BWZ80DL, BWZ81DL, BWZ82DL, BWZ83DL, BWZ88DL

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.

BWZ67DL, BWZ69DL, BWZ70DL, BWZ71DL, BWZ72DL, BWZ73DL
BWZ74DL, BWZ75DL, BWZ76DL, BWZ77DL, BWZ78DL, BWZ79DL
BWZ80DL, BWZ81DL, BWZ82DL, BWZ83DL, BWZ88DL

Matrix Spike Report

SDG NO: **BWZ67** LABORATORY: **SWL-TULSA**

CASE NO: **27133** AGENCY INPUT FILE: **BWZ67.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.

BWZ67MS

gamma-BHC (Lindane), Dieldrin, Endrin, 4,4'-DDT

BWZ67MSD

gamma-BHC (Lindane), Dieldrin, Endrin, 4,4'-DDT

SDG NO: BWZ67 LABORATORY: SWL-TULSA

CASE NO: 27133 AGENCY INPUT FILE: BWZ67.ASF

LABORATORY BLANKS CRITERIA

Pesticide

Method Blank Contamination Threshold Multipliers

	First	Expanded
All compounds	5.00	5.00

DC-236: The following pesticide samples have analyte concentrations reported below the CRQL and less than or equal to five times (5X) the associated method blank concentration. Reported sample concentrations are elevated to the CRQL and qualified "U."

BWZ85DL
gamma-Chlordane

BWZ86DL
gamma-Chlordane

BWZ87DL
gamma-Chlordane

BWZ88DL
gamma-Chlordane

SDG NO: BWZ67 LABORATORY: SWL-TULSA
CASE NO: 27133 AGENCY INPUT FILE: BWZ67.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-195: The RPD between the nominal and the calculated amount of an analyte in the midpoint INDA/INDB exceeded criteria. Hits are qualified "J" and non-detects are qualified "UJ".

BWZ85
delta-BHC

BWZ85DL
delta-BHC

BWZ86
delta-BHC

BWZ86DL
delta-BHC

BWZ87
delta-BHC

BWZ87DL
delta-BHC

BWZ88
delta-BHC

BWZ88DL
delta-BHC

PBLKSI
delta-BHC

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

BWZ67, BWZ67DL, BWZ67MS, BWZ67MSD, BWZ69, BWZ69DL
BWZ70, BWZ70DL, BWZ71, BWZ71DL, BWZ72, BWZ72DL
BWZ73, BWZ73DL, BWZ74, BWZ74DL, BWZ75, BWZ75DL
BWZ76, BWZ76DL, BWZ77, BWZ77DL, BWZ78, BWZ78DL
BWZ79, BWZ79DL, BWZ80, BWZ80DL, BWZ81, BWZ81DL
BWZ82, BWZ82DL, BWZ83, BWZ83DL, BWZ85, BWZ85DL
BWZ86, BWZ86DL, BWZ87, BWZ87DL, BWZ88, BWZ88DL
PBLKSH, PBLKSI, PBLKSJ

SDG NO: BWZ67
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ67.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".

BWZ67
4,4'-DDT, Methoxychlor

BWZ67MS
4,4'-DDT, Methoxychlor

BWZ67MSD
4,4'-DDT, Methoxychlor

BWZ69
4,4'-DDT, Methoxychlor

BWZ70
4,4'-DDT, Methoxychlor

BWZ71
4,4'-DDT, Methoxychlor

BWZ72
4,4'-DDT, Methoxychlor

BWZ73
4,4'-DDT, Methoxychlor

BWZ74
4,4'-DDT, Methoxychlor

BWZ75
4,4'-DDT, Methoxychlor

BWZ76
4,4'-DDT, Methoxychlor

BWZ77
4,4'-DDT, Methoxychlor

BWZ78
4,4'-DDT, Methoxychlor

BWZ79
4,4'-DDT, Methoxychlor

BWZ80
4,4'-DDT, Methoxychlor

BWZ81
4,4'-DDT, Methoxychlor

BWZ82
4,4'-DDT, Methoxychlor

BWZ83
4,4'-DDT, Methoxychlor

BWZ85
beta-BHC, 4,4'-DDT, Methoxychlor

BWZ86
beta-BHC, 4,4'-DDT, Methoxychlor

BWZ87
beta-BHC, 4,4'-DDT, Methoxychlor

BWZ88
beta-BHC, 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".

BWZ67MS, BWZ67MSD, BWZ69, BWZ70, BWZ71, BWZ72
BWZ73, BWZ74, BWZ75, BWZ76, BWZ77, BWZ78
BWZ79, BWZ80, BWZ81, BWZ82, BWZ83, BWZ85
BWZ86, BWZ87, BWZ88

DC-227: 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".

BWZ67

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".

BWZ67MS, BWZ67MSD, BWZ69, BWZ70, BWZ71, BWZ72
BWZ73, BWZ74, BWZ75, BWZ76, BWZ77, BWZ78
BWZ79, BWZ80, BWZ81, BWZ82, BWZ83, BWZ85
BWZ86, BWZ87, BWZ88

DPO: [ ]ACTION [ ]FYI REGION__2_

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO._27133__ LABORATORY_SWOK_____

SDG NO. BWZ67 _ DATA USER___EPA/Region II_____

SOW_OLMO 3.2 _____ REVIEW COMPLETION DATE_7/21/99___

NO. OF SAMPLES_____WATER ____20___SOIL _____OTHER

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

QC ITEM	VOA	BNA	PEST		
HOLDING TIMES			M		
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			X		
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: 7/21/99 Case No.27133, SDG# BWZ67

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	56	0	0	1	0	1	45	58/315 = 18%

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

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 27133 SDG No.: BWZ67
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 21, 1999

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

CLP DATA ASSESSMENT

SDG 1, BWZ67: 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: The following samples were qualified "J" for hits and "UJ" for non-detects due to the sample exceeding % moisture criteria: BWZ80, BWZ80DL, BWZ82, BWZ82DL, BWZ86, BWZ86DL, BWZ87, and BWZ87DL.

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

Percent Moisture Report

SDG NO: BWZ67
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ67.ASF

PERCENT MOISTURE LIMITS

	Primary	Expanded
PES	50%	90%

DC-184: Percent moisture content of the following pesticide soil samples exceeds primary criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BWZ80, BWZ80DL, BWZ82, BWZ82DL, BWZ86, BWZ86DL
BWZ87, BWZ87DL

CLP DATA ASSESSMENT

contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:
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

CLP DATA ASSESSMENT

Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < ±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:

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".

BWZ67
Heptachlor epoxide, Endosulfan II, Methoxychlor

BWZ67DL
Dieldrin, 4,4'-DDE, Endosulfan sulfate, Endrin aldehyde

BWZ67MS
gamma-BHC (Lindane), Heptachlor, Aldrin, Methoxychlor

BWZ67MSD
gamma-BHC (Lindane), Heptachlor, Aldrin, Endosulfan II
Methoxychlor

BWZ69
Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ69DL
Dieldrin, Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane

BWZ70
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Endrin aldehyde

BWZ70DL
alpha-Chlordane, gamma-Chlordane, Aroclor-1254

BWZ71
Heptachlor epoxide, Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ71DL
Dieldrin, 4,4'-DDE, Endosulfan sulfate, Endrin aldehyde

BWZ72
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor
Endrin aldehyde

BWZ72DL

Dieldrin, Endrin aldehyde, alpha-Chlordane

BWZ73

Heptachlor epoxide, Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ73DL

Dieldrin, 4,4'-DDE, Endosulfan sulfate, Endrin aldehyde

BWZ74DL

Endosulfan I, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ75

Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ75DL

Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate, Endrin aldehyde

BWZ76

Methoxychlor

BWZ76DL

Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate, Endrin aldehyde

BWZ77

Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ77DL

Dieldrin, 4,4'-DDE, Endrin, Endosulfan sulfate
Endrin aldehyde

BWZ78

Heptachlor epoxide, Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ78DL

Heptachlor epoxide, Endosulfan I, Dieldrin, 4,4'-DDE
Endrin, Endosulfan sulfate, 4,4'-DDT, Endrin aldehyde
gamma-Chlordane

BWZ79

Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ79DL

Endosulfan I, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ80

Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor

Endrin aldehyde

BWZ80DL

Endosulfan I, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

Aroclor-1254

BWZ81

Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ81DL

Endosulfan I, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ82

Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor

Endrin aldehyde

BWZ82DL

Endosulfan I, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

Aroclor-1254

BWZ83

Endosulfan II, 4,4'-DDD, Methoxychlor

BWZ83DL

Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin

Endosulfan sulfate, Endrin aldehyde

BWZ85

Endosulfan I, Endrin aldehyde

BWZ85DL

Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin

alpha-Chlordane, gamma-Chlordane

BWZ86

Endrin, Endosulfan II, 4,4'-DDD, Endrin aldehyde

BWZ86DL

Heptachlor epoxide, Dieldrin, 4,4'-DDE, alpha-Chlordane

gamma-Chlordane, Aroclor-1254

BWZ87
Endrin, Endosulfan II, 4,4'-DDD, Endrin aldehyde

BWZ87DL
Heptachlor epoxide, Dieldrin, 4,4'-DDE, alpha-Chlordane
gamma-Chlordane, Aroclor-1254

BWZ88DL
Heptachlor epoxide, Dieldrin, 4,4'-DDE, gamma-Chlordane

PBLKSI
Heptachlor, gamma-Chlordane

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."

BWZ67
Endosulfan sulfate, Methoxychlor

BWZ67MS
Endrin

BWZ67MSD
Endrin, Methoxychlor

BWZ69DL
Endosulfan sulfate

BWZ73DL
4,4'-DDE

BWZ74DL
4,4'-DDE, Endosulfan sulfate, alpha-Chlordane

BWZ75
Endosulfan sulfate

BWZ75DL
Endosulfan sulfate, gamma-Chlordane

BWZ76
Endosulfan sulfate

BWZ76DL
4,4'-DDE, Endosulfan sulfate, gamma-Chlordane

BWZ77DL
Endosulfan I, Endosulfan sulfate

BWZ78DL
Dieldrin, Endrin, Endosulfan sulfate, Endrin aldehyde

BWZ79DL
Dieldrin, Endosulfan sulfate, gamma-Chlordane

BWZ80
Endrin

BWZ80DL
Endrin aldehyde, gamma-Chlordane, Aroclor-1254

BWZ81DL
Endosulfan sulfate, gamma-Chlordane

BWZ82
4,4'-DDD, gamma-Chlordane

BWZ83
Methoxychlor

BWZ83DL
Endosulfan sulfate, gamma-Chlordane

BWZ85
Dieldrin, 4,4'-DDE, 4,4'-DDT, Endrin aldehyde
Aroclor-1254

BWZ85DL
alpha-Chlordane

BWZ86
Dieldrin, 4,4'-DDE, Endrin aldehyde

BWZ86DL
4,4'-DDE, alpha-Chlordane

BWZ87
Dieldrin, 4,4'-DDE, 4,4'-DDT, Endrin aldehyde

BWZ87DL
4,4'-DDE, alpha-Chlordane

BWZ88
Dieldrin, 4,4'-DDE, 4,4'-DDT, Endrin aldehyde
gamma-Chlordane, Aroclor-1254

PBLKSI
Heptachlor

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."

BWZ67
Heptachlor epoxide, Dieldrin, Endosulfan II, 4,4'-DDD
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ67DL
Dieldrin, 4,4'-DDE, Endosulfan sulfate, gamma-Chlordane

BWZ67MS
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ67MSD
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Endrin aldehyde
alpha-Chlordane, gamma-Chlordane

BWZ69
Dieldrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Methoxychlor, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ69DL
Dieldrin, Endrin aldehyde, gamma-Chlordane

BWZ70
Dieldrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ70DL
gamma-Chlordane

BWZ71

Heptachlor epoxide, Dieldrin, Endosulfan II, 4,4'-DDD
4,4'-DDT, Methoxychlor, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ71DL

4,4'-DDE, Endosulfan sulfate, Endrin aldehyde, gamma-Chlordane

BWZ72

Dieldrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Methoxychlor, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ72DL

Dieldrin, Endrin aldehyde, gamma-Chlordane

BWZ73

Heptachlor epoxide, Dieldrin, Endosulfan II, 4,4'-DDD
4,4'-DDT, Methoxychlor, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ73DL

Dieldrin, Endosulfan sulfate, Endrin aldehyde, gamma-Chlordane

BWZ74

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

BWZ74DL

Endrin, Endrin aldehyde, gamma-Chlordane

BWZ75

Endrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ75DL

Heptachlor epoxide, 4,4'-DDE, Endrin, Endrin aldehyde

BWZ76

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

BWZ76DL

Heptachlor epoxide, Endrin, Endrin aldehyde

BWZ77

Endosulfan I, Endrin, Endosulfan II, 4,4'-DDD

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

BWZ77DL
4,4'-DDE, Endrin, Endrin aldehyde, gamma-Chlordane

BWZ78
Heptachlor epoxide, Endosulfan I, Endosulfan II, 4,4'-DDD
4,4'-DDT, Methoxychlor, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ78DL
Endosulfan I, 4,4'-DDT

BWZ79
Endrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ79DL
4,4'-DDE, Endrin, Endrin aldehyde

BWZ80
Endosulfan I, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ80DL
Endosulfan I, Dieldrin, 4,4'-DDE, Endrin
Endosulfan sulfate

BWZ81
Endrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ81DL
4,4'-DDE, Endrin, Endrin aldehyde

BWZ82
Endosulfan I, Endosulfan II, 4,4'-DDT, Endrin aldehyde
alpha-Chlordane

BWZ82DL
Endosulfan I, Endrin, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane

BWZ83
Endrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ83DL

Heptachlor epoxide, 4,4'-DDE, Endrin, Endrin aldehyde

BWZ85

Heptachlor epoxide, Endosulfan I, alpha-Chlordane, gamma-Chlordane

BWZ85DL

Heptachlor epoxide, Dieldrin, Endrin, gamma-Chlordane

BWZ86

Heptachlor epoxide, Endosulfan II, 4,4'-DDD, alpha-Chlordane

BWZ86DL

Heptachlor epoxide, Dieldrin, gamma-Chlordane

BWZ87

Heptachlor epoxide, Endosulfan II, 4,4'-DDD, alpha-Chlordane

BWZ87DL

Heptachlor epoxide, Dieldrin, gamma-Chlordane

BWZ88

Heptachlor epoxide, Endosulfan I, Endosulfan II, alpha-Chlordane

BWZ88DL

Heptachlor epoxide, Dieldrin, gamma-Chlordane

PBLKSI

gamma-Chlordane

CLP DATA ASSESSMENT

A) Volatile and Semi-Volatile Fractions:

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

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10 ng/ml in the final sample extract.
PCB: The following sample was qualified "J" for Aroclor 1254 due to exceeding % D criteria of 50% between columns: BWZ88.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

PCB: 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: BWZ69DL, BWZ70DL, BWZ72DL, BWZ78DL, BWZ79DL, BWZ80DL, BWZ81DL, BWZ82DL, BWZ85DL, BWZ86DL, and BWZ87DL.

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

PCB: Do not use pages 623 and 624, these two pages are duplicates of PEM6K. PEM6K was corrected for the original integration of endrin ketone on the quantitation report and the chromatograms.

The quantitation report for INDBL6D did not have a page number. This page is located between 641 and 642.

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

PCB: BWZ67DL, BWZ69DL, BWZ70DL, BWZ71DL, BWZ72DL, BWZ73DL,

CLP DATA ASSESSMENT

BWZ74DL, BWZ75DL, BWZ76DL, BWZ77DL, BWZ78DL, BWZ79DL, BWZ80DL, BWZ81DL, BWZ82DL, BWZ83DL, BWZ85DL, BWZ86DL, BWZ87DL, and BWZ88DL.

Holding Time Report

SDG NO: BWZ67
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ67.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: BWZ67
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ67.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".

BWZ67, BWZ67DL, BWZ67MS, BWZ67MSD, BWZ69, BWZ69DL
BWZ70, BWZ71, BWZ71DL, BWZ72, BWZ72DL, BWZ73
BWZ73DL, BWZ74, BWZ74DL, BWZ75, BWZ75DL, BWZ76
BWZ76DL, BWZ77, BWZ77DL, BWZ78, BWZ78DL, BWZ79
BWZ79DL, BWZ80, BWZ80DL, BWZ81, BWZ81DL, BWZ82
BWZ82DL, BWZ83, BWZ83DL, BWZ85, BWZ85DL, BWZ86
BWZ86DL, BWZ87, BWZ87DL, BWZ88

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.

BWZ67DL, BWZ69DL, BWZ70DL, BWZ71DL, BWZ72DL, BWZ73DL
BWZ74DL, BWZ75DL, BWZ76DL, BWZ77DL, BWZ78DL, BWZ79DL
BWZ80DL, BWZ81DL, BWZ82DL, BWZ83DL, BWZ88DL

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.

BWZ67DL, BWZ69DL, BWZ70DL, BWZ71DL, BWZ72DL, BWZ73DL
BWZ74DL, BWZ75DL, BWZ76DL, BWZ77DL, BWZ78DL, BWZ79DL
BWZ80DL, BWZ81DL, BWZ82DL, BWZ83DL, BWZ88DL

SDG NO: BWZ67 LABORATORY: SWL-TULSA
CASE NO: 27133 AGENCY INPUT FILE: BWZ67.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.

BWZ67MS
gamma-BHC (Lindane), Dieldrin, Endrin, 4,4'-DDT

BWZ67MSD
gamma-BHC (Lindane), Dieldrin, Endrin, 4,4'-DDT

SDG NO: BWZ67
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BWZ67.ASF

LABORATORY BLANKS CRITERIA

Pesticide

Method Blank Contamination Threshold Multipliers

	First	Expanded
All compounds	5.00	5.00

DC-236: The following pesticide samples have analyte concentrations reported below the CRQL and less than or equal to five times (5X) the associated method blank concentration. Reported sample concentrations are elevated to the CRQL and qualified "U."

BWZ85DL
gamma-Chlordane

BWZ86DL
gamma-Chlordane

BWZ87DL
gamma-Chlordane

BWZ88DL
gamma-Chlordane

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-195: The RPD between the nominal and the calculated amount of an analyte in the midpoint INDA/INDB exceeded criteria. Hits are qualified "J" and non-detects are qualified "UJ".

BWZ85
delta-BHC

BWZ85DL
delta-BHC

BWZ86
delta-BHC

BWZ86DL
delta-BHC

BWZ87
delta-BHC

BWZ87DL
delta-BHC

BWZ88
delta-BHC

BWZ88DL
delta-BHC

PBLKSI
delta-BHC

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

BWZ67, BWZ67DL, BWZ67MS, BWZ67MSD, BWZ69, BWZ69DL
BWZ70, BWZ70DL, BWZ71, BWZ71DL, BWZ72, BWZ72DL
BWZ73, BWZ73DL, BWZ74, BWZ74DL, BWZ75, BWZ75DL
BWZ76, BWZ76DL, BWZ77, BWZ77DL, BWZ78, BWZ78DL
BWZ79, BWZ79DL, BWZ80, BWZ80DL, BWZ81, BWZ81DL
BWZ82, BWZ82DL, BWZ83, BWZ83DL, BWZ85, BWZ85DL
BWZ86, BWZ86DL, BWZ87, BWZ87DL, BWZ88, BWZ88DL
PBLKSH, PBLKSI, PBLKSJ

SDG NO: BWZ67 LABORATORY: SWL-TULSA
CASE NO: 27133 AGENCY INPUT FILE: BWZ67.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".

BWZ67
4,4'-DDT, Methoxychlor

BWZ67MS
4,4'-DDT, Methoxychlor

BWZ67MSD
4,4'-DDT, Methoxychlor

BWZ69
4,4'-DDT, Methoxychlor

BWZ70
4,4'-DDT, Methoxychlor

BWZ71
4,4'-DDT, Methoxychlor

BWZ72
4,4'-DDT, Methoxychlor

BWZ73
4,4'-DDT, Methoxychlor

BWZ74
4,4'-DDT, Methoxychlor

BWZ75
4,4'-DDT, Methoxychlor

BWZ76
4,4'-DDT, Methoxychlor

BWZ77
4,4'-DDT, Methoxychlor

BWZ78
4,4'-DDT, Methoxychlor

BWZ79
4,4'-DDT, Methoxychlor

BWZ80
4,4'-DDT, Methoxychlor

BWZ81
4,4'-DDT, Methoxychlor

BWZ82
4,4'-DDT, Methoxychlor

BWZ83
4,4'-DDT, Methoxychlor

BWZ85
beta-BHC, 4,4'-DDT, Methoxychlor

BWZ86
beta-BHC, 4,4'-DDT, Methoxychlor

BWZ87
beta-BHC, 4,4'-DDT, Methoxychlor

BWZ88
beta-BHC, 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".

BWZ67MS, BWZ67MSD, BWZ69, BWZ70, BWZ71, BWZ72
BWZ73, BWZ74, BWZ75, BWZ76, BWZ77, BWZ78
BWZ79, BWZ80, BWZ81, BWZ82, BWZ83, BWZ85
BWZ86, BWZ87, BWZ88

DC-227: 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".

BWZ67

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".

BWZ67MS, BWZ67MSD, BWZ69, BWZ70, BWZ71, BWZ72
BWZ73, BWZ74, BWZ75, BWZ76, BWZ77, BWZ78
BWZ79, BWZ80, BWZ81, BWZ82, BWZ83, BWZ85
BWZ86, BWZ87, BWZ88

DPO: []ACTION []FYI REGION__2_

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO._27133__ LABORATORY_SWOK_____

SDG NO. BWZ67 _ DATA USER___EPA/Region II_____

SOW_OLMO 3.2 _____ REVIEW COMPLETION DATE_7/21/99___

NO. OF SAMPLES_____WATER ____20___SOIL _____OTHER

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

QC ITEM	VOA	BNA	PEST		
HOLDING TIMES			M		
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			X		
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: 7/21/99 Case No.27133, SDG# BWZ67

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	56	0	0	1	0	1	45	58/315 = 18%

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

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 27133 LABORATORY: SWOK

SITE NAME: Cornell Dubilier SDG Number(s): BW267

1.0 Chain of Custody and Sampling Trip Reports

	YES	NO	N/A
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.

