

National Health and Nutrition Examination Survey 2003-2004

Documentation, Codebook, and Frequencies

Laboratory Component:
Non-dioxin-like Polychlorinated
Biphenyls

Survey Years:
2003 to 2004

SAS Export File:
L28NPB_C.XPT



First Release: April 2008
Last Revised: N/A

NHANES 2003–2004 Data Documentation

Laboratory Assessment: Lab 28 - Non-dioxin-like Polychlorinated Biphenyls

First Published: April 2008

Last Revised: N/A

Component Description	<p><u>Persistent organochlorines</u> (organochlorine pesticides, polychlorinated and polybrominated dibenzo-p-dioxins and dibenzofurans, and polychlorinated biphenyls (PCBs): Organochlorines are diverse, synthetic chemicals that are persistent in the environment and tend to bioaccumulate. Most of these chemicals are banned in the U.S. Assessment of exposure to persistent organochlorines in a representative sample of the U.S. population is needed to determine current prevalence and level of exposure and the potential for human health threat from exposure to these chemicals.</p>
Eligible Sample	Participants aged 12 years and older who met the subsample requirements.
Description of Laboratory Methodology	Serum specimens (1–1.5 mL) to be analyzed for PCBs and persistent pesticides are spiked with $^{13}\text{C}_{12}$ -labeled internal standards and the analytes of interest are isolated in hexane using a C ₁₈ solid phase extraction (SPE) procedure followed by extraction through neutral silica and Florosil SPE columns. PCBs and pesticides are eluted from the Florosil column with hexane and 1:1 dichloromethane /hexane. For PCBs and pesticides, each analytical run consists of nine unknown specimens, one method blank, and two quality control samples. Before quantification, the vials are reconstituted with 10 μL ^{13}C -labeled external standard. Sample extracts are then analyzed simultaneously for PCBs and pesticides by HRGC/ID-HRMS where 1 μL is injected, using a GC Pal (Leap Technology) auto sampler, into a Hewlett-Packard 6890 gas chromatograph operated in the splitless injection mode with a flow of 1 mL/min helium through a DB-5ms capillary column (30 m x 0.25 mm x 0.25 μm film thickness) where analytes are separated prior to entering a Thermo Finnigan MAT95 XP (5 kV) magnetic sector mass spectrometer operated in EI mode at 40 eV, using selected ion monitoring (SIM) at 10,000 resolving power (10% valley). Two ion current responses corresponding to two masses are monitored for each native (^{12}C) compound and its corresponding ^{13}C -internal standard. The instrumental

response factor for each analyte is calculated as the sum of the two ^{12}C -isomers divided by the sum of two ^{13}C -isomers

Calibration of mass spectrometer response factor vs. concentration is performed using calibration standards containing known concentrations of each ^{12}C compound and its corresponding ^{13}C internal standard. The concentration of each analyte is derived by interpolation from individual linear calibration curves and is adjusted for sample weight. The validity of all mass spectrometry data are evaluated using a variety of established criteria, such as signal-to-noise ratio ≥ 3 for the smallest native ion mass, instrument resolving power $\geq 10,000$, chromatographic isomer specificity index with 95% limits, relative retention time ratio of native to isotopically labeled analyte within 3 parts-per-thousand compared to a standard, response ratios of the two ^{12}C and ^{13}C ions must be within $\pm 20\%$ of their theoretical values and analyte recovery $\geq 10\%$ and $\leq 120\%$. In addition, the calculated mean and range of each analyte in the quality control sample must be within their respective confidence intervals. The method detection limit (MDL) for each analyte is calculated correcting for sample weight and recovery. The total lipid content of each specimen is estimated from its total cholesterol and triglycerides values using a “summation” method. Analytical results for PCBs and pesticides are reported on a whole-weight [ng/g or parts-per-billion (ppb)] and lipid-adjusted basis [ng/g or ppb]. International toxicity equivalents (I-TEQs) are also reported for PCDDs, PCDFs, cPCBs and other “dioxin-like” PCBs, based on the WHO-TEF system. Prior to reporting results, all quality control (QC) data undergo a final review by a Division of Laboratory Science quality control officer.

Laboratory Quality Control and Monitoring

Serum specimens are processed, stored, and shipped to the Division of Laboratory Sciences, National Center for Environmental Health, Centers for Disease Control and Prevention for analysis.

Detailed specimen collection and processing instructions are discussed in the NHANES Laboratory/Medical Technologists Procedures Manual (LPM). Vials are stored under appropriate frozen (-20°C) conditions until they are shipped to National Center for Environmental Health for testing.

