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Description and Results of the 2001 NIST/NOAA Interlaboratory Comparison Exercise Program for Organic Contaminants in Marine Mammal Tissues

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U.S. Department of Commerce
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DISCLAIMER

Certain commercial equipment or instruments are identified in this report to specify adequately the experimental procedures. Such identification does not imply recommendations or endorsement by the National Institute of Standards and Technology nor does it imply that the equipment or instruments are the best available for the purpose.

ABSTRACT

The National Institute of Standards and Technology (NIST), in support of the National Oceanic and Atmospheric Administration's Marine Mammal Health and Stranding Response Program (NOAA/MMHSRP) conducts annual interlaboratory comparison exercises for the determination of chlorinated pesticides, polychlorinated biphenyl congeners, and trace elements in marine mammal tissues. These exercises provide one mechanism for laboratories to evaluate their measurement quality and comparability for these constituents in marine mammal tissues. Eighteen laboratories participated in determining the concentrations of selected polychlorinated biphenyl congeners (PCBs) and organochlorine pesticides in a homogenized blubber control material "Marine Mammal Quality Assurance Exercise Control Material V" (Control Material V) and Standard Reference Material (SRM) 1945 Organics in Whale Blubber. This report includes the results reported by the participating laboratories, combined consensus data results, and summary statistics for each analyte in the samples. The numerical indices used to assess laboratory performance are also discussed.

INTRODUCTION

Laboratories measuring contaminants in the marine environment must assess the accuracy and precision of their measurements. Quality control of measurements made on marine environmental samples is vital to the accurate assessment of marine pollution and its effects on wildlife and human health. Often, reference materials are limited or not available for many marine matrices of interest (*e.g.,* marine mammal tissues and marine fish). Consequently, marine resource management decisions may be based on subjective analytical results leading to potential environmental, health, or economic consequences. The National Institute of Standards and Technology's (NIST's) Analytical Chemistry Division has several programs to assess the data quality of laboratories and agencies performing chemical measurements on marine-related samples. NIST's reference material production, interlaboratory comparison exercises, and environmental specimen banking all contribute to the accuracy of chemical measurements made on samples from the marine environment.

NIST helps benchmark and improve the quality of analytical data gathered on the marine environment by administering annual interlaboratory comparison exercises. The largest exercise was initiated in 1987 and funded in part until 2000 by the National Oceanic and Atmospheric Administration (NOAA) National Status and Trends Marine Monitoring Program (NOAA/NS&T) (Cantillo and Parris, 1990, 1993; Cantillo 1995; Schantz *et al.,* 1999). NIST provides mechanisms for assessing the interlaboratory and temporal comparability of data and for improving measurements of polycyclic aromatic hydrocarbons, polychlorinated biphenyl (PCB) congeners, and chlorinated pesticides in bivalve mollusk, sediment, and fish samples. In addition, the National Research Council of Canada, with support from NOAA, administers a similar interlaboratory comparison exercise for trace elements in marine environmental materials. The NIST program for organic contaminants includes developing improved analytical methods, producing NIST Standard Reference Materials (SRMs) and other control materials, conducting annual interlaboratory comparison exercises, and coordinating workshops to discuss exercise results, thus providing a cooperative problem-solving forum for the participants. This program continues as the NIST Intercomparison Program for Organic Contaminants in the Marine Environment with partial support from fees paid by the participants (e.g., Schantz et al. 2002)..

Through the NIST National Marine Analytical Quality Assurance Program and with support from the NOAA Marine Mammal Health and Stranding Response Program (MMHSRP), the interlaboratory comparison activities have been expanded to include analyses of marine mammal tissues. The 2001 NIST/NOAA Interlaboratory Comparison Exercise Program for Organic Contaminants in Marine Mammal Tissues was modeled after the exercises described above. Specifically, this exercise was designed to help laboratories assess data comparability and quality relative to other groups providing measurements of organochlorine contaminants and trace elements in marine mammal tissues and to link these important measurements to a national metrology laboratory. The results of the exercises presented in this report should be useful for both assessing current methodology and reducing the variability of contaminant data reported on marine mammals. Future exercises will allow for the assessment of analytical data quality over time. This report summarizes the results of the 2001 organic contaminant exercise including methods used for analysis, data reported by the laboratories on the intercomparison materials,

and numerical indices used to assess laboratory performance. A report synthesizing the 2001 trace element results of this exercise is in preparation and results from the 2000 exercise are available in Kucklick et al., 2002.

Background on Interlaboratory Comparison Exercises and Associated Quality Assurance Activities Conducted by NIST for the MMHSRP

In 1987, the NOAA National Marine Fisheries Service (NMFS), Office of Protected Resources, established the National Marine Mammal Tissue Bank (NMMTB) as part of the National Biomonitoring Specimen Bank maintained by NIST. The NMMTB was designed for the long-term cryogenic archiving of marine mammal tissue specimens for future retrospective chemical analysis. In 1992, the Marine Mammal Health and Stranding Response Act (Public Law 102-587) formally established the NMMTB. NMFS implemented this Act by instituting the MMHSRP. Components of this program include marine mammal stranding networks, response to unusual mortality events, information management, real-time measurement of tissue contaminants, specimen banking, and analytical quality assurance.

Within the MMHSRP, real-time monitoring of contaminants in marine mammals is conducted by NMFS's Northwest Fisheries Science Center (NWFSC), Environmental Conservation Division. This monitoring includes analyses of samples collected specifically for real-time analysis and subsamples of banked specimens. NIST also analyzes aliquots of banked specimens to establish a baseline of concentration values for comparing with data generated by the NWFSC and other laboratories analyzing these specimens, and to monitor changes in analyte levels during specimen storage. Numerous other laboratories worldwide analyze marine mammal tissues for research and monitoring purposes. To assess the accuracy and comparability of results among NIST, NWFSC, and other laboratories, NIST in collaboration with NMFS developed a quality assurance (QA) program for analytical measurements of contaminants in marine mammal tissues. This QA program, described by Wise *et al.* (1993), consists of (1) preparation, analysis, and distribution of marine mammal tissue control materials; (2) development of Standard Reference Materials (SRMs) for use in the analysis of marine mammal tissues; and (3) interlaboratory comparison exercises among laboratories analyzing marine mammal tissues.

Preparation, Analysis, and Distribution of Control Materials

Control materials, which are similar to the matrices being analyzed, are large batches of homogeneous material of which an aliquot can be used routinely in the analysis of unknown samples. They are useful for assessing the reproducibility of analyses. Given enough data, the materials may be value-assigned for a given constituent. The first control materials developed for the program were derived from liver and blubber tissues collected from pilot whales (*Globicephala melaena*) stranded in 1990 on Cape Cod, MA. Approximately 2 kg of each tissue were used to prepare tissue homogenates for use as analytical control materials and in interlaboratory comparison exercises. These homogenates are fresh frozen samples similar to marine mammal tissue samples routinely analyzed, rather than freeze-dried matrices frequently used as reference materials. The tissues were cryogenically pulverized and homogenized in Teflon mills to provide frozen powder-like materials (Zeisler *et al.,* 1983). These two control materials were analyzed at NIST to determine concentrations of trace elements (*Whale Liver*

Homogenate I) and organic contaminants *(Whale Blubber Control Material*) and to assess sample homogeneity (Wise *et al.,* 1993).

The concentrations of 40 trace elements plus methylmercury were determined in the *Whale Liver Homogenate I* using INAA, differential pulse and square wave stripping voltammetry, cold vapor atomic absorption spectroscopy (CVAAS) for Hg, and ion-exchange chromatography plus CVAAS (for methylmercury). Thirty PCB congeners and 16 chlorinated pesticides were determined in the *Whale Blubber Control Material* using gas chromatography-electron capture detection (GC-ECD) with both DB-5 and C-18 columns and gas chromatography-mass spectrometry (GC/MS) using a DB-5 column. The data resulting from analyses of both control materials, as well as a description of the analytical techniques and interpretation of the results, were published in Wise *et al.* (1993).

In the 1999 interlaboratory comparison exercise, *Whale Blubber Control Material* was re-labeled *Marine Mammal Blubber Control Material III*, and distributed as an "unknown" to participants. Because the amount of this control material is now very limited, *Whale Blubber Control Material IV* is presently being developed as a replacement. *Whale Blubber Control Material IV* was derived from blubber that was collected by the NMFS Beaufort Laboratory, from a single pilot whale that stranded in 1999 on Pea Island, North Carolina. This material was cryogenically homogenized and labeled, *QC00-WB4 Whale Blubber Control Material IV*, and was distributed as an "unknown" to participants in the 2000 interlaboratory comparison exercise for the organic analysis (Kucklick et al., 2002)

Development of Standard Reference Materials (SRMs)

One of the goals of the marine mammal QA program is to develop certified reference materials (CRMs) for validating analytical measurements of trace elements and organic contaminants in marine mammal tissues. At the beginning of the program, there were several CRMs available from NIST, the National Research Council of Canada (Ottawa, Canada), and the Community Bureau of Reference (Brussels, Belgium) for inorganic contaminants in marine tissues including oyster tissue, mussel tissue, fish muscle and liver tissue, and lobster tomalley. However, for organic contaminants such as PCB congeners and chlorinated pesticides, there were only mussel tissue, SRM 1974 Organics in Mussel Tissue (*Mytilus edulis*) and cod liver oil, SRM 1588 Organics in Cod Liver Oil. SRM 1588, which serves as a suitable surrogate for a tissue extract with a high lipid content, had certified concentrations for 5 PCB congeners and 10 chlorinated pesticides and noncertified values for 20 additional PCB congeners and 4 additional chlorinated pesticides (Schantz *et al.*, 1992). This material was reissued in 1998 as SRM 1588a and now has certified or reference values for over 80 organic contaminants. The mussel tissue SRM 1974 was reissued as SRM 1974a and has certified or reference values for over 100 organic and inorganic constituents (Schantz *et al.,* 1997). Due to the popularity of SRM 1974a, a new mussel tissue SRM, SRM 1974b, has recently been issued (Poster et al., 2003)

Because of the lack of organic reference materials, blubber was selected as the first priority tissue for development of SRMs as part of the marine mammal QA Program. The experience gained from the preparation and analysis of the pilot whale blubber control material (Wise *et al.,*

1993) was used to develop SRM 1945 Organics in Whale Blubber, a certified material that can be used for validating measurements of organic contaminants in marine mammal blubber.

SRM 1945 was prepared from approximately 15 kg of blubber that was collected in September 1991 from a stranding of pilot whales on Cape Cod, MA. The material was cryogenically pulverized and homogenized in the same manner as described for the control materials. The resulting frozen blubber homogenate was analyzed using three different analytical techniques; two techniques were based on GC-ECD using two capillary columns of differing in selectivity and one method that utilized gas chromatography-mass spectrometry (GC/MS). The results of these three techniques provided certified concentrations for 27 PCB congeners (PCBs 18, 44, 49, 52, 66, 87, 95, 99, 101/90, 105, 110, 118, 128, 138/163/164, 149, 151, 153, 156, 170/190, 180, 183, 187, 194, 195, 201, 206, and 209) and 15 chlorinated pesticides (HCB, α-HCH, γ-HCH, heptachlor epoxide, oxychlordane, mirex, *cis*-chlordane, *cis*-nonachlor, *trans*-nonachlor, 2,4'-DDE, 4,4'-DDE, 2,4'-DDD, 4,4'-DDD, 2,4'-DDT, and 4,4'-DDT). Noncertified values for two additional PCB congeners (PCB 28 and 31) and chlorinated pesticides (dieldrin and β-HCH) are available.

Analytical data for the certification of PCBs and chlorinated pesticides in SRM 1945 were published in Schantz *et al.* (1995). SRM 1945 complements the other frozen tissue SRM (*e.g.*, SRM 1974b) by providing concentrations that are generally a factor of 10 to 100 times higher for the PCB congeners and chlorinated pesticides. Solvent extraction of the whale blubber produces an oil matrix similar to that of the cod liver oil SRM; however, the concentrations of PCB congeners and pesticides in SRM 1945 are generally 2 to 3 times lower than the NIST cod liver oil SRM except for the PCB congeners with higher degrees of chlorination, which have concentrations similar to the cod liver oil.

Additional concentration values for constituents not originally measured in SRM 1945 (*i.e.*, dioxins, furans, non-*ortho* PCBs, and polybrominated diphenyl ethers) have been provided for this material by the National Wildlife Research Center, Canadian Wildlife Service (CWS). These data are found in CWS *Lab Services Section Reports CHEM-OC-97-40*, *CHEM-PCDD-98-1*, and *CHEM-PCDD-98-4*). SRM 1945 was found to have relatively high amounts of twelve polybrominated diphenyl ethers (tetra through hepta congeners). Data are also available on chiral organochlorine pollutants in SRM 1945 and SRM 1588 (Wong et al., 2002). More recently, measurements have been made by NIST on additional analytes in SRM 1945, including congeners of polychlorinated naphthalenes (PCNs), co-planar PCBs (77, 126, 169), polybrominated diphenyl ether congeners, and toxaphene (Kucklick et al., 2003).

The low relative uncertainties associated with the majority of analyte concentrations (5 % to 10 %) and the extensive list of certified analytes makes SRM 1945 a valuable resource for validating analytical methods for the determination of halogenated compounds in marine mammal blubber and other high lipid-containing materials.

Interlaboratory Comparison Exercises

An interlaboratory comparison made on common, well-homogenized reference samples is one method to assess and improve data comparability. Such exercises currently involve the analysis

of an unknown sample and a NIST-traceable SRM by the participants. A list of analytes to be compared among the laboratories is provided to the participants. Participants submit their results to the NIST coordinator who evaluates data comparability using the performance measures recommended by the International Union of Pure and Applied Chemistry (IUPAC, 1993). Reports on the comparability evaluation are provided to the participants. NIST then conducts a workshop with the participants to discuss the results and ways to improve comparability.

Table 1 summarizes several important aspects of the interlaboratory comparison exercises conducted from 1991 to date, including target analytes, matrix samples, and the number of participating laboratories. The first exercise was conducted in 1991-92 and consisted of the distribution of the liver and blubber control materials to NWFSC and several other laboratories for analysis, *i.e.,* Department of Fisheries and Oceans (DFO) Canada in Winnipeg, the Geochemical and Environmental Research Group (GERG) at Texas A&M University, and the Department of Analytical and Environmental Chemistry at the University of Ulm in Germany.

In 1992, three laboratories (NIST, DFO Canada in Winnipeg, and the Department of Analytical and Environmental Chemistry at the University of Ulm in Germany) analyzed blubber subsamples from four to six beluga whales, the pilot whale blubber control material, and SRM 1588 in an interlaboratory exercise to compare results of analyses for PCB congeners and chlorinated pesticides. The analytical methods used by these three laboratories are described in Schantz *et al.* (1996). To minimize variability resulting from the source of calibration solutions, all three laboratories used common solutions to prepare calibration standards. Different internal standards and volume correction standards were used by each laboratory. Each laboratory used its preferred methods of extraction (Soxhlet extraction at NIST, ball-milling extraction at DFO, and column extraction at Ulm). All three laboratories used a size-exclusion chromatography cleanup, but with different columns, to remove the lipid material from the extracts and separated the PCB congeners from the majority of the pesticides as part of the cleanup procedures. GC-ECD was used by all three laboratories for the final analysis employing different columns. The results of this exercise were published in Schantz *et al.* (1996).

In 1993, two intercomparison exercises were initiated. The first exercise focused on determining PCB congeners and chlorinated pesticides in blubber tissue using the blubber homogenate prepared as a proposed SRM (see discussion above). This material was distributed to NWFSC and several other laboratories for analysis (*i.e.,* DFO Canada, GERG, Northwestern Aquatic Sciences in Newport, OR, Arthur D. Little in Cambridge, MA, and University of Ulm). The second QA activity involved a "sample split" between NIST and NWFSC of blubber and liver samples from three marine mammals for both inorganic and organic analyses. These tissue samples were from specimens collected as part of the tissue banking and monitoring components of the program. In the past, for many of the liver and blubber specimens in the NMMTB, similar tissue samples were collected using NWFSC protocols and shipped to NWFSC for analysis as part of the monitoring effort. For this intercomparison exercise, NIST homogenized the selected liver and blubber samples from the tissue bank and provided a subsample of each homogenate to NWFSC. NIST and NWFSC analyzed tissue homogenate subsamples from the bank (liver for trace elements and blubber for PCBs and pesticides). The NWFSC analyzed the "monitoring" liver and blubber samples from the same animals. This provided an assessment of interlaboratory comparability on the same tissue homogenates and the comparability of the

analyses of banked and the monitoring specimens collected from the same animals. This QA activity was an informal exercise only; the results have not been published.

Table 1: Interlaboratory comparison exercises conducted for the MMHSRP from 1991-2001.

Dates	Analytes	Matrices	Objective	Number of Labs
1991-92	PCBs/Cl pesticides[1]	Whale blubber	Laboratory comparability	5
	Trace Elements	Whale liver CM[2]	Analytical control	2
1992-93	PCBs/Cl pesticides	Whale blubber; whale blubber CM	Laboratory comparability	3
1993-1994	PCBs	Whale blubber; whale blubber CM	SRM development	7
1993-1997	PCBs/Cl pesticides and Trace Elements	Whale / seal liver	Sample comparability	2
1997-1998	Trace Elements	Whale liver	Laboratory comparability and CM development	3
1999	PCBs/Cl Pesticides	SRM 1945 Organics in Whale Blubber Whale blubber CM	Laboratory comparability	10
2000	PCBs/Cl Pesticides	SRM 1945 Organics in Whale Blubber	Laboratory comparability and program expansion	13
	Trace Elements	Whale Livers (QC91LH1) (QC97LH2) SRM 1946 Lake Superior Fish Tissue		7
2001	PCBs/Cl Pesticides	SRM 1945 and Whale blubber CM	Laboratory comparability and program expansion	18
	Trace Elements	Whale Livers (QC91LH1) (QC97LH2) Candidate SRM 1947 Lake Michigan Fish Tissue		31

[1]Chlorinated pesticides
[2]Control material
[3]Department of Fisheries and Oceans

In 1995 NIST, in collaboration with NOAA, formally instituted the National Marine Analytical Quality Assurance Program (NMAQAP). The mission of this program is to expand QA and specimen banking activities in marine environmental research and monitoring. To help accomplish the NMAQAP mission, a NIST satellite laboratory was established in Charleston, SC, in association with the NOAA Center for Coastal Environmental Health and Biomolecular Research (CCEHBR). The NMMTB is housed both at the NIST-Gaithersburg and at the NIST-Charleston facilities. NIST-Charleston provides the primary infrastructure for the marine mammal QA program and the NMMTB.

In 1997, an interlaboratory comparison exercise on trace elements in beluga whale liver sample splits was initiated among NIST-Gaithersburg, NWFSC, and the Texas A&M University Veterinary Medical Center. All three laboratories were involved in analyzing marine mammal tissues collected in Arctic Alaska. For this exercise, sample splits of beluga whale liver tissues collected during the 1996 subsistence hunts in Alaska were provided to the participants, as well as the pilot whale liver control material (*Whale Liver Homogenate I*) and the new beluga whale liver control material (*Whale Liver Homogenate II*).

The 1999 exercise included only laboratories conducting organic analyses. The 10 participating laboratories (NIST-Gaithersburg, NIST-Charleston, CCEHBR, NWFSC, GERG, Mississippi State Chemistry Laboratory, University of Connecticut, National Lab for Environmental Testing [Canada], Ehime University [Japan], and University of Utah) measured PCB congeners and organochlorine pesticides in SRM 1945 and in the "unknown," *Marine Mammal Blubber Control Material III* (this material is described above in the control material section). Also in 1999, the program began holding meetings of participants in conjunction with the annual meeting of the Society of Environmental Toxicology and Chemistry (SETAC).

Participation in the 2000 exercise included laboratories conducting both organic analyses (13 laboratories) and inorganic analyses (7 laboratories). In 2001, there were approximately 18 laboratories participating in the organic exercise and 31 laboratories participating in the inorganic exercise. Expanding the number of laboratories provides an essential benefit for the participants in yielding higher quality consensus data. NIST also benefits from the preliminary concentration data and information gained on the candidate SRM materials that are routinely inserted into the exercises.

The QA program performs a major function in maintaining the quality of data resulting from the analysis of NMMTB specimens. Scientists requesting specimens from the bank for retrospective studies must demonstrate their analytical capabilities through appropriate QA activities, including participation in the NIST-administered QA program. In addition, NMFS requires that all researchers analyzing marine mammal tissues for contaminants under NMFS funding be participants in this program. This requirement ensures that the analytical results from marine mammal monitoring and research programs are of high quality and comparable.

MATERIALS USED IN THE 2001 EXERCISE

The 2001 NIST/NOAA Interlaboratory Comparison Exercise for Organochlorines in Marine Mammal Tissues (2000 MMQA) used two materials sent out to 21 laboratories of which, 18 of which submitted data for this exercise (Table 2). Participants were asked to make three measurements each on two materials: SRM 1945 "Organics in Whale Blubber" and MMQA-V the "unknown." The unknown material consisted of blubber collected from a 55.5 kg female California sea lion (*Zalophus californianus*) that stranded near San Luis Obispo, California on July 4, 2000. The blubber was collected by personnel from the Marine Mammal Center, Sausalito, California, and sent frozen to the NIST-Charleston laboratory for cryogenic storage and processing. At NIST-Charleston, the blubber tissue was stored in a liquid nitrogen (LN_2) vapor phase freezer at –150 °C until prepared for this exercise. The material was trimmed on Teflon sheeting using a titanium knife. The material was cryohomogenized at NIST Charleston according to established procedure (Zeisler *et al.,* 1983). After homogenization, the material was placed inside a Teflon bag and blended manually by repeated inversion. The blended material was bottled as 12 g subsamples in glass jars and stored at -80 °C. One bottle of this material along with one bottle of SRM 1945 were sent either on dry ice or using a liquid nitrogen cooled biological dry shipper via overnight express to each participating laboratory.

Exercise Requirements and Target Analytes

A suite of analytes was chosen for the exercise based on those used in the NIST/NOAA/NS&T exercise and several additional analytes were included to broaden this list (Table 3). Laboratories were requested to make triplicate measurements of these compounds in each of the materials and report their data using a data template provided by NIST. Laboratories were also asked to provide results from additional analytes, such as coplanar PCBs or chlorobenzenes that were determined in the two materials. Results from the exercise were discussed during a workshop held in conjunction with the 2001 Society of Environmental Toxicology and Chemistry annual meeting held in Baltimore, MD.

Table 2: Laboratories Participating in the 2001 NIST/NOAA Interlaboratory Comparison Exercise Program for Organic Contaminants.

Mississippi State Chemical Lab 112 Hand Chemical Lab Morrill Rd. MS State, MS 39762 USA	Geochemical and Environmental Research Group Texas A&M University 833 Graham Road TAMU Mail Stop 3149 USA
213 National Food Safety and Toxicology Ctr Michigan State University East Lansing, MI 48824 USA	Fisheries and Oceans Canada Institute of Ocean Sciences 9860 West Saanich Road Sidney, B.C. V8L-4B2
Environmental Research Institute University of Connecticut Storrs, CT 06269 USA	Kumamoto University 2-39-1, Kurokami, Kumamoto, 860-8555 Japan
National Laboratory for Environmental Testing National Water Research Institute Environment Canada 867 Lakeshore Road, P.O. Box 5050 BURLINGTON, Ontario L7R 4A6 Canada	Department of Environmental Sciences Institute of Environmental & Natural Sciences Lancaster University Bailrigg Lancaster LA1 4YQ UK
CEFAS Burnham Laboratory Remembrance Avenue Burnham on Crouch Essex CM0 8HA UK	Center for Marine Environmental studies, Ehime University. Tarumi 3-5-7, Matsuyama, Ehime 790-8566 Japan
Baltic Sea Research Institute Seestrasse 15 18119 Rostock Germany	National Environmental Research Institute Department of Environmental Chemistry Frederiksborgvej 399 DK-4000 Roskilde Denmark
NOAA/National Marine Fisheries Service 74 Magruder Rd Highlands, NJ 07732-0428 USA	NOAA/National Marine Fisheries Service Northwest Fisheries Science Center 2725 Montlake Blvd East Seattle, WA 98112-2097 USA
Energy and Geoscience Institute Department of Civil and Environmental Engineering University of Utah 423 Wakara Way, Suite 300 Salt Lake City Utah 84108 USA	NIST Hollings Marine Laboratory 331 Fort Johnson Road Charleston, SC 29412 USA
NOAA/National Ocean Service Center for Coastal Environmental Health and Biomolecular Research 219 Fort Johnson Road Charleston, SC 29412 USA	NIST 100 Bureau Drive Building 224 Gaithersburg, MD 20899-8692 USA

Table 3: Target Analytes for the NIST/NOAA Interlaboratory Comparison Exercise Program for Organic Contaminants in Marine Mammal Tissues.

Pesticides	**PCB Congeners**	
	Number	**Congener Substitution**
2,4'-DDT	18	2,2',5-trichlorobiphenyl
4,4'-DDT	28	2,4,4'-trichlorobiphenyl
2,4'-DDE	31	2,4',5-trichlorbiphenyl
4,4'-DDE	44	2,2',3,5'-tetrachlorobiphenyl
2,4'-DDD	49	2,2',4,5'-tetrachlorobiphenyl
4,4'-DDD	52	2,2',5,5'-tetrachlorobiphenyl
HCB	66	2,3',4,4'-tetrachlorobiphenyl
α-HCH	87	2,2',3,4,5'-tetrachlorobiphenyl
γ-HCH	95	2,2',3,5',6-tetrachlorobiphenyl
β-HCH	99	2,2',4,4',5-tetrachlorobiphenyl
heptachlor epoxide	101	2,2',4,5,5'-tetrachlorobiphenyl
cis-chlordane	105	2,3,3',4,4'-tetrachlorobiphenyl
trans-chlordane	118	2,3',4,4',5-tetrachlorobiphenyl
oxychlordane	128	2,2',3,3',4,4'-hexachlorbiphenyl
cis-nonachlor	132	2,2',3,3',4,6'-hexachlorbiphenyl
trans-nonachlor	138	2,2',3,4,4',5'-hexachlorbiphenyl
dieldrin	149	2,2',3,4',5',6-hexachlorobiphenyl
mirex	151	2,2',3,5,5',6-hexachlorbiphenyl
	153	2,2',4,4',5,5'-hexachlorbiphenyl
	156	2,3,3',4,4',5-hexachlorbiphenyl
	170	2,2',3,3',4,4',5-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
	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',4,5,5',6'-octachlorobiphenyl
	206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl
	209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl

EVALUATION OF THE EXERCISE RESULTS

Determination of Laboratory Analyte Means

Each laboratory reported the results of their analyses (Sample 1, Sample 2, and Sample 3) and the mean for each laboratory was calculated. Non-numerical results were reported as "NA" (not analyzed). None of the target analytes were below the limit of detection for the participating laboratories (Tables 4 - 7 and Appendix A).

Establishment of Consensus Values

The following guidelines were used by NIST for establishing the "assigned values" or "consensus values" for the exercise. The consensus values for Control Material V were the mean of all the reported laboratory means for a compound after the data were first screened by a Grubb's Single Iteration Outlier Test (Motulsky, 1997). Generally, most or all the values were included in the determination of the consensus value. The target values for the SRM were the certified values, reference values, or the consensus values from the 1999 and 2000 exercises where SRM 1945 was also analyzed (Tables 6 and 7). In the NIST/NOAA/NS&T exercise, the assigned values for the unknown material were calculated based on the performance of each laboratory on the SRM. If the laboratory was within ± 30% of the SRM value, their values for the corresponding unknown were used to determine the consensus value. This approach was not used in the present study, since, as demonstrated in past exercises (Kucklick et al., 2002), that this can lead to the rejection of up to half of the data. The concentration of Control Material V was also significantly greater than SRM 1945 for many compounds. For instance, the concentration of 4,4'-DDE was 75 times greater in Control Material V than in SRM 1945. Hence there was concern regarding the performance on the SRM being reflective of the performance on the control material.

Reported Results

Laboratories were assigned a numerical identification code based on the order in which data were received with the exception of NIST-Charleston, which was Laboratory 1 and NIST Gaithersburg, which was Laboratory 17. The same code was used for both materials. The results from the analysis of Control Material V and SRM 1945 are summarized in Tables 4 - 7. Appendix A shows the tabulated results from the individual laboratories for both materials and the results are shown graphically in Appendix B. Appendix C gives the methods used for analysis by each laboratory and Appendix D shows data for additional analytes.

Assignment of z-and p-scores

Performance Scores: Different programs have different data quality needs. The acceptability of the results submitted by a laboratory will be decided by the individual program(s) for which the laboratory provides data. Typically, the program will use these exercise results in conjunction with the laboratory's performance in the analysis of certified reference materials and/or control materials, and of other quality assurance samples. These exercise results are shown in a number of ways in this report to aid in the evaluation of data quality.

IUPAC guidelines (IUPAC 1997) describe the use of "z-scores" and "p-scores" for assessment of accuracy and precision in interlaboratory comparison exercises, such as described in this report. These indices assess the difference between the result of the laboratory and the exercise assigned value, and can be used, with caution, to compare performance on different analytes and on different materials.

Bias Assessment (z-score):

$$z = \text{bias estimate} / \text{performance criterion}$$

or

$$z = (x - X)/\sigma$$

where x is the individual laboratory result, X is the "Exercise Assigned Value," and σ is the target value for the standard deviation. As described in the IUPAC guidelines, the choice of σ is dependent upon the data quality objective of a particular program. It can be fixed or determined by reference to validated methodology (*e.g.,* the calculated σ from the exercise data, see Tables 4 - 7. The fixed performance criterion is more useful in the comparison of a laboratory's performance on different materials, while the use of the actual variation may be more useful within a given exercise, for example, if the determination of a particular analyte is more problematic than usual.

The z-scores calculated using both approaches and applied to each laboratory's data are given in Appendix A. The same criterion was adopted for use in this exercise as was used in the former NIST/NOAA/NS&T program, where the target standard deviation was set to 25 % of the exercise assigned value. The z-scores for the Control Material V represent 25 % of the assigned value so that Z = +1 is the assigned value plus 25 %, Z = -1 is the assigned value minus 25 % and so forth. Z-scores are also calculated based on the standard deviation of an analyte in the control material such that Z = +1 is one "exercise standard deviation" higher than the assigned value and Z = -1 is one "exercise standard deviation" lower than the assigned value and so forth. From a scientific point of view, IUPAC does not recommend the classification of z-scores, but does allow for such classification, *e.g.,*

$|z| \leq 2$ Satisfactory

$2 \leq |z| \leq 3$ Questionable

$|z| \geq 3$ Unsatisfactory

The tables in Appendix A summarize the results and performance indices including the number of analytes that fall within each category for each laboratory.

Precision Assessment (p-score):

$$p = \sigma_{lab} / \sigma_{target} \approx CV_{lab} / CV_{target}$$

where σ_{lab} and σ_{target} are variance estimates for the individual laboratory and the target variance, respectively. The CV_{lab} is the coefficient of variance (or ratio of standard deviation to the mean), while the CV_{target} is a target value chosen by the participants. During the workshop that accompanied this exercise, a target CV of 15% was agreed upon, which is the same value used by the former NIST/NOAA/NS&T program. Note that the precision that p describes is that which occurs within a batch of analyses. Between batch variance is likely larger and was not assessed in this exercise.

RESULTS AND DISCUSSION

Summarized results are shown in Tables 4 through 7. The concentration of many organochlorines in Control Material V was considerably higher than in SRM 1945. The consensus value for the sum of PCB congeners in Control Material V (Table 3.1) was 8,240 ng/g wet mass versus 1,350 ng/g wet mass in SRM 1945 (sum of the certified and reference values Table 6). Likewise the sum of the organochlorine pesticides in Control Material V was 37,100 ng/g wet mass versus 1,500 ng/g wet mass in SRM 1945 (sum of the reference values, Table 7). 4,4'-DDE was present in the highest concentration in both samples with a consensus value of 33,400 ng/g wet mass in Control Material V and certified value of 445 ng/g wet mass in SRM 1945. The levels of total PCBs and organochlorine pesticides observed in Control Material V, while higher than SRM 1945, were in the range observed for California sea lions (Kajiwara et al., 2002). The mean "total extractable organics" determined in Control Material V was 6.42 % ± 1.0 % (mean ± 95 % confidence interval; Table 4.1) and the average value determined by the participants in SRM 1945 was 71.8 % ± 2.6 % relative to the certified value of 74.3 % ± 0.45 % (Table 7).

The relative scatter among the laboratories appeared similar for many of the compounds with some exceptions (Appendix B). As in previous years, this was especially noticeable for PCB congener 201 for both the control material and the SRM. This may be a result of the two nomenclature systems used for this PCB congener (Guitart *et al*., 1993). High biases (most values exceeding the certified value) were observed among the values determined in the SRM relative to the certified value for the following compounds: PCB 31, PCB 99, PCB 101/90, PCB 138 (163+164), PCB 156, PCB 180, PCB 194, PCB 206, PCB 209, 4,4'-DDE, and 4,4'-DDD. Low biases (most values below the certified or reference value) were observed for PCB 18, PCB 49, PCB 52, PCB 66, PCB 149, PCB 151, PCB 195, PCB 201, 4,4'-DDT, HCB, β-HCH, and *trans*-nonachlor. A number of laboratories reported results for analytes in addition to the target compounds (Appendix D). Additional analytes that were reported included other PCB congeners (Labs 1, 3, 4, 6, 8, 13, 17 and 18), coplanar PCBs (Labs 4 and 10), dioxins and furans (Lab 10), *tris*-(4-chlorophenyl) methane and methanol (Lab 10), other organochlorine pesticides (Labs 3 and 4).

The participants used a variety of different methods to analyze the materials in this exercise (Appendix E). Eleven laboratories used Soxhlet extraction to extract the materials, five used pressurized fluid extraction, and the remaining laboratories used other techniques including

maceration with solvent and column elution. Of the laboratories that responded, eight laboratories performed a pre-separation on the sample extracts prior to GC analysis (*i.e.*, fractionation), while nine laboratories did not. Eight laboratories used GC/MS to quantify the target analytes, while seven laboratories used GC-ECD. Four laboratories used a combination of the two techniques. Internal standards were used by 14 laboratories, while four laboratories used external standards.

CONCLUSIONS

During the Baltimore workshop there was some discussion regarding materials for future exercises. Blubber is typically the marine mammal tissue analyzed for organochlorine constituents; hence the program will continue to use this matrix. The exercise coordinators plan to vary the type of control material used to include other species of interest such as delphinids or other species. NIST is constrained somewhat on the choice of the material as a fairly large quantity (≈1 kg) is needed, and this amount of material is not available on a routine basis. SRM 1945 will continue to be the SRM used in this exercise, since it is the only marine mammal tissue available with certified and reference values for organochlorine compounds. There was also discussion about including other analytes to the target list. For the 2003 exercise, polybrominated diphenyl ether congeners, toxaphene, and selected fatty acids were added as optional analytes. Participants were generally comfortable with the timing of the exercise. The timing of the 2003 exercise will be similar to the 2001 exercise, with sample material distributed to the participants in April 2003 and the results due 30 September 2003. A workshop will be held for the 2003 exercise in conjunction with the Biennial Conference on Biology of Marine Mammals to be held in Greensboro, North Carolina, in December 2003.

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Table 4: PCB Congeners in Control Material V (ng/g wet mass) Reported by the Participants the NIST/NOAA Interlaboratory Comparison Exercise Program for Organic Contaminants in Marine Mammal Tissues

Marine Mammal QA Material V	**Laboratory**																		**Reported Values**			**Consensus Values**			
PCB Congener	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**Mean**	**1 SD**	**n**	**Mean**	**n**	**1 SD**	**95%CI**
18	7.31	<8.2	7.58	9.28	9.89	4.77	**54.3**	NA	11.7	NA	<LOD	<LOD	7.40	<10	NA	5.53	6.12	NA	12.4	15	10	7.73	9	2.2	1.5
28	4.12	<8.2	2.64	3.35	NA	4.93	1.67	2.05	**41.2**	coelution	15.6	<LOD	2.07	<10	3.05	4.57	2.85	NA	7.33	11	12	4.26	11	3.9	2.3
31	coelution	NA	<1.83	<LOD	NA	2.145	<1	9.85	NA	coelution	2.89	NA	<1.1	NA	0.717	2.37	1.73	NA	3.28	3.3	6	3.28	6	3.3	2.6
44	35.7	30.0	38.1	42.6	37.8	44.8	17.7	36.0	29.1	28.4	49.5	28.8	39.7	41.3	NA	29.0	36.0	NA	35.3	7.8	16	35	16	7.8	3.8
49	90.9	76.0	98.5	105	88.1	107	43.7	88.1	NA	84.3	105	93.1	97.7	110	38.5	65.0	coelution	NA	86.1	22	15	86	15	22	11.1
52	145	128	154	146	134	NA	**63.0**	134	158	111	165	144	153	170	132	113	140	163	138	26	17	143	16	17	8.5
66/95*	197	203	208.3	246	193	192	<1	NA	107	142	202	213	NA	243	NA	146	203	see below	192	39	13	192	13	39	21
87	151	202	168	NA	NA	NA	NA	NA	NA	107	170	144	180	193	**0.142**	123	126	NA	142	56	11	157	10	31	20
99	455	508	431	coelution	404	564	NA	468	NA	409	599	465	470	538	NA	370	430	430	467	65	14	467	14	65	34
101 (+90)	419	261	472	coelution	381	540	190	471	577	278	476	443	493	369	NA	293	416	477	410	108	16	410	16	108	53
105	154	139	163	200	166	189	67.0	180	144	177	196	127	167	255	90	173	137	170	161	42	18	161	18	42	19
118	527	650	541	581	537	477	243	555	496	474	629	648	627	590	177	477	422	540	511	128	18	511	18	128	59
128	142	175	187	243	172	222	80.7	196	215	98	231	262	NA	165	146	167	145	NA	178	50	16	178	16	50	25
132	coelution	NA	NA	NA	108	NA	NA	NA	NA	225	NA	262	NA	NA	NA	91.0	114	NA	160	78	5	160	5	78	68
138 (+163+164)	1098	398	1563	1173	1003	NA	533	1100	1357	1300	1289	1203	1533	1567	117	863	coelution	1567	1104	435	16	1104	16	435	213
149	307	437	334	386	334	503	147	328	NA	229	271	290	380	NA	NA	270	269	313	320	85	15	320	15	85	43
151	133	151	140	280	136	193	59.0	140	NA	80	137	109	160	126	NA	217	114	120	143	52	16	134	15	39	20
153	2392	2490	2123	1473	1536	NA	840	1985	1867	1847	1851	1805	2233	2008	**119**	1500	1506	1867	1732	572	17	1833	16	406	199
156	10.2	<11.1	6.6	<LOD	<LOD	6.98	<1	31.4	NA	7.8	19.8	67.3	31.0	**101**	8.70	6.37	7.64	NA	25.4	30	12	19	11	19	11
170 (+190)	236	110	268	262	235	249	117	283	223	195	285	167	260	273	114	233	185	233	218	58	18	218	18	58	27
180	775	1111	964	671	731	1028	383	882	770	853	**1649**	696	877	729	NA	717	coelution	787	851	270	16	798	15	171	87
183	225	240	237	314	218	280	106	NA	NA	220	329	14.2	257	207	NA	197	162	243	217	78	15	231	14	57	30
187	447	532	491	455	NA	NA	223	662	394	380	540	204	463	484	NA	387	332	550	436	122	15	436	15	122	62
194	160	161	182	209	158	212	**49.3**	178	NA	120	209	126	157	150	NA	157	124	NA	157	42	15	165	14	31	16
195	38.3	40.0	42.3	46.9	NA	42.3	NA	NA	30.4	21.6	**108**	26.5	NA	81.2	NA	40.0	30.4	NA	45.7	25	12	40.0	11	16	9.3
201	38.3	44.0	NA	NA	40.5	261	NA	NA	NA	coelution	50.4	177.0	NA	57.7	NA	90.0	30.5	NA	87.7	79	9	87.7	9	79	52
206	79.5	70.0	93.3	91.2	82.2	109	NA	NA	68.4	NA	101.7	71.2	NA	81.7	NA	84.3	64.7	NA	83.1	14	12	83.1	12	14	7.8
209	84.7	51.0	60.9	87.2	61.2	79.3	NA	69.5	70.7	NA	82.9	75.4	NA	54.7	NA	NA	55.2	NA	69.4	13	12	69.4	12	13	7.2
66	55.5	57.0	61.3	52.8	48.5	37.9	NA	NA	NA	52.4	42.5	**83.8**	NA	NA	54.4	41.7	53.5	NA	53.4	12	12	50.7	11	7.2	4.3
95	141	146	147	193	144	154	NA	NA	NA	89.9	159	129	167	NA	NA	104	150	113.33	141	27	13	141	13	27	15

NA: Data were not available
Outliers are in Bold

Table 5: Organochlorine Pesticides in Control Material V (ng/g wet mass) Reported by the Participants in the NIST/NOAA Interlaboratory Comparison Exercise Program for Organic Contaminants in Marine Mammal Tissues

Marine Mammal QA Material V	**Laboratory**																		**Reported Values**			**Consensus Values**			
Congener	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**Mean**	**1 SD**	**n**	**Mean**	**n**	**1 SD**	**95%CI**
2,4'-DDT	57.4	51.3	63.1	172	71.3	NA	167	65.2	66.4	NA	62.2	NA	66.7	NA	102	70.0	65.8	NA	83.1	40	13	83.1	13	40	22
4,4'-DDT	182	196	150	217	202	NA	96	206	252	206	148	204	137	NA	223	140	195	35	174	54	16	184	15	41	21
2,4'-DDE	115	105	112	151	113	NA	29.7	98.3	160	NA	121	NA	78.7	NA	9.20	210	124	NA	110	52	13	110	13	52	28
4,4'-DDE	45695	41700	37067	31300	26000	NA	18676	32895	25367	50467	26654	52774	37667	NA	39100	5500	**40888**	22667	33401	12347	16	33401	16	12347	6050
2,4'-DDD	37.8	28.0	41.9	109.5	50.6	NA	30.0	NA	**324**	NA	68.4	NA	36.0	NA	28.0	39.0	33.7	NA	68.9	83	12	45.7	11	24	14
4,4'-DDD	1602	834	1070	1123	NA	NA	483	1096	1057	951	756	1144	706	NA	1060	1000	1191	NA	1005	263	14	1005	14	263	138
HCB	<1	<17	<2.39	1.29	0.140	NA	<1	0.085	2.36	<5	2.96	NA	<1.1	NA	<5	4.50	<5	NA	1.89	1.7	6	1.89	6	2	1.4
alpha-HCH	9.08	<8.9	7.47	coelution	5.55	NA	4.33	3.94	6.57	7.75	9.24	5.32	6.03	NA	7.10	4.80	<5	NA	6.43	1.7	12	6.43	12	2	1.0
beta-HCH	454	<59	441	328	341	NA	NA	325	433	370	428	382	360	NA	460	590	interference	NA	409	75	12	409	12	75	43
gamma-HCH	7.74	<46	7.79	4.54	6.01	NA	3.00	6.12	8.03	7.00	11.4	4.69	**30.3**	NA	<5	3.60	12.50	NA	8.67	7.1	13	6.87	12	3	1.6
Heptachlor Epoxide	115	67.3	115	97.7	108	NA	NA	NA	65.3	102	101	NA	NA	NA	150	43.0	134	NA	99.8	31	11	99.8	11	31	18
***Cis* -Chlordane**	31.0	45.3	41.5	coelution	44.4	NA	23.7	33.1	34.2	35.9	32.4	32.6	45.3	NA	**80.0**	26.0	61.3	NA	40.5	15	14	37.4	13	10	5.4
***Trans* -Chlordane**	32.2	<41	3.17	NA	10.9	NA	4.3	1.32	5.80	9.6	<LOD	<LOD	2.77	NA	<5	5.70	39.5	NA	11.5	13	10	11.5	10	13	8.2
Oxychlordane	78.3	<164	79.3	73.9	58.1	NA	NA	74.1	77.2	78.0	89.0	104	NA	NA	99.0	70.0	66.1	NA	78.9	13	12	78.9	12	13	7.4
***Cis* -Nonachlor**	95.3	120.0	119.3	39.1	NA	NA	NA	**231**	110	120	57.1	118	NA	NA	107	79.0	118	NA	109	47	12	98.4	11	28	17
***Trans* -Nonachlor**	1323	1400	1213	968	1008	NA	657	1208	1193	1387	1030	1745	NA	NA	1660	1100	1436	NA	1238	285	14	1238	14	285	150
Dieldrin	252	268	238	348	165	NA	<1	NA	19.3	247	261	NA	NA	NA	65.0	180	252	NA	209	95	11	209	11	95	56
Mirex	40.9	48.7	47.7	67.8	40.9	NA	NA	NA	41.3	NA	54.1	NA	NA	NA	29.0	25.0	42.0	NA	43.7	12	10	43.7	10	12	7.5
Lipid (%)	6.17	6.33	6.00	0.659	6.13	6.98	3.40	6.84	8.80	6.59	4.93	7.44	**21.7**	7.67	8.04	6.60	6.54	10.00	7.27	4.1	18	6.42	17	2.1	1.0

NA: Data were not available
Outliers are in Bold

Table 6: PCB Congeners in SRM 1945 (ng/g wet mass) Reported by the Participants in the NIST/NOAA Interlaboratory Comparison Exercise Program for Organic Contaminants in Marine Mammal Tissues

PCB	SRM 1945	Laboratory																					Reference			
Congener	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Mean	1 SD	95% CI	n	Value			Comment
18	3.25	<8.2	3.71	24.2	4.13	1.81	3.00	NA	<2	NA	1.53	<LOD	2.90	3.80	NA	2.63	5.03	NA	5.09	6.4	3.8	11	4.48	±	0.88	certified value
28	15.0	11.5	10.2	11.4	NA	15.2	15.3	8.33	35.2	coelution	14.0	14.2	10.8	18.3	14.7	11.0	12.7	NA	14.5	6.3	3.2	15	14.10	±	1.4	information value
31	coelution	NA	4.77	5.70	NA	4.92	2.00	5.55	NA	coelution	3.07	NA	4.37	NA	5.04	3.27	3.25	NA	4.19	1.2	0.8	10	3.12	±	0.69	information value
44	11.2	10.6	12.4	13.1	14.1	13.0	<1	12.1	14.3	9.32	13.4	7.68	13.3	16.3	NA	10.3	11.7	NA	12.2	2.2	1.1	15	12.2	±	1.4	certified value
49	15.9	13.3	18.5	22.1	19.3	17.9	1.50	16.7	NA	15.6	16.6	14.7	19.7	20.5	7.58	21.3	coelution	NA	16.1	5.4	2.7	15	20.8	±	2.8	certified value
52	37.6	35.7	41.9	36.0	39.2	NA	18.7	34.0	37.0	29.1	37.4	32.0	42.3	42.1	38.3	36.3	42.9	39.3	36.5	5.9	2.8	17	43.6	±	2.5	certified value
66/95*	56.3	51.7	62.4	66.8	62.7	50.4	<1	NA	22.2	43.9	61.6	51.6	NA	64.5	NA	52.3	57.0	see below	54.1	12	6.3	13	57.4			sum of the cert. values
87	23.1	22.0	26.3	NA	NA	NA	NA	NA	NA	15.1	23.8	17.6	29.7	25.0	10.4	17.0	16.0	NA	20.5	5.7	3.4	11	16.7	±	1.4	certified value
99	56.9	55.0	62.6	coelution	62.5	62.3	NA	54.0	NA	51.4	67.4	49.1	54.0	89.0	NA	51.0	49.8	55.3	58.6	10	5.4	14	45.4	±	5.4	certified value
101 (+90)	77.9	41.3	93.7	coelution	75.5	88.7	63.7	79.7	115	50.5	88.2	68.1	81.7	64.0	NA	63.0	69.8	76.0	74.8	17	8.6	16	65.2	±	5.6	certified value
105	30.1	19.7	28.7	27.5	26.4	27.5	43.3	28.8	45.2	27.8	29.2	18.1	31.0	41.3	16.3	47.3	29.2	21.0	29.9	9.0	4.2	18	30.1	±	2.3	certified value
118	79.0	81.7	80.8	87.4	83.4	63.9	89.7	80.1	71.9	71.3	79.6	80.0	79.7	77.5	59.5	76.7	73.8	70.3	77.0	7.6	3.5	18	74.6	±	5.1	certified value
128	23.1	<55	23.9	136	21.7	23.8	24.3	22.9	30.2	14.0	39.9	10.3	NA	33.0	20.0	24.7	19.8	NA	31.2	30	15	15	23.7	±	1.7	certified value
132	coelution	NA	NA	NA	16.5	NA	NA	NA	NA	30.1	NA	27.6	NA	NA	NA	18.3	17.4	NA	22.0	6.4	5.6	5	39.1	±	16.0	consensus past exercises
138 (+163+164)	125	48.7	190	166	135	NA	163	140	127	158	209	118	180	162	71.6	123	coelution	217	146	45	22	16	131.5	±	7.4	certified value
149	73.4	82.7	88.2	90.3	83.1	132	74.7	78.8	NA	54.0	75.9	54.6	85.0	NA	NA	80.3	95.0	65.0	80.8	18	9.3	15	107	±	8.4	certified value
151	26.8	24.7	27.7	114	24.8	40.2	24.7	25.3	NA	15.5	31.4	16.3	31.3	29.0	NA	24.0	27.5	19.7	31.5	23	11	16	28.7	±	5.2	certified value
153	251	238	240	185	191	NA	213	220	171	200	273	162	223	238	150	187	215	213	210	33	16	17	213.0	±	19	certified value
156	14.4	<11.1	11.5	12.3	10.4	10.7	19.3	13.2	NA	10.6	17.1	18.9	15.3	45.0	14.9	12.3	9.6	NA	15.7	8.7	4.4	15	10.3	±	1.1	certified value
170 (+190)	48.3	19.0	49.6	40.3	43.6	34.8	43.7	46.2	58.2	30.9	48.4	22.7	46.7	49.5	28.4	41.3	40.2	40.3	40.7	10	4.7	18	40.6	±	2.6	certified value
180	134	150	149	135	134	163	163	155	101	146	170	101	143	125	NA	133	coelution	167	142	21	10	16	107	±	5.3	certified value
183	40.7	35.3	41.3	63.1	36.5	44.3	47.0	NA	NA	36.1	109.7	NA	42.0	42.0	NA	33.3	34.9	47.0	46.7	20	10	14	36.6	±	4.1	certified value
187	119	120	127	136	NA	NA	120	178	100	104	136	28.1	117	106	NA	107	96.0	173	118	35	18	15	105	±	9.1	certified value
194	57.7	57.7	60.4	71.8	55.1	64.5	38.7	59.6	NA	42.8	55.8	33.1	53.0	45.0	NA	57.3	38.7	NA	52.7	11	5.5	15	39.6	±	2.5	certified value
195	10.7	10.0	10.4	9.19	NA	10.7	NA	NA	2.00	5.69	30.5	5.18	NA	23.0	NA	12.0	16.7	NA	12.2	7.9	4.5	12	17.7	±	4.3	certified value
201	18.7	13.0	NA	NA	24.7	97.6	NA	NA	2.60	coelution	16.0	52.2	NA	25.0	NA	41.3	17.0	NA	30.8	27	17	10	17.0	±	0.89	certified value
206	48.9	38.3	48.4	41.5	47.7	56.4	NA	NA	28.3	NA	41.6	38.1	NA	33.0	NA	65.3	35.3	NA	43.6	10	5.9	12	31.1	±	2.7	certified value
209	21.8	15.3	15.7	25.4	20.0	20.4	NA	19.1	8.57	NA	17.0	21.1	NA	13.0	NA	NA	10.3	NA	17.3	5.0	2.8	12	10.6	±	1.1	certified value
66	22.0	18.7	23.7	21.0	20.1	15.2	NA	NA	NA	21.6	18.8	25.2	NA	NA	20.0	21.7	22.7	NA	20.9	2.6	1.5	12	23.6	±	1.6	certified value
95	34.3	33.0	38.6	45.9	42.6	35.3	NA	NA	NA	22.3	42.8	26.5	42.0	NA	NA	30.7	34.3	32.00	35.4	6.9	3.7	13	33.8	±	1.7	certified value

