DATA REPORT FOR THE COLLECTION OF EGGS FROM EASTERN SCREECH OWL ASSOCIATED WITH THE HUDSON RIVER FROM HUDSON FALLS TO SCHODACK ISLAND, 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

APRIL 28, 2005

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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.

As a means of evaluating regional avian contamination, a screening level survey of Eastern screech owl (*Otus asio*) eggs was conducted in April 2003. This Data Report provides the results of that preliminary investigation conducted pursuant to the NRDA.

This collection supplements the avian egg data from the Trustees' Hudson River avian egg exposure preliminary investigation that was conducted from April 2002 through June 2002. In that investigation, 168 eggs from 11 avian species were collected and analyzed. However, only one Eastern screech owl egg was collected and analyzed. In that egg total PCBs (fresh weight basis, as sum of homologues) measured 8,010 ppb.

The ten Eastern screech owl egg samples collected in April 2003 were analyzed for 47 selected PCB congeners, PCB homologue groups, total PCBs, percent lipids, and percent moisture. Total PCB concentrations in those eggs range from 744 parts per billion (ppb) to 7,450 ppb (fresh weight basis, as sum of homologues) with a mean of 3,370 ± 2,100 ppb.

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1.0 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 2002a). This Data Report provides the results of a preliminary investigation of PCB contamination of Eastern screech owls (*Otus asio*) 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.

Eastern screech owls are opportunistic predators with a diet that includes nearly every class of animal life (VanCamp and Henny 1975). PCBs are known to be present in various life stages of a variety of Hudson River wildlife species upon which Eastern screech owl may be feeding, including tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), American robin (*Turdus migratorius*), red-winged blackbird (*Agelaius phoenicius*), common grackle (*Quiscalus quiscula*), deer mouse (*Peromyscus sp.*), meadow vole (*Microtus sp.*), and short-tailed shrew (*Blarina brevicauda*) (Hudson River Natural Resource Trustees 2004a, SEA Consultants 2002, Secord et al. 1999). Eastern screech owl are also known to feed upon fish, including gizzard shad (*Dorosoma cepedianum*) and bullhead (*Ictalurus sp.*), amphibians, including leopard frog (*Rana pipiens*), and invertebrates, including crayfish (*Oronectes sp.*)

This Data Report, focused on Eastern screech owl eggs, supplements the avian egg data from the Trustees' Hudson River avian egg exposure preliminary investigation that was conducted from April 2002 through June 2002. The Data Report for that investigation (Hudson River Natural Resource Trustees 2004a) provides the results of chemical analysis of 168 egg samples from the following avian species: belted kingfisher (*Ceryle alcyon*), American robin, Eastern phoebe (*Sayornis phoebe*), spotted sandpiper (*Actitis macularia*), red-winged blackbird, American woodcock (*Scolopax minor*), Eastern screech owl, common grackle, northern rough-winged swallow (*Stelgidopteryx serripennis*), barn swallow, and Eastern bluebird (*Sialia sialis*). However, in that investigation only one Eastern screech owl egg was collected and analyzed. That Eastern screech owl egg contained total PCBs (fresh weight basis, as sum of homologues) measured at 8,010 ppb. That egg was collected from Region 1 (the area from Bakers Falls downstream to the Fort Miller Dam, as described in section 2.0 of this report).

This supplemental preliminary investigation of Eastern screech owl eggs was undertaken by the Trustees to assist in determining the extent to which Eastern screech owls 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.

2.0 SAMPLING

Collection and processing of Eastern screech owl eggs were conducted in accordance with the Work Plan for the Collection of Eggs from Eastern Screech Owl Associated with the Hudson River from Hudson Falls to Schodack Island, New York, including the Protocol for Avian Egg Collection and Removal of Contents for Contaminants Analysis (Appendix A) (Hudson River Natural Resource Trustees, 2003a) and the Addendum to the Work Plan for the Collection of Eggs from Eastern Screech Owl Associated with the Hudson River from Hudson Falls to Schodack Island, New York (Appendix B) (Hudson River Natural Resource Trustees, 2003b). Chemical analyses were conducted pursuant to the Trustees' Analytical Quality Assurance Plan (Hudson River Natural Resource Trustees, 2002b).

This preliminary investigation focused on four areas of the Hudson River between Bakers Falls on the Hudson River (in Hudson Falls, New York) and Schodack Island, New York, described as follows, and shown on Figure 1:

> Region 1: the area from Bakers Falls (at River Mile (RM) 196.9) downstream to the Fort Miller Dam (Lock 6) at RM 186.2 (Champlain Canal); this includes the Thompson Island Pool.
>
> Region 2: the area from the Fort Miller Dam (Lock 6) at RM 186.2 downstream to the Stillwater Dam (Lock 4) at RM 168.2; this includes the Stillwater Pool.
>
> Region 3: the area below the Stillwater Dam (Lock 4) at RM 168.2 downstream to the Federal Dam at Troy (RM 153.9), excluding Troy and its urban vicinity (approximately from Peebles Island State Park downstream to the Federal Dam).
>
> Region 4: the area below the Federal Dam at Troy (RM 153.9) extending south to Lower Schodack Island (RM 132), excluding Albany and its urban vicinity.

Note that these Regions are slightly modified from those specified in the Work Plan for this investigation (Hudson River Natural Resource Trustees, 2003a), as shown on Figure 1 in that document (see Appendix A). The screech owl egg exposure investigation Regions were realigned to be identical to those used in the Trustees' avian egg investigation (Hudson River Natural Resource Trustees, 2004a).

2.1 EGG COLLECTION

Before egg collection began, the appropriate State and Federal permits were obtained. Field work was conducted in April 2003. At each nest suspected of being active, a survey team member checked the nest box to determine the status of the nest. After determining that eggs were available for collection, a survey team member reached into the nest and collected an egg. Scientists wore nitrile gloves to reduce exposure to any parasites and disease-carrying agents that may have been present in the nest or on an egg. Egg collection was documented using the Screech Owl Egg Collection Data Sheet specified in the Work Plan for this investigation.

Each collected egg was marked, using a graphite pencil, with a unique three-digit nest number and wrapped in aluminum foil labeled with the nest number, to protect against breakage. Wrapped eggs were placed in an egg container, then into a cooler or secure box with ice, and transported to the New York State Department of Environmental Conservation (NYSDEC) Hale Creek laboratory for processing. Eggs were stored at approximately 40 degrees Fahrenheit before processing.

The first Eastern screech owl egg for this investigation was collected on April 23, 2003, and the final egg for this investigation was collected on April 29, 2003.

2.2 EGG PROCESSING

Each egg was measured, processed and stored according to the Work Plan and the Protocol for Avian Egg Collection and Removal of Contents for Contaminants Analysis (Hudson River Natural Resource Trustees, 2003a). Eggs were processed within 48 hours of collection. All eggs were processed at the NYSDEC Hale Creek laboratory. Egg processing was documented using the Screech Owl Egg Processing Data Sheet specified in the Work Plan for this investigation.

Upon processing, egg contents were stored at -20 Celsius in a freezer at the NYSDEC Hale Creek laboratory until they were shipped to the program analytical laboratory for chemical analysis. Chain of custody forms were prepared with the appropriate signatures as the samples were transferred to the analytical laboratory.

2.3 EGG ANALYSES

A total of 10 eggs were submitted to the program analytical laboratory for analysis.

The egg samples were grouped into a single analytical batch by the laboratory. The eggs were analyzed for 47 PCB congeners (Table 3 of this report contains a list of the congeners), PCB homologue groups, total PCBs, percent lipids, and percent moisture. The egg tissue was prepped, extracted, and analyzed using laboratory Standard Operating Procedures (SOPs) approved by the Trustees prior to sample receipt.

Sample analysis began on September 16, 2003, and concluded on September 19, 2003.

2.4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Data validation was conducted by the Trustees, and was based on the quality assurance/quality control (QA/QC) criteria documented in the Trustees' Analytical Quality Assurance Plan for the Hudson River Natural Resource Damage Assessment (Hudson River Natural Resource Trustees, 2002b), USEPA (1999), and the following laboratory SOPs:

- SOP # HR NRDA Project Tissue Prep: Tissue Preparation and Homogenization, Revision #1.0, 9/25/02
- SOP # OP-004: Extraction of Soil, Tissue, Vegetation, and Sediment by Pressurized Fluid Extraction, Revision #2.0, 8/15/02
- SOP # O-010: Determination of PCB Homologues and Individual Congeners by GC/MS - SIM, Revision #2.2, 10/24/02
- SOP # HR NRDA % Lipids: Percent Lipids Determination, Revision #0.0, 9/9/02
- SOP # W-001: Percent Solids Determination, Revision #2.1, 9/25/02
- Additional cleanup, sample handling, storage, and custody SOPs as necessary.

Sample results and related QC data were received in both an electronic and hard copy format. Electronic data were verified against the hard copy data package. All of the data received a full validation.

The data package submitted by the laboratory was reviewed to determine whether the analytical data quality objectives (ADQO) specified in Tables 6.1a - 6.1c in the Analytical Quality Assurance Plan (Hudson River Natural Resource Trustees, 2002b) were met.

Table 1.1 of the Trustees' Analytical Quality Assurance Plan (Hudson River Natural Resource Trustees, 2002b) specifies the target Method Detection Limits (MDLs) for PCB congeners, homologues and total PCBs. For tissue, such as avian egg samples, the target MDLs are 0.1 ng/g wet weight (equivalent to 0.1 ppb wet weight) for individual congeners, and 10 ng/g (equivalent to 10 ppb) for PCB homologues and total PCBs. Actual MDLs for each PCB analyte were established by the analytical laboratory as specified in the Analytical Quality Assurance Plan. Actual MDLs are reported on the Screech Owl Egg Data Sheets (Appendix D) in the "Detection Limit" column. The detection limits for target congeners were generally in the range of 0.04 µg/kg to 0.30 µg/kg.

Appendix C contains the Data Quality Assessment Report (Hudson River Natural Resource Trustees, 2004b) for the samples. Table 1 to that appendix is a summary of standard reference material (SRM) analytical results. Table 2 of that appendix summarizes the results of the laboratory duplicate analyses.

Out of 720 individual analytical results reported by the laboratory (ten samples and two field blanks, each with 47 congeners, ten homologue groups, total PCBs, percent lipids and percent moisture), a total of two (0.28%) data points were qualified as estimated (J); this was because of laboratory precision outliers. For all data, the overall quality of the data is acceptable and all results, as qualified, are considered usable. No data were rejected. The completeness level attained for the analysis of the field samples is 100%.

A quality control table was developed. That table includes Laboratory ID, Analytical Batch Number, Analyte, Value, Lab Flag, Interpretive Qualifier, Value Units, Detection Limit, Analysis Group, Basis, Extraction Date, Analysis Date, Dilution Factor, Sample Size, Sample Size Unit, and Quality Control Types for all samples, duplicates, SRMs and rinse blanks. Due to the size of this table, it has not been included in this report, but will be made available upon request. The quality control table is part of the Trustees' Screech Owl Egg Database (Hudson River Natural Resource Trustees, 2004c).

3.0 RESULTS

The Screech Owl Egg Data Sheets (Appendix D) provide the results of the analyses. These Data Sheets contain information that has been extracted from the Trustees' Screech Owl Egg Database (Hudson River Natural Resource Trustees, 2004c). That complete database and the accompanying Database User Manual (Hudson River Natural Resource Trustees, 2004d) are not included in this report due to the size of the database, but will be made available upon request.

The Screech Owl Egg Data Sheets contain the following fields:

Sampling Date - Sampling Date (mm/dd/yy format).

Field ID - The field IDs were created using the following format:

CC-NNN-EEE

where CC is the code for the common name (e.g., SO is Eastern screech owl), NNN is the nest number, and EEE is the egg ID number. For example, SO-001-007 indicates egg ID number 007 in nest number 001, associated with an Eastern screech owl.

Easting - NAD83 Universal Transverse Mercator easting coordinates (meters) Zone 18N.

Northing - NAD83 Universal Transverse Mercator northing coordinates (meters) Zone 18N.

Region - Region as delineated in section 2 of this report, based on latitude and longitude.

Laboratory ID - Laboratory IDs were created using the following format:

Sample delivery group - run sequence number (e.g., 0208031-01).

Analyte - For the PCB congeners, the analyte names are reported using the following format:

Clx-BZ#NNN

where Clx refers to the chlorination level, BZ# refers to the Ballschmiter and Zell (1994) number, and NNN is the congener number. For example, PCB 110 (a pentachlorinated biphenyl) is reported as Cl5-BZ#110.

Value and Interpretive Qualifier -

Value - Analytical result (3 significant figures).

Interpretive Qualifier - This field contains qualifiers applied to each data point by the laboratory and after the data validation process. The qualifiers are defined as follows:

U Analyte was not detected. The associated value represents the detection limit.

J Estimated: The associated numerical value is an estimated quantity. The analyte was detected, but the reported value may not be accurate or precise. The "J" qualification indicates the data fell outside the QC limits, but the exceedance was not sufficient to cause rejection of the data, or that the reported result is within a range of elevated analytical uncertainty (greater than the Method Detection Limit (MDL) value, but less than the Practical Quantitation Limit (PQL) value).

Reasons for qualification are explained further in the Data Quality Assessment Report (Appendix C).

The unit of measurement of the analytical result is provided (for example, µg/kg).

Detection Limit - self-explanatory; this column includes units.

Fresh Weight - results (analyte value in earlier column) corrected for moisture loss, as discussed below.

A brief description of some of the features of these data follows in sections 3.1 and 3.2 of this Data Report. Please note that the unit "µg/kg" used in the Data Sheets is equivalent to parts per billion (ppb) used in the discussion of these data in this Data Report.

Data fields, and data collected by the Trustees, that are not reported in this Data Report but that are contained within the Trustees' Screech Owl Egg Database consist of the following: Study Name, Laboratory ID, Analytical Batch Number, Laboratory Flag, Analysis Group, Analytical Method, Extraction Date, Analysis Date, Dilution Factor, Sample Size and Units, Egg Contents Weight, Whole Egg Weight, Egg Volume, and Comments.

All PCB results reported below and in the figures attached to this report have been corrected for moisture loss. This is a standard adjustment necessary to compensate for the loss of moisture in avian eggs (Stickel et al. 1973). Valid interpretation of contaminant residue data for avian eggs depends upon adjustment for moisture loss.

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 (Fresh Weight) is then derived by multiplying the laboratory determined contaminant concentration (Analyte Value) by the correction factor (CF).

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 Analyte Value = Fresh Weight

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

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

All calculated CFs were used, and all samples were included in calculating the average PCB concentration. For "J" qualified results (J), the estimated value was used in the calculations.

For the purpose of reporting PCB results below and in the figures attached to this report, all values flagged with a U interpretive qualifier (that is, not detected; see Appendix C) were considered to be zero. Using zero, rather than the value reported by the laboratory for the analyte, which represents the detection limit for the analysis, potentially underreports the true value, but avoids overreporting the true value. This is thus a conservative result; the actual PCB concentration could be higher.

3.1 TOTAL PCB CONCENTRATIONS

Total PCB concentrations of the screech owl eggs are summarized in Table 1. Total PCB concentrations of the screech owl eggs, by Region, are summarized in Table 2. Values in Tables 1 and 2 are reported to three significant figures.

Table 1. Summary of Total PCBs (fresh weight, as sum of homologues) in Hudson River Eastern Screech Owl Eggs Collected in 2003.

Species	n = number of samples	Concentration Range (ppb)	Concentration Average ± 1 SD (ppb)
Eastern screech owl	10	744 - 7,450	3,370 ± 2,100

Table 2. Summary of Total PCBs (as sum of homologues) in Hudson River Eastern Screech Owl Eggs Collected in 2003, by Region.

Species	n = number of samples	Concentration Range (ppb)	Concentration Average ± 1 SD (ppb)
Region 1	2	744 - 3,430	2,090 ± 1,900
Region 2	7	1,530 - 7,450	3,980 ± 2,130
Region 4	1	1,680	- -

Figures 2 through 4 graphically represent the ranges and averages of screech owl egg total PCBs by Region.

Please note that on Figures 2 through 4, the vertical axis (PCB concentration (µg/kg)) is a logarithmic scale. On a logarithmic scale, steps increase in a multiplicative fashion, not in an additive fashion as on a linear scale. The increase of one unit on a logarithmic scale represents a tenfold increase in the value. For instance, the first value on the scale is 10^2, which is equivalent to 100 µg/kg or 100 ppb; the next value on the scale (10^3) is equivalent to 1000 µg/kg or 1000 ppb.

3.2 PCB HOMOLOGUES AND CONGENERS

PCBs are synthetic (man-made) chemicals that form a group of 209 individual compounds that have similar chemical structures based on a biphenyl core with 1 to 10 chlorine atoms attached. PCBs have the generic formula C12H(10-x)Clx, where x is an integer from 1 to 10.

Each individual PCB compound, called a congener, is identified by the unique number and location of chlorine atoms that attach to the compound's base structure. Congeners differ both in their physical properties and in their effects on fish and wildlife (Safe 1994; Van den Berg et al. 1998).

For this investigation, the avian eggs were analyzed for 47 specific target PCB congeners listed in Table 3. In addition, a total concentration for each homologue group was determined by summing all target and non-target congener concentrations within each homologue group. For any congener reported as non-detected, zero was used in the summation.

Figures 5 through 7 display the PCB homologue distributions for screech owl eggs by Region of collection.

Table 3. PCB Congeners for which Avian Eggs were Analyzed.

Current Ballschmiter and Zell (1994) and International Union of Pure and Applied Chemistry (IUPAC) Number	IUPAC Name
8	2,4'-Dichlorobiphenyl
18	2,2',5-Trichlorobiphenyl
28/31	2,4,4'-Trichlorobiphenyl/2,4',5-Trichlorobiphenyl
44	2,2',3,5'-Tetrachlorobiphenyl
45	2,2',3,6-Tetrachlorobiphenyl
47	2,2',4,4'-Tetrachlorobiphenyl
49	2,2',4,5'-Tetrachlorobiphenyl
52	2,2',5,5'-Tetrachlorobiphenyl
56	2,3,3',4'-Tetrachlorobiphenyl
66	2,3',4,4'-Tetrachlorobiphenyl
70	2,3',4',5-Tetrachlorobiphenyl
74	2,4,4',5-Tetrachlorobiphenyl
77	3,3',4,4'-Tetrachlorobiphenyl
81	3,4,4',5-Tetrachlorobiphenyl
87	2,2',3,4,5'-Pentachlorobiphenyl
95	2,2',3,5',6-Pentachlorobiphenyl
99	2,2',4,4',5-Pentachlorobiphenyl
101	2,2',4,5,5'-Pentachlorobiphenyl
105	2,3,3',4,4'-Pentachlorobiphenyl
110	2,3,3',4',6-Pentachlorobiphenyl
114	2,3,4,4',5-Pentachlorobiphenyl
118	2,3',4,4',5-Pentachlorobiphenyl
123	2,3',4,4',5'-Pentachlorobiphenyl
126	3,3',4,4',5-Pentachlorobiphenyl
128	2,2',3,3',4,4'-Hexachlorobiphenyl
138	2,2',3,4,4',5'-Hexachlorobiphenyl
146	2,2',3,4',5,5'-Hexachlorobiphenyl
149	2,2',3,4',5',6-Hexachlorobiphenyl
151	2,2',3,5,5',6-Hexachlorobiphenyl

Table 3. PCB Congener Analytes (continued)

Current Ballschmiter and Zell (1994) and International Union of Pure and Applied Chemistry (IUPAC) Number	IUPAC Name
153	2,2',4,4',5,5'-Hexachlorobiphenyl
156	2,3,3',4,4',5-Hexachlorobiphenyl
157	2,3,3',4,4',5'-Hexachlorobiphenyl
158	2,3,3',4,4',6-Hexachlorobiphenyl
167	2,3',4,4',5,5'-Hexachlorobiphenyl
169	3,3',4,4',5,5'-Hexachlorobiphenyl
170	2,2',3,3',4,4',5-Heptachlorobiphenyl
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl
177	2,2',3,3',4,5',6'-Heptachlorobiphenyl
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
183	2,2',3,4,4',5',6-Heptachlorobiphenyl
187	2,2',3,4',5,5',6-Heptachlorobiphenyl
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
123	2,3',4,4',5'-Pentachlorobiphenyl
126	3,3',4,4',5-Pentachlorobiphenyl
128	2,2',3,3',4,4'-Hexachlorobiphenyl
138	2,2',3,4,4',5'-Hexachlorobiphenyl
146	2,2',3,4',5,5'-Hexachlorobiphenyl
149	2,2',3,4',5',6-Hexachlorobiphenyl
151	2,2',3,5,5',6-Hexachlorobiphenyl
153	2,2',4,4',5,5'-Hexachlorobiphenyl
156	2,3,3',4,4',5-Hexachlorobiphenyl
157	2,3,3',4,4',5'-Hexachlorobiphenyl
158	2,3,3',4,4',6-Hexachlorobiphenyl
167	2,3',4,4',5,5'-Hexachlorobiphenyl
169	3,3',4,4',5,5'-Hexachlorobiphenyl
170	2,2',3,3',4,4',5-Heptachlorobiphenyl
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl
177	2,2',3,3',4,5',6'-Heptachlorobiphenyl
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
183	2,2',3,4,4',5',6-Heptachlorobiphenyl
187	2,2',3,4',5,5',6-Heptachlorobiphenyl
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
209	Decachlorobiphenyl

Figure 1. 2003 Screech owl egg locations. Triangles represent collection sites, squares represent nearby towns and cities.