	YES	NO	N/A
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

	YES	NO	N/A
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.

	YES	NO	N/A
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?		✓	

	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
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

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".

BW280
BW280DL
BW282
BW282DL
BW286
BW286DL
BW287
BW287DL

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
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%.

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

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/

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)? [ ] / ___

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? [ ] ___ /

	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	8 out of 12

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/
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
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.

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 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate are used to prepare each soil reagent/method blank as instructed on page D-72/PEST, section 13.1.3.3.1. Ask the WAM

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
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/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 <u>both initial and continuing</u> calibrations (see SOW section 3.12.4.4, page B-52)? [/] ___ ___

	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/

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

"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/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 last in-control standard up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses? [✓] ___ ___

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

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
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
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.

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.

Was the correct identification scheme used for GPC and Florisil blanks?	✓		

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	✓		

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

	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.

	YES	NO	N/A
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.

	YES	NO	N/A
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.

	YES	NO	N/A
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/

% 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
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: _____?	mz ✓		✓
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/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
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.

BWZ86/BWZ87

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: BWZ67

SAMPLES: BWZ67, BWZ69, BWZ70, BWZ71, BWZ72, BWZ73, BWZ74, BWZ75, BWZ76, BWZ77, BWZ78, BWZ79, BWZ80, BWZ81, BWZ82, BWZ83, BWZ85, BWZ86, BWZ87, BWZ88, BWZ67DL, BWZ69DL, BWZ70DL, BWZ71DL, BWZ72DL, BWZ73DL, BWZ74DL, BWZ75DL, BWZ76DL, BWZ77DL, BWZ78DL, BWZ79DL, BWZ80DL, BWZ81DL, BWZ82DL, BWZ83DL, BWZ85DL, BWZ86DL, BWZ87DL, BWZ88DL

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 dual analytical columns, RTX-PEST and RTX-PEST2 (the phases of both columns 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 of the cooler(s) was noted at 3 ° 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 at a 10x dilution the samples in this SDG caused breakdown of 4,4'-DDT in the calibration verification standards following their injection. The calibration verification standards analyzed before these samples met OLM03.2 continuing calibration criteria. When diluted 100X the samples met OLM03.2 acceptance criteria.

A non-compliant 10x dilution analysis and a compliant 100x dilution analysis was 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. 8 out of 12 recoveries were outside of control limits due to matrix interference. The raw data for the 100x 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). BWZ67 Sample Receipt Date: 06/24/99 (MM/DD/YY)

Last Sample in SDG: (Highest EPA Sample Number in last shipment of samples received under SDG). BWZ88 Sample Receipt Date: 06/24/99

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

1) BWZ67	11) BWZ78
2) BWZ69	12) BWZ79
3) BWZ70	13) BWZ80
4) BWZ71	14) BWZ81
5) BWZ72	15) BWZ82
6) BWZ73	16) BWZ83
7) BWZ74	17) BWZ85
8) BWZ75	18) BWZ86
9) BWZ76	19) BWZ87
10) BWZ77	20) BWZ88

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).

001E

Harry M. Bay
Sample Custodian

6-28-99
Date

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ67

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.04

Sample wt/vol: 32.4 (g/mL) G Lab File ID: _____

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

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: 4.9 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	13	PJ
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	160	P
72-55-9	4,4'-DDE	130	
72-20-8	Endrin	40	U
33213-65-9	Endosulfan II	37	PJ
72-54-8	4,4'-DDD	42	P
1031-07-8	Endosulfan sulfate	100	P
50-29-3	4,4'-DDT	40	U
72-43-5	Methoxychlor	65	PJ
53494-70-5	Endrin ketone	40	U
7421-93-4	Endrin aldehyde	82	P
5103-71-9	alpha-Chlordane	160	P
5103-74-2	gamma-Chlordane	210	P
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	4500	
11096-82-5	Aroclor-1260	400	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ67DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.04DL

Sample wt/vol: 32.4 (g/mL) G Lab File ID: _____

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

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: 4.9 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	180	DPJ
72-55-9	4,4'-DDE	150	DPJ
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	97	DPJ
50-29-3	4,4'-DDT	400	U
72-43-5	Methoxychlor	2000	U
53494-70-5	Endrin ketone	400	U
7421-93-4	Endrin aldehyde	180	DJ
5103-71-9	alpha-Chlordane	280	D
5103-74-2	gamma-Chlordane	250	DP
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	6600	D
11096-82-5	Aroclor-1260	4000	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ69

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.06

Sample wt/vol: 31.3 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/24/99

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: 5.0 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	140	P
72-55-9	4,4'-DDE	110	
72-20-8	Endrin	43	U
33213-65-9	Endosulfan II	29	PJ
72-54-8	4,4'-DDD	32	PJ
1031-07-8	Endosulfan sulfate	88	
50-29-3	4,4'-DDT	46	P
72-43-5	Methoxychlor	44	PJ
53494-70-5	Endrin ketone	43	U
7421-93-4	Endrin aldehyde	55	P
5103-71-9	alpha-Chlordane	120	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	870	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	3700	
11096-82-5	Aroclor-1260	430	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ69DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.06DL

Sample wt/vol: 31.3 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/24/99

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: 5.0 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	160	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	90	DPJ
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	80	DPJ
5103-71-9	alpha-Chlordane	200	DJ
5103-74-2	gamma-Chlordane	240	DP
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4300	U
11104-28-2	Aroclor-1221	8700	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	6300	U
11096-82-5	Aroclor-1260	4300	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ70

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.07

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

% Moisture: 47 decanted: (Y/N) N Date Received: 06/24/99

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: 5.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	32	U
319-85-7	beta-BHC	32	U
319-86-8	delta-BHC	32	U
58-89-9	gamma-BHC (Lindane)	32	U
76-44-8	Heptachlor	32	U
309-00-2	Aldrin	32	U
1024-57-3	Heptachlor epoxide	32	U
959-98-8	Endosulfan I	32	U
60-57-1	Dieldrin	150	P
72-55-9	4,4'-DDE	120	
72-20-8	Endrin	62	U
33213-65-9	Endosulfan II	33	PJ
72-54-8	4,4'-DDD	37	PJ
1031-07-8	Endosulfan sulfate	87	
50-29-3	4,4'-DDT	48	PJ
72-43-5	Methoxychlor	320	U
53494-70-5	Endrin ketone	62	U
7421-93-4	Endrin aldehyde	39	PJ
5103-71-9	alpha-Chlordane	140	P
5103-74-2	gamma-Chlordane	170	P
8001-35-2	Toxaphene	3200	U
12674-11-2	Aroclor-1016	620	U
11104-28-2	Aroclor-1221	1200	U
11141-16-5	Aroclor-1232	620	U
53469-21-9	Aroclor-1242	620	U
12672-29-6	Aroclor-1248	620	U
11097-69-1	Aroclor-1254	3800	
11096-82-5	Aroclor-1260	620	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ70DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.07DL

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

% Moisture: 47 decanted: (Y/N) N Date Received: 06/24/99

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: 5.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	320	U
319-85-7	beta-BHC	320	U
319-86-8	delta-BHC	320	U
58-89-9	gamma-BHC (Lindane)	320	U
76-44-8	Heptachlor	320	U
309-00-2	Aldrin	320	U
1024-57-3	Heptachlor epoxide	320	U
959-98-8	Endosulfan I	320	U
60-57-1	Dieldrin	620	U
72-55-9	4,4'-DDE	620	U
72-20-8	Endrin	620	U
33213-65-9	Endosulfan II	620	U
72-54-8	4,4'-DDD	620	U
1031-07-8	Endosulfan sulfate	620	U
50-29-3	4,4'-DDT	620	U
72-43-5	Methoxychlor	3200	U
53494-70-5	Endrin ketone	620	U
7421-93-4	Endrin aldehyde	620	U
5103-71-9	alpha-Chlordane	230	DJ
5103-74-2	gamma-Chlordane	260	DPJ
8001-35-2	Toxaphene	32000	U
12674-11-2	Aroclor-1016	6200	U
11104-28-2	Aroclor-1221	12000	U
11141-16-5	Aroclor-1232	6200	U
53469-21-9	Aroclor-1242	6200	U
12672-29-6	Aroclor-1248	6200	U
11097-69-1	Aroclor-1254	6100	~~DJ~~
11096-82-5	Aroclor-1260	6200	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ71

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.08

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

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

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: 5.0 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	11	PJ
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	190	P
72-55-9	4,4'-DDE	150	
72-20-8	Endrin	42	U
33213-65-9	Endosulfan II	34	PJ
72-54-8	4,4'-DDD	38	PJ
1031-07-8	Endosulfan sulfate	120	
50-29-3	4,4'-DDT	64	P
72-43-5	Methoxychlor	51	PJ
53494-70-5	Endrin ketone	42	U
7421-93-4	Endrin aldehyde	68	P
5103-71-9	alpha-Chlordane	140	P
5103-74-2	gamma-Chlordane	190	P
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	4900	
11096-82-5	Aroclor-1260	420	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ71DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.08DL

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

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

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: 5.0 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	240	DJ
72-55-9	4,4'-DDE	170	DPJ
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	110	DPJ
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	96	DPJ
5103-71-9	alpha-Chlordane	270	D
5103-74-2	gamma-Chlordane	310	DP
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	8300	~~D~~
11096-82-5	Aroclor-1260	4200	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ72

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.09

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 33 decanted: (Y/N) N Date Received: 06/24/99

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	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	25	U
959-98-8	Endosulfan I	25	U
60-57-1	Dieldrin	150	P
72-55-9	4,4'-DDE	120	
72-20-8	Endrin	48	U
33213-65-9	Endosulfan II	26	PJ
72-54-8	4,4'-DDD	29	PJ
1031-07-8	Endosulfan sulfate	86	
50-29-3	4,4'-DDT	47	PJ
72-43-5	Methoxychlor	44	PJ
53494-70-5	Endrin ketone	48	U
7421-93-4	Endrin aldehyde	37	PJ
5103-71-9	alpha-Chlordane	120	P
5103-74-2	gamma-Chlordane	150	P
8001-35-2	Toxaphene	2500	U
12674-11-2	Aroclor-1016	480	U
11104-28-2	Aroclor-1221	970	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	3800	
11096-82-5	Aroclor-1260	480	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ72DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.09DL

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 33 decanted: (Y/N) N Date Received: 06/24/99

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	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	180	DPJ
72-55-9	4,4'-DDE	480	U
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	480	U
72-43-5	Methoxychlor	2500	U
53494-70-5	Endrin ketone	480	U
7421-93-4	Endrin aldehyde	81	DPJ
5103-71-9	alpha-Chlordane	230	DJ
5103-74-2	gamma-Chlordane	250	DP
8001-35-2	Toxaphene	25000	U
12674-11-2	Aroclor-1016	4800	U
11104-28-2	Aroclor-1221	9700	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	6300	U
11096-82-5	Aroclor-1260	4800	U

ONLY PCB DATA WERE VALIDATED

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ73

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.10

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

% Moisture: 30 decanted: (Y/N) N Date Received: 06/24/99

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	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	10	PJ
959-98-8	Endosulfan I	24	U
60-57-1	Dieldrin	160	P
72-55-9	4,4'-DDE	150	
72-20-8	Endrin	47	U
33213-65-9	Endosulfan II	33	PJ
72-54-8	4,4'-DDD	37	PJ
1031-07-8	Endosulfan sulfate	110	
50-29-3	4,4'-DDT	57	P
72-43-5	Methoxychlor	50	PJ
53494-70-5	Endrin ketone	47	U
7421-93-4	Endrin aldehyde	69	P
5103-71-9	alpha-Chlordane	150	P
5103-74-2	gamma-Chlordane	180	P
8001-35-2	Toxaphene	2400	U
12674-11-2	Aroclor-1016	470	U
11104-28-2	Aroclor-1221	950	U
11141-16-5	Aroclor-1232	470	U
53469-21-9	Aroclor-1242	470	U
12672-29-6	Aroclor-1248	470	U
11097-69-1	Aroclor-1254	4400	
11096-82-5	Aroclor-1260	470	U

ONLY PCB DATA WERE VALIDATED

065

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ73DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.10DL

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

% Moisture: 30 decanted: (Y/N) N Date Received: 06/24/99

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	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	190	DPJ
72-55-9	4,4'-DDE	170	DPJ
72-20-8	Endrin	470	U
33213-65-9	Endosulfan II	470	U
72-54-8	4,4'-DDD	470	U
1031-07-8	Endosulfan sulfate	110	DPJ
50-29-3	4,4'-DDT	470	U
72-43-5	Methoxychlor	2400	U
53494-70-5	Endrin ketone	470	U
7421-93-4	Endrin aldehyde	130	DPJ
5103-71-9	alpha-Chlordane	260	D
5103-74-2	gamma-Chlordane	300	DP
8001-35-2	Toxaphene	24000	U
12674-11-2	Aroclor-1016	4700	U
11104-28-2	Aroclor-1221	9500	U
11141-16-5	Aroclor-1232	4700	U
53469-21-9	Aroclor-1242	4700	U
12672-29-6	Aroclor-1248	4700	U
11097-69-1	Aroclor-1254	7300	~~D~~
11096-82-5	Aroclor-1260	4700	U

ONLY PCB DATA WERE VALIDATED

070

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ74

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.11

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

% Moisture: 18 decanted: (Y/N) N Date Received: 06/24/99

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: 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	99	
60-57-1	Dieldrin	120	
72-55-9	4,4'-DDE	110	
72-20-8	Endrin	66	P
33213-65-9	Endosulfan II	40	U
72-54-8	4,4'-DDD	40	U
1031-07-8	Endosulfan sulfate	69	P
50-29-3	4,4'-DDT	52	P
72-43-5	Methoxychlor	210	U
53494-70-5	Endrin ketone	40	U
7421-93-4	Endrin aldehyde	77	P
5103-71-9	alpha-Chlordane	100	P
5103-74-2	gamma-Chlordane	130	P
8001-35-2	Toxaphene	2100	U
12674-11-2	Aroclor-1016	400	U
11104-28-2	Aroclor-1221	810	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	5200	
11096-82-5	Aroclor-1260	400	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ74DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.11DL

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

% Moisture: 18 decanted: (Y/N) N Date Received: 06/24/99

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: 5.2 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	150	DJ
60-57-1	Dieldrin	160	DJ
72-55-9	4,4'-DDE	120	DPJ
72-20-8	Endrin	82	DPJ
33213-65-9	Endosulfan II	400	U
72-54-8	4,4'-DDD	400	U
1031-07-8	Endosulfan sulfate	100	DPJ
50-29-3	4,4'-DDT	400	U
72-43-5	Methoxychlor	2100	U
53494-70-5	Endrin ketone	400	U
7421-93-4	Endrin aldehyde	110	DPJ
5103-71-9	alpha-Chlordane	140	DPJ
5103-74-2	gamma-Chlordane	170	DPJ
8001-35-2	Toxaphene	21000	U
12674-11-2	Aroclor-1016	4000	U
11104-28-2	Aroclor-1221	8100	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	5900	D
11096-82-5	Aroclor-1260	4000	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ75

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.12

Sample wt/vol: 31.0 (g/mL) G Lab File ID: _____

% Moisture: 30 decanted: (Y/N) N Date Received: 06/24/99

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: 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	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	24	U
959-98-8	Endosulfan I	130	
60-57-1	Dieldrin	160	
72-55-9	4,4'-DDE	140	
72-20-8	Endrin	130	P
33213-65-9	Endosulfan II	33	PJ
72-54-8	4,4'-DDD	36	PJ
1031-07-8	Endosulfan sulfate	100	P
50-29-3	4,4'-DDT	55	P
72-43-5	Methoxychlor	46	J
53494-70-5	Endrin ketone	46	U
7421-93-4	Endrin aldehyde	69	P
5103-71-9	alpha-Chlordane	130	P
5103-74-2	gamma-Chlordane	180	P
8001-35-2	Toxaphene	2400	U
12674-11-2	Aroclor-1016	460	U
11104-28-2	Aroclor-1221	930	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	5800	
11096-82-5	Aroclor-1260	460	U

ONLY PCB DATA WERE VALIDATED

086

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ75DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.12DL

Sample wt/vol: 31.0 (g/mL) G Lab File ID: _____

% Moisture: 30 decanted: (Y/N) N Date Received: 06/24/99

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: 5.2 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	26	DPJ
959-98-8	Endosulfan I	240	D
60-57-1	Dieldrin	200	DJ
72-55-9	4,4'-DDE	150	DPJ
72-20-8	Endrin	28	DPJ
33213-65-9	Endosulfan II	460	U
72-54-8	4,4'-DDD	460	U
1031-07-8	Endosulfan sulfate	120	DPJ
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	140	DPJ
5103-71-9	alpha-Chlordane	240	D
5103-74-2	gamma-Chlordane	240	DP
8001-35-2	Toxaphene	24000	U
12674-11-2	Aroclor-1016	4600	U
11104-28-2	Aroclor-1221	9300	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	7700	~~D~~
11096-82-5	Aroclor-1260	4600	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ76

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.13

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

% Moisture: 29 decanted: (Y/N) N Date Received: 06/24/99

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: 10.0

GPC Cleanup: (Y/N) Y pH: 4.9 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	24	U
959-98-8	Endosulfan I	120	
60-57-1	Dieldrin	160	
72-55-9	4,4'-DDE	140	
72-20-8	Endrin	130	P
33213-65-9	Endosulfan II	46	U
72-54-8	4,4'-DDD	46	U
1031-07-8	Endosulfan sulfate	110	P
50-29-3	4,4'-DDT	57	P
72-43-5	Methoxychlor	53	J
53494-70-5	Endrin ketone	46	U
7421-93-4	Endrin aldehyde	78	P
5103-71-9	alpha-Chlordane	140	P
5103-74-2	gamma-Chlordane	130	P
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	5900	
11096-82-5	Aroclor-1260	460	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ76DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.13DL

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

% Moisture: 29 decanted: (Y/N) N Date Received: 06/24/99

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: 4.9 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	26	DPJ
959-98-8	Endosulfan I	240	D
60-57-1	Dieldrin	220	DJ
72-55-9	4,4'-DDE	160	DPJ
72-20-8	Endrin	150	DPJ
33213-65-9	Endosulfan II	460	U
72-54-8	4,4'-DDD	460	U
1031-07-8	Endosulfan sulfate	130	DPJ
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	120	DPJ
5103-71-9	alpha-Chlordane	240	D
5103-74-2	gamma-Chlordane	280	DP
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	8100	~~D~~
11096-82-5	Aroclor-1260	4600	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ77

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.14

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

% Moisture: 28 decanted: (Y/N) N Date Received: 06/24/99

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: 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	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	100	P
60-57-1	Dieldrin	170	
72-55-9	4,4'-DDE	190	
72-20-8	Endrin	130	P
33213-65-9	Endosulfan II	32	PJ
72-54-8	4,4'-DDD	35	PJ
1031-07-8	Endosulfan sulfate	180	
50-29-3	4,4'-DDT	100	P
72-43-5	Methoxychlor	45	PJ
53494-70-5	Endrin ketone	44	U
7421-93-4	Endrin aldehyde	100	P
5103-71-9	alpha-Chlordane	100	P
5103-74-2	gamma-Chlordane	150	P
8001-35-2	Toxaphene	2300	U
12674-11-2	Aroclor-1016	440	U
11104-28-2	Aroclor-1221	900	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	7500	
11096-82-5	Aroclor-1260	440	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ77DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.14DL

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

% Moisture: 28 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	230	U
319-85-7	beta-BHC	230	U
319-86-8	delta-BHC	230	U
58-89-9	gamma-BHC (Lindane)	230	U
76-44-8	Heptachlor	230	U
309-00-2	Aldrin	230	U
1024-57-3	Heptachlor epoxide	230	U
959-98-8	Endosulfan I	240	DP
60-57-1	Dieldrin	270	DJ
72-55-9	4,4'-DDE	210	DPJ
72-20-8	Endrin	68	DPJ
33213-65-9	Endosulfan II	440	U
72-54-8	4,4'-DDD	440	U
1031-07-8	Endosulfan sulfate	230	DPJ
50-29-3	4,4'-DDT	440	U
72-43-5	Methoxychlor	2300	U
53494-70-5	Endrin ketone	440	U
7421-93-4	Endrin aldehyde	200	DPJ
5103-71-9	alpha-Chlordane	230	D
5103-74-2	gamma-Chlordane	250	DP
8001-35-2	Toxaphene	23000	U
12674-11-2	Aroclor-1016	4400	U
11104-28-2	Aroclor-1221	9000	U
11141-16-5	Aroclor-1232	4400	U
53469-21-9	Aroclor-1242	4400	U
12672-29-6	Aroclor-1248	4400	U
11097-69-1	Aroclor-1254	11000	D
11096-82-5	Aroclor-1260	4400	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ78

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.15

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

% Moisture: 26 decanted: (Y/N) N Date Received: 06/24/99

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: 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	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	12	PJ
959-98-8	Endosulfan I	60	P
60-57-1	Dieldrin	110	
72-55-9	4,4'-DDE	95	
72-20-8	Endrin	140	
33213-65-9	Endosulfan II	34	PJ
72-54-8	4,4'-DDD	36	PJ
1031-07-8	Endosulfan sulfate	89	
50-29-3	4,4'-DDT	170	P
72-43-5	Methoxychlor	55	PJ
53494-70-5	Endrin ketone	44	U
7421-93-4	Endrin aldehyde	71	P
5103-71-9	alpha-Chlordane	170	P
5103-74-2	gamma-Chlordane	160	P
8001-35-2	Toxaphene	2300	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	4000	
11096-82-5	Aroclor-1260	440	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ78DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.15DL