NA: Data were not available

Table 7: Organochlorine Pesticides in SRM 1945 (ng/g wet mass) Reported by the Participants in the NIST/NOAA Interlaboratory Comparison Exercise Program for Organic Contaminants in Marine Mammal Tissues

	SRM 1945	Laboratory																				Reference			
Compound	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**Mean**	**s**	**95% CI**	**n**	**Value**			**Comment**
2,4'-DDT	71.7	52.3	79.9	81.5	92.9	NA	123	83.0	62.2	NA	95.3	NA	68.3	NA	57.7	117	96.2	NA	84.1	22	12	13	106	±	14	certified value
4,4'-DDT	229	158	181	217	243	NA	230	254	125	276	237	311	173	NA	162	183	232	46.7	213	50	25	15	245	±	15	certified value
2,4'-DDE	14.9	11.3	15.1	38.5	7.30	NA	19.7	12.3	18.9	NA	19.4	NA	11.0	NA	104	8.30	12.8	NA	23.2	26	14	13	12.3	±	0.87	certified value
4,4'-DDE	529	549	550	507	439	NA	510	479	442	714	545	598	523	NA	377	490	465	357	513	78	39	15	445	±	37	certified value
2,4'-DDD	20.2	<15	25.8	25.8	26.5	NA	24.3	NA	63.7	NA	19.9	NA	17.3	NA	10.7	18.3	17.3	NA	25.0	14	8.2	11	18.1	±	2.8	certified value
4,4'-DDD	114	58.3	152	112	NA	NA	103	112	90.6	130	105	126	82.7	NA	85.6	117	126	NA	108	24	12	14	133	±	10	certified value
HCB	25.6	21.7	30.5	33.8	23.1	NA	23.3	24.8	26.0	NA	29.8	24.9	32.7	NA	17.9	22.3	30.6	NA	26.3	4.6	2.4	14	32.9		1.7	certified value
alpha-HCH	13.7	19.0	18.0	coelution	13.4	NA	28.7	12.4	18.7	15.1	12.1	11.1	15.0	NA	15.4	8.83	16.0	NA	15.7	4.8	2.5	14	16.2	±	3.4	certified value
beta-HCH	3.46	<59	8.36	NA	1.91	NA	NA	1.90	<2	1.37	4.72	<LOD	1.93	NA	<10	4.07	interference	NA	3.47	2.3	1.6	8	8.0	±	1.4	information value
gamma-HCH	2.35	NA	3.41	11.8	2.43	NA	19.7	2.58	7.66	2.64	7.82	1.74	9.50	NA	<5	2.23	3.31	NA	6.23	5.3	2.9	13	3.3	±	0.81	certified value
Heptachlor Epoxide	12.2	<8	12.8	14.7	9.75	NA	NA	NA	4.00	11.9	13.1	NA	NA	NA	14.7	4.63	10.5	NA	10.7	3.8	2.3	10	10.8	±	1.3	certified value
***Cis* -Chlordane**	51.2	47.3	58.3	coelution	45.1	NA	51.7	47.2	39.1	54.4	60.7	47.1	53.0	NA	43.7	42.0	48.4	NA	49.1	6.1	3.2	14	46.9	±	2.8	certified value
***Trans* -Chlordane**	11.0	10.5	13.5	19.3	13.9	NA	24.0	11.2	8.83	13.8	12.7	11.1	11.0	NA	<5	9.10	11.3	NA	13.1	4.1	2.2	14	12.1	±	1.2	consensus past exercises
Oxychlordane	21.7	<164	22.2	20.9	21.6	NA	NA	23.4	13.8	18.8	24.5	21.4	NA	NA	21.1	21.7	19.1	NA	20.8	2.7	1.5	12	19.8	±	1.9	certified value
***Cis* -Nonachlor**	46.1	49.0	57.7	13.7	NA	NA	NA	98.0	24.5	55.1	50.4	47.7	NA	NA	57.7	38.7	48.0	NA	49.1	20	12	12	48.7	±	7.6	certified value
***Trans* -Nonachlor**	179	166	180	161	166	NA	147	166	138	223	178	180	NA	NA	163	163	208	NA	172	22	12	14	231	±	11	certified value
Dieldrin	54.1	<62	58.7	69.7	48.6	NA	227	NA	30.7	59.5	55.5	NA	NA	NA	18.3	42.7	39.0	NA	65.0	56	33	11	37.5	±	3.9	information value
Mirex	31.3	35.3	36.4	37.8	31.5	NA	NA	NA	29.2	NA	34.9	NA	NA	NA	19.8	8.50	28.9	NA	29.1	9.0	5.6	10	28.9	±	2.8	certified value
Lipid (%)	69.0	68.7	55.1	66.8	75.6	76.5	71.7	73.6	76.1	73.0	67.3	69.0	74.3	73.6	74.5	78.4	74.4	74.5	71.8	5.4	2.6	17	74.3	±	0.45	certified value

NA: Data were not available

APPENDIX A

Tabular results of PCB congener, pesticide, and lipid data reported by all laboratories.

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 1**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/19/2001	7/19/2001	7/20/2001	7/19/2001	7/19/2001	7/19/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	57.2	57.0	57.9	73.6	67.8	73.9	57.4	0.8	71.7	4.8	83.1	22	**106**	14	-1.2	-0.6	0.06
4,4'-DDT	182	184	180	232	226	231	182	1.0	229	1.4	184	21	**245**	15	0.0	0.0	0.06
2,4'-DDE	117	115	114	14.7	14.9	15.2	115	1.4	14.9	1.9	110	28	**12.3**	0.87	0.2	0.1	0.10
4,4'-DDE	44798	48538	43748	538	522	528	45695	5.5	529	1.5	33401	6050	**445**	37	1.5	1.0	0.37
2,4'-DDD	37.6	39.2	36.6	20.2	20.1	20.2	37.8	3.4	20.2	0.5	45.7	14	**18.1**	2.8	-0.7	-0.3	0.23
4,4'-DDD	1605	1559	1641	116	112	114	1602	2.6	114	1.8	1005	138	**133**	10	2.4	2.3	0.17
HCB	<1	<1	<1	24.6	26.4	25.8	<1	<1	25.6	3.6	1.89	1.4	**32.9**	1.7			
α-HCH	9.70	8.34	9.20	13.4	13.9	13.6	9.08	7.6	13.7	1.9	6.43	1.0	**16.2**	3.4	1.6	1.5	0.51
β-HCH	457	452	452	3.24	3.54	3.59	454	0.6	3.46	5.6	409	42.5	8.00	1.4	0.4	0.6	0.04
γ-HCH	7.36	8.22	7.64	2.67	2.17	2.23	7.74	5.7	2.35	11.5	6.87	1.64	**3.30**	0.81	0.5	0.3	0.38
Heptachlor Epoxide	113	118	114	11.8	12.1	12.6	115	2.5	12.2	3.3	99.8	18	**10.8**	1.3	0.6	0.5	0.17
***Cis*-Chlordane**	32.0	33.3	27.7	49.4	51.9	52.4	31.0	9.5	51.2	3.1	37.4	5.4	**46.9**	2.8	-0.7	-0.6	0.63
***Trans*-Chlordane**	33.0	32.0	31.6	10.5	11.3	11.4	32.2	2.2	11.0	4.2	11.5	8.2	12.9	3.5	7.2	1.6	0.15
Oxychlordane	81.2	77.5	76.3	22.6	21.4	21.2	78.3	3.3	21.7	3.5	78.9	7.4	**19.8**	1.9	0.0	0.0	0.22
***Cis*-Nonachlor**	94.2	96.1	95.6	44.6	45.4	48.5	95.3	1.0	46.1	4.4	98.4	17	**48.7**	7.6	-0.1	-0.1	0.07
***Trans*-Nonachlor**	1333	1310	1327	175	182	180	1323	0.9	179	2.0	1238	150	**231**	11	0.3	0.3	0.06
Dieldrin	255	255	246	55.6	53.5	53.3	252	1.9	54.1	2.3	209	56	37.5	3.9	0.8	0.5	0.13
Mirex	39.2	42.3	41.3	30.0	31.6	32.1	40.9	3.8	31.3	3.6	43.7	7.5	**18.9**	2.8	-0.3	-0.2	0.26

Category	Number by Category		
	z (25%)	z (s)	p (15%)
≤ 2	15	16	17
2 to 3	1	1	0
≥ 3	1	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	5.98	6.30	6.23	69.5	68.4	69.2	6.2	2.73	69.0	0.82	6.4	2.08	74.3	0.45	-0.2	-0.1	0.18

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 1**
SAMPLES: MMQA V AND SRM 1945

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/19/2001	7/19/2001	7/20/2001	7/19/2001	7/19/2001	7/19/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	7.11	7.29	7.54	3.29	3.28	3.18	7.31	3.0	3.25	1.8	7.73	1.5	**4.48**	0.88	-0.2	-0.19	0.20
28	3.96	4.09	4.32	15.0	15.4	14.6	4.12	4.5	15.0	2.5	4.26	2.3	14.10	1.4	-0.1	-0.03	0.30
31	coelution	coelution	coelution	coelution	coelution	coelution					3.28	2.6	3.12	0.69			
44	35.9	35.9	35.3	10.9	11.9	10.7	35.7	1.0	11.2	5.8	35.3	3.8	**12.2**	1.4	0.0	0.05	0.07
49	90.5	91.0	91.1	16.1	16.2	15.4	90.9	0.4	15.9	2.9	86.1	11	**20.8**	2.8	0.2	0.22	0.02
52	144	146	144	37.1	38.8	37.0	145	0.7	37.6	2.8	143	8	**43.6**	2.5	0.0	0.09	0.05
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5			
87	151	153	149	22.5	23.9	22.9	151	1.4	23.1	3.1	157	20	**16.7**	1.4	-0.1	-0.18	0.09
99	456	463	448	57.5	56.7	56.3	455	1.7	56.9	1.1	467	34	**45.4**	5.4	-0.1	-0.18	0.11
101 (+90)	417	426	412	78.9	77.3	77.4	419	1.6	77.9	1.2	410	53	**65.2**	5.6	0.1	0.08	0.11
105	155	156	152	29.9	28.9	31.5	154	1.4	30.1	4.4	161	19	**30.1**	2.3	-0.2	-0.16	0.09
118	528	536	519	79.4	77.3	80.2	527	1.7	79.0	1.9	511	59	**74.6**	5.1	0.1	0.13	0.11
128	145	142	139	22.4	22.4	24.5	142	1.8	23.1	5.2	178	25	**23.7**	1.7	-0.8	-0.72	0.12
132	coelution	coelution	coelution	coelution	coelution	coelution					160	68	29.1	6.0			
138 (+163+164)	1101	1149	1044	125	122	127	1098	4.8	125	2.2	1104	213	**131.5**	7.4	0.0	-0.01	0.32
149	305	316	301	73.2	73.4	73.6	307	2.6	73.4	0.3	320	43	**107**	8.4	-0.2	-0.15	0.17
151	132	137	130	26.1	27.4	27.0	133	2.5	26.8	2.5	134	20	**28.7**	5.2	0.0	-0.04	0.17
153	2369	2482	2326	253	249	252	2392	3.4	251	0.9	1833	199	**213.0**	19	1.2	1.38	0.22
156	10.2	10.0	10.6	14.5	14.0	14.7	10.2	3.2	14.4	2.7	18.5	11	**10.3**	1.1	-1.8	-0.44	0.21
170 (+190)	236	230	242	47.5	46.2	51.1	236	2.5	48.3	5.2	218	27	**40.6**	2.6	0.3	0.31	0.17
180	779	782	764	134	128	141	775	1.2	134	5.0	798	87	**107**	5.3	-0.1	-0.14	0.08
183	226	229	219	40.1	39.8	42.2	225	2.5	40.7	3.2	231	30	**36.6**	4.1	-0.1	-0.11	0.17
187	451	457	433	121	116	122	447	2.8	119	2.6	436	62	**105**	9.1	0.1	0.09	0.18
194	167	154	160	57.1	56.1	60.0	160	4.0	57.7	3.5	165	16	**39.6**	2.5	-0.1	-0.14	0.27
195	39.7	37.9	37.2	11.1	10.5	10.5	38.3	3.5	10.7	3.4	40.0	9	**17.7**	4.3	-0.2	-0.11	0.23
201	37.9	38.4	38.5	17.9	18.6	19.7	38.3	0.8	18.7	4.9	87.7	52	**17.0**	0.89	-2.3	-0.62	0.06
206	82.2	78.9	77.2	48.0	47.7	51.0	79.5	3.2	48.9	3.7	83.1	7.8	**31.1**	2.7	-0.2	-0.27	0.21
209	81.1	83.8	89.1	21.2	21.4	22.8	84.7	4.8	21.8	3.8	69.4	7.2	**10.6**	1.1	0.9	1.21	0.32
66	56.1	55.1	55.4	22.0	21.8	22.2	55.5	0.9	22.0	0.9	50.7	4	23.6	1.6	0.4	0.67	0.06
95	141	144	139	33.9	35.2	33.8	141	1.7	34.3	2.3	141	15	33.8	1.7	0.0	0.00	0.11

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	26	27	27
2 to 3	1	0	0
≥ 3	0	0	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 2**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	10/2/2010	10/2/2001	10/2/2001	10/2/2001	10/2/2001	10/2/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	60.0	45.0	49.0	50.0	55.0	52.0	51.3	15	52.3	4.8	83.1	22	**106**	14	-1.5	-0.8	1.01
4,4'-DDT	226	184	179	142	172	161	196	13	158	9.6	184	21	**245**	15	0.3	0.3	0.88
2,4'-DDE	112	103	99.0	12.0	11.0	11.0	105	6.4	11.3	5.1	110	28	**12.3**	0.87	-0.2	-0.1	0.42
4,4'-DDE	46000	40200	38900	552	547	547	41700	9.1	549	0.5	33401	6050	**445**	37	1.0	0.7	0.60
2,4'-DDD	32.0	27.0	25.0	<15	<15	<15	28.0	13	<15	<15	45.7	14	**18.1**	2.8	-1.6	-0.7	0.86
4,4'-DDD	1010	777	715	63.0	58.0	54.0	834	19	58	7.7	1005	138	**133**	10	-0.7	-0.7	1.24
HCB	<17	<17	<17	18.0	23.0	24.0	<17	<17	21.7	15	1.89	1.4	**32.9**	1.7			
α-HCH	<8.9	<8.9	<8.9	18.0	18.0	21.0	<8.9	<8.9	19.0	9.1	6.43	1.0	**16.2**	3.4			
β-HCH	<59	<59	<59	<59	<59	<59	<59	<59	<59	<59	409	42.5	8.00	1.4			
γ-HCH	<46	<46	<46	<46	<46	<46	<46	<46	<46	<46	6.87	1.64	**3.30**	0.81			
Heptachlor Epoxide	71.0	70.0	61.0	<8	<8	<8	67.3	8.2	<8	<8	99.8	18	**10.8**	1.3	-1.3	-1.0	0.55
***Cis*- Chlordane**	47.0	45.0	44.0	44.0	49.0	49.0	45.3	3.4	47.3	6.1	37.4	5.4	**46.9**	2.8	0.8	0.8	0.22
***Trans*- Chlordane**	<41	<41	<41	<41	11.0	10.0	<41	<41	10.5	6.7	11.5	8.2	12.9	3.5			
Oxychlordane	<164	<164	<164	<164	<164	<164	<164	<164	<164	<164	78.9	7.4	**19.8**	1.9			
***Cis*- Nonachlor**	138.0	111.0	111.0	44.0	51.0	52.0	120.0	13.0	49.0	8.9	98.4	17	**48.7**	7.6	0.9	0.8	0.87
***Trans*- Nonachlor**	1490	1370	1340	164	170	164	1400	5.7	166	2.1	1238	150	**231**	11	0.5	0.6	0.38
Dieldrin	293	259	251	<62	<62	<62	268	8.3	<62	<62	209	56	37.5	3.9	1.1	0.6	0.56
Mirex	55.0	46.0	45.0	35.0	35.0	36.0	48.7	11.3	35.3	1.6	43.7	7.5	**18.9**	2.8	0.4	0.4	0.75

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	12	12	12
2 to 3	0	0	0
≥ 3	0	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	6.40	6.50	6.10	69.0	68.0	69.0	6.3	3.29	68.7	0.84	6.4	2.08	74.3	0.45	-0.1	0.0	0.22

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 2

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	10/2/2001	10/2/2001	10/2/2001	10/2/2001	10/2/2001	10/2/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2	<8.2	7.73	1.5	**4.48**	0.88			
28	<8.2	<11	<11	<11.3	11.5	<11.3	<8.2	<8.2	11.5		4.26	2.3	14.10	1.4			
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.28	2.6	3.12	0.69			
44	30.0	34.0	33.0	10.6	<10.5	<10.5	32.3	6.4	10.6		35.3	3.8	**12.2**	1.4	-0.3	-0.37	0.43
49	76.0	82.0	81.0	14.0	13.0	13.0	79.7	4.0	13.3	4.3	86.1	11	**20.8**	2.8	-0.3	-0.29	0.27
52	128	139	136	37.0	35.0	35.0	134	4.2	35.7	3.2	143	8	**43.6**	2.5	-0.2	-0.51	0.28
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5			
87	202	177	181	22.0	22.0	22.0	187	7.2	22.0	0.0	157	20	**16.7**	1.4	0.8	0.96	0.48
99	508	462	460	55.0	53.0	57.0	477	5.7	55.0	3.6	467	34	**45.4**	5.4	0.1	0.15	0.38
101 (+90)	261	237	237	41.0	42.0	41.0	245	5.7	41.3	1.4	410	53	**65.2**	5.6	-1.6	-1.53	0.38
105	139	129	163	22.0	18.0	19.0	144	12.2	19.7	10.6	161	19	**30.1**	2.3	-0.4	-0.41	0.81
118	650	524	554	79.0	81.0	85.0	576	11.4	81.7	3.7	511	59	**74.6**	5.1	0.5	0.51	0.76
128	175	183	182	<55	<55	<55	180	2.4	<55	<55	178	25	**23.7**	1.7	0.0	0.04	0.16
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	398	367	464	55	45	46	410	12.1	49	11.3	1104	213	**131.5**	7.4	-2.5	-1.60	0.81
149	437	369	360	82.0	83.0	83.0	389	10.8	82.7	0.7	320	43	**107**	8.4	0.9	0.80	0.72
151	151	133	131	25.0	25.0	24.0	138	8.0	24.7	2.3	134	20	**28.7**	5.2	0.1	0.10	0.53
153	2490	2100	2100	237	239	239	2230	10.1	238	0.5	1833	199	**213.0**	19	0.9	0.98	0.67
156	<11.1	<11.1	<11.1	<11	<11	<11	<11	<11	<11	<11	18.5	11	**10.3**	1.1			
170 (+190)	110	113	115	20.0	18.0	19.0	113	2.2	19.0	5.3	218	27	**40.6**	2.6	-1.9	-1.82	0.15
180	1111	891	926	148	150	153	976	12.1	150	1.7	798	87	**107**	5.3	0.9	1.04	0.81
183	240	254	252	39.0	33.0	34.0	249	3.0	35.3	9.1	231	30	**36.6**	4.1	0.3	0.31	0.20
187	532	439	444	117	120	123	472	11.1	120	2.5	436	62	**105**	9.1	0.3	0.29	0.74
194	161	169	168	61.0	57.0	55.0	166	2.6	57.7	5.3	165	16	**39.6**	2.5	0.0	0.05	0.18
195	40.0	40.0	39.0	<7	9.0	11.0	39.7	1.5	10.0	14.1	40.0	9	**17.7**	4.3	0.0	-0.02	0.10
201	44.0	37.0	35.0	14.0	13.0	12.0	38.7	12.2	13.0	7.7	87.7	52	**17.0**	0.89	-2.2	-0.62	0.81
206	70.0	74.0	75.0	42.0	35.0	38.0	73.0	3.6	38.3	9.2	83.1	7.8	**31.1**	2.7	-0.5	-0.74	0.24
209	51.0	56.0	52.0	16.0	15.0	15.0	53.0	5.0	15.3	3.8	69.4	7.2	**10.6**	1.1	-0.9	-1.29	0.33
66	57.0	53.0	53.0	18.0	19.0	19.0	54.3	4.3	18.7	3.1	50.7	4	23.6	1.6	0.3	0.51	0.28
95	146	142	142	34.0	33.0	32.0	143	1.6	33.0	3.0	141	15	33.8	1.7	0.1	0.07	0.11

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	22	24	24
2 to 3	2	0	0
≥ 3	0	0	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 3**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/11/2001	7/11/2001	7/11/2001	7/11/2001	7/11/2001	7/11/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	63.5	63.1	62.8	80.9	78.8	80.0	63.1	0.6	79.9	1.3	83.1	22	**106**	14	-1.0	-0.5	0.04
4,4'-DDT	160	134	157	187	177	179	150	9.5	181	2.9	184	21	**245**	15	-0.7	-0.8	0.63
2,4'-DDE	112	112	111	15.3	14.9	15.0	112	0.5	15.1	1.4	110	28	**12.3**	0.87	0.1	0.0	0.03
4,4'-DDE	37000	37500	36700	567	545	539	37067	1.1	550	2.7	33401	6050	**445**	37	0.4	0.3	0.07
2,4'-DDD	42.3	41.5	42.0	25.7	25.8	25.8	41.9	1.0	25.8	0.2	45.7	14	**18.1**	2.8	-0.3	-0.2	0.06
4,4'-DDD	1070	1080	1060	152	152	153	1070	0.9	152	0.4	1005	138	**133**	10	0.3	0.2	0.06
HCB	<1.78	<2.39	<2.13	30.2	31.3	29.9	<2.39	<2.13	30.5	2.4	1.89	1.4	**32.9**	1.7			
α-HCH	7.53	7.49	7.39	17.5	18.9	17.7	7.47	1.0	18.0	4.2	6.43	1.0	**16.2**	3.4	0.6	0.6	0.06
β-HCH	436	446	441	6.57	9.05	9.46	441	1.1	8.36	18.7	409	42.5	8.00	1.4	0.3	0.4	0.08
γ-HCH	8.57	7.45	7.35	3.60	3.33	3.31	7.79	8.7	3.41	4.7	6.87	1.64	**3.30**	0.81	0.5	0.3	0.58
Heptachlor Epoxide	114	116	114	12.6	13.3	12.5	115	1.0	12.8	3.4	99.8	18	**10.8**	1.3	0.6	0.5	0.07
***Cis*- Chlordane**	41.7	41.8	41.0	58.0	59.0	57.9	41.5	1.1	58.3	1.0	37.4	5.4	**46.9**	2.8	0.4	0.4	0.07
***Trans*- Chlordane**	3.15	2.92	3.44	13.3	13.5	13.6	3.17	8.2	13.5	1.1	11.5	8.2	12.9	3.5	-2.9	-0.6	0.55
Oxychlordane	78.1	80.3	79.4	23.1	22.0	21.6	79.3	1.4	22.2	3.5	78.9	7.4	**19.8**	1.9	0.0	0.0	0.09
***Cis*- Nonachlor**	119.0	120.0	119.0	57.7	57.6	57.7	119.3	0.5	57.7	0.1	98.4	17	**48.7**	7.6	0.9	0.7	0.03
***Trans*- Nonachlor**	1210	1230	1200	182	181	178	1213	1.3	180	1.2	1238	150	**231**	11	-0.1	-0.1	0.08
Dieldrin	238	241	236	58.3	59.5	58.4	238	1.1	58.7	1.1	209	56	37.5	3.9	0.6	0.3	0.07
Mirex	47.3	48.6	47.2	37.1	36.8	35.3	47.7	1.6	36.4	2.6	43.7	7.5	**18.9**	2.8	0.4	0.3	0.11

Category	Number by Category		
	z (25%)	z (s)	p (15%)
≤ 2	16	17	17
2 to 3	1	0	0
≥ 3	0	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	7.80	5.10	5.10	55.0	56.5	53.9	6.0	25.98	55.1	2.37	6.4	2.08	74.3	0.45	-0.3	-0.2	1.73

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 3**
SAMPLES: MMQA V AND SRM 1945

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/11/2001	7/11/2001	7/11/2001	7/11/2001	7/11/2001	7/11/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	7.62	7.71	7.41	3.77	3.73	3.64	7.58	2.0	3.71	1.8	7.73	1.5	**4.48**	0.88	-0.1	-0.07	0.14
28	2.90	<2.43	2.37	10.1	9.9	10.5	2.64	14.2	10.2	3.0	4.26	2.3	14.10	1.4	-1.5	-0.42	0.95
31	<1.36	<1.83	<1.62	4.72	4.85	4.74	<1.60	<1.60	4.77	1.5	3.28	2.6	3.12	0.69			
44	38.1	38.1	38.0	12.6	12.3	12.3	38.1	0.2	12.4	1.4	35.3	3.8	**12.2**	1.4	0.3	0.36	0.01
49	98.4	99.9	97.3	18.5	18.8	18.2	98.5	1.3	18.5	1.6	86.1	11	**20.8**	2.8	0.6	0.57	0.09
52	153	156	152	41.0	43.0	41.6	154	1.4	41.9	2.5	143	8	**43.6**	2.5	0.3	0.61	0.09
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5	-4.0	-4.90	0.00
87	170	169	166	26.7	25.9	26.2	168	1.2	26.3	1.5	157	20	**16.7**	1.4	0.3	0.37	0.08
99	430	433	431	63.1	62.7	62.0	431	0.4	62.6	0.9	467	34	**45.4**	5.4	-0.3	-0.55	0.02
101 (+90)	473	472	472	93.5	94.7	92.9	472	0.1	93.7	1.0	410	53	**65.2**	5.6	0.6	0.58	0.01
105	164	165	161	28.9	28.8	28.4	163	1.3	28.7	0.9	161	19	**30.1**	2.3	0.1	0.06	0.08
118	536	547	539	81.6	80.8	79.9	541	1.1	80.8	1.1	511	59	**74.6**	5.1	0.2	0.24	0.07
128	186	190	186	24.1	24.3	23.2	187	1.2	23.9	2.5	178	25	**23.7**	1.7	0.2	0.19	0.08
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	1550	1580	1560	191	192	186	1563	1.0	190	1.7	1104	213	**131.5**	7.4	1.7	1.05	0.07
149	333	336	334	88.6	88.6	87.3	334	0.5	88.2	0.9	320	43	**107**	8.4	0.2	0.17	0.03
151	139	141	140	27.7	27.9	27.5	140	0.7	27.7	0.7	134	20	**28.7**	5.2	0.2	0.14	0.05
153	2110	2150	2110	243	240	237	2123	1.1	240	1.3	1833	199	**213.0**	19	0.6	0.72	0.07
156	6.78	6.84	6.06	11.9	11.6	11.0	6.6	6.6	11.5	4.0	18.5	11	**10.3**	1.1	-2.6	-0.64	0.44
170 (+190)	262	275	267	50.2	50.5	48.0	268	2.4	49.6	2.8	218	27	**40.6**	2.6	0.9	0.86	0.16
180	939	989	964	151	151	146	964	2.6	149	1.9	798	87	**107**	5.3	0.8	0.97	0.17
183	235	240	237	41.9	41.7	40.3	237	1.1	41.3	2.1	231	30	**36.6**	4.1	0.1	0.11	0.07
187	489	497	488	128	129	125	491	1.0	127	1.6	436	62	**105**	9.1	0.5	0.45	0.07
194	180	186	181	60.1	63.1	58.1	182	1.8	60.4	4.2	165	16	**39.6**	2.5	0.4	0.58	0.12
195	42.0	43.4	41.5	10.5	10.6	10.0	42.3	2.3	10.4	3.1	40.0	9	**17.7**	4.3	0.2	0.15	0.16
201	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.7	52	**17.0**	0.89			
206	91.8	95.5	92.5	49.0	49.7	46.5	93.3	2.1	48.4	3.5	83.1	7.8	**31.1**	2.7	0.5	0.74	0.14
209	60.2	62.4	60.1	15.8	16.4	15.0	60.9	2.1	15.7	4.5	69.4	7.2	**10.6**	1.1	-0.5	-0.67	0.14
66	60.5	61.1	62.3	23.8	23.9	23.5	61.3	1.5	23.7	0.9	50.7	4	23.6	1.6	0.8	1.47	0.10
95	147	147	147	38.7	38.9	38.3	147	0.0	38.6	0.8	141	15	33.8	1.7	0.2	0.21	0.00

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	25	26	27
2 to 3	1	0	0
≥ 3	1	1	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 4**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	10/9/2001	10/9/2001	10/9/2001	10/2/2001	10/2/2001	10/2/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	172	175	169	78.2	79.9	86.4	172.1	1.9	81.5	5.3	83.1	22	**106**	14	4.3	2.2	0.13
4,4'-DDT	215	220	215	205	212	235	217	1.4	217	7.2	184	21	**245**	15	0.7	0.8	0.09
2,4'-DDE	153	152	147	37.0	37.8	40.6	151	2.3	38.5	4.8	110	28	**12.3**	0.87	1.5	0.8	0.15
4,4'-DDE	31900	31300	30700	510	498	513	31300	1.9	507	1.6	33401	6050	**445**	37	-0.3	-0.2	0.13
2,4'-DDD	111	112	106	27.1	26.9	23.4	109.5	2.6	25.8	8.0	45.7	14	**18.1**	2.8	5.6	2.6	0.17
4,4'-DDD	1120	1130	1120	112	113	111	1123	0.5	112	1.1	1005	138	**133**	10	0.5	0.4	0.03
HCB	1.12	1.25	1.51	33.3	31.7	36.4	1.29	16	33.8	7.1	1.89	1.4	**32.9**	1.7	-1.3	-0.3	1.04
α-HCH	coelution	coelution	coelution	coelution	coelution	coelution					6.43	1.0	**16.2**	3.4			
β-HCH	327	320	338	23.0	17.4	2.85	328	2.7	14.41	72.2	409	42.5	8.00	1.4	-0.8	-1.1	0.18
γ-HCH	4.58	4.48	4.54	6.40	25.03	3.91	4.54	1.1	11.78	98.0	6.87	1.64	**3.30**	0.81	-1.4	-0.8	0.08
Heptachlor Epoxide	98.7	98.5	95.9	14.9	15.7	13.4	97.7	1.6	14.7	7.8	99.8	18	**10.8**	1.3	-0.1	-0.1	0.11
***Cis*- Chlordane**	coelution	coelution	coelution	coelution	coelution	coelution					37.4	5.4	**46.9**	2.8			
***Trans*- Chlordane**	17.3	16.8	16.5	17.8	17.8	22.3	16.9	2.6	19.3	13.3	11.5	8.2	12.9	3.5	1.9	0.4	0.17
Oxychlordane	74.5	74.4	72.9	19.9	20.2	22.5	73.9	1.2	20.9	7.0	78.9	7.4	**19.8**	1.9	-0.3	-0.4	0.08
***Cis*- Nonachlor**	38.9	39.8	38.7	13.2	13.4	14.6	39.1	1.5	13.7	5.7	98.4	17	**48.7**	7.6	-2.4	-2.1	0.10
***Trans*- Nonachlor**	983	971	951	160	158	164	968	1.7	161	1.8	1238	150	**231**	11	-0.9	-0.9	0.11
Dieldrin	350	350	343	71.9	69.2	68.0	348	1.2	69.7	2.9	209	56	37.5	3.9	2.7	1.5	0.08
Mirex	63.2	71.1	69.1	36.4	36.9	40.1	67.8	6.1	37.8	5.4	43.7	7.5	**18.9**	2.8	2.2	2.0	0.40

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	11	13	16
2 to 3	3	3	0
≥ 3	2	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	0.67	0.64	0.66	65.1	66.7	68.6	0.7	2.73	66.8	2.66	6.4	2.08	74.3	0.45	-3.6	-2.8	0.18

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 4

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	10/9/2001	10/9/2001	10/9/2001	10/2/2001	10/2/2001	10/2/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	8.59	9.45	9.80	24.0	23.6	25.0	9.28	6.7	24.21	2.8	7.73	1.5	**4.48**	0.88	0.8	0.70	0.45
28	3.33	3.50	3.23	10.4	12.5	11.1	3.35	4.1	11.4	9.5	4.26	2.3	14.10	1.4	-0.9	-0.23	0.28
31	<LOD	<LOD	<LOD	5.93	7.58	3.57	<LOD	<LOD	5.70	35	3.28	2.6	3.12	0.69			
44	41.2	44.6	42.2	11.0	10.0	18.2	42.6	4.1	13.1	34	35.3	3.8	**12.2**	1.4	0.8	0.94	0.27
49	106	106	103	20.6	21.1	24.5	105	2.0	22.1	9.7	86.1	11	**20.8**	2.8	0.9	0.86	0.13
52	152	145	141	32.8	34.9	40.3	146	3.8	36.0	11	143	8	**43.6**	2.5	0.1	0.15	0.25
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5			
87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	157	20	**16.7**	1.4			
99	coelution	coelution	coelution	coelution	coelution	coelution					467	34	**45.4**	5.4			
101 (+90)	coelution	coelution	coelution	coelution	coelution	coelution					410	53	**65.2**	5.6			
105	192	222	186	26.4	26.7	29.5	200	9.8	27.5	6.3	161	19	**30.1**	2.3	1.0	0.93	0.65
118	581	588	575	83.8	85.2	93.1	581	1.1	87.4	5.7	511	59	**74.6**	5.1	0.6	0.55	0.08
128	259	239	233	132.1	133.2	142.6	243	5.6	136.0	4.2	178	25	**23.7**	1.7	1.5	1.31	0.38
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	1180	1190	1150	161	162	173	1173	1.8	166	4.1	1104	213	**131.5**	7.4	0.3	0.16	0.12
149	388	394	376	87.7	88.7	94.6	386	2.4	90.3	4.1	320	43	**107**	8.4	0.8	0.77	0.16
151	283	285	274	112	113	119	280	2.1	114.5	3.6	134	20	**28.7**	5.2	4.3	3.75	0.14
153	1490	1490	1440	180	181	194	1473	2.0	185	4.1	1833	199	**213.0**	19	-0.8	-0.89	0.13
156	<LOD	<LOD	<LOD	12.0	11.8	13.2	<LOD	<LOD	12.3	6.2	18.5	11	**10.3**	1.1			
170 (+190)	262	264	259	42.8	37.8	40.5	262	1.0	40.3	6.2	218	27	**40.6**	2.6	0.8	0.75	0.06
180	677	675	660	134	132	139	671	1.4	135	2.9	798	87	**107**	5.3	-0.6	-0.74	0.09
183	316	319	308	61.3	62.0	66.1	314	2.0	63.1	4.0	231	30	**36.6**	4.1	1.4	1.46	0.13
187	458	463	445	132	134	142	455	2.1	136	3.9	436	62	**105**	9.1	0.2	0.16	0.14
194	209	211	207	69.3	70.0	76.2	209	1.0	71.8	5.2	165	16	**39.6**	2.5	1.1	1.45	0.06
195	47.3	48.5	44.9	9.0	8.4	10.2	46.9	3.9	9.19	10	40.0	9	**17.7**	4.3	0.7	0.44	0.26
201	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.7	52	**17.0**	0.89			
206	87.6	94.1	92.0	40.2	40.3	44.0	91.2	3.6	41.5	5.2	83.1	7.8	**31.1**	2.7	0.4	0.59	0.24
209	86.4	88.1	87.1	23.7	24.7	27.9	87.2	1.0	25.4	8.6	69.4	7.2	**10.6**	1.1	1.0	1.41	0.07
66	54.7	53.3	50.4	19.1	19.5	24.3	52.8	4.1	21.0	14	50.7	4	23.6	1.6	0.2	0.29	0.27
95	193	196	190	43.3	46.1	48.1	193	1.6	45.9	5.3	141	15	33.8	1.7	1.5	1.89	0.11

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	21	21	22
2 to 3	0	0	0
≥ 3	1	1	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 5**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/19/2001	7/19/2001	7/20/2001	7/19/2001	7/19/2001	7/19/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	58.8	87.6	67.6	90.9	94.2	93.7	71.3	20.7	92.9	1.9	83.1	22	**106**	14	-0.6	-0.3	1.38
4,4'-DDT	185	232	188	252	225	253	202	13.0	243	6.5	184	21	**245**	15	0.4	0.4	0.87
2,4'-DDE	113	114	113	8.87	6.53	6.50	113	0.5	7.30	19	110	28	**12.3**	0.87	0.1	0.1	0.03
4,4'-DDE	25600	26300	26100	425	458	435	26000	1.4	439	3.9	33401	6050	**445**	37	-0.9	-0.6	0.09
2,4'-DDD	52.3	53.7	45.8	28.2	23.9	27.5	50.6	8.3	26.5	8.7	45.7	14	**18.1**	2.8	0.4	0.2	0.56
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1005	138	**133**	10			
HCB	0.150	0.150	0.120	21.4	24.7	23.3	0.140	12.4	23.1	7.2	1.89	1.4	**32.9**	1.7	-3.7	-1.0	0.82
α-HCH	5.51	5.73	5.41	13.1	13.0	14.1	5.55	2.9	13.4	4.5	6.43	1.0	**16.2**	3.4	-0.5	-0.5	0.20
β-HCH	344	372	307	1.87	1.90	1.96	341	9.6	1.91	2.4	409	42.5	8.00	1.4	-0.7	-0.9	0.64
γ-HCH	6.29	5.30	6.43	2.33	2.38	2.57	6.01	10.3	2.43	5.2	6.87	1.64	**3.30**	0.81	-0.5	-0.3	0.68
Heptachlor Epoxide	105	111	107	10.1	9.3	9.8	108	2.8	9.75	4.0	99.8	18	**10.8**	1.3	0.3	0.3	0.19
***Cis*- Chlordane**	39.4	44.8	49.0	46.2	42.4	46.8	44.4	10.8	45.1	5.3	37.4	5.4	**46.9**	2.8	0.7	0.7	0.72
***Trans*- Chlordane**	10.3	10.7	11.6	14.8	12.6	14.3	10.9	6.1	13.9	8.3	11.5	8.2	12.9	3.5	-0.2	0.0	0.41
Oxychlordane	56.0	64.0	54.4	21.9	20.5	22.3	58.1	8.8	21.6	4.4	78.9	7.4	**19.8**	1.9	-1.1	-1.6	0.59
***Cis*- Nonachlor**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98.4	17	**48.7**	7.6			
***Trans*- Nonachlor**	1020	1090	915	163	166	170	1008	8.7	166	2.1	1238	150	**231**	11	-0.7	-0.8	0.58
Dieldrin	159	173	162	49.0	46.1	50.6	165	4.5	48.6	4.7	209	56	37.5	3.9	-0.8	-0.5	0.30
Mirex	41.5	41.2	40.0	29.1	34.6	30.9	40.9	1.9	31.5	8.9	43.7	7.5	**18.9**	2.8	-0.3	-0.2	0.13

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	15	16	16
2 to 3	0	0	0
≥ 3	1	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	6.14	6.11	6.13	73.5	81.2	72.2	6.1	0.25	75.6	6.44	6.4	2.08	74.3	0.45	-0.2	-0.1	0.02

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 5

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/19/2001	7/19/2001	7/20/2001	7/19/2001	7/19/2001	7/19/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	10.60	9.56	9.50	3.81	4.47	4.11	9.89	6.3	4.13	8.0	7.73	1.5	**4.48**	0.88	1.1	0.97	0.42
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.26	2.3	14.10	1.4			
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.28	2.6	3.12	0.69			
44	40.1	36.6	36.8	13.3	14.8	14.2	37.8	5.2	14.1	5.4	35.3	3.8	**12.2**	1.4	0.3	0.33	0.35
49	90.5	87.0	86.9	18.4	20.2	19.2	88.1	2.3	19.3	4.7	86.1	11	**20.8**	2.8	0.1	0.09	0.16
52	138	132	132	37.3	41.2	39.1	134	2.6	39.2	5.0	143	8	**43.6**	2.5	-0.3	-0.52	0.17
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5			
87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20	**16.7**	1.4			
99	409	403	400	58.9	66.2	62.5	404	1.1	62.5	5.8	467	34	**45.4**	5.4	-0.5	-0.98	0.08
101 (+90)	387	379	376	71.3	79.7	75.4	381	1.5	75.5	5.6	410	53	**65.2**	5.6	-0.3	-0.27	0.10
105	166	170	161	25.4	27.8	26.1	166	2.7	26.4	4.7	161	19	**30.1**	2.3	0.1	0.12	0.18
118	538	540	534	78.2	88.4	83.7	537	0.6	83.4	6.1	511	59	**74.6**	5.1	0.2	0.21	0.04
128	172	173	170	20.1	23.3	21.6	172	0.9	21.7	7.4	178	25	**23.7**	1.7	-0.1	-0.13	0.06
132	110	104	110	14.7	17.8	16.9	108.0	3	16.5	10	160	68	29.1	6.0	-1.3	-0.67	0.21
138 (+163+164)	1000	1010	1000	126	144	134	1003	0.6	135	6.7	1104	213	**131.5**	7.4	-0.4	-0.23	0.04
149	334	334	333	78.2	88.0	83.2	334	0.2	83.1	5.9	320	43	**107**	8.4	0.2	0.16	0.01
151	136	139	134	23.7	26.4	24.2	136	1.8	24.8	5.8	134	20	**28.7**	5.2	0.1	0.05	0.12
153	1540	1540	1529	180	203	191	1536	0.4	191	6.0	1833	199	**213.0**	19	-0.6	-0.73	0.03
156	<LOD	<LOD	<LOD	9.2	11.3	10.7	<LOD	<LOD	10.4	10.7	18.5	11	**10.3**	1.1			
170 (+190)	233	237	234	40.3	47.3	43.2	235	0.9	43.6	8.1	218	27	**40.6**	2.6	0.3	0.29	0.06
180	726	735	731	126	144	133	731	0.6	134	6.8	798	87	**107**	5.3	-0.3	-0.39	0.04
183	216	220	217	34.1	39.1	36.3	218	1.0	36.5	6.9	231	30	**36.6**	4.1	-0.2	-0.23	0.06
187	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	436	62	**105**	9.1			
194	154	160	160	51.2	60.0	54.1	158	2.2	55.1	8.1	165	16	**39.6**	2.5	-0.2	-0.21	0.15
195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40.0	9	**17.7**	4.3			
201	42.6	38.0	41.0	22.2	28.0	24.0	40.5	5.8	24.7	12.0	87.7	52	**17.0**	0.89	-2.2	-0.60	0.38
206	74.5	85.3	86.9	44.6	51.3	47.1	82.2	8.2	47.7	7.1	83.1	7.8	**31.1**	2.7	0.0	-0.06	0.55
209	48.8	65.2	69.6	19.8	20.1	20.0	61.2	17.9	20.0	0.8	69.4	7.2	**10.6**	1.1	-0.5	-0.65	1.19
66	53.1	48.3	44.2	18.3	20.2	21.7	48.5	9.2	20.1	8.5	50.7	4	23.6	1.6	-0.2	-0.30	0.61
95	143	142	148	41.2	46.3	40.3	144	2.2	42.6	7.6	141	15	33.8	1.7	0.1	0.11	0.15

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	22	23	23
2 to 3	1	0	0
≥ 3	0	0	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 6**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	NA	NA	NA	NA	NA	NA	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	22	**106**	14			
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	184	21	**245**	15			
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	28	**12.3**	0.87			
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33401	6050	**445**	37			
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.7	14	**18.1**	2.8			
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1005	138	**133**	10			
HCB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.89	1.4	**32.9**	1.7			
α-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.43	1.0	**16.2**	3.4			
β-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	409	42.5	8.00	1.4			
γ-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.87	1.64	**3.30**	0.81			
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.8	18	**10.8**	1.3			
***Cis*- Chlordane**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37.4	5.4	**46.9**	2.8			
***Trans*- Chlordane**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.5	8.2	12.9	3.5			
Oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	78.9	7.4	**19.8**	1.9			
***Cis*- Nonachlor**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98.4	17	**48.7**	7.6			
***Trans*- Nonachlor**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1238	150	**231**	11			
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	209	56	37.5	3.9			
Mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.7	7.5	**18.9**	2.8			

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	0	0	0
2 to 3	0	0	0
≥ 3	0	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	6.90	6.93	7.12	77.1	76.3	76.2	7.0	1.71	76.5	0.64	6.4	2.08	74.3	0.45	0.4	0.3	0.11