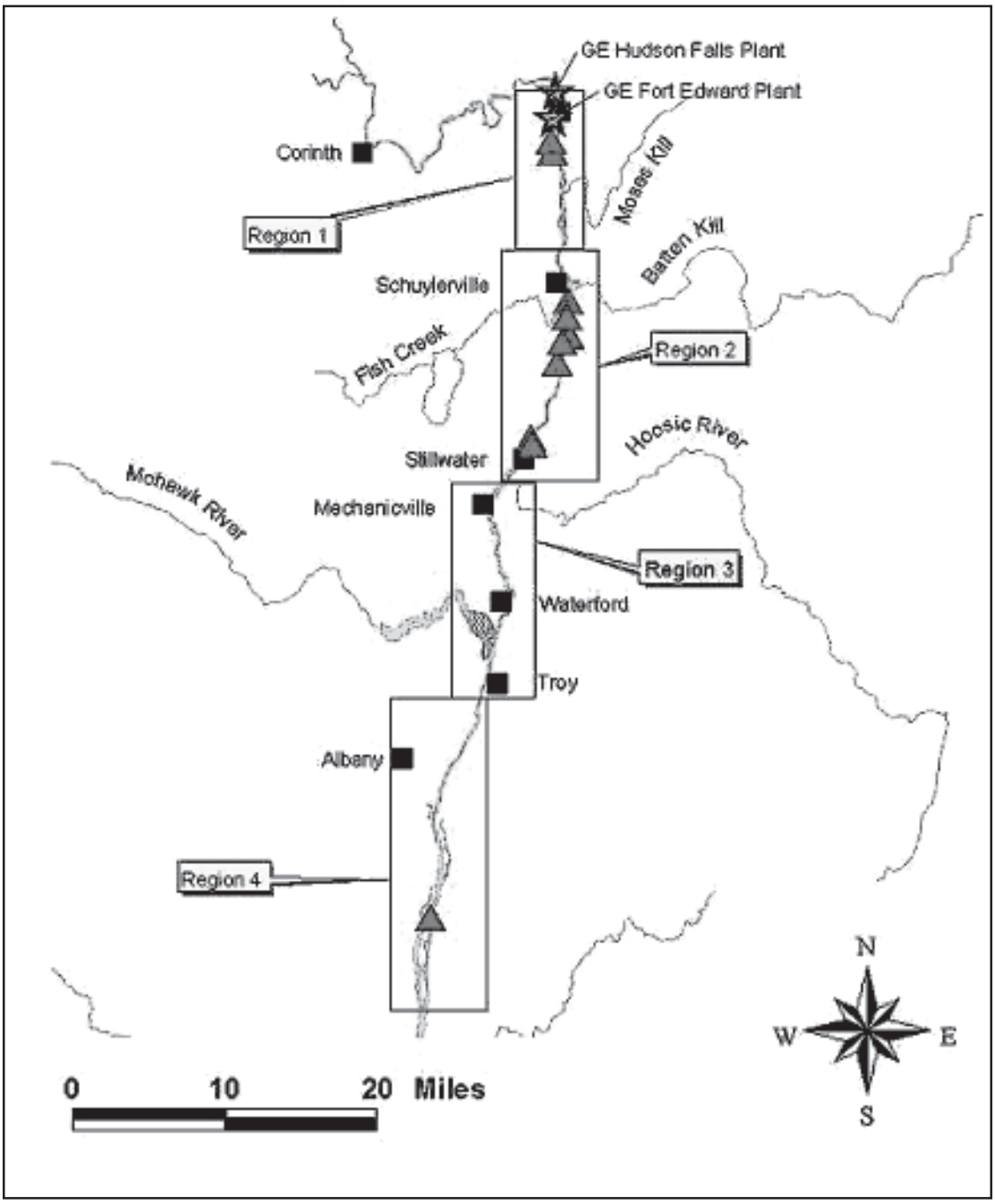


Figure 2. Region 1 screech owl egg PCB concentrations (black dots represent individual samples, green dots represent average)

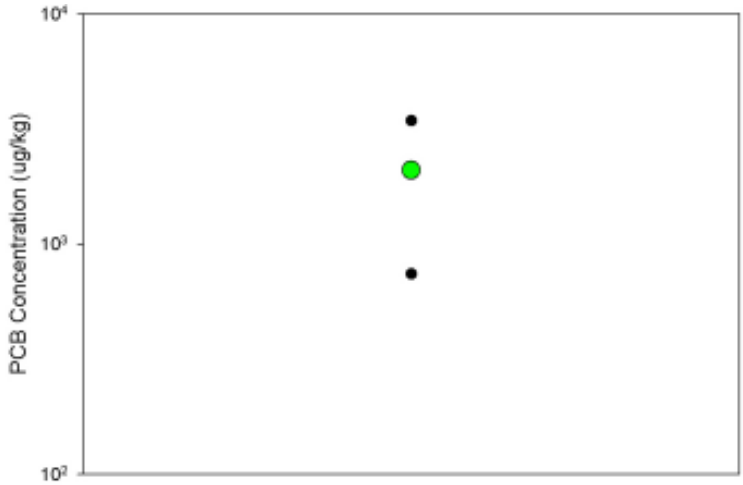


Figure 3. Region 2 screech owl egg PCB concentrations (black dots represent individual samples, green dots represent average)

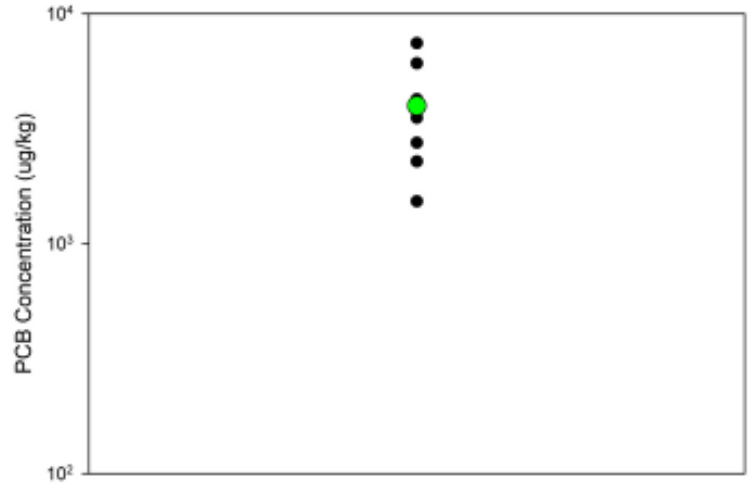


Figure 4. Region 4 screech owl egg PCB concentration

Figure 5. Region 1 average screech owl egg PCB homologue distribution (error bars represent one standard deviation)

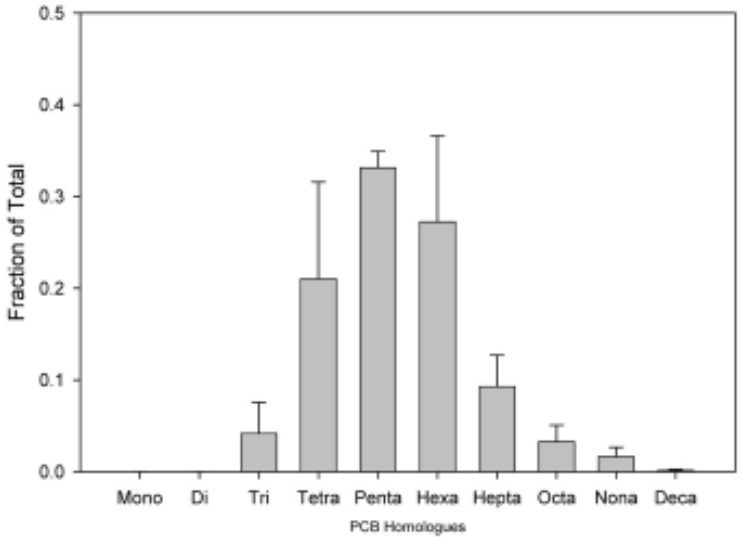


Figure 6. Region 2 average screech owl egg PCB homologue distribution (error bars represent one standard deviation)

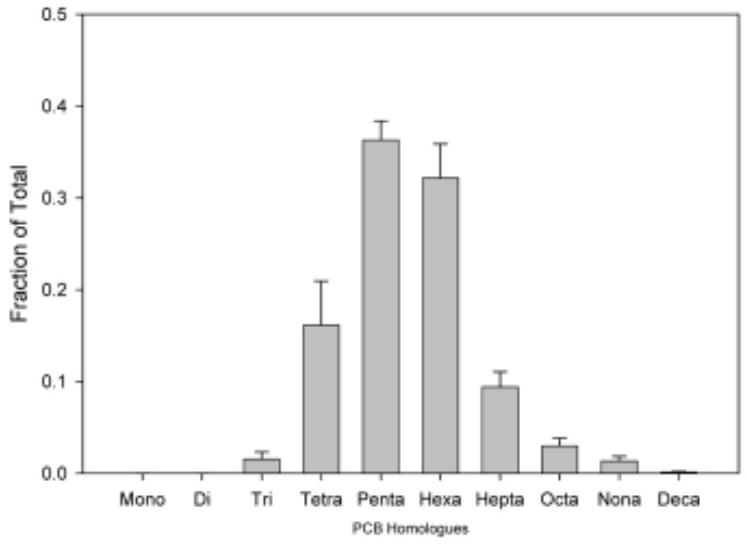
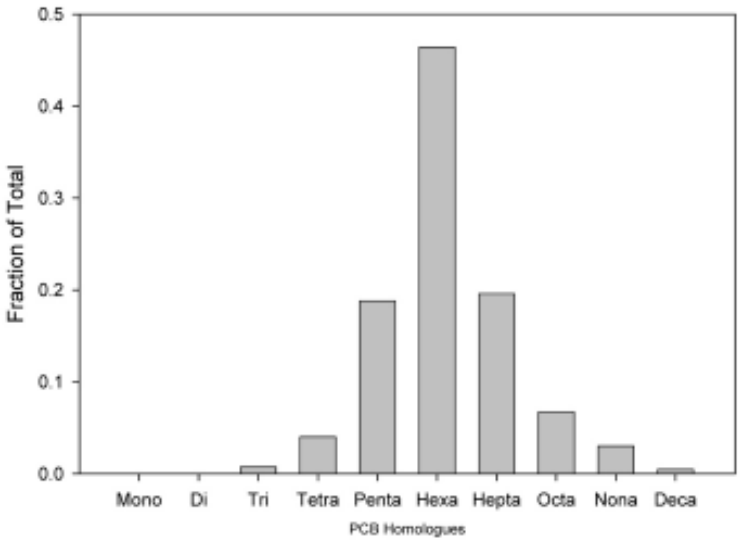


Figure 7. Region 4 average screech owl egg PCB homologue distribution



4.0 REFERENCES

Andrle, R.F. and J.R. Carroll. 1988. The Atlas of Breeding Birds in New York State, Federation of New York State Birds Club. IV. ISBN 0-8014-1691-4. New York State Department of Environmental Conservation. Cornell University, Laboratory of Ornithology. Cornell University, NY.

Ballschmiter, K. and M. Zell. 1994. Analysis of polychlorinated biphenyls (PCBs) by glass capillary gas chromatography. *Fresenius' Journal of Analytical Chemistry* 302: 20-31.

Hudson River Natural Resource Trustees. 2002a. Hudson River Natural Resource Damage Assessment Plan. September 2002. U.S. Department of Commerce, Silver Spring, MD.

Hudson River Natural Resource Trustees. 2002b. Analytical Quality Assurance Plan for the Hudson River Natural Resource Damage Assessment. Public Release Version. July 9, 2002, Version 1.0. U.S. Department of Commerce, Silver Spring, MD.

Hudson River Natural Resource Trustees. 2003a. Work Plan for the Collection of Eggs from Eastern Screech Owl Associated With the Hudson River from Hudson Falls to Schodack Island, New York. March 18, 2003. Version 1.0. U.S. Department of Commerce, Silver Spring, MD.

Hudson River Natural Resource Trustees. 2003b. Addendum to Work Plan for the Collection of Eggs from Eastern Screech Owl Associated With the Hudson River from Hudson Falls to Schodack Island, New York. Public Release Version. May 13, 2003. Version 1.0. U.S. Department of Commerce, Silver Spring, MD.

Hudson River Natural Resource Trustees. 2004a. Data Report for the Collection of Eggs from Spotted Sandpipers, American Woodcock, Belted Kingfisher, American Robin, Red-Winged Blackbird, and Eastern Phoebe Associated With the Hudson River from Hudson Falls to Schodack Island, New York. Final. September 17, 2004. U.S. Department of Commerce, Silver Spring, MD.

Hudson River Natural Resource Trustees. 2004b. Data Quality Assessment Report. Floodplain Study. Screech Owl Egg. Public Release Version. January 28, 2004. Version 1.0. U.S. Department of Commerce, Silver Spring, MD.

Hudson River Natural Resource Trustees. 2004c. Screech Owl Egg Database. Version 2.1. U.S. Department of Commerce, Silver Spring, MD.

Hudson River Natural Resource Trustees. 2004d. Database User Manual for Version 2.1. Hudson River Natural Resource Damage Assessment. Screech Owl Egg Study. Public Release Version. July 30, 2004. U.S. Department of Commerce, Silver Spring, MD.

Safe, S.H. 1994. Polychlorinated biphenyls (PCBs): environmental impact, biochemical and toxic responses, and implications for risk assessment. *Critical Reviews in Toxicology* 24: 87-149.

S E A Consultants, Inc. 2002. Hudson River Natural Resources Damage Assessment, Floodplain Soil and Biota Screening Sampling Report. S E A Consultants, Inc., Cambridge, MA. Report Prepared for Industrial Economics, Inc. S E A Project No. 2000416.01-A.

Secord, A.L., J.P. McCarty, K.R. Echols, J.C. Meadows, R.W. Gale, and D.E. Tillitt. 1999. Polychlorinated biphenyls and 2,3,7,8-tetrachlordibenzo-p-dioxin equivalents in tree swallows from the Upper Hudson River, New York State, USA. *Environ. Toxicol.* & *Chem.* 18: 2519-2525.

Stickel, L.F., S.N. Wiemeyer, and L.J. Blus. 1973. Pesticide residues in eggs of wild birds: adjustment for loss of moisture and lipid. B*ull. Environ. Contam. Toxicol.* 9:193-196

USEPA. 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. Office of Emergency and Remedial Response, Washington, D.C. 20460. EPA540/R-99/008, 118 pp.

VanCamp, L.F. and C.J. Henny. 1975. The screech owl: its life history and population ecology in northern Ohio. North American Fauna, Number 71. U.S. Fish and Wildlife Service.

Van den Berg, M., Birnbaum, L., Bosveld, A.T.C., Brunstrom, b., Cook, P., Feeley, M., Giesy, J.P., Hanberg, A., Hasegawa, R., Kennedy, S.W., Kubiak, T., Larsen, J.C., van Leeuwen, F.X.R., Liem, A.K.D., Nolt, C., Peterson, R.E., Poellinger, L., Safe, S., Schrenk, D., Tillitt, D., Tysklind, M., Younes, M., Waern, F. and Zacharewski, T. 1998. Toxic equivalency factors (TEFs) for PCBs, PCDDs, PCDFs for humans and wildlife. *Environmental Health Perspectives* 106: 775-792

Appendix A

Work Plan for Collection of Eggs from Eastern Screech Owl Associated with the Hudson River from Hudson Falls to Schodack Island, New York

WORK PLAN FOR COLLECTION OF EGGS FROM EASTERN SCREECH OWL ASSOCIATED WITH THE HUDSON RIVER FROM HUDSON FALLS TO SCHODACK ISLAND, 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

VERSION 1.0

FINAL

PUBLIC RELEASE VERSION*

MARCH 18, 2003

Available from:
U.S. Department of Commerce
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*

ERRATUM
to
Work Plan for Collection of Eggs from Eastern Screech Owl
Associated with the Hudson River from
Hudson Falls to Schodack Island, New York

On page 1, S E A Consultants, Inc. (2001) should be cited as S E A Consultants (2002), and on page 18, S E A Consultants Inc (2002) should be cited as:

S E A Consultants, Inc. 2002. Hudson River Natural Resources Damage Assessment, Floodplain Soil and Biota Screening Sampling Report. S E A Consultants, Inc., Cambridge, Mass. Report Prepared for Industrial Economics, Inc. S E A Project No. 2000416.01-A.

In section 7.0, Literature Cited, several references are listed which are not cited in the document. These references should be deleted from the work plan:

Bent 1937, Custer et al. 1990, Johnsgard 1988, Kennedy and Stahlecker 1993, Stone and Okoniewski 1983, Takas et al. 2001, and Van Camp and Henny 1975.

PRELIMINARY INVESTIGATION

WORK PLAN

FOR

COLLECTION OF EGGS FROM EASTERN SCREECH OWL ASSOCIATED WITH THE HUDSON RIVER FROM HUDSON FALLS TO SCHODACK ISLAND, NEW YORK

Version No. 1.0 – FINAL

March 18, 2003

Hudson River Natural Resource Damage Assessment

_____

Investigation Lead

_____

Quality Assurance Coordinator

INVESTIGATION TEAM ACKNOWLEDGEMENT OF WORK PLAN REVIEW AND COMPLIANCE

By my signature, I acknowledge that I have read this Work Plan and understand it, and will comply with it in performing this work.

Name (printed): _____ Name (printed): _____

Signature: _____ Signature: _____

Date: _____ Date: _____

Title: _____ Title: _____

Name (printed): _____ Name (printed): _____

Signature: _____ Signature: _____

Date: _____ Date: _____

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Title: _____ Title: _____

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1.0 INTRODUCTION

The General Electric Company (GE) is believed to have discharged between 209,000 and 1.3 million pounds of polychlorinated biphenyls (PCBs) into the Hudson River between the 1940s and 1977 (Baker *et al.* 2001). These PCBs have been detected in the sediment, water, and biota of the Hudson River at levels of potential ecological concern (TAMS Consultants, Inc. and Menzie-Cura & Associates, Inc. 2000). A recent study documented elevated PCB levels in Hudson River floodplain soils (SEA Consultants, Inc. 2001). As a result of this contamination, the Hudson River Natural Resource Trustees (Trustees) are conducting a natural resource damage assessment of the Hudson River. The Trustees are the State of New York acting through the New York State Department of Environmental Conservation (NYSDEC), the U.S. Department of the Interior acting through the Fish and Wildlife Service (FWS), and the Department of Commerce acting through the National Oceanic and Atmospheric Administration (NOAA).

In Spring-Summer 2002, the Trustees conducted an Avian Egg Exposure Study, focusing on collection of eggs from six primary avian species -- spotted sandpiper (*Actitis macularia*), American woodcock (*Scolopax minor*), belted kingfisher (*Ceryle alcyon*), American robin (*Turdus migratorius*), red-winged blackbird (*Agelaius phoeniceus*), and Eastern phoebe (*Sayornis phoebe*) – along with collection of a limited number of eggs on an opportunistic basis from several other avian species, including Eastern screech owl (*Otus asio*). The Avian Egg Exposure Study was conducted in accordance with the "Work Plan for the Collection of Eggs from Spotted Sandpipers, American Woodcock, Belted Kingfisher, American Robin, Red-Winged Blackbird, and Eastern Phoebe Associated with the Hudson River from Hudson Falls to Schodack Island, New York," dated March 2002. One Eastern screech owl egg was collected during that study. This Work Plan is a follow-up to that study, with a focus on Eastern screech owls.

In March 2002 the Trustees installed 70 screech owl nest boxes along the Hudson River, between Fort Edward, New York, and Stillwater, New York, to facilitate future collection of screech owl eggs. Installation of an additional up to 80 screech owl nest boxes in the near future is ongoing and/or anticipated in early 2003; these boxes will be placed between Fort Edward and Schodack Island, New York. Under this current "Work Plan for Collection of Eggs from Eastern Screech Owl Associated with the Hudson River from Hudson Falls to Schodack Island, New York," the Trustees plan to collect screech owl eggs from those boxes, as well as from other screech owl nests that may be identified in the course of the study, and to determine PCB levels in those screech owl eggs. The primary study area includes the Hudson River and its floodplain from Hudson Falls south to Schodack Island.

The objectives of this study are to:

- Identify, for the purpose of egg collection, active screech owl nests in each of four geographic zones within the study area;

- Collect eggs from each active screech owl nest; with the exception of nests selected for assessment of within-clutch variability within screech owls (see Section 2.4) (from which two eggs will be collected), only one screech owl egg will be collected from each active nest; it is anticipated that eggs will be collected from up to a maximum of 40 nests;

- Process egg samples to prepare them for potential future chemical analyses;
- Archive egg samples collected for potential future chemical analyses; and,
- Collect owl pellets, archiving them for potential future analysis for content (prey remains) and/or contaminants residues; any dead owls found and collected will also be archived for potential future analyses.