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

% Moisture: 26 decanted: (Y/N) N Date Received: 06/24/99

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: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	230	U
319-85-7	beta-BHC	230	U
319-86-8	delta-BHC	230	U
58-89-9	gamma-BHC (Lindane)	230	U
76-44-8	Heptachlor	230	U
309-00-2	Aldrin	230	U
1024-57-3	Heptachlor epoxide	48	DJ
959-98-8	Endosulfan I	140	DPJ
60-57-1	Dieldrin	170	DPJ
72-55-9	4,4'-DDE	150	DJ
72-20-8	Endrin	220	DPJ
33213-65-9	Endosulfan II	440	U
72-54-8	4,4'-DDD	440	U
1031-07-8	Endosulfan sulfate	100	DPJ
50-29-3	4,4'-DDT	200	DPJ
72-43-5	Methoxychlor	2300	U
53494-70-5	Endrin ketone	440	U
7421-93-4	Endrin aldehyde	130	DPJ
5103-71-9	alpha-Chlordane	290	D
5103-74-2	gamma-Chlordane	220	DJ
8001-35-2	Toxaphene	23000	U
12674-11-2	Aroclor-1016	4400	U
11104-28-2	Aroclor-1221	8900	U
11141-16-5	Aroclor-1232	4400	U
53469-21-9	Aroclor-1242	4400	U
12672-29-6	Aroclor-1248	4400	U
11097-69-1	Aroclor-1254	5600	~~D~~
11096-82-5	Aroclor-1260	4400	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ79

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.16

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

% Moisture: 33 decanted: (Y/N) N Date Received: 06/24/99

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: 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	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	25	U
959-98-8	Endosulfan I	120	
60-57-1	Dieldrin	140	
72-55-9	4,4'-DDE	120	
72-20-8	Endrin	120	P
33213-65-9	Endosulfan II	29	PJ
72-54-8	4,4'-DDD	32	PJ
1031-07-8	Endosulfan sulfate	95	
50-29-3	4,4'-DDT	50	P
72-43-5	Methoxychlor	41	J
53494-70-5	Endrin ketone	49	U
7421-93-4	Endrin aldehyde	62	P
5103-71-9	alpha-Chlordane	120	P
5103-74-2	gamma-Chlordane	160	P
8001-35-2	Toxaphene	2500	U
12674-11-2	Aroclor-1016	490	U
11104-28-2	Aroclor-1221	1000	U
11141-16-5	Aroclor-1232	490	U
53469-21-9	Aroclor-1242	490	U
12672-29-6	Aroclor-1248	490	U
11097-69-1	Aroclor-1254	5000	
11096-82-5	Aroclor-1260	490	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ79DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.16DL

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

% Moisture: 33 decanted: (Y/N) N Date Received: 06/24/99

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: 5.2 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	210	DJ
60-57-1	Dieldrin	170	DPJ
72-55-9	4,4'-DDE	130	DPJ
72-20-8	Endrin	120	DPJ
33213-65-9	Endosulfan II	490	U
72-54-8	4,4'-DDD	490	U
1031-07-8	Endosulfan sulfate	110	DPJ
50-29-3	4,4'-DDT	490	U
72-43-5	Methoxychlor	2500	U
53494-70-5	Endrin ketone	490	U
7421-93-4	Endrin aldehyde	120	DPJ
5103-71-9	alpha-Chlordane	230	DJ
5103-74-2	gamma-Chlordane	220	DPJ
8001-35-2	Toxaphene	25000	U
12674-11-2	Aroclor-1016	4900	U
11104-28-2	Aroclor-1221	10000	U
11141-16-5	Aroclor-1232	4900	U
53469-21-9	Aroclor-1242	4900	U
12672-29-6	Aroclor-1248	4900	U
11097-69-1	Aroclor-1254	6900	~~U~~
11096-82-5	Aroclor-1260	4900	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ80

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.17

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

% Moisture: 61 decanted: (Y/N) N Date Received: 06/24/99

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: 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	42	U
319-85-7	beta-BHC	42	U
319-86-8	delta-BHC	42	U
58-89-9	gamma-BHC (Lindane)	42	U
76-44-8	Heptachlor	42	U
309-00-2	Aldrin	42	U
1024-57-3	Heptachlor epoxide	42	U
959-98-8	Endosulfan I	76	P
60-57-1	Dieldrin	110	
72-55-9	4,4'-DDE	100	
72-20-8	Endrin	130	P
33213-65-9	Endosulfan II	33	PJ
72-54-8	4,4'-DDD	36	PJ
1031-07-8	Endosulfan sulfate	85	
50-29-3	4,4'-DDT	38	PJ
72-43-5	Methoxychlor	88	J
53494-70-5	Endrin ketone	82	U
7421-93-4	Endrin aldehyde	35	PJ
5103-71-9	alpha-Chlordane	220	P
5103-74-2	gamma-Chlordane	210	P
8001-35-2	Toxaphene	4200	U
12674-11-2	Aroclor-1016	820	U
11104-28-2	Aroclor-1221	1600	U
11141-16-5	Aroclor-1232	820	U
53469-21-9	Aroclor-1242	820	U
12672-29-6	Aroclor-1248	820	U
11097-69-1	Aroclor-1254	4200	
11096-82-5	Aroclor-1260	820	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ80DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.17DL

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

% Moisture: 61 decanted: (Y/N) N Date Received: 06/24/99

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: 5.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	420	U
319-85-7	beta-BHC	420	U
319-86-8	delta-BHC	420	U
58-89-9	gamma-BHC (Lindane)	420	U
76-44-8	Heptachlor	420	U
309-00-2	Aldrin	420	U
1024-57-3	Heptachlor epoxide	420	U
959-98-8	Endosulfan I	130	DPJ
60-57-1	Dieldrin	120	DPJ
72-55-9	4,4'-DDE	100	DPJ
72-20-8	Endrin	120	DPJ
33213-65-9	Endosulfan II	820	U
72-54-8	4,4'-DDD	820	U
1031-07-8	Endosulfan sulfate	39	DPJ
50-29-3	4,4'-DDT	820	U
72-43-5	Methoxychlor	4200	U
53494-70-5	Endrin ketone	820	U
7421-93-4	Endrin aldehyde	93	DPJ
5103-71-9	alpha-Chlordane	400	DJ
5103-74-2	gamma-Chlordane	290	DPJ
8001-35-2	Toxaphene	42000	U
12674-11-2	Aroclor-1016	8200	U
11104-28-2	Aroclor-1221	16000	U
11141-16-5	Aroclor-1232	8200	U
53469-21-9	Aroclor-1242	8200	U
12672-29-6	Aroclor-1248	8200	U
11097-69-1	Aroclor-1254	4800	~~DJP~~
11096-82-5	Aroclor-1260	8200	U

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ONLY PCB DATA WERE VALIDATED

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ81

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.18

Sample wt/vol: 30.5 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/24/99

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: 10.0

GPC Cleanup: (Y/N) Y pH: 5.0 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	110	
60-57-1	Dieldrin	120	
72-55-9	4,4'-DDE	120	
72-20-8	Endrin	110	P
33213-65-9	Endosulfan II	29	PJ
72-54-8	4,4'-DDD	32	PJ
1031-07-8	Endosulfan sulfate	87	
50-29-3	4,4'-DDT	46	P
72-43-5	Methoxychlor	41	J
53494-70-5	Endrin ketone	44	U
7421-93-4	Endrin aldehyde	56	P
5103-71-9	alpha-Chlordane	110	P
5103-74-2	gamma-Chlordane	140	P
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	4700	
11096-82-5	Aroclor-1260	440	U

ONLY RLB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ81DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.18DL

Sample wt/vol: 30.5 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 06/24/99

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: 5.0 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	190	DJ
60-57-1	Dieldrin	160	DJ
72-55-9	4,4'-DDE	120	DPJ
72-20-8	Endrin	29	DPJ
33213-65-9	Endosulfan II	440	U
72-54-8	4,4'-DDD	440	U
1031-07-8	Endosulfan sulfate	94	DPJ
50-29-3	4,4'-DDT	440	U
72-43-5	Methoxychlor	2200	U
53494-70-5	Endrin ketone	440	U
7421-93-4	Endrin aldehyde	100	DPJ
5103-71-9	alpha-Chlordane	190	DJ
5103-74-2	gamma-Chlordane	200	DPJ
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4400	U
11104-28-2	Aroclor-1221	8900	U
11141-16-5	Aroclor-1232	4400	U
53469-21-9	Aroclor-1242	4400	U
12672-29-6	Aroclor-1248	4400	U
11097-69-1	Aroclor-1254	6300	~~D~~
11096-82-5	Aroclor-1260	4400	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ82

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.19

Sample wt/vol: 30.5 (g/mL) G Lab File ID: _____

% Moisture: 55 decanted: (Y/N) N Date Received: 06/24/99

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: 10.0

GPC Cleanup: (Y/N) Y pH: 5.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	37	U
319-85-7	beta-BHC	37	U
319-86-8	delta-BHC	37	U
58-89-9	gamma-BHC (Lindane)	37	U
76-44-8	Heptachlor	37	U
309-00-2	Aldrin	37	U
1024-57-3	Heptachlor epoxide	37	U
959-98-8	Endosulfan I	79	P
60-57-1	Dieldrin	120	
72-55-9	4,4'-DDE	100	
72-20-8	Endrin	140	
33213-65-9	Endosulfan II	45	PJ
72-54-8	4,4'-DDD	29	PJ
1031-07-8	Endosulfan sulfate	76	
50-29-3	4,4'-DDT	36	PJ
72-43-5	Methoxychlor	59	J
53494-70-5	Endrin ketone	72	U
7421-93-4	Endrin aldehyde	38	PJ
5103-71-9	alpha-Chlordane	250	P
5103-74-2	gamma-Chlordane	250	P
8001-35-2	Toxaphene	3700	U
12674-11-2	Aroclor-1016	720	U
11104-28-2	Aroclor-1221	1500	U
11141-16-5	Aroclor-1232	720	U
53469-21-9	Aroclor-1242	720	U
12672-29-6	Aroclor-1248	720	U
11097-69-1	Aroclor-1254	4100	
11096-82-5	Aroclor-1260	720	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ82DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.19DL

Sample wt/vol: 30.5 (g/mL) G Lab File ID: _____

% Moisture: 55 decanted: (Y/N) N Date Received: 06/24/99

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: 5.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	370	U
319-85-7	beta-BHC	370	U
319-86-8	delta-BHC	370	U
58-89-9	gamma-BHC (Lindane)	370	U
76-44-8	Heptachlor	370	U
309-00-2	Aldrin	370	U
1024-57-3	Heptachlor epoxide	370	U
959-98-8	Endosulfan I	150	DPJ
60-57-1	Dieldrin	160	DJ
72-55-9	4,4'-DDE	130	DJ
72-20-8	Endrin	140	DPJ
33213-65-9	Endosulfan II	720	U
72-54-8	4,4'-DDD	720	U
1031-07-8	Endosulfan sulfate	88	DJ
50-29-3	4,4'-DDT	720	U
72-43-5	Methoxychlor	3700	U
53494-70-5	Endrin ketone	720	U
7421-93-4	Endrin aldehyde	98	DPJ
5103-71-9	alpha-Chlordane	280	DPJ
5103-74-2	gamma-Chlordane	300	DPJ
8001-35-2	Toxaphene	37000	U
12674-11-2	Aroclor-1016	7200	U
11104-28-2	Aroclor-1221	15000	U
11141-16-5	Aroclor-1232	7200	U
53469-21-9	Aroclor-1242	7200	U
12672-29-6	Aroclor-1248	7200	U
11097-69-1	Aroclor-1254	5500	~~P~~
11096-82-5	Aroclor-1260	7200	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ83

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.20

Sample wt/vol: 32.5 (g/mL) G Lab File ID: _____

% Moisture: 19 decanted: (Y/N) N Date Received: 06/24/99

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: 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	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	130	
60-57-1	Dieldrin	140	
72-55-9	4,4'-DDE	140	
72-20-8	Endrin	100	P
33213-65-9	Endosulfan II	29	PJ
72-54-8	4,4'-DDD	32	PJ
1031-07-8	Endosulfan sulfate	110	
50-29-3	4,4'-DDT	62	P
72-43-5	Methoxychlor	37	PJ
53494-70-5	Endrin ketone	38	U
7421-93-4	Endrin aldehyde	68	P
5103-71-9	alpha-Chlordane	120	P
5103-74-2	gamma-Chlordane	160	P
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	380	U
11104-28-2	Aroclor-1221	760	U
11141-16-5	Aroclor-1232	380	U
53469-21-9	Aroclor-1242	380	U
12672-29-6	Aroclor-1248	380	U
11097-69-1	Aroclor-1254	5700	
11096-82-5	Aroclor-1260	380	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ83DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.20DL

Sample wt/vol: 32.5 (g/mL) G Lab File ID: _____

% Moisture: 19 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	190	U
319-85-7	beta-BHC	190	U
319-86-8	delta-BHC	190	U
58-89-9	gamma-BHC (Lindane)	190	U
76-44-8	Heptachlor	190	U
309-00-2	Aldrin	190	U
1024-57-3	Heptachlor epoxide	13	DPJ
959-98-8	Endosulfan I	220	D
60-57-1	Dieldrin	190	DJ
72-55-9	4,4'-DDE	140	DPJ
72-20-8	Endrin	110	DPJ
33213-65-9	Endosulfan II	380	U
72-54-8	4,4'-DDD	380	U
1031-07-8	Endosulfan sulfate	120	DPJ
50-29-3	4,4'-DDT	380	U
72-43-5	Methoxychlor	1900	U
53494-70-5	Endrin ketone	380	U
7421-93-4	Endrin aldehyde	120	DPJ
5103-71-9	alpha-Chlordane	220	D
5103-74-2	gamma-Chlordane	230	DP
8001-35-2	Toxaphene	19000	U
12674-11-2	Aroclor-1016	3800	U
11104-28-2	Aroclor-1221	7600	U
11141-16-5	Aroclor-1232	3800	U
53469-21-9	Aroclor-1242	3800	U
12672-29-6	Aroclor-1248	3800	U
11097-69-1	Aroclor-1254	7700	U
11096-82-5	Aroclor-1260	3800	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ85

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.22

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

% Moisture: 34 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 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	83	P
959-98-8	Endosulfan I	22	PJ
60-57-1	Dieldrin	200	P
72-55-9	4,4'-DDE	130	P
72-20-8	Endrin	61	
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	580	P
72-43-5	Methoxychlor	250	U
53494-70-5	Endrin ketone	48	U
7421-93-4	Endrin aldehyde	34	PJ
5103-71-9	alpha-Chlordane	91	P
5103-74-2	gamma-Chlordane	93	PB
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	2700	~~P~~
11096-82-5	Aroclor-1260	480	U

ONLY RB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ85DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.22DL

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

% Moisture: 34 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 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	100	DPJ
959-98-8	Endosulfan I	250	U
60-57-1	Dieldrin	260	DPJ
72-55-9	4,4'-DDE	250	DJ
72-20-8	Endrin	79	DPJ
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	980	D
72-43-5	Methoxychlor	2500	U
53494-70-5	Endrin ketone	480	U
7421-93-4	Endrin aldehyde	480	U
5103-71-9	alpha-Chlordane	180	DPJ
5103-74-2	gamma-Chlordane	93	DPJB
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	5200	D
11096-82-5	Aroclor-1260	4800	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ86

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.23

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

% Moisture: 68 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	52	U
319-85-7	beta-BHC	52	U
319-86-8	delta-BHC	52	U
58-89-9	gamma-BHC (Lindane)	52	U
76-44-8	Heptachlor	52	U
309-00-2	Aldrin	52	U
1024-57-3	Heptachlor epoxide	100	P
959-98-8	Endosulfan I	52	U
60-57-1	Dieldrin	290	P
72-55-9	4,4'-DDE	140	P
72-20-8	Endrin	67	J
33213-65-9	Endosulfan II	49	PJ
72-54-8	4,4'-DDD	31	PJ
1031-07-8	Endosulfan sulfate	100	U
50-29-3	4,4'-DDT	720	
72-43-5	Methoxychlor	520	U
53494-70-5	Endrin ketone	100	U
7421-93-4	Endrin aldehyde	33	PJ
5103-71-9	alpha-Chlordane	240	P
5103-74-2	gamma-Chlordane	260	B
8001-35-2	Toxaphene	5200	U
12674-11-2	Aroclor-1016	1000	U
11104-28-2	Aroclor-1221	2100	U
11141-16-5	Aroclor-1232	1000	U
53469-21-9	Aroclor-1242	1000	U
12672-29-6	Aroclor-1248	1000	U
11097-69-1	Aroclor-1254	3700	
11096-82-5	Aroclor-1260	1000	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ86DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.23DL

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

% Moisture: 68 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	520	U
319-85-7	beta-BHC	520	U
319-86-8	delta-BHC	520	U
58-89-9	gamma-BHC (Lindane)	520	U
76-44-8	Heptachlor	520	U
309-00-2	Aldrin	520	U
1024-57-3	Heptachlor epoxide	120	DPJ
959-98-8	Endosulfan I	520	U
60-57-1	Dieldrin	340	DPJ
72-55-9	4,4'-DDE	250	DPJ
72-20-8	Endrin	1000	U
33213-65-9	Endosulfan II	1000	U
72-54-8	4,4'-DDD	1000	U
1031-07-8	Endosulfan sulfate	1000	U
50-29-3	4,4'-DDT	1200	D
72-43-5	Methoxychlor	5200	U
53494-70-5	Endrin ketone	1000	U
7421-93-4	Endrin aldehyde	1000	U
5103-71-9	alpha-Chlordane	400	DPJ
5103-74-2	gamma-Chlordane	270	DPJB
8001-35-2	Toxaphene	52000	U
12674-11-2	Aroclor-1016	10000	U
11104-28-2	Aroclor-1221	21000	U
11141-16-5	Aroclor-1232	10000	U
53469-21-9	Aroclor-1242	10000	U
12672-29-6	Aroclor-1248	10000	U
11097-69-1	Aroclor-1254	5500	~~DJ~~
11096-82-5	Aroclor-1260	10000	U

ONLY PCB DATA WERE VALIDATED

200

FORM I PEST

OLM03.0

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ87

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.24

Sample wt/vol: 32.4 (g/mL) G Lab File ID: _____

% Moisture: 68 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	49	U
319-85-7	beta-BHC	49	U
319-86-8	delta-BHC	49	U
58-89-9	gamma-BHC (Lindane)	49	U
76-44-8	Heptachlor	49	U
309-00-2	Aldrin	49	U
1024-57-3	Heptachlor epoxide	95	P
959-98-8	Endosulfan I	49	U
60-57-1	Dieldrin	260	P
72-55-9	4,4'-DDE	130	P
72-20-8	Endrin	60	J
33213-65-9	Endosulfan II	41	PJ
72-54-8	4,4'-DDD	37	PJ
1031-07-8	Endosulfan sulfate	95	U
50-29-3	4,4'-DDT	630	P
72-43-5	Methoxychlor	490	U
53494-70-5	Endrin ketone	95	U
7421-93-4	Endrin aldehyde	31	PJ
5103-71-9	alpha-Chlordane	230	P
5103-74-2	gamma-Chlordane	260	B
8001-35-2	Toxaphene	4900	U
12674-11-2	Aroclor-1016	950	U
11104-28-2	Aroclor-1221	1900	U
11141-16-5	Aroclor-1232	950	U
53469-21-9	Aroclor-1242	950	U
12672-29-6	Aroclor-1248	950	U
11097-69-1	Aroclor-1254	3200	
11096-82-5	Aroclor-1260	950	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ87DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.24DL

Sample wt/vol: 32.4 (g/mL) G Lab File ID: _____

% Moisture: 68 decanted: (Y/N) N Date Received: 06/24/99

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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	490	U
319-85-7	beta-BHC	490	U
319-86-8	delta-BHC	490	U
58-89-9	gamma-BHC (Lindane)	490	U
76-44-8	Heptachlor	490	U
309-00-2	Aldrin	490	U
1024-57-3	Heptachlor epoxide	110	DPJ
959-98-8	Endosulfan I	490	U
60-57-1	Dieldrin	330	DPJ
72-55-9	4,4'-DDE	220	DPJ
72-20-8	Endrin	950	U
33213-65-9	Endosulfan II	950	U
72-54-8	4,4'-DDD	950	U
1031-07-8	Endosulfan sulfate	950	U
50-29-3	4,4'-DDT	1100	D
72-43-5	Methoxychlor	4900	U
53494-70-5	Endrin ketone	950	U
7421-93-4	Endrin aldehyde	950	U
5103-71-9	alpha-Chlordane	400	DPJ
5103-74-2	gamma-Chlordane	270	DPJB
8001-35-2	Toxaphene	49000	U
12674-11-2	Aroclor-1016	9500	U
11104-28-2	Aroclor-1221	19000	U
11141-16-5	Aroclor-1232	9500	U
53469-21-9	Aroclor-1242	9500	U
12672-29-6	Aroclor-1248	9500	U
11097-69-1	Aroclor-1254	5300	~~DU~~
11096-82-5	Aroclor-1260	9500	U

Unqualified

ONLY PCB DATA WERE VALIDATED

FORM I PEST OLM03.0

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ88

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.25

Sample wt/vol: 31.0 (g/mL) G Lab File ID: _____

% Moisture: 31 decanted: (Y/N) N Date Received: 06/24/99

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	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	94	P
959-98-8	Endosulfan I	29	P
60-57-1	Dieldrin	260	P
72-55-9	4,4'-DDE	150	P
72-20-8	Endrin	89	
33213-65-9	Endosulfan II	55	P
72-54-8	4,4'-DDD	46	U
1031-07-8	Endosulfan sulfate	46	U
50-29-3	4,4'-DDT	710	P
72-43-5	Methoxychlor	240	U
53494-70-5	Endrin ketone	46	U
7421-93-4	Endrin aldehyde	57	P
5103-71-9	alpha-Chlordane	120	P
5103-74-2	gamma-Chlordane	120	PB
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	3000	~~P~~ J
11096-82-5	Aroclor-1260	460	U

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ88DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ67

Matrix: (soil/water) SOIL Lab Sample ID: 39129.25DL

Sample wt/vol: 31.0 (g/mL) G Lab File ID: _____

% Moisture: 31 decanted: (Y/N) N Date Received: 06/24/99

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	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	120	DPJ
959-98-8	Endosulfan I	240	U
60-57-1	Dieldrin	360	DPJ
72-55-9	4,4'-DDE	280	DJ
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	1200	D
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	260	D
5103-74-2	gamma-Chlordane	120	DPJB
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	6300	~~D~~
11096-82-5	Aroclor-1260	4600	U

ONLY PCB DATA WERE VALIDATED

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

DATE: JULY 15, 1999
SUBJECT: CLP Data Package for Quality Assurance Review
FROM: RSCC / ESAT
TO: George Karras, Hazardous Waste Support Section

RECEIVED
JUL 22 1999

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	ST	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 Barlich	7-14-99
John Barlich	7-15-99	Mal [illegible]	7-15-99
Mal [illegible]	7-21-99	John Barlich (DCR)	7-21-99
John Barlich (DCR)	7/21/99	K. Dayan	7/21/99
K. Dayan	7/22/99		

(over for instructions) revised 3/99

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__

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
J
Dieldrin, Aroclor-1254

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

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.