Mobile Examination Centers (MECs)

Laboratory team performance is monitored using several techniques. NCHS and contract consultants use a structured quality assurance evaluation during unscheduled visits to evaluate both the quality of the laboratory work and the quality-control procedures. Each laboratory staff person is observed for equipment operation, specimen collection and preparation; testing procedures and constructive feedback are given to each staff. Formal retraining sessions are conducted annually to ensure that required skill levels were maintained.

The NHANES QA/QC protocols meet the 1988 Clinical Laboratory Improvement Act mandates. Detailed QA/QC instructions are discussed in the NHANES LPM.

Analytical Laboratories

NHANES uses several methods to monitor the quality of the analyses performed by the laboratories. In the MEC, these methods include performing blind split samples collected on "dry run" sessions. In addition, contract laboratories randomly perform repeat testing on 2.0% of all specimens.

NCEH developed and distributed a quality control protocol for all the laboratories which outlined the Westgard rules used when running NHANES specimens. Any problems encountered during shipping or receipt of specimens, instrument calibration, reagents, and any special considerations are submitted to NCHS and Westat. Summary statistics for each control pool, QC graphs, are reviewed by NCHS for trends or shifts in the data. The laboratories are required to explain any identified areas of concern.

All QC procedures recommended by the manufacturers were followed. Reported results for all assays meet the Division of Laboratory Sciences' quality control and quality assurance performance criteria for accuracy and precision (similar to specifications outlined by Westgard (1981).

Analytic Notes

Subsample weights

Measures of non-dioxin polychlorinated biphenyls were measured in a one third subsample of persons 12 years and over. Special sample weights are required to analyze these data properly. Specific sample weights for this subsample are included in this data file and should be used when analyzing these data.

Variance estimation

The analysis of NHANES 2003-2004 laboratory data must be conducted with the key survey design and basic demographic variables. The NHANES 2003-2004 Demographic Data File contains demographic and sample design variables. The recommended procedure for variance estimation requires use of stratum and PSU variables (SDMVSTRA and SDMVPSU, respectively) in the demographic data file.

Links to NHANES Data Files

This laboratory data file can be linked to the other NHANES 2003-2004 data files using the unique survey participant identifier SEQN.

Detection Limits

The detection limits were variable for all of the analytes except for PCB 052(LBX052), PCB099(LBX099), PCB138(LBX138), and PCB153(LBX153), . The variable named LBD____LC indicates whether the result was below the limit of detection. There are two values: "0" and "1". "0" means that the result was at or above the limit of detection. "1" indicates that the result was below the limit of detection.

The other variable named LBX____ provides the analytic result for that analyte.

The detection limit divided by the square root of 2 is the value that is provided for results that are below the limit of detection.

Please refer to the Analytic Guidelines for further details on the use of sample weights and other analytic issues.

References

Cleanup and Mass Spectrometry

1. Patterson D.G. Jr., Holler J.S., Lapeza C.R., et al. High-Resolution Gas Chromatographic/High-Resolution Mass Spectroscopic Analysis of Human Adipose Tissue for 2,3,7,8-TCDD. *Anal. Chem.* 1986;58:705–713.
2. Lapeza C.R. Jr., Patterson D.G. Jr., Liddle J.A.. An Automated Apparatus for the Extraction and Enrichment of 2,3,7,8-TCDD in Human Adipose. *Anal. Chem.* 1986;58:713–716.
3. Patterson D.G. Jr., Holler J.S., Belser W.T., Boozer E.L., Lapeza C.R. Jr., Needham L.L. Determination of 2,3,7,8-TCDD

in Human Adipose Tissue on Whole Weight and Lipid Bases. Chemosphere 1987;16:935–936.