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 6

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	10/4/2001	10/4/2001	10/4/2001	10/4/2001	10/4/2001	10/4/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	4.37	4.92	5.01	1.88	1.81	1.74	4.77	7.3	1.81	3.9	7.73	1.5	**4.48**	0.88	-1.5	-1.34	0.48
28	4.80	NA	5.06	15.7	15.1	14.9	4.93	3.7	15.2	2.7	4.26	2.3	14.10	1.4	0.6	0.17	0.25
31	2.09	NA	2.20	4.84	4.88	5.03	2.15	3.6	4.92	2	3.28	2.6	3.12	0.69	-1.4	-0.34	0.24
44	43.7	45.3	45.4	13.0	13.6	12.5	44.8	2.1	13.0	4.2	35.3	3.8	**12.2**	1.4	1.1	1.21	0.14
49	106	108	108	18.2	18.3	17.3	107.3	1.1	17.9	3.1	86.1	11	**20.8**	2.8	1.0	0.97	0.07
52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	143	8	**43.6**	2.5			
66/95*	see below	see below	see below	see below	see below	see below	NA	NA	NA	NA	192	21	**57.4**	2.5			
87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	157	20	**16.7**	1.4			
99	563	543	585	61.7	64.5	60.7	564	3.7	62.3	3.2	467	34	**45.4**	5.4	0.8	1.49	0.25
101 (+90)	535	521	564	86.4	91.7	87.9	540	4.1	88.7	3.1	410	53	**65.2**	5.6	1.3	1.21	0.27
105	187	191	189	26.6	27.5	28.4	189	1.1	27.5	3.3	161	19	**30.1**	2.3	0.7	0.68	0.07
118	460	493	478	62.5	65.0	64.1	477	3.5	63.9	2.0	511	59	**74.6**	5.1	-0.3	-0.26	0.23
128	221	218	228	22.7	24.1	24.6	222	2.3	23.8	4.1	178	25	**23.7**	1.7	1.0	0.89	0.15
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1104	213	**131.5**	7.4			
149	447	522	539	104	124	167	503	9.7	131.7	24.4	320	43	**107**	8.4	2.3	2.14	0.65
151	170	195	214	31.7	35.9	52.9	193	11.4	40.2	27.9	134	20	**28.7**	5.2	1.7	1.51	0.76
153	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1833	199	**213.0**	19			
156	7.00	7.00	6.93	10.2	10.8	11.0	7.0	0.6	10.7	3.9	18.5	11	**10.3**	1.1	-2.5	-0.61	0.04
170 (+190)	259	240	249	38.2	36.5	29.6	249	3.8	34.8	13.1	218	27	**40.6**	2.6	0.6	0.54	0.25
180	994	1040	1050	160	164	164	1028	2.9	163	1.4	798	87	**107**	5.3	1.2	1.34	0.19
183	257	288	295	40.1	44.1	48.8	280	7.2	44.3	9.8	231	30	**36.6**	4.1	0.8	0.86	0.48
187	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	436	62	**105**				
194	210	211	216	63.4	64.5	65.5	212	1.5	64.5	1.6	165	16	**39.6**	2.5	1.2	1.56	0.10
195	37.8	44.0	45.1	9.11	10.4	12.6	42.3	9.3	10.7	16.5	40.0	9	**17.7**	4.3	0.2	0.15	0.62
201	234.0	280.0	269.0	81.6	96.3	115.0	261.0	9.2	97.6	17.1	87.7	52	**17.0**	0.89	7.9	2.19	0.61
206	108.0	111.0	108.0	51.4	60.1	57.6	109.0	1.6	56.4	7.9	83.1	7.8	**31.1**	2.7	1.2	1.89	0.11
209	78.8	79.1	80.0	19.9	20.8	20.5	79.3	0.8	20.4	2.2	69.4	7.2	**10.6**	1.1	0.6	0.78	0.05
66	38.2	NA	37.6	15.0	15.6	14.9	37.9	1.1	15.2	2.5	50.7	4	23.6	1.6	-1.0	-1.77	0.07
95	155	141	167	34.2	35.4	36.2	154	8.4	35.3	2.9	141	15	33.8	1.7	0.4	0.48	0.56

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	20	21	23
2 to 3	2	2	0
≥ 3	1	0	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 7**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	11/10/2001	11/10/2001	11/10/2001	11/10/2001	11/10/2001	11/10/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	160	170	170	120	120	130	166.7	3.5	123	4.7	83.1	22	**106**	14	4.0	2.1	0.23
4,4'-DDT	96.0	91.0	100	220	240	230	95.7	4.7	230	4.3	184	21	**245**	15	-1.9	-2.1	0.31
2,4'-DDE	24.0	33.0	32.0	18.0	20.0	21.0	29.7	17	19.7	7.8	110	28	**12.3**	0.87	-2.9	-1.5	1.11
4,4'-DDE	18200	17200	20629	450	530	550	18676	9.4	510	10	33401	6050	**445**	37	-1.8	-1.2	0.63
2,4'-DDD	30.0	29.0	31.0	19.0	26.0	28.0	30.0	3.3	24.3	19	45.7	14	**18.1**	2.8	-1.4	-0.7	0.22
4,4'-DDD	500	490	460	100	100	110	483	4.3	103	5.6	1005	138	**133**	10	-2.1	-2.0	0.29
HCB	<1	<1	<1	24.0	24.0	22.0	<1	<1	23.3	4.9	1.89	1.4	**32.9**	1.7			
α-HCH	4.00	4.00	5.00	27.0	29.0	30.0	4.33	13	28.7	5.3	6.43	1.0	**16.2**	3.4	-1.3	-1.2	0.89
β-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	409	42.5	8.00	1.4			
γ-HCH	3.00	3.00	3.00	19.0	20.0	20.0	3.00	0.0	19.7	2.9	6.87	1.64	**3.30**	0.81	-2.3	-1.3	0.00
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.8	18	**10.8**	1.3			
***Cis*- Chlordane**	22.0	24.0	25.0	49.0	53.0	53.0	23.7	6.5	51.7	4.5	37.4	5.4	**46.9**	2.8	-1.5	-1.4	0.43
***Trans*- Chlordane**	5.0	4.0	4.0	22.0	24.0	26.0	4.33	13	24.0	8.3	11.5	8.2	12.9	3.5	-2.5	-0.5	0.89
Oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	78.9	7.4	**19.8**	1.9			
***Cis*- Nonachlor**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98.4	17	**48.7**	7.6			
***Trans*- Nonachlor**	640	650	680	130	150	160	657	3.2	147	10.4	1238	150	**231**	11	-1.9	-2.0	0.21
Dieldrin	<1	<1	<1	92.0	150.0	440.0	<1	<1	227	82	209	56	37.5	3.9			
Mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.7	7.5	**18.9**	2.8			

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	6	8	11
2 to 3	4	3	0
≥ 3	1	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	3.40	NA	NA	71.7	NA	NA	3.4		71.7		6.4	2.08	74.3	0.45	-1.9	-1.5	0.00

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 7**
SAMPLES: MMQA V AND SRM 1945

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	11/10/2001	11/10/2001	11/10/2001	11/10/2001	11/10/2001	11/10/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	55.0	53.0	55.0	3.00	3.00	3.00	54.3	2.1	3.00	0.0	7.73	1.5	**4.48**	0.88	24.1	21.0	0.14
28	2.00	1.00	2.00	15.0	16.0	15.0	1.67	35	15.3	3.8	4.26	2.3	14.10	1.4	-2.4	-0.67	2.31
31	<1	<1	<1	2	2	2	<1	<1	2.0	0	3.28	2.6	3.12	0.69			
44	19.0	16.0	18.0	<1	<1	<1	17.7	8.6	<1	<1	35.3	3.8	**12.2**	1.4	-2.0	-2.24	0.58
49	43.0	42.0	46.0	<1	2.0	1.0	43.7	4.8	1.50	47	86.1	11	**20.8**	2.8	-2.0	-1.94	0.32
52	67.0	58.0	64.0	18.0	20.0	18.0	63.0	7.3	18.7	6.2	143	8	**43.6**	2.5	-2.2	-4.63	0.48
66/95*	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	192	21	**57.4**	2.5			
87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	157	20	**16.7**	1.4			
99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	467	34	**45.4**	5.4			
101 (+90)	180	180	210	61.0	65.0	65.0	190	9.1	63.7	3.6	410	53	**65.2**	5.6	-2.1	-2.04	0.61
105	73	60	68	42.0	44.0	44.0	67.0	9.8	43.3	2.7	161	19	**30.1**	2.3	-2.3	-2.25	0.65
118	250	230	250	83.0	89.0	97.0	243	4.7	89.7	7.8	511	59	**74.6**	5.1	-2.1	-2.10	0.32
128	85.0	71.0	86.0	23.0	25.0	25.0	80.7	10	24.3	4.7	178	25	**23.7**	1.7	-2.2	-1.94	0.69
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	490	520	590	160	160	170	533	9.6	163	3.5	1104	213	**131.5**	7.4	-2.1	-1.31	0.64
149	160	130	150	71.0	76.0	77.0	147	10	74.7	4.3	320	43	**107**	8.4	-2.2	-2.03	0.69
151	60	58	59	23.0	25.0	26.0	59.0	1.7	24.7	6.2	134	20	**28.7**	5.2	-2.2	-1.94	0.11
153	870	770	880	210	210	220	840	7.2	213	2.7	1833	199	**213.0**	19	-2.2	-2.45	0.48
156	<1	<1	<1	19.0	19.0	20.0	<1	<1	19.3	3.0	18.5	11	**10.3**	1.1			
170 (+190)	120	110	120	42.0	44.0	45.0	117	4.9	43.7	3.5	218	27	**40.6**	2.6	-1.9	-1.75	0.33
180	380	350	420	150	170	170	383	9.2	163	7.1	798	87	**107**	5.3	-2.1	-2.42	0.61
183	110	97	110	46.0	47.0	48.0	106	7.1	47.0	2.1	231	30	**36.6**	4.1	-2.2	-2.20	0.47
187	220	210	240	110	120	130	223	6.8	120	8.3	436	62	**105**	9.1	-2.0	-1.75	0.46
194	52.0	45.0	51.0	37.0	38.0	41.0	49.3	7.7	38.7	5.4	165	16	**39.6**	2.5	-2.8	-3.75	0.51
195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40.0	9	**17.7**	4.3			
201	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.7	52	**17.0**	0.89			
206	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	7.8	**31.1**	2.7			
209	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.4	7.2	**10.6**	1.1			
66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.7	4	23.6	1.6			
95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	141	15	33.8	1.7			

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	4	7	17
2 to 3	13	8	1
≥ 3	1	3	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 8**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	8/10/2001	8/10/2001		8/10/2001	8/10/2001	8/10/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	65.7	64.8	NA	79.5	87.5	82.1	65.2	1.0	83.0	4.9	83.1	22	**106**	14	-0.9	-0.4	0.07
4,4'-DDT	204	207	NA	245	271	245	206	1.0	254	5.9	184	21	**245**	15	0.5	0.5	0.07
2,4'-DDE	97.9	98.7	NA	12.5	12.7	11.8	98.3	0.6	12.3	3.8	110	28	**12.3**	0.87	-0.4	-0.2	0.04
4,4'-DDE	33533	32256	NA	469	496	471	32895	2.7	479	3.2	33401	6050	**445**	37	-0.1	0.0	0.18
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.7	14	**18.1**	2.8			
4,4'-DDD	1108	1083	NA	107	124	105	1096	1.6	112	9.1	1005	138	**133**	10	0.4	0.3	0.11
HCB	0.08	0.09	NA	25.8	25.3	23.3	0.09	8.3	24.8	5.3	1.89	1.4	**32.9**	1.7	-3.8	-1.0	0.55
α-HCH	4.07	3.80	NA	12.8	13.1	11.3	3.94	4.9	12.4	7.8	6.43	1.0	**16.2**	3.4	-1.6	-1.4	0.32
β-HCH	315	335	NA	1.95	2.07	1.68	325	4.3	1.90	11	409	42.5	8.00	1.4	-0.8	-1.1	0.29
γ-HCH	6.10	6.13	NA	2.79	2.80	2.16	6.12	0.3	2.58	14	6.87	1.64	**3.30**	0.81	-0.4	-0.3	0.02
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.8	18	**10.8**	1.3			
***Cis*- Chlordane**	32.6	33.5	NA	46.3	48.1	47.2	33.1	1.9	47.2	1.9	37.4	5.4	**46.9**	2.8	-0.5	-0.4	0.13
***Trans*- Chlordane**	1.26	1.37	NA	11.0	11.5	11.2	1.32	5.9	11.2	2.0	11.5	8.2	12.9	3.5	-3.5	-0.8	0.39
Oxychlordane	77.6	70.6	NA	23.1	23.8	23.3	74.1	6.7	23.4	1.6	78.9	7.4	**19.8**	1.9	-0.2	-0.4	0.45
***Cis*- Nonachlor**	230	232	NA	97.9	100	96.2	231	0.6	98.0	2.0	98.4	17	**48.7**	7.6	5.4	4.7	0.04
***Trans* -Nonachlor**	1201	1215	NA	164	176	158	1208	0.9	166	5.4	1238	150	**231**	11	-0.1	-0.1	0.06
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	209	56	37.5	3.9			
Mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.7	7.5	**18.9**	2.8			

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	11	13	14
2 to 3	0	0	0
≥ 3	3	1	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	7.22	6.46		72.9	74.3	73.5	6.8	7.86	73.6	0.99	6.4	2.08	74.3	0.45	0.3	0.2	0.52

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 8

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	8/10/2001	8/10/2001		8/10/2001	8/10/2001	8/10/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.73	1.5	**4.48**	0.88			
28	2.34	1.75	NA	8.6	8.4	8.0	2.05	20.4	8.3	3.4	4.26	2.3	14.10	1.4	-2.1	-0.57	1.36
31	13.7	6.04	NA	5.83	5.78	5.04	9.9	55	5.6	8	3.28	2.6	3.12	0.69	8.0	1.99	3.65
44	36.0	35.9	NA	12.1	12.3	11.8	36.0	0.2	12.1	2.2	35.3	3.8	**12.2**	1.4	0.1	0.09	0.01
49	88.4	87.8	NA	16.8	17.2	16.0	88.1	0.5	16.7	3.8	86.1	11	**20.8**	2.8	0.1	0.09	0.04
52	132	135	NA	34.3	35.3	32.5	134	1.8	34.0	4.1	143	8	**43.6**	2.5	-0.3	-0.54	0.12
66/95*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	192	21	**57.4**	2.5			
87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	157	20	**16.7**	1.4			
99	469	467	NA	54.0	55.3	52.5	468	0.3	54.0	2.6	467	34	**45.4**	5.4	0.0	0.01	0.02
101 (+90)	473	470	NA	79.7	82.5	77.0	471	0.4	79.7	3.4	410	53	**65.2**	5.6	0.6	0.57	0.03
105	177	183	NA	27.7	30.6	27.9	180	2.7	28.8	5.6	161	19	**30.1**	2.3	0.5	0.46	0.18
118	561	549	NA	78.2	84.9	77.3	555	1.6	80.1	5.2	511	59	**74.6**	5.1	0.3	0.35	0.11
128	195	197	NA	22.6	24.3	21.8	196	0.8	22.9	5.5	178	25	**23.7**	1.7	0.4	0.36	0.05
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	1105	1095	NA	140	146	134	1100	0.6	140	4.2	1104	213	**131.5**	7.4	0.0	-0.01	0.04
149	326	330	NA	79.6	82.1	74.7	328	0.8	78.8	4.8	320	43	**107**	8.4	0.1	0.10	0.05
151	139	142	NA	24.6	27.0	24.4	140	1.5	25.3	5.8	134	20	**28.7**	5.2	0.2	0.15	0.10
153	1968	2002	NA	214	234	213	1985	1.2	220	5.4	1833	199	**213.0**	19	0.3	0.38	0.08
156	33.6	29.1	NA	13.1	13.5	13.0	31.4	10.1	13.2	2.1	18.5	11	**10.3**	1.1	2.8	0.69	0.67
170 (+190)	276	289	NA	42.9	51.3	44.5	283	3.3	46.2	9.6	218	27	**40.6**	2.6	1.2	1.11	0.22
180	877	887	NA	150	162	152	882	0.8	155	4.3	798	87	**107**	5.3	0.4	0.49	0.05
183	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	231	30	**36.6**	4.1			
187	657	667	NA	173	188	175	662	1.1	178	4.5	436	62	**105**	9.1	2.1	1.85	0.07
194	172	184	NA	60.0	61.3	57.3	178	4.9	59.6	3.4	165	16	**39.6**	2.5	0.3	0.45	0.33
195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40.0	9	**17.7**	4.3			
201	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.7	52	**17.0**	0.89			
206	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	7.8	**31.1**	2.7			
209	67.6	71.3	NA	20.4	19.4	17.9	69.5	3.7	19.2	6.8	69.4	7.2	**10.6**	1.1	0.0	0.01	0.25
66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.7	4	23.6	1.6			
95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	141	15	33.8	1.7			

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	16	20	19
2 to 3	3	0	0
≥ 3	1	0	1

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 9**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	9/10/2001	9/10/2001	9/10/2001	9/10/2001	9/10/2001	9/10/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	64.4	70.1	64.8	59.0	69.5	58.0	66.4	4.8	62.2	10	83.1	22	**106**	14	-0.8	-0.4	0.32
4,4'-DDT	258	254	243	118	137	121	252	3.1	125	8.1	184	21	**245**	15	1.5	1.7	0.21
2,4'-DDE	158	164	158	22.5	22.4	11.9	160	2.2	18.9	32	110	28	**12.3**	0.87	1.8	1.0	0.14
4,4'-DDE	25500	25100	25500	426	456	443	25367	0.9	442	3.4	33401	6050	**445**	37	-1.0	-0.7	0.06
2,4'-DDD	334	338	299	78.8	59.0	53.4	324	6.6	63.7	21	45.7	14	**18.1**	2.8	24.3	11.5	0.44
4,4'-DDD	1080	1080	1010	80.8	93.8	97.2	1057	3.8	90.6	9.6	1005	138	**133**	10	0.2	0.2	0.25
HCB	<2	2	2	25.2	30.5	22.3	2.36	3.6	26.0	16.0	1.89	1.4	**32.9**	1.7	1.0	0.3	0.24
α-HCH	7.40	6.20	6.10	16.0	29.1	11.1	6.57	11	18.7	50	6.43	1.0	**16.2**	3.4	0.1	0.1	0.73
β-HCH	429	460	411	<2	<2	<1	433	5.7	<2	<2	409	42.5	8.00	1.4	0.2	0.3	0.38
γ-HCH	7.60	8.20	8.30	10.80	7.80	4.38	8.03	4.7	7.66	41.9	6.87	1.64	**3.30**	0.81	0.7	0.4	0.31
Heptachlor Epoxide	52.9	89.7	53.4	<2	<2	4.0	65.3	32	4.00		99.8	18	**10.8**	1.3	-1.4	-1.1	2.15
Cis-Chlordane	31.5	37.4	33.7	38.1	39.3	39.8	34.2	8.7	39.1	2.2	37.4	5.4	**46.9**	2.8	-0.3	-0.3	0.58
Trans-Chlordane	5.43	4.48	7.48	7.5	8.9	10.1	5.80	26	8.83	15	11.5	8.2	12.9	3.5	-2.0	-0.4	1.76
Oxychlordane	91.9	71.5	68.1	13.1	14.5	13.9	77.2	17	13.8	5.1	78.9	7.4	**19.8**	1.9	-0.1	-0.1	1.11
Cis-Nonachlor	107	117	105	23.1	25.2	25.3	110	5.9	24.5	5.1	98.4	17	**48.7**	7.6	0.5	0.4	0.39
Trans-Nonachlor	1190	1270	1120	138	145	131	1193	6.3	138	5.1	1238	150	**231**	11	-0.1	-0.2	0.42
Dieldrin	19.0	26.3	12.5	40.1	41.7	10.4	19.3	36	30.7	57	209	56	37.5	3.9	-3.6	-2.0	2.39
Mirex	41.7	46.9	35.4	27.1	29.8	30.6	41.3	14	29.2	6.3	43.7	7.5	**18.9**	2.8	-0.2	-0.2	0.93

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	16	17	16
2 to 3	0	0	2
≥ 3	2	1	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	6.62	9.46	10.31	75.7	70.6	82.0	8.8	21.97	76.1	7.50	6.4	2.08	74.3	0.45	1.5	1.1	1.46

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 9**
SAMPLES: MMQA V AND SRM 1945

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	9/10/2001	9/10/2001	9/10/2001	9/10/2001	9/10/2001	9/10/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	8.84	16.7	9.60	<2	<2	<2	11.7	37	<2	<2	7.73	1.5	**4.48**	0.88	2.1	1.79	2.47
28	36.2	30.0	57.3	46.7	47.2	11.6	41.2	35	35.2	58.0	4.26	2.3	14.10	1.4	34.7	9.48	2.32
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.28	2.6	3.12	0.69			
44	30.9	25.5	30.8	24.7	12.8	5.40	29.1	11	14.3	68.1	35.3	3.8	**12.2**	1.4	-0.7	-0.79	0.71
49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	86.1	11	**20.8**	2.8			
52	160	168	146	41.8	42.0	27.3	158	7.0	37.0	22.8	143	8.5	**43.6**	2.5	0.4	0.86	0.47
66/95*	108	107	106	22.2	23.4	21.0	107	0.9	22.2	5.4	192	21	**57.4**	2.5	-1.8	-2.17	0.06
87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	157	20	**16.7**	1.4			
99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	467	34	**45.4**	5.4			
101 (+90)	599	588	545	115	122	108	577	4.9	115	6.1	410	53	**65.2**	5.6	1.6	1.56	0.33
105	125	159	149	35.0	67.4	33.2	144	12	45.2	43	161	19	**30.1**	2.3	-0.4	-0.39	0.81
118	511	505	473	73.2	74.0	68.4	496	4.1	71.9	4.2	511	59	**74.6**	5.1	-0.1	-0.11	0.27
128	216	226	203	32.7	29.8	28.0	215	5.4	30.2	7.9	178	25	**23.7**	1.7	0.8	0.74	0.36
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	1390	1380	1302	131	140	109	1357	3.5	127	13	1104	213	**131.5**	7.4	0.9	0.58	0.24
149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	320	43	**107**	8.4			
151	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	134	20	**28.7**	5.2			
153	1910	1910	1782	166	177	171	1867	4.0	171	3.2	1833	199	**213.0**	19	0.1	0.09	0.26
156	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.5	11	**10.3**	1.1			
170 (+190)	229	229	210	58.5	63.9	52.1	223	4.9	58.2	10	218	27	**40.6**	2.6	0.1	0.08	0.33
180	792	788	731	101	110	91	770	4.4	101	9.5	798	87	**107**	5.3	-0.1	-0.16	0.30
183	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	231	30	**36.6**	4.1			
187	394	396	392	98.7	107	95.2	394	0.5	100	6.0	436	62	**105**	9.1	-0.4	-0.35	0.03
194	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	165	16	**39.6**	2.5			
195	29.7	30.3	31.1	2.80	0.802	2.40	30.4	2.3	2.00	52.8	40.0	9	**17.7**	4.3	-1.0	-0.61	0.15
201	NA	NA	NA	NA	NA	2.6	NA	NA	NA	NA	87.7	52	**17.0**	0.89			
206	70.6	69.4	65.2	30.0	31.2	23.6	68.4	4.1	28.3	14	83.1	7.8	**31.1**	2.7	-0.7	-1.07	0.28
209	69.9	73.1	69.1	11.3	9.6	4.8	70.7	3.0	8.57	39	69.4	7.2	**10.6**	1.1	0.1	0.10	0.20
66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.7	4	23.6	1.6			
95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	141	15	33.8	1.7			

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	15	15	15
2 to 3	1	1	2
≥ 3	1	1	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 10**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	8/19-22/01	8/19-22/01	8/19-22/01	8/19-22/01	8/19-22/01	8/19-22/01	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	22	**106**	14			
4,4'-DDT	200	205	214	255	251	321	206	3.4	276	14	184	21	**245**	15	0.5	0.6	0.23
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	28	**12.3**	0.87			
4,4'-DDE	46600	50400	54400	722	711	710	50467	7.7	714	0.9	33401	6050	**445**	37	2.0	1.4	0.52
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.7	14	**18.1**	2.8			
4,4'-DDD	930	924	1000	127	132	131	951	4.4	130	2.0	1005	138	**133**	10	-0.2	-0.2	0.30
HCB	<5	<5	<5	28.2	28.2	28.7	<5	<5	28.4	1.0	1.89	1.4	**32.9**	1.7			
α-HCH	7.29	7.79	8.16	14.7	15.1	15.5	7.75	5.6	15.1	2.6	6.43	1.0	**16.2**	3.4	0.8	0.8	0.38
β-HCH	322	399	388	1.31	1.42	1.37	370	11	1.37	4.0	409	42.5	8.00	1.4	-0.4	-0.5	0.75
γ-HCH	6.81	6.98	7.20	2.64	2.62	2.65	7.00	2.8	2.64	0.6	6.87	1.64	**3.30**	0.81	0.1	0.0	0.19
Heptachlor Epoxide	108	95.9	102	12.3	11.8	11.6	102	5.9	11.9	3.0	99.8	18	**10.8**	1.3	0.1	0.1	0.40
Cis-Chlordane	34.3	36.3	37.0	52.5	54.7	56.1	35.9	3.9	54.4	3.3	37.4	5.4	**46.9**	2.8	-0.2	-0.2	0.26
Trans-Chlordane	9.9	8.15	10.8	14.0	13.2	14.3	9.60	14	13.8	4.1	11.5	8.2	12.9	3.5	-0.7	-0.1	0.93
Oxychlordane	73.5	77.3	83.1	18.2	18.9	19.3	78.0	6.2	18.8	3.0	78.9	7.4	**19.8**	1.9	0.0	-0.1	0.41
Cis-Nonachlor	122	108	129	51.4	60.0	53.9	120	8.9	55.1	8.0	98.4	17	**48.7**	7.6	0.9	0.8	0.60
Trans-Nonachlor	1240	1330	1590	222	223	224	1387	13	223	0.4	1238	150	**231**	11	0.5	0.5	0.87
Dieldrin	201	258	281	59.7	61.0	57.8	247	17	59.5	2.7	209	56	37.5	3.9	0.7	0.4	1.11
Mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.7	7.5	**18.9**	2.8			

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	12	13	13
2 to 3	1	0	0
≥ 3	0	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	6.37	6.59	6.80	72.5	73.0	73.6	6.6	3.26	73.0	0.75	6.4	2.08	74.3	0.45	0.1	0.1	0.22

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 10**
SAMPLES: MMQA V AND SRM 1945

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	8/19-22/01	8/19-22/01	8/19-22/01	8/19-22/01	8/19-22/01	8/19-22/01	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.73	1.5	**4.48**	0.88			
28	coelution	coelution	coelution	coelution	coelution	coelution					4.26	2.3	14.10	1.4			
31	coelution	coelution	coelution	coelution	coelution	coelution					3.28	2.6	3.12	0.69			
44	27.3	28.4	29.4	9.36	9.04	9.55	28.4	3.7	9.3	2.8	35.3	3.8	**12.2**	1.4	-0.8	-0.88	0.25
49	81.3	84.0	87.6	15.6	15.0	16.1	84.3	3.7	15.6	3.5	86.1	11	**20.8**	2.8	-0.1	-0.08	0.25
52	107	111	116	29.2	28.2	30.0	111	4.1	29.1	3.1	143	8	**43.6**	2.5	-0.9	-1.83	0.27
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5			
87	103	110	109	15.2	14.8	15.4	107	3.5	15.1	2.0	157	20	**16.7**	1.4	-1.3	-1.56	0.24
99	392	414	420	51.3	50.1	52.7	409	3.6	51.4	2.5	467	34	**45.4**	5.4	-0.5	-0.90	0.24
101 (+90)	266	282	285	50.4	49.7	51.4	278	3.7	50.5	1.7	410	53	**65.2**	5.6	-1.3	-1.23	0.25
105	170	181	179	27.7	27.2	28.5	177	3.3	27.8	2.4	161	19	**30.1**	2.3	0.4	0.38	0.22
118	455	484	482	70.9	70.0	73.0	474	3.4	71.3	2.2	511	59	**74.6**	5.1	-0.3	-0.29	0.23
128	94.2	99.4	100	14.1	13.6	14.3	97.7	3.1	14.0	2.6	178	25	**23.7**	1.7	-1.8	-1.60	0.21
132	218	230	228	30.1	29.4	30.8	225.3	2.9	30.1	2.3	160	68	29.1	6.0	1.6	0.84	0.19
138 (+163+164)	1250	1330	1320	158	155	161	1300	3.4	158	1.9	1104	213	**131.5**	7.4	0.7	0.45	0.22
149	220	233	235	53.9	53.0	55.1	229	3.6	54.0	2.0	320	43	**107**	8.4	-1.1	-1.06	0.24
151	76.7	81.5	81.2	15.5	15.2	15.9	79.8	3.4	15.5	2.3	134	20	**28.7**	5.2	-1.6	-1.40	0.22
153	1730	1850	1960	201	197	202	1847	6.2	200	1.3	1833	199	**213.0**	19	0.0	0.03	0.42
156	7.58	7.95	7.74	10.5	10.4	10.9	7.76	2.4	10.6	2.5	18.5	11	**10.3**	1.1	-2.3	-0.57	0.16
170 (+190)	189	200	196	31.2	30.2	31.3	195	2.9	30.9	2.0	218	27	**40.6**	2.6	-0.4	-0.40	0.19
180	823	870	865	147	143	148	853	3.0	146	1.8	798	87	**107**	5.3	0.3	0.32	0.20
183	213	224	224	35.9	35.0	37.3	220	2.9	36.1	3.2	231	30	**36.6**	4.1	-0.2	-0.19	0.19
187	367	387	385	104	102	105	380	2.9	104	1.5	436	62	**105**	9.1	-0.5	-0.46	0.19
194	116	122	121	43.2	42.0	43.1	120	2.7	42.8	1.6	165	16	**39.6**	2.5	-1.1	-1.46	0.18
195	20.9	22.0	21.8	5.71	5.51	5.86	21.6	2.7	5.69	3.1	40.0	9	**17.7**	4.3	-1.8	-1.17	0.18
201	coelution	coelution	coelution	coelution	coelution	coelution					87.7	52	**17.0**	0.89	-4.0	-1.11	0.00
206	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	7.8	**31.1**	2.7			
209	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.4	7.2	**10.6**	1.1			
66	50.4	53.1	53.6	22.0	21.4	21.4	52.4	3.3	21.6	1.6	50.7	4	23.6	1.6	0.1	0.23	0.22
95	85.9	91.0	92.7	22.4	21.7	22.8	89.9	3.9	22.3	2.5	141	15	33.8	1.7	-1.5	-1.89	0.26

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	22	24	24
2 to 3	1	0	0
≥ 3	1	0	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 11**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	6/3/2001	6/3/2001	6/3/2001	6/3/2001	6/3/2001	6/3/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	65.6	58.7	62.3	93.6	98.7	93.6	62.2	5.5	95.3	3.1	83.1	22	**106**	14	-1.0	-0.5	0.37
4,4'-DDT	155	139	149	237	239	237	148	5.7	237	0.5	184	21	**245**	15	-0.8	-0.9	0.38
2,4'-DDE	127	115	121	17.4	22.0	18.8	121.0	4.8	19.4	12	110	28	**12.3**	0.87	0.4	0.2	0.32
4,4'-DDE	31714	18813	29436	563	507	563	26654	25.8	545	5.9	33401	6050	**445**	37	-0.8	-0.5	1.72
2,4'-DDD	73.0	63.9	68.2	19.0	21.7	19.0	68.4	6.7	19.9	7.9	45.7	14	**18.1**	2.8	2.0	0.9	0.45
4,4'-DDD	887	550	832	106	104	106	756	23.9	105	1.4	1005	138	**133**	10	-1.0	-0.9	1.59
HCB	3.07	2.93	2.89	30.5	28.3	30.5	2.96	3.2	29.8	4.1	1.89	1.4	**32.9**	1.7	2.3	0.6	0.21
α-HCH	9.20	8.96	9.55	12.1	12.2	12.1	9.24	3.2	12.1	0.6	6.43	1.0	**16.2**	3.4	1.7	1.6	0.21
β-HCH	455	414	416	4.86	4.44	4.86	428	5.4	4.72	5.1	409	42.5	8.00	1.4	0.2	0.3	0.36
γ-HCH	12.57	10.38	11.35	7.60	8.26	7.60	11.4	9.6	7.82	4.8	6.87	1.64	**3.30**	0.81	2.7	1.6	0.64
Heptachlor Epoxide	109	92	101	13.1	13.1	13.1	101	8.4	13.1	0.3	99.8	18	**10.8**	1.3	0.0	0.0	0.56
Cis-Chlordane	32.2	30.9	34.1	61.6	63.3	57.1	32.4	5.0	60.7	5.3	37.4	5.4	**46.9**	2.8	-0.5	-0.5	0.33
Trans-Chlordane	<LOD	<LOD	<LOD	12.5	13.1	12.5	<LOD	<LOD	12.7	2.7	11.5	8.2	12.9	3.5			
Oxychlordane	94.6	84.0	88.3	24.2	25.3	24.2	89.0	6.0	24.5	2.6	78.9	7.4	**19.8**	1.9	0.5	0.8	0.40
Cis-Nonachlor	59.8	53.2	58.3	50.6	50.1	50.6	57.1	6.1	50.4	0.5	98.4	17	**48.7**	7.6	-1.7	-1.5	0.40
Trans-Nonachlor	1210	753	1126	181	172	181	1030	23.6	178	2.7	1238	150	**231**	11	-0.7	-0.7	1.58
Dieldrin	277	249	256	54.9	56.5	54.9	261	5.7	55.5	1.7	209	56	37.5	3.9	1.0	0.5	0.38
Mirex	56.6	51.9	53.9	33.5	37.7	33.5	54.1	4.3	34.9	7.0	43.7	7.5	**18.9**	2.8	0.9	0.9	0.29

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	15	17	17
2 to 3	2	0	0
≥ 3	0	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	5.37	4.85	4.58	71.6	67.5	62.9	4.9	8.14	67.3	6.46	6.4	2.08	74.3	0.45	-0.9	-0.7	0.54

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 11

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	6/3/2001	6/3/2001	6/3/2001	6/3/2001	6/3/2001	6/3/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	<LOD	<LOD	<LOD	1.53	1.53	1.53	<LOD	<LOD	1.53	0.2	7.73	1.5	**4.48**	0.88			
28	15.30	15.82	15.54	13.8	14.5	13.8	15.55	1.7	14.0	3.2	4.26	2.3	14.10	1.4	10.6	2.90	0.11
31	2.99	2.77	2.91	2.97	3.29	2.97	2.89	3.9	3.07	6.1	3.28	2.6	3.12	0.69	-0.5	-0.12	0.26
44	50.2	47.3	51.1	14.1	12.1	14.1	49.5	4.0	13.4	8.6	35.3	3.8	**12.2**	1.4	1.6	1.82	0.27
49	111.1	100.1	104.8	17.2	15.5	17.2	105	5.3	16.6	5.8	86.1	11	**20.8**	2.8	0.9	0.88	0.35
52	175	157	163	36.4	39.5	36.4	165	5.5	37.4	4.7	143	8	**43.6**	2.5	0.6	1.27	0.37
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5	-4.0	-4.90	0.00
87	176	162	172	22.4	26.6	22.4	170	4.2	23.8	10	157	20	**16.7**	1.4	0.3	0.43	0.28
99	628	578	592	69.2	76.0	57.1	599	4.3	67.4	14	467	34	**45.4**	5.4	1.1	2.04	0.29
101 (+90)	503	482	445	85.0	96.3	83.5	476	6.2	88.2	7.9	410	53	**65.2**	5.6	0.7	0.62	0.41
105	197	193	199	28.5	30.7	28.5	196	1.7	29.2	4.4	161	19	**30.1**	2.3	0.9	0.85	0.11
118	665	592	629	77.4	83.9	77.4	629	5.8	79.6	4.7	511	59	**74.6**	5.1	0.9	0.93	0.38
128	242	219	231	40.0	40.9	38.8	231	4.9	39.9	2.7	178	25	**23.7**	1.7	1.2	1.06	0.33
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	1504	946	1418	202	227	198	1289	23.3	209	7.5	1104	213	**131.5**	7.4	0.7	0.42	1.55
149	285	261	267	72.4	82.7	72.4	271	4.6	75.9	7.8	320	43	**107**	8.4	-0.6	-0.57	0.31
151	149	131	132	30.5	33.2	30.5	137	7.4	31.4	5.0	134	20	**28.7**	5.2	0.1	0.07	0.49
153	2160	1335	2057	261	296	261	1851	24	273	7.6	1833	199	**213.0**	19	0.0	0.04	1.62
156	21.4	18.2	19.8	16.2	18.8	16.2	19.8	7.9	17.1	8.9	18.5	11	**10.3**	1.1	0.3	0.07	0.53
170 (+190)	299	270	287	47.3	50.7	47.3	285	5.2	48.4	4.2	218	27	**40.6**	2.6	1.2	1.16	0.35
180	1907	1216	1825	175	171	164	1649	23	170	3.2	798	87	**107**	5.3	4.3	4.97	1.53
183	345	312	329	109.4	110.4	109.4	329	5.0	110	0.5	231	30	**36.6**	4.1	1.7	1.71	0.34
187	568	509	543	131	147	131	540	5.5	136	6.8	436	62	**105**	9.1	1.0	0.85	0.37
194	217	197	212	53.3	60.8	53.3	209	4.9	55.8	7.8	165	16	**39.6**	2.5	1.1	1.44	0.33
195	115.6	99.9	108.5	27.6	35.8	28.1	108.0	7.3	30.5	15	40.0	9	**17.7**	4.3	6.8	4.33	0.48
201	53.3	44.7	53.0	15.8	16.3	15.8	50.4	9.7	16.0	2.0	87.7	52	**17.0**	0.89	-1.7	-0.47	0.65
206	106.1	95.9	103.1	39.0	47.0	39.0	101.7	5.1	41.6	11	83.1	7.8	**31.1**	2.7	0.9	1.35	0.34
209	87.3	77.8	83.6	15.9	19.7	15.6	82.9	5.8	17.0	13	69.4	7.2	**10.6**	1.1	0.8	1.07	0.38
66	45.2	40.6	41.7	18.2	20.2	18.2	42.5	5.6	18.8	6.1	50.7	4	23.6	1.6	-0.6	-1.13	0.37
95	169	151	158	46.9	40.6	40.9	159	5.5	42.8	8.2	141	15	33.8	1.7	0.5	0.66	0.36

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	24	23	28
2 to 3	0	2	0
≥ 3	4	3	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 12**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	15, Sept. 2001	15, Sept. 2001	15, Sept. 2001	15, Sept. 2001	15, Sept. 2001	15, Sept. 2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	22	**106**	14			
4,4'-DDT	198	197	216	307	309	316	204	5.2	311	1.6	184	21	**245**	15	0.4	0.5	0.35
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	28	**12.3**	0.87			
4,4'-DDE	60411	47995	49917	519	642	634	52774	12.7	598	11.5	33401	6050	**445**	37	2.3	1.6	0.84
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.7	14	**18.1**	2.8			
4,4'-DDD	1095	1116	1220	118	121	139	1144	5.9	126	8.8	1005	138	**133**	10	0.6	0.5	0.39
HCB	ND	ND	ND	22.7	24.7	27.3	ND	ND	24.9	9.2	1.89	1.4	**32.9**	1.7			
α-HCH	4.96	5.51	5.50	10.4	11.4	11.6	5.32	6.0	11.1	5.5	6.43	1.0	**16.2**	3.4	-0.7	-0.6	0.40
β-HCH	369	380	398	<LOD	<LOD	<LOD	382	3.8	<LOD	<LOD	409	42.5	8.00	1.4	-0.3	-0.4	0.25
γ-HCH	4.32	4.79	4.96	1.64	1.69	1.89	4.69	7.0	1.74	7.4	6.87	1.64	**3.30**	0.81	-1.3	-0.8	0.47
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.8	18	**10.8**	1.3			
Cis-Chlordane	28.8	28.1	40.9	46.8	45.9	48.7	32.6	22.0	47.1	3.0	37.4	5.4	**46.9**	2.8	-0.5	-0.5	1.47
Trans-Chlordane	<LOD	<LOD	<LOD	10.8	13.2	9.2	<LOD	<LOD	11.1	18.2	11.5	8.2	12.9	3.5			
Oxychlordane	102.1	99.8	110.0	20.6	21.2	22.5	103.9	5.1	21.4	4.5	78.9	7.4	**19.8**	1.9	1.3	1.9	0.34
Cis-Nonachlor	112.5	115.2	126.7	48.4	46.6	48.0	118.1	6.4	47.7	2.0	98.4	17	**48.7**	7.6	0.8	0.7	0.43
Trans-Nonachlor	1773	1608	1854	176	194	171	1745	7.2	180	6.8	1238	150	**231**	11	1.6	1.8	0.48
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	209	56	37.5	3.9			
Mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.7	7.5	**18.9**	2.8			

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	9	10	10
2 to 3	1	0	0
≥ 3	0	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	7.44	7.44	7.44	69.0	69.0	69.0	7.4	0.00	69.0	0.00	6.4	2.08	74.3	0.45	0.6	0.5	0.00

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 12

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	15, Sept. 2001	15, Sept. 2001	15, Sept. 2001	15, Sept. 2001	15, Sept. 2001	15, Sept. 2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	7.73	1.5	**4.48**	0.88			
28	<LOD	<LOD	<LOD	13.0	17.6	12.0	<LOD	<LOD	14.2	21.2	4.26	2.3	14.10	1.4			
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.28	2.6	3.12	0.69			
44	22.5	32.0	32.0	5.5	8.9	8.7	28.8	19.0	7.7	25.0	35.3	3.8	**12.2**	1.4	-0.7	-0.82	1.27
49	92.5	92.3	94.6	15.2	14.6	14.4	93.1	1.3	14.7	2.6	86.1	11	**20.8**	2.8	0.3	0.32	0.09
52	143	143	146	32.8	31.7	31.4	144	1.1	32.0	2.2	143	8	**43.6**	2.5	0.0	0.05	0.07
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5			
87	137	148	148	17.7	16.9	18.1	144	4.6	17.6	3.5	157	20	**16.7**	1.4	-0.3	-0.39	0.30
99	466	458	470	51.1	48.1	48.2	465	1.3	49.1	3.4	467	34	**45.4**	5.4	0.0	-0.04	0.09
101 (+90)	444	438	448	70.6	66.4	67.2	443	1.2	68.1	3.3	410	53	**65.2**	5.6	0.3	0.31	0.08
105	53	191	137	5.3	24.6	24.4	127	54.9	18.1	61.4	161	19	**30.1**	2.3	-0.8	-0.81	3.66
118	647	639	658	82.1	79.2	78.8	648	1.5	80.0	2.3	511	59	**74.6**	5.1	1.1	1.08	0.10
128	262	260	266	6.4	12.1	12.2	262	1.2	10.3	32.4	178	25	**23.7**	1.7	1.9	1.69	0.08
132	262	260	266	24.4	29.1	29.3	262.3	1	27.6	10	160	68	29.1	6.0	2.6	1.31	0.08
138 (+163+164)	1174	1202	1232	101	126	127	1203	2.4	118	12.8	1104	213	**131.5**	7.4	0.4	0.23	0.16
149	291	281	296	48.6	57.1	57.9	290	2.7	54.6	9.4	320	43	**107**	8.4	-0.4	-0.35	0.18
151	108	108	111	14.4	17.2	17.3	109	1.3	16.3	10.2	134	20	**28.7**	5.2	-0.8	-0.65	0.09
153	1801	1781	1832	144	171	172	1805	1.4	162	9.9	1833	199	**213.0**	19	-0.1	-0.07	0.09
156	66.9	67.1	67.9	17.6	19.5	19.6	67.3	0.7	18.9	5.8	18.5	11	**10.3**	1.1	10.5	2.60	0.05
170 (+190)	165	166	169	23.0	22.5	22.5	167	1.2	22.7	1.4	218	27	**40.6**	2.6	-0.9	-0.89	0.08
180	693	689	705	104	100	100	696	1.1	101	2.0	798	87	**107**	5.3	-0.5	-0.60	0.08
183	14	14	14	NA	NA	NA	14	1.5	NA	NA	231	30	**36.6**	4.1	-3.8	-3.80	0.10
187	202	201	207	29	27	28	204	1.7	28	2.7	436	62	**105**	9.1	-2.1	-1.91	0.11
194	123	123	132	32.8	33.0	33.6	126	4.4	33.1	1.2	165	16	**39.6**	2.5	-0.9	-1.26	0.29
195	26.1	26.3	27.1	4.8	5.2	5.5	26.5	1.9	5.2	6.2	40.0	9	**17.7**	4.3	-1.3	-0.86	0.13
201	176.2	175.2	179.7	52.6	51.7	52.4	177.0	1.4	52.2	0.9	87.7	52	**17.0**	0.89	4.1	1.13	0.09
206	70.9	71.3	71.4	34.8	41.1	38.3	71.2	0.4	38.1	8.3	83.1	7.8	**31.1**	2.7	-0.6	-0.87	0.02
209	74.6	75.8	75.6	19.5	22.6	21.3	75.4	0.8	21.1	7.5	69.4	7.2	**10.6**	1.1	0.3	0.47	0.06
66	82.8	83.2	85.5	26.6	25.6	23.3	83.8	1.8	25.2	6.6	50.7	4	23.6	1.6	2.6	4.59	0.12
95	128	129	130	27.0	25.7	26.7	129	0.9	26.5	2.5	141	15	33.8	1.7	-0.4	-0.46	0.06

*Certified values are in bold **See text for explaination

Category	Number by Category		
	z (25%)	z (s)	p (15%)
≤ 2	20	23	25
2 to 3	3	1	0
≥ 3	3	2	1

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 13**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	07/26/01	07/26/01	07/26/01	07/26/01	07/26/01	07/26/01	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	63.0	65.0	72.0	72.0	75.0	58.0	66.7	7.1	68.3	13	83.1	22	**106**	14	-0.8	-0.4	0.47
4,4'-DDT	150	110	150	180	190	150	137	17	173	12	184	21	**245**	15	-1.0	-1.1	1.13
2,4'-DDE	81.0	72.0	83.0	11.0	11.0	11.0	78.7	7.4	11.0	0.0	110	28	**12.3**	0.87	-1.1	-0.6	0.50
4,4'-DDE	40000	34000	39000	530	560	480	37667	8.5	523	7.7	33401	6050	**445**	37	0.5	0.3	0.57
2,4'-DDD	35.0	35.0	38.0	19.0	17.0	16.0	36.0	4.8	17.3	8.8	45.7	14	**18.1**	2.8	-0.9	-0.4	0.32
4,4'-DDD	778	610	730	80.0	89.0	79.0	706	12	82.7	6.7	1005	138	**133**	10	-1.2	-1.1	0.82
HCB	<1.1	<1.0	<0.77	32.0	34.0	32.0	<1	<1	32.7	3.5	1.89	1.4	**32.9**	1.7			
α-HCH	5.60	5.90	6.60	16.0	15.0	14.0	6.03	8.5	15.0	6.7	6.43	1.0	**16.2**	3.4	-0.2	-0.2	0.57
β-HCH	380	320	380	2.00	2.30	1.50	360	9.6	1.93	21	409	42.5	8.00	1.4	-0.5	-0.7	0.64
γ-HCH	36.00	20.00	35.00	7.60	15.0	5.90	30.33	30	9.50	51	6.87	1.64	**3.30**	0.81	13.7	8.1	1.97
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.8	18	**10.8**	1.3			
***Cis*- Chlordane**	45.0	45.0	46.0	53.0	55.0	51.0	45.3	1.3	53.0	3.8	37.4	5.4	**46.9**	2.8	0.8	0.8	0.08
***Trans*- Chlordane**	2.90	2.60	2.80	11.0	11.0	11.0	2.77	5.5	11.0	0.0	11.5	8.2	12.9	3.5	-3.0	-0.7	0.37
Oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	78.9	7.4	**19.8**	1.9			
***Cis*- Nonachlor**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98.4	17	**48.7**	7.6			
***Trans*- Nonachlor**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1238	150	**231**	11			
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	209	56	37.5	3.9			
Mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.7	7.5	**18.9**	2.8			

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	9	10	11
2 to 3	0	0	0
≥ 3	2	1	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	22.00	21.00	22.00	74.0	75.0	74.0	21.7	2.66	74.3	0.78	6.4	2.08	74.3	0.45	9.5	7.3	0.18

