



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ENVIRONMENTAL SERVICES DIVISION
60 WESTVIEW STREET, LEXINGTON, MASSACHUSETTS 02173-3185

DATE: November 10, 1993

SUBJ: Analysis of PCBs in Soils - COHEN PROPERTY

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Chemistry Section

THRU: Dr. William J. Andrade, Chief, Chemistry Section

TO: Maryellen Stanton *WJA 11/16/93*

PROJECT NUMBER: 93186

ANALYTICAL PROCEDURE:

All samples were received and logged in by the laboratory according to the chain of custody SOP (G-2, Rev 2, 2/24/92, DCN: CH-001/88).

EPA Region 1 Procedure: Polychlorinated Biphenyls in Soil Samples, Mid Level Method, PCBSOML5.SOP. The modules used for this procedure were: XL 2020 Heat Systems Sonicator, SONICAT2.MOD, Chlorinated Pesticides and PCB Screening, 8500EC1.MOD, 5880 Gas Chromatographs, 5880EC2.MOD.

Results are reported out in dry weight.

Date Samples Received by the Laboratory: 08/19/93

Date Analysis Started: 08/25/93

cc:

File: K:\CHEMISTRY\REPORTS\FINAL\93186SO.PCB



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QUALITY CONTROL:

1. One method blank was included in the analysis.
2. Each sample was spiked with the surrogate compounds tetrachloroethylene and decachlorobiphenyl at approximately 1 mg/Kg. The results for the surrogate recoveries are reported out with each sample.
3. One sample, 02050, was spiked with Aroclor-1260 at approximately 1 mg/Kg. The recovery is listed below.

| PCB | Recovery (%) |
|--------------|--------------|
| Aroclor-1260 | 65 |

Compounds not in the spiking solution:

| | |
|--------------|------------|
| Aroclor-1254 | 0.59 mg/Kg |
|--------------|------------|

SAMPLES ANALYZED: 02041, 02042, 02043, 02044, 02045, 02046, 02047,
02048, 02049, 02050

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Chemists who reviewed data: Agnes VanLangenhove and Peter Philbrook

Holding time meet (Y/N): Yes
Extraction (Water - 7 days, Soil - 14 days)
Analytical (30 days after extraction)

Method modifications: None

Limitations of data: None

Laboratory blank problems: None

Instrument performance problems: None

Surrogate and spike recovery problems:

Low decachlorobiphenyl recoveries attributed to matrix interferences.

Additional comments: None

FACILITY SAMPLED:

COHEN PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY
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Polychlorinated Biphenyls

SAMPLE NO.: 02041

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix:

Soil

Dilution Factor: 1.214

Percent Moisture 10

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|------------|--------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 4E-01 | |
| 11104-28-2 | Aroclor-1221 | ND | 4E-01 | |
| 11141-16-5 | Aroclor-1232 | ND | 4E-01 | |
| 53469-21-9 | Aroclor-1242 | ND | 4E-01 | |
| 12672-29-6 | Aroclor-1248 | ND | 4E-01 | |
| 11097-69-1 | Aroclor-1254 | .50 | 4E-01 | |
| 11096-82-5 | Aroclor-1260 | ND | 4E-01 | |
| 11100-14-4 | Aroclor-1262 | ND | 4E-01 | |
| 37324-23-5 | Aroclor-1268 | ND | 4E-01 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

Decachlorobiphenyl
2,4,5,6-Tetrachloro-m-xylene

45
50

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Polychlorinated Biphenyls

Notes:

PQL = Practical quantitation level
(6E+00 = 6, 1E+01 = 10, 4E-01 = 0.4)
ND = None detected
~ = Approximate
< = Less than
> = Greater than
NA = Not applicable due to high sample
dilutions or sample interferences
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank
contamination. Values are qualified when the observed
concentration is less than ten times the common
contamination.
P = The confirmation value exceeded 35% difference and is
less than 100%. The lower value is reported.
D = Detected but too low to quantitate.
C = The identification has been confirmed by GC/MS.

