# WORK SUMMARY AND DATA REPORT FOR THE COLLECTION OF EGGS FROM AMERICAN PEREGRINE FALCON, HUDSON RIVER, NEW YORK

## HUDSON RIVER NATURAL RESOURCE DAMAGE ASSESSMENT

### HUDSON RIVER NATURAL RESOURCE TRUSTEES

STATE OF NEW YORK

U.S. DEPARTMENT OF COMMERCE

U.S. DEPARTMENT OF THE INTERIOR

**FINAL**

**DECEMBER 24, 2004**

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PREPARED FOR HUDSON RIVER NATURAL RESOURCE TRUSTEES

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DECEMBER 24, 2004

## EXECUTIVE SUMMARY

Natural resources of the Hudson River have been contaminated through past and ongoing discharges of polychlorinated biphenyls (PCBs). The Hudson River Natural Resource Trustees - New York State, the U.S. Department of Commerce, and the U.S. Department of the Interior - are conducting a natural resource damage assessment (NRDA) to assess and restore those natural resources injured by PCBs. This Work Summary and Data Report provides the results of a preliminary investigation of contamination of eggs of American peregrine falcon (*Falco peregrinus anatum*), a New York State-listed endangered species, conducted pursuant to the NRDA.

In May and June 2002 five eggs from American peregrine falcon were collected from two locations on the Hudson River. The eggs were collected only when it became apparent that they were not going to hatch. No viable eggs were collected; only addled eggs were collected.

The contents of the peregrine falcon eggs were subsequently analyzed for various contaminants, including PCBs, dioxins and furans, various pesticides, polybrominated diphenylether compounds, and metals (mercury, cadmium, and lead). Percent lipid and percent moisture of each egg were also determined.

Total PCB concentrations (as sum of homologues), in four of the five peregrine falcon eggs, range from 5.29 parts per million (ppm) to 6.69 ppm on a wet weight basis (that is, not adjusted for moisture loss). The PCB value for the fifth egg - which was cracked and severely dessicated - is not included in this range due to the potential loss of egg contents prior to its collection.

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WORK SUMMARY AND DATA REPORT: PEREGRINE FALCON EGG COLLECTION

## 1. INTRODUCTION

Past and continuing discharges of polychlorinated biphenyls (PCBs) have contaminated the natural resources of the Hudson River. The Hudson River Natural Resource Trustees - New York State, the U.S. Department of Commerce, and the U.S. Department of the Interior - are conducting a natural resource damage assessment (NRDA) to assess and restore those natural resources injured by PCBs (Hudson River Natural Resource Trustees 2002). This Work Summary and Data Report provides the results of a preliminary investigation of contamination of American peregrine falcon (*Falco peregrinus anatum*) eggs conducted pursuant to the NRDA.

The Hudson River and surrounding area support more than 150 species of birds, including waterfowl, wading birds, shorebirds, songbirds, and rare species such as the bald eagle, peregrine falcon, and osprey (Andrle and Carroll, 1988). Birds are an integral part of the ecosystem and provide a number of important ecosystem services such as seed distribution, plant pollination, and insect control. Birds are also an important source of prey to other species. Birds may be exposed to PCBs through direct ingestion of contaminated water, sediment, and soil, and through consumption of food items that contain PCBs derived from the Hudson River and its floodplain.

Peregrine falcons feed primarily on other birds, such as songbirds, shorebirds, and ducks; in urban areas their diet may include starlings and pigeons (USFWS 1999a). PCBs are known to be present in Hudson River birds upon which peregrine falcon may be feeding, including American coot, black duck, blue-winged teal, gadwall, green-winged teal, mallard and wood duck, and tree swallow (Kim et al. 1984, Kim et al. 1985, U.S. Geological Survey 1996, and Secord et al. 1999).

In 1970, the American peregrine falcon subspecies was listed as endangered under the Endangered Species Conservation Act of 1969 (the law preceding the Endangered Species Act of 1973), reflecting their critical biological status. On August 25, 1999, the U.S. Fish and Wildlife Service (USFWS) determined that the American peregrine falcon was no longer an endangered or threatened species pursuant to the Endangered Species Act of 1973, as amended (USFWS 1999b). The American peregrine falcon remains State-listed by New York State as endangered.

This Work Summary and Data Report, focused on peregrine falcon eggs, supplements the avian egg data from the Trustees' Hudson River avian egg exposure preliminary investigation which was conducted from April 2002 through June 2002. The Data Report for that investigation (Hudson River Natural Resource Trustees 2004) provides the results of chemical analysis of 168 egg samples from the following avian species: belted kingfisher (*Ceryle alcyon*), American robin (*Turdus migratorius*), Eastern phoebe (*Sayornis phoebe*), spotted sandpiper (*Actitis macularia*), red-winged blackbird (*Agelaius phoenicius*), American woodcock (*Scolopax minor*), Eastern screech owl (*Otus asio*), common grackle (*Quiscalus quiscula*), northern rough-winged swallow (*Stelgidopteryx serripennis*), barn swallow (*Hirundo rustica*), and Eastern bluebird (*Sialia sialis*).

This preliminary investigation of peregrine falcon eggs was undertaken by the Trustees to assist in determining the extent to which peregrine falcon in the Hudson River are currently contaminated with PCBs, and to determine if additional pathway and injury assessment studies focused on this or other avian species should be conducted as part of the Hudson River NRDA. This work will be used to help determine whether future studies will be performed, and if so, to help in their design.

## 2. SAMPLING

### *2.1 Egg Collection*

Peregrine falcon eggs were collected by New York State Department of Environmental Conservation (NYSDEC) personnel from two locations on the Hudson River:

- the Dunn Memorial Bridge which spans the Hudson River between the Cities of Albany and Rensselaer, New York; and,
- the Rip Van Winkle Bridge, which spans the Hudson River at Catskill, about 30 miles south of Albany, New York.

Two eggs were collected from the Rip Van Winkle Bridge site on May 30, 2002, and three eggs were collected from the Dunn Memorial Bridge site on June 11, 2002. Each collected egg was assigned a unique identification number and wrapped in bubble wrap. Once collected, the wrapped eggs were frozen, and on June 21, 2002, were delivered to the NYSDEC Hale Creek Field Station for processing.

All peregrine falcon eggs collected were addled (rotten). The eggs were collected only when it became apparent that they were not going to hatch. No viable eggs were collected.

The three eggs collected from the Dunn Memorial Bridge were part of a clutch of four eggs, none of which hatched, which were laid by peregrine falcons between March 26, 2002 and April 3, 2002, based on observations from a NYSDEC camera placed to monitor the nest. The peregrine pair had incubated those eggs from the time the clutch was complete on April 3, 2002 until the eggs were removed by a NYSDEC biologist on June 11, 2002, 69 days after the clutch was complete. The normal incubation period for peregrine falcon eggs is 28-32 days. One of the four eggs from the nest disappeared just prior to collection, thus only three intact eggs were collected from the nest.

The dates of egg laying of the two eggs collected from the Rip Van Winkle Bridge are not known. However it is known that on May 23, 2002, a NYSDEC biologist observed an approximately 10 day old chick, along with two unhatched eggs in the nest box. On May 30, 2002 the one chick, a week older, was again observed, as were the two unhatched eggs. Those two unhatched eggs were collected on that May 30, 2002 visit.

### *2.2 Egg Processing*

In the laboratory the eggs were thawed and the egg contents collected into individual chemically clean jars, by a technician wearing nitrile gloves using chemically clean instruments. Egg contents weights were determined at that time. Each jar was labeled. Egg contents were stored (at a temperature of minus 20 degrees C) at the NYSDEC Hale Creek laboratory until they were shipped to the program analytical laboratory for chemical analysis.

### *2.3 Egg Analyses*

A total of five eggs were submitted to the analytical laboratory for analysis. The egg tissue was prepped, extracted, and analyzed using laboratory analytical methods noted in the Data Validation Report for the Peregrine Falcon Egg Collection (Data Validation Report, see Appendix A). Egg analysis was conducted in November and December 2002.

Four of the five egg samples were analyzed for PCB congeners, PCB homologues, Aroclors, organochlorine pesticides, polybrominated diphenylether (PBDE) compounds, PBDE homologues, dioxin/furan compounds, cadmium, lead, and mercury. Due to limited sample size, one egg (Rip Van Winkle Nest #1 ESU 1219a) was only analyzed for PCBs (congeners, homologues and Aroclors). Percent lipid and percent moisture of each egg were also determined.

### *2.4 QUALITY ASSURANCE/QUALITY CONTROL*

Data validation was conducted by the Trustees and was based on the quality control criteria documented in the analytical methods noted in the Data Validation Report (Appendix A), National Functional Guidelines for Organic Data Review (U.S. Environmental Protection Agency (USEPA 1999), and National Functional Guidelines for Inorganic Data Review (USEPA 1994).

The data packages submitted by the laboratory were reviewed for completeness.

For the organic analyses, the laboratory narrative indicated no problems with sample receipt. The laboratory submitted all of the necessary deliverables. Adequate corrective action processes were followed and anomalies were described in the case narrative.

For the inorganic analyses, the laboratory narrative indicated no problems with sample receipt. The laboratory submitted all of the necessary deliverables, with the exception of the raw data printout for the Inductively Coupled Plasma-Mass Spectrometry analysis. Adequate corrective action processes were followed and anomalies were described in the case narrative.

For the dioxin/furan compounds, some data were qualified as "do-not-report" (DNR) to indicate which result (of duplicate results) should be used. Data qualified as DNR should not be used for any purpose, and are not included in the data tables reported in Appendix B. All other data, as qualified, are acceptable for use.