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 13

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	07/26/01	07/26/01	07/26/01	07/26/01	07/26/01	07/26/01	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	7.90	6.70	7.60	2.90	2.80	3.00	7.40	8.4	2.90	3.4	7.73	1.5	**4.48**	0.88	-0.2	-0.15	0.56
28	2.30	2.20	1.70	11.0	12.0	9.4	2.07	16	10.8	12	4.26	2.3	14.10	1.4	-2.1	-0.56	1.04
31	<1.1	<1.0	<0.77	4.40	4.10	4.60	<1	<1	4.37	6	3.28	2.6	3.12	0.69			
44	41.0	37.0	41.0	13.0	14.0	13.0	39.7	5.8	13.3	4.3	35.3	3.8	**12.2**	1.4	0.5	0.56	0.39
49	100.0	93.0	100.0	19.0	20.0	20.0	97.7	4.1	19.7	2.9	86.1	11	**20.8**	2.8	0.5	0.53	0.28
52	160	140	160	40.0	44.0	43.0	153	7.5	42.3	4.9	143	8	**43.6**	2.5	0.3	0.59	0.50
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5			
87	190	170	180	28.0	32.0	29.0	180	5.6	29.7	7.0	157	20	**16.7**	1.4	0.6	0.74	0.37
99	490	430	490	52.0	57.0	53.0	470	7.4	54.0	4.9	467	34	**45.4**	5.4	0.0	0.04	0.49
101 (+90)	520	450	510	78.0	89.0	78.0	493	7.7	81.7	7.8	410	53	**65.2**	5.6	0.8	0.78	0.51
105	180	150	170	28.0	35.0	30.0	167	9.2	31.0	12	161	19	**30.1**	2.3	0.1	0.14	0.61
118	680	530	670	78.0	88.0	73.0	627	13	79.7	9.6	511	59	**74.6**	5.1	0.9	0.91	0.89
128	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	178	25	**23.7**	1.7			
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	1600	1400	1600	180	190	170	1533	7.5	180	5.6	1104	213	**131.5**	7.4	1.6	0.99	0.50
149	400	350	390	88.0	90.0	77.0	380	7.0	85.0	8.2	320	43	**107**	8.4	0.8	0.70	0.46
151	170	150	160	30.0	34.0	30.0	160	6.3	31.3	7.4	134	20	**28.7**	5.2	0.8	0.66	0.42
153	2300	2100	2300	220	240	210	2233	5.2	223	6.8	1833	199	**213.0**	19	0.9	0.99	0.34
156	33.0	28.0	32.0	14.0	16.0	16.0	31.0	8.5	15.3	7.5	18.5	11	**10.3**	1.1	2.7	0.66	0.57
170 (+190)	270	240	270	47.0	50.0	43.0	260	6.7	46.7	7.5	218	27	**40.6**	2.6	0.8	0.72	0.44
180	910	820	900	140	150	140	877	5.6	143	4.0	798	87	**107**	5.3	0.4	0.46	0.38
183	270	240	260	41.0	44.0	41.0	257	6.0	42.0	4.1	231	30	**36.6**	4.1	0.4	0.45	0.40
187	490	420	480	120	120	110	463	8.2	117	4.9	436	62	**105**	9.1	0.2	0.22	0.54
194	170	140	160	56.0	52.0	51.0	157	9.8	53.0	5.0	165	16	**39.6**	2.5	-0.2	-0.26	0.65
195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40.0	9	**17.7**	4.3			
201	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.7	52	**17.0**	0.89			
206	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	7.8	**31.1**	2.7			
209	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.4	7.2	**10.6**	1.1			
66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.7	4	23.6	1.6			
95	180	150	170	39.0	46.0	41.0	167	9.2	42.0	8.6	141	15	33.8	1.7	0.7	0.93	0.61

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	19	21	21
2 to 3	2	0	0
≥ 3	0	0	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 14**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/1/2001	7/1/2001	7/1/2001	7/1/2001	7/1/2001	7/1/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	22	**106**	14			
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	184	21	**245**	15			
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	28	**12.3**	0.87			
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33401	6050	**445**	37			
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.7	14	**18.1**	2.8			
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1005	138	**133**	10			
HCB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.89	1.4	**32.9**	1.7			
α-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.43	1.0	**16.2**	3.4			
β-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	409	42.5	8.00	1.4			
γ-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.87	1.64	**3.30**	0.81			
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.8	18	**10.8**	1.3			
Cis-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37.4	5.4	**46.9**	2.8			
Trans-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.5	8.2	12.9	3.5			
Oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	78.9	7.4	**19.8**	1.9			
Cis-Nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98.4	17	**48.7**	7.6			
Trans-Nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1238	150	**231**	11			
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	209	56	37.5	3.9			
Mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.7	7.5	**18.9**	2.8			

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	0	0	0
2 to 3	0	0	0
≥ 3	0	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	7.67	8.90	7.44	70.4	81.2	69.2	8.0	9.81	73.6	9.03	6.4	2.08	74.3	0.45	1.0	0.8	0.65

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 14

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/1/2001	7/1/2001	7/1/2001	7/1/2001	7/1/2001	7/1/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	<10	<10	<10	3.50	4.10	NA	<10	<10	3.80	11	7.73	1.5	**4.48**	0.88			
28	<10	<10	<10	17.6	18.9	NA	<10	<10	18.3	5.0	4.26	2.3	14.10	1.4			
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.28	2.6	3.12	0.69			
44	30.9	40.5	52.5	15.7	16.8	NA	41.3	26	16.3	4.8	35.3	3.8	**12.2**	1.4	0.7	0.77	1.75
49	95.6	109	125	18.6	22.4	NA	109.9	13.4	20.5	13	86.1	11	**20.8**	2.8	1.1	1.08	0.89
52	160	163	187	38.8	45.4	NA	170	8.7	42.1	11	143	8.5	**43.6**	2.5	0.8	1.55	0.58
66/95*	199	228	302	63.3	65.7	NA	243.0	22	64.5	2.6	192	21	**57.4**	2.5	1.1	1.30	1.46
87	160	178	242	22.0	28.0	NA	193	22	25.0	17	157	20	**16.7**	1.4	0.9	1.17	1.49
99	538	502	575	85.0	93.0	NA	538	6.8	89.0	6.4	467	34	**45.4**	5.4	0.6	1.10	0.45
101 (+90)	320	341	447	59.0	69.0	NA	369	18.4	64.0	11	410	53	**65.2**	5.6	-0.4	-0.38	1.23
105	203	249	313	39.5	43.1	NA	255	22	41.3	6.2	161	19	**30.1**	2.3	2.3	2.26	1.44
118	563	547	660	72.0	83.0	NA	590	10	77.5	10	511	59	**74.6**	5.1	0.6	0.62	0.69
128	160	154	181	31.0	35.0	NA	165	8.6	33.0	8.6	178	25	**23.7**	1.7	-0.3	-0.26	0.57
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	1401	1537	1764	155	168	NA	1567	12	162	5.7	1104	213	**131.5**	7.4	1.7	1.06	0.78
149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	320	43	**107**	8.4			
151	121	123	134	26.0	32.0	NA	126	5.6	29.0	15	134	20	**28.7**	5.2	-0.2	-0.21	0.37
153	1828	1898	2298	228	247	NA	2008	13	238	5.7	1833	199	**213.0**	19	0.4	0.43	0.84
156	85.0	100	119	41.0	49.0	NA	101.3	17	45.0	13	18.5	11	**10.3**	1.1	17.9	4.41	1.12
170 (+190)	247	263	308	46.0	53.0	NA	273	12	49.5	10	218	27	**40.6**	2.6	1.0	0.94	0.77
180	683	725	780	118	131	NA	729	6.7	125	7.4	798	87	**107**	5.3	-0.3	-0.40	0.44
183	176	210	235	41.0	43.0	NA	207	14	42.0	3.4	231	30	**36.6**	4.1	-0.4	-0.42	0.95
187	439	470	542	102	110	NA	484	11	106	5.3	436	62	**105**	9.1	0.4	0.39	0.73
194	152	146	153	43.0	47.0	NA	150	2.5	45.0	6.3	165	16	**39.6**	2.5	-0.3	-0.46	0.17
195	77.7	75.5	90.4	19.0	27.0	NA	81.2	9.9	23.0	25	40.0	9.3	**17.7**	4.3	4.1	2.63	0.66
201	54.0	58.0	61.0	23.0	27.0	NA	57.7	6.1	25.0	11	87.7	52	**17.0**	0.89	-1.4	-0.38	0.41
206	79.3	76.8	89.0	31.0	35.0	NA	81.7	7.9	33.0	8.6	83.1	7.8	**31.1**	2.7	-0.1	-0.10	0.53
209	50.0	53.0	61.0	12.0	14.0	NA	54.7	10	13.0	10.9	69.4	7.2	**10.6**	1.1	-0.8	-1.16	0.69
66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.7	4.3	23.6	1.6			
95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	141	15	33.8	1.7			

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	20	20	23
2 to 3	1	2	0
≥ 3	2	1	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 15**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/4-5/01	7/4-5/02	7/4-5/03	7/4-5/04	7/4-5/05	7/4-5/06	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	102.0	87.0	97.0	56.7	58.9	57.5	95.3	8.0	57.7	1.9	83.1	22	**106**	14	0.6	0.3	0.53
4,4'-DDT	223	181	210	157	170	158	205	10.5	162	4.5	184	21	**245**	15	0.5	0.5	0.70
2,4'-DDE	9.20	10.8	9.20	115	90.0	106	9.73	9.5	104	12	110	28	**12.3**	0.87	-3.6	-1.9	0.63
4,4'-DDE	39100	35300	30100	362	379	390	34833	13	377	3.7	33401	6050	**445**	37	0.2	0.1	0.86
2,4'-DDD	28.0	22.0	24.0	10.5	11.5	10.2	24.7	12	10.7	6.3	45.7	14	**18.1**	2.8	-1.8	-0.9	0.83
4,4'-DDD	1060	1040	1020	82.4	88.7	85.6	1040	1.9	86	3.7	1005	138	**133**	10	0.1	0.1	0.13
HCB	<5	<5	<5	20.0	16.7	17.0	<5	<5	17.9	10	1.89	1.4	**32.9**	1.7			
α-HCH	7.10	6.20	6.80	16.9	15.1	14.2	6.70	6.8	15.4	8.9	6.43	1.0	**16.2**	3.4	0.2	0.2	0.46
β-HCH	460	462	463	<10	<10	<10	462	0.3	<10	<10	409	42.5	8.00	1.4	0.5	0.7	0.02
γ-HCH	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.87	1.64	**3.30**	0.81			
Heptachlor Epoxide	150	123	130	17.6	13.5	12.9	134	10	14.7	17	99.8	18	**10.8**	1.3	1.4	1.1	0.70
Cis-Chlordane	80.0	63.0	71.0	47.4	44.1	39.7	71.3	12	43.7	8.8	37.4	5.4	**46.9**	2.8	3.6	3.4	0.79
Trans-Chlordane	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	11.5	8.2	12.9	3.5			
Oxychlordane	99.0	78.0	74.0	25.2	19.9	18.1	83.7	16.1	21.1	17.5	78.9	7.4	**19.8**	1.9	0.2	0.4	1.07
Cis-Nonachlor	107	96.0	108	57.7	58.5	57.0	104	6.4	57.7	1.3	98.4	17	**48.7**	7.6	0.2	0.2	0.43
Trans-Nonachlor	1660	1610	1560	164	169	155	1610	3.1	163	4.4	1238	150	**231**	11	1.2	1.3	0.21
Dieldrin	65	60	56	17.5	24.1	13.4	60.3	7.5	18.3	29	209	56	37.5	3.9	-2.8	-1.6	0.50
Mirex	29.0	22.0	26.0	23.1	17.6	18.6	25.7	14	19.8	15	43.7	7.5	**18.9**	2.8	-1.7	-1.5	0.91

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	12	14	15
2 to 3	1	0	0
≥ 3	2	1	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	8.04	7.55	7.20	74.4	76.4	72.7	7.6	5.55	74.5	2.49	6.4	2.08	74.3	0.45	0.7	0.6	0.37

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 15**
SAMPLES: MMQA V AND SRM 1945

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	5/21/2001	5/21/2001	5/21/2001	5/21/2001	5/21/2001	5/21/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.73	1.5	**4.48**	0.88			
28	3.31	2.98	2.87	16.8	11.7	15.7	3.05	7.5	14.7	18.2	4.26	2.3	14.10	1.4	-1.1	-0.31	0.50
31	0.642	0.7	0.809	5.18	4.31	5.63	0.7	12	5.0	13	3.28	2.6	3.12	0.69	-3.1	-0.78	0.79
44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	35.3	3.8	**12.2**	1.4			
49	41.6	36.6	37.4	8.5	6.2	8.0	38.5	7.0	7.6	16.0	86.1	11	**20.8**	2.8	-2.2	-2.17	0.46
52	142	128	125	42.7	31.4	40.9	132	6.9	38.3	15.8	143	8	**43.6**	2.5	-0.3	-0.66	0.46
66/95*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	192	21	**57.4**	2.5			
87	0.118	0.166	<0.1	11.4	8.7	11.0	0.142	23.9	10.4	13.9	157	20	**16.7**	1.4	-4.0	-4.97	1.59
99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	467	34	**45.4**	5.4			
101 (+90)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	410	53	**65.2**	5.6			
105	98	85	88	17.6	13.7	17.6	90	7.6	16.3	13.8	161	19	**30.1**	2.3	-1.8	-1.69	0.51
118	168	166	196	66.1	49.1	63.2	177	9.5	59.5	15.3	511	59	**74.6**	5.1	-2.6	-2.62	0.63
128	148	147	144	22.1	16.6	21.4	146	1.4	20.0	14.9	178	25	**23.7**	1.7	-0.7	-0.63	0.09
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	110	136	104	78	60	77	117	14.6	72	13.8	1104	213	**131.5**	7.4	-3.6	-2.27	0.97
149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	320	43	**107**	8.4			
151	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	134	20	**28.7**	5.2			
153	122	113	121	168	121	162	119	4.2	150	17.0	1833	199	**213.0**	19	-3.7	-4.23	0.28
156	10.2	7.8	8.1	16.6	12.0	16.2	8.7	15.0	14.9	17.1	18.5	11	**10.3**	1.1	-2.1	-0.52	1.00
170 (+190)	124	109	108	32.6	23.0	29.6	114	7.9	28.4	17.3	218	27	**40.6**	2.6	-1.9	-1.80	0.53
180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	798	87	**107**	5.3			
183	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	231	30	**36.6**	4.1			
187	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	436	62	**105**	9.1			
194	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	165	16	**39.6**	2.5			
195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40.0	9	**17.7**	4.3			
201	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.7	52	**17.0**	0.89			
206	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	7.8	**31.1**	2.7			
209	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.4	7.2	**10.6**	1.1			
66	57.7	52.2	53.2	22.9	16.3	20.8	54.4	5.4	20.0	16.9	50.7	4	23.6	1.6	0.3	0.51	0.36
95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	141	15	33.8	1.7			

*Certified values are in bold **See text for explaination

Category	Number by Category		
	z (25%)	z (s)	p (15%)
≤ 2	6	8	13
2 to 3	3	3	0
≥ 3	4	2	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 16**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	10/17/2001	10/17/2001	10/17/2001	10/17/2001	10/17/2001	10/17/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	70.0	78.0	71.0	130.0	110.0	110.0	73.0	6.0	116.7	9.9	83.1	22	**106**	14	-0.5	-0.3	0.40
4,4'-DDT	140	170	150	220	160	170	153	10	183	18	184	21	**245**	15	-0.7	-0.7	0.66
2,4'-DDE	210	220	190	9.00	7.70	8.20	207	7.4	8.30	7.9	110	28	**12.3**	0.87	3.5	1.9	0.49
4,4'-DDE	5500	5500	5300	510	480	480	5433	2.1	490	3.5	33401	6050	**445**	37	-3.3	-2.3	0.14
2,4'-DDD	39.0	48.0	41.0	20.0	18.0	17.0	42.7	11	18.3	8.3	45.7	14	**18.1**	2.8	-0.3	-0.1	0.74
4,4'-DDD	1000	1200	1200	130	110	110	1133	10	117	9.9	1005	138	**133**	10	0.5	0.5	0.68
HCB	4.50	2.40	2.40	24.0	20.0	23.0	3.10	39	22.3	9.3	1.89	1.4	**32.9**	1.7	2.6	0.7	2.61
α-HCH	4.80	4.30	4.90	10.0	8.10	8.40	4.67	6.9	8.83	12	6.43	1.0	**16.2**	3.4	-1.1	-1.0	0.46
β-HCH	590	700	640	4.80	4.00	3.40	643	8.6	4.07	17	409	43	8.00	1.4	2.3	3.1	0.57
γ-HCH	3.60	3.60	4.00	2.00	2.20	2.50	3.73	6.2	2.23	11	6.87	1.64	**3.30**	0.81	-1.8	-1.1	0.41
Heptachlor Epoxide	43.0	51.0	49.0	5.20	4.40	4.30	47.7	8.7	4.6	11	99.8	18	**10.8**	1.3	-2.1	-1.7	0.58
***Cis*- Chlordane**	26.0	34.0	31.0	48.0	39.0	39.0	30.3	13	42.0	12	37.4	5.4	**46.9**	2.8	-0.8	-0.7	0.89
***Trans*- Chlordane**	5.70	7.20	7.20	10.0	8.50	8.80	6.70	13	9.10	8.7	11.5	8.2	12.9	3.5	-1.7	-0.4	0.86
Oxychlordane	70.0	80.0	78.0	24.0	19.0	22.0	76.0	7.0	21.7	12	78.9	7.4	**19.8**	1.9	-0.1	-0.2	0.46
***Cis*- Nonachlor**	79.0	96.0	90.0	44.0	35.0	37.0	88.3	9.8	38.7	12	98.4	17	**48.7**	7.6	-0.4	-0.4	0.65
***Trans*- Nonachlor**	1100	1200	1100	170	160	160	1133	5.1	163	3.5	1238	150	**231**	11	-0.3	-0.4	0.34
Dieldrin	180	210	200	51.0	37.0	40.0	197	7.8	42.7	17	209	56	37.5	3.9	-0.2	-0.1	0.52
Mirex	25.0	27.0	23.0	9.10	8.40	8.00	25.0	8.0	8.50	6.6	43.7	7.5	**18.9**	2.8	-1.7	-1.5	0.53

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	13	16	17
2 to 3	3	1	1
≥ 3	2	1	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	6.60	8.20	7.80	83.0	76.7	75.4	7.5	11.05	78.4	5.19	6.4	2.08	74.3	0.45	0.7	0.5	0.74

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 16**
SAMPLES: MMQA V AND SRM 1945

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	10/17/2001	10/17/2001	10/17/2001	10/17/2001	10/17/2001	10/17/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	5.60	5.70	5.30	2.70	2.60	2.60	5.53	3.8	2.63	2.2	7.73	1.5	**4.48**	0.88	-1.1	-0.99	0.25
28	4.60	4.70	4.40	11.0	11.0	11.0	4.57	3.3	11.0	0.0	4.26	2.3	14.10	1.4	0.3	0.08	0.22
31	2.20	2.50	2.40	3.50	3.10	3.20	2.37	6.5	3.27	6.4	3.28	2.6	3.12	0.69	-1.1	-0.28	0.43
44	30.0	30.0	27.0	11.0	9.9	10.0	29.0	6.0	10.3	5.9	35.3	3.8	**12.2**	1.4	-0.7	-0.80	0.40
49	66.0	67.0	62.0	23.0	21.0	20.0	65.0	4.1	21.3	7.2	86.1	11	**20.8**	2.8	-1.0	-0.96	0.27
52	110	120	110	37.0	36.0	36.0	113	5.1	36.3	1.6	143	8	**43.6**	2.5	-0.8	-1.72	0.34
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5			
87	120	130	120	16.0	19.0	16.0	123	4.7	17.0	10	157	20	**16.7**	1.4	-0.8	-1.06	0.31
99	360	380	370	56.0	49.0	48.0	370	2.7	51.0	8.5	467	34	**45.4**	5.4	-0.8	-1.50	0.18
101 (+90)	290	300	290	65.0	62.0	62.0	293	2.0	63.0	2.7	410	53	**65.2**	5.6	-1.1	-1.08	0.13
105	180	180	160	51.0	48.0	43.0	173	6.7	47.3	8.5	161	19	**30.1**	2.3	0.3	0.30	0.44
118	480	490	460	80.0	75.0	75.0	477	3.2	76.7	3.8	511	59	**74.6**	5.1	-0.3	-0.27	0.21
128	170	170	160	27.0	23.0	24.0	167	3.5	24.7	8.4	178	25	**23.7**	1.7	-0.3	-0.23	0.23
132	91.0	95.0	87.0	20.0	18.0	17.0	91.0	4.4	18.3	8.3	160	68	29.1	6.0	-1.7	-0.89	0.29
138 (+163+164)	860	890	840	130	120	120	863	2.9	123	4.7	1104	213	**131.5**	7.4	-0.9	-0.55	0.19
149	270	280	260	83.0	79.0	79.0	270	3.7	80.3	2.9	320	43	**107**	8.4	-0.6	-0.58	0.25
151	260	200	190	25.0	23.0	24.0	217	17	24.0	4.2	134	20	**28.7**	5.2	2.5	2.11	1.16
153	1500	1500	1500	200	180	180	1500	0.0	187	6.2	1833	199	**213.0**	19	-0.7	-0.82	0.00
156	6.50	6.40	6.20	13.0	12.0	12.0	6.37	2.4	12.3	4.7	18.5	11	**10.3**	1.1	-2.6	-0.65	0.16
170 (+190)	240	240	220	43.0	41.0	40.0	233	4.9	41.3	3.7	218	27	**40.6**	2.6	0.3	0.26	0.33
180	720	730	700	140	130	130	717	2.1	133	4.3	798	87	**107**	5.3	-0.4	-0.48	0.14
183	200	200	190	35.0	32.0	33.0	197	2.9	33.3	4.6	231	30	**36.6**	4.1	-0.6	-0.60	0.20
187	380	400	380	110	100	110	387	3.0	107	5.4	436	62	**105**	9.1	-0.5	-0.41	0.20
194	160	160	150	60.0	57.0	55.0	157	3.7	57.3	4.4	165	16	**39.6**	2.5	-0.2	-0.26	0.25
195	42.0	40.0	38.0	12.0	12.0	12.0	40.0	5.0	12.0	0.0	40.0	9	**17.7**	4.3	0.0	0.00	0.33
201	93.0	92.0	85.0	44.0	40.0	40.0	90.0	4.8	41.3	5.6	87.7	52	**17.0**	0.89	0.1	0.03	0.32
206	86.0	87.0	80.0	72.0	62.0	62.0	84.3	4.5	65.3	8.8	83.1	7.8	**31.1**	2.7	0.1	0.09	0.30
209	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.4	7.2	**10.6**	1.1			
66	42.0	43.0	40.0	23.0	21.0	21.0	41.7	3.7	21.7	5.3	50.7	4	23.6	1.6	-0.7	-1.25	0.24
95	110	110	92	31.0	29.0	32.0	104	10	30.7	5.0	141	15	33.8	1.7	-1.1	-1.37	0.67

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	26	27	28
2 to 3	2	1	0
≥ 3	0	0	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 17**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	10/26/2001	10/26/2001	10/26/2001	10/26/2001	10/26/2001	10/26/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	65.8	63.3	64.1	99.4	98.6	90.5	64.4	2.0	96.2	5.1	83.1	22	**106**	14	-0.9	-0.5	0.13
4,4'-DDT	195	199	187	231	228	237	194	3.2	232	2.0	184	21	**245**	15	0.2	0.2	0.21
2,4'-DDE	124	120	121	12.6	12.9	12.8	122	1.7	12.8	1.2	110	28	**12.3**	0.87	0.4	0.2	0.11
4,4'-DDE	40888	39677	41129	466	469	460	40565	1.9	465	1.0	33401	6050	**445**	37	0.9	0.6	0.13
2,4'-DDD	33.7	36.0	33.0	17.3	17.5	17.1	34.2	4.6	17.3	1.2	45.7	14	**18.1**	2.8	-1.0	-0.5	0.31
4,4'-DDD	1191	1228	1180	123	126	129	1200	2.1	126	2.4	1005	138	**133**	10	0.8	0.7	0.14
HCB	<5	<5	<5	30.3	31.1	30.5	<5	<5	30.6	1.4	1.89	1.4	**32.9**	1.7			
α-HCH	<5	<5	<5	15.6	16.2	16.1	<5	<	16.0	2.0	6.43	1.0	**16.2**	3.4			
β-HCH	nterferenc	interferenc	interferenc	interferenc	interferenc	interferenc	interference				409	42.5	8.00	1.4			
γ-HCH	12.50	13.20	13.90	3.17	3.17	3.58	13.2	5.3	3.31	7.2	6.87	1.64	**3.30**	0.81	3.7	2.2	0.35
Heptachlor Epoxide	134	128	127	10.7	10.3	10.6	130	2.9	10.5	2.0	99.8	18	**10.8**	1.3	1.2	1.0	0.19
Cis-Chlordane	61.3	58.6	63.2	49.4	48.3	47.6	61.0	3.8	48.4	1.9	37.4	5.4	**46.9**	2.8	2.5	2.4	0.25
Trans-Chlordane	39.5	41.9	43.2	10.7	11.8	11.3	41.5	4.5	11.3	4.9	11.5	8.2	12.9	3.5	10.4	2.3	0.30
Oxychlordane	66.1	66.1	64.7	19.6	18.1	19.7	65.6	1.2	19.1	4.7	78.9	7.4	**19.8**	1.9	-0.7	-1.0	0.08
Cis-Nonachlor	118	120	116	48.9	44.7	50.5	118	1.7	48.0	6.2	98.4	17	**48.7**	7.6	0.8	0.7	0.11
Trans-Nonachlor	1436	1430	1382	214	211	200	1416	2.1	208	3.5	1238	150	**231**	11	0.6	0.6	0.14
Dieldrin	252	245	249	38.1	38.9	40.1	249	1.4	39.0	2.6	209	56	37.5	3.9	0.8	0.4	0.09
Mirex	42.0	39.6	40.4	29.5	28.6	28.7	40.7	3.0	28.9	1.7	43.7	7.5	**18.9**	2.8	-0.3	-0.3	0.20

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	12	12	15
2 to 3	1	3	0
≥ 3	2	0	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	6.54	6.82	6.52	74.3	74.4	74.4	6.6	2.53	74.4	0.09	6.4	2.08	74.3	0.45	0.1	0.1	0.17

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES
SAMPLES: MMQA V AND SRM 1945

Laboratory Number: 17

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	10/26/2001	10/26/2001	10/26/2001	10/26/2001	10/26/2001	10/26/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	6.04	6.19	6.14	5.04	5.11	4.93	6.12	1.2	5.03	1.8	7.73	1.5	**4.48**	0.88	-0.8	-0.73	0.08
28	3.01	3.11	2.44	12.5	12.9	12.6	2.85	12.7	12.7	1.6	4.26	2.3	14.10	1.4	-1.3	-0.36	0.84
31	1.77	1.72	1.69	3.28	3.22	3.26	1.7	2.3	3.3	1	3.28	2.6	3.12	0.69	-1.9	-0.47	0.16
44	36.5	37.5	34.0	11.7	11.9	11.4	36.0	5.0	11.7	2.2	35.3	3.8	**12.2**	1.4	0.1	0.09	0.33
49	coelution	coelution	coelution	coelution	coelution	coelution					86.1	11	**20.8**	2.8			
52	140	144	135	41.7	43.7	43.2	140	3.2	42.9	2.4	143	8	**43.6**	2.5	-0.1	-0.20	0.22
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5			
87	124	128	127	16.0	16.1	15.9	126	1.6	16.0	0.6	157	20	**16.7**	1.4	-0.8	-0.96	0.11
99	425	443	422	49.7	50.9	48.7	430	2.6	49.8	2.2	467	34	**45.4**	5.4	-0.3	-0.57	0.18
101 (+90)	405	429	415	70.6	70.5	68.3	416	2.9	69.8	1.9	410	53	**65.2**	5.6	0.1	0.06	0.19
105	138	137	136	28.8	29.5	29.4	137	0.7	29.2	1.3	161	19	**30.1**	2.3	-0.6	-0.57	0.05
118	429	427	409	74.6	71.5	75.2	422	2.6	73.8	2.7	511	59	**74.6**	5.1	-0.7	-0.70	0.17
128	142	148	145	19.1	20.3	20.1	145	2.1	19.8	3.2	178	25	**23.7**	1.7	-0.7	-0.66	0.14
132	118	114	110	17.4	17.7	17.2	114	3.5	17.4	1	160	68	29.1	6.0	-1.2	-0.59	0.23
138 (+163+164)	coelution	coelution	coelution	coelution	coelution	coelution					1104	213	**131.5**	7.4			
149	276	271	261	94.2	94.6	96.3	269	2.8	95.0	1.2	320	43	**107**	8.4	-0.6	-0.59	0.19
151	115	119	109	27.2	27.4	28.0	114	4.4	27.5	1.5	134	20	**28.7**	5.2	-0.6	-0.51	0.29
153	1540	1509	1469	216	213	217	1506	2.4	215	1.0	1833	199	**213.0**	19	-0.7	-0.81	0.16
156	7.91	7.41	7.59	9.64	9.43	9.71	7.64	3.3	9.6	1.5	18.5	11	**10.3**	1.1	-2.4	-0.58	0.22
170 (+190)	183	187	185	39.6	41.7	39.4	185	1.1	40.2	3.2	218	27	**40.6**	2.6	-0.6	-0.57	0.07
180	coelution	coelution	coelution	coelution	coelution	coelution					798	87	**107**	5.3			
183	165	161	161	35.9	34.7	34.0	162	1.4	34.9	2.8	231	30	**36.6**	4.1	-1.2	-1.20	0.09
187	334	335	326	100	94	94	332	1.5	96	3.3	436	62	**105**	9.1	-1.0	-0.86	0.10
194	124	125	124	38.3	38.2	39.5	124	0.5	38.7	1.9	165	16	**39.6**	2.5	-1.0	-1.31	0.03
195	31.2	31.8	28.2	16.2	17.0	16.8	30.4	6.3	16.7	2.5	40.0	9	**17.7**	4.3	-1.0	-0.61	0.42
201	29.4	32.8	29.2	17.9	16.5	16.5	30.5	6.6	17.0	4.8	87.7	52	**17.0**	0.89	-2.6	-0.72	0.44
206	66.5	63.6	64.0	35.9	35.6	34.3	64.7	2.4	35.3	2.4	83.1	7.8	**31.1**	2.7	-0.9	-1.34	0.16
209	57.6	52.7	55.4	10.0	10.4	10.6	55.2	4.4	10.3	3.0	69.4	7.2	**10.6**	1.1	-0.8	-1.12	0.30
66	54.2	55.2	51.0	23.1	22.1	22.9	53.5	4.1	22.7	2.3	50.7	4	23.6	1.6	0.2	0.39	0.27
95	147	155	148	34.2	33.8	34.9	150	2.9	34.3	1.6	141	15	33.8	1.7	0.2	0.32	0.19

*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	24	26	26
2 to 3	2	0	0
≥ 3	0	0	0

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 18**

SAMPLES: MMQAV AND SRM 1945

data are reported as if three figures are significant

PESTICIDE AND LIPID ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/19/2001	7/19/2001	7/20/2001	7/19/2001	7/19/2001	7/19/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	22	**106**	14			
4,4'-DDT	36	40	29	44	49	47	35	15.9	47	5.4	184	21	**245**	15	-3.2	-3.6	1.06
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	28	**12.3**	0.87			
4,4'-DDE	22000	23000	23000	430	350	290	22667	2.5	357	20	33401	6050	**445**	37	-1.3	-0.9	0.17
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.7	14	**18.1**	2.8			
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1005	138	**133**	10			
HCB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.89	1.4	**32.9**	1.7			
α-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.43	1.0	**16.2**	3.4			
β-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	409	42.5	8.00	1.4			
γ-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.87	1.64	**3.30**	0.81			
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.8	18	**10.8**	1.3			
***Cis*- Chlordane**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37.4	5.4	**46.9**	2.8			
***Trans*- Chlordane**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.5	8.2	12.9	3.5			
Oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	78.9	7.4	**19.8**	1.9			
***Cis*- Nonachlor**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98.4	17	**48.7**	7.6			
***Trans*- Nonachlor**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1238	150	**231**	11			
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	209	56	37.5	3.9			
Mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.7	7.5	**18.9**	2.8			

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	1	1	2
2 to 3	0	0	0
≥ 3	1	1	0

															z (25%)	z (s)	p (15%)
Lipid (mass fraction (%))	10.00	10.00	10.00	74.4	74.6	74.6	10.0	0.00	74.5	0.15	6.4	2.08	74.3	0.45	2.2	1.7	0.00

*Certified values are in bold **See text for explaination

2001 EXERCISE FOR ORGANOCHLORINES IN MARINE MAMMAL TISSUES **Laboratory Number: 18**
SAMPLES: MMQA V AND SRM 1945

data are reported as if three figures are significant

PCB CONGENER ANALYSES	Data as Submitted by Laboratory (ng/g wet mass)										Values for Materials (ng/g wet mass)				Performance Scores**		
	Homog V			SRM 1945			Homog. V		SRM 1945		Homog. V		SRM 1945			Homog V	
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean	lab	lab mean	lab	Assigned	95% CL	Target*	95% CL	z-score	z-score	p-score
Date(s) of measurements	7/19/2001	7/19/2001	7/20/2001	7/19/2001	7/19/2001	7/19/2001	ng/g wet	%RSD	ng/g wet	%RSD	Value		Value		(25%)	(s)	(15%)
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.73	1.5	**4.48**	0.88			
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.26	2.3	14.10	1.4			
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.28	2.6	3.12	0.69			
44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	35.3	3.8	**12.2**	1.4			
49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	86.1	11	**20.8**	2.8			
52	180	160	150	33.0	47.0	38.0	163	9.4	39.3	18	143	8	**43.6**	2.5	0.6	1.17	0.62
66/95*	see below	see below	see below	see below	see below	see below					192	21	**57.4**	2.5	-4.0	-4.90	0.00
87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	157	20	**16.7**	1.4			
99	460	410	420	54.0	51.0	61.0	430	6.2	55.3	9.3	467	34	**45.4**	5.4	-0.3	-0.57	0.41
101 (+90)	440	470	520	66.0	81.0	81.0	477	8.5	76.0	11	410	53	**65.2**	5.6	0.7	0.62	0.57
105	170	160	180	17.0	25.0	21.0	170	5.9	21.0	19	161	19	**30.1**	2.3	0.2	0.22	0.39
118	520	520	580	66.0	71.0	74.0	540	6.4	70.3	5.7	511	59	**74.6**	5.1	0.2	0.23	0.43
128	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	178	25	**23.7**	1.7			
132	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	68	29.1	6.0			
138 (+163+164)	1800	1400	1500	210	210	230	1567	13	217	5.3	1104	213	**131.5**	7.4	1.7	1.06	0.89
149	350	280	310	71.0	62.0	62.0	313	11	65.0	8.0	320	43	**107**	8.4	-0.1	-0.08	0.75
151	100	120	140	17.0	19.0	23.0	120	17	19.7	16	134	20	**28.7**	5.2	-0.4	-0.37	1.11
153	2000	1600	2000	230	190	220	1867	12	213	9.8	1833	199	**213.0**	19	0.1	0.08	0.82
156	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.5	11	**10.3**	1.1			
170 (+190)	190	260	250	51.0	40.0	30.0	233	16	40.3	26	218	27	**40.6**	2.6	0.3	0.26	1.08
180	720	820	820	220	140	140	787	7.3	167	28	798	87	**107**	5.3	-0.1	-0.07	0.49
183	270	220	240	62.0	45.0	34.0	243	10	47.0	30	231	30	**36.6**	4.1	0.2	0.21	0.69
187	570	550	530	230	150	140	550	3.6	173	28	436	62	**105**	9.1	1.0	0.93	0.24
194	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	165	16	**39.6**	2.5			
195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40.0	9	**17.7**	4.3			
201	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.7	52	**17.0**	0.89			
206	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.1	7.8	**31.1**	2.7			
209	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.4	7.2	**10.6**	1.1			
66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.7	4	23.6	1.6			
95	110	110	120	26.0	27.0	43.0	113	5.1	32.0	30	141	15	33.8	1.7	-0.8	-1.03	0.34

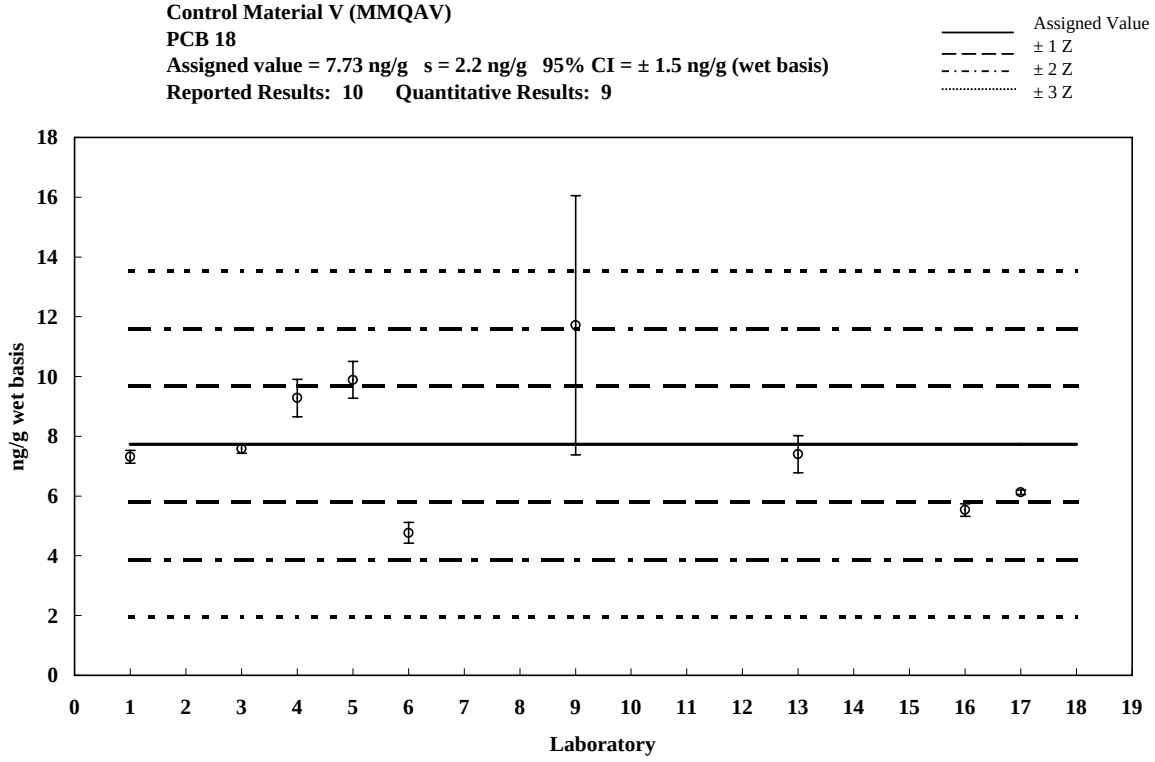
*Certified values are in bold **See text for explaination

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	14	14	15
2 to 3	0	0	0
≥ 3	1	1	0

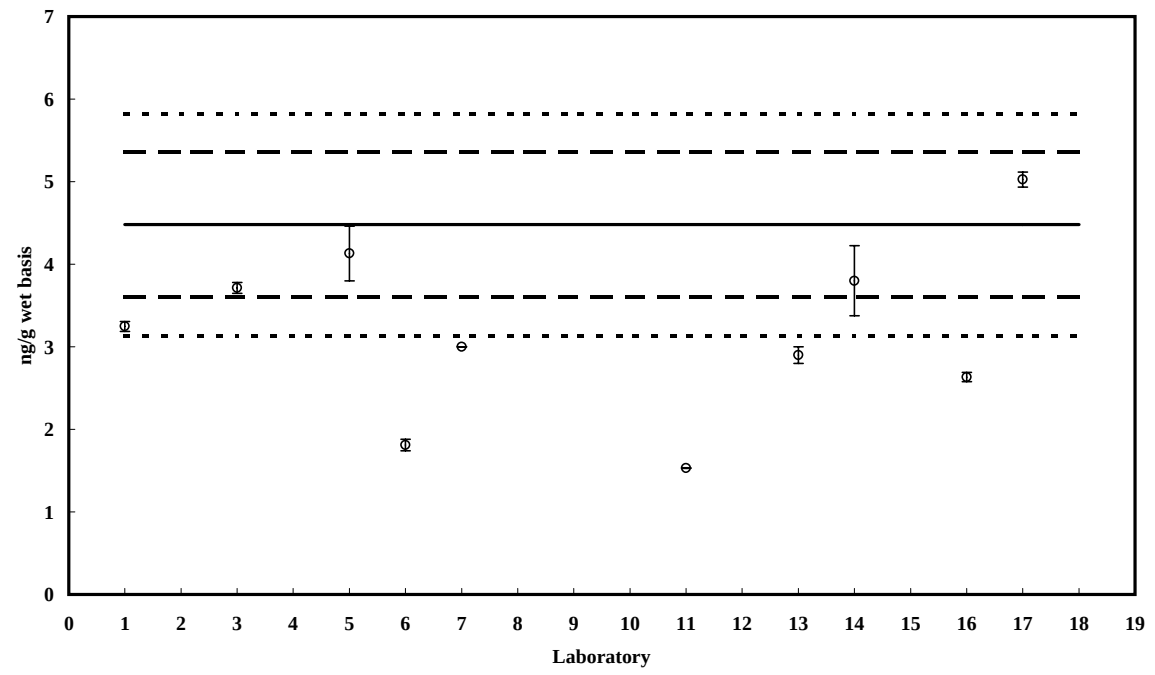
APPENDIX B

Graphical results of PCB congener and lipid data reported by all laboratories. The Z-scores for Control Material V represent 25% of the assigned value so that Z = +1 is the assigned value plus 25 %, Z = -1 is the assigned value minus 25 % and so forth. Error bars are ± 1 standard deviation.

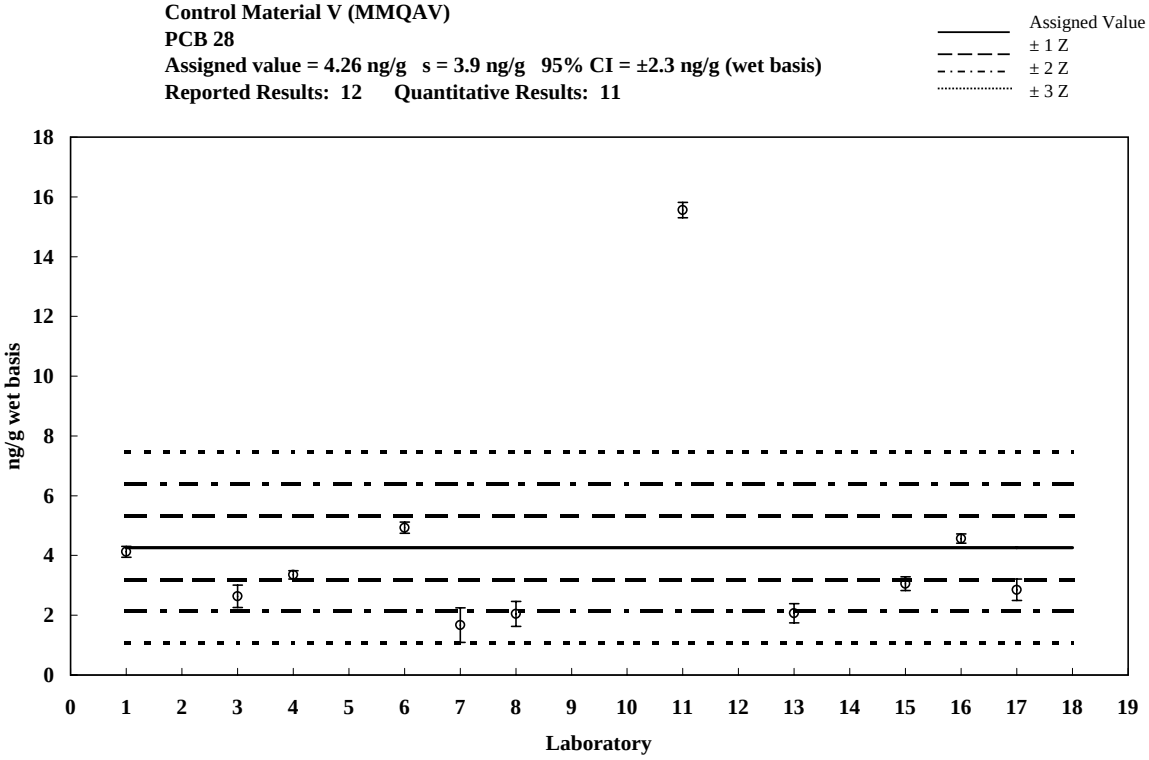
Control Material V (MMQAV)
PCB 18
Assigned value = 7.73 ng/g s = 2.2 ng/g 95% CI = ± 1.5 ng/g (wet basis)
Reported Results: 10 Quantitative Results: 9



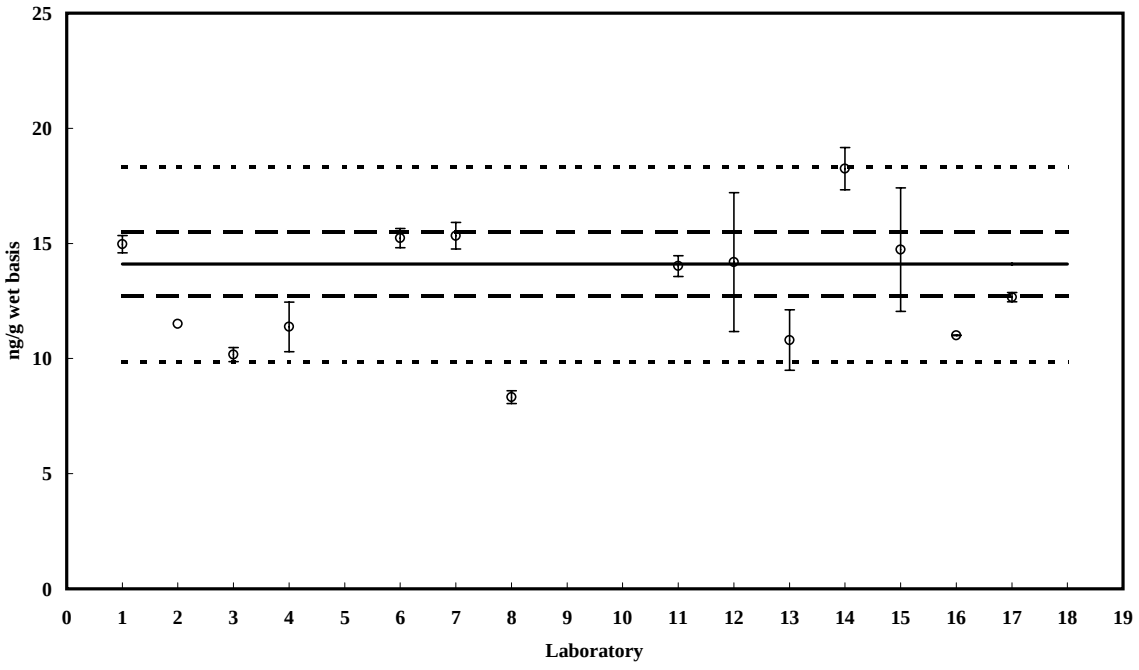
SRM 1945
PCB 18
Value = 4.48 ± 0.88 ng/g (wet basis)
Reported Results: 11



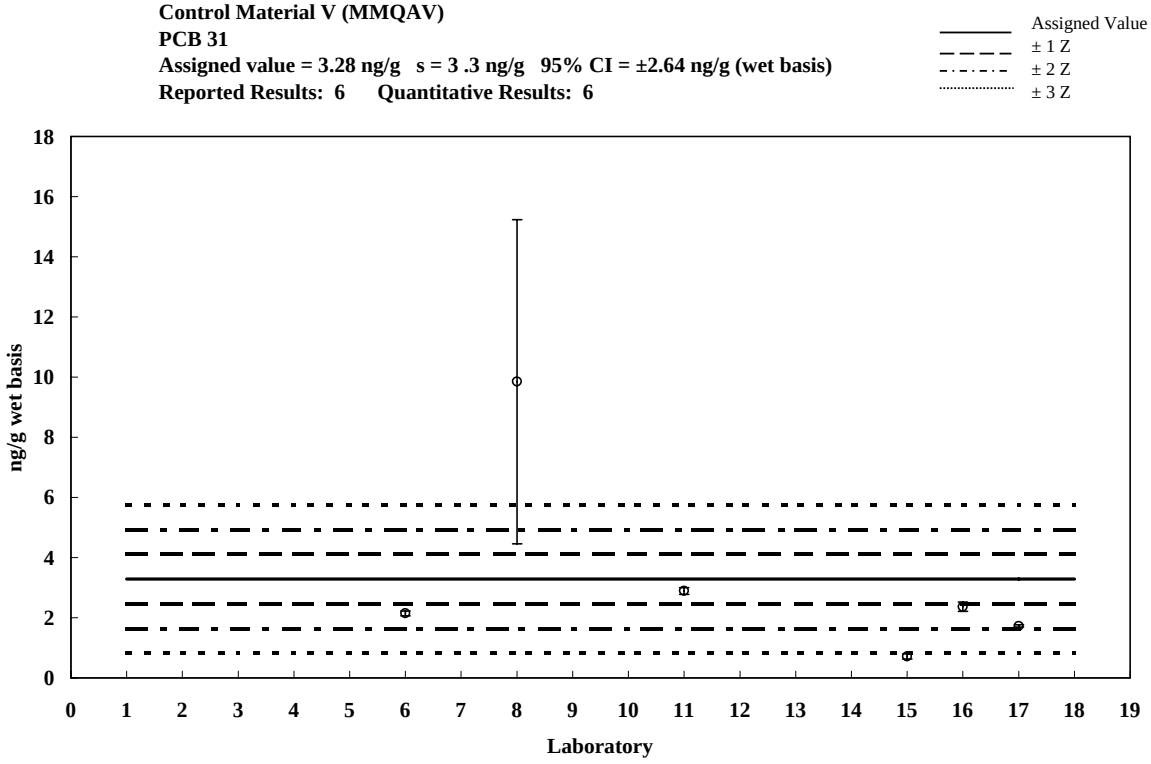
Control Material V (MMQAV)
PCB 28
Assigned value = 4.26 ng/g s = 3.9 ng/g 95% CI = ±2.3 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 11