The primary objective of this study is to collect eggs from Eastern screech owls and to process those eggs in anticipation that they will be analyzed to determine PCB levels in those eggs. This will provide the Trustees with further information regarding exposure of Eastern screech owls to PCBs in the Hudson River valley. Locating active nests will require a stepwise approach that considers the egg-laying and incubation period of screech owls. This survey will focus upon the nest boxes installed by the Trustees, although eggs may be collected from other nests identified in the course of the survey. With the exception of nests selected for assessment of within-clutch variability within screech owls (see Section 2.4), one screech owl egg will be collected from each active nest, and will constitute a single sample.

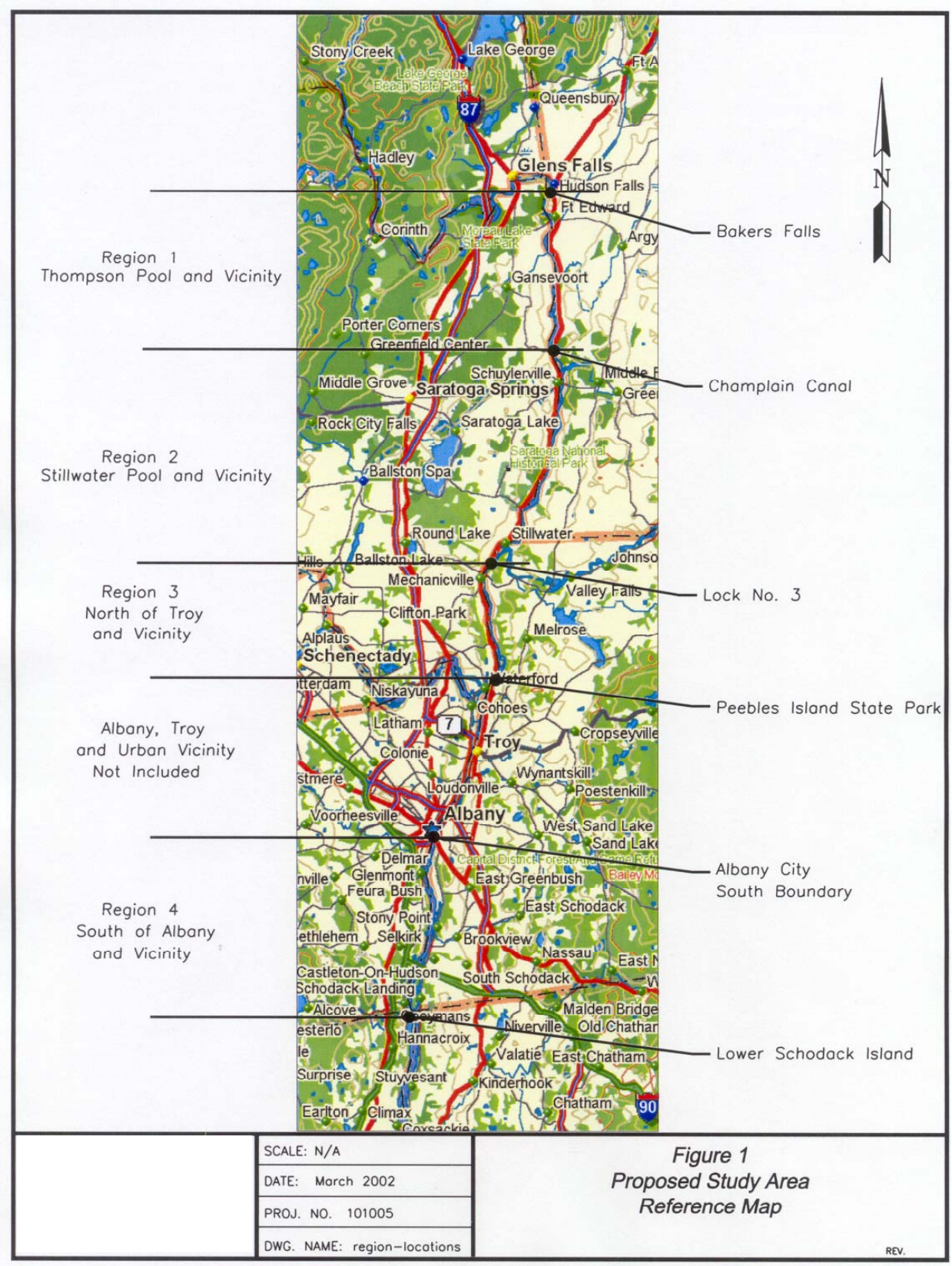
Eggs will be collected in each of four geographic zones within the study area to provide a balanced sample amongst various portions of the river. The four regions can be approximately described as follows: the six-mile portion of the river known as Thompson Island Pool; Stillwater pool; the area below Stillwater pool extending south to the Troy dam, and the area below the Troy dam extending south to Schodack Island, excluding Albany. Figure 1 provides a map of the study area.

2.0 METHODS

In this section of the work plan we describe the methods that will be used to contact landowners for permission to access property, identify active nests, collect eggs to be submitted for chemical analysis, and generate the results.

2.1 Landowner Contacts

Egg collection will focus on nest boxes located on publicly owned land or on private property where landowner permission for access has already been obtained. Where placement of new nest boxes is proposed on private property, the landowner will be contacted by the Investigation Lead or his designee for permission to access the property. Such contacts will include a combination of methods, including phone calls, letters, and personal contact.


Region 1
Thompson Pool and Vicinity
Region 2
Stillwater Pool and Vicinity
Region 3
North of Troy
and Vicinity
Albany, Troy
and Urban Vicinity
Not Included
Region 4
South of Albany
and Vicinity
Bakers Falls
Champlain Canal
Lock No. 3
Peebles Island State Park
Albany City
South Boundary
Lower Schodack Island
N
Stony Creek
Lake George
Queensbury
Hadley
Glens Falls
Hudson Falls
Ft Edward
Corinth
Argyle
Gansevoort
Porter Corners
Greenfield Center
Schuylerville
Middle Grove
Saratoga Springs
Rock City Falls
Saratoga Lake
Ballston Spa
Round Lake
Stillwater
Ballston Lake
Mechanicville
Valley Falls
Mayfair
Clifton Park
Melrose
Alplaus
Schenectady
Niskayuna
Cohoes
Latham
Troy
Cropseyville
Colonie
Wynantskill
Loudonville
Poestenkill
Voorheesville
Albany
West Sand Lake
Delmar
Glenmont
East Greenbush
Feura Bush
East Schodack
Stony Point
Selkirk
Brookview
Nassau
Castleton-On-Hudson
Schodack Landing
South Schodack
Alcove
Malden Bridge
Niverville
Old Chatham
Hannacroix
Valatie
East Chatham
Surprise
Stuyvesant
Kinderhook
Earlton
Climax
Chatham
87
7
90
SCALE: N/A
DATE: March 2002
PROJ. NO. 101005
DWG. NAME: region-locations
Figure 1
Proposed Study Area
Reference Map
REV.

2.2 Identification of Active Nests

Potential nest sites, including existing nest boxes, will be investigated by scraping the bark of the tree or gently tapping on the tree or box to see if an owl pokes its head out of the entrance hole. If no response is obtained by this non-invasive method, then a peeper probe or a small mirror attached to a telescoping pole will be used to look into the cavity or nest box. As a last resort, trees will be climbed and the cavity or nest box searched. During the course of investigating nest boxes, searches for potential nests cavities in trees will be made. Searches for potential nest sites will include areas with cavity trees with openings at least 8 cm in height and width (Duguay *et al*. 1997).[1] Trees with occupied cavities will be marked on sketch maps of the site and/or on aerial photos to facilitate future relocation. If necessary, a small mark will be made on the tree or a nearby reference tree to ease future relocation.

Existing screech owl nest boxes or nest cavities found will be checked at least twice during the egg-laying period, expected to be between April 12 and May 18 (Eaton 1988, Veit and Petersen 1993).

2.3 Screech Owl Egg Collection and Analysis

With the exception of nests selected for assessment of within-clutch variability within screech owls (see Section 2.4), one screech owl egg will be collected from each active nest. Before collection begins, permits from the NYSDEC, NPS, and FWS will be obtained to collect eggs. At each nest site suspected of having an active nest, an Investigation Team member will use a peeper probe or mirror and extension pole or other means to peer inside the nest to determine its status.

Each active screech owl nest will be uniquely numbered with a unique three-digit nest number from 001 through 200. Global Positioning System (GPS) data will be collected for each located active nest. If the GPS location cannot be provided at time of collection, other sufficient identifying information for location shall be provided in the "Notes" section of the Egg Collection Data Sheet to allow GPS coordinates to be subsequently obtained, if possible; such information could include the location of the nest plotted on a map or georeferenced aerial photograph of the study area.

After determining that eggs are available for collection, an Investigation Team member will reach into the nest and collect a single egg from the nest. Collected eggs should be whole and not cracked. Collect fresh eggs if possible. The best avian eggs for contaminants analysis are not cracked, since cracking increases variation in percent moisture, and may lead to interference with or contamination of the contents.

1 In central Kentucky, Eastern screech owls utilized a wide variety of trees for roosting, with cavity entrance heights varying from 4.5 m to 8.5 m above ground (Duguay *et al*. 1997). In that study there was no correlation with cavity entrance orientation and owl use.

Egg collection will be documented using the Screech Owl Egg Collection Data Sheet (Appendix 2). The Egg Collection Data Sheet requires the following information: data sheet number, nest number, egg numbers, Sample ID, names of Field Crew Leader and Field Data Recorder, date and time of collection, weather conditions, GPS location, site name/description, clutch size before egg removal, nest status at time of collection, information regarding any photographs taken, other notes, the initials/date of the Field Data Recorder and Field Crew Leader, and the initials/date of the Investigation Lead upon his review of the Data Sheet. Photographs will be taken during egg collection when and where determined appropriate by the Field Crew Leader.

During egg collection, scientists will wear nitrile gloves to reduce exposure to any parasites and diseases that may be present in the nest or on an egg. The collected egg will be marked, using a graphite pencil, with the unique three-digit nest number and wrapped in a protective manner with aluminum foil that is also labeled with the nest number, to protect against breakage.

Wrapped eggs that have been securely placed in an egg container will be put into a cooler or box and transported to the NYSDEC Hale Creek Laboratory for processing. Refrigerate eggs until opened. To the extent possible, processing of each egg will occur with 48 hours of collection. In the laboratory, each egg will be processed according to the Standard Operating Procedure for Removal of Avian Egg Contents for Contaminants Analysis (Appendix 1) with the appropriate Chain of Custody (COC) (see section 3.2.2 and Appendix 5).

Egg processing will be documented using the Screech Owl Egg Processing Data Sheet (Appendix 4), and photographs. Photographs will be taken of each whole egg before processing, the contents collected, and the eggshells after processing of the egg. Additional photographs may be taken as determined appropriate by the Processor. The Egg Processing Data Sheet requires the following information: data sheet number, Sample ID, name of processor, date and time of processing, information regarding collection of a bottle blank, egg length measurements, egg width measurements, whole egg weight, contents weight, conversion factor for back calculating fresh weight concentration of contaminants, information regarding the condition of the egg contents, information regarding membrane location, eggshell thickness measurements after 10 days or more of airdrying, eggshell weight after 10 days or more of airdrying, calculation of a thickness index, information regarding photographs taken, information regarding contaminants disposition, the initials/date of the Processor, and the initials/date of the Investigation Lead upon his review of the Data Sheet.

Each day eggs are processed a Bottle Blank should be collected during the processing of one egg sample, per the Standard Operating Procedure for Removal of Avian Egg Contents for Contaminants Analysis.

Egg contents will be stored at the NYSDEC Hale Creek Laboratory at a temperature of minus 20 degrees Celsius until they can be shipped to the program analytical laboratory for chemical analysis. Do not discard the foil wrapping and egg shells. After the eggshells are dried, weighed and measured according to the Standard Operating Procedure for Removal of Avian Egg Contents for Contaminants Analysis, the eggshells shall be wrapped in the foil originally used to wrap the egg (wrapping shall be in a fashion such that the nest number noted on the foil is visible) and archived at the NYSDEC Hale Creek Laboratory.

2.4 Within-Clutch Variability

To assess within-clutch variability within screech owls, two eggs will be collected from each of the first 20 nests sampled in this study. The second egg will be collected at the same time as the first egg. Both eggs will be collected and processed in accordance with the procedures in Section 2.3 of this Work Plan.

2.5 Owl Pellet Collection

All owl pellets found in the course of the field work will be collected. Each pellet collection site will be uniquely numbered with a unique three-digit pellet collection site number from 001 through 200. GPS data will be collected for each pellet collection site. If the GPS location cannot be provided at time of collection, other sufficient identifying information for location shall be provided in the "Notes" section of the Pellet Collection Data Sheet to allow GPS coordinates to be subsequently obtained, if possible; such information could include the location of the pellet collection site plotted on a map or georeferenced aerial photograph of the study area. Photographs will be taken during owl pellet collection when and where determined appropriate by the Field Crew Leader.

The owl pellets from a collection site will be wrapped in aluminum foil and placed in a plastic Zip-Loc type bag labeled with the pellet collection site number, date, and number of pellets (often more than one pellet is cast in the same location). A new piece of foil and a new bag will be used for each pellet collection site (collection sites will generally be active nests or roost sites).

Pellet collection will be documented using the Screech Owl Pellet Collection Data Sheet (Appendix 3). The Pellet Collection Data Sheet requires the following information: data sheet number, pellet collection site number, names of Field Crew Leader and Field Data Recorder, date and time of collection, weather conditions, GPS location, site name/description, number of pellets, information regarding any photographs taken, other notes, the initials/date of the Field Data Recorder and Field Crew Leader, and the initials/date of the Investigation Lead upon his review of the Data Sheet.

Collected pellets will be stored in a freezer at the NYSDEC Hale Creek Laboratory. These pellets will potentially later be analyzed for content (prey remains) and/or contaminants residue. If the Trustees determine that analysis of these pellets is appropriate, a Standard Operating Procedure for Owl Pellet Analysis will be developed by the Trustees, and appended to this Work Plan as an addendum.

2.6 Contingencies

Any dead nestling or adult screech owls found in the field will be wrapped individually in aluminum foil and then placed individually in a clean plastic bag labeled with the location (such as nearest nest number), date, and initials of collector. The bag will then be placed in a cooler containing wet ice that is inside of a plastic bag and returned to the NYSDEC Hale Creek Laboratory. These owls will also be stored at the NYSDEC Hale Creek Laboratory at a

temperature of minus 20 degrees Celsius until they can be necropsied and/or shipped to the program analytical laboratory for chemical analysis.

When conducting bird studies, disturbance can create biases that affect the gathering and analysis of data, and can have effects on the birds being studied themselves (Gaunt *et al.* 1997). As Gaunt *et al.* (1997) point out, in field ornithology, adverse affects are most commonly associated with nest visits. Investigators can cause nest desertion, damage to eggs and young from frightened adults, thermo-damage to eggs or young, mortality from missed feedings or predation, or accidental death from mishandling (Fyfe and Olendorff 1976). During the surveys, all efforts will be made to minimize disturbance to nesting owls. These efforts will include minimizing the number of surveys and nest visits and the type of nest visits, particularly during the early parts of incubation (Grier and Fyfe 1987). To the extent possible, remote observation of nests will be performed using binoculars or spotting scopes. If sufficient data cannot be obtained remotely, then inspection from a short distance (i.e., walking up to the nesting tree) or direct inspection (i.e., actually climbing a tree) will occur; however, these activities will only occur if they are not believed to be detrimental to the nesting birds. Many raptor species are believed to be most sensitive to disturbance just prior to egg laying up to the onset of incubation, from first hatching until the young become endothermic, and just prior to fledging (Steenhof 1987). Nest visits during these periods will be avoided as much as practicable. Additionally, nest visits will not be performed when weather conditions could prove detrimental to eggs or young (e.g., during a cold, rainy day, or during the middle of a hot, sunny day). Nest visits will also be kept as short as possible.

3.0 QUALITY ASSURANCE/QUALITY CONTROL

3.1 Overview and Project Management

This study is being conducted in accordance with the Quality Assurance Management Plan for the Trustees' Hudson River NRDA. As described in the plan, four general elements of quality assurance/quality control (QA/QC) must be addressed for each data collection effort: project management, data generation and acquisition, assessment and oversight, and data validation and usability.

This section describes the Quality Assurance Plan (QAP) for the screech owl egg collection and exposure study, based on these four general elements. The objectives of the study are outlined in Section 1.1. To achieve these objectives, the following types of data will be required:

- Nest identification and egg collection: Accurate species identification is required to locate the targeted species in the study area. Egg collection and processing will require following set procedures to insure proper handling and minimizing impacts to nesting individuals.

- Egg contamination levels: The laboratory chosen for tissue analysis will follow the requirements of the current version of the Hudson River NRDA Analytical QA Plan

The study is organized based on tasks and levels of responsibility to ensure good communication between all personnel. The Assessment Managers (Tom Brosnan, NOAA; Kathryn Jahn,

USFWS; and, Larry Gumaer, NYSDEC) have overall project oversight and responsibility for design and implementation of the study. The Assessment Managers provide direction to the QA Coordinator. Further, the Assessment Managers provide direction to the Investigation Lead, who is responsible for the field collection and egg processing.

The Investigation Lead provides instructions to the Investigation Team on all aspects of the project, including quality assurance management. For safety reasons, each field crew engaged in egg collection will consist of a minimum of two persons -- a Field Crew Leader and a Field Data Recorder. The Investigation Lead is responsible for resolving any issues raised by the Investigation Team, in coordination with the Assessment Managers. The Investigation Lead will work with the Assessment Managers and QA Coordinator to ensure that the study is consistent with the overall QA objectives of the NRDA.

The Work Plan for this study was developed to provide detailed and explicit instructions for the Investigation Team to follow in collecting the study data. The Work Plan has been reviewed, commented on, and approved by key parties to the study before the beginning of sample collection. Reliance on a detailed, explicit, and fully reviewed Work Plan ensures that:

- Study objectives, methods, procedures, and details are completely thought out before sampling.

- Data will be collected in a systematic and consistent way throughout the study.

- Every member of the Investigation Team adheres to the requirements of the Work Plan.

Each Investigation Team member is required to sign the "Investigation Team Acknowledgment of Work Plan Review," acknowledging that he or she has read the Work Plan, understands it, and will comply with it. In particular, each Field Crew Leader must make sure that his or her field crew adheres to the Work Plan.

The procedures specified in this Work Plan must be considered somewhat flexible. Events can arise during field sample and data collection that require changes to the procedures being used. In these circumstances, deviations from the Work Plan will be conducted only after consultation between the Assessment Managers and Investigation Lead. Deviations from the Work Plan will be carefully documented, as will a detailed explanation as to why the deviations were necessary.

3.2 Project Managers Contact Information

Contact information for the persons noted in section 3.1 of this Work Plan is as follows:

Assessment Managers:

Tom Brosnan, National Oceanic and Atmospheric Administration, 1305 East-West Highway, Silver Spring, MD 20901; Phone: 301-713-3038 X186; Fax 301-713-4387; e-mail: tom.brosnan@noaa.gov

Kathryn Jahn, U.S. Fish and Wildlife Service, 3817 Luker Road, Cortland, NY 13045; Phone: 607-753-9334; Fax: 607-753-9699; e-mail: kathryn_jahn@fws.gov

Larry Gumaer, New York State Department of Environmental Conservation, 625 Broadway, 5th Floor, Albany, NY 12233; Phone: 518-402-8971; Fax: 518-402-9027; e-mail: lwgumaer@gw.dec.state.ny.us

For work on National Park Service lands:

Bill Fuchs, National Park Service, Northeast Regional Office, 222 Union Street, #411, New Bedford, MA 02740; Phone: 508-999-4458; Fax: 508-999-4459; e-mail: bill_fuchs@nps.gov

3.3 Data Generation and Acquisition

Data developed in this study must meet standards of precision, accuracy, completeness, representativeness, comparability, and sensitivity, and be consistent with sound scientific methodology appropriate to the data quality objectives. Table 1 notes the types of data checks that will be used and their frequency.

Precision is defined as the level of agreement of repeated independent measurements of the same characteristic. For this study, agreement between field crew members regarding species identification must be obtained for verification. This will occur in the field on a daily basis as surveys are conducted. Precision may also be evaluated by assessing the degree to which surveys are consistent among sites. The frequency and type of field checks are listed in Table 1 on the following page.