## 3. RESULTS

Appendix B contains the peregrine falcon egg analytical chemistry data. A brief description of some of the features of the PCB data follows. Please note that the unit pg/g used in Appendix B is equivalent to parts per trillion (pptr). However, the unit used in the discussion of these data in this Data Report is parts per million (ppm).

Total PCB concentrations (as sum of PCB homologues, wet weight basis) of the peregrine egg samples are detailed in Table 1. PCB values in Table 1 are reported to three significant figures.

**Table 1. Hudson River Peregrine Falcon Eggs Summary: Egg Weights, Total PCBs (as sum of homologues) and Notes on Egg Condition**

| Peregrine Falcon Egg Location and Identifier | Egg Contents Weight (grams) | Total PCBs as sum of homologues (ppm, wet weight) | Notes |
|---|---|---|---|
| Dunn Memorial Bridge #1<br>ESU 1203a | 32.55 | 5.29 | Egg contained nearly fully developed embryo. |
| Dunn Memorial Bridge #2<br>ESU 1203b | 30.24 | 6.31 | Egg contained nearly fully developed embryo. |
| Dunn Memorial Bridge #3<br>ESU 1203c | 31.98 | 6.37 | Egg contained nearly fully developed embryo. |
| Rip Van Winkle Nest #1<br>ESU 1219a | 3.1 | 34.2 | Egg cracked and severely dessicated; no embryo observed. |
| Rip Van Winkle Nest #2<br>ESU 1219b | 34.9 | 6.69 | Small crack in egg; visible embryo 6-7 mm long |

It is important to note that the values reported in Appendix B and Table 1 are on a wet weight basis, and have not been corrected for moisture loss. Correction for moisture loss is an adjustment to compensate for the loss of moisture in avian eggs (Stickel et al. 1973).

To correct for moisture loss, per the method of Stickel et al. (1973), a correction factor is determined as follows:

$$\text{Correction factor (CF)} = \frac{\text{Egg contents weight (g)}}{\text{Egg volume (cm}^3\text{)}}$$

The contaminant value adjusted for moisture loss is then derived by multiplying the laboratory determined contaminant concentration by the correction factor.

For example:

$$\text{CF} = \frac{\text{Egg contents weight}}{\text{Egg volume}} = \frac{6.32 \text{ grams}}{6.67 \text{ cm}^3} = 0.9475$$

CF x PCB concentration = corrected PCB concentration

0.9475 x 1,820 ppb PCBs = 1,724 ppb PCBs

In this example, the PCB value corrected for moisture loss is 1,724 ppb.

However, for the peregrine falcon eggs that are the subject of this Data Report, individual egg volumes were not determined prior to egg contents collection, thus contaminant values cannot be corrected for moisture loss using the formula noted above. An alternative approach to estimate volume based on egg dimensions (Hoyt 1979), which uses typical lengths and breadths for eggs, is not feasible due to the variability in peregrine falcon egg length and breadth (Burnham et al. 2003, 1984), and the further lack of such data in this instance.

For this reason, the values reported in Appendix B and Table 1 are on a wet weight basis, uncorrected for moisture loss. As a result of not correcting for moisture loss, these values likely overstate the contaminant concentrations that would have been present in these eggs when they were freshly laid, prior to moisture loss during incubation and prior to collection.

Further, for peregrine falcon egg ESU 1219a from Rip Van Winkle Nest #1 the low percent moisture value indicates that the egg was severely dessicated. The egg was also cracked, had a low contents weight and no embryo was observed in the egg, suggesting that there may have been a loss of egg contents prior to collection. For that reason, although the contents of this egg were analyzed and the data are contained in Appendix B and Table 1, this egg is not considered further in this Data Report in reporting concentration ranges.

As noted in Table 1, total PCB concentrations (as sum of homologues), in four of the five peregrine falcon eggs collected and analyzed in this preliminary investigation, range from 5.29 ppm to 6.69 ppm on a wet weight basis (that is, not adjusted for moisture loss).

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# Appendix A

## Data Validation Report
## Peregrine Falcon Egg Collection

# DATA VALIDATION REPORT
# PEREGRINE FALCON
# EGG COLLECTION

# HUDSON RIVER NATURAL RESOURCE DAMAGE ASSESSMENT

## HUDSON RIVER NATURAL RESOURCE TRUSTEES

STATE OF NEW YORK

U.S. DEPARTMENT OF COMMERCE

U.S. DEPARTMENT OF THE INTERIOR

## PUBLIC RELEASE VERSION*

## VERSION 1.2

## DECEMBER 31, 2003

Available from:
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National Oceanic and Atmospheric Administration
Hudson River NRDA, Lead Administrative Trustee
Damage Assessment Center, N/ORR31
1305 East-West Highway, Rm 10219
Silver Spring, MD 20910-3281

** Names of certain individuals and affiliations have been removed to maintain confidentiality.*

# DATA VALIDATION REPORT

## HUDSON RIVER NATURAL RESOURCE DAMAGE ASSESSMENT

## Peregrine Falcon Egg Collection

## VERSION 1.2

**Prepared for:**

State of New York
Department of Environmental Conservation

U.S. Department of Commerce
National Oceanic and Atmospheric Administration

U.S. Department of the Interior
Fish and Wildlife Service

December 31, 2003

# Project Narrative

This report summarizes the results of data validation performed on peregrine falcon egg samples collected May 30 and June 11, 2002 in New York State and submitted for analysis by the New York State Department of Environmental Conservation (NYSDEC). A report of the data review organized by analytical fraction follows.

Analytical methods are listed below. The egg from Rip Van Winkle Bridge Nest #1 was analyzed only for PCBs due to limited sample size.

| Analysis | Method |
|---|---|
| Organochlorine Pesticides | High Resolution Gas Chromatography/Mass Spectroscopy |
| Polychlorinated Biphenyl (PCB) Congeners | High Resolution Gas Chromatography/Mass Spectroscopy (EPA 1668a) |
| Polychlorinated Biphenyl (PCB) Aroclor | Calculated[1] |
| Percent Lipids and Percent Moisture | Gravimetric |
| Polybrominated Diphenylether Compounds | High Resolution Gas Chromatography/Mass Spectroscopy |
| Dioxin/Furan Compounds | High Resolution Gas Chromatography/Mass Spectroscopy (EPA 1613 Ver. B) |
| Total Cadmium and Lead | Inductively Coupled Plasma (ICP) Mass Spectroscopy |
| Total Mercury | Cold Vapor Atomic Absorption (CVAA) |

[1] Total Aroclor results were calculated by using the PCB congener results and a laboratory-developed algorithm. Appendix C is a Technical Memorandum summarizing the information provided regarding the Aroclor results and recommendation to estimate all Aroclor results.

Data validation was based on the quality control (QC) criteria documented in the methods listed above, *National Functional Guidelines for Organic Data Review,* USEPA, 1999; and *National Functional Guidelines for Inorganic Data Review,* USEPA, 1994.

Data qualifier definitions and reason codes are listed in **APPENDIX A**. **APPENDIX B** contains a Technical Memorandum regarding qualification of all Aroclor results. Data validation worksheets, which document the technical review, are on file.

# FULL DATA REVIEW

**Polychlorinated Biphenyl (PCB) Congeners**
**Method: High Resolution Gas Chromatography/Mass Spectroscopy (EPA 1668a)**
**SDG: FWH02-1015**

Analytical data for five peregrine falcon egg samples were reviewed. The samples were collected May 30 and June 11, 2002. The samples were analyzed for all 209 PCB congeners by high resolution mass spectroscopy. Percent moisture and percent lipids results were reported with these analyses. Refer to the table below for a complete listing of samples.

| Sample ID | Matrix | Sample ID | Matrix |
|---|---|---|---|
| Dunn Memorial Bridge #1 ESU 1230a | Egg | Rip Van Winkle Nest #1 ESU 1219a | Egg |
| Dunn Memorial Bridge #2 ESU 1230b | Egg | Rip Van Winkle Nest #2 ESU 1219b | Egg |
| Dunn Memorial Bridge #3 ESU 1230c | Egg | | |

## I. Data Package Completeness

The laboratory narrative indicated no problems with sample receipt. The laboratory submitted all of the necessary deliverables. Adequate corrective action processes were followed and anomalies were discussed in the case narrative. The laboratory was not initially provided with a field chain of custody (COC) form by the samplers, the form was subsequently provided by NYSDEC staff.

## II. Technical Data Validation

The QC requirements that were reviewed are listed below.

| | | |
|---|---|---|
| Technical Holding Times and Sample Receipt | 1 | Blanks |
| GC/MS Instrument Performance Check | | Labeled Compound Recovery |
| Initial Calibration (ICAL) | | Ongoing Precision Recovery (OPR) |
| Continuing Verification (CVER) | | Compound Identification |
| Isomer Specificity | 2 | Compound Quantitation and Reporting Limits |

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

## Blanks

Several compounds were detected in the method blank. As these compounds were either not detected in the samples or were at concentrations greater than five times the amount found in the blank, no action was taken.

## Compound Quantitation and Reporting Limits

Several compound results were flagged 'R' by the laboratory to indicate the ion abundance ratio criteria were not met. Since the ion abundance ratio is the primary identification criterion for high resolution mass spectroscopy, an outlier indicates that the reported result may be a false positive. Due to this, all 'R'-flagged results were qualified as not detected (U-14).

Several compounds were detected at concentrations greater than the upper calibration range of the instrument. In each case, the sample was reanalyzed at a dilution and the compound concentration was within the linear range. The laboratory only reported one result for each compound. No action was necessary.