FACILITY SAMPLED:

COHEN PROPERTY

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REGION I LABORATORY
Polychlorinated Biphenyls

SAMPLE NO.: 02042

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix:

Soil

Dilution Factor: 2.160

Percent Moisture 1

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|------------|--------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 6E-01 | |
| 11104-28-2 | Aroclor-1221 | ND | 6E-01 | |
| 11141-16-5 | Aroclor-1232 | ND | 6E-01 | |
| 53469-21-9 | Aroclor-1242 | ND | 6E-01 | |
| 12672-29-6 | Aroclor-1248 | ND | 6E-01 | |
| 11097-69-1 | Aroclor-1254 | 1.9 | 6E-01 | |
| 11096-82-5 | Aroclor-1260 | ND | 6E-01 | |
| 11100-14-4 | Aroclor-1262 | ND | 6E-01 | |
| 37324-23-5 | Aroclor-1268 | ND | 6E-01 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

Decachlorobiphenyl
2,4,5,6-Tetrachloro-m-xylene

9
65

FACILITY SAMPLED:

COHEN PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY

REGION I LABORATORY

Polychlorinated Biphenyls

SAMPLE NO.: 02043

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix:

Soil

Dilution Factor: 5.574

Percent Moisture 2

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|------------|--------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 2E+00 | |
| 11104-28-2 | Aroclor-1221 | ND | 2E+00 | |
| 11141-16-5 | Aroclor-1232 | ND | 2E+00 | |
| 53469-21-9 | Aroclor-1242 | ND | 2E+00 | |
| 12672-29-6 | Aroclor-1248 | ND | 2E+00 | |
| 11097-69-1 | Aroclor-1254 | 4.4 | 2E+00 | |
| 11096-82-5 | Aroclor-1260 | 2.2 | 2E+00 | |
| 11100-14-4 | Aroclor-1262 | ND | 2E+00 | |
| 37324-23-5 | Aroclor-1268 | ND | 2E+00 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

| | |
|------------------------------|----|
| Decachlorobiphenyl | 23 |
| 2,4,5,6-Tetrachloro-m-xylene | 71 |

FACILITY SAMPLED:

COHEN PROPERTY

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Polychlorinated Biphenyls

SAMPLE NO.: 02044

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 12.23
Percent Moisture 12

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|-------------------|---------------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 4E+00 | |
| 11104-28-2 | Aroclor-1221 | ND | 4E+00 | |
| 11141-16-5 | Aroclor-1232 | ND | 4E+00 | |
| 53469-21-9 | Aroclor-1242 | ND | 4E+00 | |
| 12672-29-6 | Aroclor-1248 | ND | 4E+00 | |
| 11097-69-1 | Aroclor-1254 | 4.0 | 4E+00 | |
| 11096-82-5 | Aroclor-1260 | 4.7 | 4E+00 | |
| 11100-14-4 | Aroclor-1262 | ND | 4E+00 | |
| 37324-23-5 | Aroclor-1268 | ND | 4E+00 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

| | |
|------------------------------|----|
| Decachlorobiphenyl | DL |
| 2,4,5,6-Tetrachloro-m-xylene | DL |

DL = Diluted out.

FACILITY SAMPLED:

COHEN PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY

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Polychlorinated Biphenyls

SAMPLE NO.: 02045

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 25.35
Percent Moisture 14

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|------------|--------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 8E+00 | |
| 11104-28-2 | Aroclor-1221 | ND | 8E+00 | |
| 11141-16-5 | Aroclor-1232 | ND | 8E+00 | |
| 53469-21-9 | Aroclor-1242 | ND | 8E+00 | |
| 12672-29-6 | Aroclor-1248 | 56 | 8E+00 | |
| 11097-69-1 | Aroclor-1254 | 63 | 8E+00 | |
| 11096-82-5 | Aroclor-1260 | 12 | 8E+00 | |
| 11100-14-4 | Aroclor-1262 | ND | 8E+00 | |
| 37324-23-5 | Aroclor-1268 | ND | 8E+00 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

Decachlorobiphenyl
2,4,5,6-Tetrachloro-m-xylene

DL
DL

DL = Diluted out.

FACILITY SAMPLED:

COHEN PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
Polychlorinated Biphenyls

SAMPLE NO.: 02046

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 1.184
Percent Moisture 7

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|-------------------|---------------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 4E-01 | |
| 11104-28-2 | Aroclor-1221 | ND | 4E-01 | |
| 11141-16-5 | Aroclor-1232 | ND | 4E-01 | |
| 53469-21-9 | Aroclor-1242 | ND | 4E-01 | |
| 12672-29-6 | Aroclor-1248 | ND | 4E-01 | |
| 11097-69-1 | Aroclor-1254 | 0.90 | 4E-01 | |
| 11096-82-5 | Aroclor-1260 | ND | 4E-01 | |
| 11100-14-4 | Aroclor-1262 | ND | 4E-01 | |
| 37324-23-5 | Aroclor-1268 | ND | 4E-01 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

| | |
|------------------------------|----|
| Decachlorobiphenyl | 22 |
| 2,4,5,6-Tetrachloro-m-xylene | 74 |