Table 1. Data Checks and Frequency

Type of Activity	Measurement	Minimum Frequency of Check by Investigation Lead	Acceptance Criteria
Eastern screech owl identification by sight	Eastern screech owls can be identified by sight and using a field guide and/or other information for confirmation.	Once before beginning of study. Regular discussions between field crew members are expected. Photographs, slides, and/or video images of the Eastern screech owl will be used to check identification.	One hundred percent accuracy on identification.
Eastern screech owl nest and egg identification	Nests and eggs of Eastern screech owl can be identified by sight and using a field guide and/or other information for confirmation.	Once before beginning of study. Regular discussions between field crew members are expected. Photographs, slides, and/or video images of the eggs and nests of the Eastern screech owl will be used to check identification.	One hundred percent accuracy on identification.
Orienteering, aerial photo interpretation, and location plotting	Field personnel can locate positions on an aerial photo of the study area.	Once before beginning study. Field crews will have regular discussions in regard to where work is being completed and nests are being found.	Accurate identification of locations.
GPS data collection and data downloading	Field personnel can operate GPS equipment and transfer data to computers.	Once before beginning of study, and then as data is downloaded and verified.	GPS data collected in the field matches up to correct locations on georeferenced aerial photos of the study area.
Egg collection	Eggs are properly labeled with nest number when collected and then transferred to the lab for analysis.	Each day eggs are collected from a nest.	Each egg is correctly assigned a Sample ID number.
Completion of Egg Collection Data Sheets	Egg Collection Data Sheets are filled out correctly and completely.	Preferably daily, but with no more than a 3 day interval between preparation of a sheet by a Field Data Recorder and checking of the sheet by the Investigation Lead.	Data sheets are complete, legible and accurate.
Egg processing	Egg contents are processed according to the SOP for	Egg Processing Data Sheets are checked preferably daily, but with	Data sheets are complete, legible

Type of Activity	Measurement	Minimum Frequency of Check by Investigation Lead	Acceptance Criteria
	Avian Egg Harvest (found in Appendix 1)	no more than a 3 day interval between preparation of a sheet by a Processor and checking of the sheet by the Investigation Lead. A bottle blank is collected each day eggs are processed	and accurate. A bottle blank is collected each day egg samples are processed in accordance with the SOP for Avian Egg Harvest.
Pellet collection	Pellets are properly collected and labeled with the pellet collection site number when collected and then transferred to the lab for storage	Each day pellets are collected.	Each bag of pellets is correctly assigned a Pellet Collection Site number.
Completion of Pellet Collection Data Sheets	Pellet Collection Data Sheets are filled out correctly and completely.	Preferably daily, but with no more than a 3 day interval between preparation of a sheet by a Field Data Recorder and checking of the sheet by the Investigation Lead.	Data sheets are complete, legible and accurate.

Accuracy is defined as the agreement of a measurement with its true value. For the parameters unique to the field portion of this study, accuracy means that the target animal, and its nests, eggs, and pellets are correctly identified.

Field crews will receive explicit instructions in the execution of this Work Plan. The field crews will be instructed in the field before beginning any sampling, and the instructions will be repeated or refreshed during the sampling as necessary (Table 1). The Investigation Lead will direct the fieldwork. Field crew members will be provided photographs, slides, and/or video images of the Eastern screech owl and its nests and eggs. Before a field crew begins work, the Investigation Lead will confirm that the field crew members can accurately identify the Eastern screech owl, its nest and its eggs.

Completeness is defined as the percentage of the planned samples actually collected and processed. Although sample sizes cannot be predetermined, observations must be conducted throughout the season when screech owls are present in the study area and in habitat that the species could use where access is granted. The full distribution of study efforts within those parameters is a measure of the completeness of this study.

Representativeness is defined as the degree to which the data accurately reflect the characteristics present at the sampling location at the time of sampling. Obtaining representative data for this study will be ensured through the establishment of a thorough literature review to identify life history characteristics, breeding habitat, and nest site descriptions, and by completing field studies in a manner to determine if the Eastern screech owl is present.

Comparability is defined as the measure of confidence with which results from this study may be compared to another similar data set. Because of the nature of the study, there cannot be a duplication of effort in the same area at the same time. Comparability will be attained through use of techniques that are commonly used in avian studies in different parts of North America.

Sensitivity is defined as the ability of a measurement technique or instrument to operate at a level sufficient to measure the parameter of interest. For data specific to this study, sensitivity will pertain to the ability to locate and identify the Eastern screech owl and its nests. This process is a stepwise approach that requires avian expertise. Work will focus on existing nest boxes. Potentially suitable nest sites in the vicinity of those boxes will also be located. Then checking for the presence of screech owls and/or their nests can begin. Surveys involve using visual searches to locate the species for which there is potentially suitable habitat and/or an existing nest box. Identification of the Eastern screech owl includes visual identification, habitat use, nest site selection, and nest and egg identification.

3.3.1 Study Documentation

All study activities will be documented through use of the sequentially numbered Screech Owl Egg Collection Data Sheets, Screech Owl Pellet Collection Data Sheets, and Screech Owl Egg Processing Data Sheets (Appendices 2, 3 and 4). Data sheets will be placed into a ring-binder. All information will be recorded on these pre-formatted data sheets. The use of pre-formatted data sheets is a QA/QC measure designed to:

- ensure that all necessary and relevant information is recorded for each sample and each sampling activity,
- serve as a checklist for the field crews to help ensure completeness of the data collection effort,
- assist the field crews by making data recording more efficient, and
- minimize the problem of illegible field notebook entries.

Each field crew will have a designated Field Data Recorder responsible for recording information on the Screech Owl Egg Collection Data Sheets and Screech Owl Pellet Collection Data Sheets. Assigning this responsibility to a designated person will help ensure that documentation is complete and consistent; Field Data Recorders will be retained throughout the study to the extent feasible. The Field Data Recorder is also responsible for the care, custody, and disposition of the binder containing the Egg Collection Data Sheets and Pellet Collection Data Sheets. Each field crew will have its own ring-binder and set of Egg Collection Data Sheets and Pellet Collection Data Sheets.

Screech Owl Egg Collection, Pellet Collection and Egg Processing Data Sheet entries will be made in waterproof ink and corrections made with a single line through the error accompanied by the correction date, and the corrector's initials.

Each completed Egg Collection and Pellet Collection Data Sheet will be reviewed, corrected (if necessary), and initialed by the Field Data Recorder, and the Field Crew Leader. Egg Collection Data Sheets and Pellet Collection Data Sheets will then be reviewed by the Investigation Lead. This review by the Investigation Lead will occur preferably daily, but with no more than a 3 day interval between preparation of an Egg Collection or Pellet Collection Data Sheet by a field crew and checking of the data sheet by the Investigation Lead.

Each completed Egg Processing Data Sheet will be reviewed, corrected (if necessary), and initialed by the Processor. Egg Processing Data Sheets will then be reviewed by the Investigation Lead. This review by the Investigation Lead will occur preferably daily, but with no more than a 3 day interval between preparation of an Egg Processing Data Sheet by a processor and checking of the data sheet by the Investigation Lead.

Following completion of the study, the original data sheets will be retained at the NYSDEC Hale Creek Laboratory.

3.3.2 Chain of Custody

Strict Chain of Custody (COC) procedures will be used throughout the study. The COC procedure will begin when an egg is collected from the nest. A COC form is shown in Appendix 5. These forms will be used to maintain records of sample collection, sample transfer between personnel, sample shipment, and sample receipt for storage in a freezer, or receipt by the analytical lab. Each sample collected will be listed on the COC forms. A separate form will be used for each cooler that is shipped. The original COC will accompany the samples. The Investigation Lead will maintain a copy of the COC. The signatures of the persons shipping and receiving the samples, and the date and time of transfer, will be documented on the COC forms. An air-bill can be used to document the transfer of a sample from the Investigation Team to the shipper, and from the shipper to the analytical lab.

All sections of the COC form will be completed with information pertaining to the sample collection. All samples included in the sample catalog will be clearly listed. The time, date, location, identifier (i.e., sample ID code), type of sample, and number and size of containers will also be listed on the form. If more than one cooler is required to ship the samples, a separate form will be used listing the samples actually held in each cooler. An indication of the number of coolers per shipment (e.g., 1 of 3) will be listed on the form. Once the form is completely filled out, it will be placed in a clear plastic shipping window and securely attached to the inside of the cooler. Each cooler will be sturdy, well sealed with filament tape, and have an unbroken signed custody seal. All materials, samples, and coolers will be kept in locked locations all the time until shipped.

Egg Sample Identification Codes:

The following sample identification code will be used for each egg: "SP-NES-NUM."

"SP" will be a 2-letter code that designates the species:

- SO = Eastern screech owl egg

"NES" will be a unique three-digit numerical code that corresponds to the nest number (numbers 001 – 500) for each active nest. "NUM" will be a unique three-digit number that corresponds to the egg number (numbers 001 – 500). If more than one field crew is involved in egg collection, each field crew will have designated nest number and egg number ranges that they can work from to avoid duplication of the numbering sequence.

When an egg is first removed from the nest, it will be marked with the nest number and egg number (for example 001-001) on the outside of the egg using a pencil. The egg will then be wrapped in aluminum foil, which will also be labeled with the nest and egg numbers, using a permanent marker. (It is not necessary to include the species code (SO) on the egg or foil since eggs from only one species are being collected pursuant to this Work Plan.) Eggs will be transported to the processing facility in egg containers or a similar box that protects from breakage. Once in the processing facility, the nest and egg numbers on the foil and on the egg will be double checked against each other and against the Egg Collection Data Sheet and field survey notebooks to verify the identification code.

Sample Jar Label:

All processed egg samples will be uniquely identified with a waterproof label attached directly to the sample jar indicating the following:

Hudson River NRDA Screech Owl Egg Collection
Sample ID: SO-NES-NUM, such as SO-001-001, as above
Date of Collection (from Egg Collection Data Sheet): in format Month-Day-Year
Sample Processor (initials): _____

An example of a label would thus be:
Hudson River NRDA Screech Owl Egg Collection
Sample ID: SO-001-001
Date of Collection: 04-30-2003
Sample Processor: RQ

Label information will be recorded using a waterproof marker. Much of this information will be pre-filled before sample processing.

3.3.3 Personnel Experience and Training

Field sampling crews will receive explicit instructions in the execution of this Work Plan. The field crews will be instructed in the field before beginning any sampling, and the instructions will be repeated or refreshed during the sampling period as necessary (Table 1). The work will be directed by an Investigation Lead with experience in egg collection and processing. Field crew members will be trained to identify screech owls by sight and sound, their habitat, nests, and eggs, and their ability to do so will be confirmed by the Investigation Lead before beginning work.

3.4 Assessment and Oversight

The QA management plan specifies that studies that generate data will be audited to ensure that the project-specific plans are being properly implemented. Several mechanisms for internal audits of the data generation process will be used for the study.

These mechanisms include:

- A project management structure that defines clear lines of responsibility and ensures communication between field crews and with the Investigation Lead. Clear responsibilities and communication can serve as a means of providing internal audits of the sample collection process as it proceeds.

- A requirement that data sheets be completed daily and be reviewed by the Investigation Lead. Both Egg Collection and Egg Processing Data sheets will be reviewed by the Investigation Lead preferably daily, but with no more than a 3 day interval between preparation of a data sheet and checking of the data sheet by the Investigation Lead.

- The use of pre-formatted data sheets that serve as a checklist for sampling procedures, thereby helping to ensure that sampling is complete.

- The work will not begin until approval is received from the QA Coordinator or their delegate. The QA Coordinator or their designee will conduct a field audit of procedures and documentation of the study.

3.5 Data Validation and Usability

This study employs standard techniques for avian egg collection. The Work Plan for this study has been reviewed for the adequacy of the sampling design and methods. The original Screech Owl Egg Collection and Processing Data Sheets will be maintained by NYSDEC and archived for a minimum of eight years. Disposal of the data sheets will be coordinated with the U.S. Department of the Interior and the National Oceanic and Atmospheric Administration after this timeframe unless a longer archive period is requested. Any final reports generated from the data can then be reviewed against the sampling records to ensure that the data presented in the reports represent complete and accurate information. Analytical data will be validated as specified in the Analytical QA Plan.

The Investigation Lead performing oversight of screech owl egg collection and processing will validate that Investigation Team members are correctly identifying screech owls, its nests and eggs, and completing Data Sheets correctly by performing periodic checks during the study as specified in Table 1.

4.0 EQUIPMENT LIST

The following equipment will be used during the egg collection and processing work.

Nest Identification and Egg Collection

- Cover type maps, digital copies of georeferenced aerial photos of the study area
- Work plan
- Cell phone
- Personal identification
- Tax maps with property owner names
- Permits for egg collection (FWS, NYS, NPS)
- Bird visual and song field guides
- 35 mm automatic camera
- Color print film ASA 200, 24 exposure, several rolls
- White, self adhering labels
- Binoculars, spotting scope
- Mirror and extension pole
- Tree top peeper and video probe systems, and head mounted display system
- Telescoping pole with padded "J" hook
- Extension or rope ladder
- Trimble global positioning system and Pro-XR data logger
- Field notebook, Egg Collection Data Sheets in a binder, pencils, and waterproof markers
- Safety equipment: hardhat, climbing rope, safety glasses, leather gloves, nitrile gloves
- Aluminum foil, plastic bags
- Filament tape
- Padded egg carrier
- Flashlight

Egg Processing

- Nitrile gloves
- White self-adhering labels
- Chemically clean jars (4 oz) with TFE cap-liners
- Acculab V-200 balance, weighs to nearest 0.01 gm
- Distilled-deionized water
- Volumeter
- Egg candler
- Kimwipes
- Aluminum foil
- Plastic bags
- Filament tape
- Laboratory balance (to 0.01 g increments)
- Vernier caliper (graduated to 0.01 mm)
- Chemically rinsed scalpel, other solvents or acids for cleaning
- Dust mask and safety glasses

- Graphite pencil and technical pen
- Federal 35 comparator with rounded contacts (graduated to 0.01 mm – estimated to nearest 0.001 mm)
- All lab materials and equipment listed in Appendix 1

5.0 DATA ENDPOINTS

Data endpoints for the screech owl egg collection will include egg mass and volume, egg length and breadth, egg shell thickness, weight of the egg contents (fresh weight will be back-calculated using methods described in Appendix 1), measurements of embryos, fertility (i.e., fertilized or not), embryo position, embryo deformities, and contamination level.

6.0 SCHEDULE

Several tasks need to be sequentially performed while others can run a parallel course. Habitat reconnaissance efforts and landowner contacts necessary will occur from January through March 2003. Egg collection permits will need to be obtained by mid-March. The screech owl egg-laying period is expected to be between April 12 and May 18 in the Hudson River valley, thus egg collection in 2003 is expected to predominantly occur between mid-April and mid-May.

7.0 LITERATURE CITED

Andrle, R.F. and J.R. Carroll. 1988. *The Atlas of Breeding Birds in New York State.* Cornell Univ. Press. 548 pp.

Baker, J.E., W.F. Bohlen, R. Bopp, B. Brownawell, T.K. Collier, K.J. Farley, W.R. Geyer, and R. Nairn. 2001. PCBs in the Upper Hudson River: The Science Behind the Dredging Controversy. A white paper prepared by for the Hudson River Foundation. 45 pp. http://www.hudsonriver.org/

Bent, A.C. 1937. *Life Histories of North American Birds of Prey*. Part I. U.S. Nat. Mus. Bull. 167. Washington, D.C. 409 pp.

Custer,T.W., G. Pendleton, and H.M. Ohlendorf. 1990. Within- and among-clutch variation in organochlorine residues in eggs of black-crowned night herons. *Environmental Monitoring and Assessment* 15: 83-89.

Duguay, T.A., G. Ritchison, and J.P. Duguay. 1997. The winter roosting behavior of Eastern screech-owls in central Kentucky. *J. Raptor Res.* 31(3):260-266.

Eaton, S.W. 1988. Eastern Screech Owl *Otus asio*. Species Account. In: *The Atlas of Breeding Birds in New York State*, R.F. Andrle and J.R. Carroll (eds). Cornell University Press, Ithaca, NY. 548 pp.

Fyfe, R.W. and R.R. Olendorff. 1976. Minimizing the dangers of nesting studies to raptors and other sensitive species. Can. Wildl. Serv. Occas. Pap. 23. 17 pp.

Gaunt, A.S., L.M. Oring, K.P. Able, D.W. Anderson, L.F. Baptista, J.C. Barlow, and J.C. Wingfield. 1997. *Guidelines for the Use of Wild Birds in Research.* The Ornithological Council, Special Publication, Washington, D.C. 52 pp.

Grier, J.W. and R.W. Fyfe. 1987. Preventing research and management disturbance, Chapter 10 In: *Raptor Management Techniques Manual,* edited by B.A.G. Pendleton, B.A. Millsap, K.W. Cline, and D.M. Bird. National Wildlife Federation, Scientific and Technical Series No. 10. Washington, D.C. 420 pp.

Johnsgard, P.A. 1988. *North American Owls, Biology and Natural History.* Smithsonian Institution Press, Washington, D.C. 295 pp.

Kennedy, P.L. and D.W. Stahlecker. 1993. Responsiveness of Nesting Northern Goshawks to Taped Broadcasts of 3 Conspecific Calls. *J. Wildl. Manage.* 57(2):249-257.

SEA Consultants, Inc. 2001. Hudson River Natural Resources Damage Assessment, Floodplain Soil and Biota Screening Sampling Report. SEA Consultants, Inc., Cambridge, Mass. Report Prepared for Industrial Economics, Inc. SEA Project No. 2000416.01-A.

Steenhof, K. 1987. Assessing raptor reproductive success and productivity, Chapter 9 In: *Raptor Management Techniques Manual,* edited by B.A.G. Pendleton, B.A. Millsap, K.W. Cline, and D.M. Bird. National Wildlife Federation, Scientific and Technical Series No. 10. Washington, D.C. 420 pp.

Stone, W.B., J.C. Okoniewski. 1983. Organochlorine contaminants in great horned owls from New York, 1981-1982. *Northeastern Environmental Science* 2(1):1-7.

Takas, D.L., C.M. Francis, G.L. Holroyd, J.R. Duncan, K.M. Mazur, R.J. Cannings, W. Harris, and D. Holt. 2001. *Guidelines for Nocturnal Owl Monitoring in North America.* Beaverhill Bird Observatory and Bird Studies Canada, Edmonton, Alberta. 32 pp.

TAMS Consultants, Inc. and Menzie-Cura & Associates, Inc. 2000. Volume 2E – Revised Baseline Ecological Risk Assessment, Hudson River PCBs Reassessment. Report prepared for U.S. Environmental Protection Agency, Region 2 and U.S. Army Corps of Engineers, Kansas City District. 267 pp.

Van Camp, L.F. and C.J. Henny. 1975. The screech owl: its life history and population ecology in northern Ohio. USDI North American Fauna No. 71. 65 pp.

Veit, R.R. and W.R. Petersen. 1993. *Birds of Massachusetts*. Massachusetts Audubon Society. Lincoln, MA. 514 pp.

APPENDIX 1

Standard Operating Procedure
Removal of Avian Egg Contents For Contaminants Analysis

Protocol for Removal of Avian Egg Contents For Contaminants Analysis

INTRODUCTION

Avian eggs are a common sample for contaminants analysis. An accurate analysis depends upon getting the egg contents from the shell to a clean sample jar without introducing other sources of contamination. This protocol, which has been developed and refined by many researchers over the decades, was written for those who have minimal experience. Your first egg should be a practice egg. *It is suggested that all field personnel practice on several pen-raised quail eggs to improve technique. Chicken eggs may be used if quail eggs are not available.*

Laboratory Materials and Equipment

- ❑ data sheets
- ❑ paper or other towels
- ❑ green scrubby or sponge
- ❑ Acculab V-200 balance, weighs to nearest 0.01 gm
- ❑ calipers
- ❑ Graduated cylinders, 250 ml and 100 ml (of sufficient diameter to insert eggs from the study)
- ❑ Chemically-clean jars, 1 per sample
  - ✓ Make sure they are cleaned for the contaminants you are sampling, e.g., I-Chem pesticide/PCBs Series 200 or 300.
  - ✓ Size: 4 oz.
- ❑ chemically-clean (Appendix A) stainless steel serrated blades
- ❑ chemically-clean stainless steel scalpel blades (No. 21 or No. 22 with No. 4 handles work well)
- ❑ chemically-clean forceps
- ❑ chemically-clean aluminum foil sheets (approximately 30 x 30 cm square), 1 per egg
- ❑ sharps container for used blades or disposable scalpels
- ❑ ball-tip micrometer

LABORATORY PROCEDURES

- Each day eggs are processed a Bottle Blank should be collected as follows during the processing of one egg sample:
  1. Immediately prior to opening the sample jar for egg collection, open a sample jar that will be the bottle blank sample jar and leave the jar open during collection of the egg contents.
  2. Immediately after closing the jar containing the egg sample, close the bottle blank sample jar and label it using a Sample Jar label. On the Sample Jar label, designate the blank as SO-NES-NUMBLANK, such as SO-001-001BLANK, corresponding to the egg sample processed during which the bottle blank was collected.
- Fill out egg processing data sheet; use one data sheet per egg.
- If debris is present, rinse egg in cool water while gently scrubbing with green scrubby or sponge. Do not soak the egg.
- Dry and weigh whole egg.
- Take three measurements each of egg length and maximum egg width with calipers. Compute average of three measurements for final width and length measurements.
- Measure total egg volume by water displacement. Use the graduated cylinder method that is closest in diameter to the largest diameter of the egg. Determine the displacement volume of the wire holding apparatus.
- Using a graduated cylinder:
  1. Fill with distilled water. Note the starting volume.
  2. Immerse egg using wire loops (shown in Figure 1a on following page) until top of egg is just under water surface.
  3. Note the final volume, subtract starting volume and holding apparatus volume, to determine the final egg volume.

- Using an egg immersion chamber:

  Volume computation may be made using an egg immersion chamber. An immersion chamber that is specially designed for smaller eggs can be made using a small syringe, i.e. 10 cc, and using a pipette for the spout. A small paper clip is used to hold the egg for immersion into the chamber.

a. b. c.