## Overall Assessment

Laboratory accuracy was acceptable as demonstrated by the recovery values for the OPR.

Laboratory precision was not evaluated, as replicate analyses were not performed.

Data were qualified as not detected due to ion ratio criteria outliers.

All data, as qualified, are acceptable for use.

# FULL DATA REVIEW

**Organochlorine Pesticides**
**Method: High Resolution Gas Chromatography/Mass Spectroscopy**
**SDG: FWH02-1015**

Analytical data for four peregrine falcon egg samples were reviewed. The samples were collected May 30 and June 11, 2002. The samples were analyzed for organochlorine pesticide compounds using high resolution mass spectroscopy analysis. Refer to the table below for a complete listing of samples.

| Sample ID | Matrix |
|---|---|
| Dunn Memorial Bridge #1 ESU 1230a | Egg |
| Dunn Memorial Bridge #2 ESU 1230b | Egg |
| Dunn Memorial Bridge #3 ESU 1230c | Egg |
| Rip Van Winkle Nest #2 ESU 1219b | Egg |

## I. Data Package Completeness

The laboratory narrative indicated no problems with sample receipt. The laboratory submitted all of the necessary deliverables. Adequate corrective action processes were followed and anomalies were discussed in the case narrative. The laboratory was not initially provided with a field chain of custody (COC) form by the samplers, the form was subsequently provided by NYSDEC staff.

## II. Technical Data Validation

The QC requirements that were reviewed are listed below.

| | | |
|---|---|---|
| Technical Holding Times and Sample Receipt | 1 | Blanks |
| GC/MS Instrument Performance Check | 2 | Labeled Compound Recovery |
| Initial Calibration (ICAL) | | Ongoing Precision Recovery (OPR) |
| Continuing Verification (CVER) | | Compound Identification |
| Isomer Specificity | 2 | Compound Quantitation and Reporting Limits |

---

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

## Blanks

Several compounds were detected in the method blank. As these compounds were either not detected in the samples or were at concentrations greater than five times the amount found in the blank, no action was taken.

## Labeled Compound Recovery

The percent recovery (%R) values for the labeled endrin standard were greater than the laboratory control limit of 150% in Samples Dunn Memorial Bridge #3 ESU 1230c and Rip Van Winkle Nest #2 ESU 1219b. Endrin was detected in both samples, the results were estimated (J-19) with a possible high bias. Endrin aldehyde and endrin ketone were not detected in either sample. As the %R outlier indicates a possible high bias, the detection limits were not qualified.

## Compound Quantitation and Reporting Limits

Several compound results were flagged 'R' by the laboratory to indicate the ion abundance ratio criteria were not met. Since the ion abundance ratio is the primary identification criterion for high resolution mass spectroscopy, an outlier indicates that the reported result may be a false positive. Due to this, all 'R'-flagged results were qualified as not detected (U-14).

Several compounds were detected at concentrations greater than the upper calibration range of the instrument. In each case, the sample was reanalyzed at a dilution and the compound concentration was within the linear range. The laboratory only reported one result for each compound. No action was necessary.

## Overall Assessment

Laboratory accuracy was acceptable as demonstrated by the recovery values for the OPR.

Laboratory precision was not evaluated, as replicate analyses were not performed.

Data were qualified as not detected due to ion ratio criteria outliers. Data were estimated due to the labeled compound percent recovery outliers.

All data, as qualified, are acceptable for use.

# FULL DATA REVIEW

**Dioxin/Furan Compounds**
**Method: High Resolution Gas Chromatography/Mass Spectroscopy (EPA 1613 Ver. B)**
**SDG: FWH02-1015**

Analytical data for four peregrine falcon egg samples were reviewed. The samples were collected May 30 and June 11, 2002. The samples were analyzed using high resolution mass spectroscopy analysis. Refer to the table below for a complete listing of samples.

| Sample ID | Matrix |
|---|---|
| Dunn Memorial Bridge #1 ESU 1230a | Egg |
| Dunn Memorial Bridge #2 ESU 1230b | Egg |
| Dunn Memorial Bridge #3 ESU 1230c | Egg |
| Rip Van Winkle Nest #2 ESU 1219b | Egg |

## I. Data Package Completeness

The laboratory narrative indicated no problems with sample receipt. The laboratory submitted all of the necessary deliverables. Adequate corrective action processes were followed and anomalies were discussed in the case narrative. The laboratory was not initially provided with a field chain of custody (COC) form by the samplers, the form was subsequently provided by NYSDEC staff.

## II. Technical Data Validation

The QC requirements that were reviewed are listed below.

| | | |
|---|---|---|
| Technical Holding Times and Sample Receipt | 1 | Blanks |
| GC/MS Instrument Performance Check | | Labeled Compound Recovery |
| Initial Calibration (ICAL) | | Ongoing Precision Recovery (OPR) |
| Continuing Verification (CVER) | | Compound Identification |
| Isomer Specificity | 2 | Compound Quantitation and Reporting Limits |

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

## Blanks

Several compounds were detected in the method blank. As these compounds were either not detected in the samples or were at concentrations greater than five times the amount found in the blank, no action was taken.

## Compound Quantitation and Reporting Limits

All positive results for 2378-TCDF were confirmed on a DB-225 column as required by the method. The 2378-TCDF results on the DB-5 column were qualified as do-not-report (DNR-14), and the results from the DB-225 column should be used instead.

The laboratory assigned an R-flag to the 123789-HxCDF value in Sample Rip Van Winkle Nest #2 ESU 1219b to indicate the ion ratio criterion was not met. Since the ion abundance ratio is the primary identification criterion for high resolution mass spectroscopy, an outlier indicates that the reported result may be a false positive. Due to this, the result was qualified as not detected (U-14).

## Overall Assessment

As determined by this evaluation, the laboratory followed the specified method. Laboratory accuracy was acceptable as demonstrated by the recovery values for the OPR and labeled compounds. Laboratory precision was not evaluated, as replicate analyses were not performed.

Data were qualified as do-not-report due to indicate which result (of duplicate results) should be used. Data were qualified as not detected due to ion ratio criteria outliers.

Data qualified as do-not-report should not be used for any purpose. All other data, as qualified, are acceptable for use.

# FULL DATA REVIEW

**Polybrominated Diphenylether (PBDE) Compounds**
**Method: High Resolution Gas Chromatography/Mass Spectroscopy**
**SDG: FWH02-1015**

Analytical data for four peregrine falcon egg samples were reviewed. The samples were collected May 30 and June 11, 2002. The samples were analyzed for PBDE compounds using high resolution mass spectroscopy analysis. Refer to the table below for a complete listing of samples.

| Sample ID | Matrix |
|---|---|
| Dunn Memorial Bridge #1 ESU 1230a | Egg |
| Dunn Memorial Bridge #2 ESU 1230b | Egg |
| Dunn Memorial Bridge #3 ESU 1230c | Egg |
| Rip Van Winkle Nest #2 ESU 1219b | Egg |

## I. Data Package Completeness

The laboratory narrative indicated no problems with sample receipt. The laboratory submitted all of the necessary deliverables. Adequate corrective action processes were followed and anomalies were discussed in the case narrative. The laboratory was not initially provided with a field chain of custody (COC) form by the samplers, the form was subsequently provided by NYSDEC staff

.

## II. Technical Data Validation

The QC requirements that were reviewed are listed below.

| | | |
|---|---|---|
| Technical Holding Times and Sample Receipt | 1 | Blanks |
| GC/MS Instrument Performance Check | 2 | Labeled Compound Recovery |
| Initial Calibration (ICAL) | | Ongoing Precision Recovery (OPR) |
| Continuing Verification (CVER) | | Compound Identification |
| Isomer Specificity | 2 | Compound Quantitation and Reporting Limits |

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

# Blanks

Several compounds were detected in the method blank. As these compounds were either not detected in the samples or were at concentrations greater than five times the amount found in the blank, no action was taken.

## Labeled Compound Recovery

All samples were analyzed at a 50x or higher dilution factor. Due to this, the labeled compounds added to the sample prior to extraction were diluted out, and no recoveries could be calculated. To be able to calculate the concentration of the target analytes, the laboratory added an additional aliquot of the labeled compounds to the sample extracts. However, as these labeled compounds were not taken through the extraction/clean-up process, the additional labeled compounds provide no information regarding the extraction efficiency or analytical accuracy.

Due to this, all target compound results were estimated (J/UJ). The direction of bias, if any, could not be determined.

## Compound Quantitation and Reporting Limits

Several compound results were flagged 'R' by the laboratory to indicate the ion abundance ratio criteria were not met. Since the ion abundance ratio is the primary identification criterion for high resolution mass spectroscopy, an outlier indicates that the reported result may be a false positive. Due to this, all 'R'-flagged results were qualified as not detected (U-14).

As noted in the **Labeled Compound Recovery** section above, all samples were analyzed at elevated dilution factors. Only the results from the dilutions were reported. Due to this, all reported limits are elevated. As no target reporting limits were specified, no action was taken.

## Overall Assessment

Laboratory accuracy was acceptable as demonstrated by the recovery values for the OPR.

Laboratory precision was not evaluated, as replicate analyses were not performed.

Data were qualified as not-detected due to ion ratio criteria outliers. Also, data were estimated due to the lack of usable labeled compound recovery results.

All data, as qualified, are acceptable for use.