4. Patterson D.G. Jr., Hampton L., Lapeza C.R. Jr., et al. High-Resolution Gas Chromatographic/High-Resolution Mass Spectrometric Analysis of Human Serum on a Whole-Weight and Lipid Basis for 2,3,7,8-TCDD. Anal. Chem. 1987;59:2000–2005.
5. Patterson D.G. Jr., Turner W.E., Alexander L.R., Isaacs S.G., and Needham L.L. The Analytical Methodology and Method Performance for the Determination of 2,3,7,8-TCDD in Serum for the Vietnam Veteran Agent Orange Validation Study, The Ranch Hand Validation and Half-Life Studies, and Selected NIOSH Workers Studies. Chemosphere 1989;18/1-6:875–882.
6. Patterson D.G. Jr., Fürst P., Henderson L.O., Isaacs S.G., Alexander L.R., Turner W.E., Needham L.L., and Hannon H. Partitioning of In Vivo Bound PCDDs/PCDFs among Various Compartments in Whole Blood. Chemosphere 1989;19/1-6:135–142.
7. Patterson D.G. Jr., Alexander L.R., Turner W.E., Isaacs S.G., and Needham L.L. (1990). The Development and Application of a High Resolution Mass Spectrometry Method for Measuring Polychlorinated Dibeno-p-dioxins and Dibenzofurans in Serum. Chapter 9 In: Instrumentation for Trace Organic Monitoring. Clement R.E., Sui K.M., and Hill H.H. Jr., eds, Lewis Publishers.
8. Patterson D.G. Jr., Isaacs S.G., Alexander L.R., Turner W.E., Hampton L., Bernert J.T., Needham L.L. (1990). Determination of Specific Polychlorinated Dibeno-p-dioxins and Dibenzofurans in Blood and Adipose Tissue by Isotope-Dilution High Resolution Mass Spectrometry, Method 5 in "Environmental Carcinogens - Methods of Analysis and Exposure Measurement. Volume 11 - Polychlorinated Dibeno-p-dioxins, Dibenzofurans, and Biphenyls," C. Rappe and H.R. Buser, Eds., WHO, International Association for Research on Cancer, Lyon, France.
9. Turner W., DiPietro E., Cash T.P., McClure P.C., Patterson, D.G Jr., and Shir Khan An Improved SPE Extraction and Automated Sample Cleanup Method for Serum PCDDs, PCDFs, and Coplanar PCBs. Organohalogen Compounds 1994;19:31–35.
10. Burse V.B., Patterson D.G. Jr., Brock J.W., and Needham L.L. Selected Analytical Methods Used at the Centers for Disease

Control and Prevention for Measuring Environmental Pollutants in Serum. *Toxicology and Industrial Health* 1996;12(3/4):481–498.

11. Turner W., DiPietro E., Lapeza C., Green V., Gill J., Patterson, D.G. , Jr. A Fast Universal Automated Cleanup System for the Isotope-Dilution High-Resolution Mass Spectrometric Analysis of PCDDs, PCDFs, Coplanar PCBs, PCB Congeners, and Persistent Pesticides from the Same Serum Sample. *Organohalogen Compounds* 1997;31:26–31.
12. Barr J.B., Maggio V.L., Barr D.B., Turner W.E., Sjodin A., Sandau C.D., Pirkle J.L., Needham L.L., and Patterson D.G. Jr. New High-Resolution Mass Spectrometric Approach for the Measurement of Polychlorinated Biphenyls and Organochlorine Pesticides in Human Serum. *J. Chromatography B*. 2003;794:137–148.

Quality Control and Limit of Detection

1. Taylor J.K. Quality Assurance of Chemical Measurements. *Anal. Chem.* 53: 1588A-1592A, 1596A (1981).
2. Keith H.K., Crummett W., Deegan J. Jr., et al. Principles of Environmental Analysis. *Anal. Chem.* 55: 2210-2218 (1983).
3. Keith L.H . Report Results Right, Part I. *Chemtech June*: 352-356 (1991).
4. Keith L.H . Report Results Right, Part II. *Chemtech August*: 486-489 (1991).

Total Lipid Measurement

1. Akins J.R., Waldrep K., and Bernert J.T. Jr. The Estimation of Total Serum Lipids by a Completely Enzymatic 'Summation' Method. *Clin. Chim. Acta*. 184: 219-226 (1989).
2. Phillips, D.L., Pirkle, J.L., Burse V.W., Bernert, J.T., Henderson, L.O., and Needham, L.L. Chlorinated Hydrocarbon Levels in Humans Serum: Effects of Fasting and Feeding. *Arch. Environ. Contam. Toxicol.* 18: 495-500 (1989).

Toxic Equivalency Factors (TEFs).

1. Van den Berg M, Birnbaum L, Bosveld ATC et al. Toxic

Equivalency Factors (TEFs) for PCBs, PCDDs, and PCDFs for Humans and Wildlife. Environmental Health Perspectives 106: 775-792 (1998).