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 LABORATORY: SWL-TULSA

CASE NO: 27133 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 LABORATORY: SWL-TULSA
CASE NO: 27133 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-228: 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 LABORATORY: SWL-TULSA

CASE NO: 27133 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.

	YES	NO	N/A
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.

	YES	NO	N/A
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.

	YES	NO	N/A
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.

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.

Was the correct identification scheme used for GPC and Florisil blanks?	✓		

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	✓		

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

	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 last in-control standard up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).			
8.0 Analytical Sequence Check (Form VIII-PEST)			
8.1 Is Form VIII present and complete for each column and each period of analyses?	✓		
ACTION: If no, take action specified in 3.2 above.			
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-32)? [/] ___ ___

	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.

7.3 Are Forms VI PEST 1-7 present and complete for each column and each analytical sequence?	✓		

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

7.4 Are there any transcription/ calculation errors between raw data and Forms VI?		✓	

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

7.5 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the Initial Calibration (see Form VI PEST-1)?	✓		

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

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?		1	
6.3 In any instrument blanks, is the concentration of any target hit > 0.5 times CRQL for that analyte (see SOW, section 12.1.4.4.2, page D-77/PEST)?		1	

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

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

6.4 Do any field/rinse blanks have positive pest/PCB results?		1	

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 30 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 12.1.2.3.1. 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 Chromatography: review the blank raw data - chromatograms, quant. reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable?	[✓]		
ACTION: Use professional judgement to determine the effect on the data.			

6.0 Contamination

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

	YES	NO	N/
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 mz [✓] ___ ___

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? [✓] ___ ___

	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/

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

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/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

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

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
CASE NO: 27133

LABORATORY: SWL-TULSA
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
J
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: BWZ48 Sample Receipt Date: 06/23/99
(Lowest EPA Sample Number in first shipment of samples received under SDG). (MM/DD/YY)

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

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

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

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

FORM I PEST

OLM03.0

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	~~DP~~
11096-82-5	Aroclor-1260	400	U

* To Original

ONLY PCB DATA WERE VALIDATED

FORM I PEST OLM03.0

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	~~DGJ~~
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~~ J
11096-82-5	Aroclor-1260	510	U

ONLY PCB DATA WERE VALIDATED

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	~~DPJ~~ J
11096-82-5	Aroclor-1260	5100	U

ONLY RE 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

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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

1D
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

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

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

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

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

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

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

ONLY PCB DATA WERE VALIDATED

FORM I PEST

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

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

ONLY PDS DATA WERE VALIDATED

FORM I PEST

OLM03.0

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

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

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

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

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

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

ONLY PCB DATA WERE VALIDATED

FORM I PEST

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

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

ONLY PCB DATA WERE VALIDATED

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

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	~~D~~J
11096-82-5	Aroclor-1260	4300	U

ONLY PCB DATA WERE VALIDATED

FORM I PEST

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

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

ONLY PUB DATA WERE VALIDATED

FORM I PEST

OLM03.0

DO NOT USE

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

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	~~D~~J
11096-82-5	Aroclor-1260	4100	U

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ONLY PCB DATA WILL BE 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 THE 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	~~J~~
11096-82-5	Aroclor-1260	6100	U

ONLY PCB DATA USE VALIDATED

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	~~P~~ J
11096-82-5	Aroclor-1260	550	U

ONLY ~~MS~~ DATA WERE VALIDATED

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 HERE 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

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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 PCB 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
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 PCB DATA WERE VALIDATED

FORM I PEST

OLM03.0

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~~ J
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VALIDATED

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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

RECORD OF COMMUNICATION

TO: Mike MAHNKOPS

FROM: *JANET TROTTER*
Region II ESAT/RSCC

DATE: July 15, 1999

SUBJECT: QUALITY ASSURED DATA

MESSAGE * SDG # BW206

PLEASE SIGN BELOW IN ACKNOWLEDGEMENT OF RECEIPT OF THE FOLLOWING AND RETURN ONE COPY OF THIS RECORD OF COMMUNICATION TO THE RSCC-REGION II.

(1) Cornell-Dubilier 27133 SWOK Org 20 SOILS

REPLY BY:

SIGNATURE: M. Mahnkopf DATE: 7/19/99

DATE RECEIVED BY RSCC: / /

cc: EPA TASK MONITOR
ESAT, MANAGER
file

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

DATE: JULY 8, 1999
SUBJECT: CLP Data Package for Quality Assurance Review
FROM: RSCC / ESAT
TO: George Karras, Hazardous Waste Support Section

RECEIVED
JUL 14 1999

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

SITE	CORNELL-DUBILIER	CASE#	27133 / SDG# BWZ06
CONTRACTOR	START W	#SAMPLES	MATRIX
PHASE	SI	20	SOIL
LAB	SWOK		
TURN-AROUND-TIME	14 DAYS	FRACTION	PCB
CERCLIS ID #	NJD981557879	SITE SPILL #	GZ

REGION II RSCC DATA TRANSFER LOG

Relinquished By		Received By	
Signature	Date/Time	Signature	Date/Time
		John Bulich	7-7-99
John Bulich	7-8-99	[illegible]	7/8/99
7/13/99 [illegible]		J. Turner	7/13/99
J. Turner	7/13/99	G. Karras	7/13/99
George Karras	7/14/99	J. Turner	7/14/99

(over for instructions) revised 3/99

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 27133 **SDG No.:** BWZ06 **LABORATORY:** SWOK

SITE: Cornell-Dublier

DATA ASSESSMENT

The current SOP HW-6 (Revision 11) June 1996, USEPA Region II Data Validation SOP for Statement of Work OLMO3.2 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 at an estimated value) flag. All action is detailed on the attached sheets.

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

Reviewer's Signature: _____ **Date** 7/12/99

Verified By: _____ **Date** 7/14/99

CLP DATA ASSESSMENT

1. HOLDING TIME:

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

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

Contract and technical holding times were met.

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.

No qualification of the data was necessary.

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

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

No qualification of the data was necessary.

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

CLP DATA ASSESSMENT

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" (or "R" where indicated) for these reasons:

A) Method blank contamination:

No problems.

B) Field or rinse blank contamination:

There were no field blanks.

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 Decafluorotriphenylphosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

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.

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

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the

CLP DATA ASSESSMENT

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

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

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

No qualification of the PCB data was necessary.

8. COMPOUND IDENTIFICATION:

B) Pesticide Fraction:

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

See attached CADRE Quantitation Limit Report for a list of samples qualified for this criteria.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

Initial calibration standards analyzed 7/01/99 - Header information on Forms 6F, pages 249 and 250, were inconsistent with other forms and raw data. The forms list RTX-PEST and RTX-PEST2 as the columns used for the analyses. All other documents, pages 241, 242, 245, 246, 286, 288 and 444, list the respective columns as DB-1701 and DB-17.

4A

Dieldrin, gamma-Chlordane

BWZ23DL

4,4'-DDE, alpha-Chlordane

BWZ24DL

4,4'-DDE, Endrin aldehyde, alpha-Chlordane

BWZ25DL

Endosulfan II

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."

BWZ06

Heptachlor epoxide, 4,4'-DDE, Endrin, Methoxychlor
alpha-Chlordane, Aroclor-1254 — J

BWZ06DL

4,4'-DDT, Aroclor-1254 — J

BWZ07

delta-BHC, Heptachlor epoxide, 4,4'-DDE, Endrin aldehyde
alpha-Chlordane, Aroclor-1254 — J

BWZ07DL

4,4'-DDE, Endrin, alpha-Chlordane

BWZ08

Heptachlor, 4,4'-DDE, Aroclor-1254 — J

BWZ08DL

alpha-Chlordane, Aroclor-1254 — JN

BWZ09DL

4,4'-DDE, Endosulfan II, alpha-Chlordane

BWZ10

4,4'-DDE, Methoxychlor

BWZ10DL

Endrin aldehyde, Ar-1254 — JN

Quantitation Limit Report

SDG NO: **BWZ06** LABORATORY: **SWL-TULSA**

CASE NO: **27133** AGENCY INPUT FILE: **BWZ06.ASF**

BWZ11

gamma-BHC (Lindane), Heptachlor epoxide, 4,4'-DDE, 4,4'-DDD

BWZ12

Heptachlor, 4,4'-DDE, Aroclor-1254 – J

BWZ13

delta-BHC, gamma-BHC (Lindane), 4,4'-DDE, 4,4'-DDD

alpha-Chlordane

BWZ13DL

4,4'-DDE, Endosulfan II

BWZ14

delta-BHC, Heptachlor epoxide, Endosulfan II, 4,4'-DDD

gamma-Chlordane

BWZ14DL – Ar-1254 – JN

BWZ15

Endosulfan II, Aroclor-1254 – J

BWZ16

Endrin, 4,4'-DDD, Aroclor-1254 – J

BWZ17

Heptachlor epoxide, 4,4'-DDE, gamma-Chlordane

BWZ17DL

gamma-Chlordane

BWZ18

Endrin aldehyde

BWZ18DL: Ar-1254 – J

BWZ19

4,4'-DDE, Endrin, Aroclor-1248 – J

BWZ19DL: Ar-1254 – J

BWZ20DL

Dieldrin

BWZ21

Heptachlor epoxide, Aroclor-1254 – J

BWZ22

Heptachlor epoxide, 4,4'-DDE, Endrin

BWZ23

Endosulfan I, Endrin

BWZ23DL
4,4'-DDE, gamma-Chlordane

BWZ24
alpha-BHC, Endosulfan I, Endrin

BWZ24DL
Aroclor-1254 - J

BWZ25
Endrin

BWZ25DL
Endosulfan I, Endrin, 4,4'-DDT

BWZ25MS
Endrin

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."

BWZ06
alpha-BHC, delta-BHC, Aldrin, Dieldrin
Endosulfan II, 4,4'-DDT

BWZ06DL
delta-BHC, Dieldrin, 4,4'-DDE, Endrin
Methoxychlor

BWZ07
alpha-BHC, gamma-BHC (Lindane), Aldrin, Dieldrin
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor
gamma-Chlordane

BWZ07DL
4,4'-DDD, Methoxychlor

BWZ08
Endrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Methoxychlor, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ08DL
Endrin aldehyde

4D

BWZ09

delta-BHC, Heptachlor, Dieldrin, Endrin
Endosulfan II, 4,4'-DDD, 4,4'-DDT, Methoxychlor
Endrin ketone, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ09DL

delta-BHC, Dieldrin, 4,4'-DDT, Methoxychlor
Endrin aldehyde

BWZ10

delta-BHC, 4,4'-DDD, 4,4'-DDT, Endrin ketone
Endrin aldehyde, Aroclor-1254 — JN

BWZ11

delta-BHC, Aldrin, Dieldrin, Endrin
Endosulfan II, 4,4'-DDT, Methoxychlor, Endrin aldehyde
alpha-Chlordane, gamma-Chlordane

BWZ11DL

Dieldrin, 4,4'-DDE, 4,4'-DDT, Endrin aldehyde
alpha-Chlordane

BWZ12

delta-BHC, Dieldrin, Endrin, 4,4'-DDT
Methoxychlor, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ13

Heptachlor, Heptachlor epoxide, Dieldrin, Endrin
Endosulfan II, 4,4'-DDT, Methoxychlor, Endrin aldehyde
gamma-Chlordane

BWZ13DL

Dieldrin, 4,4'-DDT, Methoxychlor, Endrin aldehyde

BWZ14

Heptachlor, Dieldrin, 4,4'-DDT, Methoxychlor
alpha-Chlordane, Aroclor-1254 — JN

BWZ14DL

delta-BHC, 4,4'-DDT, Endrin aldehyde

BWZ15

delta-BHC, Heptachlor epoxide, Dieldrin, 4,4'-DDT
Methoxychlor, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ15DL

Endrin aldehyde

BWZ16
delta-BHC, Dieldrin, Endosulfan II, 4,4'-DDT
Methoxychlor, Endrin aldehyde, gamma-Chlordane

BWZ16DL
Endrin, Endrin aldehyde

BWZ17
Endosulfan I, Dieldrin, Endosulfan II, Endrin aldehyde

BWZ17DL
Dieldrin, 4,4'-DDE

BWZ18
Dieldrin, alpha-Chlordane

BWZ19
Heptachlor epoxide, Dieldrin, Endosulfan II, alpha-Chlordane

BWZ20
Heptachlor epoxide, Endosulfan I, Dieldrin, Endrin
Endosulfan II, Methoxychlor, Endrin aldehyde, gamma-Chlordane

BWZ20DL
gamma-Chlordane

BWZ21
Dieldrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
Methoxychlor, Endrin ketone, Endrin aldehyde

BWZ21DL
Dieldrin, 4,4'-DDD, 4,4'-DDT, Endrin ketone

BWZ22
Dieldrin, Endosulfan II, Endrin ketone, Endrin aldehyde
alpha-Chlordane

BWZ22DL
Dieldrin

BWZ23
alpha-BHC, Heptachlor epoxide, Dieldrin, Endosulfan II
Endrin aldehyde

BWZ23DL

4F

Heptachlor epoxide, Dieldrin, alpha-Chlordane

BWZ24
Heptachlor epoxide, Dieldrin, Endosulfan II, Endrin aldehyde

BWZ24DL
Heptachlor epoxide, Dieldrin, 4,4'-DDT, Endrin aldehyde
alpha-Chlordane

BWZ25
alpha-BHC, delta-BHC, Heptachlor epoxide, Endosulfan I
Dieldrin, Endosulfan II, Methoxychlor, Endrin aldehyde
alpha-Chlordane, gamma-Chlordane

BWZ25DL
Heptachlor epoxide, Dieldrin, Endosulfan II, Endrin aldehyde
alpha-Chlordane

BWZ25MS
alpha-BHC, delta-BHC, gamma-BHC (Lindane), Aldrin
Heptachlor epoxide, Endosulfan I, Dieldrin, Endosulfan II
Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

BWZ25MSD
alpha-BHC, delta-BHC, gamma-BHC (Lindane), Aldrin
Heptachlor epoxide, Endosulfan I, Dieldrin, Endosulfan II
4,4'-DDD, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

CLP DATA ASSESSMENT

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

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

BWZ06DL, BWZ09DL, BWZ17DL, BWZ19DL, BWZ20DL, BWZ21DL, BWZ22DL, BWZ23DL, BWZ24DL, BWZ25DL.- The corresponding undiluted samples were used, instead.

BWZ07DL, BWZ08DL, BWZ10DL, BWZ11DL, BWZ12DL, BWZ13DL, BWZ14DL, BWZ15DL, BWZ16DL, BWZ18DL - These dilutions were not required, as the original analyses did not contain any target hits exceeding the calibration range.

SOP NO. HW-6

Revision #11

May 1996

CLP ORGANICS DATA REVIEW AND PRELIMINARY REVIEW (CLP/SOW OLMO 3.2)

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George Karras, Work Assignment Manager/Chemist
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INTRODUCTION

Scope and Applicability

This SOP offers detailed guidance in evaluating laboratory data generated according to the methods in the "USEPA Contract Laboratory Program Statement of Work for Organics Analysis OLM03.2," August 1994. The validation methods and actions discussed in this document are based on the requirements set forth in the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994. This document attempts to cover technical as well as contractual problems specific to each fraction and sample matrix; however, situations may arise where data limitations must be assessed based on the reviewer's professional judgement.

In addition to technical requirements, contractual requirements are also covered in this document. While it is important that instances of contract non-compliance be addressed in the Data Assessment, the technical criteria are always used to qualify the analytical data.

Summary of Method

To ensure a thorough evaluation of each result in a data case, the reviewer must complete the checklist within this SOP, answering specific questions while performing the prescribed "ACTIONS" in each section. Qualifiers (or flags) are applied to questionable or unusable results as instructed. The data qualifiers discussed in this document are defined on page 4 of the National Functional Guidelines mentioned above.

The reviewer must prepare a detailed data assessment to be submitted along with the completed SOP checklist. The Data Assessment must list all data qualifications, reasons for qualifications, instances of missing data and contract non-compliance. This information is further summarized on the Organic Regional Data Assessment Summary and Data Rejection Summary forms (see attached).

CADRE reports, when available, are to be incorporated into the Data Assessment. To generate CADRE reports for a particular SDG, follow the SOP for Validating RAS/CLP Data Cases with MAGIC, CARD and CADRE (see attached).

Reviewer Qualifications

This SOP is intended for use by organic data validators who have successfully completed the USEPA Region II data validation training program. Data reviewers must possess a working knowledge of the USEPA Statement of Work and National Functional Guidelines mentioned above.

DEFINITIONS

Acronyms

BFB - bromofluorobenzene
BHC - benzene hexachloride
BNA - base neutral acid
CADRE - Computer Aided Data Review and Evaluation
CARD - CLP Analytical Results Database
CCS - contract compliance screening
CLASS - Contract Laboratory Analytical Services Support
CLP - Contract Laboratory Program
CRQL - Contract Required Quantitation Limit
%D - percent difference
DCB -decachlorobiphenyl
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenylethane
DDT - dichlorodiphenyltrichloroethane
GC - gas chromatography
GC/EC - gas chromatograph/electron capture detector
GC/MS - gas chromatograph/mass spectrometer
GPC - gel permeation chromatography
IS - internal standard
kg - kilogram
µg - microgram
MAGIC - Mainframe Access Graphical Interface with CARD
MS - matrix spike
MSD - matrix spike duplicate
ℓ - liter
mℓ - mililiter
PCB - polychlorinated biphenyl
PE - performance evaluation
PEM - Performance Evaluation Mixture
QC - quality control
RAS - Routine Analytical Services
RIC - reconstructed ion chromatogram
RPD - relative percent difference
RRF - relative response factor
$\overline{RRF}$ - average relative response factor (from initial calibration)
RRT - relative retention time
RSD - relative standard deviation
RT - retention time
RSCC - Regional Sample Control Center
SDG - sample delivery group
SMC - system monitoring compound
SOP - standard operating procedure
SOW - Statement of Work
SVOA - semivolatile organic acid
TCL - Target Compound List
TCLP - Toxicity Characteristics Leachate Procedure
TCX -tetrachloro-m-xylene
TIC - tentatively identified compound

Acronyms (cont'd.)

TPO - technical project officer
VOA - volatile organic acid
VTSR - validated time of sample receipt
WAM - EPA Work Assignment Manager

Data Qualifiers

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively dienrified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality contrrol criteria. The presence or absence of the analyte cannot be verified.

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 27133 LABORATORY: SWOK

SITE NAME: Cornell-Dublier SDG Number(s): BWZ06

1.0 Chain of Custody and Sampling Trip Reports

	YES	NO	N/A
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.

	YES	NO	N/A
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

	YES	NO	N/A
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.

	YES	NO	N/A
2.2 Was CLASS CCS checklist included with package?	[ ]	✓	
2.3 Are there any discrepancies between the Traffic Reports/Chain-of-Custody Records, Sampling Report and Sample Tags?		[✓]	

	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
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

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".

ACTION: If samples were not iced, or if the ice was melted upon arrival at the laboratory, and the temperature of the cooler was elevated > 10^0 C, flag all positive results "J" and all non-detects "UJ".

ACTION: Check aqueous extraction log for sample pH, if adjustment was needed, it should have been noted in the SDG Narrative. If more information is needed, notify the 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 reliability of the data and the effects of

YES NO N/A

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
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%.

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

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

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)? [✓] ___ ___

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? [ ] ___ [✓]

	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
NA out of 12	3 out of 12

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

Water	Soil
✓ out of 6	2 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/A
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 Chromatography: review the blank raw data - chromatograms, quant. reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable?	[✓]		
ACTION: Use professional judgement to determine the effect on the data.			

6.0 Contamination

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

	YES	NO	N/A
6.1 Do any method/reagent, instrument, or cleanup blanks show positive hits for pest/PCBs?		[✓]	
6.2 If any method blanks and/or sulfur clean-up blanks contain "hits" for target compounds, are these hits greater than the CRQL for that			

	YES	NO	N/
analyte?	___	[✓]	___
6.3 In any instrument blanks, is the concentration of any target hit > 0.5 times CRQL for that analyte (see SOW, section 12.1.4.4.2, 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.

6.4 Do any field/rinse blanks have positive pest/PCB results?	___	[✓]	✓

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

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

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

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

If the laboratory has not already done so, the contaminant concentration in soil blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate are used to prepare each soil reagent/method blank as instructed on page D-72/PEST, section 12.1.2.3.1. Ask the WAM

YES NO N/A

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

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

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

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

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

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

7.0 Calibration and GC Performance

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

a. Peak resolution check? [✓] ___ ___

b. Performance evaluation mixtures? [✓] ___ ___

c. Aroclor 1016/1260? [✓] ___ ___

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

e. Toxaphene? [✓] ___ ___

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

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

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

	YES	NO	N/
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/
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/
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.

Header info.

	YES	NO	N/
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/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.

ONLY PCB's well validated

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 <u>both initial and continuing</u> calibrations (see SOW section 3.12.4.4, page B-52)? [ ] ___ ___

	YES	NO	N/
ONY PCBs were validated			
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 surrcgates 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

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

only PCBs were related

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

Only PCB data was validated

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%? [ ] ___ ___

Only PCB data was validated

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 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses? [✓] ___ ___

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

8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses, and all standards analyzed at the required frequency for each GC/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
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
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.