# FULL DATA REVIEW

**Total Cadmium, Lead, and Mercury**
**Method: ICP-MS and CVAA**
**SDG: FWH02-1015**

Analytical data for four peregrine falcon egg samples were reviewed. The samples were collected May 30 and June 11, 2002. Refer to the table below for a complete listing of samples.

| Sample ID | Matrix |
|---|---|
| Dunn Mem Bridge #1 | Egg |
| Dunn Mem Bridge #2 | Egg |
| Dunn Mem Bridge #3 | Egg |
| Rip Van Winkle #2 | Egg |

## I. Data Package Completeness

The laboratory narrative indicated no problems with sample receipt. The laboratory submitted all of the necessary deliverables, with the exception of the raw data printout for the ICP-MS analysis. Adequate corrective action processes were followed and anomalies were discussed in the case narrative.

## II. Technical Data Validation

The QC requirements that were reviewed are listed below.

| | | | |
|---|---|---|---|
| | Technical Holding Times and Sample Receipt | | Blank Spikes |
| | Initial Calibration (ICAL) | | Matrix Spikes/Matrix Spike Duplicates (MS/MSD) |
| | Continuing Calibration Verification (CCV) | | Laboratory Duplicates |
| 1 | Blanks (Instrument and Method) | | Internal Standards |
| 2 | Certified Reference Materials (CRM) | 1 | Compound Quantitation and Reporting Limits |

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

# Blanks

Mercury and cadmium were detected at levels greater than the estimated method detection limit (EMDL) in some instrument blanks. To evaluate the effect on the sample data, action levels of 5x the blank concentrations were established. For mercury, all sample results were greater than the action level. There were no positive results for cadmium in the field samples. No qualification of sample results based on blank contamination was necessary.

Four preparation blanks were analyzed. The average concentrations were all less than the EMDL.

## Certified Reference Materials

The laboratory analyzed three different CRMs. NIST 2976 (mussel tissue) was analyzed for cadmium and lead, NRC DORM-2 (dogfish muscle) was analyzed for mercury, and NIST 8415 (powdered egg) was analyzed for all three elements.

The recoveries for NIST 2976 and NRC DORM-2 were within the certified acceptance limits. For NIST 8415, the mercury recovery (84.3%) was acceptable. The cadmium value reported for this CRM is not certified and is for informational purposes only. The value is also less than the laboratory reporting limit and so the laboratory result was not evaluated for this analyte. The recovery for lead (33.6%) was significantly less than the lower control limit of 80.3%. Because this CRM most closely approximates the matrix of the falcon eggs, the field samples were qualified based on the lead recovery. All lead results were estimated (J-10/UJ-10) to indicate a potential low bias.

## Compound Quantitation and Reporting Limits

Sample results were reported on an 'as received basis'. Percent solid and percent lipid information was submitted with the data.

The laboratory blank-corrected all analytical results. The instrument concentration was corrected for the average of four instrument blanks analyzed prior to the samples. The final sample concentration was then corrected for the average of four preparation blanks.

## Overall Assessment

As determined by this evaluation, the laboratory followed the specified methods. Laboratory accuracy was acceptable as demonstrated by the matrix spike/matrix spike duplicate (MS/MSD) and CRM recovery results, with the exception of low recovery indicated for lead. Laboratory precision was also acceptable as demonstrated by the laboratory duplicate and MS/MSD relative percent difference values.

Results for lead were estimated because of a low CRM recovery.

All data, as qualified, are acceptable for use.

# APPENDIX A
# DATA QUALIFIER DEFINITIONS
# REASON CODES

## DATA VALIDATION QUALIFIER CODES

# NATIONAL FUNCTIONAL GUIDELINES

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

| | |
|---|---|
| U | The analyte was analyzed for, but was not detected above the reported sample quantitation limit. |
| J | The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. |
| N | The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification". |
| NJ | The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. |
| UJ | The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. |
| R | The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified. |

The following qualifier that may also be assigned in the data review process:

| | |
|---|---|
| DNR | Do-not-report. Duplicate results exist due to reanalyses. This result should not be reported. |

# DATA QUALIFIER REASON CODES

| | |
|---|---|
| 1 | Holding Times |
| 2 | Sample Preservation |
| 3 | Sample Custody |
| 4 | Missing Deliverables |
| 5A | Calibration (initial) |
| 5B | Calibration (continuing) |
| 6 | Field Blanks |
| 7 | Laboratory Blanks |
| 8 | Matrix Spike |
| 9 | Precision (Duplicate, or Matrix Spike Duplicate) |
| 10 | Laboratory Control Sample |
| 11 | Detection Limit |
| 12 | Standards |
| 13 | Surrogates |
| 14 | Other |
| 15 | Furnace QC |
| 16 | ICP Serial Dilution |
| 17 | Chemical Recoveries |
| 18 | Trip Blanks |
| 19 | Internal Standards |
| 20 | Linear Range Exceeded |
| 21 | Potential False Positives |

## APPENDIX B
# TECHNICAL MEMORANDUM

# M E M O R A N D U M

**DATE:** 11/24/03

**SUBJECT:** **Peregrine Falcon Egg**
**Total Aroclor Values**

---

The laboratory reported both total homologue results and total Aroclor results for the PCB analysis of the peregrine falcon eggs. **Table 1** is a comparison of these results.

The total homologue results are based on a summation of analytical results of all 209 PCB congeners as determined by USEPA method 1668, revision A. The total Aroclor result would usually be based on the recognition of the pattern of congeners unique to each Aroclor. However, no recognizable pattern is present in the falcon eggs, thus the laboratory reported the samples as a mixture of Aroclors 1242, 1254, and 1260. The laboratory calculated these Aroclor values by summing the concentrations of congeners characteristic of the specific Aroclor and multiplying that sum by a "quantification factor". The following are the congeners and quantification factors used:

| Aroclor | Congeners | Quantification Factor |
|---|---|---|
| 1242 | 8, 30/18, 31, 28/20 | 3.0 |
| 1254 | 83/99, 108/119/86/97/128/87 | 8.0 |
| 1260 | 183/185, 180/193, 170 | 5.0 |

Note: Congener numbers separated by a slash denote co-elutions.

A total Aroclor value is then determined by summing the calculated concentrations of the three Aroclors.

The selection of the characteristic congeners and the determination of the quantification factors are based on published data in the following references: *Complete Characterization of Polychlorinated Biphenyl Congeners in Commercial Aroclor and Clophen Mixtures by Multidimensional Gas Chromatography-Electron Capture Detection,* (Schulz, Petrick and Duinker, 1989. Environ. Sci. & Tech., Vol 23, No. 7, pp852-859), and *Complete PCB Congener Distributions for 17 Aroclor Mixtures Determined by Three HRGC Systems Optimized for Comprehensive, Qualitative, Congener Specific Analysis,* (Frame, Cochran, Bowadt, 1996. J Chrom Resol Chromatogr Vol 19.), plus analyses performed using the laboratory specific analytical column and methods. The laboratory's data set supporting the development of these factors was not provided. Because the underlying data for the Aroclors is not available for review, all Aroclor results should be considered estimates.

TABLE 1

| Sample | Total Homologues μg/kg wet weight | Total Aroclors μg/kg wet weight | Percent Difference |
|---|---|---|---|
| Dunn Memorial Bridge #1 ESU 1230a | 5,290 | 9,090 | 71.8 % |
| Dunn Memorial Bridge #2 ESU 1230b | 6,310 | 11,295 | 79.0 % |
| Dunn Memorial Bridge #3 ESU 1230c | 6,370 | 10,572 | 66.0 % |
| Rip Van Winkle Nest#1 ESU1291a | 34,200 | 46,350 | 35.5 % |
| Rip Van Winkle Nest#2 ESU1291b | 6,690 | 8,057 | 20.4 % |