Locator Fields

Title: Lab 28 Non-dioxin-like Polychlorinated Biphenyls

Contact Number: 1-866-441-NCHS

Years of Content: 2003–2004

First Published: April 2008

Revised: N/A

Access Constraints: None

Use Constraints: None

Geographic Coverage: National

Subject: Non-dioxin-like Polychlorinated Biphenyls

Record Source: NHANES 2003–2004

Survey Methodology: NHANES 2003–2004 is a stratified multistage probability sample of the civilian non-institutionalized population of the U.S.

Medium: NHANES Web site; SAS transport files

**National Health and Nutrition Examination Survey
Codebook for Data Production (2003-2004)**

**Non-dioxin-like Polychlorinated Biphenyls (L28NPB_C)
Person Level Data**

First Published: April 2008

Last Revised: N/A



SEQN	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	Respondent sequence number
English Text: Respondent sequence number.	
English Instructions:	

WTSC2YR	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	Two-year MEC weights of subsample C
English Text: Two-year MEC weights of subsample C	
English Instructions:	

Code or Value	Description	Count	Cumulative	Skip to Item
0 to 456851.11941	Range of Values	2285	2285	
.	Missing	0	2285	

LBX044	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB44 (ng/g)
English Text: PCB44 (ng/g)	
English Instructions:	

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.4912	Range of Values	1890	1890	
.	Missing	395	2285	

LBX044LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB44 Lipid Adj (ng/g)

English Text: PCB44 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.08 to 85.4	Range of Values	1890	1890	
.	Missing	395	2285	

LBD044LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB44 Comment Code

English Text: PCB44 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1887	1887	
1	Below lower detection limit	3	1890	
.	Missing	395	2285	

LBX049	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB49 (ng/g)

English Text: PCB49 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.3136	Range of Values	1876	1876	
.	Missing	409	2285	

LBX049LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB49 Lipid Adj (ng/g)

English Text: PCB49 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.06 to 54.5	Range of Values	1876	1876	
.	Missing	409	2285	

LBD049LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB49 Comment Code

English Text: PCB49 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1864	1864	
1	Below lower detection limit	12	1876	
.	Missing	409	2285	

LBX052	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB52 (ng/g)

English Text: PCB52 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0025 to 0.7638	Range of Values	1897	1897	
.	Missing	388	2285	

LBX052LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB52 Lipid Adj (ng/g)

English Text: PCB52 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.38 to 133	Range of Values	1897	1897	
.	Missing	388	2285	

LBD052LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB52 Comment Code

English Text: PCB52 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1897	1897	
1	Below lower detection limit	0	1897	
.	Missing	388	2285	

LBX087	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB87 (ng/g)

English Text: PCB87 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.2245	Range of Values	1892	1892	
.	Missing	393	2285	

LBX087LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB87 Lipid Adj (ng/g)

English Text: PCB87 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.02 to 39	Range of Values	1892	1892	
.	Missing	393	2285	

LBD087LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB87 Comment Code

English Text: PCB87 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1577	1577	
1	Below lower detection limit	315	1892	
.	Missing	393	2285	

LBX099	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB99 (ng/g)

English Text: PCB99 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0006 to 2.3149	Range of Values	1877	1877	
.	Missing	408	2285	

LBX099LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB99 Lipid Adj (ng/g)

English Text: PCB99 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.1 to 304	Range of Values	1877	1877	
.	Missing	408	2285	

LBD099LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB99 Comment Code

English Text: PCB99 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1876	1876	
1	Below lower detection limit	1	1877	
.	Missing	408	2285	

LBX101	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB101 (ng/g)

English Text: PCB101 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0009 to 0.4564	Range of Values	1897	1897	
.	Missing	388	2285	

LBX101LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB101 Lipid Adj (ng/g)

English Text: PCB101 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.09 to 79.3	Range of Values	1897	1897	
.	Missing	388	2285	

LBD101LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB101 Comment Code

English Text: PCB101 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1843	1843	
1	Below lower detection limit	54	1897	
.	Missing	388	2285	

LBX110	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB110 (ng/g)

English Text: PCB110 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0009 to 0.3408	Range of Values	1882	1882	
.	Missing	403	2285	

LBX110LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB110 Lipid Adj (ng/g)

English Text: PCB110 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.08 to 59.2	Range of Values	1882	1882	
.	Missing	403	2285	

LBD110LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB110 Comment Code

English Text: PCB110 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1852	1852	
1	Below lower detection limit	30	1882	
.	Missing	403	2285	

LBX128	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB128 (ng/g)

English Text: PCB128 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.0631	Range of Values	1877	1877	
.	Missing	408	2285	

LBX128LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB128 Lipid Adj (ng/g)