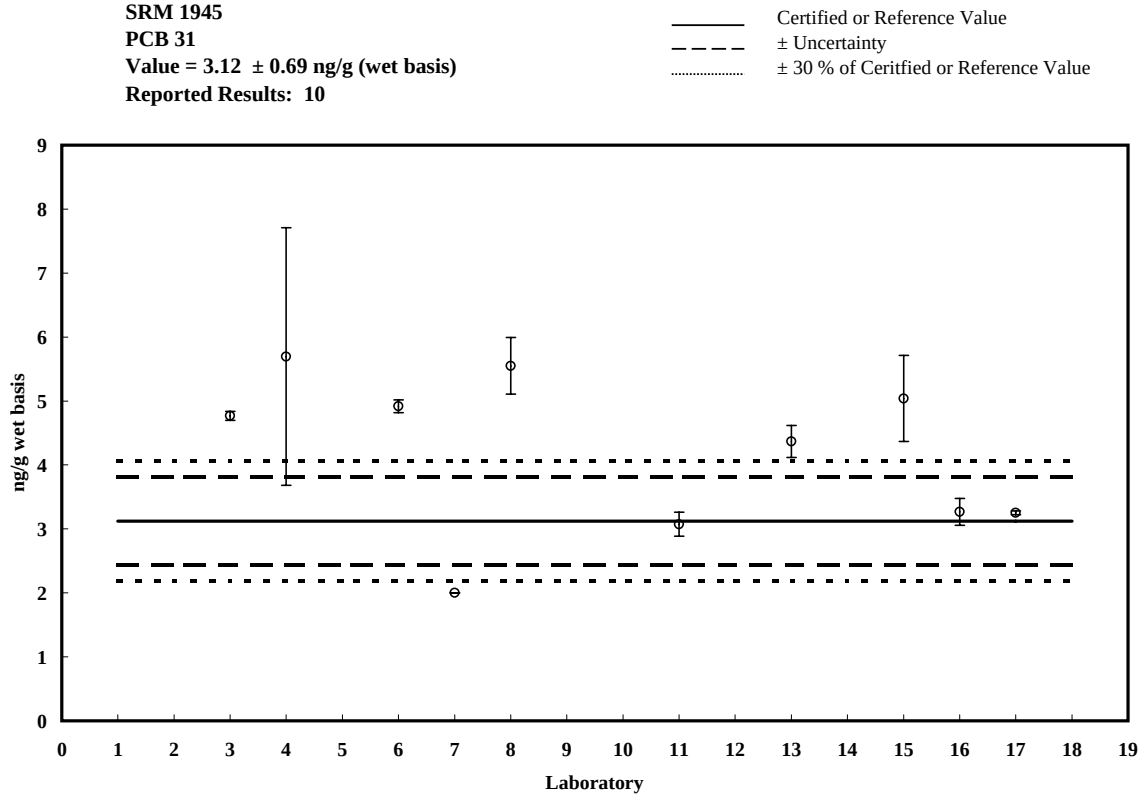
SRM 1945
PCB 28
Value = 14.1 ± 1.4 ng/g (wet basis)
Reported Results: 15



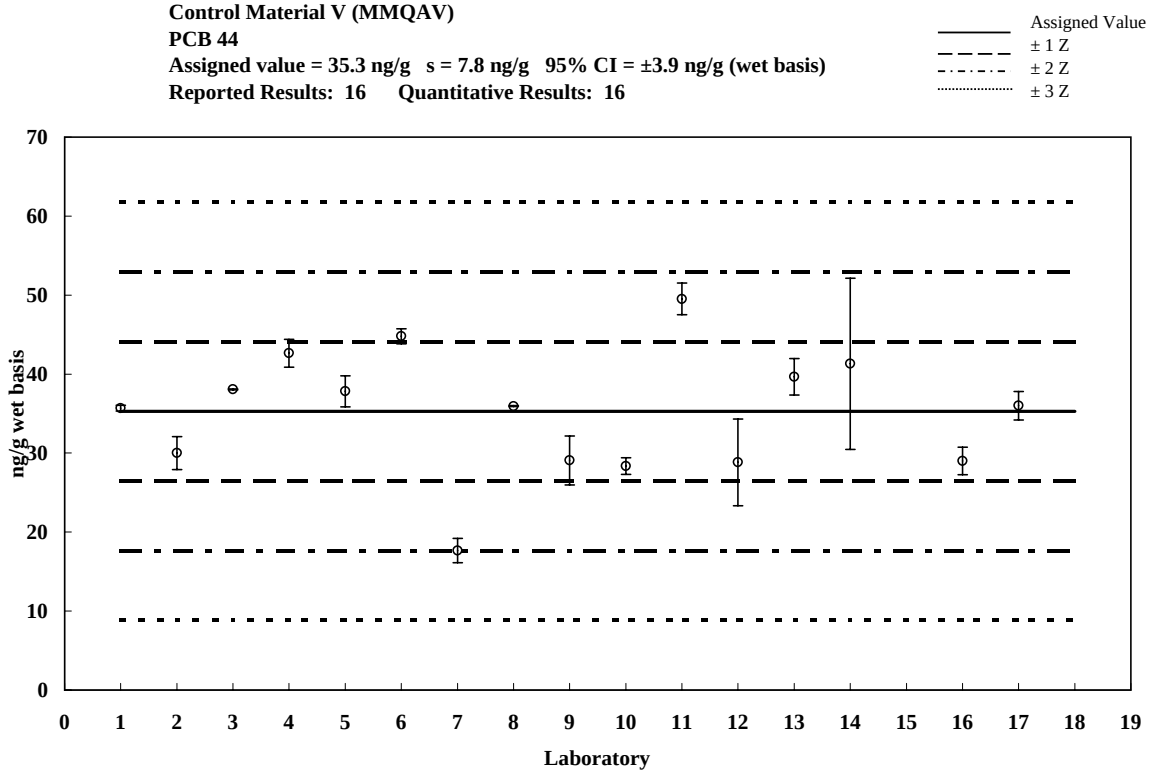
Control Material V (MMQAV)
PCB 31
Assigned value = 3.28 ng/g s = 3 .3 ng/g 95% CI = ±2.64 ng/g (wet basis)
Reported Results: 6 Quantitative Results: 6



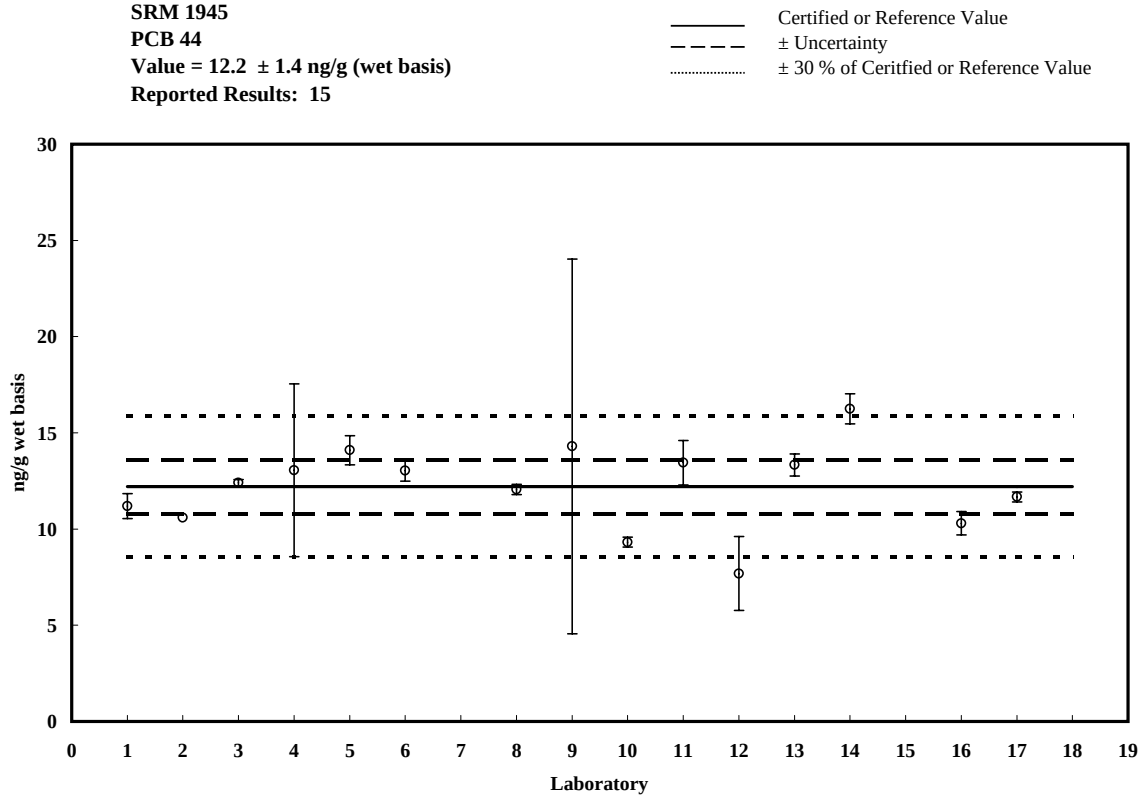
SRM 1945
PCB 31
Value = 3.12 ± 0.69 ng/g (wet basis)
Reported Results: 10



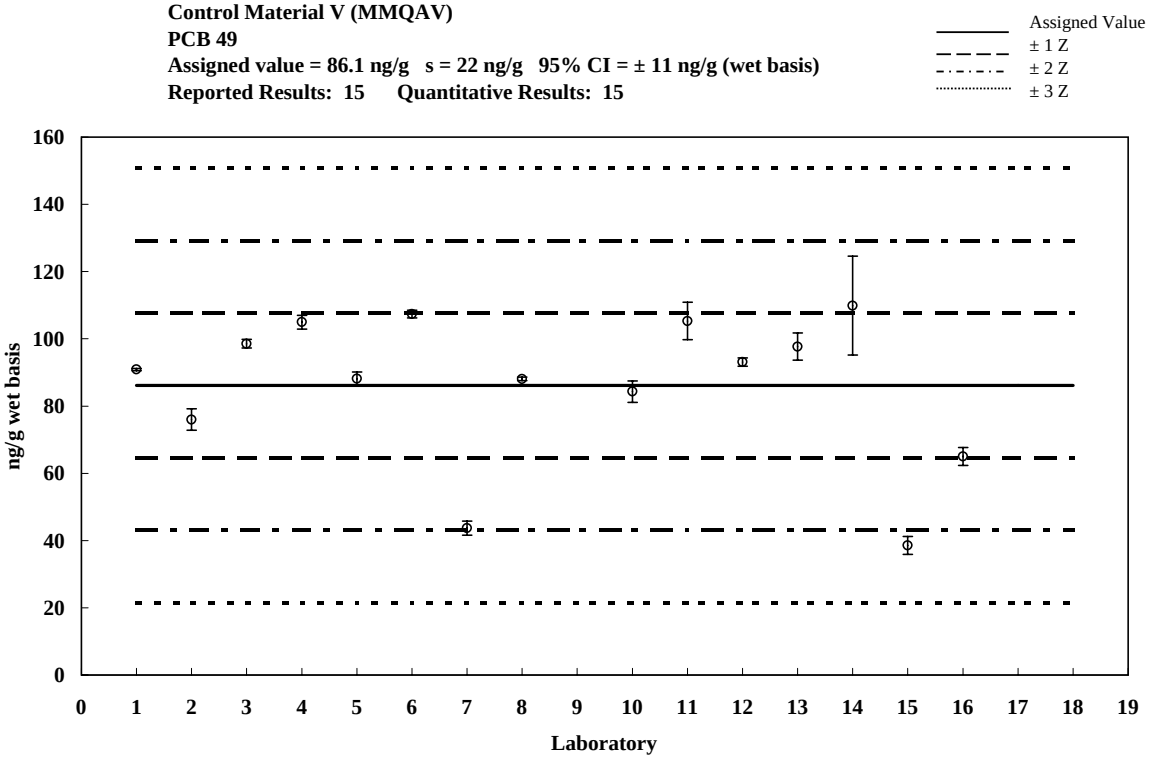
Control Material V (MMQAV)
PCB 44
Assigned value = 35.3 ng/g s = 7.8 ng/g 95% CI = ±3.9 ng/g (wet basis)
Reported Results: 16 Quantitative Results: 16



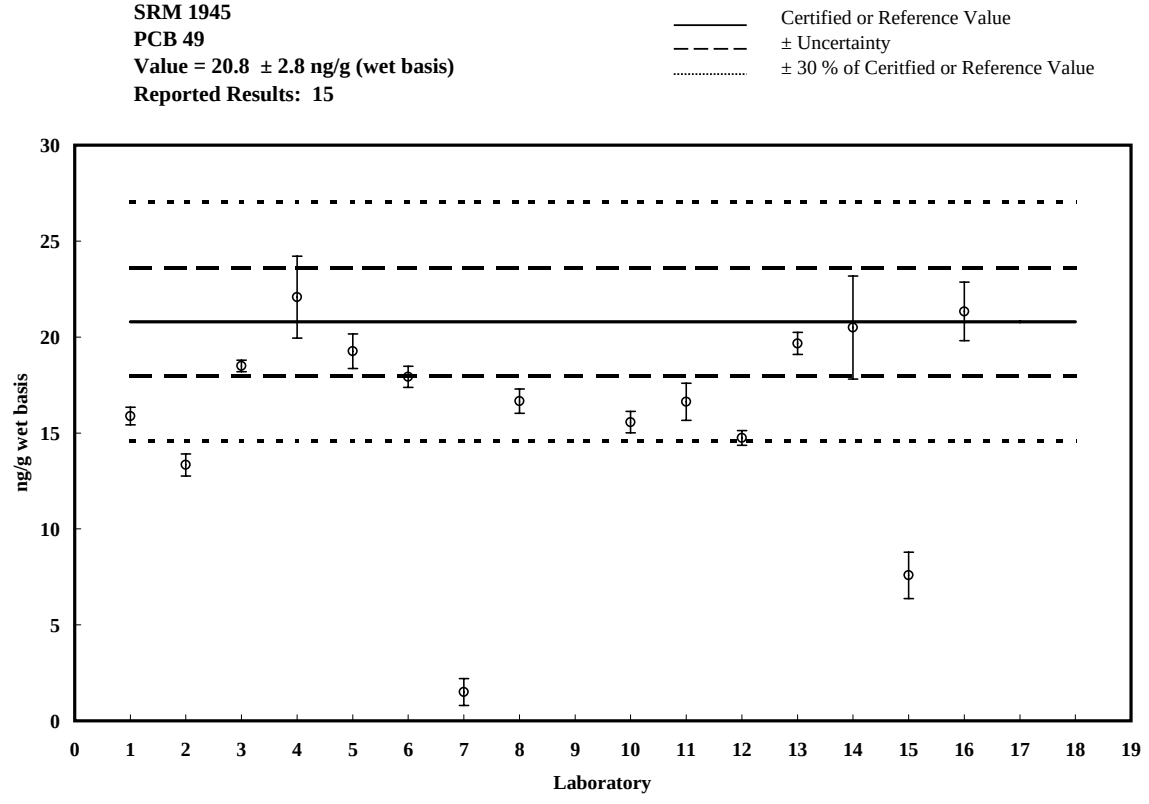
SRM 1945
PCB 44
Value = 12.2 ± 1.4 ng/g (wet basis)
Reported Results: 15



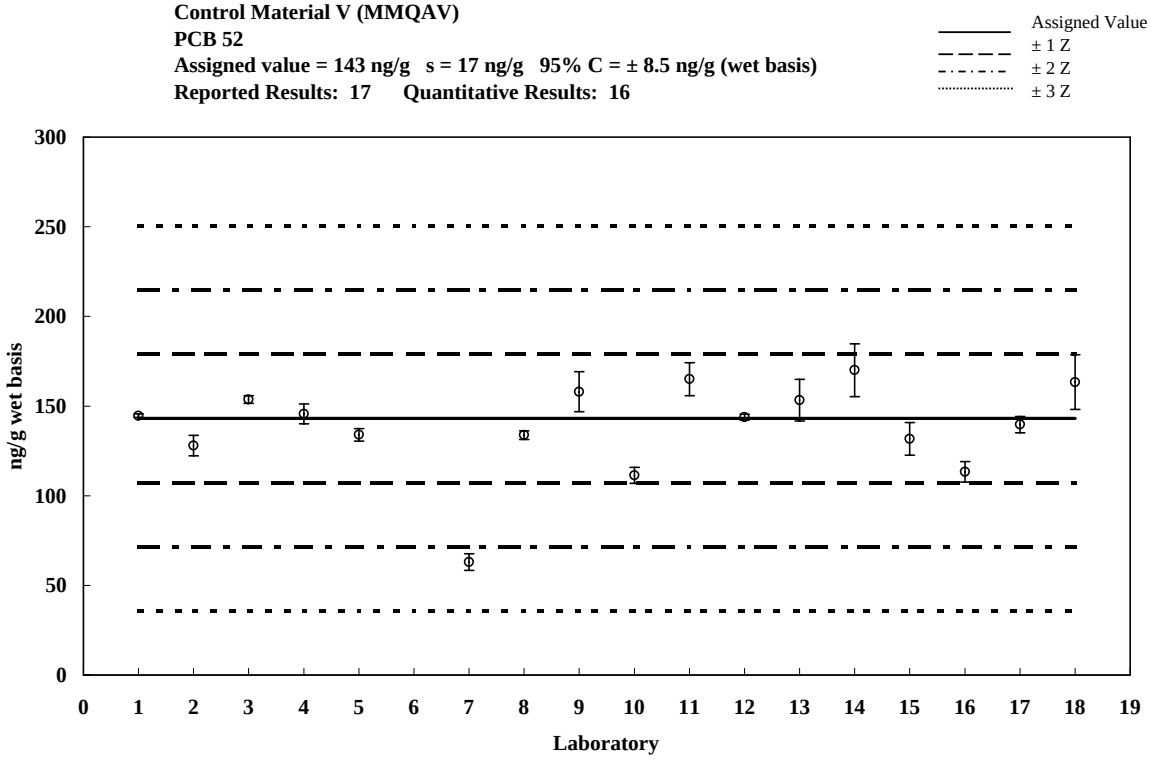
Control Material V (MMQAV)
PCB 49
Assigned value = 86.1 ng/g s = 22 ng/g 95% CI = ± 11 ng/g (wet basis)
Reported Results: 15 Quantitative Results: 15



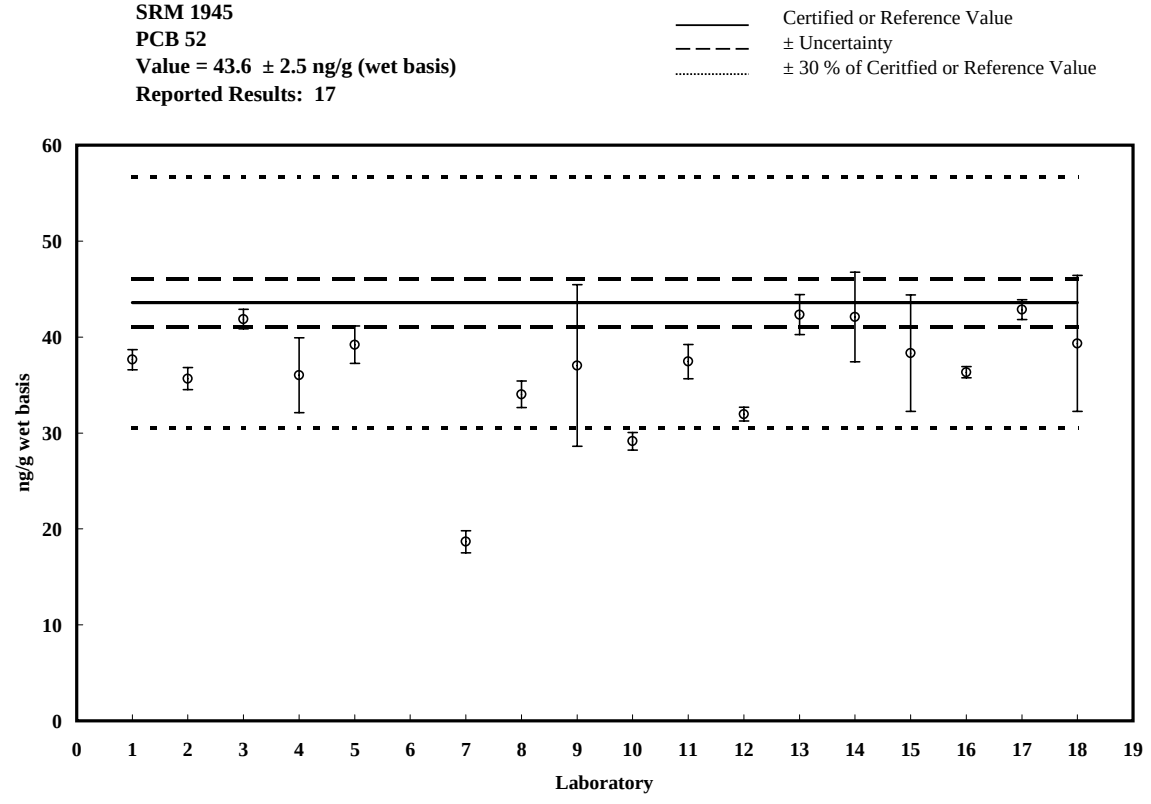
SRM 1945
PCB 49
Value = 20.8 ± 2.8 ng/g (wet basis)
Reported Results: 15



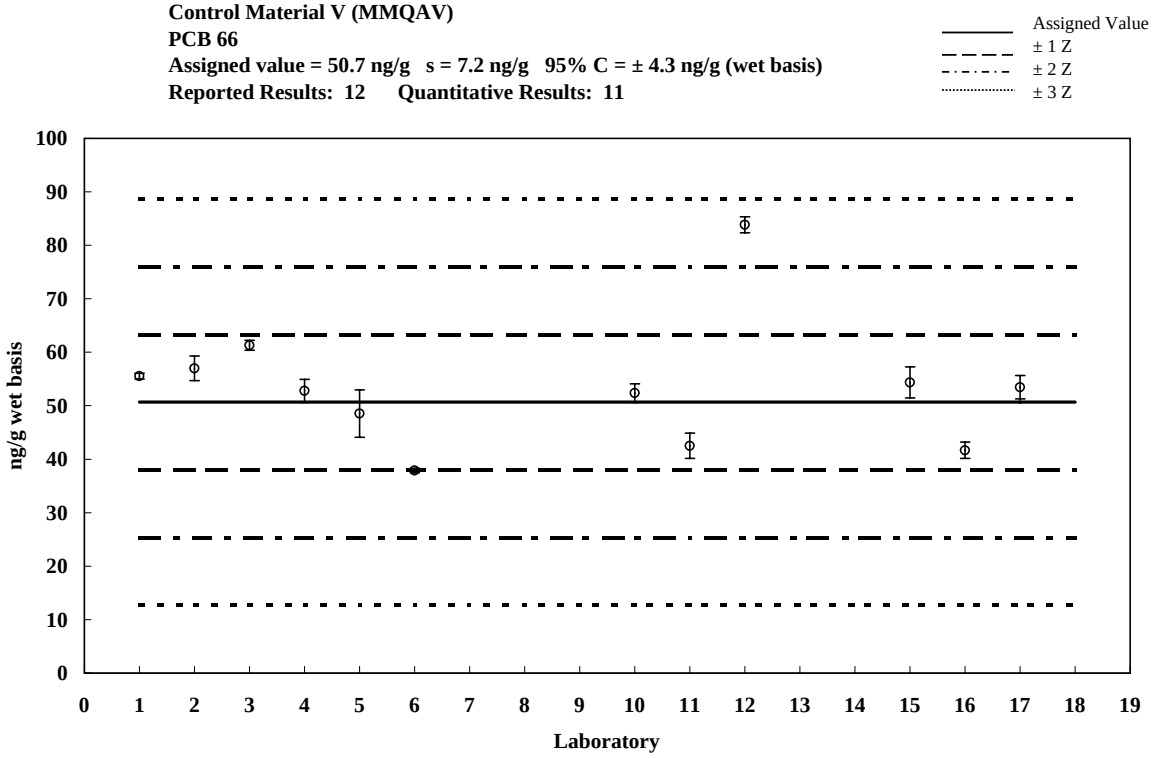
Control Material V (MMQAV)
PCB 52
Assigned value = 143 ng/g s = 17 ng/g 95% C = ± 8.5 ng/g (wet basis)
Reported Results: 17 Quantitative Results: 16



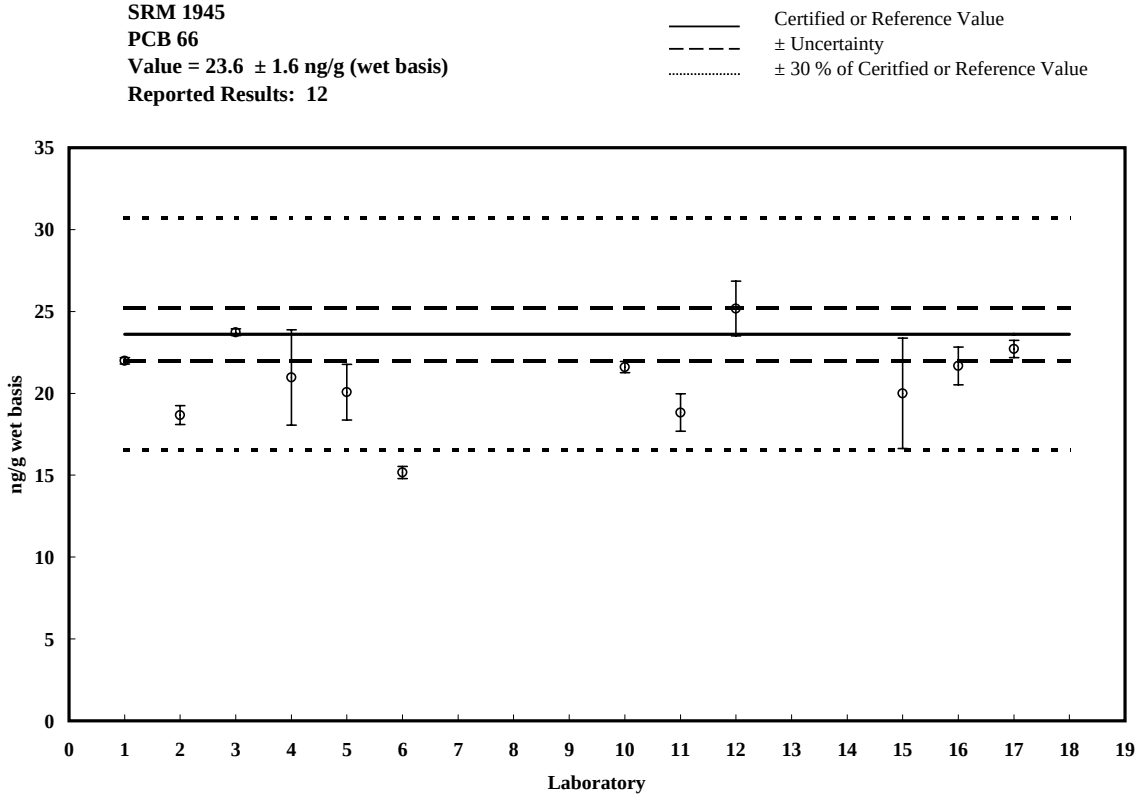
SRM 1945
PCB 52
Value = 43.6 ± 2.5 ng/g (wet basis)
Reported Results: 17



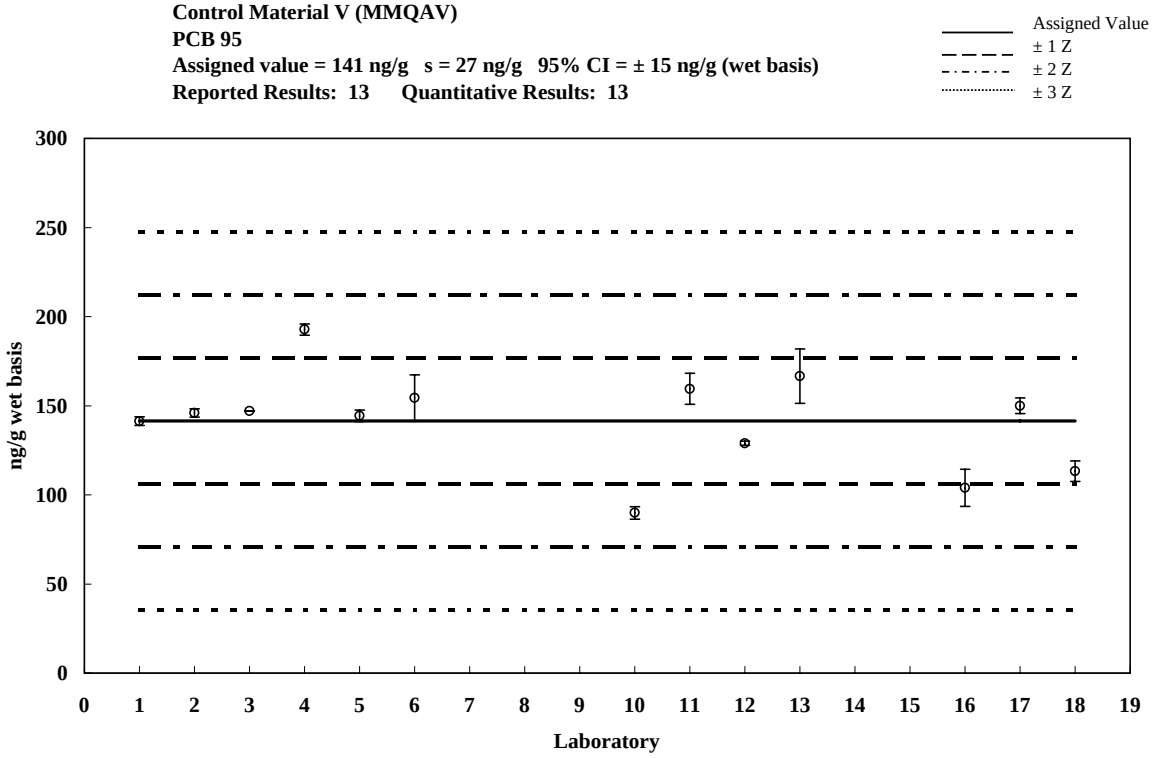
Control Material V (MMQAV)
PCB 66
Assigned value = 50.7 ng/g s = 7.2 ng/g 95% C = ± 4.3 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 11



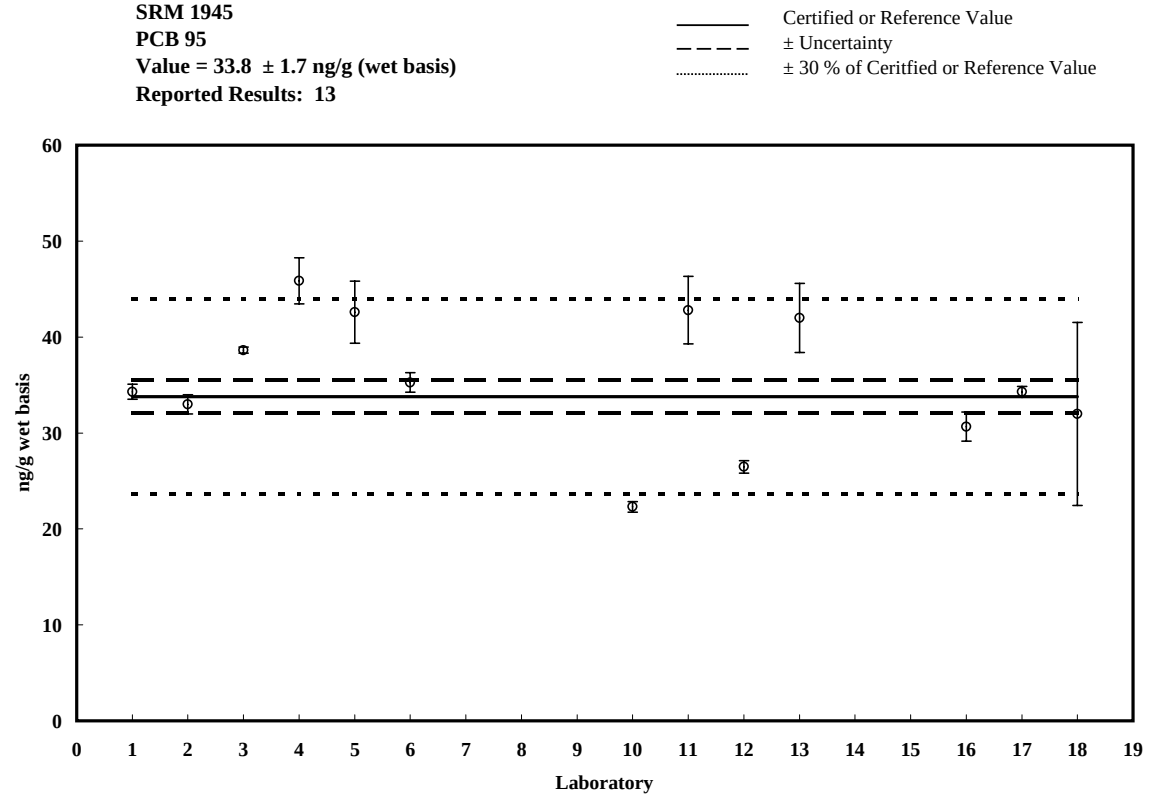
SRM 1945
PCB 66
Value = 23.6 ± 1.6 ng/g (wet basis)
Reported Results: 12



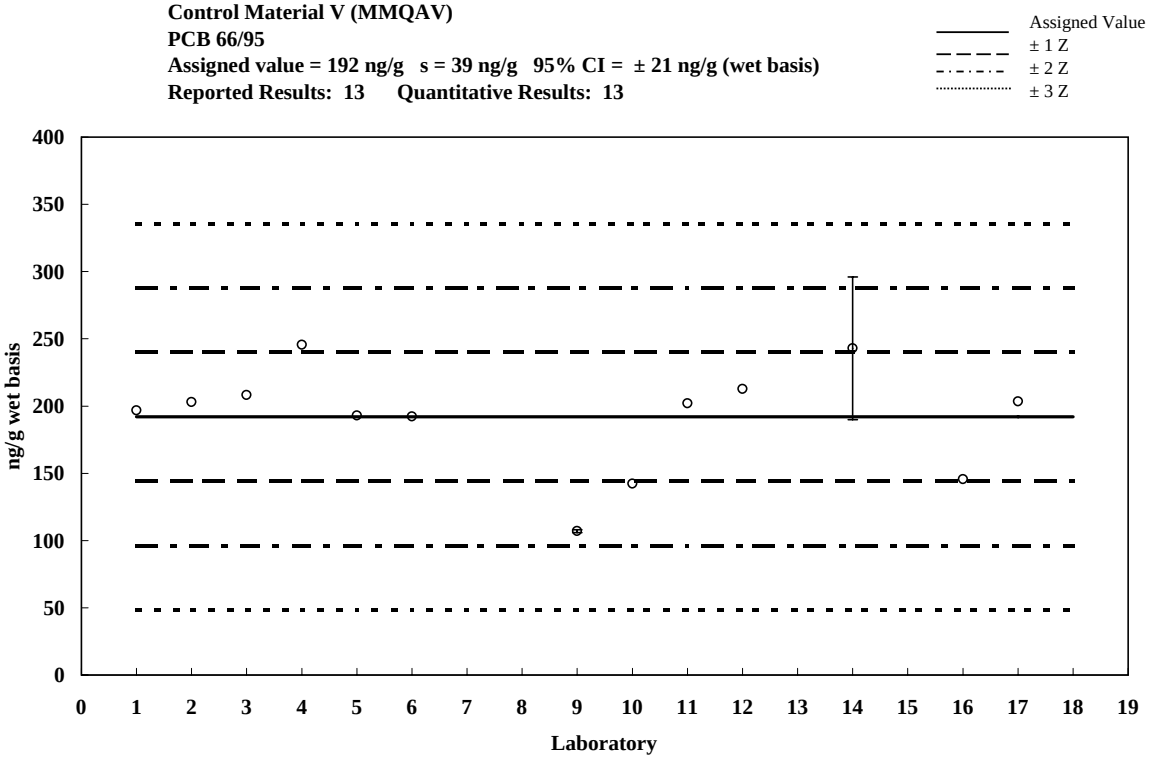
Control Material V (MMQAV)
PCB 95
Assigned value = 141 ng/g s = 27 ng/g 95% CI = ± 15 ng/g (wet basis)
Reported Results: 13 Quantitative Results: 13



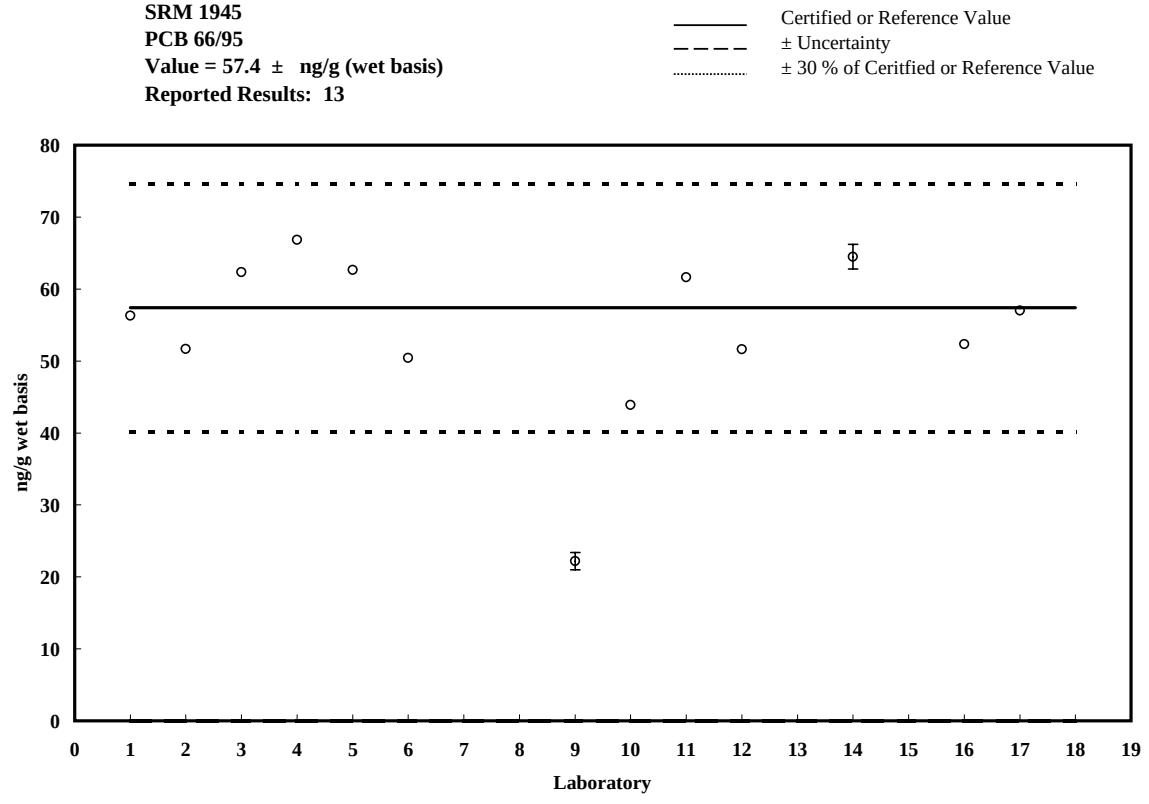
SRM 1945
PCB 95
Value = 33.8 ± 1.7 ng/g (wet basis)
Reported Results: 13



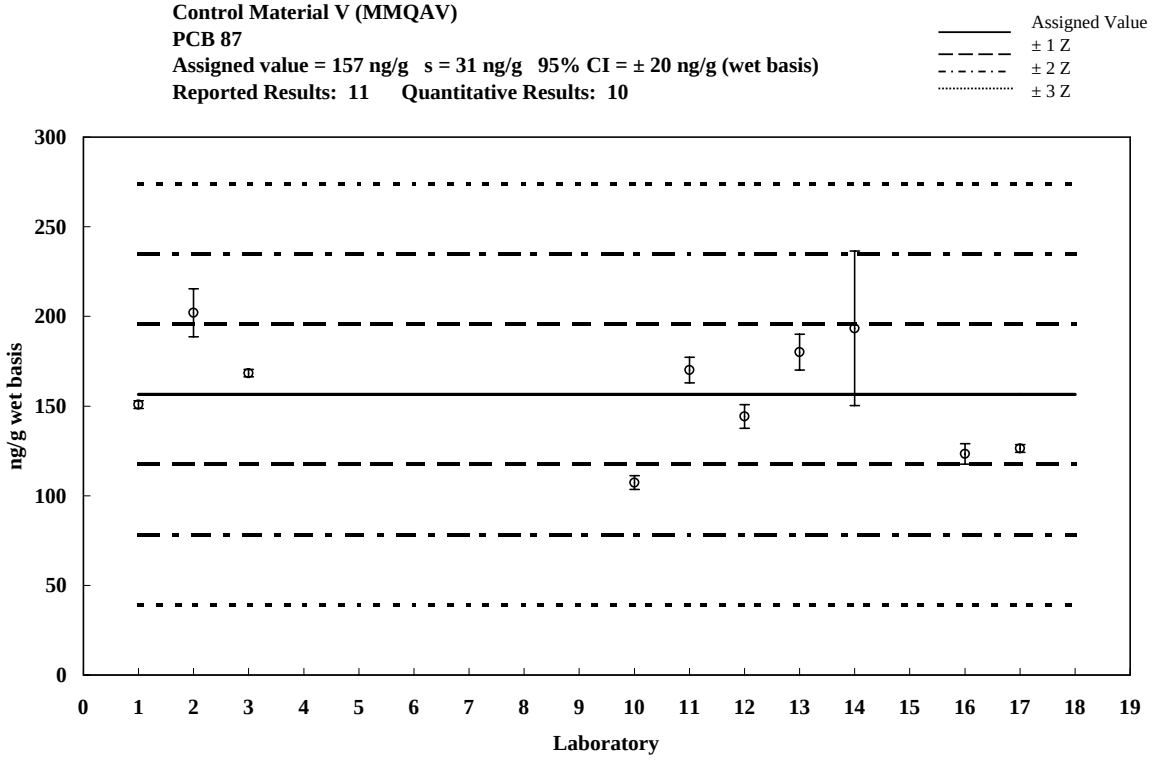
Control Material V (MMQAV)
PCB 66/95
Assigned value = 192 ng/g s = 39 ng/g 95% CI = ± 21 ng/g (wet basis)
Reported Results: 13 Quantitative Results: 13



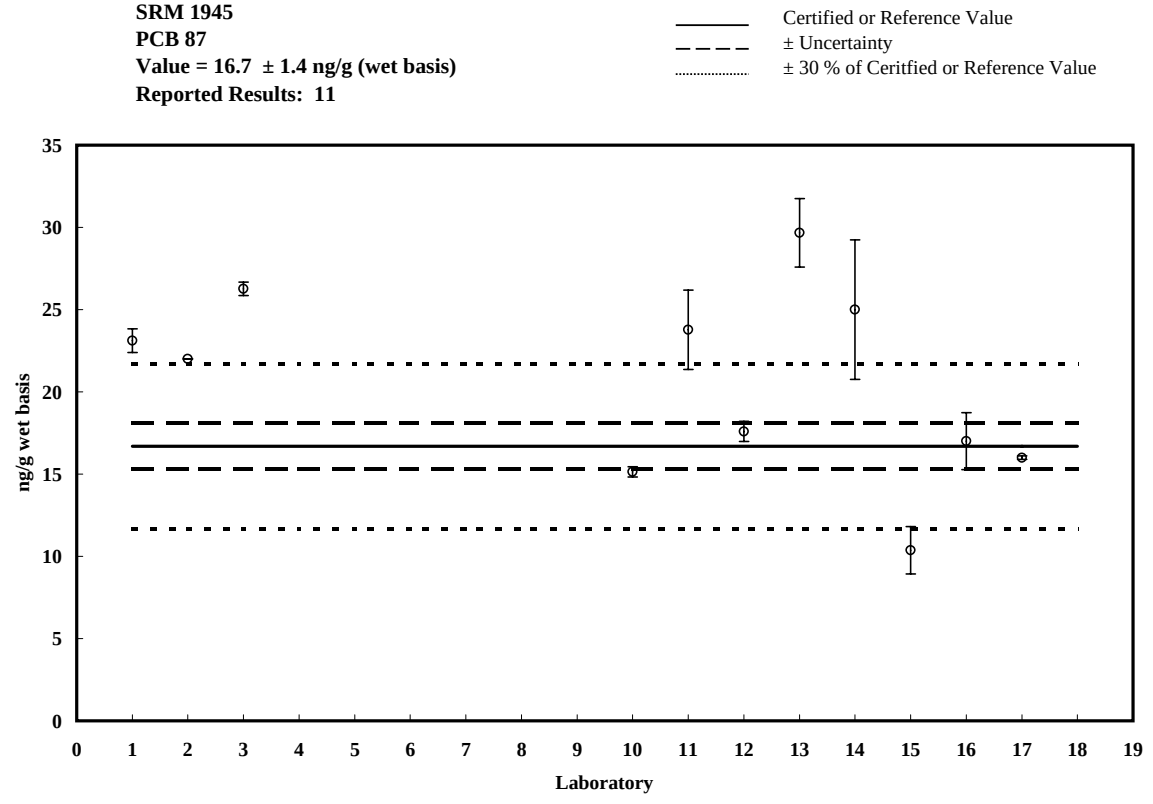
SRM 1945
PCB 66/95
Value = 57.4 ± ng/g (wet basis)
Reported Results: 13



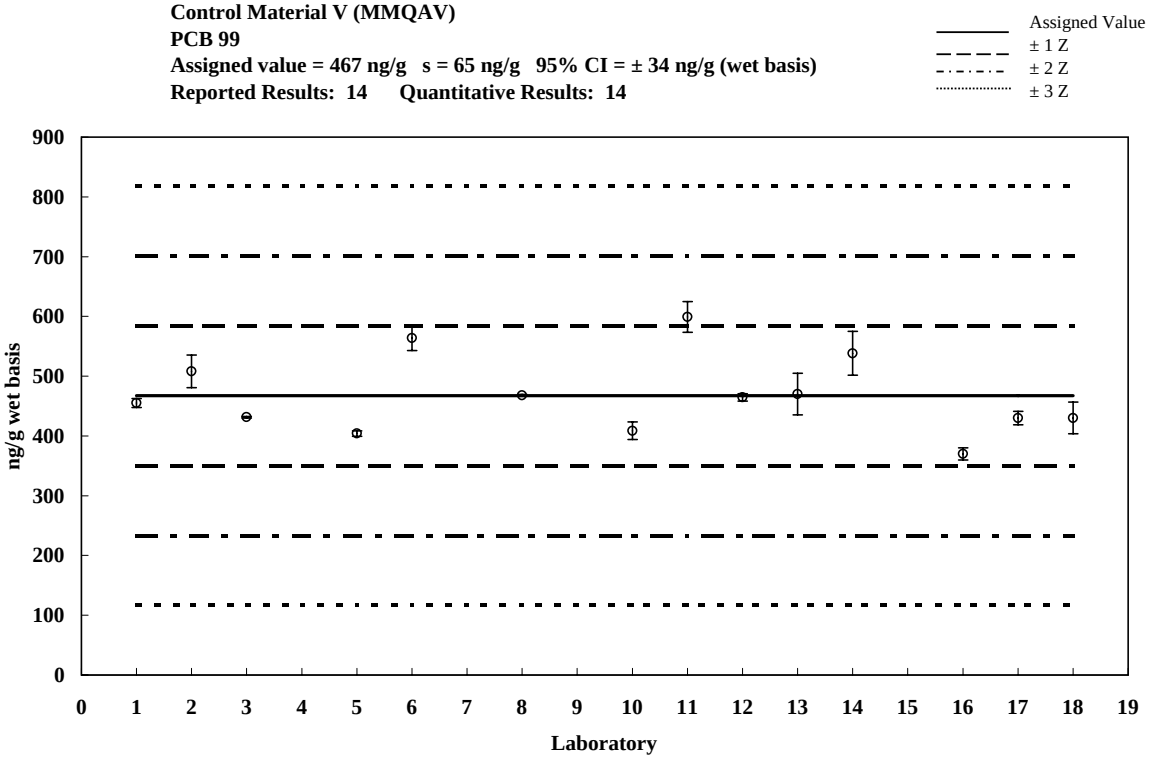
Control Material V (MMQAV)
PCB 87
Assigned value = 157 ng/g s = 31 ng/g 95% CI = ± 20 ng/g (wet basis)
Reported Results: 11 Quantitative Results: 10