Figure 1. Egg immersion chamber, used to determine volume of whole eggs. A: Wire loops used to hold the egg. B: Apparatus set up to drain into beaker on balance. C: Demonstration photograph using ripe tomato as egg. The top bend of the spigot is high enough so that an egg can be completely immersed below it.

- Dry the egg.
- Transfer egg contents to chemically-clean jar using the following procedure:
  3. Use nitrile gloves for this part of the procedure. Avoid letting contents run over your hands into the sample jar.
  4. Create a catch basin out of the aluminum foil (rinsed side up) by turning edges up and securing the corners. This will catch egg contents in case they spill over the edge of the jar. Use a separate piece of foil for each sample. The foil also is a clean place to place your instruments when they are not in use.

5. Weigh the clean empty jar with lid on, and note this tare weight on data sheet.
6. Place jar in center of aluminum foil, and loosen the lid.
7. Score equator with serrated blade or scalpel blade. Use a new, chemically-clean scalpel blade for each egg. This part takes practice. Cradle the egg in one hand (don't squeeze too tightly!) and gently score while rotating the egg. Many light strokes are preferable to a fewer deeper strokes, increasing the evenness of the score and decreasing the possibility of eggshells not separating cleanly or of punching through the shell. Continue to work on your score until you see the membrane, which usually appears gray underneath the white of the eggshell. When you see the first bit of membrane, remove the lid from the jar so that it will be ready as soon as you need it. Avoid getting shell dust, or anything else besides the egg contents, in the jar. Try to expose the membrane evenly around the entire egg.
8. Place the egg over the jar and cut through membranes with the scalpel. The scalpel can also be used to finish scoring down to the membranes, if you used a serrated blade to start the score. Pour contents into jar, or use the scalpel to gently scrape if that is necessary. Use forceps to remove any shell fragments from the jar. Cover the jar.
9. Note where the membranes are, as this is important for thickness measurements. For fresh eggs, both membranes often stay with the shell, but as the embryo develops, the inner membrane tends to stick with the chick. If you cannot determine where the membranes are, it often becomes clearer after the eggshell and membranes have dried.
10. For very small eggs, there are two procedures suggested. The first option is to use a small chemically-clean needle or scalpel to pierce a small hole at both ends of the egg. Insert a chemically-clean syringe into the egg to withdraw the contents. Redeposit the contents into the jar and follow the guidelines for storage and measuring the shell thickness. The second option is to use a sharp, non-serrated scalpel and cut around the circumference at one end of the egg. Scoop out the contents with a tiny dry chemical scoop (stainless steel) that is small enough to fit into the egg.
11. Note that addled eggs can be full of decomposition by-products, producing gaseous explosions at any weak point in the shell, including where you start your score or where membranes are first exposed. Working with a refrigerated, cool egg reduces this potential, but be prepared for egg explosions.

12. The target for the minimum weight of egg tissue is 4 grams for analysis. It may be possible to analyze smaller samples ranging from 1 – 2 grams. Analysis of these samples may result in a higher detection limit due to the lack of mass. An effort must be made to maximize the amount of each sample that is usable. The weight of each sample should be made in the laboratory during egg processing using the following procedure:
    a. Place a small jar on a balance that reads to at least 1 milligram and that has been appropriately calibrated.
    b. Tare the jar or record the jar weight if the balance cannot be tared.
    c. Open the egg, according to the procedures referenced above and empty the contents into the jar.
    d. Record the weight, to the nearest milligram, of the egg contents if the balance was tared. If the balance was not tared, then record the weight for the egg contents and the jar, then subtract the previously recorded weight of the jar. Record the weight of the egg contents in the field notebook and on the jar label.
    e. If egg is developed, estimate age of embryo. Wet weight conversion will be made based on the weight and volume of the egg. A photographic record of the contents of each egg will be made. Documentation of embryo development is very limited (Powell *et al.* 1998; Bird *et al.* 1984), therefore, documenting this phase of the egg processing is important. Note amount of decay or anything else pertinent to your study, and examine for deformities, particularly bill deformities such as crossed bills or lack of jaws, but also lack of skull bones, club feet, rotated ankles, or dwarfed appendages (Gilbertson *et al.* 1991).
    f. Repeat these procedures for any other eggs that need to be added to the sample jar. Using these procedures, the weight of each egg's contents will be measured, even for eggs whose contents are combined into a single jar.

- ✓ Do not touch or move the jar between steps 2 and 4 above. It is preferable to add the egg contents to the jar while the jar is still on the balance, immediately after taring the jar.

- ❑ Rinse the eggshell halves with cool water and allow to air dry for 10-30 days. Label each egg

shell with the species identification code, egg number, and nest number. Store the shell pieces in a labeled plastic bag.

- Compute conversion factor, as explained on the data sheet. Contaminant concentrations are multiplied by this conversion factor to get volume-adjusted residue data (Stickel *et al.* 1973).
- Place label on jar. Place clear tape over the label to keep it from getting wet.
- Prepare Chain of Custody records and maintain egg samples under chain of custody.
- Freeze samples. Ship under Chain of Custody overnight on dry ice to the sample archive or analytical laboratory.
- After eggshells have dried, measure at three points near the equator on each shell half using ball-tip micrometer. If you are comparing to museum specimen thickness measurements, which usually include the membranes, you must either include membranes or make adjustments for the absent membranes. The data sheet has adjustments for bald eagles – you can use these as approximations or create your own adjustments by measuring shells with and without membranes for comparisons to the study species.

References

Bird, D.M, J. Gautier, and V. Montpetit. 1984. Embryonic growth of American kestrels. Auk 101:392-396.

Gilbertson, M., T. Kubiak, J. Ludwig, G. Fox. 1991. Great Lakes embryo mortality, edema, and deformities syndrome (GLEMEDS) in colonial fish-eating birds: similarity to chick-edema disease. J. Toxicol. Environ. Health 33:455-520.

Powell, D.C., R.J. Aulerich, R.J. Balander, K.L. Stromborg, and S.J. Bursian. 1998. A photographic guide to the development of double-crested cormorant embryos. Colonial Waterbirds 21(3):348-355.

Stickel, L.F., S.N. Wiemeyer, L.J. Blus. 1973. Pesticide residues in eggs of wild birds: adjustment for loss of moisture and lipid. Bull. Environ. Contam. Toxicol. 9:193-196.

These egg-processing guidelines were originally developed by the U.S. Fish and Wildlife Service (Angela Matz, Environmental Contaminants Specialist, U.S. Fish and Wildlife Service, 101-12th Ave., Box 19, Room 110, Fairbanks, AK) and modified for the Avian Egg Exposure Study based on consultation with the author of these guidelines and modified further for the Screech Owl Study based on conversations with the Quality Assurance Coordinator for this project.

Appendix A: Chemically-Clean Instruments for Collecting Contaminants Samples

To minimize cross-contamination when collecting biological samples for contaminants analysis, a primary requirement is use of chemically-clean instruments. These are made of appropriate materials (stainless steel or teflon) and rinsed with acid and solvents to remove metals and organics, respectively. Once rinsed, the instruments should be treated as sterile instruments, e.g. not placed on unclean surfaces.

Because every laboratory situation is different, this document tells you what to do but not how to do it. The chemicals used for rinsing are hazardous, so you should follow proper safety and laboratory protocols when using them. This includes proper personal protective equipment (lab coats, gloves specific to the chemical, eye protection), proper laboratory equipment and procedures (use of hood, proper storage and disposal methods), and knowledge of chemical hazards such as flammability, reactivity, and toxicity (MSDS required). If this is all new to you, enlist the help of a chemist to help you make the proper decisions and reduce your risks of exposure and accident.

For general rinsing, if sampling for metals, rinse stainless steel instruments with a 10-20% nitric acid solution, followed by double rinsing with distilled water. If you are concerned about detecting very low levels of metals, or your protocol calls for a metals "clean room" you may choose to use a stronger solution. Your chemist can advise.

For organics, rinse with a reagent-grade acetone, air-dry, rinse with reagent-grade hexanes, and air-dry.

If you are sampling for both metals and organics, do the acid-water rinse first, let air dry, then the solvent rinses. Nitric acid can react violently with acetone and hexanes, so make sure to keep the rinsing operations separate.

Rinsing should be done using glass pipettes or wash bottles (made of appropriate material for the rinsing agent). Glass funnels, wide enough to accommodate your instruments, are invaluable in directing the flow of used chemicals into disposal containers or waste jars. Use disposal containers that are the same as your source chemical containers (e.g. brown glass). Never rinse into or pour unused chemicals back into your source chemical bottle.

APPENDIX 2

Screech Owl Egg Collection Data Sheet

Screech Owl Egg Collection Data Sheet **Data Sheet Number _____**

Species: Eastern Screech Owl

Nest Number (NES): _____ Egg Number (NUM): _____

SAMPLE ID: SO - _____ - _____
SP NES NUM

where: SP = Species = Eastern Screech Owl = SO
NES = Unique Nest Number (001-500)
NUM = Unique Egg Number (001-500)

Name of Field Crew Leader (print): _____

Name of Field Data Recorder (print): _____

Date of Collection: ____ - ____ - _____ Time of Collection: _____
Month Day Year

Weather Conditions: _____

GPS location: _____
Note: If GPS location cannot be provided at time of collection, other sufficient identifying information for location shall be provided in "NOTES" section below to allow GPS coordinates to be subsequently obtained, if possible.

Site Name / Description: _____
_____

Clutch Size before Egg Removal: _____
Nest Status at Time of Collection: _____
(laying, incubating, abandoned, with chicks – #, post-fledging, etc.)

Photographs taken? (circle) YES NO Photo Roll # _____ Photo Frame # _____

NOTES: _____
_____

Initials/Date of Field Data Recorder: _____

Initials/Date of Field Crew Leader: _____

Initials/Date of Review of Data Sheet by Investigation Lead: _____

APPENDIX 3

Screech Owl Pellet Collection Data Sheet

Screech Owl Pellet Collection Data Sheet **Data Sheet Number _____**

Species: Eastern Screech Owl

Pellet Collection Site Number: _____

Name of Field Crew Leader (print): _____

Name of Field Data Recorder (print): _____

Date of Collection: ____ - ____ - _____ Time of Collection: _____
Month Day Year

Weather Conditions: _____

GPS location: _____
Note: If GPS location cannot be provided at time of collection, other sufficient identifying information for location shall be provided in "NOTES" section below to allow GPS coordinates to be subsequently obtained, if possible.

Site Name / Description: _____
_____

Number of Pellets Collected: _____

Photographs taken? (circle) YES NO Photo Roll # _____ Photo Frame # _____

NOTES: _____
_____
_____
_____
_____
_____
_____
_____

Initials/Date of Field Data Recorder: _____

Initials/Date of Field Crew Leader: _____

Initials/Date of Review of Data Sheet by Investigation Lead: _____

APPENDIX 4

Screech Owl Egg Processing Data Sheet

Screech Owl Egg Processing Data Sheet **Data Sheet Number _____**

SAMPLE ID: SO - _____ - _____ (from Screech Owl Egg Collection Data Sheet)

Name of Processor (print): _____
Date of Processing: ____ - ____ - _____ Time of Processing: _____
Month Day Year

Was a Bottle Blank collected while processing this egg? (circle) YES NO

Egg Length (three measurements, mm):_____ , _____ , _____ Average _____

Egg Width (three measurements, mm): _____ , _____ , _____ Average _____

Whole Egg Weight (g): _____

Egg Volume: Displaced H_2O: volume (cm^3): _____ OR weight[1] (g): _____

Contents weight: Weight of jar (g) : _____
Weight of jar + contents (g): _____
Weight of contents (g): _____

Conversion factor[3] = contents weight / calc. max. egg vol OR contents weight / displaced H_2O vol. = _____

Contents condition (age of embryo, state of decay, etc.) and other comments: _____
_____

Where are the membranes? Inner: _____ Outer: _____
Eggshell thickness (mm) after > 10 days of air drying:_____
(correction for absent membranes, bald eagles: Inner = 0.03 mm, Outer = 0.13 mm)

First eggshell half: _____ _____ _____ _____ Avg: _____ Corrected: _____
Second eggshell half:_____ _____ _____ _____ Avg: _____ Corrected: _____

Overall Avg: _____ Corrected: _____

Dry shell weight (mg) after > 10 days of air drying: _____
Thickness index = weight [mg]/(length)(width)[mm]: _____

Photographs taken? (circle) YES NO Photo Roll # _____ Photo Frame # _____

Contaminants disposition (catalog number, date submitted, etc): _____

Initials/Date of Processor: _____
Initials/Date of Review of Data Sheet by Investigation Lead: _____

[1]Assume 1 g H_20 = 1 cm^3 [2] See Stickel et al. 1973. [3] If you have both, use the larger

APPENDIX 5

Chain of Custody Form

Fed Ex # _____

Package # _____

CHAIN OF CUSTODY RECORD

Project Name:	Project #:	Container Type (e.g., padded egg carrier, cooler, etc.):
Sampler(s): Printed Name and Signature		

Sample ID (SP-NES-NUM) (SP=SO for E. screech owl)	Date Collected	Time Collected	Location	Jar size (N/A for whole eggs)	Remarks
Special Instructions/Comments:					

Signature	Print Name	Company/Title	Date	Time
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Appendix B

Addendum to Work Plan for Collection of Eggs from Eastern Screech Owl Associated with the Hudson River from Hudson Falls to Schodack Island, New York

ADDENDUM TO WORK PLAN FOR COLLECTION OF EGGS FROM EASTERN SCREECH OWL ASSOCIATED WITH THE HUDSON RIVER FROM HUDSON FALLS TO SCHODACK ISLAND, NEW YOR

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
PUBLIC RELEASE VERSION*

MAY 13, 2003

Available from:
U.S. Department of Commerce
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*

Addendum
to
Work Plan
for
Collection of Eggs from Eastern Screech Owl
Associated with the Hudson River from
Hudson Falls to Schodack Island, New York

Hudson River Natural Resource Damage Assessment

FINAL

May 13, 2003

Version 1.0

_____

Investigation Lead

_____

Quality Assurance Coordinator

Background

This Addendum addresses changes and additional information regarding the work specified in the "Work Plan for Collection of Eggs from Eastern Screech Owl Associated with the Hudson River from Hudson Falls to Schodack Island, New York."

Introduction

To ensure consistency with the Regional designations used in the Trustees' "Data Report for the Collection of Eggs from Spotted Sandpipers, American Woodcock, Belted Kingfisher, American Robin, Red-Winged Blackbird, and Eastern Phoebe Associated with the Hudson River from Hudson Falls to Schodack Island, New York," the following Regional designations were used in the screech owl egg investigation:

> Region 1: the area from Bakers Falls (at River Mile (RM) 196.9) downstream to the Fort Miller Dam (Lock 6) at RM 186.2 (Champlain Canal); this includes the Thompson Island Pool.
>
> Region 2: the area from the Fort Miller Dam (Lock 6) at RM 186.2 downstream to the Stillwater Dam (Lock 4) at RM 168.2; this includes the Stillwater Pool.
>
> Region 3: the area below the Stillwater Dam (Lock 4) at RM 168.2 downstream to the Federal Dam at Troy (RM 153.9), excluding Troy and its urban vicinity (approximately from Peebles Island State Park downstream to the Federal Dam).
>
> Region 4: the area below the Federal Dam at Troy (RM 153.9) extending south to Lower Schodack Island (RM 132), excluding Albany and its urban vicinity.

Identification of Active Nests

The Work Plan specified that existing screech owl nest boxes or nest cavities found would be checked at least twice during the egg-laying period, expected to be between April 12 and May 18. Boxes were only checked once.

The Work Plan specified the use of a peeper probe or use of a small mirror attached to a telescoping pole to look into the nest cavity or nest box. Such was not used. Each nest box tree was climbed and the nest box checked for eggs by carefully peering into it.

Screech Owl Egg Collection and Analysis

Global Positioning System (GPS) data was collected for each nest box location either at the time of nest box installation or at the time of egg collection. Rather than entering the GPS coordinates for each nest on the data sheet, a coordinate table of all the nest box locations was developed.

No photographs of egg contents were taken.

The embryos were not examined during egg contents collection as the embryos were generally encased within a membrane and examination would have required disruption of the membranes; doing such would have increased the potential for sample contamination.

Within Clutch Variability

The Work Plan noted that to assess within-clutch variability within screech owls, two eggs would be collected from each of the first 20 nests sampled in the study. It was subsequently determined that assessment of within-clutch variability would require recording and tracking the order of eggs laid within a nest, and subsequent collection and analysis of all the eggs from that nest. Further it would be necessary to do this for multiple nests. Due to the preliminary nature of this investigation, and potential for disturbance to nesting screech owls, and potential impact upon future use of the boxes by screech owls, it was determined that this aspect of the work would not be implemented at this time.

Equipment

The GPS units that were used to collect the GPS information were a "Garmin GPS 12" and a "Magellan Pro Mark X". These units differed from that specified in the Work Plan.

Appendix C

Data Quality Assessment Report
Screech Owl Egg Exposure Study

DATA QUALITY ASSESSMENT REPORT

HUDSON RIVER NATURAL RESOURCE DAMAGE ASSESSMENT

SCREECH OWL EGG EXPOSURE STUDY

HUDSON RIVER NATURAL RESOURCE TRUSTEES

STATE OF NEW YORK

U.S. DEPARTMENT OF COMMERCE

U.S. DEPARTMENT OF THE INTERIOR

VERSION 2.0

JANUARY 28, 2004

Available from:
U.S. Department of Commerce
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DATA QUALITY ASSESSMENT REPORT

HUDSON RIVER NATURAL RESOURCE DAMAGE ASSESSMENT

Screech Owl Egg Exposure Study

Prepared for:

State of New York
Department of Environmental Conservation

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

U.S. Department of Interior
Fish and Wildlife Service

January 28, 2004

Version 1.0

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DATA QUALITY ASSESSMENT
Hudson River Natural Resource Damage Assessment
Screech Owl Egg Study

1.0 INTRODUCTION

This report documents the results of a quality assurance review of data from screech owl egg samples collected in support of the Hudson River Natural Resource Damage Assessment. The eggs were analyzed for PCB congeners, PCB homologue groups, total PCBs, percent lipids, and percent moisture.

A total of ten eggs and two field blanks were submitted for analysis. These samples were analyzed in one analytical batch, laboratory number 0308034. The egg tissue was prepped, extracted, and analyzed by the laboratory using laboratory Standard Operating Procedures (SOPs) that were submitted and reviewed prior to sample receipt.

2.0 DATA VALIDATION PROCEDURES

Data validation was based on the quality assurance/quality control (QA/QC) criteria documented in the *Analytical Quality Assurance Plan for the Hudson River Natural Resource Damage Assessment*, Version 1.0, July 9, 2002, and USEPA *National Functional Guidelines for Organic Data Review*, 1999, and the following laboratory SOPs:

- SOP # HR NRDA Project Tissue Prep: Tissue Preparation and Homogenization, Revision #1.0, 9/25/02
- SOP # OP-004: Extraction of Soil, Tissue, Vegetation, and Sediment by Pressurized Fluid Extraction, Revision #2.0, 8/15/02
- SOP # O-010: Determination of PCB Homologues and Individual Congeners by GC/MS - SIM, Revision # 2.2, 10/24/02
- SOP # HR NRDA % Lipids: Percent Lipids Determination, Revision # 0.0, 9/9/02
- SOP # W-001: Percent Solids Determination, Revision # 2.1, 9/25/02
- Additional cleanup, sample handling, storage, custody SOPs as necessary.

Sample results and related QC data were received in both an electronic and hard copy format. Electronic data were verified against the hard copy data package. All of the data received a full validation.

The following QC elements were reviewed:

- Analytical holding times

- Chain of custody and sample handling
- GC/MS tune verification (from summary forms)
- Method blank contamination (from summary forms)
- Initial and continuing calibration (from summary forms)
- Field blank contamination (from sample result summaries)
- Analytical accuracy: surrogates, matrix spike samples, laboratory control samples, and standard reference material results (from summary forms)
- Analytical precision: laboratory duplicate samples (from summary forms)
- Internal standard areas (from summary forms)
- Reported detection limits (from sample result summaries)
- Compound identification (from raw data)
- Compound quantitation, transcription and calculation checks performed at a frequency of 10% from raw data. If an error was noted, 100% of the calculations and transcriptions for that data set were verified.

This report summarizes the results of data validation relative to the analytical data quality objectives (ADQO) for precision, accuracy, and completeness. The report also provides a quantitative and qualitative assessment of the data and identifies potential sources of error, uncertainty, and bias that may affect the overall usability.

Laboratory QC samples were used to assess the effectiveness of homogenization procedures and to evaluate laboratory-derived contamination, laboratory performance, and sample matrix effects. Quality control samples included: field blanks, method blanks, laboratory control samples (LCS), matrix spike (MS) samples, laboratory duplicate samples, and standard reference material (SRM) analyses. Surrogates were added to each sample analyzed for PCB congeners to further assess the effects of sample matrix on accuracy.

Data were qualified when associated QC sample results were outside the QC limits. The following definitions provide brief explanations of the qualifiers assigned to results in the data validation process:

J **Estimated**: The associated numerical value is an estimated quantity. The analyte was detected, but the reported value may not be accurate or precise. The "J" qualification indicates the data fell outside the QC limits, but the exceedance was not sufficient to cause rejection of the data.