English Text: PCB128 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.03 to 9.2	Range of Values	1877	1877	
.	Missing	408	2285	

LBD128LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB128 Comment Code

English Text: PCB128 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	470	470	
1	Below lower detection limit	1407	1877	
.	Missing	408	2285	

LBX138	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB138 & 158 (ng/g)

English Text: PCB138 & 158 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0055 to 5.1055	Range of Values	1896	1896	
.	Missing	389	2285	

LBX138LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
PCB138 & 158 Lipid Adj (ng/g)	

English Text: PCB138 & 158 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
1.1 to 773	Range of Values	1896	1896	
.	Missing	389	2285	

LBD138LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
PCB138 & 158 Comment Code	

English Text: PCB138 & 158 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1896	1896	
1	Below lower detection limit	0	1896	
.	Missing	389	2285	

LBX146	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB146 (ng/g)

English Text: PCB146 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.6574	Range of Values	1894	1894	
.	Missing	391	2285	

LBX146LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB146 Lipid Adj (ng/g)

English Text: PCB146 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.06 to 86.75	Range of Values	1894	1894	
.	Missing	391	2285	

LBD146LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB146 Comment Code

English Text: PCB146 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1864	1864	
1	Below lower detection limit	30	1894	
.	Missing	391	2285	

LBX149	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB149 (ng/g)

English Text: PCB149 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.1377	Range of Values	1873	1873	
.	Missing	412	2285	

LBX149LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB149 Lipid Adj (ng/g)

English Text: PCB149 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.04 to 23.9	Range of Values	1873	1873	
.	Missing	412	2285	

LBD149LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB149 Comment Code

English Text: PCB149 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1790	1790	
1	Below lower detection limit	83	1873	
.	Missing	412	2285	

LBX151	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB151 (ng/g)

English Text: PCB151 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.0467	Range of Values	1870	1870	
.	Missing	415	2285	

LBX151LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB151 Lipid Adj (ng/g)

English Text: PCB151 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.04 to 9.3	Range of Values	1870	1870	
.	Missing	415	2285	

LBD151LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB151 Comment Code

English Text: PCB151 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1470	1470	
1	Below lower detection limit	400	1870	
.	Missing	415	2285	

LBX153	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB153 (ng/g)

English Text: PCB153 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0061 to 6.5094	Range of Values	1896	1896	
.	Missing	389	2285	

LBX153LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB153 Lipid Adj (ng/g)

English Text: PCB153 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
1.05 to 986	Range of Values	1896	1896	
.	Missing	389	2285	

LBD153LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB153 Comment Code

English Text: PCB153 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1896	1896	
1	Below lower detection limit	0	1896	
.	Missing	389	2285	

LBX170	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB170 (ng/g)

English Text: PCB170 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 1.9736	Range of Values	1888	1888	
.	Missing	397	2285	

LBX170LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB170 Lipid Adj (ng/g)

English Text: PCB170 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.06 to 299	Range of Values	1888	1888	
.	Missing	397	2285	

LBD170LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB170 Comment Code

English Text: PCB170 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1825	1825	
1	Below lower detection limit	63	1888	
.	Missing	397	2285	

LBX172	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB172 (ng/g)

English Text: PCB172 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.1737	Range of Values	1878	1878	
.	Missing	407	2285	

LBX172LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB172 Lipid Adj (ng/g)

English Text: PCB172 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.03 to 26.3	Range of Values	1878	1878	
.	Missing	407	2285	

LBD172LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB172 Comment Code

English Text: PCB172 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1218	1218	
1	Below lower detection limit	660	1878	
.	Missing	407	2285	

LBX177	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB177 (ng/g)

English Text: PCB177 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.3931	Range of Values	1882	1882	
.	Missing	403	2285	

LBX177LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB177 Lipid Adj (ng/g)

English Text: PCB177 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.04 to 51.87	Range of Values	1882	1882	
.	Missing	403	2285	

LBD177LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB177 Comment Code

English Text: PCB177 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1512	1512	
1	Below lower detection limit	370	1882	
.	Missing	403	2285	

LBX178	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB178 (ng/g)

English Text: PCB178 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.2255	Range of Values	1887	1887	
.	Missing	398	2285	

LBX178LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB178 Lipid Adj (ng/g)

English Text: PCB178 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.03 to 29.76	Range of Values	1887	1887	
.	Missing	398	2285	

LBD178LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB178 Comment Code

English Text: PCB178 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1428	1428	
1	Below lower detection limit	459	1887	
.	Missing	398	2285	