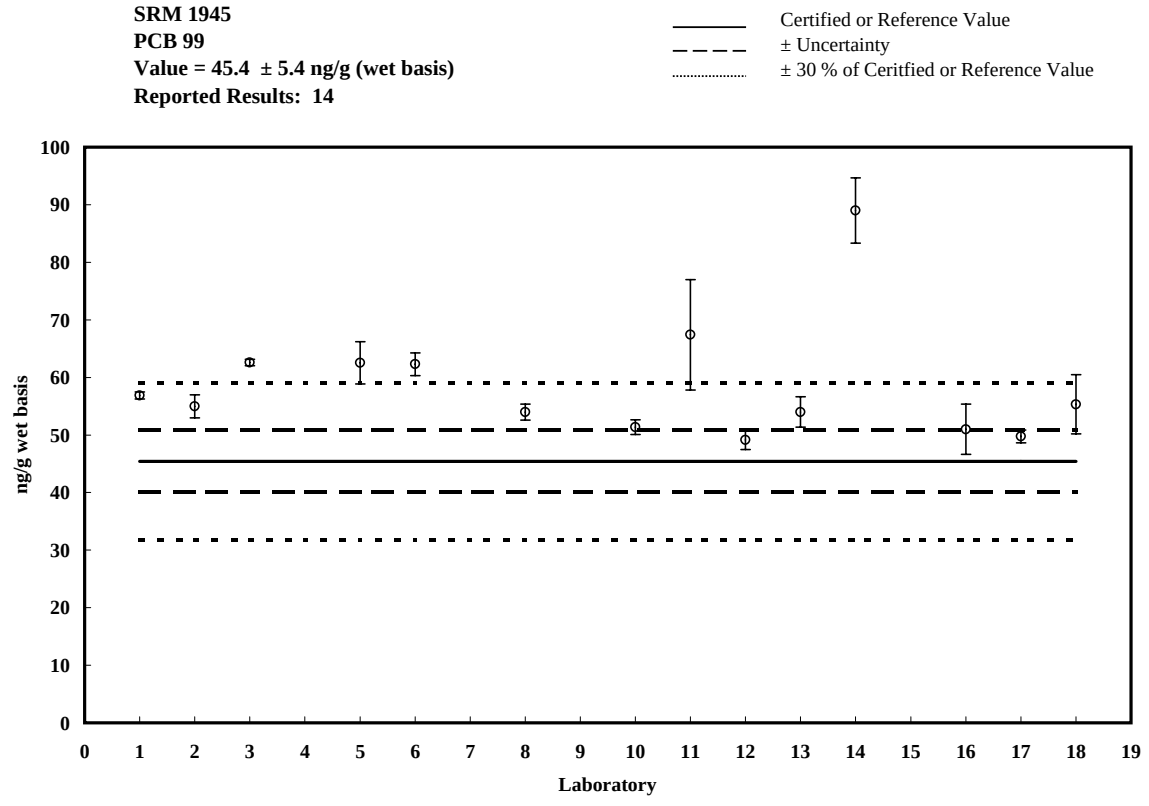
SRM 1945
PCB 87
Value = 16.7 ± 1.4 ng/g (wet basis)
Reported Results: 11



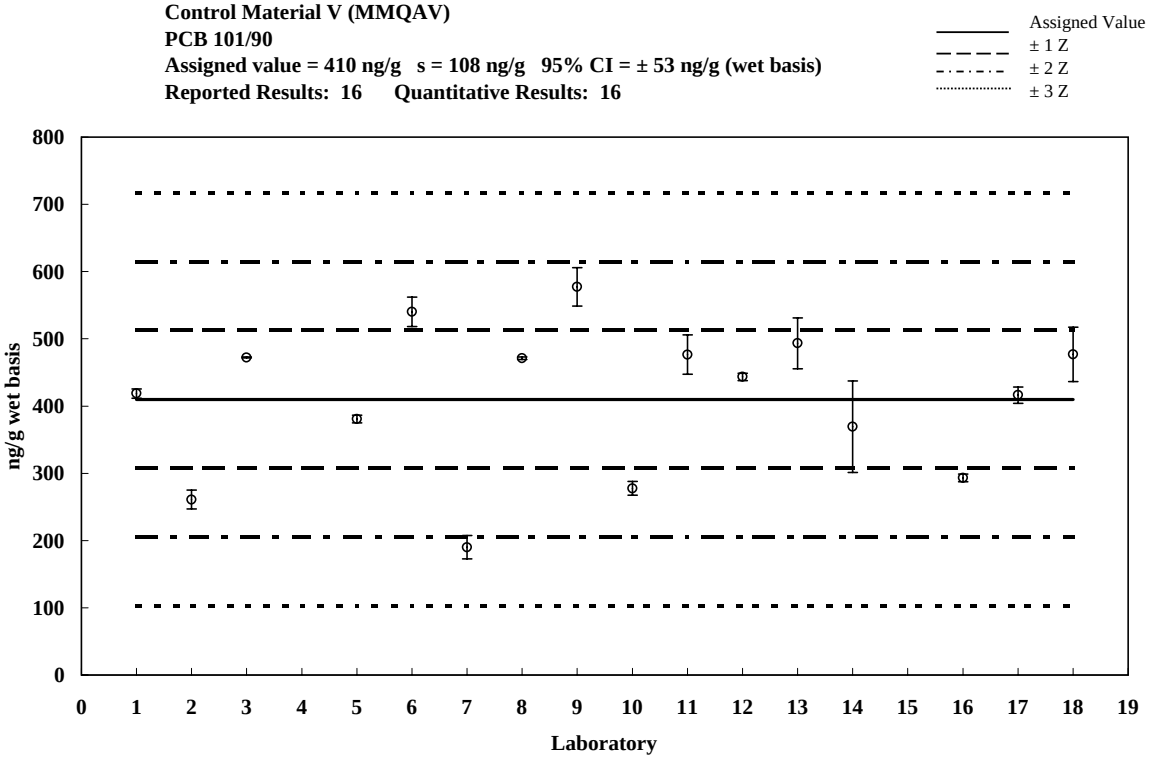
Control Material V (MMQAV)
PCB 99
Assigned value = 467 ng/g s = 65 ng/g 95% CI = ± 34 ng/g (wet basis)
Reported Results: 14 Quantitative Results: 14



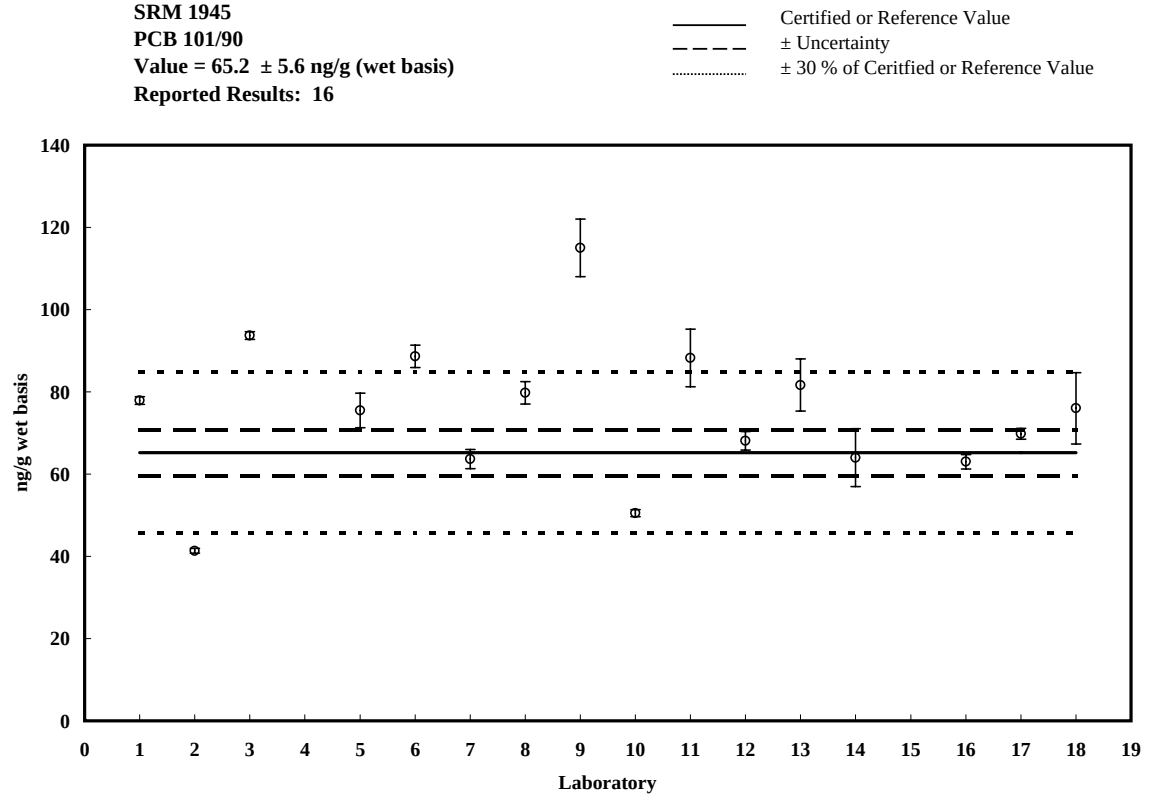
SRM 1945
PCB 99
Value = 45.4 ± 5.4 ng/g (wet basis)
Reported Results: 14



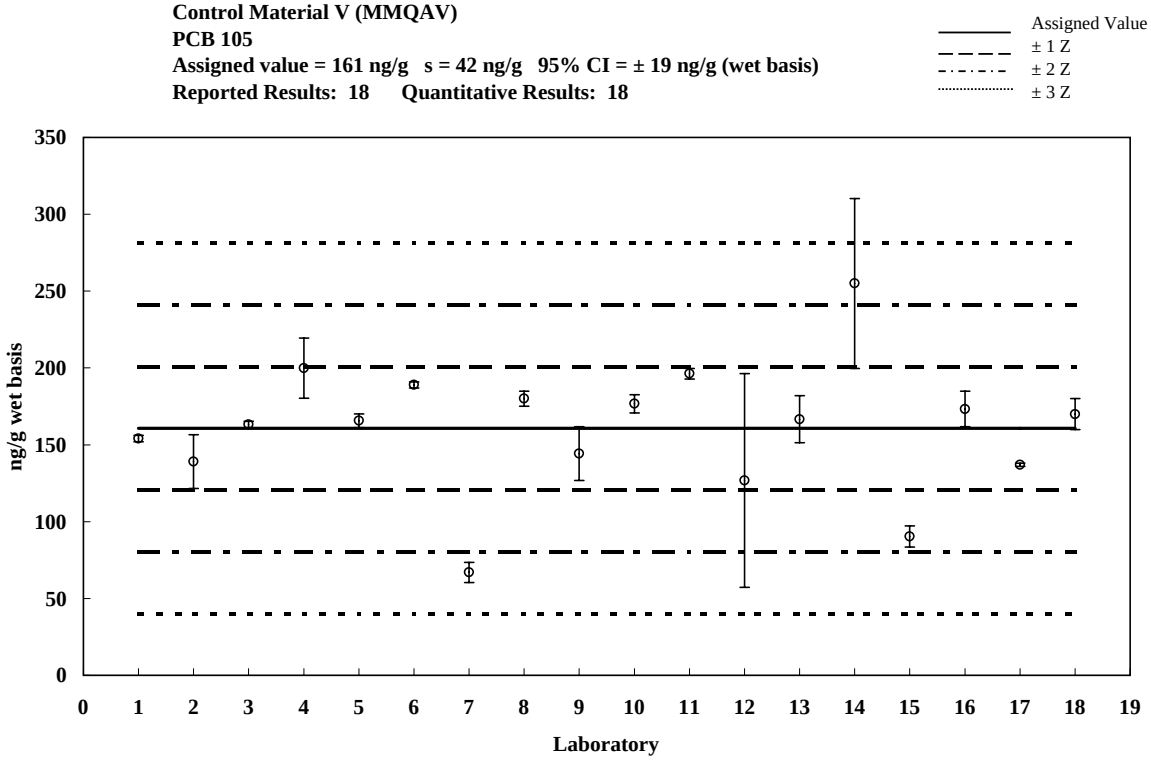
Control Material V (MMQAV)
PCB 101/90
Assigned value = 410 ng/g s = 108 ng/g 95% CI = ± 53 ng/g (wet basis)
Reported Results: 16 Quantitative Results: 16



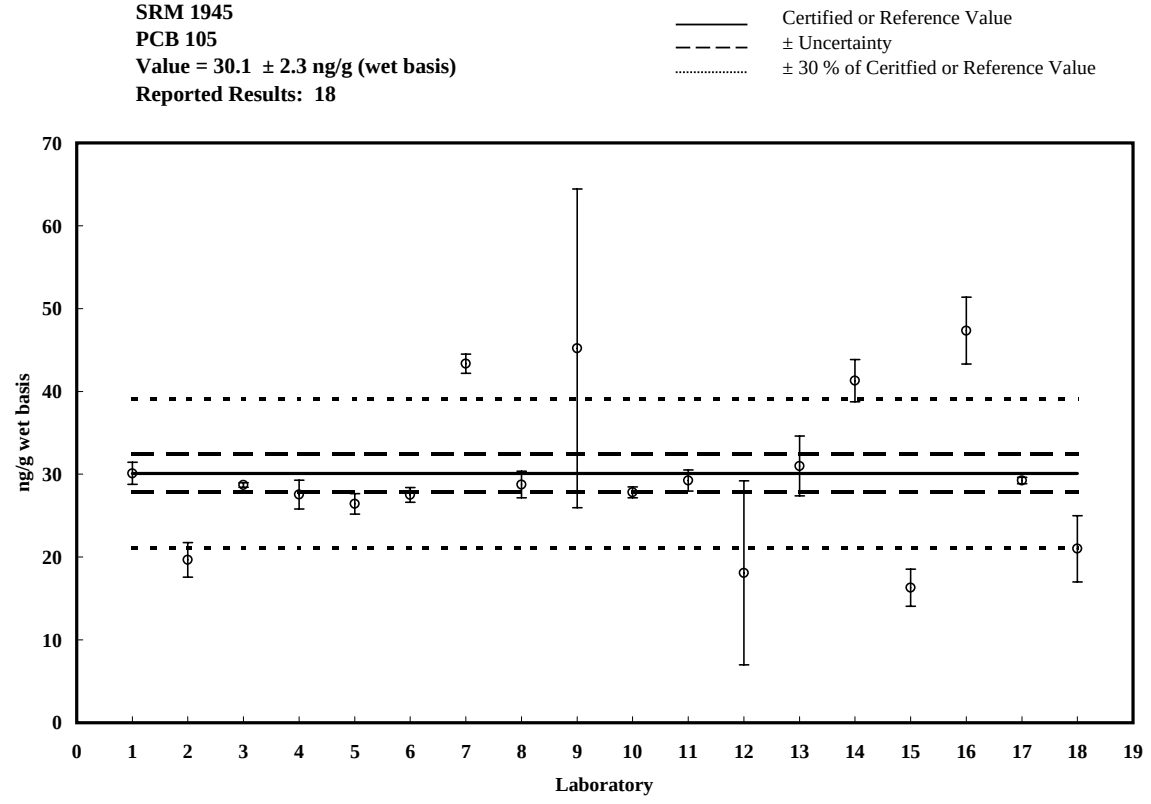
SRM 1945
PCB 101/90
Value = 65.2 ± 5.6 ng/g (wet basis)
Reported Results: 16



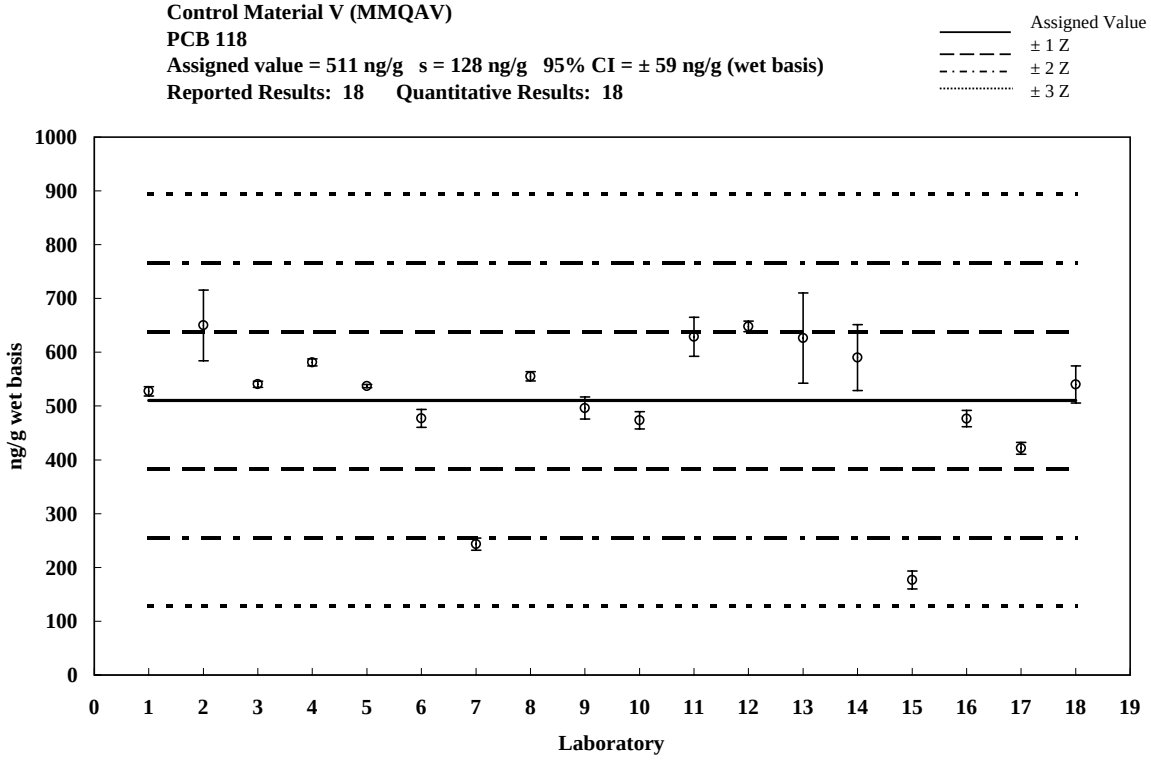
Control Material V (MMQAV)
PCB 105
Assigned value = 161 ng/g s = 42 ng/g 95% CI = ± 19 ng/g (wet basis)
Reported Results: 18 Quantitative Results: 18



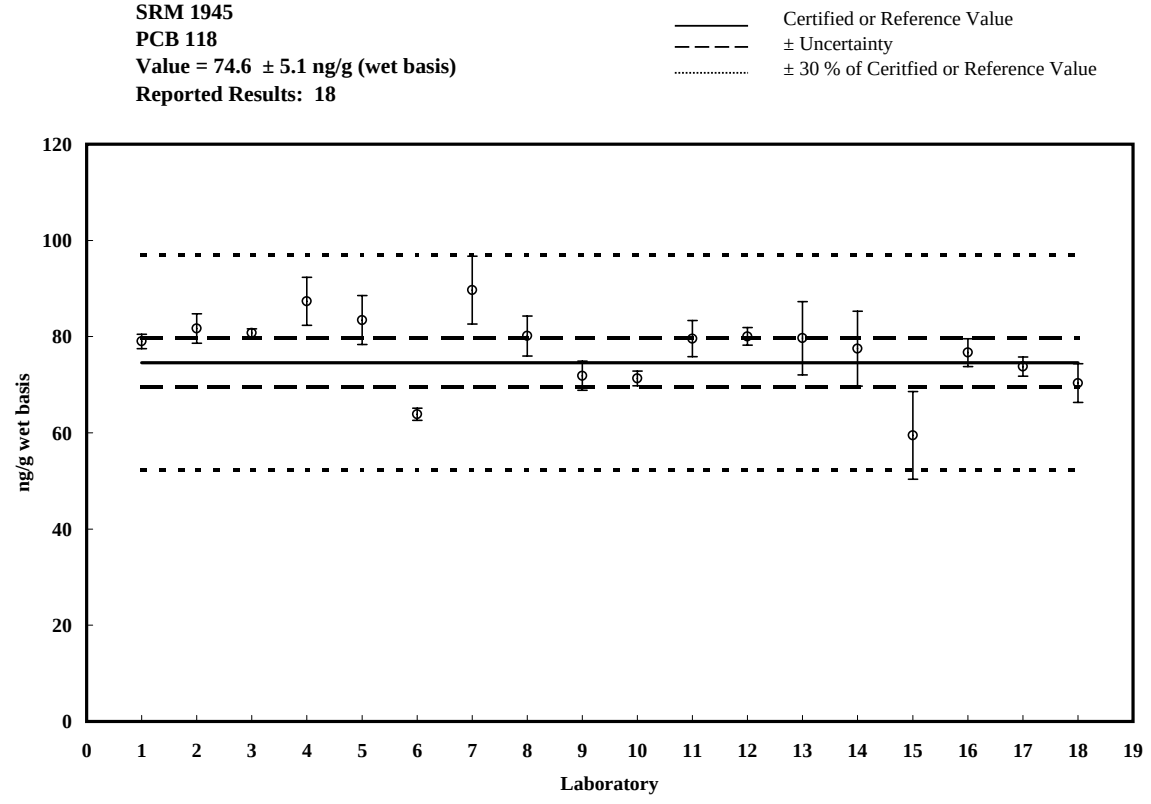
SRM 1945
PCB 105
Value = 30.1 ± 2.3 ng/g (wet basis)
Reported Results: 18



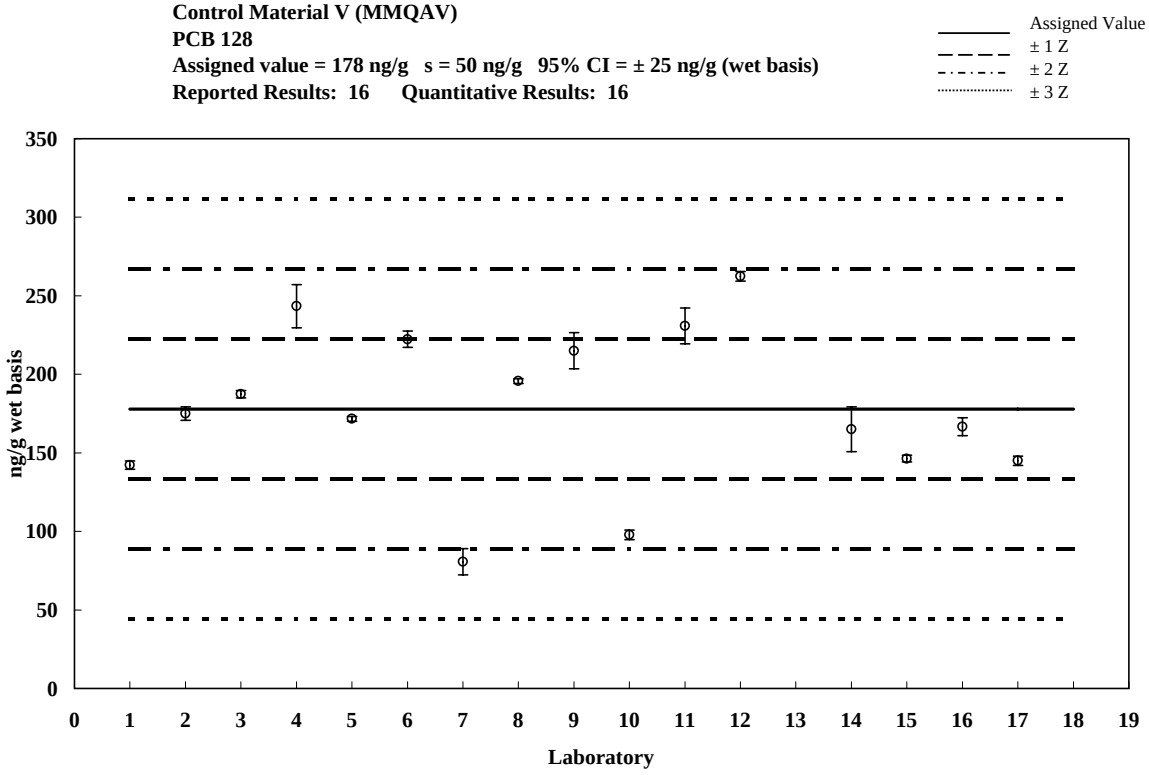
Control Material V (MMQAV)
PCB 118
Assigned value = 511 ng/g s = 128 ng/g 95% CI = ± 59 ng/g (wet basis)
Reported Results: 18 Quantitative Results: 18



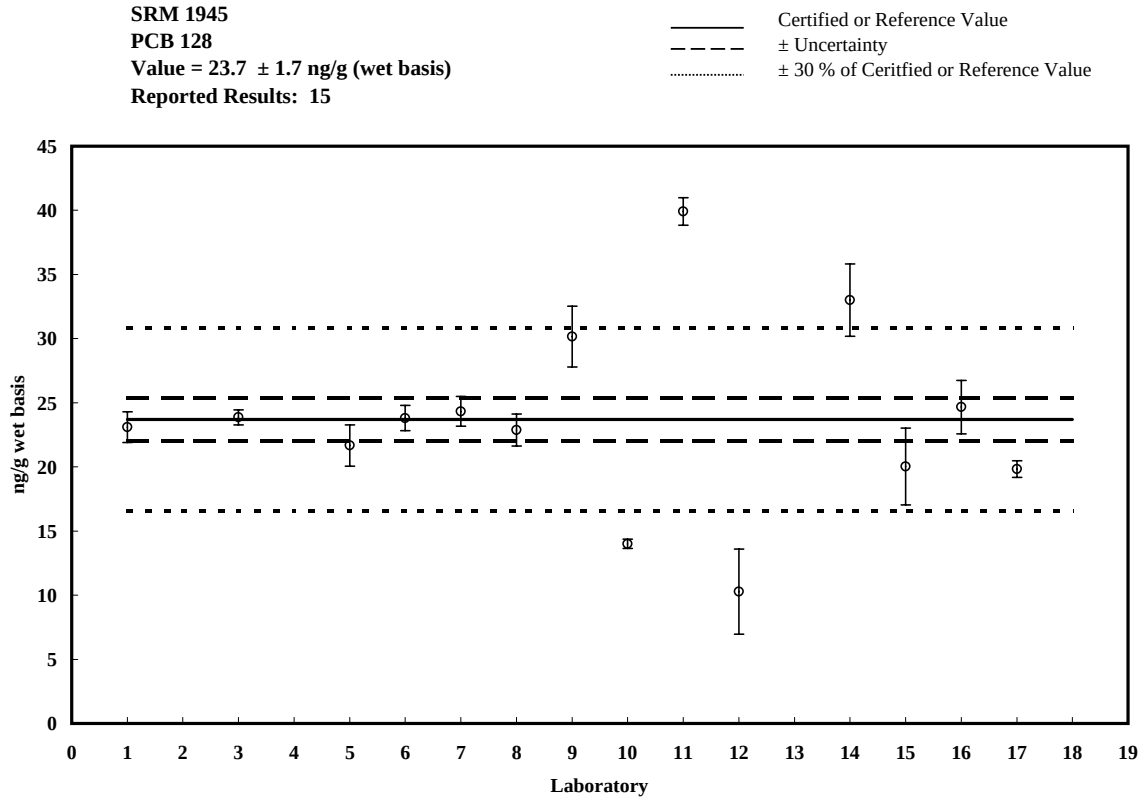
SRM 1945
PCB 118
Value = 74.6 ± 5.1 ng/g (wet basis)
Reported Results: 18



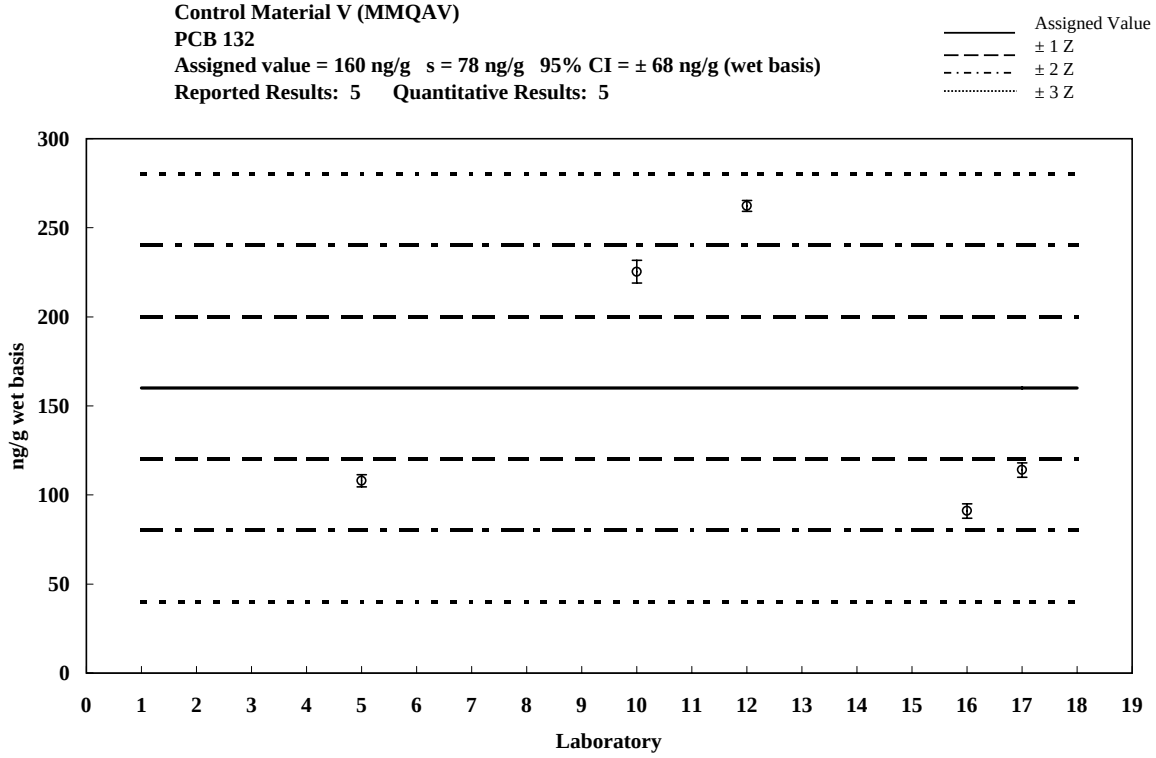
Control Material V (MMQAV)
PCB 128
Assigned value = 178 ng/g s = 50 ng/g 95% CI = ± 25 ng/g (wet basis)
Reported Results: 16 Quantitative Results: 16



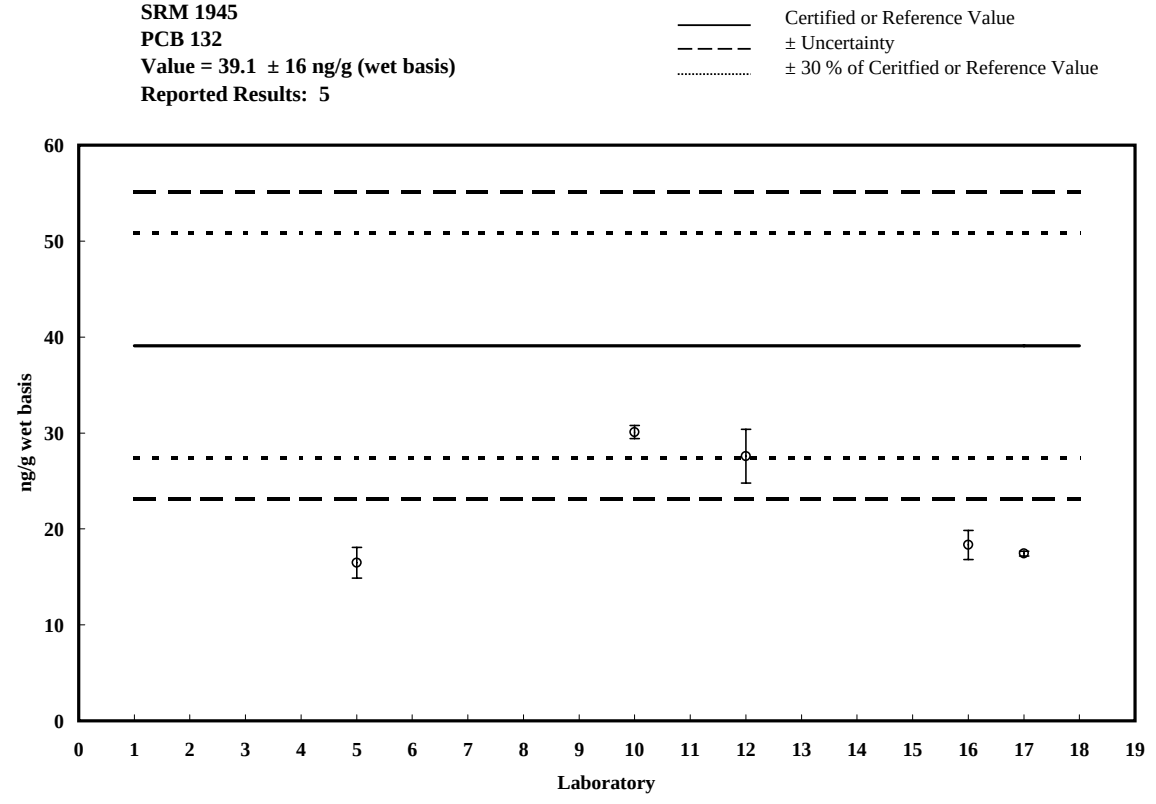
SRM 1945
PCB 128
Value = 23.7 ± 1.7 ng/g (wet basis)
Reported Results: 15



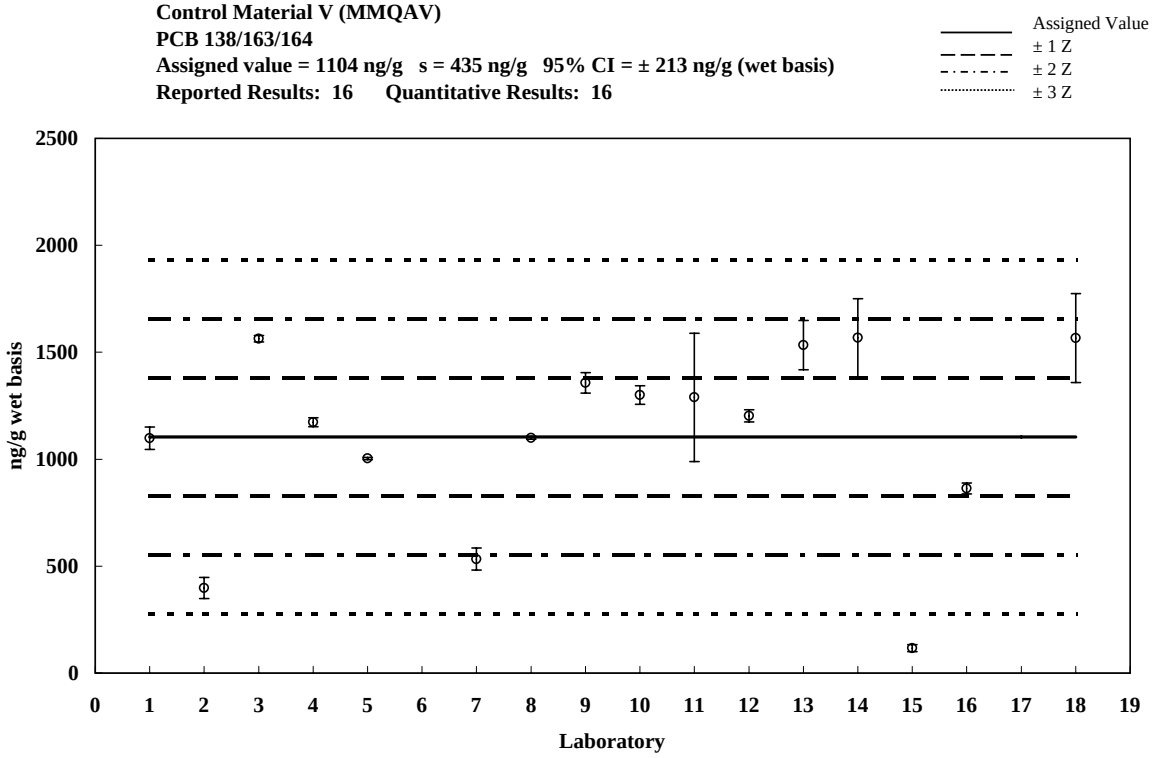
Control Material V (MMQAV)
PCB 132
Assigned value = 160 ng/g s = 78 ng/g 95% CI = ± 68 ng/g (wet basis)
Reported Results: 5 Quantitative Results: 5



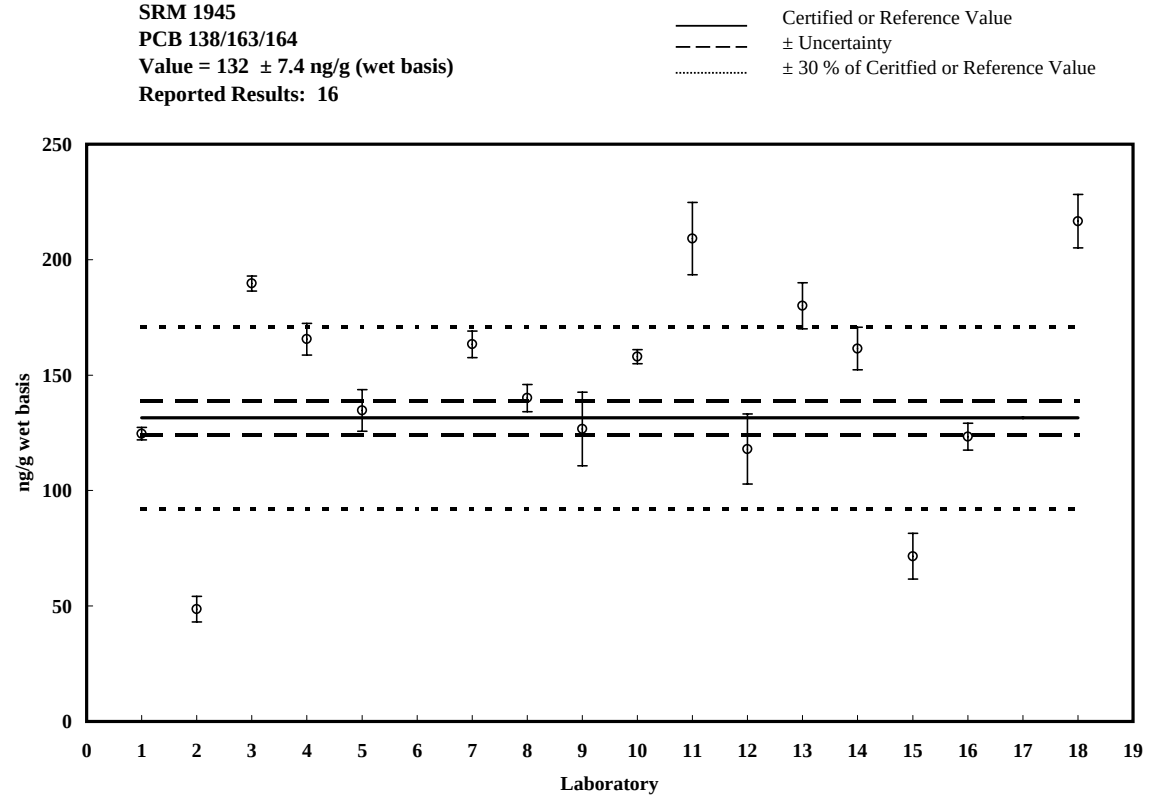
SRM 1945
PCB 132
Value = 39.1 ± 16 ng/g (wet basis)
Reported Results: 5



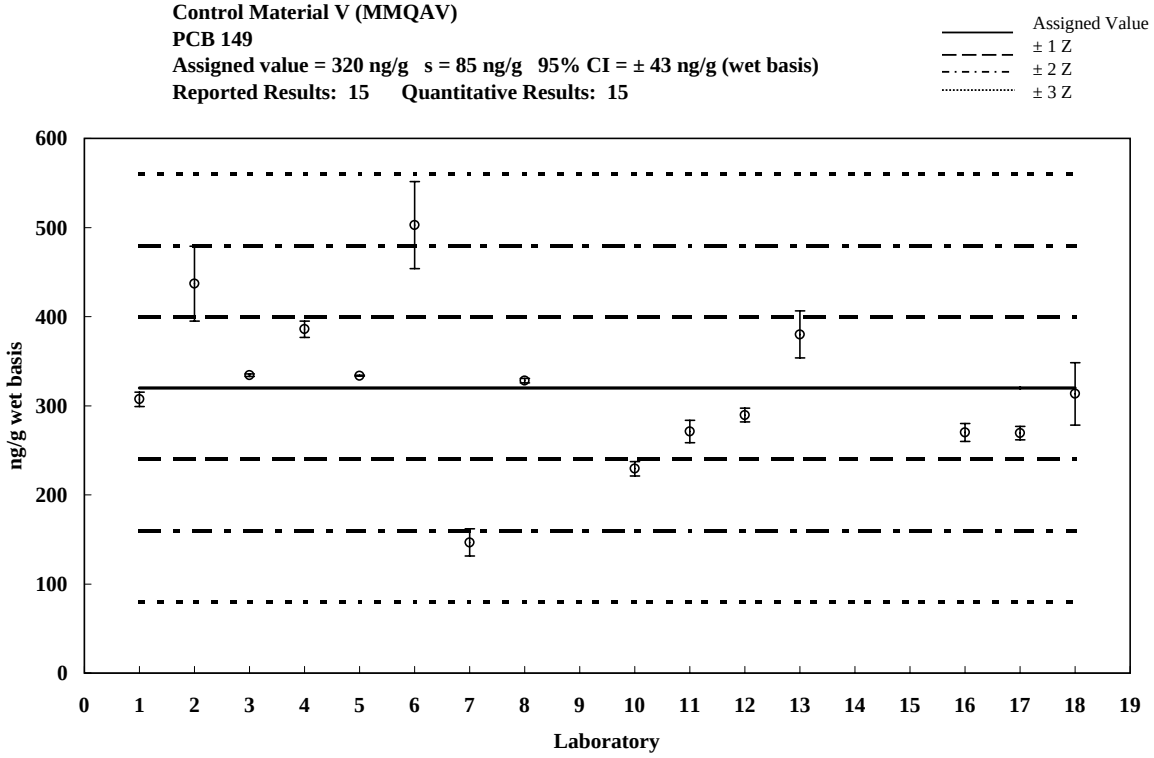
Control Material V (MMQAV)
PCB 138/163/164
Assigned value = 1104 ng/g s = 435 ng/g 95% CI = ± 213 ng/g (wet basis)
Reported Results: 16 Quantitative Results: 16



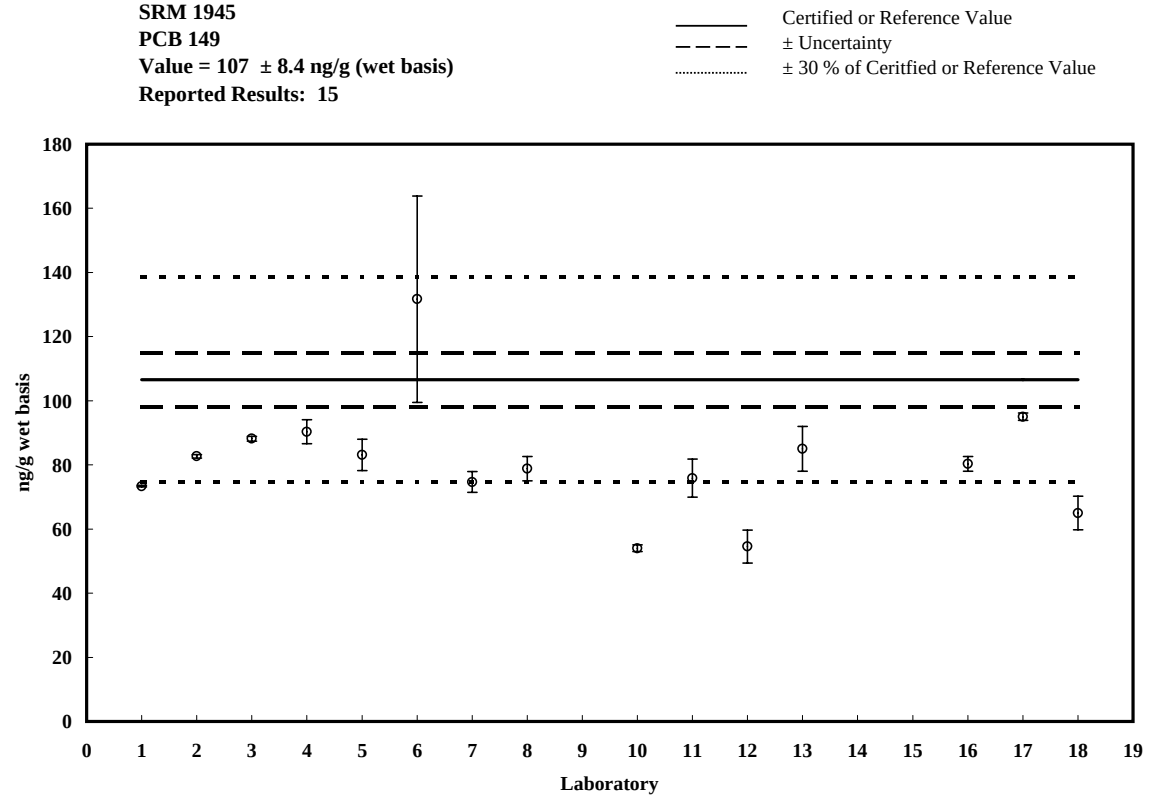
SRM 1945
PCB 138/163/164
Value = 132 ± 7.4 ng/g (wet basis)
Reported Results: 16



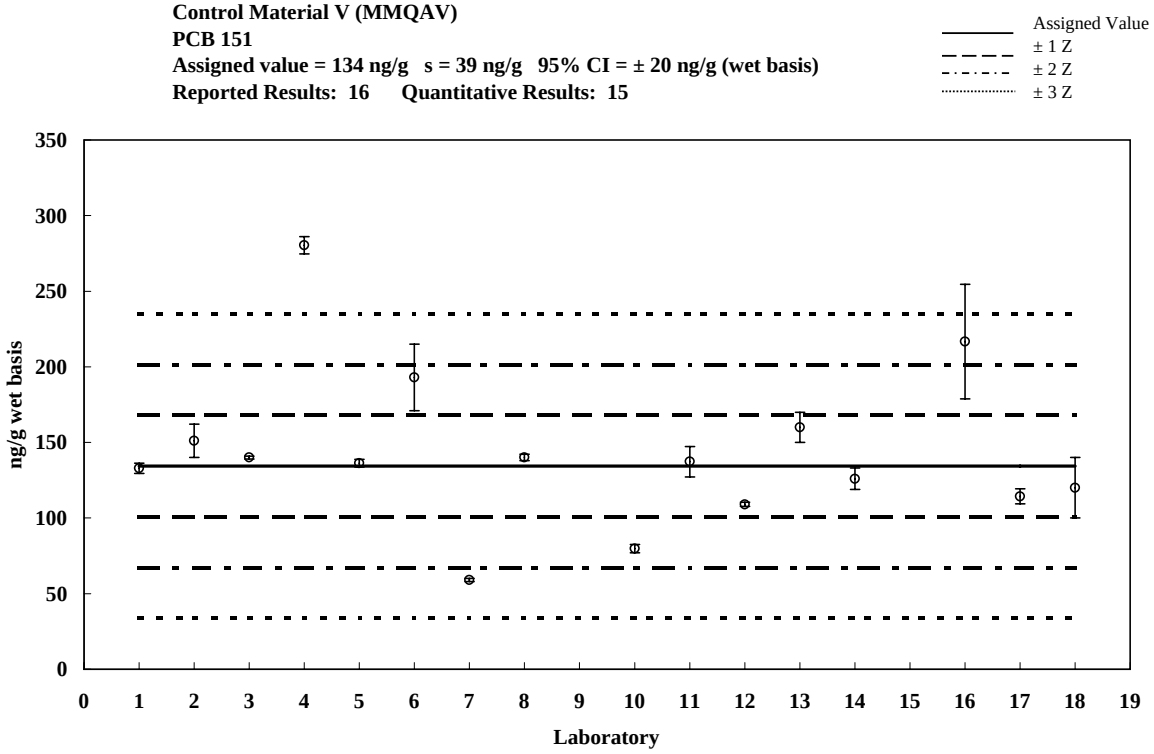
Control Material V (MMQAV)
PCB 149
Assigned value = 320 ng/g s = 85 ng/g 95% CI = ± 43 ng/g (wet basis)
Reported Results: 15 Quantitative Results: 15