3.0 DATA QUALITY ASSESSMENT

The data package submitted by the laboratory was reviewed to determine whether the analytical data quality objectives (ADQO) specified in Tables 6.1a - 6.1c in the *Analytical Quality Assurance Plan* were met. Each quality control element is discussed briefly below. More details are available in the individual data validation report presented in **Attachment A**.

3.1 Holding Times and Sample Preservation

The primary analytes of concern for this study are persistent compounds, which have been found to remain stable in tissue after several years of storage. Due to this, no maximum holding time criterion was established. All samples were extracted within 146 days of collection, and all extracts were analyzed within 30 days from sample extraction. Samples were kept frozen by the laboratory at the required temperature of -20^{o}C ±2^{o}.

3.2 Instrument Calibration

3.2.1 Initial Calibration (ICAL)

The ADQO specification for the initial calibration is that a minimum of a five point calibration would be performed for all analytes, and that the percent relative standard deviation (%RSD) values for all analytes are less than 20%.

All submitted ICAL data met the specified ADQO.

3.2.2 Continuing Calibration (CCAL)

The ADQO specified for the continuing (or daily) calibrations is that a CCAL must be analyzed at the beginning and end of each analytical sequence (or every 12 hours, whichever is more frequent), and that all percent difference (%D) values must be less than 20%.

All CCAL data met the specified ADQO.

3.3 GC/MS Tune

GC/MS instrument tuning verifications were performed at the proper frequency, prior to each analytical sequence. All GC/MS tunes met the acceptance criteria specified in the laboratory standard operating procedures.

3.4 Blank Analyses

The method blank and the two field blanks, Samples SO-143-009 Blank and SO-033-002 Blank, were acceptable, in that no target analytes were detected in any of the blanks.

3.5 Accuracy

Accuracy is evaluated by comparison of an analytical concentration to a known (true) value. Accuracy was monitored through the use of surrogate compounds in each sample, and SRM, MS, and LCS (blank spike) analyses. Each QC element is discussed below. Overall, accuracy was acceptable.

3.5.1 Surrogate Compounds

Two surrogate compounds, ^{13}C-PCB19 and ^{13}C-PCB202, were added to each sample prior to extraction.

The ADQO specified for surrogate compounds is that all percent recovery (%R) values would be within the 50% - 125% acceptance window. The recovery value from the late eluting surrogate (^{13}C-PCB202) is used for the quantitation of the reported target analyte concentrations.

All surrogate %R values were within the 50% - 125% control limits.

3.5.2 Standard Reference Material Analyses

An SRM was extracted and analyzed with the analytical batch. The SRM selected for the Screech Owl Egg Study was 1974b, Organics in Mussel Tissue. This SRM has certified values for 27 PCB congeners.

The ADQO for the SRM is that the reported value must be within ±20% of the 95% confidence interval of the true value for congeners with concentrations in the SRM greater than five times the method detection limit (MDL).

The SRM accuracy results met the specified ADQO. **Table 1** summarizes the SRM results for this study.

3.5.3 Laboratory Control Samples

The laboratory performed LCS analyses at the required frequency of one for every 15 samples or analytical batch, whichever was more frequent. The ADQO for the LCS analyses is that all %R values must be within the acceptance limits of 75% to 125%; however, if only one analyte %R value is outside the control limits, the laboratory is not required to re-extract the associated samples.

All LCS %R values met the ADQO.

3.5.4 Matrix Spike Samples

The laboratory performed the MS analysis at the required frequency of every 15 samples or analytical batch. The MS sample included 47 spiked analytes. The ADQO for MS analyses is that all %R values should be within the 50% to 125% control limits. The ADQO does not apply if the concentration in the parent sample is greater than five times the concentration in the spiking solution.

A potential high bias was indicated by the recovery values for three compounds, as the %R values were greater than 125% (ranging from 126% to 137%). There were no positive results associated with the elevated MS %R values. No action was taken for the reporting limits of non-detected compounds.

No data were qualified based on MS %R values.

3.5.5 Internal Standards

Internal standards were added to each field and QC sample prior to injection onto the analytical instrument. The ADQO for internal standards is that the area of the internal standards in each analysis must be within ±50% of the area of the internal standard in the associated CCAL.

All internal standard areas met the ADQO.

3.6 Precision

Precision is evaluated through replicate analyses of a sample. For the screech owl egg study, a laboratory duplicate was analyzed with each analytical batch. No field duplicates were submitted. Overall, precision was acceptable.

3.6.1 Laboratory Duplicate Samples

For samples with positive results greater than or equal to five times the MDL, the ADQO specified relative percent difference (RPD) control limit for laboratory duplicates is 30%. One laboratory duplicate was submitted.

For the PCB congeners, two values (out of 47 possible) were greater than 30%. For percent lipids and percent moisture analyses, the RPD control limit is 15%. The percent lipids and percent moisture analyses RPD values met the ADQO.

Target analytes associated with RPD outliers were estimated (J) in the parent sample. A total of 2 values were estimated due to laboratory precision outliers.

Table 2 summarizes the results of the laboratory duplicate analyses.

3.7 Reporting Limits and Sample Results

MDLs were determined using low level spikes on chicken eggs following procedures outlined in the *US Code of Federal Regulations* (40 CFR Part 136, Appendix B). The detection limits for target congeners were generally in the range of 0.04 µg/Kg to 0.30 µg/Kg. There were 11 target congeners with MDL values greater than the 0.1 µg/Kg target MDL. Of these, only one congener MDL value was greater than 0.3 µg/Kg: The MDL value for PCB169 was elevated at 2.21 µg/Kg due to interferences which could not be resolved using the selected method.

Chromatography and mass spectral identification were reviewed for a minimum of 10% of the reported congeners. No instances of potential interference were noted. All reported positive results met the identification criteria, and chromatographic peak shapes were acceptable.

3.8 Completeness

Out of 720 results reported by the laboratory (ten samples and two field blanks, each with 47 congeners, ten homologue groups, total PCBs, percent lipids and percent moisture), a total of two (0.28%) data points were qualified as estimated (J). No data were rejected. The completeness level attained for the analysis of the field samples is 100%.

3.9 Summary of Data Usability

A total of two out of 720 results were estimated because of laboratory precision outliers. For all data, the overall quality of the data is acceptable and all results, as qualified, are considered usable.

TABLE 1

SUMMARY OF STANDARD REFERENCE MATERIAL RESULTS

SDG 0309077
STANDARD REFERENCE MATERIAL 1974B - Organic in Mussel Tissue (*Mytilus edulis*)
Concentrations are ng/g, wet weight

	Result	True Value	Uncertainty	+/- 25% Limits ng/g	
PCB Congener	ng/g	ng/g	(+/-)	From	To
PCB18	1.07	0.84	0.13	0.50	1.18
PCB28/31	7.19	6.31	0.48	4.25	8.37
PCB44	4.10	3.85	0.20	2.69	5.01
PCB49	4.78	5.66	0.23	4.02	7.31
PCB52	6.60	6.26	0.37	4.33	8.20
PCB66	5.96	6.37	0.37	4.41	8.33
PCB70	6.41	6.01	0.22	4.29	7.73
PCB74	3.98	3.55	0.23	2.43	4.67
PCB87	5.16	4.33	0.36	2.89	5.77
PCB95	5.77	6.04	0.36	4.17	7.91
PCB99	5.28	5.92	0.27	4.17	7.67
PCB101	12.0	10.70	1.10	6.93	14.5
PCB105	4.28	4.00	0.18	2.82	5.18
PCB110	9.40	10.0	0.70	6.80	13.2
PCB118	11.8	10.3	0.40	7.33	13.3
PCB128	1.66	1.79	0.12	1.22	2.36
PCB138	12.6	9.20	1.40	5.50	12.9
PCB146	1.76	1.92	0.16	1.28	2.56
PCB149	6.38	7.01	0.28	4.98	9.04
PCB151	1.86	1.86	0.16	1.24	2.49
PCB153	11.4	12.3	0.80	8.43	16.2
PCB156	0.720	0.72	0.08	0.46	0.98
PCB158	0.768	1.00	0.096	0.65	1.34
PCB170*	0.400	0.27	0.034	0.17	0.37
PCB180	1.09	1.17	0.10	0.78	1.56
PCB183	1.18	1.25	0.03	0.91	1.59
PCB187	2.80	2.94	0.15	2.06	3.83

SDG = Sample Delivery Group, also called analytical batch.
*The "True Value" for PCB170 is less than five times the MDL. The acceptance criteria do not apply.
All values are within the acceptance criteria.

TABLE 2
LABORATORY DUPLICATE RELATIVE PERCENT DIFFERENCE SUMMARY
SDG0308034

Analyte	Sample SO-068-003
Cl3-BZ#31/#28	1
Cl4-BZ#45	*
Cl4-BZ#47	4
Cl4-BZ#49	0
Cl4-BZ#52	18
Cl4-BZ#56	2
Cl4-BZ#66	3
Cl4-BZ#74	1
Cl5-BZ#87	3
Cl5-BZ#99	5
Cl5-BZ#101	2
Cl5-BZ#105	4
Cl5-BZ#110	2
Cl5-BZ#114	1
Cl5-BZ#118	6
Cl6-BZ#128	7
Cl6-BZ#138	6
Cl6-BZ#146	2
Cl6-BZ#149	3
Cl6-BZ#153	5
Cl6-BZ#156	3
Cl6-BZ#157	2
Cl6-BZ#158	23
Cl6-BZ#167	8
Cl7-BZ#170	1
Cl7-BZ#174	43
Cl7-BZ#177	1
Cl7-BZ#180	2
Cl7-BZ#183	4
Cl7-BZ#187	3
Cl7-BZ#189	16
Cl8-BZ#194	1
Cl8-BZ#195	5
Cl8-BZ#201	2
Cl9-BZ#206	1
Cl10-BZ#209	19
Trichlorobiphenyls	1
Tetrachlorobiphenyls	3
Pentachlorobiphenyls	4
Hexachlorobiphenyls	3
Heptachlorobiphenyls	3
Octachlorobiphenyls	1
Nonachlorobiphenyls	6
Decachlorobiphenyl	19
Percent Lipids	10

Note: RPD outliers are presented in bold.
The RPD control limit for PCBs is 30% and for percent lipids is 15%.
* PCB45 was detected in the sample, but not the duplicate. The difference between the results was greater than 2x the detection limit.

ATTACHMENT A

Data Validation Reports
by Sample Delivery Group (SDG)

DATA VALIDATION REPORT - FULL REVIEW
Hudson River
Polychlorinated Biphenyl Congeners, Lipids
SDG: 0308034

This report documents the review of analytical data from the analysis of screech owl egg samples and the associated laboratory quality control samples. The following table is a list of samples reviewed.

Field ID	Laboratory ID	Common Name
SO-064-001	0308034-01	Screech Owl egg
SO-033-002	0308034-02	Screech Owl egg
SO-068-003	0308034-03	Screech Owl egg
SO-122-004	0308034-04	Screech Owl egg
SO-102-005	0308034-05	Screech Owl egg
SO-010-006	0308034-06	Screech Owl egg
SO-001-007	0308034-07	Screech Owl egg
SO-119-008	0308034-08	Screech Owl egg
SO-143-009	0308034-09	Screech Owl egg
SO-116-010	0308034-10	Screech Owl egg
SO-143-009 Blank	0308034-11	Field blank
SO-033-002 Blank	0308034-12	Field blank

I. DATA PACKAGE COMPLETENESS

All required deliverables were submitted by the laboratory. The laboratory followed adequate corrective action processes, and all anomalies were discussed in the case narrative.

The surrogate percent recovery (%R) values reported on the laboratories Surrogate Recovery summary form were incorrect. The laboratory was contacted October 8, 2003, and submitted a revised form. No further action was necessary.

II. TECHNICAL DATA VALIDATION

The quality control (QC) requirements that were reviewed are listed below.

	GC/MS Instrument Performance Check		Standard Reference Material (SRM)
	Initial Calibration (ICAL)	2	Laboratory Duplicate
	Continuing Calibration (CCAL)		Internal Standards
1	Blanks		Compound Identification
	Surrogate Compounds		Calculation Verification
1	Matrix Spike (MS)	1	Reporting Limits and Sample Results
	Laboratory Control Samples (LCS)		EDD Transcription Check

[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

The method blank was free from laboratory contamination. The data for two field blanks, Samples SO-143-009 Blank and SO-033-002 Blank, were submitted. No target analytes were detected in the field blanks.

Matrix Spike

Matrix spike (MS) analysis was performed using Sample SO-001-007. The recovery values for 15 PCB congeners were outside the 50% - 125% control limits. In all cases, either the amount present in the parent sample was greater than five times the amount spiked, or the analyte was not detected in the parent sample. Thus, no action was taken.

Laboratory Duplicate

A laboratory duplicate was performed on Sample SO-068-003. The relative percent difference (RPD) value of PCB174 (at 43%) was greater than the control limit of 30%. In addition, PCB45 was reported in the parent sample, but was not detected in the duplicate. The values for PCB45 and PCB174 were estimated (J-9) in the parent sample.

Reporting Limits and Sample Results

For GCMS-SIM analysis, response factors are generated for each congener during the calibration process. The relative area of a peak is divided by the appropriate response factor to calculate the concentration of the congener. For the homologue groups (monochlorobiphenyl, dichlorobiphenyl, etc.), a representative response factor is used. For example, the response factor for PCB29 is used as the representative response factor for all trichlorobiphenyls.

In some cases, the reported trichlorobiphenyl and heptachlorobiphenyl homologue group total values were less than the sum of the individual congeners. This occurs because the representative response factor is sufficiently different from the target congener response factors generated during the calibration. For example, the response factor for the PCB31/28 co-elution (detected in all samples) is lower than the trichlorobiphenyl representative response factor. Since the areas are divided by the response factors, this results in a lower concentration for the total trichlorobiphenyls, even if PCB31/28 is the only detected congener in the chlorination level.

Unless all 209 congeners are calibrated, any reported total for a chlorination level will have some inherent variability. For example, for the trichlorobiphenyl and heptachlorobiphenyl results, the greatest difference between the calculated (by summing the congeners) and reported result is 8.5%. The largest difference for the Total Homologue value is 1.6%, with most differences around 1.0%. This is within the variability of the method, thus no action was taken.

Samples SO-033-002, SO-068-003, SO-122-004, and SO-001-007 were analyzed at dilutions based on screening results. Reporting limits were elevated accordingly.

III Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, laboratory control sample, standard reference material, and MS percent recovery values. Precision was acceptable as demonstrated by the relative percent difference values for the duplicate analyses, with the exceptions noted above.

Data were estimated due to laboratory duplicate precision outliers.

All data, as qualified, are acceptable for use.