FACILITY SAMPLED:

COHEN PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
Polychlorinated Biphenyls

SAMPLE NO.: 02047

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 1.147
Percent Moisture 5

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|-------------------|---------------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 3E-01 | |
| 11104-28-2 | Aroclor-1221 | ND | 3E-01 | |
| 11141-16-5 | Aroclor-1232 | ND | 3E-01 | |
| 53469-21-9 | Aroclor-1242 | ND | 3E-01 | |
| 12672-29-6 | Aroclor-1248 | ND | 3E-01 | |
| 11097-69-1 | Aroclor-1254 | 1.5 | 3E-01 | |
| 11096-82-5 | Aroclor-1260 | ND | 3E-01 | |
| 11100-14-4 | Aroclor-1262 | ND | 3E-01 | |
| 37324-23-5 | Aroclor-1268 | ND | 3E-01 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

Decachlorobiphenyl
2,4,5,6-Tetrachloro-m-xylene

25
79

FACILITY SAMPLED:

COHEN PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
Polychlorinated Biphenyls

SAMPLE NO.: 02048

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 5.984
Percent Moisture 10

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|------------|--------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 2E+00 | |
| 11104-28-2 | Aroclor-1221 | ND | 2E+00 | |
| 11141-16-5 | Aroclor-1232 | ND | 2E+00 | |
| 53469-21-9 | Aroclor-1242 | ND | 2E+00 | |
| 12672-29-6 | Aroclor-1248 | ND | 2E+00 | |
| 11097-69-1 | Aroclor-1254 | 6.4 | 2E+00 | |
| 11096-82-5 | Aroclor-1260 | ND | 2E+00 | |
| 11100-14-4 | Aroclor-1262 | ND | 2E+00 | |
| 37324-23-5 | Aroclor-1268 | ND | 2E+00 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

Decachlorobiphenyl
2,4,5,6-Tetrachloro-m-xylene

56

75

FACILITY SAMPLED:

COHEN PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
Polychlorinated Biphenyls

SAMPLE NO.: 02049

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 1.290
Percent Moisture 11

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|------------|--------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 4E-01 | |
| 11104-28-2 | Aroclor-1221 | ND | 4E-01 | |
| 11141-16-5 | Aroclor-1232 | ND | 4E-01 | |
| 53469-21-9 | Aroclor-1242 | ND | 4E-01 | |
| 12672-29-6 | Aroclor-1248 | ND | 4E-01 | |
| 11097-69-1 | Aroclor-1254 | -0.2 | 4E-01 | L |
| 11096-82-5 | Aroclor-1260 | ND | 4E-01 | |
| 11100-14-4 | Aroclor-1262 | ND | 4E-01 | |
| 37324-23-5 | Aroclor-1268 | ND | 4E-01 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

| | |
|------------------------------|----|
| Decachlorobiphenyl | 62 |
| 2,4,5,6-Tetrachloro-m-xylene | 75 |

FACILITY SAMPLED:

COHEN PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
Polychlorinated Biphenyls

SAMPLE NO.: 02050

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 1.120
Percent Moisture 5

SAMPLE RESULTS:

| CAS NO. | Compound | Conc. (mg/kg) | PQL (mg/kg) | Qualifier or Comment |
|------------|--------------|------------------|----------------|-------------------------|
| 12674-11-2 | Aroclor-1016 | ND | 3E-01 | |
| 11104-28-2 | Aroclor-1221 | ND | 3E-01 | |
| 11141-16-5 | Aroclor-1232 | ND | 3E-01 | |
| 53469-21-9 | Aroclor-1242 | ND | 3E-01 | |
| 12672-29-6 | Aroclor-1248 | ND | 3E-01 | |
| 11097-69-1 | Aroclor-1254 | 0.48 | 3E-01 | |
| 11096-82-5 | Aroclor-1260 | ND | 3E-01 | |
| 11100-14-4 | Aroclor-1262 | ND | 3E-01 | |
| 37324-23-5 | Aroclor-1268 | ND | 3E-01 | |

Sample Recovery for
Surrogate Compound:

Observed
Recoveries (%)

| | |
|------------------------------|----|
| Decachlorobiphenyl | 47 |
| 2,4,5,6-Tetrachloro-m-xylene | 60 |