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.

Was the correct identification scheme used for GPC and Florisil blanks?	[✓]	___	___

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	[✓]	___	___

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

	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

% Difference	Qualifier
0 - 25%	None
25 - 70%	"J"
70 - 100%	"JN"
> 100% (No interference)	"R"
100 - 200% (Interference detected)*	"JN"
> 50% (Pesticide value is < CRQL)**	"U"
> 200%	"R"

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

DPO: [X]ACTION [ ]FYI REGION II

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO.: 27133 LABORATORY: SWL-TULSA

SDG NO.: BWZ06 DATA USER: EPA Region II

SOW: OLM03.2 REVIEW COMPLETION DATE: 7/12/99

NO. OF SAMPLES: ___ WATER 20 SOIL ___ OTHER

REVIEWER: [ ] ESD [X] ESAT [ ] OTHER, CONTRACTOR: _____

QC ITEM	PEST	
HOLDING TIMES	O	
GC-MS PERFORMANCE	NA	
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)	NA	
INTERNAL STANDARDS	NA	
COMPOUND IDENTIFICATION	X	
COMPOUND QUANTITATION	O	
SYSTEM PERFORMANCE	O	
OVERALL ASSESSMENT	X	

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.

DPO ACTION ITEMS:

SWOK continues to dilute samples unnecessarily.

AREAS OF CONCERN:

DATA REJECTION SUMMARY

Type of Review: Organic **Date:** 7/12/99 **Case/SDG No.:** BWZ06

Site Name: Cornell-Dublier **Lab Name:** SWL-TULSA

Reviewer's Initials: **Number of Samples, including REs, DLs and QC:** 42

Analytes Rejected Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0 / 0	=	%
ACID(14)									0 / 0	=	%
B/N(50)									0 / 0	=	%
PEST(21)									0 / 0	=	%
PCB(7)								42	0 / 294	=	0 %

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

Analytes Estimated Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0 / 0	=	%
ACID(14)									0 / 0	=	%
B/N(50)									0 / 0	=	%
PEST(21)									0 / 0	=	%
PCB(7)					19			42	19 / 294	=	6 %

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

Lockheed Martin Services Group
Environmental Services & Technologies Region 2
175 May Street, Suite 101 Edison, NJ 08837
Telephone 908-417-1061 Facsimile 908-417-3926

LOCKHEED MARTIN

< < <FAX TRANSMISSION> > >

FROM: George Vailakis

Questions?

Call: 732/417-9342
Fax: 732/417-5727

TO: George Karras, cc: R. Grazioli, C. Stanca
COMPANY: EPA
FAX#:
DATE: 7/8/99

PAGES: 4

RE: Case/SDG: 27133/BWZ06

Message:

George:

SWOK continues to submit dilution analyses for samples which don't require dilution, although we've cited this problems in the past. Only 10 of the 20 dilutions for this case were required to bring target hits within range. Although the case narrative acknowledges this, all twenty dilutions were submitted (see attached). Since time is of the essence, the lab shouldn't give us twice the work (or more, depending on the number of calibrations required to analyze the additional samples) necessary to validate each sample. Can the lab be made aware of this and how it affects the validation process?

verification standards analyzed before these samples met OLM03.2 continuing calibration criteria. When diluted (10 of the soil samples required dilution to bring target analytes within calibration range) the samples met OLM03.2 acceptance criteria. A non-compliant undiluted analysis and a compliant dilution analysis was performed for all these samples, except for BWZ23 and BWZ24 (both have 2 compliant dilutions). 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 6 RPDs and 3 out of 12 recoveries were outside control limits control limits due to matrix interference.

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

2F
SOIL PESTICIDE SURROGATE RECOVERY

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

Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

GC Column(1): RTX-PEST ID: 0.32(mm) GC Column(2): RTX-PEST 2 ID: 0.32(mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLKSK	72	62	95	94			0
02	BWZ17DL	84	68	210D	158D			0
03	BWZ18DL	71	67	198D	189D			0
04	BWZ19DL	66	61	117	140			0
05	BWZ20DL	65	58	85	79			0
06	BWZ21DL	96	78	232D	212D			0
07	BWZ22DL	58	54	126	136			0
08	BWZ23DL	74	0D	0D	4523D			0
09	BWZ23	75	76	675D	4743D			0
10	BWZ24DL	0D	203D	0D	4232D			0
11	BWZ24	74	80	510D	3940D			0
12	BWZ25DL	69	279D	234D	260D			0
13	BWZ17	85	72	193*	150			1
14	BWZ18	67	62	189*	127			1
15	BWZ19	68	69	136	128			0
16	BWZ20	69	57	72	89			0
17	BWZ21	101	75	241*	152*			2
18	BWZ22	69	62	143	109			0
19	BWZ25	90	78	297*	261*			2
20	BWZ25MS	84	75	166*	191*			2
21	BWZ25MSD	78	61	122	159*			1
22								
23								
24								
25								
26								
27								
28								
29								
30								

QC LIMITS

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

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

2F
SOIL PESTICIDE SURROGATE RECOVERY

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

GC Column(1): DB-1701 ID: 0.32(mm) GC Column(2): DB-17 ID: 0.32(mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLKSJ	107	57	86	88			0
02	BWZ06DL	132	66	235D	490D			0
03	BWZ07DL	120	49	100	209D			0
04	BWZ08DL	94	35	66	0D			0
05	BWZ09DL	108	60	102	119			0
06	BWZ10DL	96	50	52	100			0
07	BWZ11DL	93	40	54	75			0
08	BWZ12DL	97	43	72	64			0
09	BWZ13DL	114	65	66	116			0
10	BWZ14DL	110	62	55	118			0
11	BWZ15DL	112	45	58	88			0
12	BWZ16DL	107	53	52	72			0
13	BWZ06	124	73	162*	347*			2
14	BWZ07	127	135	119	178*			1
15	BWZ08	82	35	120	54			0
16	BWZ09	100	54	98	92			0
17	BWZ10	91	42	68	79			0
18	BWZ11	93	41	69	64			0
19	BWZ12	99	40	81	61			0
20	BWZ13	109	66	81	94			0
21	BWZ14	114	59	101	107			0
22	BWZ15	98	43	83	78			0
23	BWZ16	82	32	59	57			0
24								
25								
26								
27								
28								
29								
30								

QC LIMITS

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

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

FORM II PEST-2 OLM03.0

RECEIVED
JUL 07 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: BWZ06

SAMPLES: BWZ06, BWZ07, BWZ08, BWZ09, BWZ10, BWZ11, BWZ12, BWZ13, BWZ14, BWZ15, BWZ16, BWZ17, BWZ18, BWZ19, BWZ20, BWZ21, BWZ22, BWZ23, BWZ24, BWZ25, BWZ06DL, BWZ07DL, BWZ08DL, BWZ09DL, BWZ10DL, BWZ11DL, BWZ12DL, BWZ13DL, BWZ14DL, BWZ15DL, BWZ16DL, BWZ17DL, BWZ18DL, BWZ19DL, BWZ20DL, BWZ21DL, BWZ22DL, BWZ23DL, BWZ24DL, BWZ25DL

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. RTX-PEST/RTX-PEST 2 (proprietary Restek phases) and DB-17/DB-1701 (J&W). The DB-17 phase consists of (50%-Phenyl) Methylpolysiloxane and the DB-1701 phase consists of (14%-Cyanopropylphenyl) Methylpolysiloxane . 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 of the coolers was noted at 5 ° 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 soil samples in this SDG caused breakdown of 4,4'-DDT in the calibration verification standards following their injection. The calibration

verification standards analyzed before these samples met OLM03.2 continuing calibration criteria. When diluted (10 of the soil samples required dilution to bring target analytes within calibration range) the samples met OLM03.2 acceptance criteria. A non-compliant undiluted analysis and a compliant dilution analysis was performed for all these samples, except for BWZ23 and BWZ24 (both have 2 compliant dilutions). 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 6 RPDs and 3 out of 12 recoveries were outside control limits control limits due to matrix interference.

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 6, 1999

05

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). BWZ06 Sample Receipt Date: 06/22/99 (MM/DD/YY)

Last Sample in SDG: (Highest EPA Sample Number in last shipment of samples received under SDG). BWZ25 Sample Receipt Date: 06/22/99

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

1) BWZ06	11) BWZ16
2) BWZ07	12) BWZ17
3) BWZ08	13) BWZ18
4) BWZ09	14) BWZ19
5) BWZ10	15) BWZ20
6) BWZ11	16) BWZ21
7) BWZ12	17) BWZ22
8) BWZ13	18) BWZ23
9) BWZ14	19) BWZ24
10) BWZ15	20) BWZ25

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).

Harry M. Bogg
Sample Custodian

6-29-99
Date

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ06

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.01

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

% Moisture: 20 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8 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	PJ
319-85-7	beta-BHC	2.1	U
319-86-8	delta-BHC	14	P
58-89-9	gamma-BHC (Lindane)	1.2	J
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	3.2	P
1024-57-3	Heptachlor epoxide	4.5	P
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	17	P
72-55-9	4,4'-DDE	20	P
72-20-8	Endrin	92	PE
33213-65-9	Endosulfan II	8.1	P
72-54-8	4,4'-DDD	15	
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	46	P
72-43-5	Methoxychlor	190	P
53494-70-5	Endrin ketone	56	E
7421-93-4	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	17	P
5103-74-2	gamma-Chlordane	18	
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	300	~~R~~ J
11096-82-5	Aroclor-1260	40	U

Only PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Do Not Use BWZ06DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.01DL

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

% Moisture: 20 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.8 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	19	DPJ
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	20	DPJ
72-55-9	4,4'-DDE	14	DPJ
72-20-8	Endrin	110	DP
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	89	DP
72-43-5	Methoxychlor	280	DP
53494-70-5	Endrin ketone	40	U
7421-93-4	Endrin aldehyde	40	U
5103-71-9	alpha-Chlordane	20	DJ
5103-74-2	gamma-Chlordane	22	D
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	410	DPJ
11096-82-5	Aroclor-1260	400	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ07

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.02

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	4.5	P
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	17	P
58-89-9	gamma-BHC (Lindane)	4.3	P
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	2.4	P
1024-57-3	Heptachlor epoxide	12	P
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	10	P
72-55-9	4,4'-DDE	25	P
72-20-8	Endrin	29	
33213-65-9	Endosulfan II	7.2	P
72-54-8	4,4'-DDD	20	P
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	22	P
72-43-5	Methoxychlor	43	P
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	16	P
5103-71-9	alpha-Chlordane	4.3	P
5103-74-2	gamma-Chlordane	5.5	P
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	36	U
11104-28-2	Aroclor-1221	74	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	280	~~P~~ J
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ67DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.02DL

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

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	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	36	U
72-55-9	4,4'-DDE	21	DPJ
72-20-8	Endrin	28	DPJ
33213-65-9	Endosulfan II	36	U
72-54-8	4,4'-DDD	30	DPJ
1031-07-8	Endosulfan sulfate	36	U
50-29-3	4,4'-DDT	36	U
72-43-5	Methoxychlor	24	DPJ
53494-70-5	Endrin ketone	36	U
7421-93-4	Endrin aldehyde	36	U
5103-71-9	alpha-Chlordane	10	DPJ
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	360	U
11104-28-2	Aroclor-1221	740	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	320	DJ
11096-82-5	Aroclor-1260	360	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ08

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.03

Sample wt/vol: 31.8 (g/mL) G Lab File ID: _____

% Moisture: 7 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	0.64	PJ
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'-DDE	7.3	P
72-20-8	Endrin	8.2	P
33213-65-9	Endosulfan II	5.8	P
72-54-8	4,4'-DDD	11	P
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	14	P
72-43-5	Methoxychlor	4.2	PJ
53494-70-5	Endrin ketone	3.3	U
7421-93-4	Endrin aldehyde	12	P
5103-71-9	alpha-Chlordane	1.8	P
5103-74-2	gamma-Chlordane	3.5	P
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	33	U
11104-28-2	Aroclor-1221	68	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	240	~~R~~ J
11096-82-5	Aroclor-1260	33	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ08DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.03DL

Sample wt/vol: 31.8 (g/mL) G Lab File ID: _____

% Moisture: 7 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 07/01/99

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	17	U
319-85-7	beta-BHC	17	U
319-86-8	delta-BHC	17	U
58-89-9	gamma-BHC (Lindane)	17	U
76-44-8	Heptachlor	17	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
959-98-8	Endosulfan I	17	U
60-57-1	Dieldrin	33	U
72-55-9	4,4'-DDE	10	DJ
72-20-8	Endrin	33	U
33213-65-9	Endosulfan II	33	U
72-54-8	4,4'-DDD	33	U
1031-07-8	Endosulfan sulfate	33	U
50-29-3	4,4'-DDT	33	U
72-43-5	Methoxychlor	170	U
53494-70-5	Endrin ketone	33	U
7421-93-4	Endrin aldehyde	8.1	DPJ
5103-71-9	alpha-Chlordane	5.4	DPJ
5103-74-2	gamma-Chlordane	17	U
8001-35-2	Toxaphene	1700	U
12674-11-2	Aroclor-1016	330	U
11104-28-2	Aroclor-1221	680	U
11141-16-5	Aroclor-1232	330	U
53469-21-9	Aroclor-1242	330	U
12672-29-6	Aroclor-1248	330	U
11097-69-1	Aroclor-1254	260	DJ JN
11096-82-5	Aroclor-1260	330	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ09

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.04

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

% Moisture: 15 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	9.0	P
58-89-9	gamma-BHC (Lindane)	2.8	
76-44-8	Heptachlor	1.1	PJ
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	28	E
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	33	P
72-55-9	4,4'-DDE	54	
72-20-8	Endrin	26	P
33213-65-9	Endosulfan II	27	P
72-54-8	4,4'-DDD	20	P
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	60	PE
72-43-5	Methoxychlor	39	P
53494-70-5	Endrin ketone	11	P
7421-93-4	Endrin aldehyde	17	P
5103-71-9	alpha-Chlordane	5.6	P
5103-74-2	gamma-Chlordane	4.6	P
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	36	U
11104-28-2	Aroclor-1221	74	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	1300	
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ09DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.04DL

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

% Moisture: 15 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	5.2	DPJ
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	37	DP
72-55-9	4,4'-DDE	43	DP
72-20-8	Endrin	36	U
33213-65-9	Endosulfan II	30	DPJ
72-54-8	4,4'-DDD	36	U
1031-07-8	Endosulfan sulfate	36	U
50-29-3	4,4'-DDT	58	DP
72-43-5	Methoxychlor	61	DPJ
53494-70-5	Endrin ketone	36	U
7421-93-4	Endrin aldehyde	30	DPJ
5103-71-9	alpha-Chlordane	17	DPJ
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	360	U
11104-28-2	Aroclor-1221	740	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	1500	D
11096-82-5	Aroclor-1260	360	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ10

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.05

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	2.9	P
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.7	U
72-55-9	4,4'-DDE	4.7	P
72-20-8	Endrin	19	
33213-65-9	Endosulfan II	9.9	
72-54-8	4,4'-DDD	5.6	P
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	7.7	P
72-43-5	Methoxychlor	34	P
53494-70-5	Endrin ketone	8.6	P
7421-93-4	Endrin aldehyde	9.9	P
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	75	U
11141-16-5	Aroclor-1232	37	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	82	~~P~~ JN
11096-82-5	Aroclor-1260	37	U

ONLY PCB DATA WERE EVALUATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ10DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.05DL

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

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	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	37	U
72-55-9	4,4'-DDE	37	U
72-20-8	Endrin	37	U
33213-65-9	Endosulfan II	37	U
72-54-8	4,4'-DDD	37	U
1031-07-8	Endosulfan sulfate	37	U
50-29-3	4,4'-DDT	37	U
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	37	U
7421-93-4	Endrin aldehyde	36	DPJ
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	370	U
11104-28-2	Aroclor-1221	750	U
11141-16-5	Aroclor-1232	370	U
53469-21-9	Aroclor-1242	370	U
12672-29-6	Aroclor-1248	370	U
11097-69-1	Aroclor-1254	100	DJP JN
11096-82-5	Aroclor-1260	370	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ11

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.06

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	3.1	P
58-89-9	gamma-BHC (Lindane)	0.82	PJ
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.4	PJ
1024-57-3	Heptachlor epoxide	7.9	P
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	10	P
72-55-9	4,4'-DDE	14	P
72-20-8	Endrin	13	P
33213-65-9	Endosulfan II	10	P
72-54-8	4,4'-DDD	9.8	P
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	22	P
72-43-5	Methoxychlor	14	PJ
53494-70-5	Endrin ketone	3.7	U
7421-93-4	Endrin aldehyde	8.6	P
5103-71-9	alpha-Chlordane	1.7	PJ
5103-74-2	gamma-Chlordane	1.7	PJ
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	76	U
11141-16-5	Aroclor-1232	37	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	480	
11096-82-5	Aroclor-1260	37	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ11DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.06DL

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	10	DPJ
72-55-9	4,4'-DDE	11	DPJ
72-20-8	Endrin	37	U
33213-65-9	Endosulfan II	9.8	DJ
72-54-8	4,4'-DDD	37	U
1031-07-8	Endosulfan sulfate	37	U
50-29-3	4,4'-DDT	19	DPJ
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	37	U
7421-93-4	Endrin aldehyde	25	DPJ
5103-71-9	alpha-Chlordane	7.9	DPJ
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	370	U
11104-28-2	Aroclor-1221	760	U
11141-16-5	Aroclor-1232	370	U
53469-21-9	Aroclor-1242	370	U
12672-29-6	Aroclor-1248	370	U
11097-69-1	Aroclor-1254	510	D
11096-82-5	Aroclor-1260	370	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ12

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.07

Sample wt/vol: 32.1 (g/mL) G Lab File ID: _____

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	P
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	0.70	PJ
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	PJ
72-55-9	4,4'-DDE	5.0	P
72-20-8	Endrin	5.4	P
33213-65-9	Endosulfan II	5.6	
72-54-8	4,4'-DDD	7.8	
1031-07-8	Endosulfan sulfate	3.4	U
50-29-3	4,4'-DDT	8.4	P
72-43-5	Methoxychlor	11	PJ
53494-70-5	Endrin ketone	3.4	U
7421-93-4	Endrin aldehyde	7.1	P
5103-71-9	alpha-Chlordane	0.97	PJ
5103-74-2	gamma-Chlordane	1.2	PJ
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	34	U
11104-28-2	Aroclor-1221	68	U
11141-16-5	Aroclor-1232	34	U
53469-21-9	Aroclor-1242	34	U
12672-29-6	Aroclor-1248	34	U
11097-69-1	Aroclor-1254	150	~~P~~ J
11096-82-5	Aroclor-1260	34	U

ONY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ12DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.07DL

Sample wt/vol: 32.1 (g/mL) G Lab File ID: _____

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	17	U
319-85-7	beta-BHC	17	U
319-86-8	delta-BHC	17	U
58-89-9	gamma-BHC (Lindane)	17	U
76-44-8	Heptachlor	17	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
959-98-8	Endosulfan I	17	U
60-57-1	Dieldrin	34	U
72-55-9	4,4'-DDE	34	U
72-20-8	Endrin	34	U
33213-65-9	Endosulfan II	34	U
72-54-8	4,4'-DDD	34	U
1031-07-8	Endosulfan sulfate	34	U
50-29-3	4,4'-DDT	34	U
72-43-5	Methoxychlor	170	U
53494-70-5	Endrin ketone	34	U
7421-93-4	Endrin aldehyde	34	U
5103-71-9	alpha-Chlordane	17	U
5103-74-2	gamma-Chlordane	17	U
8001-35-2	Toxaphene	1700	U
12674-11-2	Aroclor-1016	340	U
11104-28-2	Aroclor-1221	680	U
11141-16-5	Aroclor-1232	340	U
53469-21-9	Aroclor-1242	340	U
12672-29-6	Aroclor-1248	340	U
11097-69-1	Aroclor-1254	160	DJ
11096-82-5	Aroclor-1260	340	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ13

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.08

Sample wt/vol: 32.5 (g/mL) G Lab File ID: _____

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	12	P
58-89-9	gamma-BHC (Lindane)	0.92	PJ
76-44-8	Heptachlor	1.2	PJ
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.6	PJ
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	13	P
72-55-9	4,4'-DDE	38	P
72-20-8	Endrin	17	P
33213-65-9	Endosulfan II	12	P
72-54-8	4,4'-DDD	11	P
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	30	P
72-43-5	Methoxychlor	11	PJ
53494-70-5	Endrin ketone	3.5	U
7421-93-4	Endrin aldehyde	11	P
5103-71-9	alpha-Chlordane	3.5	P
5103-74-2	gamma-Chlordane	1.7	PJ
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	540	
11096-82-5	Aroclor-1260	35	U

ONLY TCL DATA WERE VALIDATED

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ13DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.08DL

Sample wt/vol: 32.5 (g/mL) G Lab File ID: _____

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

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	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	13	DPJ
72-55-9	4,4'-DDE	27	DPJ
72-20-8	Endrin	35	U
33213-65-9	Endosulfan II	14	DPJ
72-54-8	4,4'-DDD	35	U
1031-07-8	Endosulfan sulfate	35	U
50-29-3	4,4'-DDT	34	DPJ
72-43-5	Methoxychlor	26	DPJ
53494-70-5	Endrin ketone	35	U
7421-93-4	Endrin aldehyde	13	DPJ
5103-71-9	alpha-Chlordane	18	U
5103-74-2	gamma-Chlordane	20	D
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	610	D
11096-82-5	Aroclor-1260	350	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ14