Appendix D

Eastern Screech Owl Egg Data Sheets

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl2-BZ#8	.138 U µg/Kg	.138 µg/Kg	.129 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl3-BZ#18	.208 U µg/Kg	.208 µg/Kg	.195 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl3-BZ#31/#28	134. µg/Kg	.146 µg/Kg	125.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#44	.168 U µg/Kg	.168 µg/Kg	.157 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#45	.112 U µg/Kg	.112 µg/Kg	.105 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#47	339. µg/Kg	.174 µg/Kg	317.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#49	10.2 µg/Kg	.138 µg/Kg	9.54	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#52	2.88 µg/Kg	.0842 µg/Kg	2.69	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#56	48.9 µg/Kg	.121 µg/Kg	45.7	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#66	166. µg/Kg	.101 µg/Kg	155.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#70	.101 U µg/Kg	.101 µg/Kg	.0945 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#74	265. µg/Kg	.107 µg/Kg	248.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#77	.0786 U µg/Kg	.0786 µg/Kg	.0735 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl4-BZ#81	.104 U µg/Kg	.104 µg/Kg	.0973 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#87	87.7 µg/Kg	.121 µg/Kg	82.0	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#95	.107 U µg/Kg	.107 µg/Kg	.100 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#99	303. µg/Kg	.205 µg/Kg	283.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#101	51.6 µg/Kg	.0954 µg/Kg	48.3	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#105	138. µg/Kg	.129 µg/Kg	129.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#110	8.76 µg/Kg	.104 µg/Kg	8.19	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#114	16.2 µg/Kg	.0954 µg/Kg	15.2	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#118	412. µg/Kg	.197 µg/Kg	385.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#123	.0898 U µg/Kg	.0898 µg/Kg	.0840 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl5-BZ#126	.121 U µg/Kg	.121 µg/Kg	.113 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#128	43.3 µg/Kg	.244 µg/Kg	40.5	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#138	472. µg/Kg	.230 µg/Kg	441.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#146	75.2 µg/Kg	.0926 µg/Kg	70.3	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#149	9.83 µg/Kg	.135 µg/Kg	9.19	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#151	.101 U µg/Kg	.101 µg/Kg	.0945 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#153	495. µg/Kg	.289 µg/Kg	463.	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)		DETECTION LIMIT (wet weight basis)		FRESH WEIGHT (Correction for Moisture Loss)	
												CF Qual
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#156	58.9	µg/Kg	.275	µg/Kg	55.1	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#157	9.39	µg/Kg	.303	µg/Kg	8.78	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#158	12.7	µg/Kg	.107	µg/Kg	11.9	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#167	20.6	µg/Kg	.328	µg/Kg	19.3	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl6-BZ#169	4.77 U	µg/Kg	4.77	µg/Kg	4.46 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl7-BZ#170	88.0	µg/Kg	.289	µg/Kg	82.3	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl7-BZ#174	.483	µg/Kg	.152	µg/Kg	.452	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl7-BZ#177	16.0	µg/Kg	.0842	µg/Kg	15.0	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl7-BZ#180	141.	µg/Kg	.261	µg/Kg	132.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl7-BZ#183	22.3	µg/Kg	.0533	µg/Kg	20.9	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl7-BZ#189	4.79	µg/Kg	.233	µg/Kg	4.48	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl7-BZ#187	131.	µg/Kg	.132	µg/Kg	123.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl8-BZ#194	39.3	µg/Kg	.149	µg/Kg	36.8	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl8-BZ#195	9.87	µg/Kg	.171	µg/Kg	9.23	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl8-BZ#201	50.3	µg/Kg	.253	µg/Kg	47.0	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl9-BZ#206	30.3	µg/Kg	.197	µg/Kg	28.3	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Cl10-BZ#209	4.02	µg/Kg	.160	µg/Kg	3.76	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Monochlorobiphenyls	.0786 U	µg/Kg	.0786	µg/Kg	.0735 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Dichlorobiphenyls	.138 U	µg/Kg	.138	µg/Kg	.129 U	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Trichlorobiphenyls	123.	µg/Kg	.180	µg/Kg	115.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Tetrachlorobiphenyls	947.	µg/Kg	.0814	µg/Kg	886.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Pentachlorobiphenyls	1570.	µg/Kg	.121	µg/Kg	1470.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Hexachlorobiphenyls	1340.	µg/Kg	.149	µg/Kg	1250.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Heptachlorobiphenyls	380.	µg/Kg	.0702	µg/Kg	355.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Octachlorobiphenyls	116.	µg/Kg	.0533	µg/Kg	109.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Nonachlorobiphenyls	56.5	µg/Kg	.197	µg/Kg	52.8	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Decachlorobiphenyl	4.02	µg/Kg	.160	µg/Kg	3.76	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Total Homologs	4540.	µg/Kg	.140	µg/Kg	4250.	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Percent Lipids	7.9	%	.01	%	7.4	
4/28/2003	SO-001-007	614674	4765928	2	0308034-07	Percent Moisture	80	%	.10	%	75	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl2-BZ#8	.0781 U µg/Kg	.0781 µg/Kg	.0694 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl3-BZ#18	.118 U µg/Kg	.118 µg/Kg	.105 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl3-BZ#31/#28	272. µg/Kg	.0829 µg/Kg	242.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#44	.0957 U µg/Kg	.0957 µg/Kg	.0850 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#45	.0638 U µg/Kg	.0638 µg/Kg	.0567 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#47	139. µg/Kg	.0988 µg/Kg	123.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#49	90.1 µg/Kg	.0781 µg/Kg	80.0	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#52	26.5 µg/Kg	.0478 µg/Kg	23.5	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#56	95.4 µg/Kg	.0686 µg/Kg	84.7	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#66	263. µg/Kg	.0574 µg/Kg	234.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#70	13.4 µg/Kg	.0574 µg/Kg	11.9	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#74	271. µg/Kg	.0606 µg/Kg	241.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#77	.0446 U µg/Kg	.0446 µg/Kg	.0396 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl4-BZ#81	.0590 U µg/Kg	.0590 µg/Kg	.0524 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#87	68.2 µg/Kg	.0686 µg/Kg	60.6	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#95	1.46 µg/Kg	.0606 µg/Kg	1.30	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#99	160. µg/Kg	.116 µg/Kg	142.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#101	69.0 µg/Kg	.0542 µg/Kg	61.3	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#105	140. µg/Kg	.0733 µg/Kg	124.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#110	67.5 µg/Kg	.0590 µg/Kg	59.9	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#114	16.2 µg/Kg	.0542 µg/Kg	14.4	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#118	313. µg/Kg	.112 µg/Kg	278.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#123	.0510 U µg/Kg	.0510 µg/Kg	.0453 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl5-BZ#126	.0686 U µg/Kg	.0686 µg/Kg	.0609 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#128	29.4 µg/Kg	.139 µg/Kg	26.1	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#138	258. µg/Kg	.131 µg/Kg	229.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#146	58.6 µg/Kg	.0526 µg/Kg	52.0	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#149	30.3 µg/Kg	.0765 µg/Kg	26.9	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#151	.0574 U µg/Kg	.0574 µg/Kg	.0510 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#153	268. µg/Kg	.164 µg/Kg	238.	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)		DETECTION LIMIT (wet weight basis)		FRESH WEIGHT (Correction for Moisture Loss)	
												CF Qual
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#156	43.5	µg/Kg	.156	µg/Kg	38.6	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#157	6.82	µg/Kg	.172	µg/Kg	6.06	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#158	8.28	µg/Kg	.0606	µg/Kg	7.35	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#167	14.0	µg/Kg	.186	µg/Kg	12.4	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl6-BZ#169	2.71 U	µg/Kg	2.71	µg/Kg	2.41 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl7-BZ#170	65.3	µg/Kg	.164	µg/Kg	58.0	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl7-BZ#174	1.73	µg/Kg	.0861	µg/Kg	1.54	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl7-BZ#177	10.8	µg/Kg	.0478	µg/Kg	9.59	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl7-BZ#180	111.	µg/Kg	.148	µg/Kg	98.6	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl7-BZ#183	16.6	µg/Kg	.0303	µg/Kg	14.7	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl7-BZ#189	3.43	µg/Kg	.132	µg/Kg	3.05	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl7-BZ#187	81.1	µg/Kg	.0749	µg/Kg	72.0	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl8-BZ#194	28.7	µg/Kg	.0845	µg/Kg	25.5	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl8-BZ#195	7.31	µg/Kg	.0972	µg/Kg	6.49	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl8-BZ#201	28.0	µg/Kg	.144	µg/Kg	24.9	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl9-BZ#206	17.2	µg/Kg	.112	µg/Kg	15.3	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Cl10-BZ#209	3.08	µg/Kg	.0909	µg/Kg	2.74	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Monochlorobiphenyls	.0446 U	µg/Kg	.0446	µg/Kg	.0396 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Dichlorobiphenyls	.0781 U	µg/Kg	.0781	µg/Kg	.0694 U	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Trichlorobiphenyls	253.	µg/Kg	.102	µg/Kg	225.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Tetrachlorobiphenyls	1100.	µg/Kg	.0462	µg/Kg	977.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Pentachlorobiphenyls	1330.	µg/Kg	.0686	µg/Kg	1180.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Hexachlorobiphenyls	796.	µg/Kg	.0845	µg/Kg	707.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Heptachlorobiphenyls	265.	µg/Kg	.0399	µg/Kg	235.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Octachlorobiphenyls	78.1	µg/Kg	.0303	µg/Kg	69.4	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Nonachlorobiphenyls	35.4	µg/Kg	.112	µg/Kg	31.4	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Decachlorobiphenyl	3.08	µg/Kg	.0909	µg/Kg	2.74	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Total Homologs	3860.	µg/Kg	.0797	µg/Kg	3430.	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Percent Lipids	7.6	%	.01	%	6.7	
4/24/2003	SO-010-006	614128	4788183	1	0308034-06	Percent Moisture	79	%	.10	%	70	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl2-BZ#8	.313 U µg/Kg	.313 µg/Kg	.310 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl3-BZ#18	.472 U µg/Kg	.472 µg/Kg	.467 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl3-BZ#31/#28	72.3 µg/Kg	.332 µg/Kg	71.5	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#44	.383 U µg/Kg	.383 µg/Kg	.379 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#45	.255 U µg/Kg	.255 µg/Kg	.252 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#47	320. µg/Kg	.396 µg/Kg	317.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#49	40.5 µg/Kg	.313 µg/Kg	40.1	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#52	3.37 µg/Kg	.191 µg/Kg	3.33	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#56	69.6 µg/Kg	.274 µg/Kg	68.9	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#66	198. µg/Kg	.230 µg/Kg	196.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#70	.230 U µg/Kg	.230 µg/Kg	.228 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#74	411. µg/Kg	.243 µg/Kg	407.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#77	.179 U µg/Kg	.179 µg/Kg	.177 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl4-BZ#81	.236 U µg/Kg	.236 µg/Kg	.234 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#87	138. µg/Kg	.274 µg/Kg	137.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#95	.243 U µg/Kg	.243 µg/Kg	.240 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#99	503. µg/Kg	.466 µg/Kg	498.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#101	93.1 µg/Kg	.217 µg/Kg	92.1	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#105	225. µg/Kg	.294 µg/Kg	223.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#110	59.9 µg/Kg	.236 µg/Kg	59.3	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#114	32.5 µg/Kg	.217 µg/Kg	32.2	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#118	771. µg/Kg	.447 µg/Kg	763.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#123	.204 U µg/Kg	.204 µg/Kg	.202 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl5-BZ#126	.274 U µg/Kg	.274 µg/Kg	.271 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#128	76.3 µg/Kg	.555 µg/Kg	75.5	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#138	772. µg/Kg	.523 µg/Kg	764.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#146	130. µg/Kg	.211 µg/Kg	129.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#149	27.2 µg/Kg	.306 µg/Kg	26.9	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#151	.230 U µg/Kg	.230 µg/Kg	.228 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#153	1040. µg/Kg	.657 µg/Kg	1030.	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#156	106. µg/Kg	.625 µg/Kg	105.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#157	17.2 µg/Kg	.689 µg/Kg	17.0	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#158	37.4 µg/Kg	.243 µg/Kg	37.0	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#167	41.3 µg/Kg	.747 µg/Kg	40.9	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl6-BZ#169	10.8 U µg/Kg	10.8 µg/Kg	10.7 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl7-BZ#170	175. µg/Kg	.657 µg/Kg	173.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl7-BZ#174	1.63 µg/Kg	.345 µg/Kg	1.61	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl7-BZ#177	18.2 µg/Kg	.191 µg/Kg	18.0	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl7-BZ#180	326. µg/Kg	.594 µg/Kg	323.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl7-BZ#183	53.8 µg/Kg	.121 µg/Kg	53.2	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl7-BZ#189	9.43 µg/Kg	.530 µg/Kg	9.33	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl7-BZ#187	178. µg/Kg	.300 µg/Kg	176.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl8-BZ#194	77.9 µg/Kg	.338 µg/Kg	77.1	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl8-BZ#195	16.7 µg/Kg	.389 µg/Kg	16.5	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl8-BZ#201	60.7 µg/Kg	.574 µg/Kg	60.1	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl9-BZ#206	44.6 µg/Kg	.447 µg/Kg	44.1	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Cl10-BZ#209	6.26 µg/Kg	.364 µg/Kg	6.19	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Monochlorobiphenyls	.179 U µg/Kg	.179 µg/Kg	.177 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Dichlorobiphenyls	.313 U µg/Kg	.313 µg/Kg	.310 U	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Trichlorobiphenyls	69.5 µg/Kg	.408 µg/Kg	68.8	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Tetrachlorobiphenyls	1190. µg/Kg	.185 µg/Kg	1180.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Pentachlorobiphenyls	2810. µg/Kg	.274 µg/Kg	2780.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Hexachlorobiphenyls	2490. µg/Kg	.338 µg/Kg	2460.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Heptachlorobiphenyls	683. µg/Kg	.160 µg/Kg	676.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Octachlorobiphenyls	200. µg/Kg	.121 µg/Kg	198.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Nonachlorobiphenyls	73.8 µg/Kg	.447 µg/Kg	73.0	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Decachlorobiphenyl	6.26 µg/Kg	.364 µg/Kg	6.19	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Total Homologs	7530. µg/Kg	.319 µg/Kg	7450.	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Percent Lipids	6.0 %	.01 %	6.0	
4/24/2003	SO-033-002	615722	4772385	2	0308034-02	Percent Moisture	82 %	.10 %	81	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl2-BZ#8	.0762 U µg/Kg	.0762 µg/Kg	.0685 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl3-BZ#18	.115 U µg/Kg	.115 µg/Kg	.103 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl3-BZ#31/#28	30.4 µg/Kg	.0808 µg/Kg	27.3	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#44	.0933 U µg/Kg	.0933 µg/Kg	.0839 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#45	.0622 U µg/Kg	.0622 µg/Kg	.0559 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#47	57.1 µg/Kg	.0964 µg/Kg	51.3	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#49	2.31 µg/Kg	.0762 µg/Kg	2.08	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#52	1.37 µg/Kg	.0466 µg/Kg	1.23	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#56	25.0 µg/Kg	.0668 µg/Kg	22.5	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#66	71.3 µg/Kg	.0560 µg/Kg	64.1	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#70	.0560 U µg/Kg	.0560 µg/Kg	.0503 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#74	115. µg/Kg	.0591 µg/Kg	103.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#77	.0435 U µg/Kg	.0435 µg/Kg	.0391 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl4-BZ#81	.0575 U µg/Kg	.0575 µg/Kg	.0517 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#87	38.5 µg/Kg	.0668 µg/Kg	34.6	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#95	.0591 U µg/Kg	.0591 µg/Kg	.0531 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#99	149. µg/Kg	.113 µg/Kg	134.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#101	17.6 µg/Kg	.0528 µg/Kg	15.8	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#105	102. µg/Kg	.0715 µg/Kg	91.7	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#110	6.19 µg/Kg	.0575 µg/Kg	5.56	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#114	9.43 µg/Kg	.0528 µg/Kg	8.48	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#118	282. µg/Kg	.109 µg/Kg	253.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#123	.0497 U µg/Kg	.0497 µg/Kg	.0447 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl5-BZ#126	.0668 U µg/Kg	.0668 µg/Kg	.0600 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#128	28.5 µg/Kg	.135 µg/Kg	25.6	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#138	289. µg/Kg	.127 µg/Kg	260.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#146	45.7 µg/Kg	.0513 µg/Kg	41.1	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#149	4.54 µg/Kg	.0746 µg/Kg	4.08	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#151	.0560 U µg/Kg	.0560 µg/Kg	.0503 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#153	328. µg/Kg	.160 µg/Kg	295.	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)		DETECTION LIMIT (wet weight basis)		FRESH WEIGHT (Correction for Moisture Loss)	
												CF Qual
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#156	42.7	µg/Kg	.152	µg/Kg	38.4	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#157	6.74	µg/Kg	.168	µg/Kg	6.06	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#158	10.8	µg/Kg	.0591	µg/Kg	9.71	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#167	16.5	µg/Kg	.182	µg/Kg	14.8	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl6-BZ#169	2.64 U	µg/Kg	2.64	µg/Kg	2.37 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl7-BZ#170	68.0	µg/Kg	.160	µg/Kg	61.1	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl7-BZ#174	.228 J	µg/Kg	.0839	µg/Kg	.205 J	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl7-BZ#177	10.2	µg/Kg	.0466	µg/Kg	9.17	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl7-BZ#180	118.	µg/Kg	.145	µg/Kg	106.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl7-BZ#183	15.7	µg/Kg	.0295	µg/Kg	14.1	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl7-BZ#189	3.59	µg/Kg	.129	µg/Kg	3.23	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl7-BZ#187	74.2	µg/Kg	.0731	µg/Kg	66.7	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl8-BZ#194	34.8	µg/Kg	.0824	µg/Kg	31.3	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl8-BZ#195	7.68	µg/Kg	.0948	µg/Kg	6.90	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl8-BZ#201	41.7	µg/Kg	.140	µg/Kg	37.5	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl9-BZ#206	32.0	µg/Kg	.109	µg/Kg	28.8	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Cl10-BZ#209	4.82	µg/Kg	.0886	µg/Kg	4.33	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Monochlorobiphenyls	.0435 U	µg/Kg	.0435	µg/Kg	.0391 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Dichlorobiphenyls	.0762 U	µg/Kg	.0762	µg/Kg	.0685 U	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Trichlorobiphenyls	30.3	µg/Kg	.0995	µg/Kg	27.2	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Tetrachlorobiphenyls	299.	µg/Kg	.0451	µg/Kg	269.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Pentachlorobiphenyls	929.	µg/Kg	.0668	µg/Kg	835.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Hexachlorobiphenyls	856.	µg/Kg	.0824	µg/Kg	769.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Heptachlorobiphenyls	266.	µg/Kg	.0389	µg/Kg	239.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Octachlorobiphenyls	98.1	µg/Kg	.0295	µg/Kg	88.2	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Nonachlorobiphenyls	54.0	µg/Kg	.109	µg/Kg	48.5	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Decachlorobiphenyl	4.82	µg/Kg	.0886	µg/Kg	4.33	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Total Homologs	2540.	µg/Kg	.0777	µg/Kg	2280.	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Percent Lipids	5.6	%	.01	%	5.1	
4/23/2003	SO-064-001	615924	4768748	2	0308034-01	Percent Moisture	82	%	.10	%	74	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl2-BZ#8	.124 U µg/Kg	.124 µg/Kg	.112 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl3-BZ#18	.188 U µg/Kg	.188 µg/Kg	.170 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl3-BZ#31/#28	102. µg/Kg	.132 µg/Kg	92.2	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#44	.153 U µg/Kg	.153 µg/Kg	.138 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#45	.874 J µg/Kg	.102 µg/Kg	.790 J	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#47	467. µg/Kg	.158 µg/Kg	422.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#49	13.0 µg/Kg	.124 µg/Kg	11.8	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#52	3.46 µg/Kg	.0762 µg/Kg	3.13	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#56	107. µg/Kg	.109 µg/Kg	96.7	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#66	238. µg/Kg	.0915 µg/Kg	215.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#70	.0915 U µg/Kg	.0915 µg/Kg	.0827 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#74	539. µg/Kg	.0966 µg/Kg	487.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#77	.0712 U µg/Kg	.0712 µg/Kg	.0644 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl4-BZ#81	.0940 U µg/Kg	.0940 µg/Kg	.0850 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#87	136. µg/Kg	.109 µg/Kg	123.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#95	.0966 U µg/Kg	.0966 µg/Kg	.0873 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#99	509. µg/Kg	.185 µg/Kg	460.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#101	84.1 µg/Kg	.0864 µg/Kg	76.0	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#105	246. µg/Kg	.117 µg/Kg	222.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#110	41.5 µg/Kg	.0940 µg/Kg	37.5	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#114	28.8 µg/Kg	.0864 µg/Kg	26.0	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#118	655. µg/Kg	.178 µg/Kg	592.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#123	.0813 U µg/Kg	.0813 µg/Kg	.0735 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl5-BZ#126	.109 U µg/Kg	.109 µg/Kg	.0986 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#128	82.6 µg/Kg	.221 µg/Kg	74.7	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#138	644. µg/Kg	.208 µg/Kg	582.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#146	111. µg/Kg	.0839 µg/Kg	100.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#149	21.0 µg/Kg	.122 µg/Kg	19.0	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#151	.0915 U µg/Kg	.0915 µg/Kg	.0827 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#153	585. µg/Kg	.262 µg/Kg	529.	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#156	64.4 µg/Kg	.249 µg/Kg	58.2	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#157	12.1 µg/Kg	.275 µg/Kg	10.9	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#158	28.0 µg/Kg	.0966 µg/Kg	25.3	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#167	30.3 µg/Kg	.297 µg/Kg	27.4	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl6-BZ#169	4.32 U µg/Kg	4.32 µg/Kg	3.91 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl7-BZ#170	95.3 µg/Kg	.262 µg/Kg	86.2	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl7-BZ#174	1.49 J µg/Kg	.137 µg/Kg	1.35 J	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl7-BZ#177	21.8 µg/Kg	.0762 µg/Kg	19.7	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl7-BZ#180	160. µg/Kg	.236 µg/Kg	145.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl7-BZ#183	31.8 µg/Kg	.0483 µg/Kg	28.8	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl7-BZ#189	5.28 µg/Kg	.211 µg/Kg	4.77	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl7-BZ#187	178. µg/Kg	.119 µg/Kg	161.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl8-BZ#194	35.7 µg/Kg	.135 µg/Kg	32.3	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl8-BZ#195	10.6 µg/Kg	.155 µg/Kg	9.58	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl8-BZ#201	34.3 µg/Kg	.229 µg/Kg	31.0	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl9-BZ#206	20.5 µg/Kg	.178 µg/Kg	18.5	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Cl10-BZ#209	3.59 µg/Kg	.145 µg/Kg	3.25	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Monochlorobiphenyls	.0712 U µg/Kg	.0712 µg/Kg	.0644 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Dichlorobiphenyls	.124 U µg/Kg	.124 µg/Kg	.112 U	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Trichlorobiphenyls	96.9 µg/Kg	.163 µg/Kg	87.6	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Tetrachlorobiphenyls	1550. µg/Kg	.0737 µg/Kg	1400.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Pentachlorobiphenyls	2700. µg/Kg	.109 µg/Kg	2440.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Hexachlorobiphenyls	1790. µg/Kg	.135 µg/Kg	1620.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Heptachlorobiphenyls	466. µg/Kg	.0635 µg/Kg	421.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Octachlorobiphenyls	104. µg/Kg	.0483 µg/Kg	94.0	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Nonachlorobiphenyls	36.7 µg/Kg	.178 µg/Kg	33.2	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Decachlorobiphenyl	3.59 µg/Kg	.145 µg/Kg	3.25	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Total Homologs	6740. µg/Kg	.127 µg/Kg	6090.	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Percent Lipids	6.7 %	.01 %	6.0	
4/24/2003	SO-068-003	615628	4770754	2	0308034-03	Percent Moisture	81 %	.10 %	73	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl2-BZ#8	.0757 U µg/Kg	.0757 µg/Kg	.0573 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl3-BZ#18	.114 U µg/Kg	.114 µg/Kg	.0863 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl3-BZ#31/#28	18.8 µg/Kg	.0803 µg/Kg	14.2	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#44	.0927 U µg/Kg	.0927 µg/Kg	.0702 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#45	.0618 U µg/Kg	.0618 µg/Kg	.0468 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#47	29.7 µg/Kg	.0958 µg/Kg	22.5	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#49	.581 µg/Kg	.0757 µg/Kg	.440	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#52	.413 µg/Kg	.0464 µg/Kg	.313	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#56	8.02 µg/Kg	.0664 µg/Kg	6.07	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#66	21.6 µg/Kg	.0556 µg/Kg	16.3	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#70	.0556 U µg/Kg	.0556 µg/Kg	.0421 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#74	53.3 µg/Kg	.0587 µg/Kg	40.3	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#77	.0433 U µg/Kg	.0433 µg/Kg	.0328 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl4-BZ#81	.0572 U µg/Kg	.0572 µg/Kg	.0433 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#87	19.4 µg/Kg	.0664 µg/Kg	14.7	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#95	.0587 U µg/Kg	.0587 µg/Kg	.0444 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#99	48.3 µg/Kg	.113 µg/Kg	36.6	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#101	7.16 µg/Kg	.0525 µg/Kg	5.42	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#105	28.8 µg/Kg	.0711 µg/Kg	21.8	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#110	.709 µg/Kg	.0572 µg/Kg	.537	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#114	4.13 µg/Kg	.0525 µg/Kg	3.13	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#118	94.6 µg/Kg	.108 µg/Kg	71.6	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#123	.0494 U µg/Kg	.0494 µg/Kg	.0374 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl5-BZ#126	.0664 U µg/Kg	.0664 µg/Kg	.0503 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#128	11.0 µg/Kg	.134 µg/Kg	8.33	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#138	109. µg/Kg	.127 µg/Kg	82.5	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#146	23.4 µg/Kg	.0510 µg/Kg	17.7	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#149	.945 µg/Kg	.0742 µg/Kg	.715	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#151	.0556 U µg/Kg	.0556 µg/Kg	.0421 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#153	134. µg/Kg	.159 µg/Kg	101.	J

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)		DETECTION LIMIT (wet weight basis)		FRESH WEIGHT (Correction for Moisture Loss)	
												CF Qual
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#156	14.0	µg/Kg	.151	µg/Kg	10.6	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#157	2.55	µg/Kg	.167	µg/Kg	1.93	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#158	3.15	µg/Kg	.0587	µg/Kg	2.38	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#167	6.76	µg/Kg	.181	µg/Kg	5.12	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl6-BZ#169	2.63 U	µg/Kg	2.63	µg/Kg	1.99 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl7-BZ#170	26.5	µg/Kg	.159	µg/Kg	20.1	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl7-BZ#174	.0834 U	µg/Kg	.0834	µg/Kg	.0631 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl7-BZ#177	3.78	µg/Kg	.0464	µg/Kg	2.86	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl7-BZ#180	49.5	µg/Kg	.144	µg/Kg	37.5	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl7-BZ#183	7.76	µg/Kg	.0294	µg/Kg	5.87	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl7-BZ#189	1.82	µg/Kg	.128	µg/Kg	1.38	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl7-BZ#187	36.1	µg/Kg	.0726	µg/Kg	27.3	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl8-BZ#194	18.4	µg/Kg	.0819	µg/Kg	13.9	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl8-BZ#195	3.47	µg/Kg	.0942	µg/Kg	2.63	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl8-BZ#201	14.8	µg/Kg	.139	µg/Kg	11.2	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl9-BZ#206	12.0	µg/Kg	.108	µg/Kg	9.08	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Cl10-BZ#209	2.30	µg/Kg	.0881	µg/Kg	1.74	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Monochlorobiphenyls	.0433 U	µg/Kg	.0433	µg/Kg	.0328 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Dichlorobiphenyls	.0757 U	µg/Kg	.0757	µg/Kg	.0573 U	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Trichlorobiphenyls	17.6	µg/Kg	.0989	µg/Kg	13.3	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Tetrachlorobiphenyls	134.	µg/Kg	.0448	µg/Kg	101.	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Pentachlorobiphenyls	313.	µg/Kg	.0664	µg/Kg	237.	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Hexachlorobiphenyls	333.	µg/Kg	.0819	µg/Kg	252.	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Heptachlorobiphenyls	115.	µg/Kg	.0386	µg/Kg	87.0	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Octachlorobiphenyls	44.6	µg/Kg	.0294	µg/Kg	33.8	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Nonachlorobiphenyls	23.2	µg/Kg	.108	µg/Kg	17.6	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Decachlorobiphenyl	2.30	µg/Kg	.0881	µg/Kg	1.74	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Total Homologs	983.	µg/Kg	.0773	µg/Kg	744.	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Percent Lipids	5.4	%	.01	%	4.1	J
4/24/2003	SO-102-005	613935	4789323	1	0308034-05	Percent Moisture	80	%	.10	%	61	J