Percent difference = | (Total Homologue – Total Aroclor) / (Total Homologue) |

# Appendix B

## Peregrine Falcon Egg Analytical Chemistry Data

Falcon Egg
PCB Congener

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #1 ESU 1219a[1] | | Rip Van Winkle Nest #2 ESU 1219b | | SPIKED MATRIX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-4 | | L5214-5 | | WG7272-103 |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | % REC |
| Percent Moisture | 85 | | 84 | | 85 | | 30 | | 82 | | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 25 | | 5.5 | | |
| | | IQ | | IQ | | IQ | | IQ | | IQ | |
| PCB-1 | 1.21 | U | 1.03 | | 0.629 | U | 3.74 | | 2.03 | | 87.6 |
| PCB-2 | 0.846 | U | 0.535 | U | 0.498 | U | 1.19 | U | 0.901 | U | |
| PCB-3 | 0.708 | U | 0.478 | U | 0.408 | U | 2.34 | U | 1.39 | U | 84.2 |
| PCB-4 | 1.55 | U | 1.48 | U | 2.59 | U | 6.65 | U | 3.87 | U | 97 |
| PCB-5 | 0.960 | U | 1.02 | U | 1.86 | U | 5.04 | U | 2.83 | U | |
| PCB-6 | 0.917 | U | 0.973 | U | 1.74 | U | 4.73 | U | 2.65 | U | |
| PCB-7 | 0.916 | U | 0.972 | U | 1.72 | U | 4.66 | U | 2.61 | U | |
| PCB-8 | 0.98 | | 1.21 | U | 1.63 | U | 7.31 | | 2.89 | U | |
| PCB-9 | 0.898 | U | 0.953 | U | 1.69 | U | 4.58 | U | 2.57 | U | |
| PCB-10 | 0.978 | U | 1.04 | U | 1.74 | U | 4.73 | U | 2.65 | U | |
| PCB-11 | 1.01 | U | 1.07 | U | 1.86 | U | 5.05 | U | 2.83 | U | |
| PCB-12/13 | 1.75 | U | 1.05 | U | 1.83 | U | 4.97 | U | 2.79 | U | |
| PCB-14 | 0.947 | U | 1.00 | U | 1.78 | U | 4.82 | U | 2.71 | U | |
| PCB-15 | 15.9 | | 15.7 | | 18.5 | | 2530 | | 493 | | 93.8 |
| PCB-16 | 1.66 | U | 1.10 | U | 1.08 | U | 3.00 | U | 1.58 | U | |
| PCB-17 | 1.46 | U | 1.14 | | 0.973 | | 7.19 | | 3.29 | | |
| PCB-18/30 | 1.43 | | 1.26 | | 1.37 | | 5.38 | | 2.61 | | |
| PCB-19 | 1.66 | U | 1.03 | U | 0.998 | U | 2.52 | U | 1.37 | U | 100 |
| PCB-20/28 | 2490 | | 2440 | | 2960 | | 471000 | | 86900 | | |
| PCB-21/33 | 1.31 | U | 0.878 | U | 0.920 | U | 2.27 | U | 0.983 | U | |
| PCB-22 | 1.40 | U | 0.937 | U | 0.979 | U | 2.42 | U | 1.05 | U | |
| PCB-23 | 1.39 | U | 0.931 | U | 0.929 | U | 2.29 | U | 0.992 | U | |
| PCB-24 | 1.07 | U | 0.708 | U | 0.691 | U | 1.91 | U | 1.01 | U | |
| PCB-25 | 1.23 | U | 0.828 | U | 0.847 | U | 2.09 | U | 0.905 | U | |
| PCB-26/29 | 2.79 | | 2.87 | | 2.09 | | 2.23 | U | 0.965 | U | |
| PCB-27 | 1.03 | U | 0.677 | U | 0.652 | U | 1.80 | U | 0.949 | U | |
| PCB-31 | 14.9 | | 15.1 | | 25.3 | | 11400 | | 2080 | | |
| PCB-32 | 1.30 | U | 0.870 | U | 0.867 | U | 2.14 | U | 0.927 | U | |
| PCB-34 | 1.35 | U | 0.903 | U | 0.928 | U | 2.29 | U | 0.992 | U | |

IQ = Interpretive Qualifier

[1] Analyzed for PCBs only due to limited sample size.

Falcon Egg
PCB Congener

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | Dunn Memorial Bridge #2 ESU 1203b | Dunn Memorial Bridge #3 ESU 1203c | Rip Van Winkle Nest #1 ESU 1219a[1] | Rip Van Winkle Nest #2 ESU 1219b | SPIKED MATRIX |
|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | L5214-2 | L5214-3 | L5214-4 | L5214-5 | WG7272-103 |
| UNITS | pg/g (wet) | pg/g (wet) | pg/g (wet) | pg/g (wet) | pg/g (wet) | % REC |
| Percent Moisture | 85 | 84 | 85 | 30 | 82 | |
| Percent Lipids | 3.2 | 2.8 | 3.2 | 25 | 5.5 | |
| | IQ | IQ | IQ | IQ | IQ | |
| PCB-35 | 1.44 U | 0.963 U | 0.966 U | 2.38 U | 1.03 U | |
| PCB-36 | 1.28 U | 0.855 U | 0.865 U | 2.13 U | 0.924 U | |
| PCB-37 | 50.2 | 47.8 | 57.2 | 2960 | 592 | 109 |
| PCB-38 | 1.36 U | 0.911 U | 0.925 U | 255 | 59.3 | |
| PCB-39 | 1.3 U | 0.870 U | 0.880 U | 98.2 | 19.4 | |
| PCB-40/41/71 | 1.69 U | 1.14 U | 0.863 U | 2.53 U | 1.58 U | |
| PCB-42 | 1.84 U | 1.24 U | 0.932 U | 2.74 U | 1.71 U | |
| PCB-43 | 1.97 U | 1.33 U | 0.966 U | 2.84 U | 1.77 U | |
| PCB-44/47/65 | 1620 | 1730 | 1960 | 664000 | 126000 | |
| PCB-45/51 | 1.57 U | 1.06 U | 0.820 U | 2.41 U | 1.51 U | |
| PCB-46 | 1.87 U | 1.26 U | 0.985 U | 2.90 U | 1.81 U | |
| PCB-48 | 4.86 | 4.53 | 3.5 | 2.46 U | 1.54 U | |
| PCB-49/69 | 10.4 | 9.6 | 14.4 | 3460 | 581 | |
| PCB-50/53 | 1.53 U | 1.03 U | 0.797 U | 2.34 U | 1.46 U | |
| PCB-52 | 5.6 | 5.09 | 7.47 | 1300 | 213 | |
| PCB-54 | 1.29 U | 0.844 U | 0.617 U | 1.76 U | 1.15 U | 98.5 |
| PCB-55 | 1.01 U | 0.921 U | 1.16 U | 4.44 U | 0.855 U | |
| PCB-56 | 1.01 U | 0.918 U | 1.17 U | 4.46 U | 0.860 U | |
| PCB-57 | 0.957 U | 0.873 U | 1.10 U | 71.9 | 0.812 U | |
| PCB-58 | 0.926 U | 0.845 U | 1.06 U | 234 | 53.7 | |
| PCB-59/62/75 | 46.6 | 47.4 | 57 | 27600 | 5420 | |
| PCB-60 | 1390 | 1360 | 1710 | 4.53 U | 24800 | |
| PCB-61/70/74/76 | 24700 | 24900 | 30500 | 544000 | 102000 | |
| PCB-63 | 682 | 717 | 848 | 3.96 U | 0.763 U | |
| PCB-64 | 1.31 U | 0.927 | 2.24 | 671 | 97.1 | |
| PCB-66 | 3340 | 3350 | 4250 | 481000 | 91100 | |
| PCB-67 | 0.871 U | 0.795 U | 0.969 U | 3.70 U | 0.713 U | |
| PCB-68 | 133 | 135 | 159 | 3.83 U | 0.737 U | |
| PCB-72 | 0.897 U | 0.818 U | 1.02 U | 3.89 U | 0.750 U | |

IQ = Interpretive Qualifier

[1] Analyzed for PCBs only due to limited sample size.

Falcon Egg
PCB Congener

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | Dunn Memorial Bridge #2 ESU 1203b | Dunn Memorial Bridge #3 ESU 1203c | Rip Van Winkle Nest #1 ESU 1219a[1] | Rip Van Winkle Nest #2 ESU 1219b | SPIKED MATRIX |
|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | L5214-2 | L5214-3 | L5214-4 | L5214-5 | WG7272-103 |
| UNITS | pg/g (wet) | pg/g (wet) | pg/g (wet) | pg/g (wet) | pg/g (wet) | % REC |
| Percent Moisture | 85 | 84 | 85 | 30 | 82 | |
| Percent Lipids | 3.2 | 2.8 | 3.2 | 25 | 5.5 | |
| | IQ | IQ | IQ | IQ | IQ | |
| PCB-73 | 1.20 U | 0.808 U | 0.639 U | 1.88 U | 1.17 U | |
| PCB-77 | 171 | 166 | 188 | 4210 | 850 | 93.5 |
| PCB-78 | 1.10 U | 1.00 U | 1.19 U | 4.55 U | 0.877 U | |
| PCB-79 | 0.889 U | 0.811 U | 0.983 U | 3.75 U | 72.3 | |
| PCB-80 | 0.914 U | 0.834 U | 1.07 U | 4.08 U | 0.786 U | |
| PCB-81 | 67 | 69.3 | 80.3 | 1230 | 271 | 92.9 |
| PCB-82 | 4.61 U | 3.44 U | 1.74 U | 20.3 U | 74.9 | |
| PCB-83/99 | 51600 | 60800 | 57900 | 1250000 | 228000 | |
| PCB-84 | 4.27 U | 3.18 U | 1.67 U | 19.4 U | 7.85 U | |
| PCB-85/116/117 | 3910 | 3930 | 4730 | 15.1 U | 35500 | |
| PCB-86/87/97/108/119/125 | 163 | 184 | 218 | 81300 | 15600 | |
| PCB-88/91 | 3.67 U | 2.74 U | 1.44 U | 745 | 118 | |
| PCB-89 | 3.99 U | 2.97 U | 1.57 U | 18.3 U | 7.38 U | |
| PCB-90/101/113 | 294 | 302 | 354 | 78500 | 37900 | |
| PCB-92 | 26.4 | 31.3 | 34.7 | 22600 | 4190 | |
| PCB-93/95/98/100 | 28.6 | 27.4 | 38.4 U | 18400 | 3770 | |
| PCB-94 | 3.82 U | 2.84 U | 1.55 U | 18.0 U | 7.27 U | |
| PCB-96 | 8.66 U | 4.13 U | 1.16 U | 13.1 U | 31.1 U | |
| PCB-103 | 3.23 U | 2.41 U | 1.29 U | 15.0 U | 6.08 U | |
| PCB-104 | 8.87 U | 3.99 U | 1.11 U | 6.87 U | 17.0 U | 95.3 |
| PCB-105 | 21300 | 20800 | 25400 | 393000 | 72600 | 102 |
| PCB-106 | 0.762 U | 0.745 U | 0.766 U | 7.91 U | 1.98 U | |
| PCB-107/124 | 0.747 U | 0.730 U | 0.796 U | 1490 | 244 U | |
| PCB-109 | 2250 | 2110 | 2320 | 87100 | 17800 | |
| PCB-110/115 | 2040 | 2050 | 2460 | 13.4 U | 12500 | |
| PCB-111 | 99.2 | 102 | 119 | 6620 | 1370 | |
| PCB-112 | 2.98 U | 2.22 U | 1.12 U | 13.0 U | 5.25 U | |
| PCB-114 | 4550 | 4480 | 5580 | 51500 | 10400 | 104 |
| PCB-118 | 99700 | 118000 | 129000 | 1770000 | 325000 | 105 |

IQ = Interpretive Qualifier

[1] Analyzed for PCBs only due to limited sample size.