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.09

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 6 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	10	P
58-89-9	gamma-BHC (Lindane)	1.8	U
76-44-8	Heptachlor	0.89	PJ
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	3.5	P
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	4.0	P
72-55-9	4,4'-DDE	29	
72-20-8	Endrin	25	
33213-65-9	Endosulfan II	8.1	P
72-54-8	4,4'-DDD	15	P
1031-07-8	Endosulfan sulfate	3.4	U
50-29-3	4,4'-DDT	28	P
72-43-5	Methoxychlor	46	P
53494-70-5	Endrin ketone	3.4	U
7421-93-4	Endrin aldehyde	16	
5103-71-9	alpha-Chlordane	2.1	P
5103-74-2	gamma-Chlordane	3.3	P
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	34	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	34	U
53469-21-9	Aroclor-1242	34	U
12672-29-6	Aroclor-1248	34	U
11097-69-1	Aroclor-1254	120	~~R~~ JN
11096-82-5	Aroclor-1260	34	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ14DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.09DL

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 6 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	8.7	DPJ
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	34	U
72-55-9	4,4'-DDE	20	DJ
72-20-8	Endrin	24	DJ
33213-65-9	Endosulfan II	34	U
72-54-8	4,4'-DDD	34	U
1031-07-8	Endosulfan sulfate	34	U
50-29-3	4,4'-DDT	29	DPJ
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	34	U
7421-93-4	Endrin aldehyde	20	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	340	U
11104-28-2	Aroclor-1221	690	U
11141-16-5	Aroclor-1232	340	U
53469-21-9	Aroclor-1242	340	U
12672-29-6	Aroclor-1248	340	U
11097-69-1	Aroclor-1254	160	DJR
11096-82-5	Aroclor-1260	340	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ15

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.10

Sample wt/vol: 31.0 (g/mL) G Lab File ID: _____

% Moisture: 10 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/02/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	1.3	PJ
58-89-9	gamma-BHC (Lindane)	1.8	U
76-44-8	Heptachlor	0.83	J
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.6	PJ
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	4.3	P
72-55-9	4,4'-DDE	7.9	
72-20-8	Endrin	24	
33213-65-9	Endosulfan II	5.7	P
72-54-8	4,4'-DDD	8.2	
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	13	P
72-43-5	Methoxychlor	26	P
53494-70-5	Endrin ketone	3.5	U
7421-93-4	Endrin aldehyde	14	P
5103-71-9	alpha-Chlordane	1.2	PJ
5103-74-2	gamma-Chlordane	1.4	PJ
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	72	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	170	~~P~~ J
11096-82-5	Aroclor-1260	35	U

ONLY PCB DATA WERE VALIDATED

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ15DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.10DL

Sample wt/vol: 31.0 (g/mL) G Lab File ID: _____

% Moisture: 10 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	14	DJ
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	35	U
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	35	U
7421-93-4	Endrin aldehyde	38	DP
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	720	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	270	DJ
11096-82-5	Aroclor-1260	350	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ16

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.11

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

% Moisture: 9 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 07/02/99

Injection Volume: 0.5 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	1.9	P
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	1.9	PJ
72-55-9	4,4'-DDE	5.2	
72-20-8	Endrin	17	P
33213-65-9	Endosulfan II	3.7	P
72-54-8	4,4'-DDD	7.5	P
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	12	P
72-43-5	Methoxychlor	24	P
53494-70-5	Endrin ketone	3.5	U
7421-93-4	Endrin aldehyde	11	P
5103-71-9	alpha-Chlordane	2.6	
5103-74-2	gamma-Chlordane	1.5	PJ
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	72	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	120	~~R~~ J
11096-82-5	Aroclor-1260	35	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Do Not Use

BWZ16DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.11DL

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

% Moisture: 9 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/01/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	11	DPJ
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	35	U
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	35	U
7421-93-4	Endrin aldehyde	28	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	350	U
11104-28-2	Aroclor-1221	720	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	200	DJ
11096-82-5	Aroclor-1260	350	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ17

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.12

Sample wt/vol: 32.9 (g/mL) G Lab File ID: _____

% Moisture: 11 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	8.5	P
959-98-8	Endosulfan I	1.0	PJ
60-57-1	Dieldrin	22	P
72-55-9	4,4'-DDE	20	P
72-20-8	Endrin	14	
33213-65-9	Endosulfan II	4.8	P
72-54-8	4,4'-DDD	3.4	U
1031-07-8	Endosulfan sulfate	3.4	U
50-29-3	4,4'-DDT	140	E
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.4	U
7421-93-4	Endrin aldehyde	5.2	P
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	17	P
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	34	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	34	U
53469-21-9	Aroclor-1242	34	U
12672-29-6	Aroclor-1248	34	U
11097-69-1	Aroclor-1254	310	
11096-82-5	Aroclor-1260	34	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ17DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.12DL

Sample wt/vol: 32.9 (g/mL) G Lab File ID: _____

% Moisture: 11 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 07/03/99

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	17	U
319-85-7	beta-BHC	17	U
319-86-8	delta-BHC	17	U
58-89-9	gamma-BHC (Lindane)	17	U
76-44-8	Heptachlor	17	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
959-98-8	Endosulfan I	17	U
60-57-1	Dieldrin	26	DPJ
72-55-9	4,4'-DDE	20	DPJ
72-20-8	Endrin	34	U
33213-65-9	Endosulfan II	34	U
72-54-8	4,4'-DDD	34	U
1031-07-8	Endosulfan sulfate	34	U
50-29-3	4,4'-DDT	160	D
72-43-5	Methoxychlor	170	U
53494-70-5	Endrin ketone	34	U
7421-93-4	Endrin aldehyde	34	U
5103-71-9	alpha-Chlordane	17	U
5103-74-2	gamma-Chlordane	19	DP
8001-35-2	Toxaphene	1700	U
12674-11-2	Aroclor-1016	340	U
11104-28-2	Aroclor-1221	690	U
11141-16-5	Aroclor-1232	340	U
53469-21-9	Aroclor-1242	340	U
12672-29-6	Aroclor-1248	340	U
11097-69-1	Aroclor-1254	340	D
11096-82-5	Aroclor-1260	340	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ18

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.13

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	12	P
72-55-9	4,4'-DDE	3.6	U
72-20-8	Endrin	3.6	U
33213-65-9	Endosulfan II	3.6	U
72-54-8	4,4'-DDD	3.6	U
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	34	
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	7.6	P
5103-71-9	alpha-Chlordane	2.1	P
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	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	84	
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ18DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.13DL

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	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	39	D
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	36	U
7421-93-4	Endrin aldehyde	36	U
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	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	110	DJP
11096-82-5	Aroclor-1260	360	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ19

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.14

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

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	4.4	P
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	14	P
72-55-9	4,4'-DDE	13	P
72-20-8	Endrin	7.6	P
33213-65-9	Endosulfan II	7.4	P
72-54-8	4,4'-DDD	3.6	U
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	64	E
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	3.6	U
5103-71-9	alpha-Chlordane	2.0	P
5103-74-2	gamma-Chlordane	14	
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	36	U
11104-28-2	Aroclor-1221	72	U
11141-16-5	Aroclor-1232	36	U
53469-21-9	Aroclor-1242	36	U
12672-29-6	Aroclor-1248	210	~~P~~ J
11097-69-1	Aroclor-1254	170	
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ19DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.14DL

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

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	67	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	720	U
11141-16-5	Aroclor-1232	360	U
53469-21-9	Aroclor-1242	360	U
12672-29-6	Aroclor-1248	230	DJ
11097-69-1	Aroclor-1254	180	DJ
11096-82-5	Aroclor-1260	360	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ20

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.15

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	8.2	P
959-98-8	Endosulfan I	2.2	P
60-57-1	Dieldrin	30	P
72-55-9	4,4'-DDE	36	
72-20-8	Endrin	8.8	P
33213-65-9	Endosulfan II	5.6	P
72-54-8	4,4'-DDD	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	100	E
72-43-5	Methoxychlor	7.1	PJ
53494-70-5	Endrin ketone	3.8	U
7421-93-4	Endrin aldehyde	2.8	PJ
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	23	P
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	76	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	380	
11096-82-5	Aroclor-1260	38	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

DO NOT USE

EPA SAMPLE NO.

BWZ20DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.15DL

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

% Moisture: 12 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	46	DP
72-55-9	4,4'-DDE	38	D
72-20-8	Endrin	38	U
33213-65-9	Endosulfan II	38	U
72-54-8	4,4'-DDD	38	U
1031-07-8	Endosulfan sulfate	38	U
50-29-3	4,4'-DDT	130	D
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	38	U
7421-93-4	Endrin aldehyde	38	U
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	25	DP
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	380	U
11104-28-2	Aroclor-1221	760	U
11141-16-5	Aroclor-1232	380	U
53469-21-9	Aroclor-1242	380	U
12672-29-6	Aroclor-1248	380	U
11097-69-1	Aroclor-1254	460	D
11096-82-5	Aroclor-1260	380	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ21

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.16

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

% Moisture: 7 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	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	6.6	P
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	18	P
72-55-9	4,4'-DDE	98	E
72-20-8	Endrin	11	
33213-65-9	Endosulfan II	4.7	P
72-54-8	4,4'-DDD	16	P
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	84	PE
72-43-5	Methoxychlor	44	P
53494-70-5	Endrin ketone	12	P
7421-93-4	Endrin aldehyde	11	P
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	14	
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	72	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	190	~~P~~ J
11096-82-5	Aroclor-1260	35	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ21DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.16DL

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

% Moisture: 7 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	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	20	DPJ
72-55-9	4,4'-DDE	76	D
72-20-8	Endrin	35	U
33213-65-9	Endosulfan II	35	U
72-54-8	4,4'-DDD	16	DPJ
1031-07-8	Endosulfan sulfate	35	U
50-29-3	4,4'-DDT	84	DP
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	18	DPJ
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	720	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	280	DJ
11096-82-5	Aroclor-1260	350	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ22

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.17

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

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

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	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	6.5	P
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	19	P
72-55-9	4,4'-DDE	13	P
72-20-8	Endrin	9.8	P
33213-65-9	Endosulfan II	3.9	P
72-54-8	4,4'-DDD	3.5	U
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	94	E
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	7.4	P
7421-93-4	Endrin aldehyde	8.1	P
5103-71-9	alpha-Chlordane	2.1	P
5103-74-2	gamma-Chlordane	15	
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	71	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	200	
11096-82-5	Aroclor-1260	35	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ22DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.17DL

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

% Moisture: 8 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

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	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	5.4	DPJ
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	100	D
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	15	DJ
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	350	U
11104-28-2	Aroclor-1221	710	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	240	DJ
11096-82-5	Aroclor-1260	350	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ23

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.18

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	26	P
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	190	P
959-98-8	Endosulfan I	56	P
60-57-1	Dieldrin	390	P
72-55-9	4,4'-DDE	230	
72-20-8	Endrin	190	P
33213-65-9	Endosulfan II	39	P
72-54-8	4,4'-DDD	38	U
1031-07-8	Endosulfan sulfate	38	U
50-29-3	4,4'-DDT	1300	E
72-43-5	Methoxychlor	200	U
53494-70-5	Endrin ketone	160	
7421-93-4	Endrin aldehyde	48	P
5103-71-9	alpha-Chlordane	81	
5103-74-2	gamma-Chlordane	390	E
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	380	U
11104-28-2	Aroclor-1221	780	U
11141-16-5	Aroclor-1232	380	U
53469-21-9	Aroclor-1242	380	U
12672-29-6	Aroclor-1248	380	U
11097-69-1	Aroclor-1254	5500	
11096-82-5	Aroclor-1260	380	U

ONLY PCB DATA WERE VALIDATED

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ23DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.18DL

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	DP
959-98-8	Endosulfan I	200	U
60-57-1	Dieldrin	460	DP
72-55-9	4,4'-DDE	220	DPJ
72-20-8	Endrin	380	U
33213-65-9	Endosulfan II	380	U
72-54-8	4,4'-DDD	380	U
1031-07-8	Endosulfan sulfate	380	U
50-29-3	4,4'-DDT	1300	D
72-43-5	Methoxychlor	2000	U
53494-70-5	Endrin ketone	380	U
7421-93-4	Endrin aldehyde	380	U
5103-71-9	alpha-Chlordane	85	DPJ
5103-74-2	gamma-Chlordane	400	DP
8001-35-2	Toxaphene	20000	U
12674-11-2	Aroclor-1016	3800	U
11104-28-2	Aroclor-1221	7800	U
11141-16-5	Aroclor-1232	3800	U
53469-21-9	Aroclor-1242	3800	U
12672-29-6	Aroclor-1248	3800	U
11097-69-1	Aroclor-1254	5700	D
11096-82-5	Aroclor-1260	3800	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ24

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.19

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

% Moisture: 14 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	42	P
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	220	P
959-98-8	Endosulfan I	68	P
60-57-1	Dieldrin	450	P
72-55-9	4,4'-DDE	240	
72-20-8	Endrin	210	P
33213-65-9	Endosulfan II	49	P
72-54-8	4,4'-DDD	38	U
1031-07-8	Endosulfan sulfate	38	U
50-29-3	4,4'-DDT	1400	E
72-43-5	Methoxychlor	200	U
53494-70-5	Endrin ketone	160	
7421-93-4	Endrin aldehyde	54	P
5103-71-9	alpha-Chlordane	92	
5103-74-2	gamma-Chlordane	460	E
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	380	U
11104-28-2	Aroclor-1221	770	U
11141-16-5	Aroclor-1232	380	U
53469-21-9	Aroclor-1242	380	U
12672-29-6	Aroclor-1248	380	U
11097-69-1	Aroclor-1254	6300	
11096-82-5	Aroclor-1260	380	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ24DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.19DL

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

% Moisture: 14 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	260	DP
959-98-8	Endosulfan I	200	U
60-57-1	Dieldrin	720	DP
72-55-9	4,4'-DDE	320	DJ
72-20-8	Endrin	380	U
33213-65-9	Endosulfan II	550	D
72-54-8	4,4'-DDD	380	U
1031-07-8	Endosulfan sulfate	380	U
50-29-3	4,4'-DDT	1500	DP
72-43-5	Methoxychlor	2000	U
53494-70-5	Endrin ketone	380	U
7421-93-4	Endrin aldehyde	370	DPJ
5103-71-9	alpha-Chlordane	140	DPJ
5103-74-2	gamma-Chlordane	650	D
8001-35-2	Toxaphene	20000	U
12674-11-2	Aroclor-1016	3800	U
11104-28-2	Aroclor-1221	7700	U
11141-16-5	Aroclor-1232	3800	U
53469-21-9	Aroclor-1242	3800	U
12672-29-6	Aroclor-1248	3800	U
11097-69-1	Aroclor-1254	7300	DP
11096-82-5	Aroclor-1260	3800	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ25

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.20

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

% Moisture: 20 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 07/03/99

Injection Volume: 0.5 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.9	P
319-85-7	beta-BHC	2.1	U
319-86-8	delta-BHC	6.8	P
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	49	PE
959-98-8	Endosulfan I	22	P
60-57-1	Dieldrin	120	PE
72-55-9	4,4'-DDE	100	E
72-20-8	Endrin	54	P
33213-65-9	Endosulfan II	25	P
72-54-8	4,4'-DDD	4.1	U
1031-07-8	Endosulfan sulfate	4.1	U
50-29-3	4,4'-DDT	440	E
72-43-5	Methoxychlor	140	P
53494-70-5	Endrin ketone	4.1	U
7421-93-4	Endrin aldehyde	26	P
5103-71-9	alpha-Chlordane	57	PE
5103-74-2	gamma-Chlordane	50	PE
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	41	U
11104-28-2	Aroclor-1221	84	U
11141-16-5	Aroclor-1232	41	U
53469-21-9	Aroclor-1242	41	U
12672-29-6	Aroclor-1248	41	U
11097-69-1	Aroclor-1254	1600	
11096-82-5	Aroclor-1260	41	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ25DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BWZ06

Matrix: (soil/water) SOIL Lab Sample ID: 39092.20DL

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

% Moisture: 20 decanted: (Y/N) N Date Received: 06/22/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/22/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/03/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.8 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	58	DP
959-98-8	Endosulfan I	30	DP
60-57-1	Dieldrin	170	DP
72-55-9	4,4'-DDE	100	D
72-20-8	Endrin	67	DP
33213-65-9	Endosulfan II	36	DPJ
72-54-8	4,4'-DDD	41	U
1031-07-8	Endosulfan sulfate	41	U
50-29-3	4,4'-DDT	520	DP
72-43-5	Methoxychlor	210	U
53494-70-5	Endrin ketone	41	U
7421-93-4	Endrin aldehyde	47	DP
5103-71-9	alpha-Chlordane	52	DP
5103-74-2	gamma-Chlordane	170	D
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	2000	D
11096-82-5	Aroclor-1260	410	U

RECORD OF COMMUNICATION

TO: Mike MAHNKOPS

FROM: *JANET TROTTER*
Region II ESAT/RSCC

DATE: July 22, 1999

SUBJECT: QUALITY ASSURED DATA

MESSAGE * SDG # BXA01

PLEASE SIGN BELOW IN ACKNOWLEDGEMENT OF RECEIPT OF THE FOLLOWING AND RETURN ONE COPY OF THIS RECORD OF COMMUNICATION TO THE RSCC-REGION II.

(1) Cornell Dubilier 27133 Swok Chg 20 soils

REPLY BY: _____

SIGNATURE: _____ DATE: _____

DATE RECEIVED BY RSCC: ____/____/____

cc: EPA TASK MONITOR
ESAT, MANAGER
file

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

RECEIVED
JUL 21 1999

DATE: JULY 15, 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# BXA01
CONTRACTOR	START W	#SAMPLES	MATRIX
PHASE	SI	20	SOIL
LAB	SWOK		
TURN-AROUND-TIME	14 DAYS	FRACTION	PCBs
CERCLIS ID #	NJD 981557879	SITE SPILL #	GZ

REGION II RSCC DATA TRANSFER LOG

Relinquished By		Received By	
Signature	Date/Time	Signature	Date/Time
		John Baliely	7-14-99
John Baliely	7-15-99	[illegible]	7/16/99
[illegible]	7/20/99	[illegible]	7/20/99
[illegible]	7/20/99	[illegible]	7/20/99
[illegible]	7/20/99		

(over for instructions) revised 3/99

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 27133 **SDG No.:** BXA01 **LABORATORY:** SWOK

SITE: Cornell-Dublier

DATA ASSESSMENT

The current SOP HW-6 (Revision 11) June 1996, USEPA Region II Data Validation SOP for Statement of Work OLMO3.2 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 at an estimated value) flag. All action is detailed on the attached sheets.

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

Reviewer's Signature: _____ **Date** 7/19/99

Verified By: _____ **Date** __/__/__

CLP DATA ASSESSMENT

1. HOLDING TIME:

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

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

Technical and contractual holding times were met.

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.

No qualification of the data was necessary.

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

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

No qualification of the data was necessary.

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

CLP DATA ASSESSMENT

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" (or "R" where indicated) for these reasons:

A) Method blank contamination:

No problems.

5. CALIBRATION:

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

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

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

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

No qualification of the PCB data was necessary.

6. COMPOUND IDENTIFICATION:

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

CLP DATA ASSESSMENT

concentration exceeds 10ng/ml in the final sample extract.

a. %Difference (dual column):

See attached CADRE Quantitation Limit Report for a list of samples qualified for this criteria.

7. CONTRACT PROBLEMS NON-COMPLIANCE:

a. Dilutions Not Required:

BWZ64DL, BWZ65DL, BWZ66DL, BWZ68DL, BXA04DL, BXA05DL, BXA06DL, BXA07DL, BXA08DL, BXA11DL, BXA12DL, BXA13DL, BXA14DL, BXA15DL, BXA16DL- These analyses were not required, as the initial samples did not contain any hits exceeding the initial calibration range (SOW Sec. 10.2.3.6, page D-60/PEST).

b. Initial Analysis Too Dilute:

BWZ66, BWZ68, BXA01, - Each of these samples were analyzed at a ten-fold dilution; however, there were no target analytes on either column exceeding the initial calibration range (SOW Sec. 10.2.3.2, page D-59/PEST)."

8. FIELD DOCUMENTATION:

9. OTHER PROBLEMS:

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

BXA09DL, BXA10DL - The corresponding undiluted analyses were used, instead.

BWZ64DL, BWZ65DL, BWZ66DL, BWZ68DL, BXA04DL, BXA05DL, BXA06DL, BXA07DL, BXA08DL, BXA11DL, BXA12DL, BXA13DL, BXA14DL, BXA15DL, BXA16DL - These analyses were not required, as the initial samples did not contain any hits exceeding the intial calibration range.

Quantitation Limit Report

SDG NO: **BXA01** LABORATORY: **SWL-TULSA**
CASE NO: **27133** AGENCY INPUT FILE: **BXA01.ASF**

4,4'-DDT

BXA15DL
gamma-BHC (Lindane)

BXA16DL
gamma-BHC (Lindane)

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."

BWZ64
Endosulfan sulfate

BWZ64DL
Endosulfan sulfate

BWZ65DL
Endrin aldehyde

BWZ68
Methoxychlor

BWZ68DL
alpha-Chlordane, gamma-Chlordane

BXA01
4,4'-DDT, gamma-Chlordane

BXA02
4,4'-DDT, gamma-Chlordane, Aroclor-1254 – J
BXA02DL: Ar-1254 – J
BXA03
Aroclor-1254 – J
BXA03DL: Ar-1254 – J
BXA04
Endrin, 4,4'-DDT, Ar-1254 – J

BXA04DL
Endosulfan II, 4,4'-DDT, Endrin ketone, Ar-1254 – J

BXA05
Endrin, Endosulfan II, Endrin aldehyde, Ar-1254 – J

4B

Quantitation Limit Report

SDG NO: BXA01
CASE NO: 27133

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BXA01.ASF

BXA05DL
4,4'-DDT

BXA05MS
Endrin, Ar-1254 - J

BXA05MSD
Endrin ketone, Ar-1254 - J

BXA06
Endrin, Endosulfan II, 4,4'-DDT, Methoxychlor, Ar-1254 - J

BXA06DL
Endrin, Endosulfan II, 4,4'-DDT, Ar-1254 - J

BXA07
Endrin, 4,4'-DDT, Ar-1254 - J

BXA07DL
Endrin, Endosulfan II, 4,4'-DDT, Ar-1254 - J

BXA09
4,4'-DDE, 4,4'-DDT, Endrin ketone, Ar-1254 - J

BXA09DL
4,4'-DDE, 4,4'-DDT, Ar-1254 - J

BXA10
4,4'-DDT, Endrin aldehyde

BXA10DL
Endrin, 4,4'-DDT, gamma-Chlordane

BXA11
Endrin, Ar-1254 - J

BXA11DL
Endrin, 4,4'-DDT

BXA12
4,4'-DDT, Endrin aldehyde, Ar-1254 - J

BXA12DL
Endosulfan II, 4,4'-DDT, Ar-1254 - J

~~BXA14~~
BXA15DL: Ar-1254 - J

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 27133 **SDG No.:** BXA01 **LABORATORY:** SWOK

SITE: Cornell-Dublier

DATA ASSESSMENT

The current SOP HW-6 (Revision 11) June 1996, USEPA Region II Data Validation SOP for Statement of Work OLMO3.2 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 at an estimated value) flag. All action is detailed on the attached sheets.