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl2-BZ#8	.0813 U µg/Kg	.0813 µg/Kg	.0783 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl3-BZ#18	.123 U µg/Kg	.123 µg/Kg	.118 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl3-BZ#31/#28	27.0 µg/Kg	.0863 µg/Kg	26.0	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#44	.0996 U µg/Kg	.0996 µg/Kg	.0959 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#45	.0664 U µg/Kg	.0664 µg/Kg	.0640 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#47	57.4 µg/Kg	.103 µg/Kg	55.3	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#49	.433 µg/Kg	.0813 µg/Kg	.417	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#52	.275 µg/Kg	.0498 µg/Kg	.265	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#56	17.2 µg/Kg	.0714 µg/Kg	16.6	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#66	55.0 µg/Kg	.0598 µg/Kg	53.0	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#70	.0598 U µg/Kg	.0598 µg/Kg	.0576 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#74	111. µg/Kg	.0631 µg/Kg	107.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#77	.0465 U µg/Kg	.0465 µg/Kg	.0448 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl4-BZ#81	.0614 U µg/Kg	.0614 µg/Kg	.0591 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#87	50.8 µg/Kg	.0714 µg/Kg	48.9	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#95	.0631 U µg/Kg	.0631 µg/Kg	.0608 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#99	170. µg/Kg	.121 µg/Kg	164.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#101	19.8 µg/Kg	.0564 µg/Kg	19.1	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#105	90.0 µg/Kg	.0764 µg/Kg	86.7	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#110	.0614 U µg/Kg	.0614 µg/Kg	.0591 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#114	11.8 µg/Kg	.0564 µg/Kg	11.4	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#118	283. µg/Kg	.116 µg/Kg	273.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#123	.0531 U µg/Kg	.0531 µg/Kg	.0511 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl5-BZ#126	.0714 U µg/Kg	.0714 µg/Kg	.0688 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#128	36.1 µg/Kg	.144 µg/Kg	34.8	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#138	362. µg/Kg	.136 µg/Kg	349.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#146	72.5 µg/Kg	.0548 µg/Kg	69.8	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#149	3.04 µg/Kg	.0797 µg/Kg	2.93	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#151	.0598 U µg/Kg	.0598 µg/Kg	.0576 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#153	439. µg/Kg	.171 µg/Kg	423.	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#156	50.5 µg/Kg	.163 µg/Kg	48.6	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#157	7.76 µg/Kg	.179 µg/Kg	7.47	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#158	9.01 µg/Kg	.0631 µg/Kg	8.68	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#167	17.4 µg/Kg	.194 µg/Kg	16.8	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl6-BZ#169	2.82 U µg/Kg	2.82 µg/Kg	2.72 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl7-BZ#170	89.9 µg/Kg	.171 µg/Kg	86.6	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl7-BZ#174	.222 J µg/Kg	.0896 µg/Kg	.214 J	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl7-BZ#177	15.2 µg/Kg	.0498 µg/Kg	14.6	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl7-BZ#180	155. µg/Kg	.154 µg/Kg	149.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl7-BZ#183	24.9 µg/Kg	.0315 µg/Kg	24.0	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl7-BZ#189	4.77 µg/Kg	.138 µg/Kg	4.59	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl7-BZ#187	95.1 µg/Kg	.0780 µg/Kg	91.6	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl8-BZ#194	43.3 µg/Kg	.0880 µg/Kg	41.7	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl8-BZ#195	9.17 µg/Kg	.101 µg/Kg	8.83	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl8-BZ#201	42.4 µg/Kg	.149 µg/Kg	40.8	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl9-BZ#206	26.1 µg/Kg	.116 µg/Kg	25.1	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Cl10-BZ#209	7.12 µg/Kg	.0946 µg/Kg	6.86	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Monochlorobiphenyls	.0465 U µg/Kg	.0465 µg/Kg	.0448 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Dichlorobiphenyls	.0813 U µg/Kg	.0813 µg/Kg	.0783 U	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Trichlorobiphenyls	19.7 µg/Kg	.106 µg/Kg	19.0	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Tetrachlorobiphenyls	268. µg/Kg	.0481 µg/Kg	258.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Pentachlorobiphenyls	959. µg/Kg	.0714 µg/Kg	924.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Hexachlorobiphenyls	1090. µg/Kg	.0880 µg/Kg	1050.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Heptachlorobiphenyls	347. µg/Kg	.0415 µg/Kg	334.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Octachlorobiphenyls	116. µg/Kg	.0315 µg/Kg	112.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Nonachlorobiphenyls	45.0 µg/Kg	.116 µg/Kg	43.3	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Decachlorobiphenyl	7.12 µg/Kg	.0946 µg/Kg	6.86	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Total Homologs	2850. µg/Kg	.0830 µg/Kg	2750.	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Percent Lipids	6.1 %	.01 %	5.9	
4/29/2003	SO-116-010	611820	4757977	2	0308034-10	Percent Moisture	80 %	.10 %	77	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl2-BZ#8	.0794 U µg/Kg	.0794 µg/Kg	.0745 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl3-BZ#18	.120 U µg/Kg	.120 µg/Kg	.113 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl3-BZ#31/#28	20.8 µg/Kg	.0843 µg/Kg	19.5	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#44	.0973 U µg/Kg	.0973 µg/Kg	.0912 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#45	.0649 U µg/Kg	.0649 µg/Kg	.0609 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#47	19.9 µg/Kg	.101 µg/Kg	18.7	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#49	.682 µg/Kg	.0794 µg/Kg	.640	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#52	.248 µg/Kg	.0486 µg/Kg	.233	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#56	3.73 µg/Kg	.0697 µg/Kg	3.50	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#66	12.5 µg/Kg	.0584 µg/Kg	11.7	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#70	.0584 U µg/Kg	.0584 µg/Kg	.0548 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#74	20.4 µg/Kg	.0616 µg/Kg	19.1	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#77	.0454 U µg/Kg	.0454 µg/Kg	.0426 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl4-BZ#81	.0600 U µg/Kg	.0600 µg/Kg	.0563 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#87	12.0 µg/Kg	.0697 µg/Kg	11.3	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#95	.0616 U µg/Kg	.0616 µg/Kg	.0578 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#99	101. µg/Kg	.118 µg/Kg	94.7	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#101	6.93 µg/Kg	.0551 µg/Kg	6.50	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#105	24.9 µg/Kg	.0746 µg/Kg	23.3	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#110	2.17 µg/Kg	.0600 µg/Kg	2.03	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#114	2.44 µg/Kg	.0551 µg/Kg	2.29	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#118	62.6 µg/Kg	.113 µg/Kg	58.7	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#123	.0519 U µg/Kg	.0519 µg/Kg	.0487 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl5-BZ#126	.0697 U µg/Kg	.0697 µg/Kg	.0654 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#128	11.6 µg/Kg	.141 µg/Kg	10.9	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#138	284. µg/Kg	.133 µg/Kg	266.	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#146	31.6 µg/Kg	.0535 µg/Kg	29.6	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#149	2.95 µg/Kg	.0778 µg/Kg	2.77	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#151	.0584 U µg/Kg	.0584 µg/Kg	.0548 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#153	388. µg/Kg	.167 µg/Kg	364.	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#156	25.4 µg/Kg	.159 µg/Kg	23.8	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#157	3.55 µg/Kg	.175 µg/Kg	3.33	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#158	7.65 µg/Kg	.0616 µg/Kg	7.17	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#167	5.19 µg/Kg	.190 µg/Kg	4.87	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl6-BZ#169	2.76 U µg/Kg	2.76 µg/Kg	2.59 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl7-BZ#170	91.0 µg/Kg	.167 µg/Kg	85.3	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl7-BZ#174	.0875 U µg/Kg	.0875 µg/Kg	.0820 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl7-BZ#177	11.9 µg/Kg	.0486 µg/Kg	11.2	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl7-BZ#180	190. µg/Kg	.151 µg/Kg	178.	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl7-BZ#183	37.4 µg/Kg	.0308 µg/Kg	35.1	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl7-BZ#189	3.04 µg/Kg	.135 µg/Kg	2.85	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl7-BZ#187	60.2 µg/Kg	.0762 µg/Kg	56.4	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl8-BZ#194	42.2 µg/Kg	.0859 µg/Kg	39.6	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl8-BZ#195	11.0 µg/Kg	.0989 µg/Kg	10.3	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl8-BZ#201	40.9 µg/Kg	.146 µg/Kg	38.4	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl9-BZ#206	33.5 µg/Kg	.113 µg/Kg	31.4	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Cl10-BZ#209	8.30 µg/Kg	.0924 µg/Kg	7.78	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Monochlorobiphenyls	.0454 U µg/Kg	.0454 µg/Kg	.0426 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Dichlorobiphenyls	.0794 U µg/Kg	.0794 µg/Kg	.0745 U	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Trichlorobiphenyls	13.2 µg/Kg	.104 µg/Kg	12.4	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Tetrachlorobiphenyls	71.8 µg/Kg	.0470 µg/Kg	67.3	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Pentachlorobiphenyls	337. µg/Kg	.0697 µg/Kg	316.	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Hexachlorobiphenyls	832. µg/Kg	.0859 µg/Kg	780.	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Heptachlorobiphenyls	351. µg/Kg	.0405 µg/Kg	329.	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Octachlorobiphenyls	121. µg/Kg	.0308 µg/Kg	113.	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Nonachlorobiphenyls	54.2 µg/Kg	.113 µg/Kg	50.8	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Decachlorobiphenyl	8.30 µg/Kg	.0924 µg/Kg	7.78	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Total Homologs	1790. µg/Kg	.0811 µg/Kg	1680.	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Percent Lipids	7.2 %	.01 %	6.7	
4/29/2003	SO-119-008	601273	4707511	4	0308034-08	Percent Moisture	79 %	.10 %	74	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl2-BZ#8	.153 U µg/Kg	.153 µg/Kg	.139 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl3-BZ#18	.231 U µg/Kg	.231 µg/Kg	.210 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl3-BZ#31/#28	55.8 µg/Kg	.163 µg/Kg	50.6	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#44	.188 U µg/Kg	.188 µg/Kg	.171 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#45	.125 U µg/Kg	.125 µg/Kg	.113 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#47	77.6 µg/Kg	.194 µg/Kg	70.4	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#49	2.87 µg/Kg	.153 µg/Kg	2.60	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#52	1.14 µg/Kg	.0938 µg/Kg	1.03	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#56	37.4 µg/Kg	.134 µg/Kg	33.9	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#66	94.6 µg/Kg	.112 µg/Kg	85.9	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#70	.112 U µg/Kg	.112 µg/Kg	.102 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#74	298. µg/Kg	.119 µg/Kg	270.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#77	.0875 U µg/Kg	.0875 µg/Kg	.0794 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl4-BZ#81	.116 U µg/Kg	.116 µg/Kg	.105 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#87	56.1 µg/Kg	.134 µg/Kg	50.9	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#95	.119 U µg/Kg	.119 µg/Kg	.108 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#99	246. µg/Kg	.228 µg/Kg	223.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#101	19.9 µg/Kg	.106 µg/Kg	18.1	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#105	132. µg/Kg	.144 µg/Kg	120.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#110	5.00 µg/Kg	.116 µg/Kg	4.54	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#114	17.9 µg/Kg	.106 µg/Kg	16.2	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#118	423. µg/Kg	.219 µg/Kg	384.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#123	.100 U µg/Kg	.100 µg/Kg	.0908 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl5-BZ#126	.134 U µg/Kg	.134 µg/Kg	.122 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#128	42.0 µg/Kg	.272 µg/Kg	38.1	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#138	436. µg/Kg	.256 µg/Kg	396.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#146	77.4 µg/Kg	.103 µg/Kg	70.3	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#149	4.48 µg/Kg	.150 µg/Kg	4.07	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#151	.112 U µg/Kg	.112 µg/Kg	.102 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#153	518. µg/Kg	.322 µg/Kg	470.	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#156	61.6 µg/Kg	.306 µg/Kg	55.9	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#157	10.5 µg/Kg	.338 µg/Kg	9.53	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#158	17.6 µg/Kg	.119 µg/Kg	16.0	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#167	16.6 µg/Kg	.366 µg/Kg	15.1	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl6-BZ#169	5.31 U µg/Kg	5.31 µg/Kg	4.82 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl7-BZ#170	90.2 µg/Kg	.322 µg/Kg	81.9	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl7-BZ#174	.169 U µg/Kg	.169 µg/Kg	.153 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl7-BZ#177	13.0 µg/Kg	.0938 µg/Kg	11.8	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl7-BZ#180	156. µg/Kg	.291 µg/Kg	142.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl7-BZ#183	22.2 µg/Kg	.0594 µg/Kg	20.1	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl7-BZ#189	5.14 µg/Kg	.259 µg/Kg	4.67	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl7-BZ#187	107. µg/Kg	.147 µg/Kg	97.1	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl8-BZ#194	44.0 µg/Kg	.166 µg/Kg	39.9	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl8-BZ#195	9.96 µg/Kg	.191 µg/Kg	9.04	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl8-BZ#201	49.5 µg/Kg	.281 µg/Kg	44.9	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl9-BZ#206	36.0 µg/Kg	.219 µg/Kg	32.7	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Cl10-BZ#209	5.46 µg/Kg	.178 µg/Kg	4.96	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Monochlorobiphenyls	.0875 U µg/Kg	.0875 µg/Kg	.0794 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Dichlorobiphenyls	.153 U µg/Kg	.153 µg/Kg	.139 U	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Trichlorobiphenyls	53.8 µg/Kg	.200 µg/Kg	48.8	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Tetrachlorobiphenyls	559. µg/Kg	.0907 µg/Kg	507.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Pentachlorobiphenyls	1420. µg/Kg	.134 µg/Kg	1290.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Hexachlorobiphenyls	1310. µg/Kg	.166 µg/Kg	1190.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Heptachlorobiphenyls	356. µg/Kg	.0781 µg/Kg	323.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Octachlorobiphenyls	123. µg/Kg	.0594 µg/Kg	112.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Nonachlorobiphenyls	64.2 µg/Kg	.219 µg/Kg	58.3	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Decachlorobiphenyl	5.46 µg/Kg	.178 µg/Kg	4.96	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Total Homologs	3890. µg/Kg	.156 µg/Kg	3530.	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Percent Lipids	6.2 %	.01 %	5.7	
4/24/2003	SO-122-004	615161	4768122	2	0308034-04	Percent Moisture	81 %	.10 %	73	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl2-BZ#8	.0884 U µg/Kg	.0884 µg/Kg	.0821 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl3-BZ#18	.133 U µg/Kg	.133 µg/Kg	.123 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl3-BZ#31/#28	46.6 µg/Kg	.0938 µg/Kg	43.3	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#44	.108 U µg/Kg	.108 µg/Kg	.100 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#45	.0722 U µg/Kg	.0722 µg/Kg	.0670 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#47	43.1 µg/Kg	.112 µg/Kg	40.0	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#49	25.5 µg/Kg	.0884 µg/Kg	23.7	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#52	6.66 µg/Kg	.0541 µg/Kg	6.18	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#56	19.2 µg/Kg	.0776 µg/Kg	17.8	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#66	60.9 µg/Kg	.0650 µg/Kg	56.5	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#70	7.53 µg/Kg	.0650 µg/Kg	6.99	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#74	73.5 µg/Kg	.0686 µg/Kg	68.2	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#77	.0505 U µg/Kg	.0505 µg/Kg	.0469 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl4-BZ#81	.0668 U µg/Kg	.0668 µg/Kg	.0620 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#87	30.9 µg/Kg	.0776 µg/Kg	28.7	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#95	.0686 U µg/Kg	.0686 µg/Kg	.0637 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#99	82.2 µg/Kg	.132 µg/Kg	76.3	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#101	30.3 µg/Kg	.0614 µg/Kg	28.1	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#105	55.2 µg/Kg	.0830 µg/Kg	51.2	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#110	23.0 µg/Kg	.0668 µg/Kg	21.3	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#114	5.74 µg/Kg	.0614 µg/Kg	5.33	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#118	146. µg/Kg	.126 µg/Kg	136.	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#123	.0577 U µg/Kg	.0577 µg/Kg	.0536 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl5-BZ#126	.0776 U µg/Kg	.0776 µg/Kg	.0720 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#128	20.0 µg/Kg	.157 µg/Kg	18.6	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#138	166. µg/Kg	.148 µg/Kg	154.	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#146	31.6 µg/Kg	.0596 µg/Kg	29.3	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#149	12.6 µg/Kg	.0866 µg/Kg	11.7	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#151	.0650 U µg/Kg	.0650 µg/Kg	.0603 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#153	179. µg/Kg	.186 µg/Kg	166.	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report

Eastern Screech Owl (Otus asio) Eggs

The Fresh Weight (Correction for Moisture Loss [CF]) factors were determined by the following equation:

Egg Contents Weight (g) / Egg Volume (cm^3) = CF CF x Analyte Value = Fresh Weight

Note: The fresh weight for Sample SO-102-005 was 'J' qualified; the correction factor (CF) was questioned because the shell was cracked.

SAMPLING DATE	FIELD ID	EASTING (NAD83 UTM18N)	NORTHING (NAD83 UTM18N)	REGION	LAB ID	ANALYTE[1]	VALUE AND INTERPRETIVE QUALIFIER[2] (wet weight basis)	DETECTION LIMIT (wet weight basis)	FRESH WEIGHT (Correction for Moisture Loss)	
										CF Qual
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#156	19.8 µg/Kg	.177 µg/Kg	18.4	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#157	3.39 µg/Kg	.195 µg/Kg	3.15	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#158	5.08 µg/Kg	.0686 µg/Kg	4.72	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#167	8.05 µg/Kg	.211 µg/Kg	7.47	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl6-BZ#169	3.07 U µg/Kg	3.07 µg/Kg	2.85 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl7-BZ#170	35.3 µg/Kg	.186 µg/Kg	32.8	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl7-BZ#174	1.07 µg/Kg	.0974 µg/Kg	.993	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl7-BZ#177	7.68 µg/Kg	.0541 µg/Kg	7.13	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl7-BZ#180	58.1 µg/Kg	.168 µg/Kg	53.9	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl7-BZ#183	10.3 µg/Kg	.0343 µg/Kg	9.56	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl7-BZ#189	1.61 µg/Kg	.150 µg/Kg	1.49	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl7-BZ#187	57.9 µg/Kg	.0848 µg/Kg	53.7	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl8-BZ#194	15.0 µg/Kg	.0956 µg/Kg	13.9	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl8-BZ#195	4.23 µg/Kg	.110 µg/Kg	3.93	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl8-BZ#201	21.5 µg/Kg	.162 µg/Kg	20.0	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl9-BZ#206	10.6 µg/Kg	.126 µg/Kg	9.84	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Cl10-BZ#209	1.42 µg/Kg	.103 µg/Kg	1.32	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Monochlorobiphenyls	.0505 U µg/Kg	.0505 µg/Kg	.0469 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Dichlorobiphenyls	.0884 U µg/Kg	.0884 µg/Kg	.0821 U	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Trichlorobiphenyls	41.4 µg/Kg	.116 µg/Kg	38.4	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Tetrachlorobiphenyls	292. µg/Kg	.0523 µg/Kg	271.	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Pentachlorobiphenyls	584. µg/Kg	.0776 µg/Kg	542.	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Hexachlorobiphenyls	504. µg/Kg	.0956 µg/Kg	468.	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Heptachlorobiphenyls	161. µg/Kg	.0451 µg/Kg	149.	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Octachlorobiphenyls	48.5 µg/Kg	.0343 µg/Kg	45.0	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Nonachlorobiphenyls	20.2 µg/Kg	.126 µg/Kg	18.8	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Decachlorobiphenyl	1.42 µg/Kg	.103 µg/Kg	1.32	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Total Homologs	1650. µg/Kg	.0902 µg/Kg	1530.	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Percent Lipids	7.2 %	.01 %	6.7	
4/29/2003	SO-143-009	611930	4757246	2	0308034-09	Percent Moisture	81 %	.10 %	76	

[1]ClX indicates chlorination level; BZ# = PCB congener Ballschmiter & Zell number

[2]U = Non-detected result at detection limit

J/UJ/NJ = Estimated result or detection limit; see DQA Report


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


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