Falcon Egg
PCB Congener

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #1 ESU 1219a[1] | | Rip Van Winkle Nest #2 ESU 1219b | | SPIKED MATRIX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-4 | | L5214-5 | | WG7272-103 |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | % REC |
| Percent Moisture | 85 | | 84 | | 85 | | 30 | | 82 | | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 25 | | 5.5 | | |
| | | IQ | | IQ | | IQ | | IQ | | IQ | |
| PCB-120 | 270 | | 268 | | 321 | | 12600 | | 2550 | | |
| PCB-121 | 6.43 | | 5.83 | | 1.10 | U | 3790 | | 862 | | |
| PCB-122 | 0.832 | U | 0.813 | U | 0.857 | U | 8.84 | U | 2.21 | U | |
| PCB-123 | 1490 | | 1520 | | 1930 | | 25500 | | 5310 | | 107 |
| PCB-126 | 197 | | 195 | | 245 | | 3410 | | 638 | | 103 |
| PCB-127 | 291 | | 282 | | 372 | | 6640 | | 1460 | | |
| PCB-128/166 | 52400 | | 64100 | | 84800 | | 446000 | | 81900 | | |
| PCB-129/138/160/163 | 534000 | | 643000 | | 655000 | | 4100000 | | 803000 | | |
| PCB-130 | 1520 | | 1610 | | 1810 | | 95000 | | 19800 | | |
| PCB-131 | 1.24 | U | 0.972 | U | 1.02 | U | 3.09 | U | 1.13 | U | |
| PCB-132 | 1.27 | U | 0.994 | U | 1.04 | U | 393 | | 1.15 | U | |
| PCB-133 | 3800 | | 3960 | | 4980 | | 110000 | | 22900 | | |
| PCB-134/143 | 1.25 | U | 0.977 | U | 1.03 | U | 3.11 | U | 1.14 | U | |
| PCB-135/151/154 | 469 | | 504 | | 619 | | 60400 | | 12800 | | |
| PCB-136 | 2.99 | U | 2.28 | U | 1.45 | U | 8.08 | U | 3.01 | U | |
| PCB-137 | 7870 | | 8210 | | 9910 | | 124000 | | 25300 | | |
| PCB-139/140 | 964 | | 1030 | | 1300 | | 23500 | | 5260 | | |
| PCB-141 | 1.20 | U | 0.940 | U | 0.972 | U | 2.93 | U | 1320 | U | |
| PCB-142 | 1.24 | U | 0.970 | U | 1.05 | U | 3.16 | U | 1.16 | U | |
| PCB-144 | 4.74 | | 4.22 | U | 4.81 | | 370 | U | 116 | | |
| PCB-145 | 3.02 | U | 2.30 | U | 1.47 | U | 8.19 | U | 3.05 | U | |
| PCB-146 | 61400 | | 67200 | | 89900 | | 1040000 | | 220000 | | |
| PCB-147/149 | 415 | | 450 | | 523 | | 68800 | | 14500 | | |
| PCB-148 | 6.52 | | 6.02 | | 7.38 | U | 11.1 | U | 520 | | |
| PCB-150 | 2.98 | U | 2.27 | U | 1.41 | U | 7.84 | U | 2.92 | U | |
| PCB-152 | 2.96 | U | 2.26 | U | 1.40 | U | 7.80 | U | 2.91 | U | |
| PCB-153/168 | 1020000 | | 1270000 | | 1410000 | | 6940000 | | 1530000 | | |
| PCB-155 | 8.35 | | 7.01 | | 9.44 | | 3560 | | 714 | | 96.1 |
| PCB-156/157 | 70100 | | 69000 | | 78100 | | 379000 | | 72400 | | 92.5 |

IQ = Interpretive Qualifier

[1] Analyzed for PCBs only due to limited sample size.

Falcon Egg
PCB Congener

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #1 ESU 1219a[1] | | Rip Van Winkle Nest #2 ESU 1219b | | SPIKED MATRIX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-4 | | L5214-5 | | WG7272-103 |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | % REC |
| Percent Moisture | 85 | | 84 | | 85 | | 30 | | 82 | | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 25 | | 5.5 | | |
| | | IQ | | IQ | | IQ | | IQ | | IQ | |
| PCB-158 | 13000 | | 13300 | | 15200 | | 207000 | | 39500 | | |
| PCB-159 | 4.47 | U | 0.794 | U | 0.756 | U | 542 | | 116 | | |
| PCB-161 | 0.912 | U | 0.713 | U | 0.745 | U | 2.25 | U | 0.824 | U | |
| PCB-162 | 514 | | 481 | | 542 | | 3580 | | 890 | | |
| PCB-164 | 4.48 | U | 0.796 | U | 0.726 | U | 2.19 | U | 0.802 | U | |
| PCB-165 | 91.1 | | 84 | | 105 | | 7950 | | 1750 | | |
| PCB-167 | 19400 | | 19000 | | 21800 | | 156000 | | 30300 | | 95.3 |
| PCB-169 | 93.6 | U | 656 | U | 685 | U | 1920 | U | 573 | U | 92.1 |
| PCB-170 | 384000 | | 469000 | | 449000 | | 1290000 | | 219000 | | |
| PCB-171/173 | 76700 | | 75800 | | 87400 | | 323000 | | 58500 | | |
| PCB-172 | 49300 | | 48500 | | 57800 | | 271000 | | 74100 | | |
| PCB-174 | 1.44 | U | 1.79 | U | 4.44 | U | 14800 | | 2840 | | |
| PCB-175 | 2300 | | 2440 | | 2680 | | 28500 | | 5550 | | |
| PCB-176 | 0.986 | U | 1.22 | U | 3.04 | U | 257 | | 80.8 | | |
| PCB-177 | 23200 | | 22700 | | 27200 | | 373000 | | 88600 | | |
| PCB-178 | 22900 | | 23700 | | 27900 | | 241000 | | 73400 | | |
| PCB-179 | 0.950 | U | 1.17 | U | 2.94 | U | 2.33 | U | 11.5 | U | |
| PCB-180/193 | 1130000 | | 1410000 | | 1320000 | | 4560000 | | 782000 | | |
| PCB-181 | 888 | | 884 | | 1000 | | 15700 | | 2830 | | |
| PCB-182 | 67.5 | | 1.74 | U | 4.15 | U | 7600 | | 1390 | | |
| PCB-183/185 | 218000 | | 271000 | | 246000 | | 994000 | | 167000 | | |
| PCB-184 | 21.1 | U | 1.14 | U | 2.97 | U | 4250 | | 761 | | |
| PCB-186 | 1.02 | U | 1.26 | U | 3.14 | U | 2.49 | U | 1.03 | U | |
| PCB-187 | 173000 | | 212000 | | 202000 | | 2190000 | | 364000 | | |
| PCB-188 | 12.5 | | 11.8 | | 2.01 | U | 1110 | | 206 | | 104 |
| PCB-189 | 14100 | | 13900 | | 15000 | | 47900 | | 9600 | | 98.9 |
| PCB-190 | 73000 | | 90600 | | 83600 | | 248000 | | 63600 | | |
| PCB-191 | 17200 | | 17100 | | 18600 | | 50400 | | 9640 | | |
| PCB-192 | 1.25 | U | 1.54 | U | 3.74 | U | 2.97 | U | 1.23 | U | |

IQ = Interpretive Qualifier

[1] Analyzed for PCBs only due to limited sample size.

Falcon Egg
PCB Congener

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #1 ESU 1219a[1] | | Rip Van Winkle Nest #2 ESU 1219b | | SPIKED MATRIX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-4 | | L5214-5 | | WG7272-103 |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | % REC |
| Percent Moisture | 85 | | 84 | | 85 | | 30 | | 82 | | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 25 | | 5.5 | | |
| | | IQ | | IQ | | IQ | | IQ | | IQ | |
| PCB-194 | 259000 | | 296000 | | 321000 | | 835000 | | 150000 | | |
| PCB-195 | 62500 | | 75000 | | 84400 | | 193000 | | 41600 | | |
| PCB-196 | 121000 | | 132000 | | 120000 | | 289000 | | 71200 | | |
| PCB-197/200 | 7270 | | 7130 | | 8040 | | 24400 | | 4.97 | U | |
| PCB-198/199 | 172000 | | 211000 | | 173000 | | 833000 | | 141000 | | |
| PCB-201 | 5380 | | 5390 | | 5960 | | 39700 | | 8030 | | |
| PCB-202 | 12800 | | 12300 | | 13400 | | 94800 | | 19800 | | 90 |
| PCB-203 | 193000 | | 239000 | | 183000 | | 599000 | | 99700 | | |
| PCB-204 | 6.85 | | 8.12 | | 3.78 | U | 400 | | 95 | | |
| PCB-205 | 9440 | | 9360 | | 9540 | | 25700 | | 5230 | | 103 |
| PCB-206 | 184000 | | 194000 | | 206000 | | 476000 | | 84900 | | 93.9 |
| PCB-207 | 14600 | | 12300 | | 14400 | | 37400 | | 7170 | | |
| PCB-208 | 30700 | | 29000 | | 30700 | | 174000 | | 25400 | | 95.8 |
| PCB-209 | 17100 | | 16400 | | 16000 | | 91100 | | 18400 | | 89.3 |

IQ = Interpretive Qualifier

[1] Analyzed for PCBs only due to limited sample size.