LBX180	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB180 (ng/g)

English Text: PCB180 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 4.1411	Range of Values	1896	1896	
.	Missing	389	2285	

LBX180LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB180 Lipid Adj (ng/g)

English Text: PCB180 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.06 to 627	Range of Values	1896	1896	
.	Missing	389	2285	

LBD180LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB180 Comment Code

English Text: PCB180 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1881	1881	
1	Below lower detection limit	15	1896	
.	Missing	389	2285	

LBX183	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB183 (ng/g)

English Text: PCB183 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.3845	Range of Values	1886	1886	
.	Missing	399	2285	

LBX183LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB183 Lipid Adj (ng/g)

English Text: PCB183 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.04 to 50.74	Range of Values	1886	1886	
.	Missing	399	2285	

LBD183LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB183 Comment Code

English Text: PCB183 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1671	1671	
1	Below lower detection limit	215	1886	
.	Missing	399	2285	

LBX187	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB187 (ng/g)

English Text: PCB187 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 1.1938	Range of Values	1889	1889	
.	Missing	396	2285	

LBX187LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB187 Lipid Adj (ng/g)

English Text: PCB187 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.06 to 158	Range of Values	1889	1889	
.	Missing	396	2285	

LBD187LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB187 Comment Code

English Text: PCB187 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1849	1849	
1	Below lower detection limit	40	1889	
.	Missing	396	2285	

LBX194	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB194 (ng/g)

English Text: PCB194 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.887	Range of Values	1835	1835	
.	Missing	450	2285	

LBX194LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB194 Lipid Adj (ng/g)

English Text: PCB194 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.04 to 149	Range of Values	1835	1835	
.	Missing	450	2285	

LBD194LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB194 Comment Code

English Text: PCB194 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1436	1436	
1	Below lower detection limit	399	1835	
.	Missing	450	2285	

LBX195	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB195 (ng/g)

English Text: PCB195 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0007 to 0.1213	Range of Values	1820	1820	
.	Missing	465	2285	

LBX195LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB195 Lipid Adj (ng/g)

English Text: PCB195 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.06 to 17.2	Range of Values	1820	1820	
.	Missing	465	2285	

LBD195LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB195 Comment Code

English Text: PCB195 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	983	983	
1	Below lower detection limit	837	1820	
.	Missing	465	2285	

LBX196	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB196 & 203 (ng/g)

English Text: PCB196 & 203 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 0.8771	Range of Values	1878	1878	
.	Missing	407	2285	

LBX196LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
PCB196 & 203 Lipid Adj (ng/g)	

English Text: PCB196 & 203 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.04 to 148	Range of Values	1878	1878	
.	Missing	407	2285	

LBD196LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
PCB196 & 203 Comment Code	

English Text: PCB196 & 203 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1629	1629	
1	Below lower detection limit	249	1878	
.	Missing	407	2285	

LBD199	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB199 (ng/g)

English Text: PCB199 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0004 to 1.7719	Range of Values	1861	1861	
.	Missing	424	2285	

LBD199LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB199 Lipid Adj (ng/g)

English Text: PCB199 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.04 to 298	Range of Values	1861	1861	
.	Missing	424	2285	

LBD199LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB199 Comment Code

English Text: PCB199 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1604	1604	
1	Below lower detection limit	257	1861	
.	Missing	424	2285	

LBX206	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB206 (ng/g)

English Text: PCB206 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0007 to 1.0477	Range of Values	1867	1867	
.	Missing	418	2285	

LBX206LA	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB206 Lipid Adj (ng/g)

English Text: PCB206 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.1 to 176	Range of Values	1867	1867	
.	Missing	418	2285	

LBD206LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB206 Comment Code

English Text: PCB206 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1733	1733	
1	Below lower detection limit	134	1867	
.	Missing	418	2285	

LBX209	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB209 (ng/g)

English Text: PCB209 (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.0007 to 0.6335	Range of Values	1854	1854	
.	Missing	431	2285	

LBX209LA	Target B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label PCB209 Lipid Adj (ng/g)

English Text: PCB209 Lipid Adjusted (ng/g)

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0.06 to 100	Range of Values	1854	1854	
.	Missing	431	2285	

LBD209LC	Target
	B(12 Yrs. to 150 Yrs.)
Hard Edits	SAS Label
	PCB209 Comment Code

English Text: PCB209 Comment Code

English Instructions:

Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above the detection limit	1718	1718	
1	Below lower detection limit	136	1854	
.	Missing	431	2285	