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

Reviewer's Signature: _____ Date 7/19/99

Verified By: _____ Date __/__/__

CLP DATA ASSESSMENT

1. HOLDING TIME:

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

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

Technical and contractual holding times were met.

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.

No qualification of the data was necessary.

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

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

No qualification of the data was necessary.

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

CLP DATA ASSESSMENT

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" (or "R" where indicated) for these reasons:

A) Method blank contamination:

No problems.

5. CALIBRATION:

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

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

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

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

No qualification of the PCB data was necessary.

6. COMPOUND IDENTIFICATION:

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

CLP DATA ASSESSMENT

concentration exceeds 10ng/ml in the final sample extract.

a. %Difference (dual column):

See attached CADRE Quantitation Limit Report for a list of samples qualified for this criteria.

7. CONTRACT PROBLEMS NON-COMPLIANCE:

a. Dilutions Not Required:

BWZ64DL, BWZ65DL, BWZ66DL, BWZ68DL, BXA04DL, BXA05DL, BXA06DL, BXA07DL, BXA08DL, BXA11DL, BXA12DL, BXA13DL, BXA14DL, BXA15DL, BXA16DL- These analyses were not required, as the initial samples did not contain any hits exceeding the initial calibration range (SOW Sec. 10.2.3.6, page D-60/PEST).

b. Initial Analysis Too Dilute:

BWZ66, BWZ68, BXA01, - Each of these samples were analyzed at a ten-fold dilution; however, there were no target analytes on either column exceeding the initial calibration range (SOW Sec. 10.2.3.2, page D-59/PEST)."

8. FIELD DOCUMENTATION:

9. OTHER PROBLEMS:

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

BXA09DL, BXA10DL - The corresponding undiluted analyses were used, instead.

BWZ64DL, BWZ65DL, BWZ66DL, BWZ68DL, BXA04DL, BXA05DL, BXA06DL, BXA07DL, BXA08DL, BXA11DL, BXA12DL, BXA13DL, BXA14DL, BXA15DL, BXA16DL - These analyses were not required, as the initial samples did not contain any hits exceeding the intial calibration range.

Quantitation Limit Report

SDG NO: BXA01 LABORATORY: SWL-TULSA
CASE NO: 27133 AGENCY INPUT FILE: BXA01.ASF

4,4'-DDT

BXA15DL
gamma-BHC (Lindane)

BXA16DL
gamma-BHC (Lindane)

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."

BWZ64
Endosulfan sulfate

BWZ64DL
Endosulfan sulfate

BWZ65DL
Endrin aldehyde

BWZ68
Methoxychlor

BWZ68DL
alpha-Chlordane, gamma-Chlordane

BXA01
4,4'-DDT, gamma-Chlordane

BXA02
4,4'-DDT, gamma-Chlordane, Aroclor-1254 - J
BXA02DL: Ar-1254 - J
BXA03
Aroclor-1254 - J
BXA03DL: Ar-1254 - J
BXA04
Endrin, 4,4'-DDT, Ar-1254 - J

BXA04DL
Endosulfan II, 4,4'-DDT, Endrin ketone, Ar-1254 - J

BXA05
Endrin, Endosulfan II, Endrin aldehyde, Ar-1254 - J

4B

BXA05DL
4,4'-DDT

BXA05MS
Endrin, Ar-1254 - J

BXA05MSD
Endrin ketone, Ar-1254 - J

BXA06
Endrin, Endosulfan II, 4,4'-DDT, Methoxychlor, Ar-1254 - J

BXA06DL
Endrin, Endosulfan II, 4,4'-DDT, Ar-1254 - J

BXA07
Endrin, 4,4'-DDT, Ar-1254 - J

BXA07DL
Endrin, Endosulfan II, 4,4'-DDT, Ar-1254 - J

BXA09
4,4'-DDE, 4,4'-DDT, Endrin ketone, Ar-1254 - J

BXA09DL
4,4'-DDE, 4,4'-DDT, Ar-1254 - J

BXA10
4,4'-DDT, Endrin aldehyde

BXA10DL
Endrin, 4,4'-DDT, gamma-Chlordane

BXA11
Endrin, Ar-1254 - J

BXA11DL
Endrin, 4,4'-DDT

BXA12
4,4'-DDT, Endrin aldehyde, Ar-1254 - J

BXA12DL
Endosulfan II, 4,4'-DDT, Ar-1254 - J

~~BXA14~~
BXA15DL: Ar-1254 - J

DPO: [X]ACTION [ ]FYI REGION II

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO.: 27133 LABORATORY: SWOK

SDG NO.: BXA01 DATA USER: EPA Region II

SOW: OLM03.2 REVIEW COMPLETION DATE: 7/19/99

NO. OF SAMPLES: ___ WATER 20 SOIL ___ OTHER

REVIEWER: [ ] ESD [X] ESAT [ ] OTHER, CONTRACTOR: _____

QC ITEM	PEST	
HOLDING TIMES	O	
GC-MS PERFORMANCE	NA	
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)	NA	
INTERNAL STANDARDS	NA	
COMPOUND IDENTIFICATION	X	
COMPOUND QUANTITATION	O	
SYSTEM PERFORMANCE	O	
OVERALL ASSESSMENT	X	

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.

DPO ACTION ITEMS:

SWOK continues to dilute samples unnecessarily. In some cases, the initial analysis was diluted 10:1, without any target hits exceeding the initial calibration range. In these cases, a more concentrated (i.e., undiluted) analysis was required, but not performed.

AREAS OF CONCERN:

DATA REJECTION SUMMARY

Type of Review: Organic **Date:** 7/19/99 **Case/SDG No.:** 27133/BXA01

Site Name: Cornell-Dublier **Lab Name:** SWOK

Reviewer's Initials: **Number of Samples, including REs, DLs and QC:** 43

Analytes Rejected Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0/0	=	?? %
ACID(14)									0/0	=	?? %
B/N(50)									0/0	=	?? %
PEST(21)									0/0	=	?? %
PCB(7)								43	0/301	=	0.0 %

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

Analytes Estimated Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0/0	=	?? %
ACID(14)									0/0	=	?? %
B/N(50)									0/0	=	?? %
PEST(21)									0/0	=	?? %
PCB(7)					19			43	19/301	=	6.3 %

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

DPO: [X]ACTION [ ]FYI REGION II

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO.: 27133 LABORATORY: SWOK

SDG NO.: BXA01 DATA USER: EPA Region II

SOW: OLM03.2 REVIEW COMPLETION DATE: 7/19/99

NO. OF SAMPLES: ___ WATER 20 SOIL ___ OTHER

REVIEWER: [ ] ESD [X] ESAT [ ] OTHER, CONTRACTOR: _____

QC ITEM	PEST	
HOLDING TIMES	O	
GC-MS PERFORMANCE	NA	
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)	NA	
INTERNAL STANDARDS	NA	
COMPOUND IDENTIFICATION	X	
COMPOUND QUANTITATION	O	
SYSTEM PERFORMANCE	O	
OVERALL ASSESSMENT	X	

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.

DPO ACTION ITEMS:

SWOK continues to dilute samples unnecessarily. In some cases, the initial analysis was diluted 10:1, without any target hits exceeding the initial calibration range. In these cases, a more concentrated (i.e., undiluted) analysis was required, but not performed.

AREAS OF CONCERN:

DATA REJECTION SUMMARY

Type of Review: Organic **Date:** 7/19/99 **Case/SDG No.:** 27133/BXA01

Site Name: Cornell-Dublier **Lab Name:** SWOK

Reviewer's Initials: **Number of Samples, including REs, DLs and QC:** 43

Analytes Rejected Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0/0	=	?? %
ACID(14)									0/0	=	?? %
B/N(50)									0/0	=	?? %
PEST(21)									0/0	=	?? %
PCB(7)								43	0/301	=	0.0 %

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

Analytes Estimated Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0/0	=	?? %
ACID(14)									0/0	=	?? %
B/N(50)									0/0	=	?? %
PEST(21)									0/0	=	?? %
PCB(7)					19			43	19/301	=	6.3 %

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

DPO: [X]ACTION [ ]FYI REGION II

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO.: 27133 LABORATORY: SWOK

SDG NO.: BXA01 DATA USER: EPA Region II

SOW: OLM03.2 REVIEW COMPLETION DATE: 7/19/99

NO. OF SAMPLES: ___ WATER 20 SOIL ___ OTHER

REVIEWER: [ ] ESD [X] ESAT [ ] OTHER, CONTRACTOR: _____

QC ITEM	PEST	
HOLDING TIMES	O	
GC-MS PERFORMANCE	NA	
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)	NA	
INTERNAL STANDARDS	NA	
COMPOUND IDENTIFICATION	X	
COMPOUND QUANTITATION	O	
SYSTEM PERFORMANCE	O	
OVERALL ASSESSMENT	X	

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.

DPO ACTION ITEMS:

SWOK continues to dilute samples unnecessarily. In some cases, the initial analysis was diluted 10:1, without any target hits exceeding the initial calibration range. In these cases, a more concentrated (i.e., undiluted) analysis was required, but not performed.

AREAS OF CONCERN:

DATA REJECTION SUMMARY

Type of Review: Organic Date: 7/19/99 Case/SDG No.: 27133/BXA01

Site Name: Cornell-Dublier Lab Name: SWOK

Reviewer's Initials: EJ Number of Samples, including REs, DLs and QC: 43

Analytes Rejected Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0/0	=	?? %
ACID(14)									0/0	=	?? %
B/N(50)									0/0	=	?? %
PEST(21)									0/0	=	?? %
PCB(7)								43	0/301	=	0.0 %

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

Analytes Estimated Due to Exceeding Review Criteria For:

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

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Estimated/Total # in All Samples		
VOA(33)									0/0	=	?? %
ACID(14)									0/0	=	?? %
B/N(50)									0/0	=	?? %
PEST(21)									0/0	=	?? %
PCB(7)					19			43	19/301	=	6.3 %

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

CLP DATA ASSESSMENT

7. CONTRACT PROBLEMS NON-COMPLIANCE:

a. Dilutions Not Required:

BWZ64DL, BWZ65DL, BWZ66DL, BWZ68DL, BXA04DL, BXA05DL, BXA06DL, BXA07DL, BXA08DL, BXA11DL, BXA12DL, BXA13DL, BXA14DL, BXA15DL, BXA16DL- These analyses were not required, as the initial samples did not contain any hits exceeding the initial calibration range (SOW Sec. 10.2.3.6, page D-60/PEST).

b. Initial Analysis Too Dilute:

BWZ66, BWZ68, BXA01, - Each of these samples were analyzed at a ten-fold dilution; however, there were no target analytes on either column exceeding the initial calibration range (SOW Sec. 10.2.3.2, page D-59/PEST)."

SOP NO. HW-6

Revision #11

May 1996

CLP ORGANICS DATA REVIEW AND PRELIMINARY REVIEW (CLP/SOW OLMO 3.2)

By: George Karras Date: 6/12/96
George Karras, Work Assignment Manager/Chemist
Toxic and Hazardous Waste Section

By: Karen Taylor Date: 6/17/96
Karen Taylor, Chemist
Toxic and Hazardous Waste Section

CONCURRED BY: Kevin W. Kubik Date: 6/18/96
Kevin Kubik, Chief
Toxic and Hazardous Waste Section

APPROVED BY: Robert M. Runyon Date: 6/18/96
Robert Runyon, Chief
Monitoring Management Branch

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INTRODUCTION

Scope and Applicability

This SOP offers detailed guidance in evaluating laboratory data generated according to the methods in the "USEPA Contract Laboratory Program Statement of Work for Organics Analysis OLM03.2," August 1994. The validation methods and actions discussed in this document are based on the requirements set forth in the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994. This document attempts to cover technical as well as contractual problems specific to each fraction and sample matrix; however, situations may arise where data limitations must be assessed based on the reviewer's professional judgement.

In addition to technical requirements, contractual requirements are also covered in this document. While it is important that instances of contract non-compliance be addressed in the Data Assessment, the technical criteria are always used to qualify the analytical data.

Summary of Method

To ensure a thorough evaluation of each result in a data case, the reviewer must complete the checklist within this SOP, answering specific questions while performing the prescribed "ACTIONS" in each section. Qualifiers (or flags) are applied to questionable or unusable results as instructed. The data qualifiers discussed in this document are defined on page 4 of the National Functional Guidelines mentioned above.

The reviewer must prepare a detailed data assessment to be submitted along with the completed SOP checklist. The Data Assessment must list all data qualifications, reasons for qualifications, instances of missing data and contract non-compliance. This information is further summarized on the Organic Regional Data Assessment Summary and Data Rejection Summary forms (see attached).

CADRE reports, when available, are to be incorporated into the Data Assessment. To generate CADRE reports for a particular SDG, follow the SOP for Validating RAS/CLP Data Cases with MAGIC, CARD and CADRE (see attached).

Reviewer Qualifications

This SOP is intended for use by organic data validators who have successfully completed the USEPA Region II data validation training program. Data reviewers must possess a working knowledge of the USEPA Statement of Work and National Functional Guidelines mentioned above.

DEFINITIONS

Acronyms

BFB - bromofluorobenzene
BHC - benzene hexachloride
BNA - base neutral acid
CADRE - Computer Aided Data Review and Evaluation
CARD - CLP Analytical Results Database
CCS - contract compliance screening
CLASS - Contract Laboratory Analytical Services Support
CLP - Contract Laboratory Program
CRQL - Contract Required Quantitation Limit
%D - percent difference
DCB -decachlorobiphenyl
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenylethane
DDT - dichlorodiphenyltrichloroethane
GC - gas chromatography
GC/EC - gas chromatograph/electron capture detector
GC/MS - gas chromatograph/mass spectrometer
GPC - gel permeation chromatography
IS - internal standard
kg - kilogram
µg - microgram
MAGIC - Mainframe Access Graphical Interface with CARD
MS - matrix spike
MSD - matrix spike duplicate
ℓ - liter
mℓ - mililiter
PCB - polychlorinated biphenyl
PE - performance evaluation
PEM - Performance Evaluation Mixture
QC - quality control
RAS - Routine Analytical Services
RIC - reconstructed ion chromatogram
RPD - relative percent difference
RRF - relative response factor
$\overline{RRF}$ - average relative response factor (from initial calibration)
RRT - relative retention time
RSD - relative standard deviation
RT - retention time
RSCC - Regional Sample Control Center
SDG - sample delivery group
SMC - system monitoring compound
SOP - standard operating procedure
SOW - Statement of Work
SVOA - semivolatile organic acid
TCL - Target Compound List
TCLP - Toxicity Characteristics Leachate Procedure
TCX -tetrachloro-m-xylene
TIC - tentatively identified compound

Acronyms (cont'd.)

TPO - technical project officer
VOA - volatile organic acid
VTSR - validated time of sample receipt
WAM - EPA Work Assignment Manager

Data Qualifiers

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively dienrified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality contrrol criteria. The presence or absence of the analyte cannot be verified.

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 27133 LABORATORY: SWOK

SITE NAME: Cornell-Dubilier SDG Number(s): BXA01

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

	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
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/

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".

ACTION: If samples were not iced, or if the ice was melted upon arrival at the laboratory, and the temperature of the cooler was elevated > 10^0 C, flag all positive results "J" and all non-detects "UJ".

ACTION: Check aqueous extraction log for sample pH, if adjustment was needed, it should have been noted in the SDG Narrative. If more information is needed, notify the 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 reliability of the data and the effects of

YES NO N/A

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
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%.

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

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

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)? [✓] ___ ___

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? [ ] ___ ___

	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
NA out of 12	0 out of 12

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

Water	Soil
NA 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/A
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

	YES	NO	N/A
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
analyte?	___	[✓]	___
6.3 In any instrument blanks, is the concentration of any target hit > 0.5 times CRQL for that analyte (see SOW, section 12.1.4.4.2, 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.

6.4 Do any field/rinse blanks have positive pest/PCB results?	___	[✓]	___

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

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

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

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

If the laboratory has not already done so, the contaminant concentration in soil blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate are used to prepare each soil reagent/method blank as instructed on page D-72/PEST, section 12.1.2.3.1. Ask the WAM

YES NO N/A

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

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

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

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

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

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

7.0 Calibration and GC Performance

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

a. Peak resolution check? [✓] ___ ___

b. Performance evaluation mixtures? [ ] ___ ___

c. Aroclor 1016/1260? [✓] ___ ___

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

e. Toxaphene? [✓] ___ ___

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

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

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

	YES	NO	N/
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/
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/
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/
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/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 <u>both initial and continuing</u> calibrations (see SOW section 3.12.4.4, page B-52)? [ ] ___ ___

	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

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
"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/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 last in-control standard up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses? [✓] ___ ___

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

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
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
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.

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.			
Was the correct identification scheme used for GPC and Florisil blanks?	[✓]	___	___

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	[✓]	___	___

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

	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

% Difference	Qualifier
0 - 25%	None
25 - 70%	"J"
70 - 100%	"JN"
> 100% (No interference)	"R"
100 - 200% (Interference detected)*	"JN"
> 50% (Pesticide value is < CRQL)**	"U"
> 200%	"R"

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

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/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/

13.0 Field Duplicates

13.1 Were any field duplicates submitted? G

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.

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: BXA01

SAMPLES: BXA01, BXA02, BXA03, BXA04, BXA05, BXA06, BXA07, BXA08, BXA09, BXA10, BXA11, BXA12, BXA13, BXA14, BXA15, BXA16, BWZ64, BWZ65, BWZ66, BWZ68, BXA01DL, BXA02DL, BXA03DL, BXA04DL, BXA05DL, BXA06DL, BXA07DL, BXA08DL, BXA09DL, BXA10DL, BXA11DL, BXA12DL, BXA13DL BXA14DL, BXA15DL, BXA16DL, BWZ64DL, BWZ65DL, BWZ66DL, BWZ68DL,

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 dual analytical columns, RTX-PEST and RTX-PEST2 (the phases of both columns are proprietary) or J&W dual analytical columns, DB-17MS and DB-XLB. The DB-17MS phase consists of (50%-Phenyl) Methylpolysiloxane and the DB-XLB is a proprietary phase. 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 3 and 7 ° 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 (except for samples BWZ64, BWZ65, BWZ66, and BWZ68 which were analyzed at a 10X dilution due to the color of the sample extracts) the

samples in this SDG caused breakdown of 4,4'-DDT in the calibration verification standards following their injection. The calibration verification standards analyzed before these samples met OLM03.2 continuing calibration criteria. When diluted 10X (100x for samples BWZ64, BWZ65, BWZ66, and BWZ68) 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. 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 13, 1999

05

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). BXA01 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). BWZ68 Sample Receipt Date: 06/24/99

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

1) BXA01	11) BXA11
2) BXA02	12) BXA12
3) BXA03	13) BXA13
4) BXA04	14) BXA14
5) BXA05	15) BXA15
6) BXA06	16) BXA16
7) BXA07	17) BWZ64
8) BXA08	18) BWZ65
9) BXA09	19) BWZ66
10) BXA10	20) BWZ68

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.