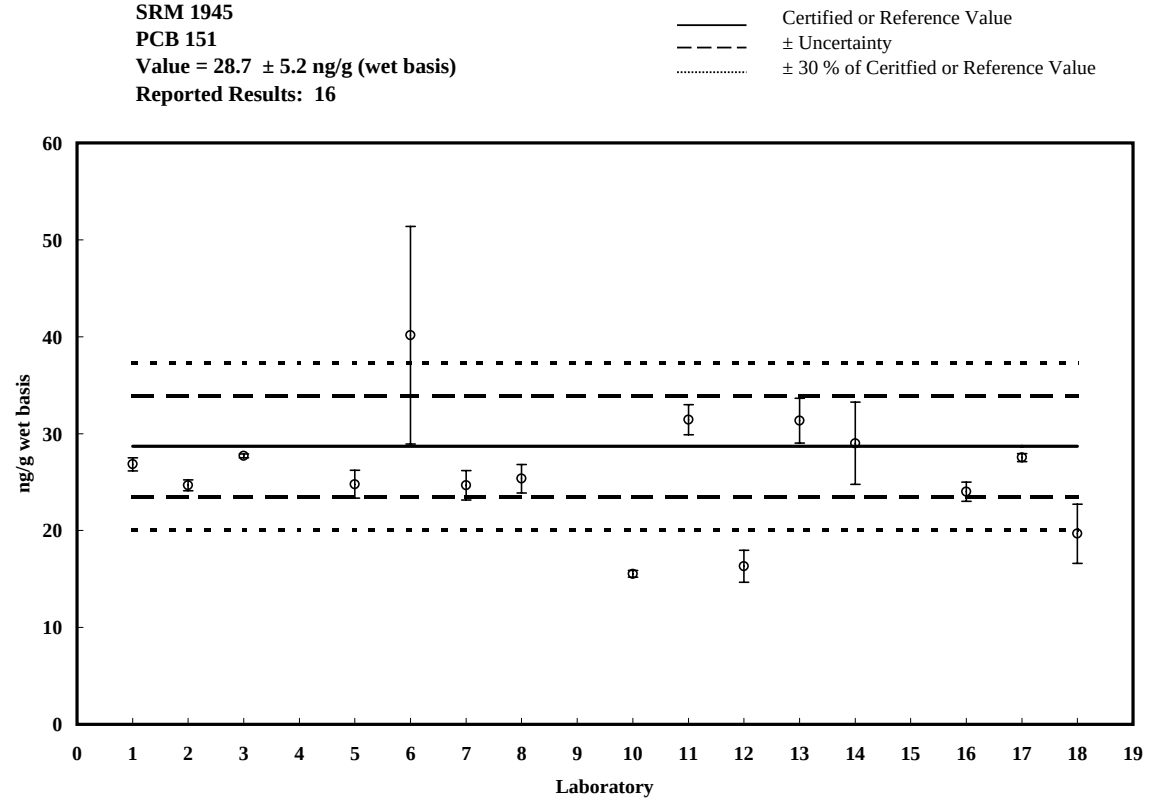
SRM 1945
PCB 149
Value = 107 ± 8.4 ng/g (wet basis)
Reported Results: 15



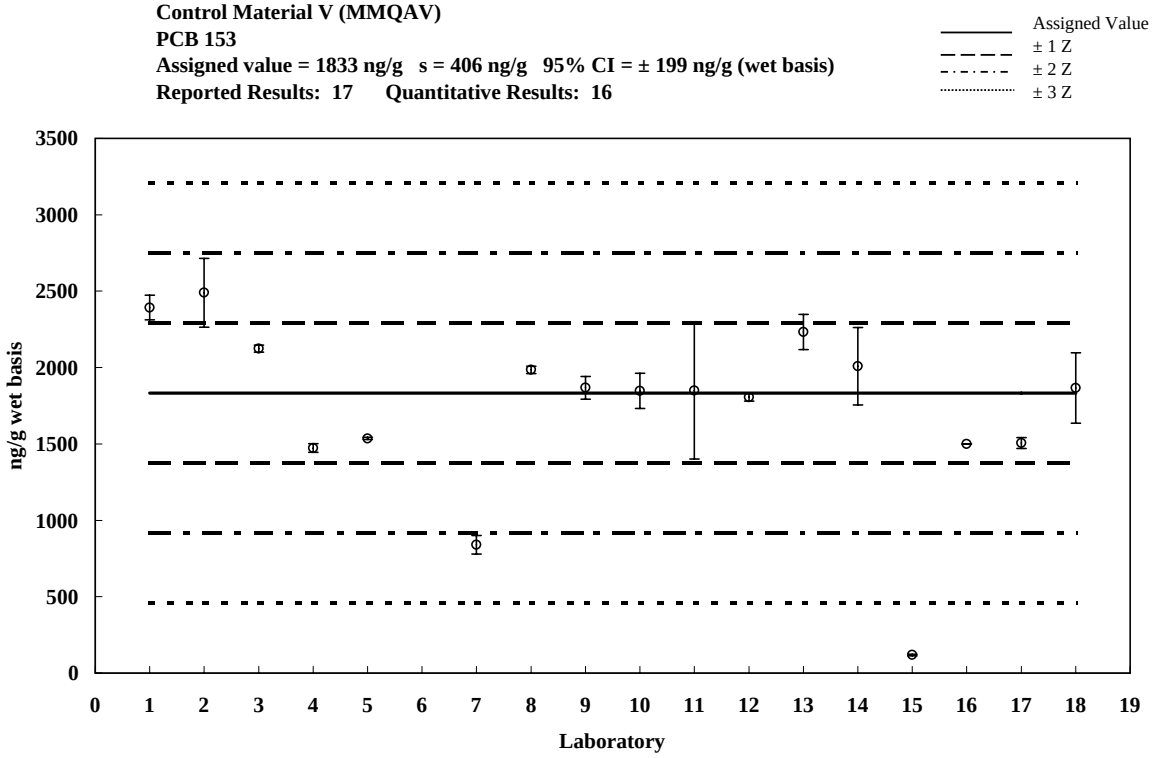
Control Material V (MMQAV)
PCB 151
Assigned value = 134 ng/g s = 39 ng/g 95% CI = ± 20 ng/g (wet basis)
Reported Results: 16 Quantitative Results: 15



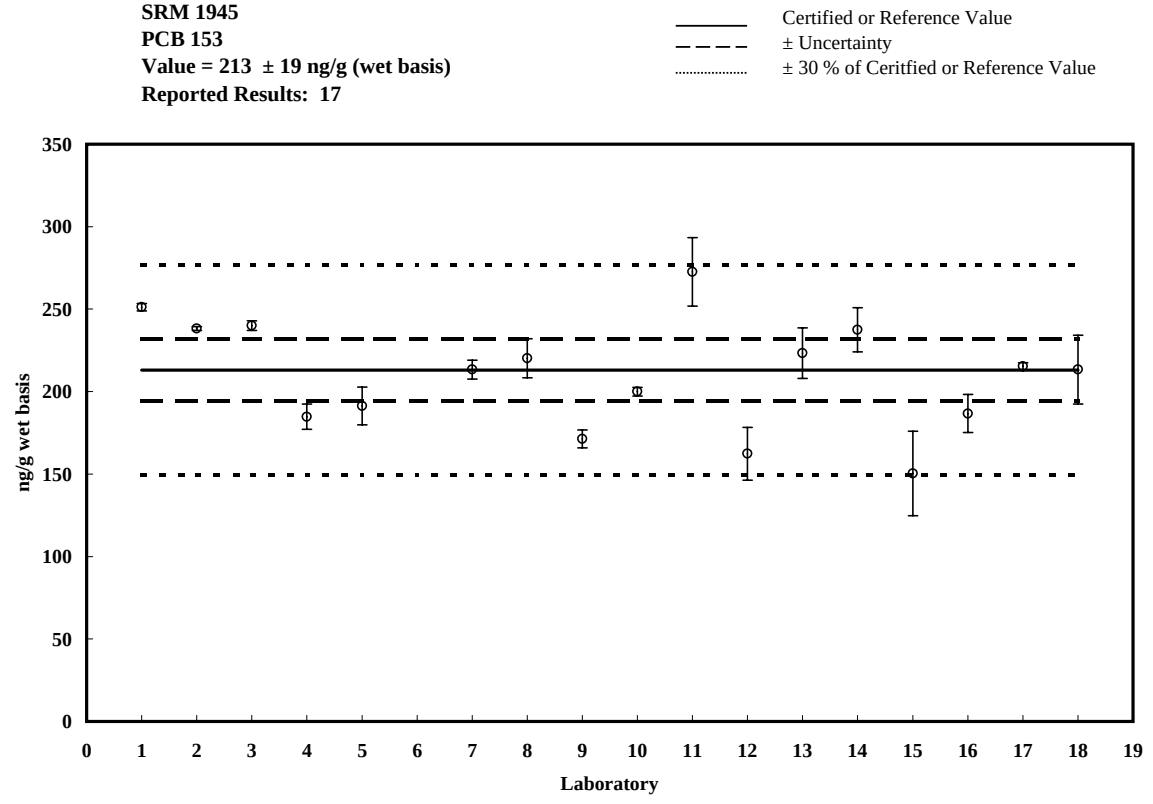
SRM 1945
PCB 151
Value = 28.7 ± 5.2 ng/g (wet basis)
Reported Results: 16



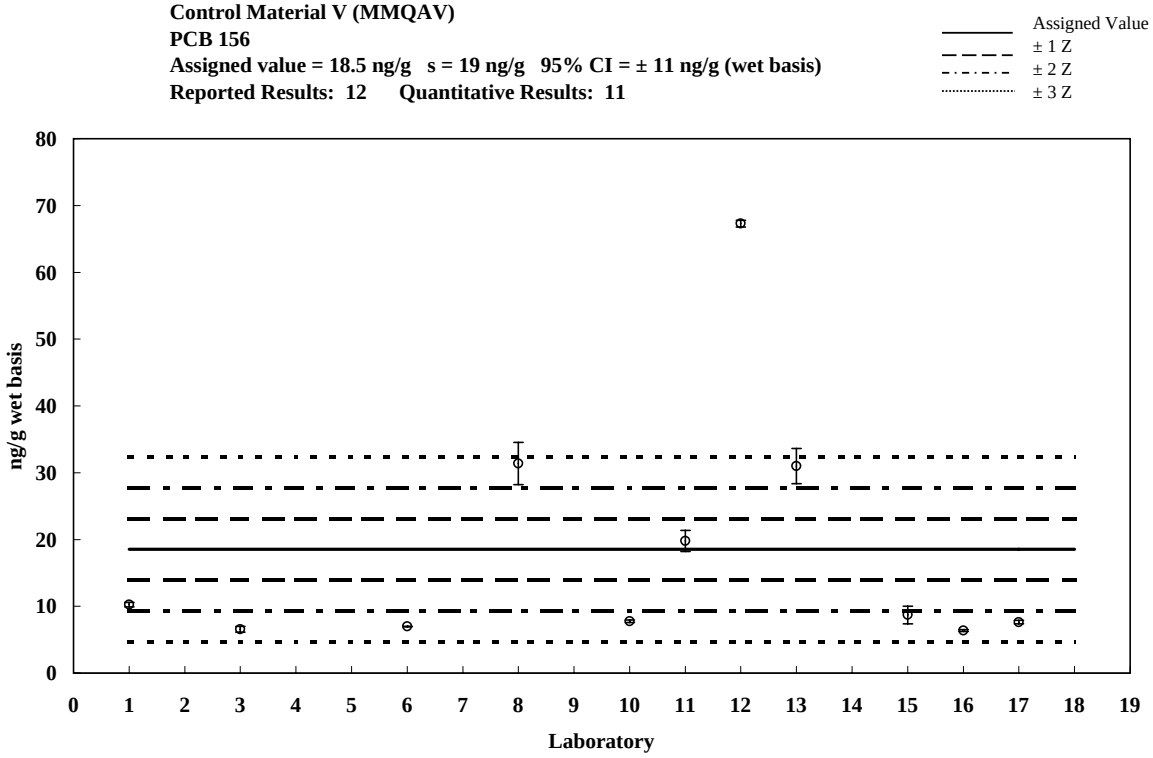
Control Material V (MMQAV)
PCB 153
Assigned value = 1833 ng/g s = 406 ng/g 95% CI = ± 199 ng/g (wet basis)
Reported Results: 17 Quantitative Results: 16



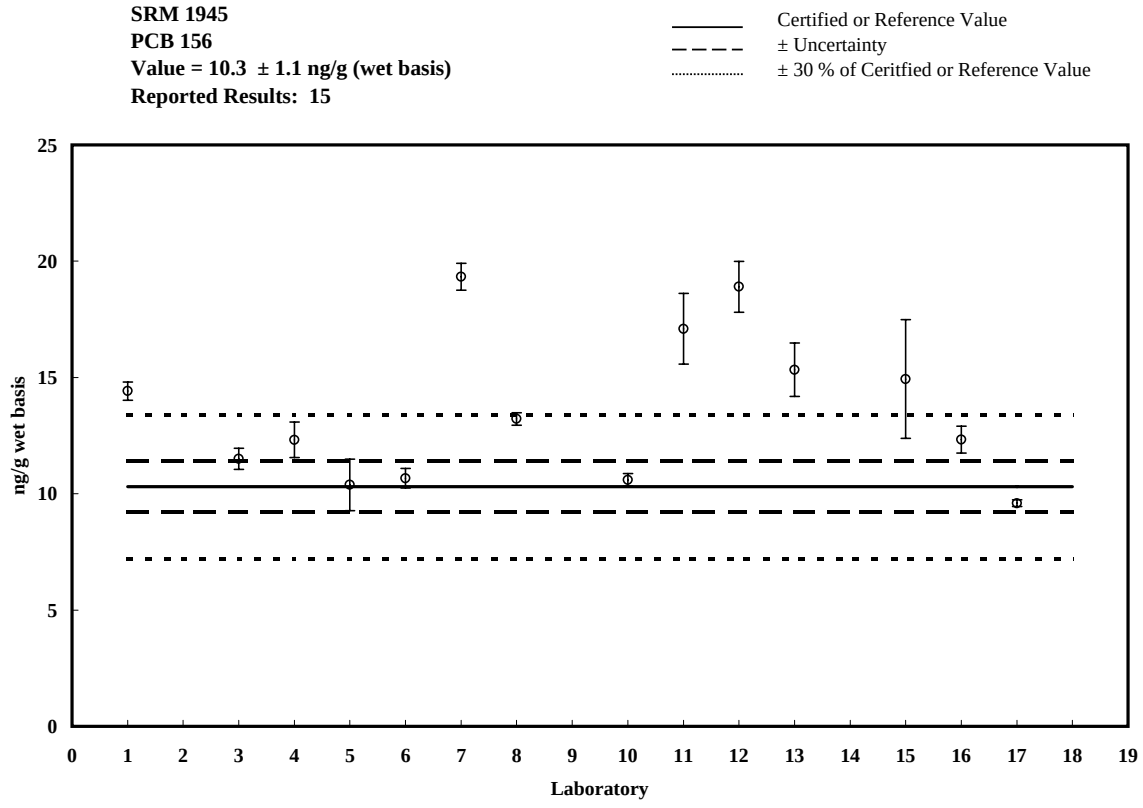
SRM 1945
PCB 153
Value = 213 ± 19 ng/g (wet basis)
Reported Results: 17



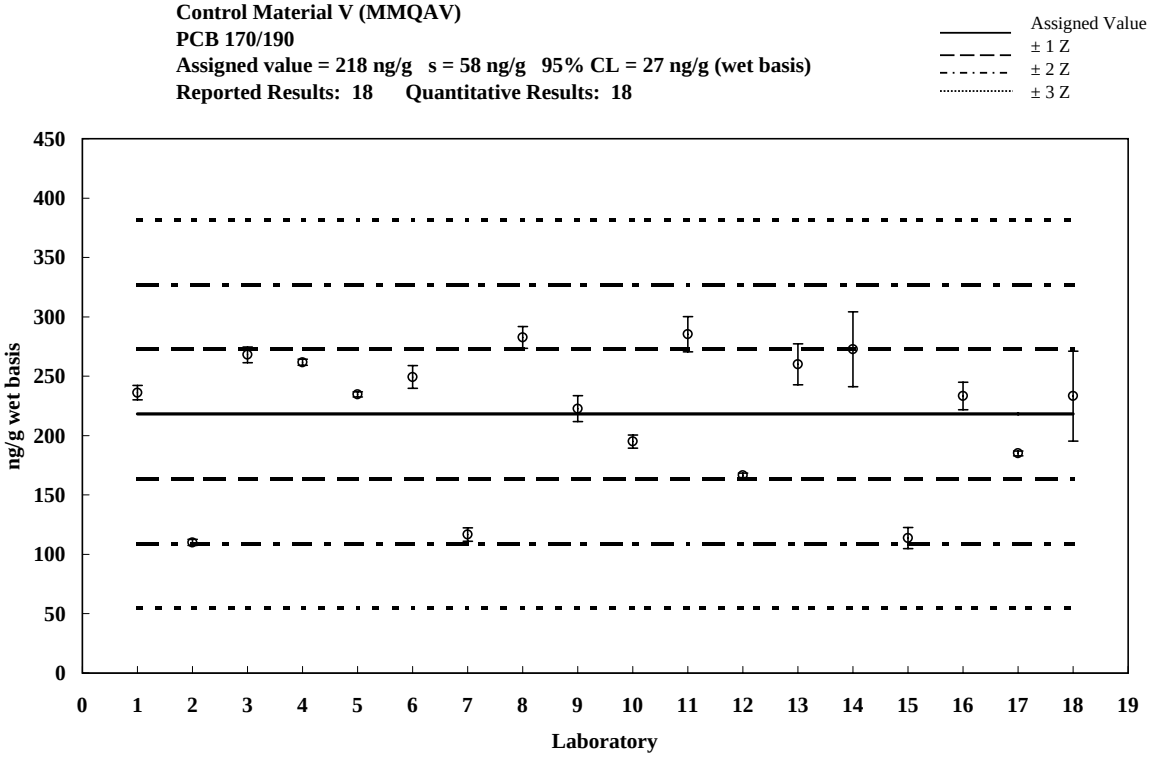
Control Material V (MMQAV)
PCB 156
Assigned value = 18.5 ng/g s = 19 ng/g 95% CI = ± 11 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 11



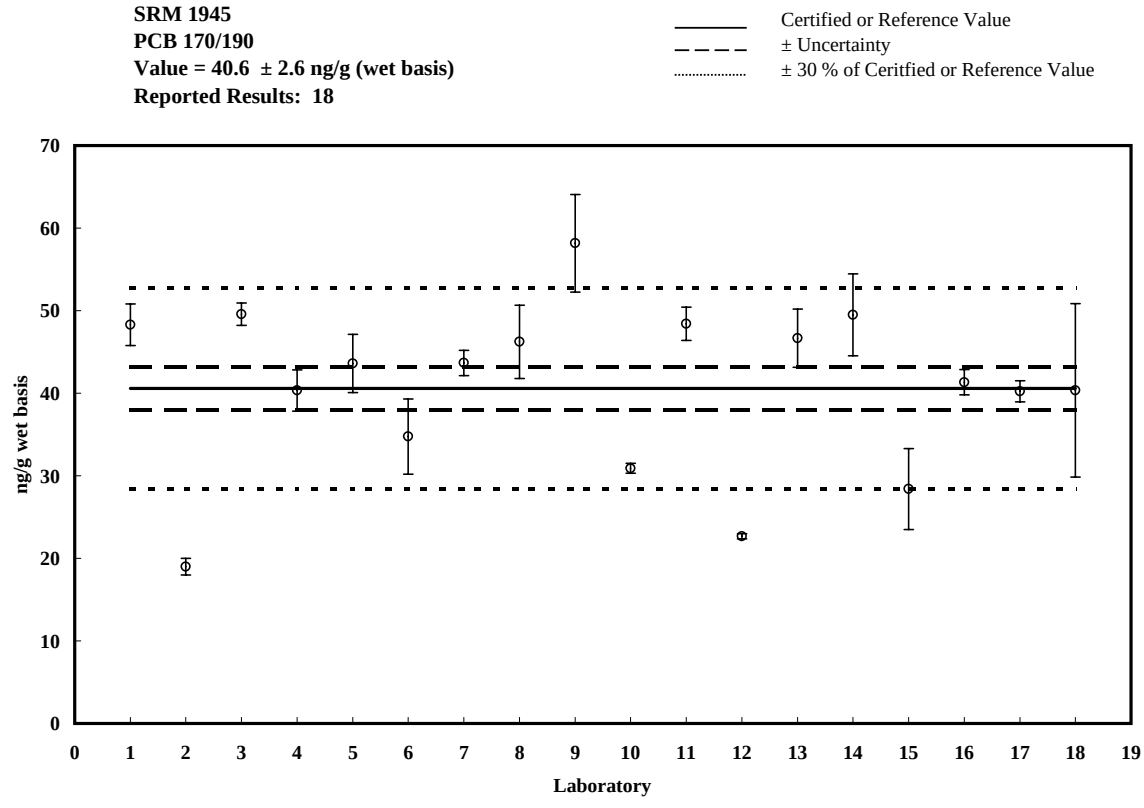
SRM 1945
PCB 156
Value = 10.3 ± 1.1 ng/g (wet basis)
Reported Results: 15



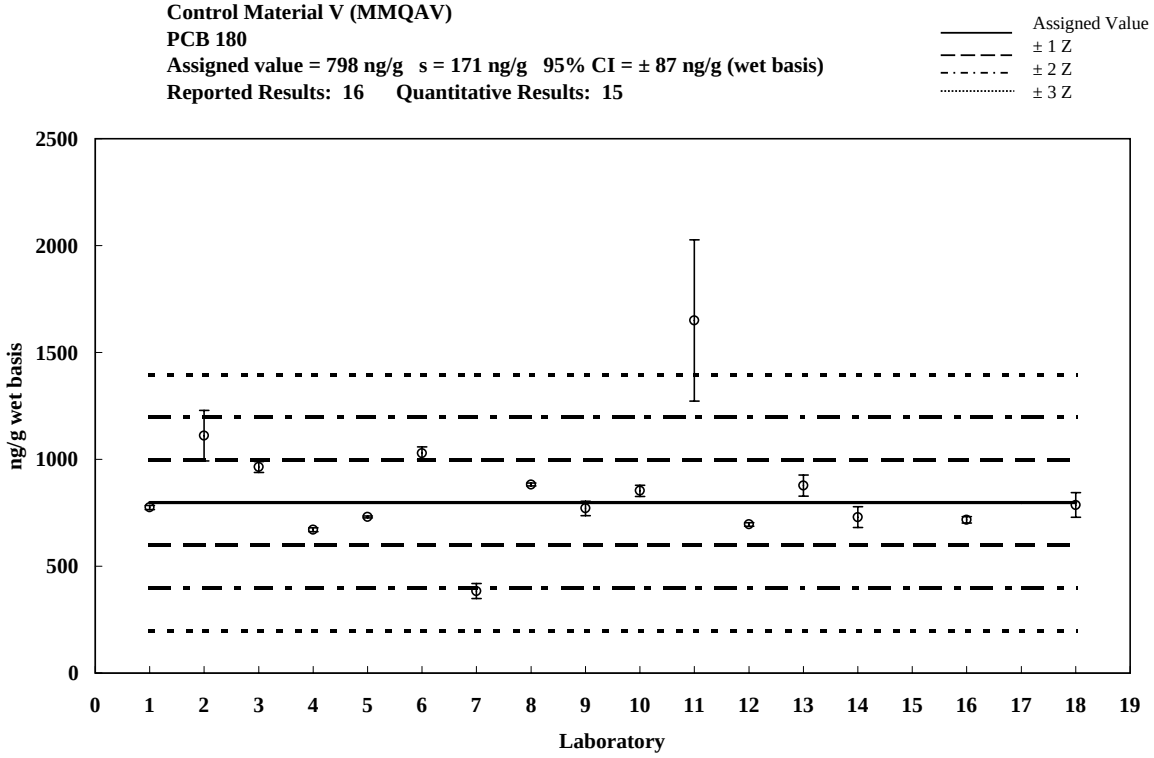
Control Material V (MMQAV)
PCB 170/190
Assigned value = 218 ng/g s = 58 ng/g 95% CL = 27 ng/g (wet basis)
Reported Results: 18 Quantitative Results: 18



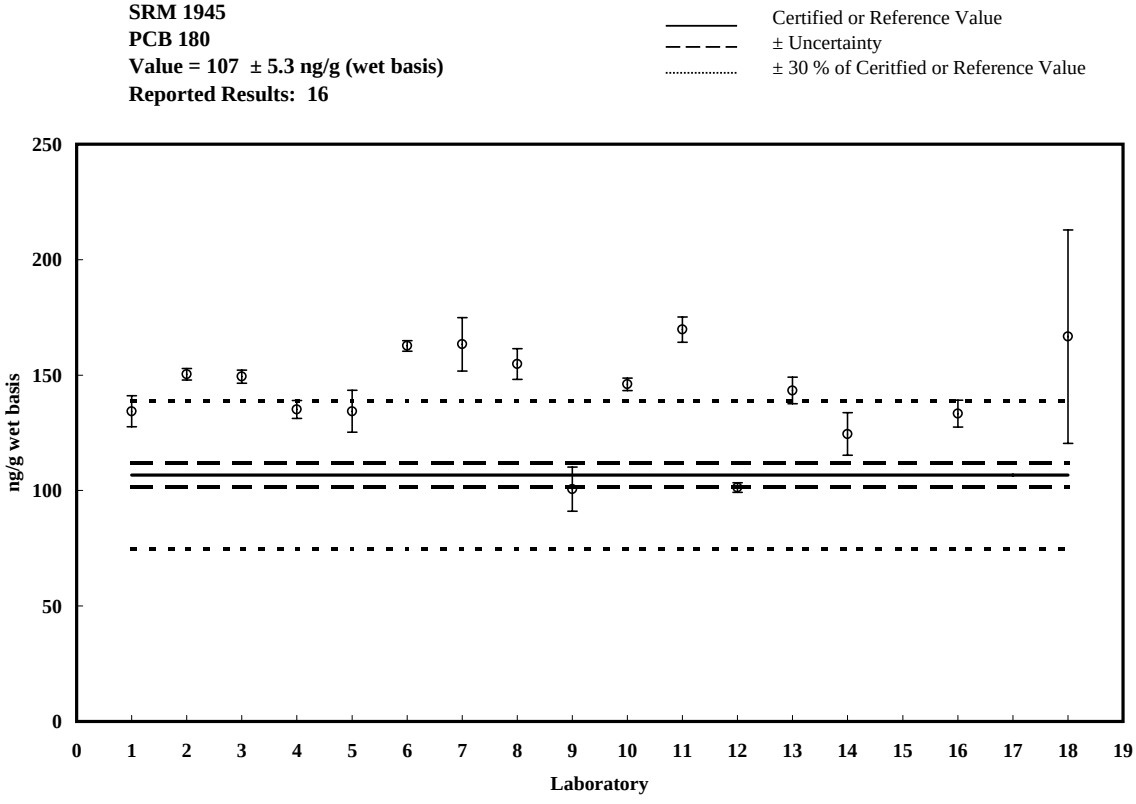
SRM 1945
PCB 170/190
Value = 40.6 ± 2.6 ng/g (wet basis)
Reported Results: 18



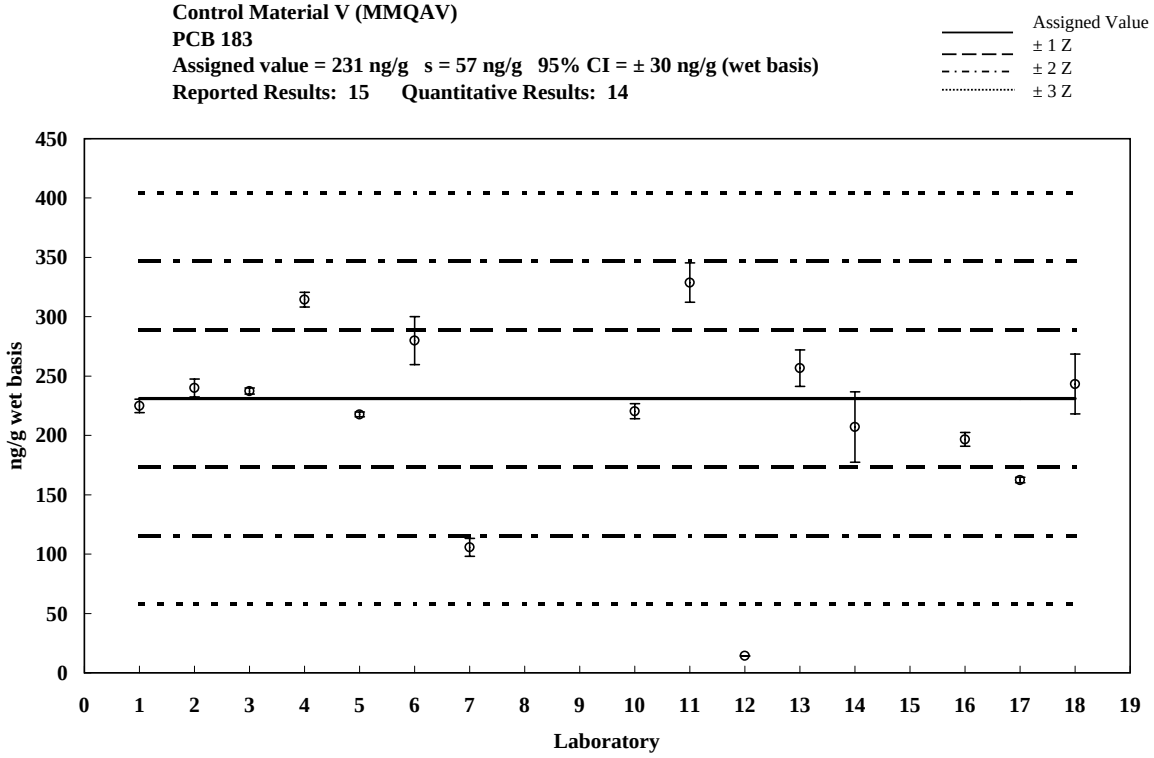
Control Material V (MMQAV)
PCB 180
Assigned value = 798 ng/g s = 171 ng/g 95% CI = ± 87 ng/g (wet basis)
Reported Results: 16 Quantitative Results: 15



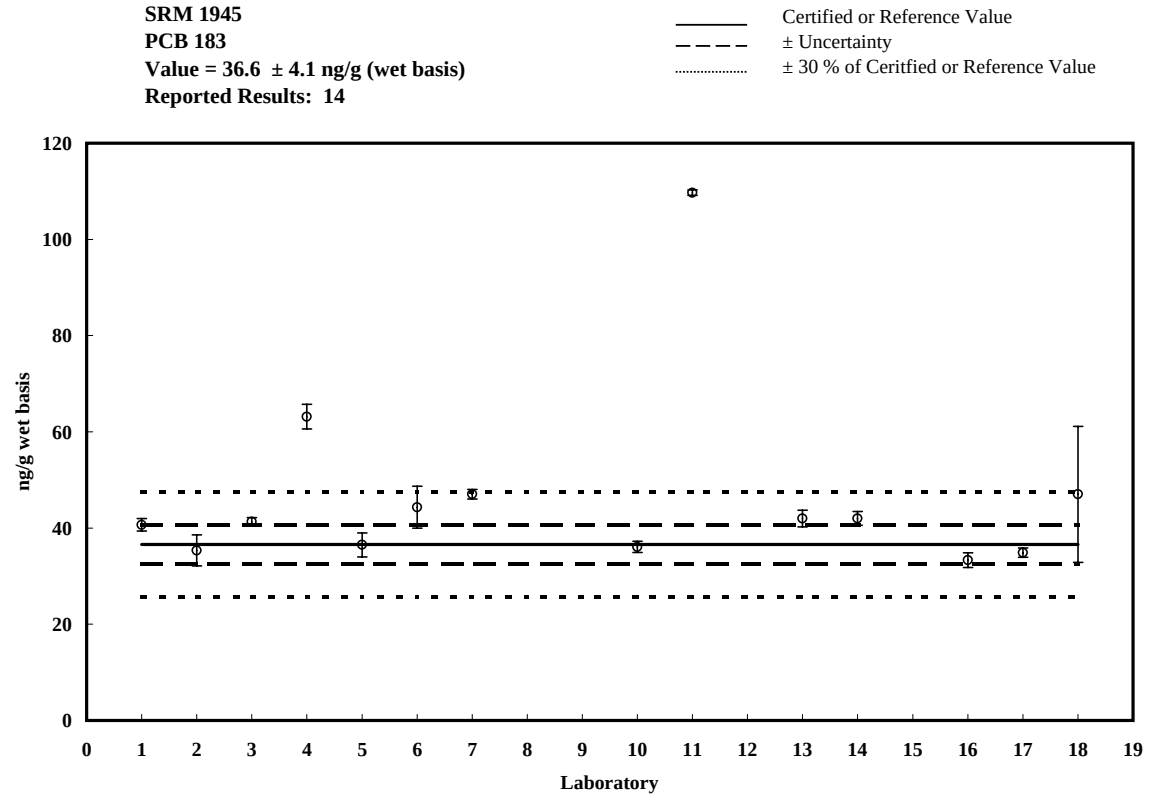
SRM 1945
PCB 180
Value = 107 ± 5.3 ng/g (wet basis)
Reported Results: 16



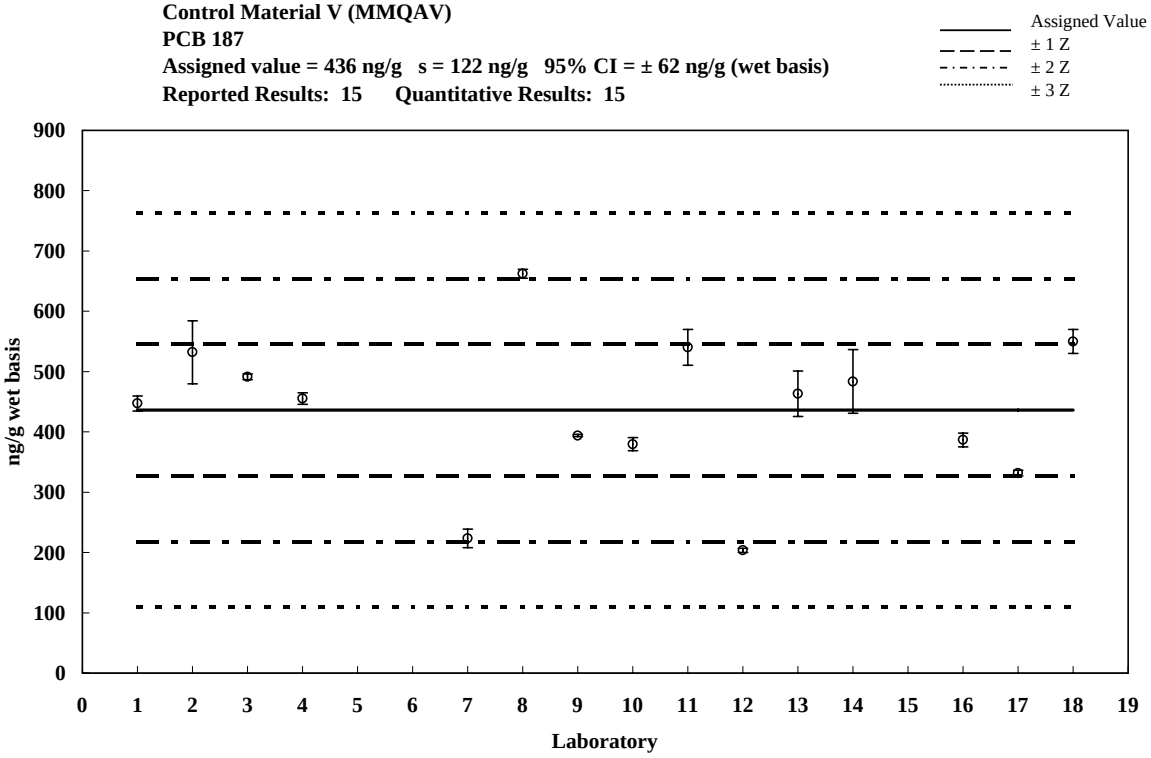
Control Material V (MMQAV)
PCB 183
Assigned value = 231 ng/g s = 57 ng/g 95% CI = ± 30 ng/g (wet basis)
Reported Results: 15 Quantitative Results: 14



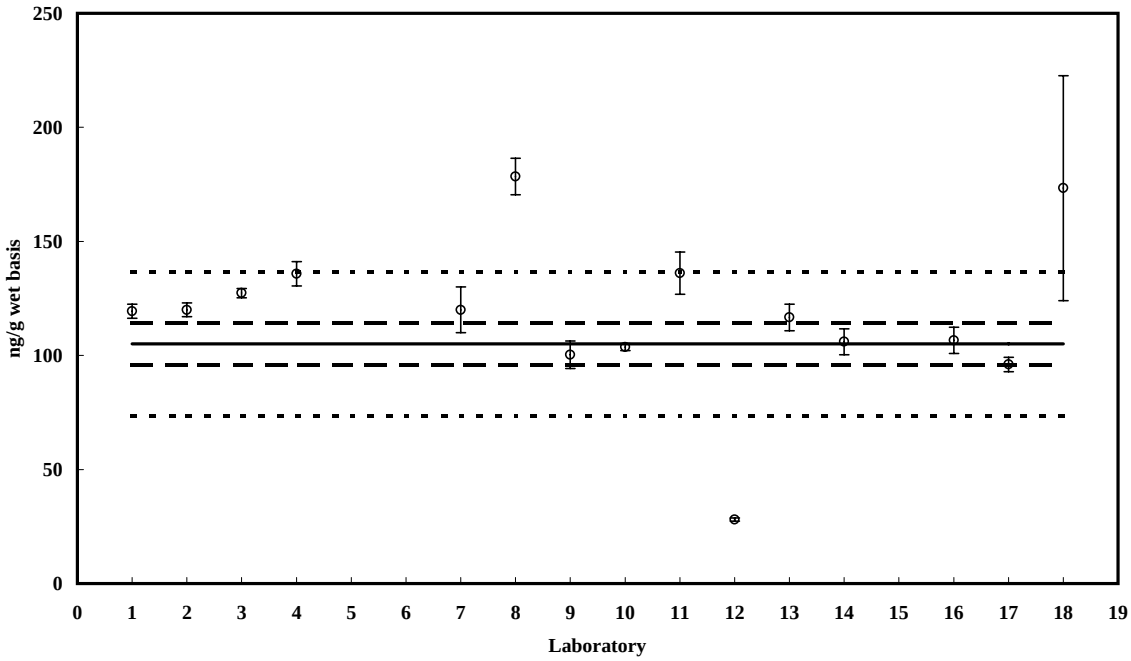
SRM 1945
PCB 183
Value = 36.6 ± 4.1 ng/g (wet basis)
Reported Results: 14



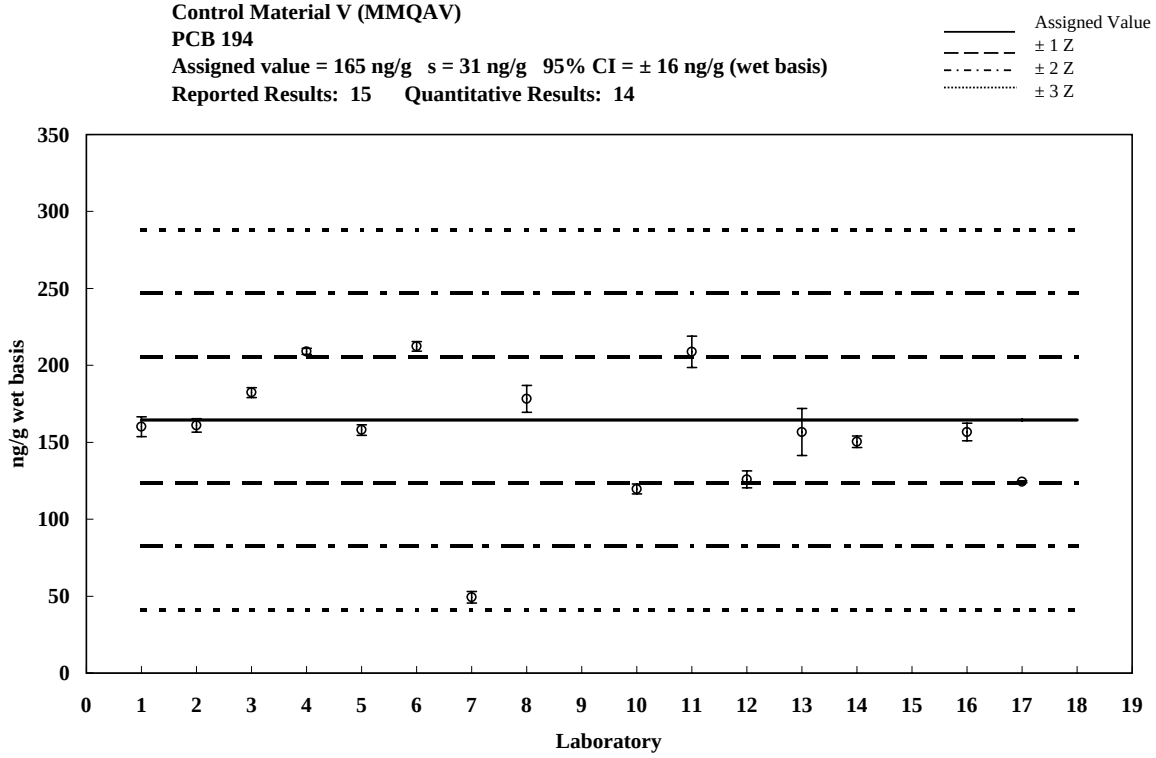
Control Material V (MMQAV)
PCB 187
Assigned value = 436 ng/g s = 122 ng/g 95% CI = ± 62 ng/g (wet basis)
Reported Results: 15 Quantitative Results: 15



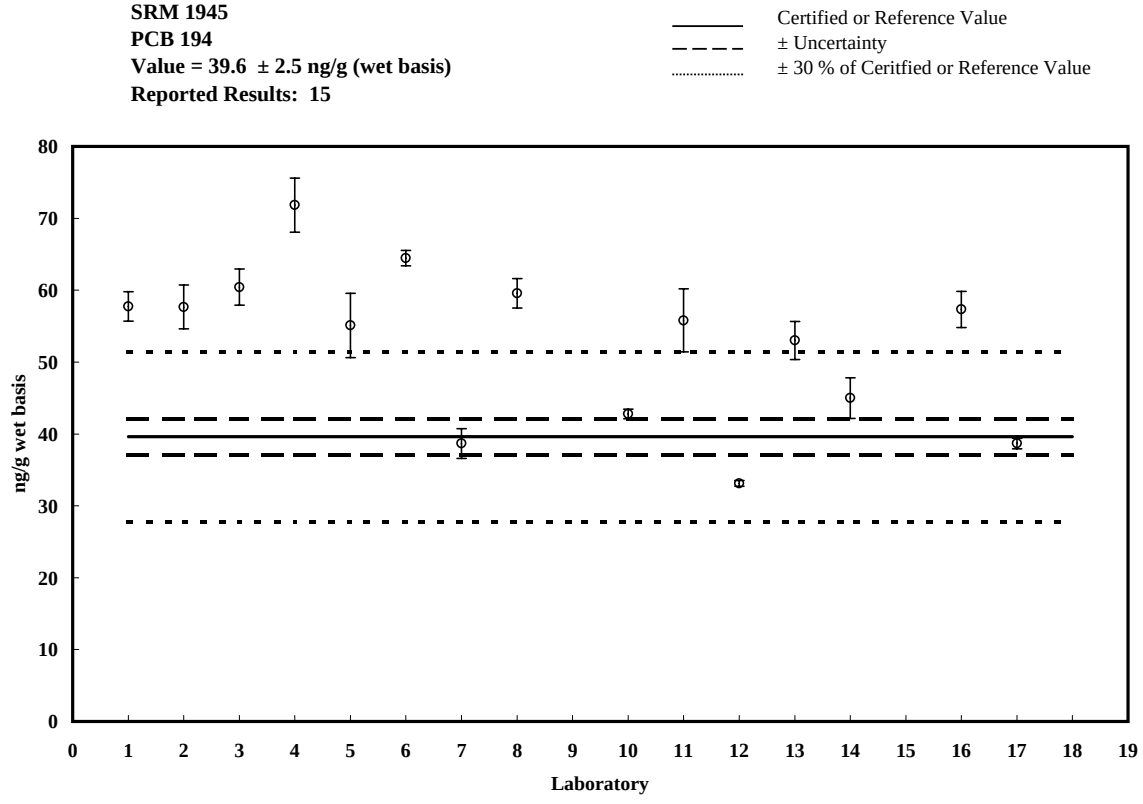
SRM 1945
PCB 187
Value = 105 ± 9.1 ng/g (wet basis)
Reported Results: 15



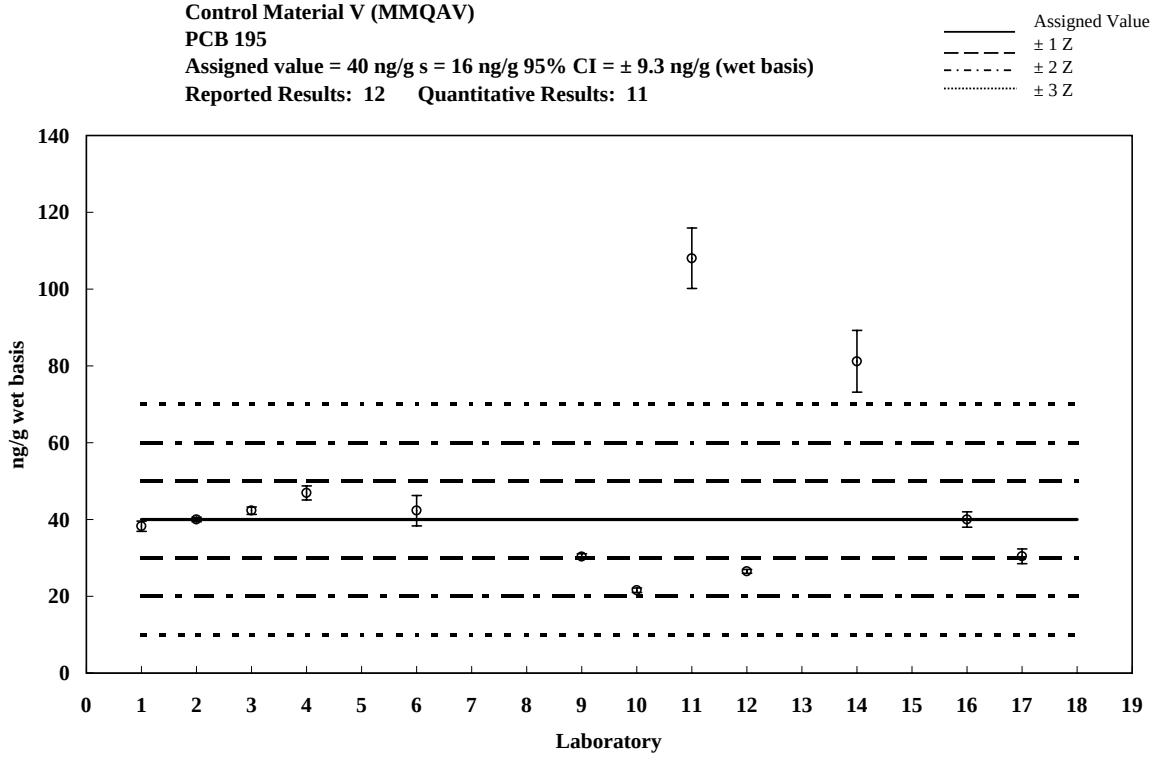
Control Material V (MMQAV)
PCB 194
Assigned value = 165 ng/g s = 31 ng/g 95% CI = ± 16 ng/g (wet basis)
Reported Results: 15 Quantitative Results: 14



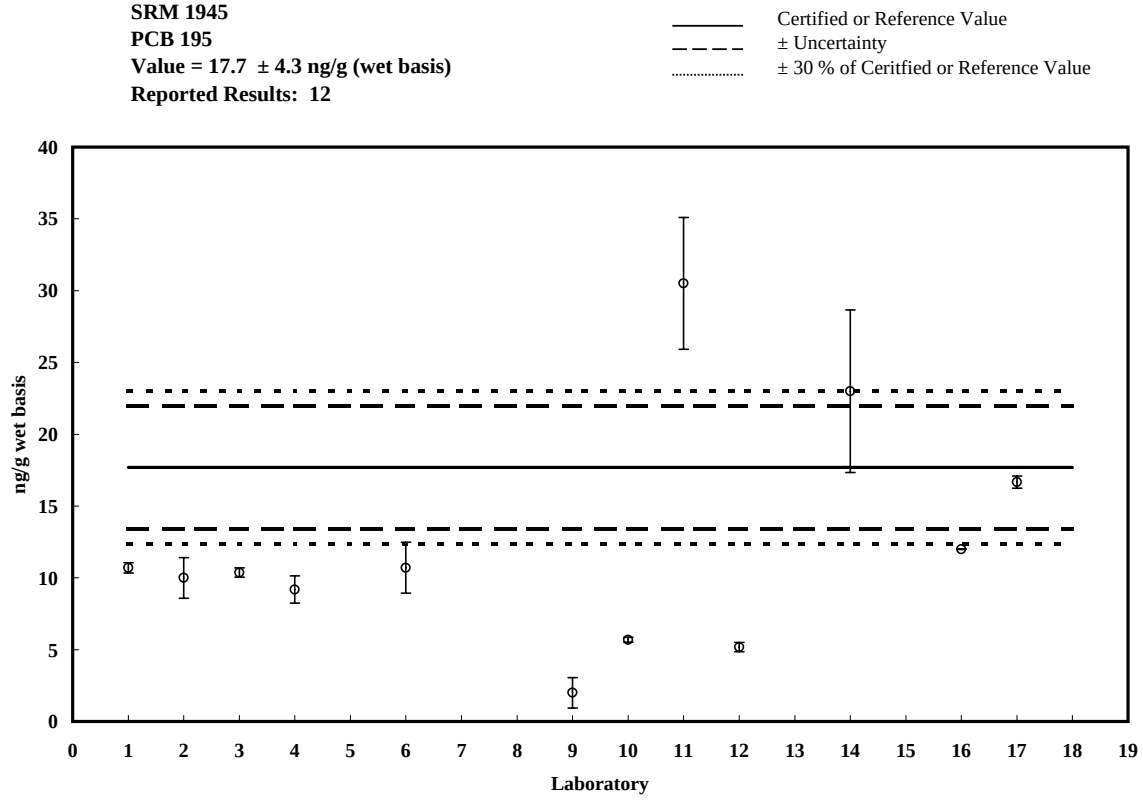
SRM 1945
PCB 194
Value = 39.6 ± 2.5 ng/g (wet basis)
Reported Results: 15