Falcon Egg
PCB Homologue

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #1 ESU 1219a[1] | | Rip Van Winkle Nest #2 ESU 1219b | |
|---|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-4 | | L5214-5 | |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | |
| Percent Moisture | 85 | | 84 | | 85 | | 30 | | 82 | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 25 | | 5.5 | |
| | | IQ | | IQ | | IQ | | IQ | | IQ |
| Total Monochloro Biphenyls | 0.846 | U | 1.03 | | 0.498 | U | 3.74 | | 2.03 | |
| Total Dichloro Biphenyls | 16.9 | | 15.7 | | 18.5 | | 2540 | | 493 | |
| Total Trichloro Biphenyls | 2560 | | 2510 | | 3050 | | 486000 | | 89600 | |
| Total Tetrachloro Biphenyls | 32100 | | 32500 | | 39800 | | 1730000 | | 352000 | |
| Total Pentachloro Biphenyls | 188000 | | 215000 | | 231000 | | 3810000 | | 775000 | |
| Total Hexachloro Biphenyls | 1790000 | | 2160000 | | 2380000 | | 13800000 | | 2880000 | |
| Total Heptachloro Biphenyls | 2190000 | | 2660000 | | 2540000 | | 10700000 | | 1920000 | |
| Total Octachloro Biphenyls | 843000 | | 987000 | | 918000 | | 2930000 | | 537000 | |
| Total Nonachloro Biphenyls | 229000 | | 236000 | | 251000 | | 686000 | | 117000 | |
| Decachloro Biphenyl | 17100 | | 16400 | | 16000 | | 91100 | | 18400 | |
| TOTAL PCBs | 5290000 | | 6310000 | | 6370000 | | 34200000 | | 6690000 | |

IQ = Interpretive Qualifier

[1] Analyzed for PCBs only due to limited sample size.

Falcon Egg
Pesticide

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #2 ESU 1219b | | SPIKED MATRIX |
|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-5 | | WG7272-103 |
| UNITS | ng/g (wet) | | ng/g (wet) | | ng/g (wet) | | ng/g (wet) | | % REC |
| Percent Moisture | 85 | | 84 | | 85 | | 82 | | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 5.5 | | |
| | | IQ | | IQ | | IQ | | IQ | |
| Hexachlorobenzene | 1.54 | | 1.46 | | 1.74 | | 8.86 | | 97.6 |
| HCH, alpha | 0.083 | | 0.08 | | 0.043 | | 0.025 | | 86 |
| HCH, beta | 0.828 | | 0.809 | | 1.1 | | 1.92 | | 102 |
| HCH, gamma | 0.02 | | 0.042 | | 0.135 | | 0.395 | | 95.1 |
| Heptachlor | 0.002 | | 0.0035 | U | 0.004 | U | 0.0098 | U | 97.5 |
| Aldrin | 0.017 | | 0.018 | | 0.022 | U | 0.046 | | 96 |
| Chlordane, oxy- | 48.4 | | 45.9 | | 19.5 | | 43 | | 96.1 |
| Chlordane, gamma (trans) | 0.288 | | 0.28 | | 0.31 | | 0.671 | | 94.5 |
| Chlordane, alpha (cis) | 0.459 | | 0.565 | | 1.27 | | 13.2 | | 98.6 |
| Nonachlor, trans- | 3.3 | | 3.26 | | 4.2 | | 81 | | 97.7 |
| Nonachlor, cis- | 0.922 | | 0.853 | | 0.99 | | 6.06 | | 101 |
| 2,4'-DDD | 0.0108 | U | 0.0095 | U | 0.0061 | U | 0.197 | U | 108 |
| 4,4'-DDD | 8.22 | | 7.37 | | 8.41 | | 9.59 | | 100 |
| 2,4'-DDE | 0.0058 | U | 0.0077 | U | 0.0055 | U | 0.0190 | U | 108 |
| 4,4'-DDE | 1390 | | 1560 | | 1180 | | 10700 | | 119 |
| 2,4'-DDT | 0.0124 | U | 0.0110 | U | 0.0070 | U | 0.0114 | U | 93.5 |
| 4,4'-DDT | 0.018 | | 0.119 | | 0.104 | | 34.9 | | 93.4 |
| Mirex | 25.6 | | 24.7 | | 36.7 | | 96.5 | | 98.2 |
| Heptachlor Epoxide | 12.4 | | 13.1 | | 17.1 | | 43.5 | | 102 |
| alpha-Endosulphan | 0.0112 | U | 0.0155 | U | 0.0260 | U | 0.0392 | U | 95 |
| Dieldrin | 11.6 | | 10.8 | | 14.4 | | 109 | | 99.8 |
| Endrin | 0.072 | | 0.071 | | 0.113 | J | 0.2 | J | 98.8 |
| beta-Endosulphan | 0.0173 | U | 0.0222 | U | 0.0377 | U | 0.0975 | U | 91.8 |
| Endosulphan Sulphate | 0.0163 | U | 0.0209 | U | 0.0355 | U | 0.0918 | U | 92.1 |
| Endrin Aldehyde | 0.0010 | U | 0.005 | | 0.0007 | U | 0.0012 | U | 80.6 |
| Endrin Ketone | 0.007 | | 0.0060 | | 0.0062 | U | 0.0057 | U | 91.8 |
| Methoxychlor | 0.0026 | U | 0.0034 | U | 0.0039 | U | 0.0032 | U | 103 |

IQ = Interpretive Qualifier

Falcon Egg
Aroclor

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #1 ESU 1219a[1] | | Rip Van Winkle Nest #2 ESU 1219b | |
|---|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-4 | | L5214-5 | |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | |
| Percent Moisture | 85 | | 84 | | 85 | | 30 | | 82 | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 25 | | 5.5 | |
| | | IQ | | IQ | | IQ | | IQ | | IQ |
| Aroclor 1016 | 3.43 | UJ | 2.56 | UJ | 4.41 | UJ | 190 | UJ | 85.1 | UJ |
| Aroclor 1221 | 1.25 | UJ | 1.33 | UJ | 2.29 | UJ | 6.21 | UJ | 3.49 | UJ |
| Aroclor 1232 | 4.04 | UJ | 2.66 | UJ | 2.60 | UJ | 7.19 | UJ | 3.79 | UJ |
| Aroclor 1242 | 7510 | J | 7360 | J | 8970 | J | 1450000 | J | 267000 | J |
| Aroclor 1248 | 9.48 | UJ | 6.41 | UJ | 6.54 | UJ | 6470 | UJ | 1540 | UJ |
| Aroclor 1254 | 413000 | J | 488000 | J | 463000 | J | 10700000 | J | 1950000 | J |
| Aroclor 1260 | 8670000 | J | 10800000 | J | 10100000 | J | 34200000 | J | 5840000 | J |

IQ = Interpretive Qualifier

[1] Analyzed for PCBs only due to limited sample size.

Falcon Egg
Dioxin

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #2 ESU 1219b | | SPIKED MATRIX |
|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-5 | | WG7275-102 |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | % REC |
| Percent Moisture | 85 | | 84 | | 85 | | 82 | | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 5.5 | | |
| | | IQ | | IQ | | IQ | | IQ | |
| 2,3,7,8-TCDD | 1.01 | | 1.05 | | 1.31 | | 3.24 | | 95.1 |
| 1,2,3,7,8-PeCDD | 4.52 | | 4.34 | | 5.25 | | 7.08 | | 97 |
| 1,2,3,4,7,8-HxCDD | 4.09 | | 3.88 | | 4.71 | | 5.35 | | 92.2 |
| 1,2,3,6,7,8-HxCDD | 15.4 | | 15 | | 17.6 | | 13.9 | | 96.1 |
| 1,2,3,7,8,9-HxCDD | 1.76 | | 1.65 | | 2.06 | | 2.44 | | 94.6 |
| 1,2,3,4,6,7,8-HpCDD | 19.2 | | 17.4 | | 19.4 | | 29.4 | | 95.1 |
| OCDD | 12 | | 8.58 | | 7.42 | | 147 | | 96.8 |
| 2,3,7,8-TCDF(C) | 1.15 | | 1.07 | | 1.41 | | 3.04 | | 98.5 |
| 1,2,3,7,8-PeCDF | 0.183 | | 0.166 | | 0.24 | | 0.333 | | 96.7 |
| 2,3,4,7,8-PeCDF | 4.1 | | 3.95 | | 4.64 | | 4.57 | | 95.1 |
| 1,2,3,4,7,8-HxCDF | 2.48 | | 2.39 | | 2.7 | | 1.66 | | 93.4 |
| 1,2,3,6,7,8-HxCDF | 2.12 | | 2.14 | | 2.41 | | 1.74 | | 96.3 |
| 1,2,3,7,8,9-HxCDF | 0.0400 | U | 0.0370 | U | 0.0390 | U | 0.048 | U | 95.8 |
| 2,3,4,6,7,8-HxCDF | 1.13 | | 1.15 | | 1.29 | | 1 | | 96.7 |
| 1,2,3,4,6,7,8-HpCDF | 2.87 | | 2.42 | | 2.55 | | 0.973 | | 96.9 |
| 1,2,3,4,7,8,9-HpCDF | 0.323 | | 0.253 | | 0.247 | | 0.121 | | 95.9 |
| OCDF | 0.497 | | 0.342 | | 0.281 | | 0.301 | | 91.1 |
| Total Tetra-Dioxins | 1.01 | | 1.09 | | 1.31 | | 3.29 | | |
| Total Penta-Dioxins | 4.54 | | 4.34 | | 5.25 | | 7.18 | | |
| Total Hexa-Dioxins | 21.7 | | 20.5 | | 24.5 | | 22 | | |
| Total Hepta-Dioxins | 19.7 | | 17.6 | | 19.6 | | 30.1 | | |
| Total Tetra-Furans | 1.26 | | 1.15 | | 1.35 | | 4.58 | | |
| Total Penta-Furans | 4.28 | | 4.4 | | 5.28 | | 5.7 | | |
| Total Hexa-Furans | 7.39 | | 6.77 | | 7.75 | | 4.61 | | |
| Total Hepta-Furans | 4.37 | | 3.35 | | 3.39 | | 1.25 | | |