BWZ64

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39129.01

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

% Moisture: 25 decanted: (Y/N) N Date Received: 06/24/99

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	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	160	
72-55-9	4,4'-DDE	130	
72-20-8	Endrin	130	P
33213-65-9	Endosulfan II	51	P
72-54-8	4,4'-DDD	57	P
1031-07-8	Endosulfan sulfate	100	P
50-29-3	4,4'-DDT	59	P
72-43-5	Methoxychlor	52	J
53494-70-5	Endrin ketone	44	U
7421-93-4	Endrin aldehyde	87	P
5103-71-9	alpha-Chlordane	160	P
5103-74-2	gamma-Chlordane	190	P
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	4600	
11096-82-5	Aroclor-1260	440	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ64DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39129.01DL

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

% Moisture: 25 decanted: (Y/N) N Date Received: 06/24/99

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: 5.5 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	190	DPJ
72-55-9	4,4'-DDE	140	DPJ
72-20-8	Endrin	440	U
33213-65-9	Endosulfan II	440	U
72-54-8	4,4'-DDD	440	U
1031-07-8	Endosulfan sulfate	100	DPJ
50-29-3	4,4'-DDT	440	U
72-43-5	Methoxychlor	2200	U
53494-70-5	Endrin ketone	440	U
7421-93-4	Endrin aldehyde	110	DPJ
5103-71-9	alpha-Chlordane	260	D
5103-74-2	gamma-Chlordane	290	DP
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4400	U
11104-28-2	Aroclor-1221	8900	U
11141-16-5	Aroclor-1232	4400	U
53469-21-9	Aroclor-1242	4400	U
12672-29-6	Aroclor-1248	4400	U
11097-69-1	Aroclor-1254	6800	D
11096-82-5	Aroclor-1260	4400	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ65

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39129.02

Sample wt/vol: 31.3 (g/mL) G Lab File ID: _____

% Moisture: 25 decanted: (Y/N) N Date Received: 06/24/99

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	16	PJ
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	170	P
72-55-9	4,4'-DDE	140	
72-20-8	Endrin	140	P
33213-65-9	Endosulfan II	33	PJ
72-54-8	4,4'-DDD	37	PJ
1031-07-8	Endosulfan sulfate	110	
50-29-3	4,4'-DDT	57	P
72-43-5	Methoxychlor	52	PJ
53494-70-5	Endrin ketone	42	U
7421-93-4	Endrin aldehyde	83	P
5103-71-9	alpha-Chlordane	170	P
5103-74-2	gamma-Chlordane	200	P
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	4700	
11096-82-5	Aroclor-1260	420	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ65DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39129.02DL

Sample wt/vol: 31.3 (g/mL) G Lab File ID: _____

% Moisture: 25 decanted: (Y/N) N Date Received: 06/24/99

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	210	DPJ
72-55-9	4,4'-DDE	160	DPJ
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	110	DPJ
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	180	DPJ
5103-71-9	alpha-Chlordane	290	D
5103-74-2	gamma-Chlordane	310	DP
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	7400	D
11096-82-5	Aroclor-1260	4200	U

ONLY PCB DATA WERE VALIDATED.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ66

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39129.03

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

% Moisture: 35 decanted: (Y/N) N Date Received: 06/24/99

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	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	12	PJ
959-98-8	Endosulfan I	26	U
60-57-1	Dieldrin	140	P
72-55-9	4,4'-DDE	110	
72-20-8	Endrin	140	P
33213-65-9	Endosulfan II	37	PJ
72-54-8	4,4'-DDD	41	PJ
1031-07-8	Endosulfan sulfate	100	
50-29-3	4,4'-DDT	51	U
72-43-5	Methoxychlor	49	PJ
53494-70-5	Endrin ketone	51	U
7421-93-4	Endrin aldehyde	84	P
5103-71-9	alpha-Chlordane	180	P
5103-74-2	gamma-Chlordane	180	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	4000	
11096-82-5	Aroclor-1260	510	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ66DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39129.03DL

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

% Moisture: 35 decanted: (Y/N) N Date Received: 06/24/99

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: 5.7 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	170	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	510	U
72-43-5	Methoxychlor	2600	U
53494-70-5	Endrin ketone	510	U
7421-93-4	Endrin aldehyde	100	DPJ
5103-71-9	alpha-Chlordane	300	D
5103-74-2	gamma-Chlordane	270	DP
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	5800	D
11096-82-5	Aroclor-1260	5100	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ68

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39129.05

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

% Moisture: 38 decanted: (Y/N) N Date Received: 06/24/99

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	27	U
319-85-7	beta-BHC	27	U
319-86-8	delta-BHC	27	U
58-89-9	gamma-BHC (Lindane)	27	U
76-44-8	Heptachlor	27	U
309-00-2	Aldrin	27	U
1024-57-3	Heptachlor epoxide	15	PJ
959-98-8	Endosulfan I	27	U
60-57-1	Dieldrin	120	P
72-55-9	4,4'-DDE	100	
72-20-8	Endrin	53	U
33213-65-9	Endosulfan II	33	PJ
72-54-8	4,4'-DDD	38	PJ
1031-07-8	Endosulfan sulfate	79	
50-29-3	4,4'-DDT	120	P
72-43-5	Methoxychlor	51	PJ
53494-70-5	Endrin ketone	53	U
7421-93-4	Endrin aldehyde	42	PJ
5103-71-9	alpha-Chlordane	180	P
5103-74-2	gamma-Chlordane	190	P
8001-35-2	Toxaphene	2700	U
12674-11-2	Aroclor-1016	530	U
11104-28-2	Aroclor-1221	1100	U
11141-16-5	Aroclor-1232	530	U
53469-21-9	Aroclor-1242	530	U
12672-29-6	Aroclor-1248	530	U
11097-69-1	Aroclor-1254	3400	
11096-82-5	Aroclor-1260	530	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BWZ68DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39129.05DL

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

% Moisture: 38 decanted: (Y/N) N Date Received: 06/24/99

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: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	270	U
319-85-7	beta-BHC	270	U
319-86-8	delta-BHC	270	U
58-89-9	gamma-BHC (Lindane)	270	U
76-44-8	Heptachlor	270	U
309-00-2	Aldrin	270	U
1024-57-3	Heptachlor epoxide	270	U
959-98-8	Endosulfan I	270	U
60-57-1	Dieldrin	530	U
72-55-9	4,4'-DDE	530	U
72-20-8	Endrin	530	U
33213-65-9	Endosulfan II	530	U
72-54-8	4,4'-DDD	530	U
1031-07-8	Endosulfan sulfate	530	U
50-29-3	4,4'-DDT	530	U
72-43-5	Methoxychlor	2700	U
53494-70-5	Endrin ketone	530	U
7421-93-4	Endrin aldehyde	530	U
5103-71-9	alpha-Chlordane	220	DPJ
5103-74-2	gamma-Chlordane	260	DPJ
8001-35-2	Toxaphene	27000	U
12674-11-2	Aroclor-1016	5300	U
11104-28-2	Aroclor-1221	11000	U
11141-16-5	Aroclor-1232	5300	U
53469-21-9	Aroclor-1242	5300	U
12672-29-6	Aroclor-1248	5300	U
11097-69-1	Aroclor-1254	5000	DJ
11096-82-5	Aroclor-1260	5300	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA01

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.27

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

% Moisture: 8 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	U
72-55-9	4,4'-DDE	3.6	U
72-20-8	Endrin	3.6	U
33213-65-9	Endosulfan II	3.6	U
72-54-8	4,4'-DDD	3.6	U
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	7.7	P
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	3.6	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	5.0	P
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	36	U
11104-28-2	Aroclor-1221	72	U
11141-16-5	Aroclor-1232	36	U
53469-21-9	Aroclor-1242	36	U
12672-29-6	Aroclor-1248	36	U
11097-69-1	Aroclor-1254	36	U
11096-82-5	Aroclor-1260	36	U

ONLY ICB DATE WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA01DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.27DL

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

% Moisture: 8 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	12	DJ
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	720	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	360	U
11096-82-5	Aroclor-1260	360	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA02

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.28

Sample wt/vol: 30.4 (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: 5.2 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	13	
72-55-9	4,4'-DDE	5.5	P
72-20-8	Endrin	3.6	U
33213-65-9	Endosulfan II	3.6	U
72-54-8	4,4'-DDD	3.6	U
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	9.3	P
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	3.6	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	5.2	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	74	~~R~~ J
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VAL

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA02DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116-28DL

Sample wt/vol: 30.4 (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: 5.2 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	16	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	20	DPJ
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	140	DJP
11096-82-5	Aroclor-1260	360	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA03

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.29

Sample wt/vol: 30.4 (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: 5.3 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	9.2	P
72-55-9	4,4'-DDE	5.6	P
72-20-8	Endrin	3.6	U
33213-65-9	Endosulfan II	3.6	U
72-54-8	4,4'-DDD	3.6	U
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	29	
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	3.6	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	5.7	
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	130	P
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA03DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.29DL

Sample wt/vol: 30.4 (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: 5.3 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	13	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	41	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	200	DJP
11096-82-5	Aroclor-1260	360	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA04

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.30

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

% Moisture: 7 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: 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	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	10	P
33213-65-9	Endosulfan II	15	
72-54-8	4,4'-DDD	3.5	U
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	23	P
72-43-5	Methoxychlor	21	P
53494-70-5	Endrin ketone	12	
7421-93-4	Endrin aldehyde	13	
5103-71-9	alpha-Chlordane	5.2	
5103-74-2	gamma-Chlordane	6.2	P
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	72	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	98	~~P~~ J
11096-82-5	Aroclor-1260	35	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA04DL

Do not use

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.30DL

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

% Moisture: 7 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	1.3	DJ
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	14	DJ
33213-65-9	Endosulfan II	18	DPJ
72-54-8	4,4'-DDD	35	U
1031-07-8	Endosulfan sulfate	35	U
50-29-3	4,4'-DDT	30	DPJ
72-43-5	Methoxychlor	38	DPJ
53494-70-5	Endrin ketone	17	DPJ
7421-93-4	Endrin aldehyde	6.9	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	350	U
11104-28-2	Aroclor-1221	720	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	140	DJP
11096-82-5	Aroclor-1260	350	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA05

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.31

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

% Moisture: 5 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: 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	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	3.4	U
72-55-9	4,4'-DDE	3.4	U
72-20-8	Endrin	7.7	P
33213-65-9	Endosulfan II	8.2	P
72-54-8	4,4'-DDD	3.4	U
1031-07-8	Endosulfan sulfate	3.4	U
50-29-3	4,4'-DDT	14	P
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.4	U
7421-93-4	Endrin aldehyde	7.2	P
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	34	U
11104-28-2	Aroclor-1221	69	U
11141-16-5	Aroclor-1232	34	U
53469-21-9	Aroclor-1242	34	U
12672-29-6	Aroclor-1248	34	U
11097-69-1	Aroclor-1254	55	~~R~~ J
11096-82-5	Aroclor-1260	34	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA05DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.31DL

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

% Moisture: 5 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	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	34	U
72-55-9	4,4'-DDE	34	U
72-20-8	Endrin	34	U
33213-65-9	Endosulfan II	34	U
72-54-8	4,4'-DDD	34	U
1031-07-8	Endosulfan sulfate	34	U
50-29-3	4,4'-DDT	17	DPJ
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	34	U
7421-93-4	Endrin aldehyde	34	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	340	U
11104-28-2	Aroclor-1221	690	U
11141-16-5	Aroclor-1232	340	U
53469-21-9	Aroclor-1242	340	U
12672-29-6	Aroclor-1248	340	U
11097-69-1	Aroclor-1254	98	DJ
11096-82-5	Aroclor-1260	340	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA06

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.32

Sample wt/vol: 30.8 (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: 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	3.5	U
72-20-8	Endrin	12	P
33213-65-9	Endosulfan II	11	P
72-54-8	4,4'-DDD	3.5	U
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	33	P
72-43-5	Methoxychlor	16	PJ
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	72	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	96	~~P~~ J
11096-82-5	Aroclor-1260	35	U

ONLY PID DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA06DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.32DL

Sample wt/vol: 30.8 (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	35	U
72-55-9	4,4'-DDE	35	U
72-20-8	Endrin	15	DPJ
33213-65-9	Endosulfan II	12	DPJ
72-54-8	4,4'-DDD	35	U
1031-07-8	Endosulfan sulfate	35	U
50-29-3	4,4'-DDT	38	DP
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	720	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	120	DJP
11096-82-5	Aroclor-1260	350	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA07

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.33

Sample wt/vol: 31.7 (g/mL) G Lab File ID: _____

% Moisture: 7 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: 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	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.4	U
72-55-9	4,4'-DDE	3.4	U
72-20-8	Endrin	9.9	P
33213-65-9	Endosulfan II	12	
72-54-8	4,4'-DDD	3.4	U
1031-07-8	Endosulfan sulfate	3.4	U
50-29-3	4,4'-DDT	29	P
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.4	U
7421-93-4	Endrin aldehyde	2.8	PJ
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	34	U
11104-28-2	Aroclor-1221	68	U
11141-16-5	Aroclor-1232	34	U
53469-21-9	Aroclor-1242	34	U
12672-29-6	Aroclor-1248	34	U
11097-69-1	Aroclor-1254	93	~~P~~
11096-82-5	Aroclor-1260	34	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA07DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.33DL

Sample wt/vol: 31.7 (g/mL) G Lab File ID: _____

% Moisture: 7 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	17	U
319-85-7	beta-BHC	17	U
319-86-8	delta-BHC	17	U
58-89-9	gamma-BHC (Lindane)	17	U
76-44-8	Heptachlor	17	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
959-98-8	Endosulfan I	17	U
60-57-1	Dieldrin	34	U
72-55-9	4,4'-DDE	34	U
72-20-8	Endrin	13	DPJ
33213-65-9	Endosulfan II	14	DPJ
72-54-8	4,4'-DDD	34	U
1031-07-8	Endosulfan sulfate	34	U
50-29-3	4,4'-DDT	32	DPJ
72-43-5	Methoxychlor	170	U
53494-70-5	Endrin ketone	34	U
7421-93-4	Endrin aldehyde	34	U
5103-71-9	alpha-Chlordane	17	U
5103-74-2	gamma-Chlordane	17	U
8001-35-2	Toxaphene	1700	U
12674-11-2	Aroclor-1016	340	U
11104-28-2	Aroclor-1221	680	U
11141-16-5	Aroclor-1232	340	U
53469-21-9	Aroclor-1242	340	U
12672-29-6	Aroclor-1248	340	U
11097-69-1	Aroclor-1254	130	~~DJP~~ J
11096-82-5	Aroclor-1260	340	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA08

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.34

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

% Moisture: 12 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: 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	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.8	U
72-55-9	4,4'-DDE	3.8	U
72-20-8	Endrin	5.2	
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	18	
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.8	U
7421-93-4	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	76	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	38	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA08DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.34DL

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

% Moisture: 12 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	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	38	U
72-55-9	4,4'-DDE	38	U
72-20-8	Endrin	38	U
33213-65-9	Endosulfan II	38	U
72-54-8	4,4'-DDD	38	U
1031-07-8	Endosulfan sulfate	38	U
50-29-3	4,4'-DDT	16	DJ
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	38	U
7421-93-4	Endrin aldehyde	38	U
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	380	U
11104-28-2	Aroclor-1221	760	U
11141-16-5	Aroclor-1232	380	U
53469-21-9	Aroclor-1242	380	U
12672-29-6	Aroclor-1248	380	U
11097-69-1	Aroclor-1254	380	U
11096-82-5	Aroclor-1260	380	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA09

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.35

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

% Moisture: 13 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: 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	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.7	PJ
72-55-9	4,4'-DDE	9.5	P
72-20-8	Endrin	13	P
33213-65-9	Endosulfan II	19	
72-54-8	4,4'-DDD	10	P
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	54	PE
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	9.1	P
7421-93-4	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	1.1	PJ
5103-74-2	gamma-Chlordane	6.6	P
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	76	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	140	~~P~~ J
11096-82-5	Aroclor-1260	38	U

ONLY PCB DATA WERE VALIDATED

135

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA09DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.35DL

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

% Moisture: 13 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	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	38	U
72-55-9	4,4'-DDE	8.5	DPJ
72-20-8	Endrin	17	DPJ
33213-65-9	Endosulfan II	24	DJ
72-54-8	4,4'-DDD	38	U
1031-07-8	Endosulfan sulfate	38	U
50-29-3	4,4'-DDT	62	DP
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	38	U
7421-93-4	Endrin aldehyde	38	U
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	380	U
11104-28-2	Aroclor-1221	760	U
11141-16-5	Aroclor-1232	380	U
53469-21-9	Aroclor-1242	380	U
12672-29-6	Aroclor-1248	380	U
11097-69-1	Aroclor-1254	170	DJP
11096-82-5	Aroclor-1260	380	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA10

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116,36

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

% Moisture: 12 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: 1.0

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	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	6.5	P
72-55-9	4,4'-DDE	5.8	P
72-20-8	Endrin	22	P
33213-65-9	Endosulfan II	33	
72-54-8	4,4'-DDD	9.5	P
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	72	PE
72-43-5	Methoxychlor	24	P
53494-70-5	Endrin ketone	3.7	U
7421-93-4	Endrin aldehyde	4.1	P
5103-71-9	alpha-Chlordane	12	
5103-74-2	gamma-Chlordane	11	
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	74	U
11141-16-5	Aroclor-1232	37	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	210	
11096-82-5	Aroclor-1260	37	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA10DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.36DL

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

% Moisture: 12 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: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	9.2	DPJ
72-55-9	4,4'-DDE	37	U
72-20-8	Endrin	36	DPJ
33213-65-9	Endosulfan II	49	D
72-54-8	4,4'-DDD	22	DPJ
1031-07-8	Endosulfan sulfate	37	U
50-29-3	4,4'-DDT	98	DP
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	25	DJ
7421-93-4	Endrin aldehyde	14	DPJ
5103-71-9	alpha-Chlordane	17	DJ
5103-74-2	gamma-Chlordane	20	DP
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	370	U
11104-28-2	Aroclor-1221	740	U
11141-16-5	Aroclor-1232	370	U
53469-21-9	Aroclor-1242	370	U
12672-29-6	Aroclor-1248	370	U
11097-69-1	Aroclor-1254	280	DJ
11096-82-5	Aroclor-1260	370	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA11

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.37

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

% Moisture: 15 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: 1.0

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	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	4.4	P
72-55-9	4,4'-DDE	3.7	U
72-20-8	Endrin	16	P
33213-65-9	Endosulfan II	27	
72-54-8	4,4'-DDD	5.8	P
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	51	
72-43-5	Methoxychlor	26	
53494-70-5	Endrin ketone	3.7	U
7421-93-4	Endrin aldehyde	5.6	P
5103-71-9	alpha-Chlordane	10	
5103-74-2	gamma-Chlordane	11	
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	76	U
11141-16-5	Aroclor-1232	37	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	140	~~P~~ J
11096-82-5	Aroclor-1260	37	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA11DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.37DL

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

% Moisture: 15 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: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	37	U
72-55-9	4,4'-DDE	37	U
72-20-8	Endrin	21	DPJ
33213-65-9	Endosulfan II	38	D
72-54-8	4,4'-DDD	37	U
1031-07-8	Endosulfan sulfate	37	U
50-29-3	4,4'-DDT	67	DP
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	37	U
7421-93-4	Endrin aldehyde	21	DPJ
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	15	DJ
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	370	U
11104-28-2	Aroclor-1221	760	U
11141-16-5	Aroclor-1232	370	U
53469-21-9	Aroclor-1242	370	U
12672-29-6	Aroclor-1248	370	U
11097-69-1	Aroclor-1254	230	DJ
11096-82-5	Aroclor-1260	370	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA12

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.38

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 15 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: 1.0

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	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	4.1	P
72-55-9	4,4'-DDE	3.8	U
72-20-8	Endrin	11	P
33213-65-9	Endosulfan II	17	
72-54-8	4,4'-DDD	6.0	P
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	39	P
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.8	U
7421-93-4	Endrin aldehyde	11	P
5103-71-9	alpha-Chlordane	6.0	
5103-74-2	gamma-Chlordane	7.6	
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	77	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	130	~~P~~ J
11096-82-5	Aroclor-1260	38	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA12DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.38DL

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 15 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: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	38	U
72-55-9	4,4'-DDE	38	U
72-20-8	Endrin	15	DPJ
33213-65-9	Endosulfan II	18	DPJ
72-54-8	4,4'-DDD	38	U
1031-07-8	Endosulfan sulfate	38	U
50-29-3	4,4'-DDT	47	DP
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	38	U
7421-93-4	Endrin aldehyde	38	U
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	380	U
11104-28-2	Aroclor-1221	770	U
11141-16-5	Aroclor-1232	380	U
53469-21-9	Aroclor-1242	380	U
12672-29-6	Aroclor-1248	380	U
11097-69-1	Aroclor-1254	180	DJP J
11096-82-5	Aroclor-1260	380	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA13

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.39

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

% Moisture: 12 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: 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	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.6	U
72-55-9	4,4'-DDE	3.6	U
72-20-8	Endrin	3.6	U
33213-65-9	Endosulfan II	3.6	U
72-54-8	4,4'-DDD	3.6	U
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	3.6	U
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	3.6	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	36	U
11104-28-2	Aroclor-1221	74	U
11141-16-5	Aroclor-1232	36	U
53469-21-9	Aroclor-1242	36	U
12672-29-6	Aroclor-1248	36	U
11097-69-1	Aroclor-1254	36	U
11096-82-5	Aroclor-1260	36	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA13DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.39DL

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

% Moisture: 12 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: 5.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	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	36	U
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	36	U
7421-93-4	Endrin aldehyde	36	U
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	19	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	360	U
11104-28-2	Aroclor-1221	740	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	360	U
11096-82-5	Aroclor-1260	360	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA14

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.40

Sample wt/vol: 30.7 (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: 1.0

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	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	3.3	PJ
72-20-8	Endrin	3.5	U
33213-65-9	Endosulfan II	5.3	
72-54-8	4,4'-DDD	3.5	U
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	13	
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	72	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	40	
11096-82-5	Aroclor-1260	35	U

ONLY PCB DATA WERE VALIDATED

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA14DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.40DL

Sample wt/vol: 30.7 (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: 5.7 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	17	DJ
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	720	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	58	DJ
11096-82-5	Aroclor-1260	350	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA15

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.41

Sample wt/vol: 30.0 (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: 07/09/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta-BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.3	U
72-55-9	4,4'-DDE	4.3	U
72-20-8	Endrin	4.3	U
33213-65-9	Endosulfan II	10	
72-54-8	4,4'-DDD	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
50-29-3	4,4'-DDT	6.5	P
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
7421-93-4	Endrin aldehyde	4.3	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	4.0	P
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	43	U
11104-28-2	Aroclor-1221	88	U
11141-16-5	Aroclor-1232	43	U
53469-21-9	Aroclor-1242	43	U
12672-29-6	Aroclor-1248	43	U
11097-69-1	Aroclor-1254	55	
11096-82-5	Aroclor-1260	43	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA15DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.41DL

Sample wt/vol: 30.0 (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: 07/09/99

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.6 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)	0.90	DPJ
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	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	43	U
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	43	U
7421-93-4	Endrin aldehyde	43	U
5103-71-9	alpha-Chlordane	22	U
5103-74-2	gamma-Chlordane	22	U
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	95	DJP
11096-82-5	Aroclor-1260	430	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA16

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.42

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

% Moisture: 18 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: 1.0

GPC Cleanup: (Y/N) Y pH: 5.6 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	3.9	U
72-55-9	4,4'-DDE	3.9	U
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	3.9	U
72-43-5	Methoxychlor	24	P
53494-70-5	Endrin ketone	3.9	U
7421-93-4	Endrin aldehyde	3.9	U
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	79	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	39	U
11096-82-5	Aroclor-1260	39	U

ONLY PCB DATA WERE VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BXA16DL

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

Lab Code: SWOK Case No.: 27133 SAS No.: SDG No.: BXA01

Matrix: (soil/water) SOIL Lab Sample ID: 39116.42DL

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

% Moisture: 18 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: 5.6 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)	0.46	DPJ
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	39	U
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	39	U
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	790	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	390	U
11096-82-5	Aroclor-1260	390	U