IQ = Interpretive Qualifier

Falcon Egg
Polybrominated Diphenylether (PBDE) Congener

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #2 ESU 1219b | | SPIKED MATRIX |
|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-5 | | WG7272-103 |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | % REC |
| Percent Moisture | 85 | | 84 | | 85 | | 82 | | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 5.5 | | |
| | | IQ | | IQ | | IQ | | IQ | |
| PBDE-1 | 105 | UJ | 119 | UJ | 104 | UJ | 785 | UJ | |
| PBDE-2 | 105 | UJ | 119 | UJ | 104 | UJ | 785 | UJ | 92.4 |
| PBDE-3 | 105 | UJ | 119 | UJ | 104 | UJ | 785 | UJ | |
| PBDE-7 | 8.26 | UJ | 7.62 | UJ | 6.81 | UJ | 74.5 | UJ | |
| PBDE-8 + 11 | 8.26 | UJ | 7.62 | UJ | 6.81 | UJ | 74.5 | UJ | 98.8 |
| PBDE-10 | 8.26 | UJ | 7.62 | UJ | 6.81 | UJ | 74.5 | UJ | |
| PBDE-12 | 8.26 | UJ | 7.62 | UJ | 6.81 | UJ | 74.5 | UJ | |
| PBDE-13 | 8.26 | UJ | 8.75 | UJ | 6.81 | UJ | 74.5 | UJ | |
| PBDE-15 | 8.26 | UJ | 7.62 | UJ | 6.81 | UJ | 74.5 | UJ | |
| PBDE-17 | 13.9 | UJ | 20.6 | UJ | 14.2 | UJ | 181 | UJ | 95.7 |
| PBDE-25 | 13.4 | UJ | 19.8 | UJ | 13.7 | UJ | 174 | UJ | |
| PBDE-28 + 33 | 12.9 | UJ | 19.1 | UJ | 13.2 | UJ | 168 | UJ | 96.3 |
| PBDE-30 | 13.4 | UJ | 19.8 | UJ | 13.7 | UJ | 174 | UJ | |
| PBDE-32 | 13.4 | UJ | 19.8 | UJ | 13.7 | UJ | 174 | UJ | |
| PBDE-35 | 13.4 | UJ | 19.8 | UJ | 13.7 | UJ | 174 | UJ | |
| PBDE-37 | 13.4 | UJ | 19.8 | UJ | 13.7 | UJ | 174 | UJ | |
| PBDE-47 | 926 | J | 818 | J | 826 | J | 47400 | J | 101 |
| PBDE-49 | 19.2 | UJ | 16.8 | UJ | 18.1 | UJ | 233 | UJ | |
| PBDE-66 | 26.5 | UJ | 23.4 | UJ | 25.1 | UJ | 328 | UJ | 94.6 |
| PBDE-71 | 19.2 | UJ | 16.8 | UJ | 18.1 | UJ | 233 | UJ | |
| PBDE-75 | 18.6 | UJ | 16.5 | UJ | 17.7 | UJ | 231 | UJ | 91 |
| PBDE-77 | 19.2 | UJ | 16.8 | UJ | 18.1 | UJ | 233 | UJ | |
| PBDE-85 | 66.9 | UJ | 88.8 | UJ | 61.6 | UJ | 953 | J | 91.1 |
| PBDE-99 | 9420 | J | 8860 | J | 8960 | J | 123000 | J | 105 |
| PBDE-100 | 2470 | J | 2330 | J | 2500 | J | 41500 | J | 99.7 |
| PBDE-105 | 45.5 | UJ | 55.9 | UJ | 39.8 | UJ | 517 | UJ | |
| PBDE-116 | 45.5 | UJ | 55.9 | UJ | 39.8 | UJ | 517 | UJ | |
| PBDE-119 | 375 | J | 444 | J | 384 | J | 517 | UJ | |
| PBDE-126 | 45.5 | UJ | 55.9 | UJ | 39.8 | UJ | 517 | UJ | |
| PBDE-138 + 166 | 437 | UJ | 413 | J | 396 | J | 1210 | UJ | 96 |

IQ = Interpretive Qualifier

Falcon Egg
Polybrominated Diphenylether (PBDE) Congener

| CLIENT ID | Dunn Memorial Bridge #1 ESU 1203a | | Dunn Memorial Bridge #2 ESU 1203b | | Dunn Memorial Bridge #3 ESU 1203c | | Rip Van Winkle Nest #2 ESU 1219b | | SPIKED MATRIX |
|---|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-5 | | WG7272-103 |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | % REC |
| Percent Moisture | 85 | | 84 | | 85 | | 82 | | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 5.5 | | |
| | | IQ | | IQ | | IQ | | IQ | |
| PBDE-140 | 182 | J | 15.9 | UJ | 22.0 | UJ | 305 | UJ | |
| PBDE-153 | 92200 | J | 87500 | J | 85200 | J | 68200 | J | 102 |
| PBDE-154 | 7170 | J | 6970 | J | 6990 | J | 19700 | J | 99.2 |
| PBDE-155 | 65.4 | UJ | 57.1 | UJ | 47.7 | J | 653 | UJ | |
| PBDE-181 | 486 | UJ | 437 | J | 470 | J | 428 | UJ | |
| PBDE-183 | 35700 | J | 33700 | J | 33300 | J | 9390 | J | 97.3 |
| PBDE-190 | 392 | J | 392 | J | 357 | UJ | 678 | UJ | 95.9 |
| PBDE-206 | 184 | UJ | 159 | UJ | 164 | UJ | 242 | UJ | |
| PBDE-207 | 3600 | J | 3160 | J | 3170 | J | 1920 | UJ | |
| PBDE-208 | 1240 | J | 1080 | J | 839 | J | 609 | J | |
| PBDE-209 | 9810 | J | 8230 | J | 8480 | UJ | 6740 | UJ | 96.7 |

IQ = Interpretive Qualifier

Falcon Egg
PBDE Homologues

| CLIENT ID | Dunn Memorial Bridge #1 | | Dunn Memorial Bridge #2 | | Dunn Memorial Bridge #3 | | Rip Van Winkle Nest #2 | |
|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-5 | |
| UNITS | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | | pg/g (wet) | |
| Percent Moisture | 85 | | 84 | | 85 | | 82 | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 5.5 | |
| | | IQ | | IQ | | IQ | | IQ |
| Total MonoBDE | 156 | UJ | 119 | UJ | 121 | UJ | 1050 | UJ |
| Total DiBDE | 8.26 | UJ | 7.62 | UJ | 6.81 | UJ | 74.5 | UJ |
| Total TriBDE | 58.8 | J | 78.5 | J | 17.2 | J | 1240 | J |
| Total TetraBDE | 926 | J | 818 | J | 826 | J | 47400 | J |
| Total PentaBDE | 20400 | J | 19100 | J | 18800 | J | 174000 | J |
| Total HexaBDE | 99600 | J | 95600 | J | 92900 | J | 90000 | J |
| Total HeptaBDE | 50100 | J | 48500 | J | 47100 | J | 14800 | J |
| Total OctaBDE | 42900 | J | 39700 | J | 39700 | J | 6270 | J |
| Total NonaBDE | 4850 | J | 4250 | J | 4000 | J | 609 | J |
| Total DecaBDE | 9810 | J | 8230 | J | 8480 | J | 6740 | J |

IQ = Interpretive Qualifier

Falcon Egg
Metals

| CLIENT ID | Dunn Memorial Bridge #1 | | Dunn Memorial Bridge #2 | | Dunn Memorial Bridge #3 | | Rip Van Winkle Nest #2 | |
|---|---|---|---|---|---|---|---|---|
| LAB ID | L5214-1 | | L5214-2 | | L5214-3 | | L5214-5 | |
| UNITS - Hg | ng/g (wet) | | ng/g (wet) | | ng/g (wet) | | ng/g (wet) | |
| UNITS - Cd / Pb | mg/kg (wet) | | mg/kg (wet) | | mg/kg (wet) | | mg/kg (wet) | |
| Percent Moisture | 85 | | 84 | | 85 | | 82 | |
| Percent Lipids | 3.2 | | 2.8 | | 3.2 | | 5.5 | |
| | | IQ | | IQ | | IQ | | IQ |
| Cadmium | 0.001 | U | 0.001 | U | 0.001 | U | 0.001 | U |
| Mercury | 7.78 | | 7.16 | | 36.8 | | 61.3 | |
| Lead | 0.035 | J | 0.021 | J | 0.035 | J | 0.006 | UJ |

IQ = Interpretive Qualifier


U.S. DEPARTMENT OF THE INTERIOR
MARCH 3, 1849


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