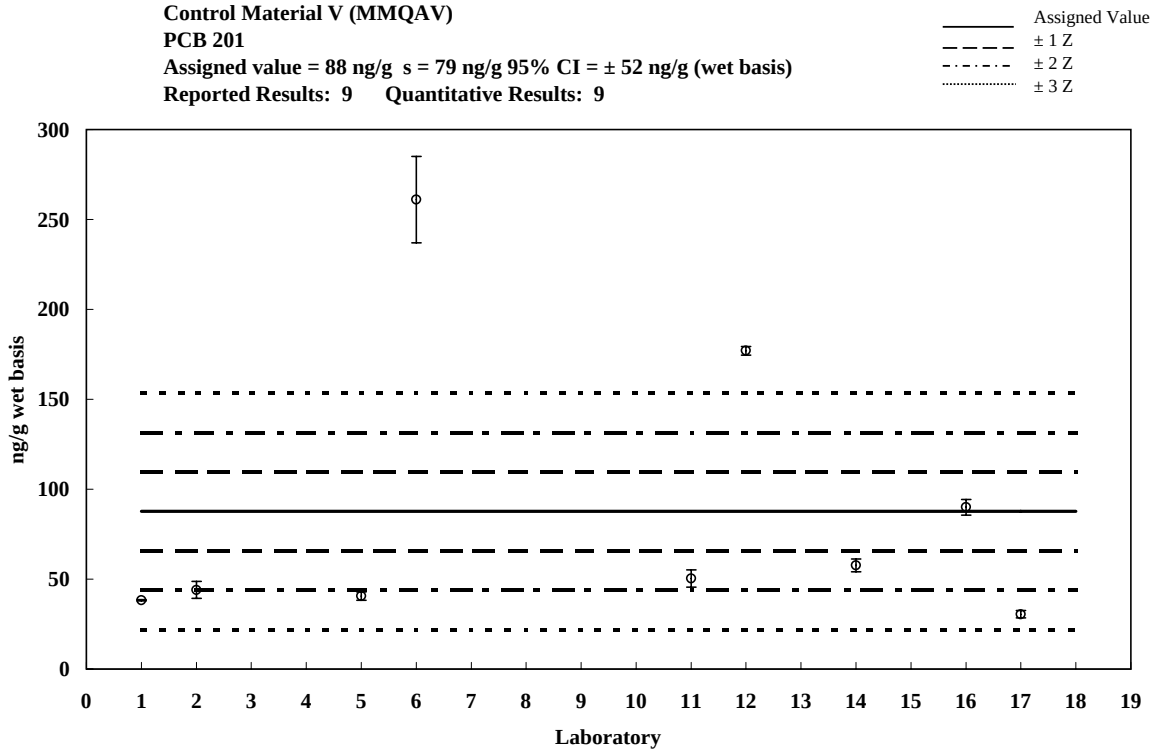
Control Material V (MMQAV)
PCB 195
Assigned value = 40 ng/g s = 16 ng/g 95% CI = ± 9.3 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 11



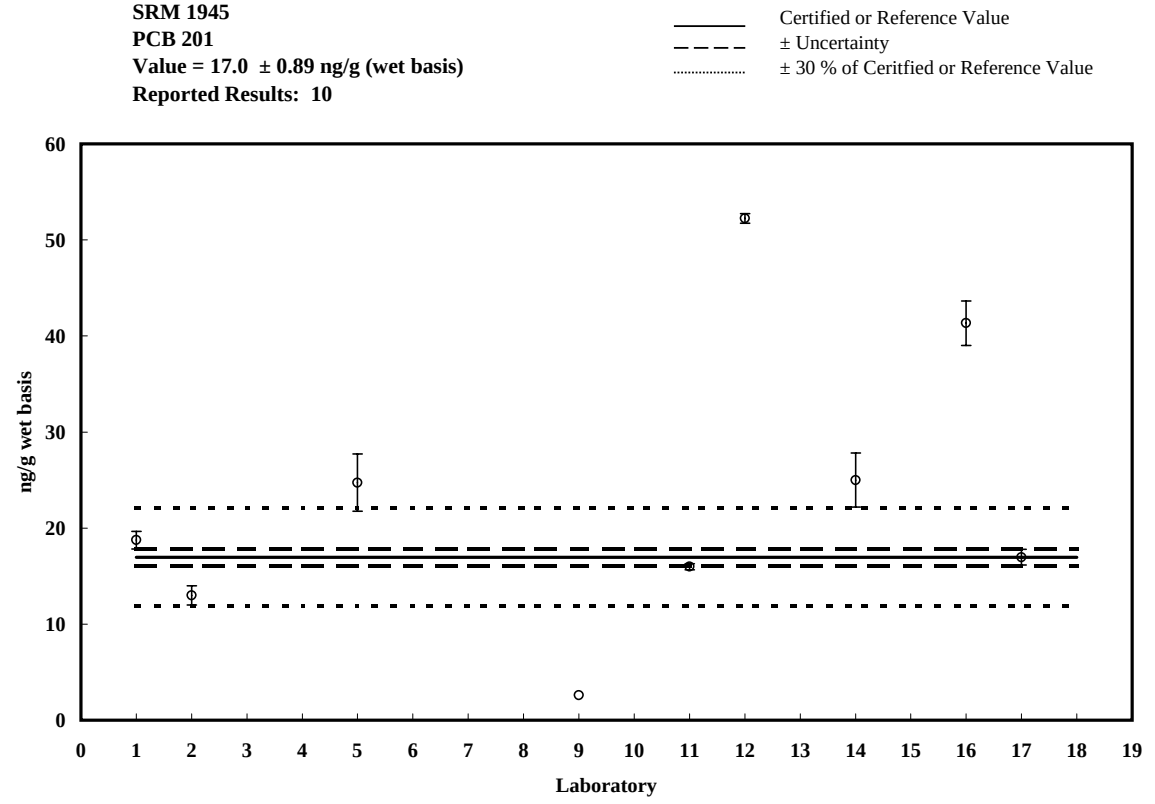
SRM 1945
PCB 195
Value = 17.7 ± 4.3 ng/g (wet basis)
Reported Results: 12



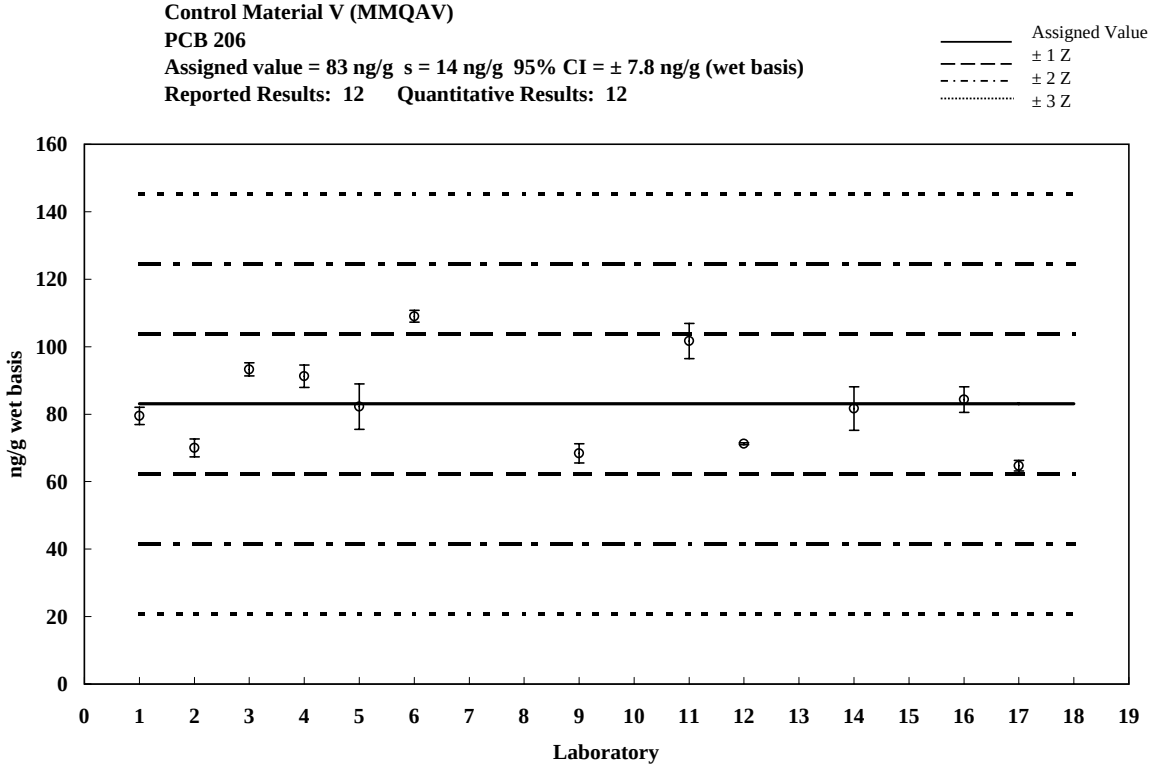
Control Material V (MMQAV)
PCB 201
Assigned value = 88 ng/g s = 79 ng/g 95% CI = ± 52 ng/g (wet basis)
Reported Results: 9 Quantitative Results: 9



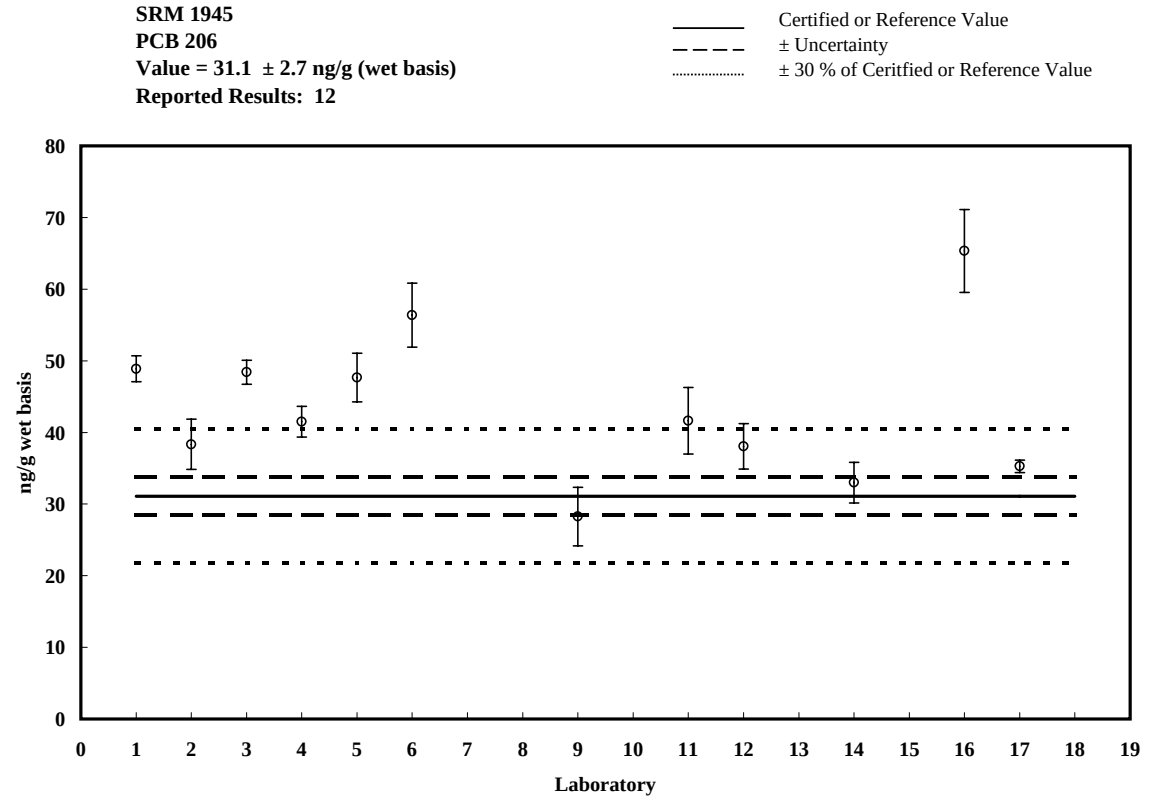
SRM 1945
PCB 201
Value = 17.0 ± 0.89 ng/g (wet basis)
Reported Results: 10



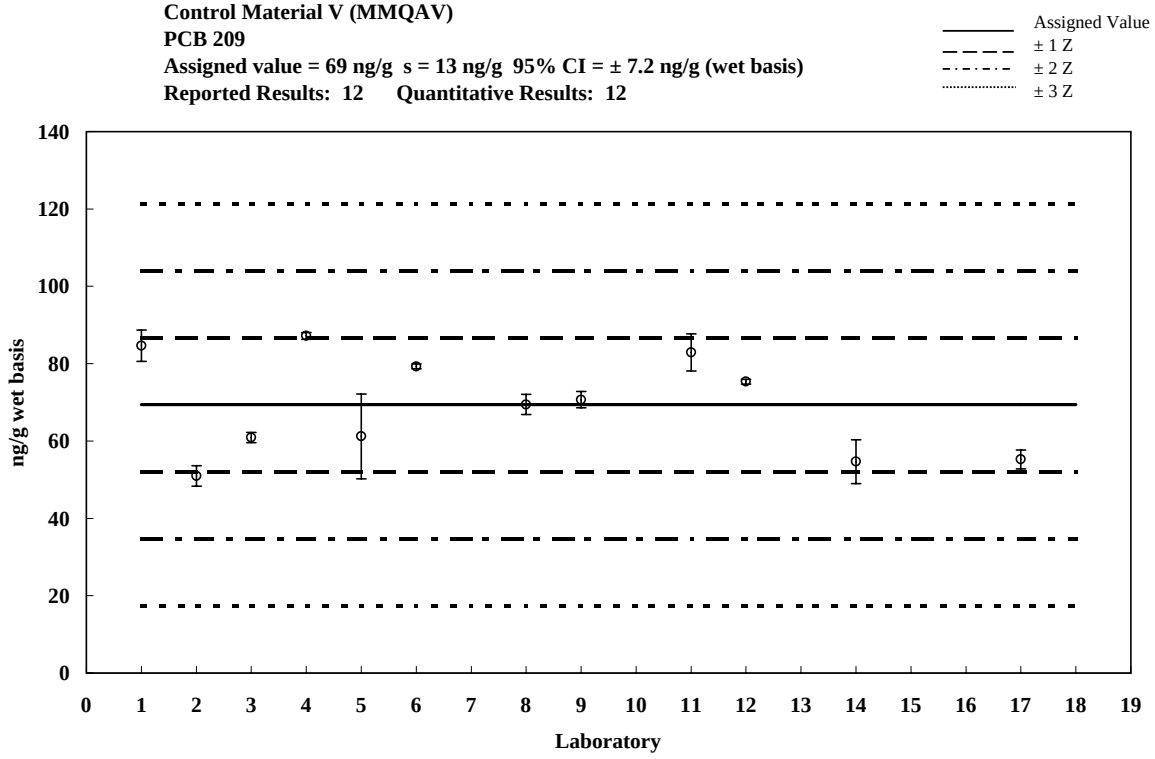
Control Material V (MMQAV)
PCB 206
Assigned value = 83 ng/g s = 14 ng/g 95% CI = ± 7.8 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 12



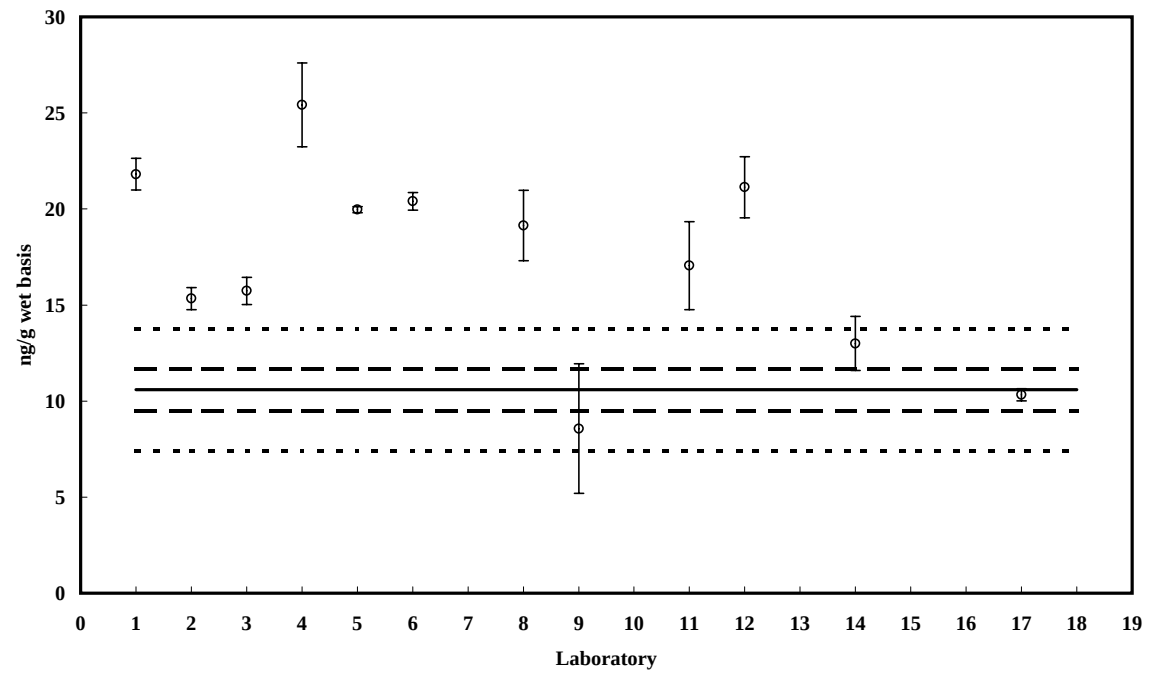
SRM 1945
PCB 206
Value = 31.1 ± 2.7 ng/g (wet basis)
Reported Results: 12



Control Material V (MMQAV)
PCB 209
Assigned value = 69 ng/g s = 13 ng/g 95% CI = ± 7.2 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 12



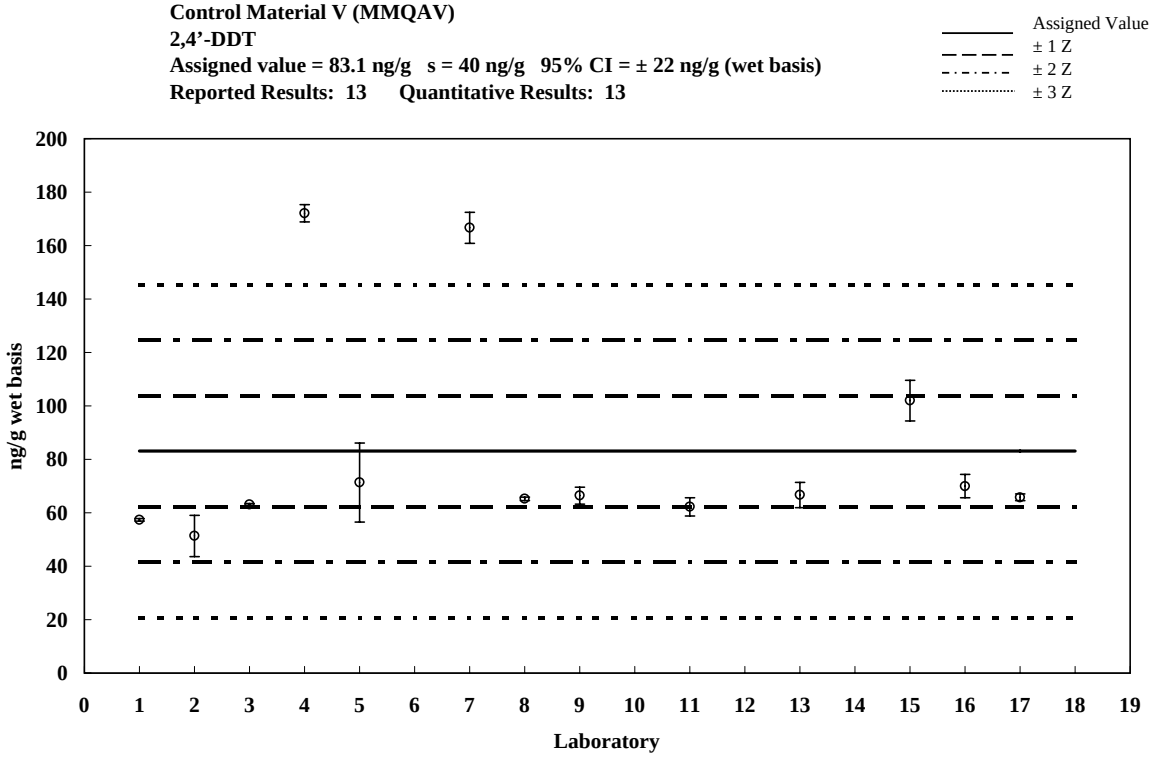
SRM 1945
PCB 209
Value = 10.6 ± 1.1 ng/g (wet basis)
Reported Results: 12



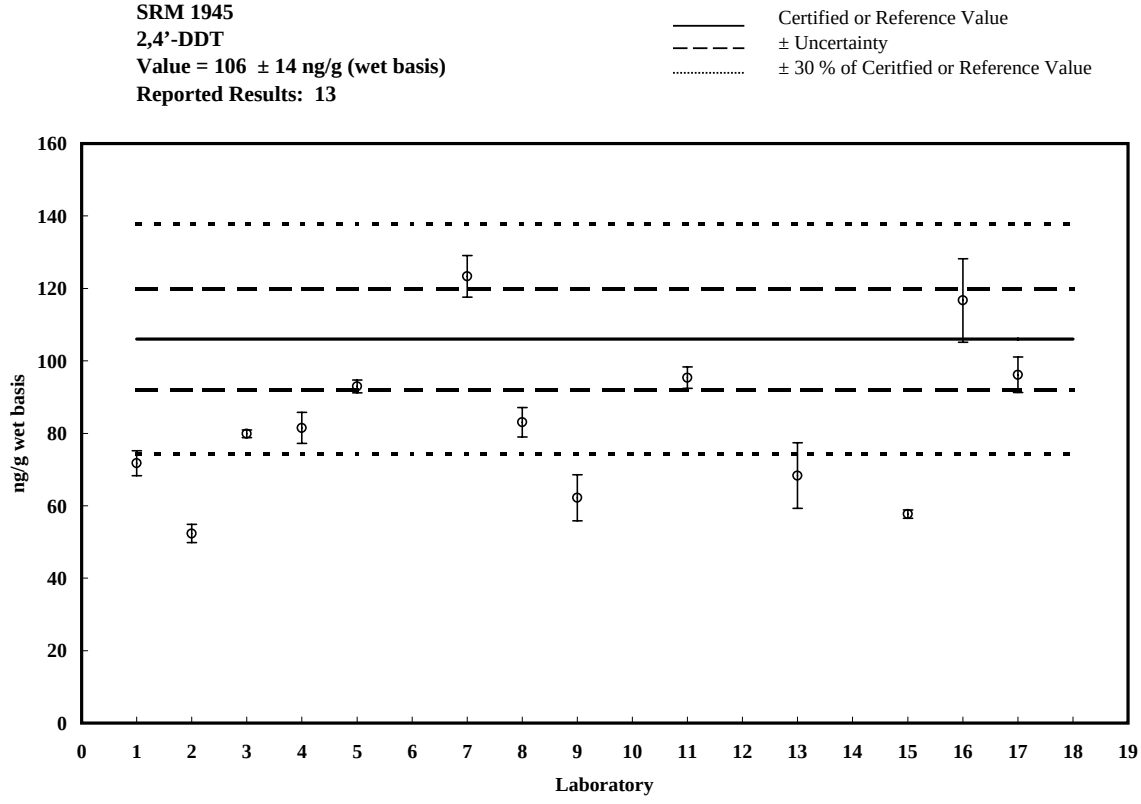
APPENDIX C

Graphical results of pesticide and lipid data reported by all laboratories. The Z-scores for Control Material V represent 25% of the assigned value so that Z = +1 is the assigned value plus 25 %, Z = -1 is the assigned value minus 25 % and so forth. Error bars are ± 1

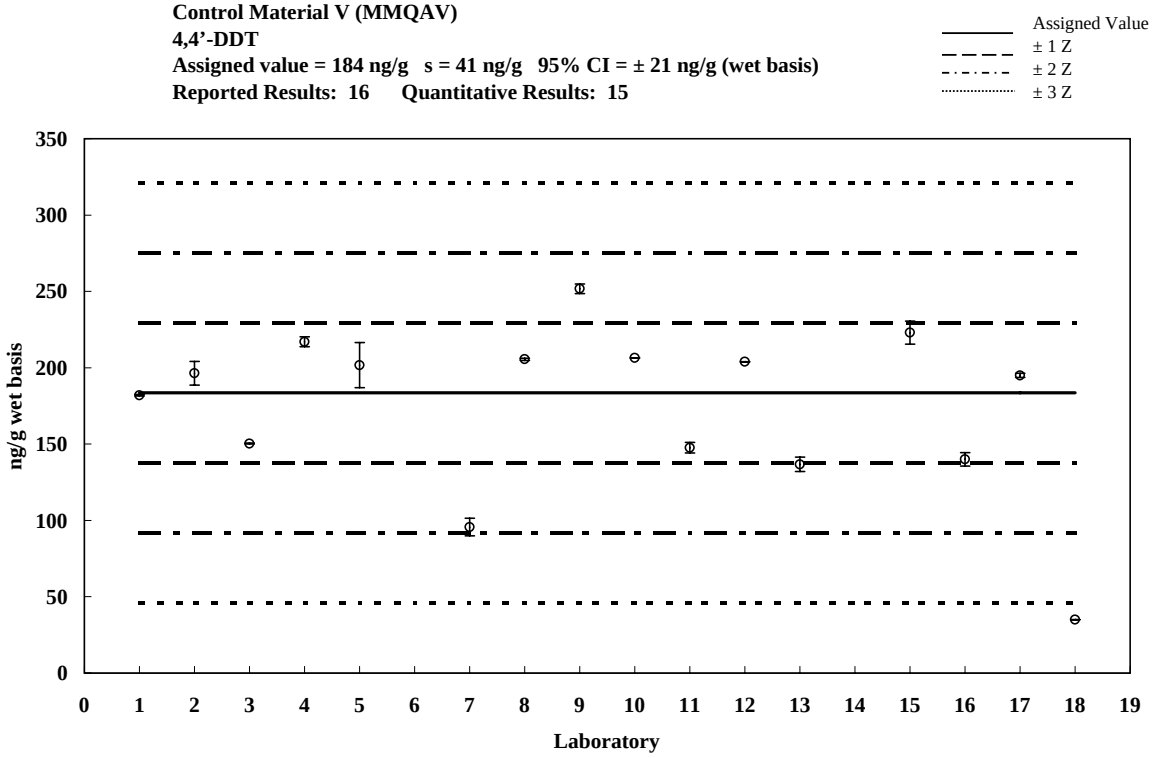
Control Material V (MMQAV)
2,4'-DDT
Assigned value = 83.1 ng/g s = 40 ng/g 95% CI = ± 22 ng/g (wet basis)
Reported Results: 13 Quantitative Results: 13



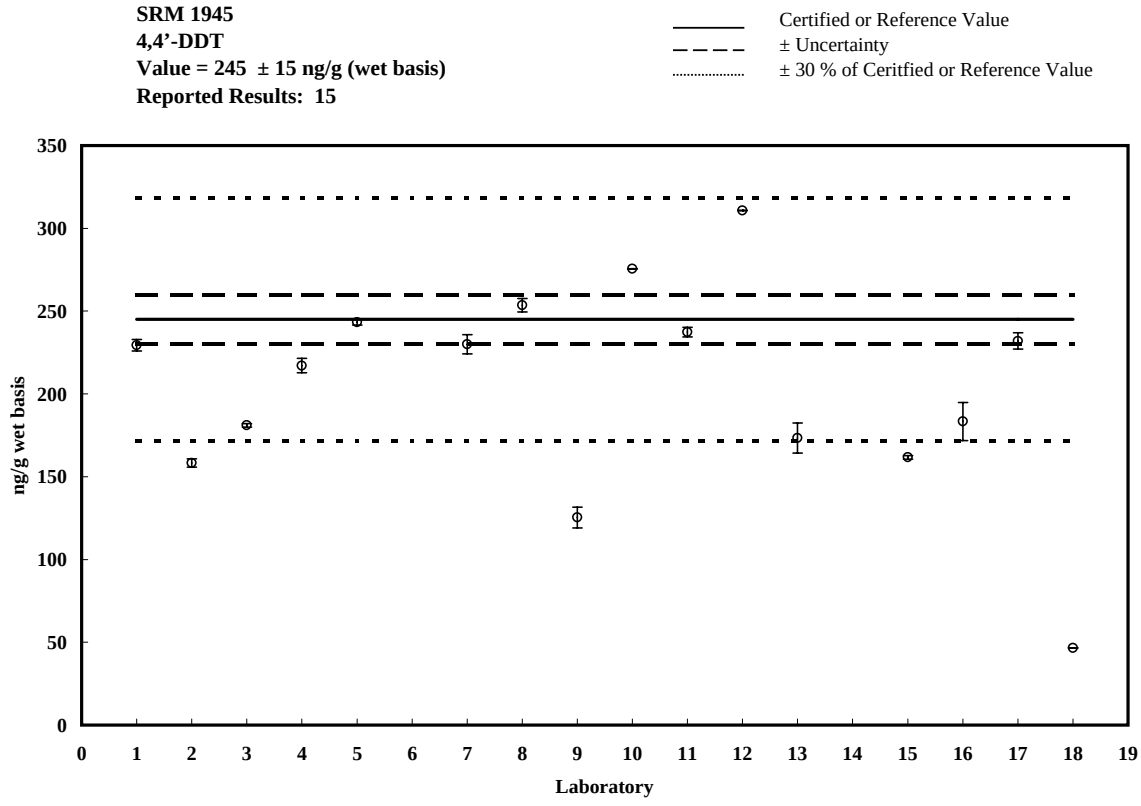
SRM 1945
2,4'-DDT
Value = 106 ± 14 ng/g (wet basis)
Reported Results: 13



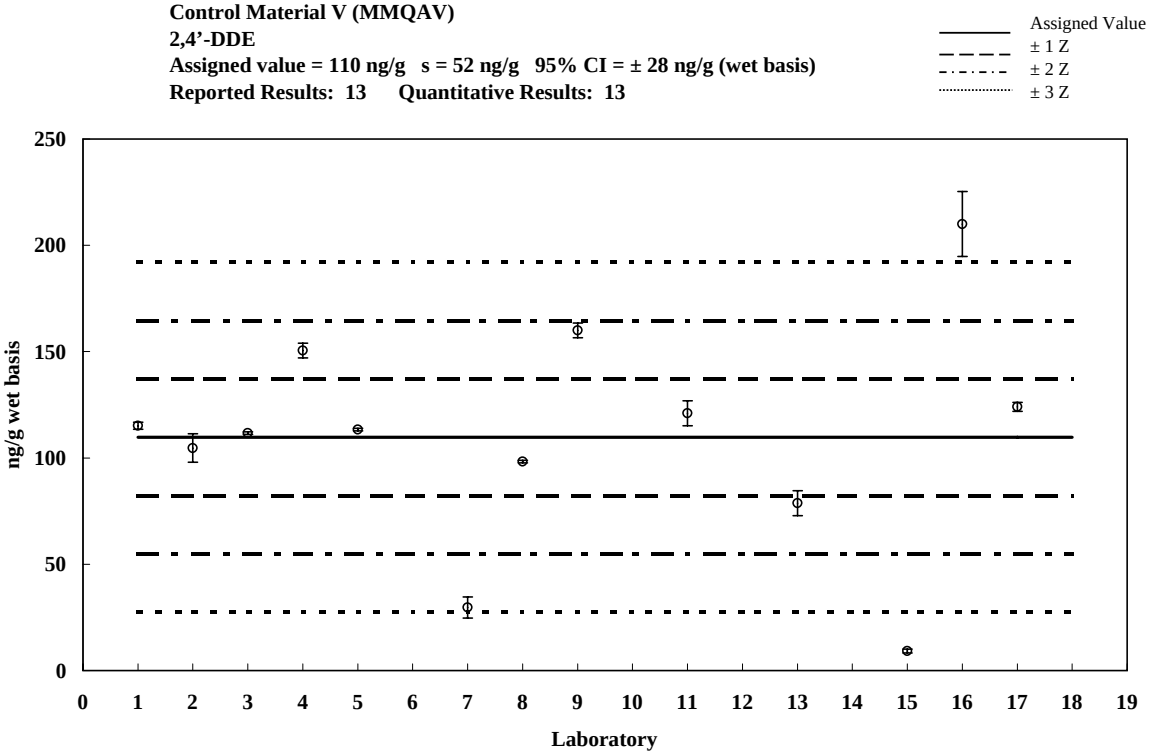
Control Material V (MMQAV)
4,4'-DDT
Assigned value = 184 ng/g s = 41 ng/g 95% CI = ± 21 ng/g (wet basis)
Reported Results: 16 Quantitative Results: 15



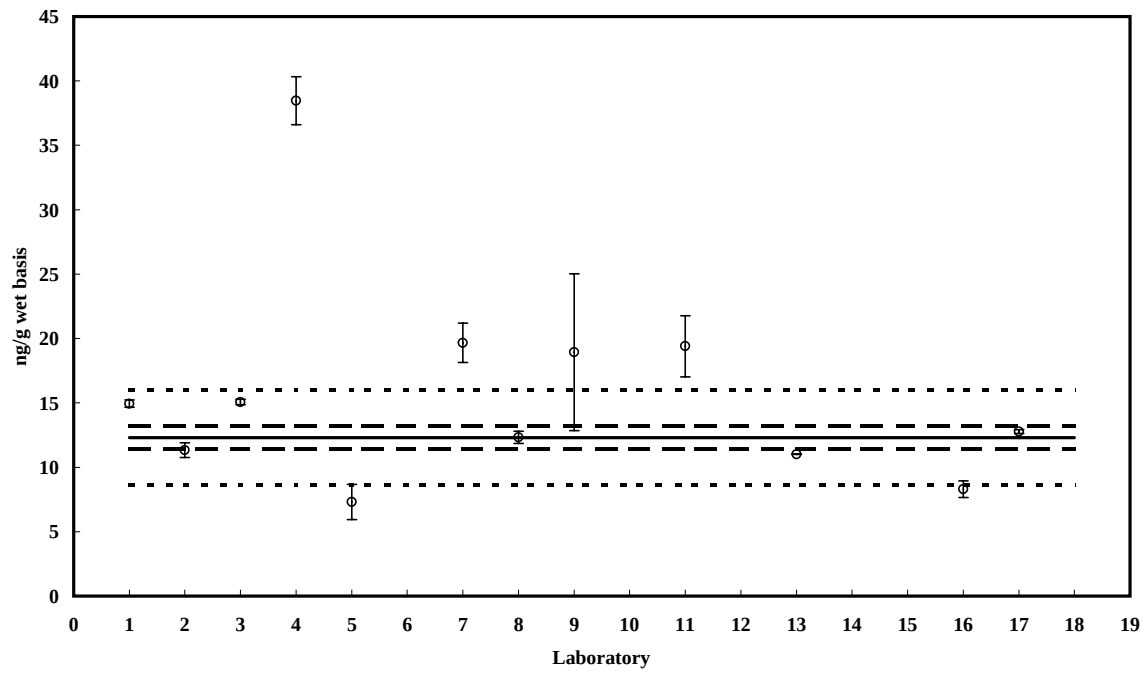
SRM 1945
4,4'-DDT
Value = 245 ± 15 ng/g (wet basis)
Reported Results: 15



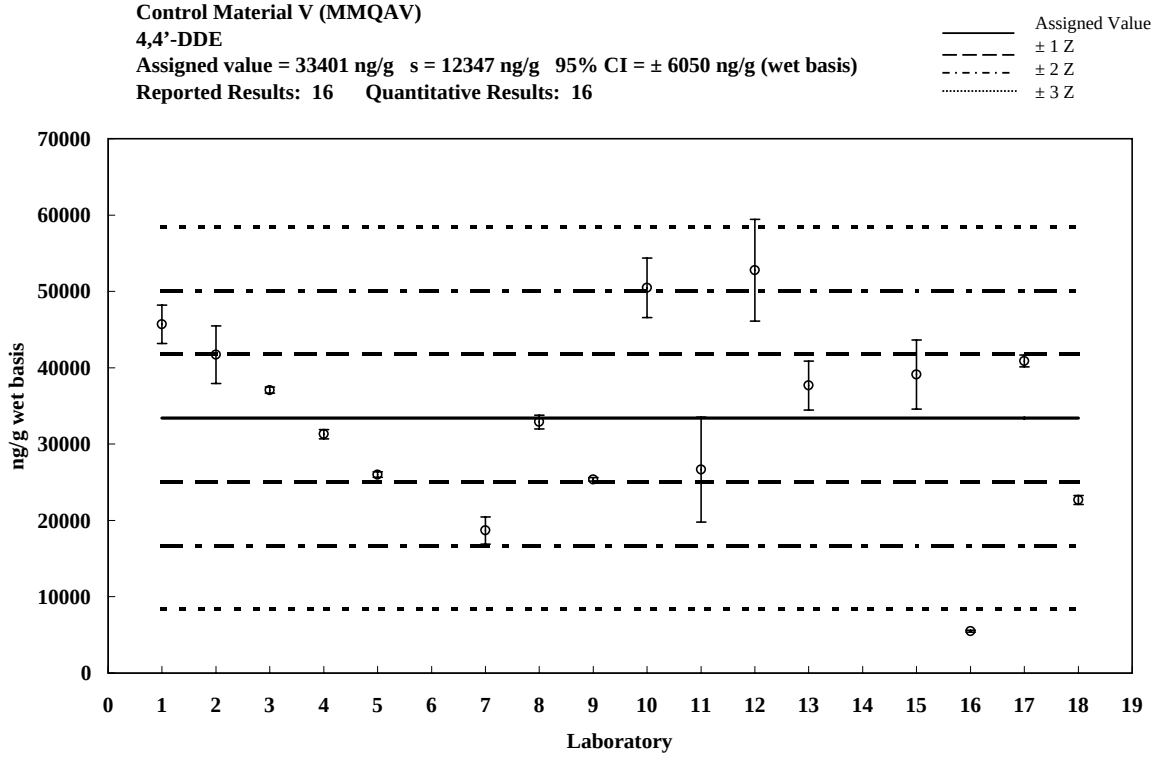
Control Material V (MMQAV)
2,4'-DDE
Assigned value = 110 ng/g s = 52 ng/g 95% CI = ± 28 ng/g (wet basis)
Reported Results: 13 Quantitative Results: 13



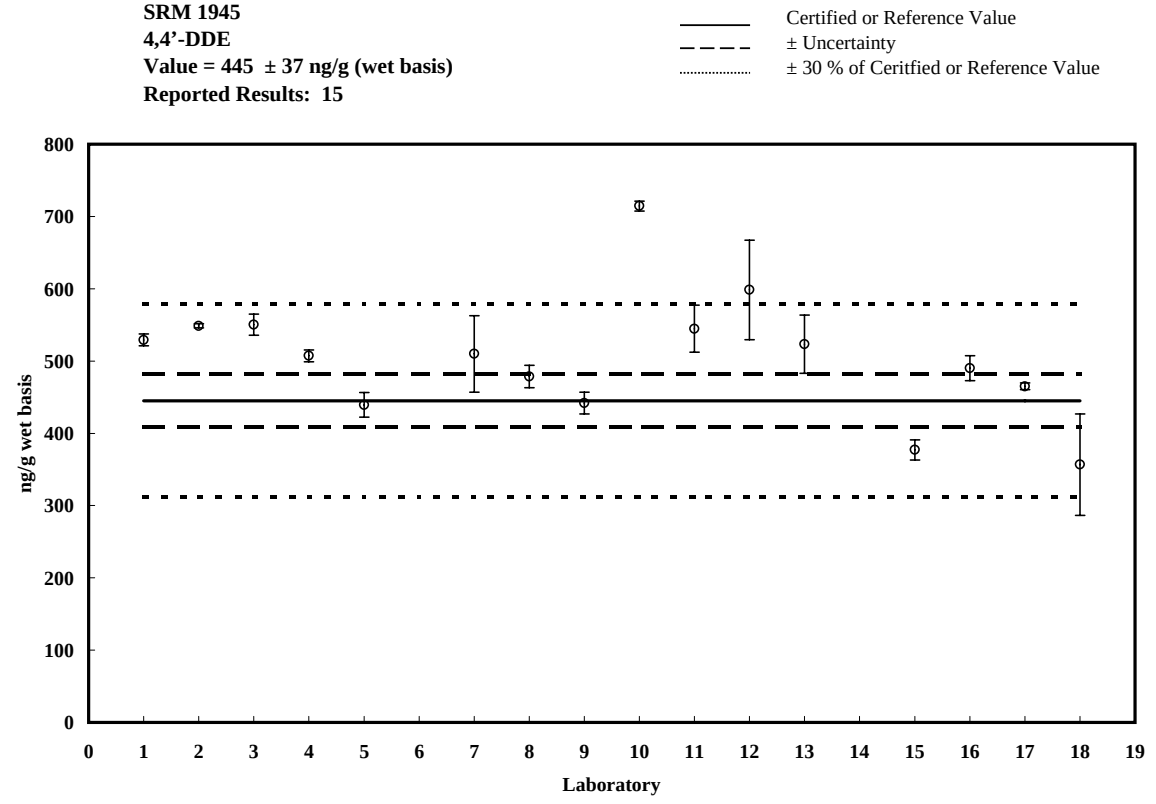
SRM 1945
2,4'-DDE
Value = 12.3 ± 0.87 ng/g (wet basis)
Reported Results: 13



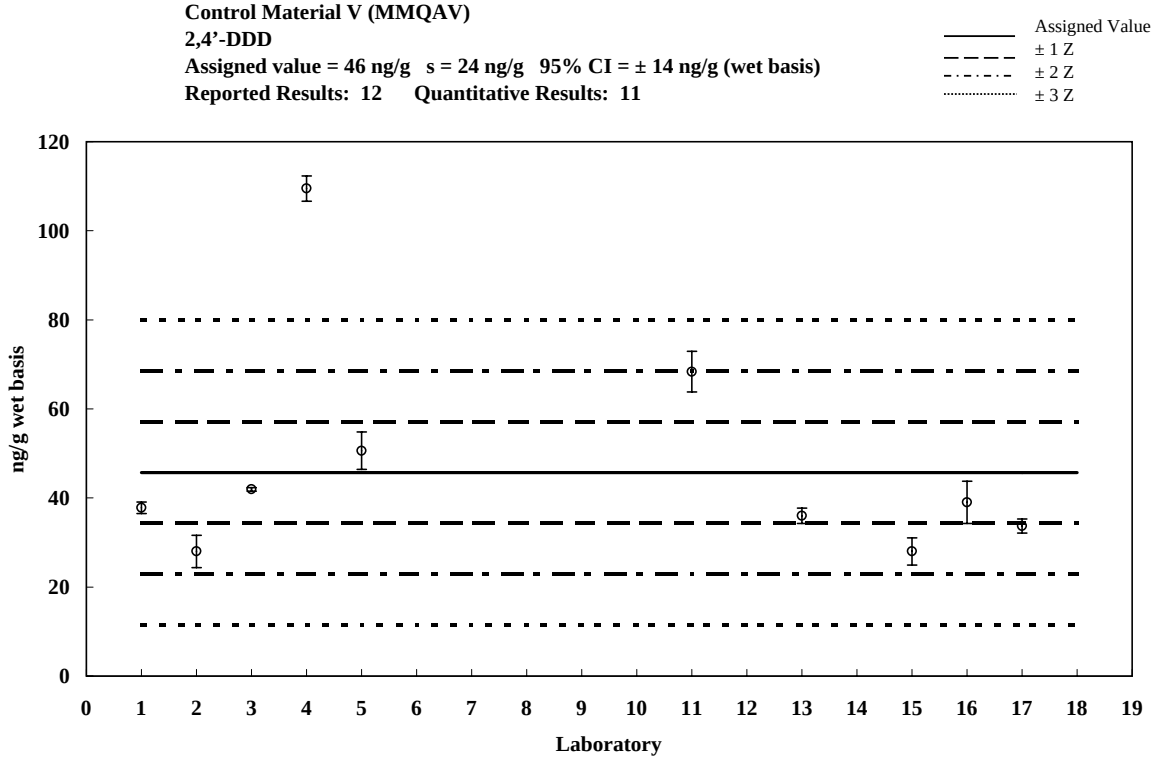
Control Material V (MMQAV)
4,4'-DDE
Assigned value = 33401 ng/g s = 12347 ng/g 95% CI = ± 6050 ng/g (wet basis)
Reported Results: 16 Quantitative Results: 16



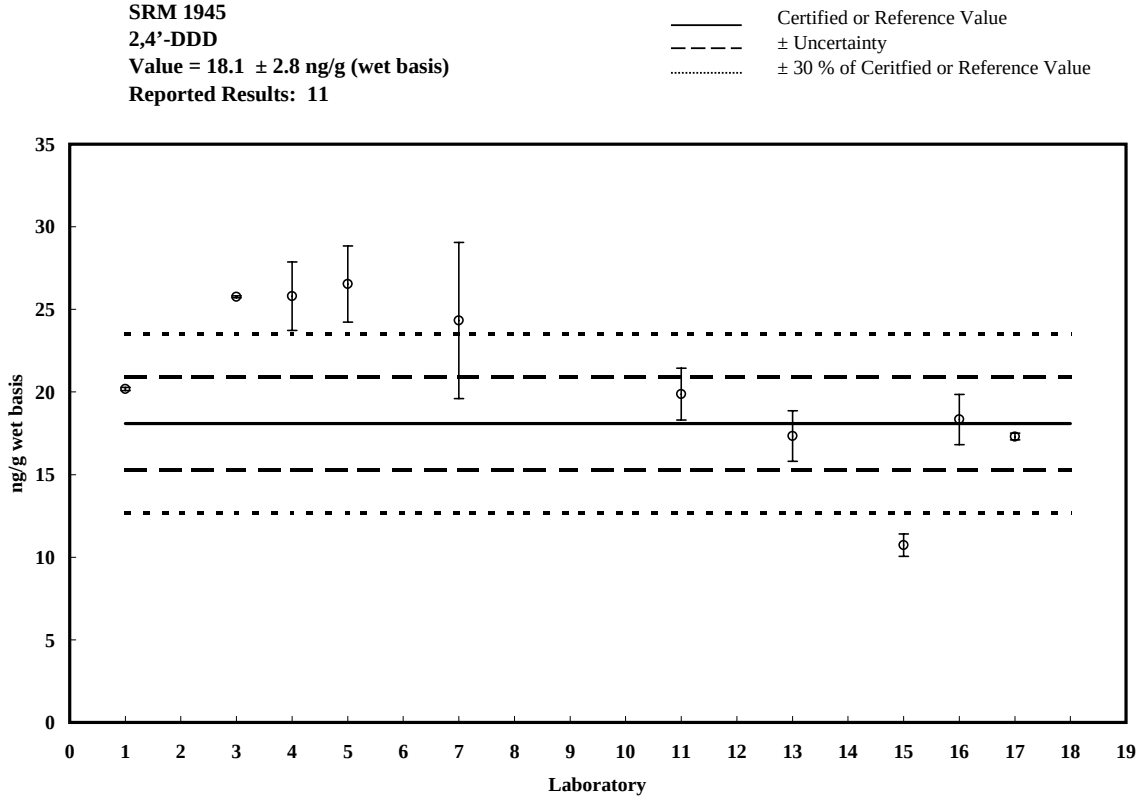
SRM 1945
4,4'-DDE
Value = 445 ± 37 ng/g (wet basis)
Reported Results: 15



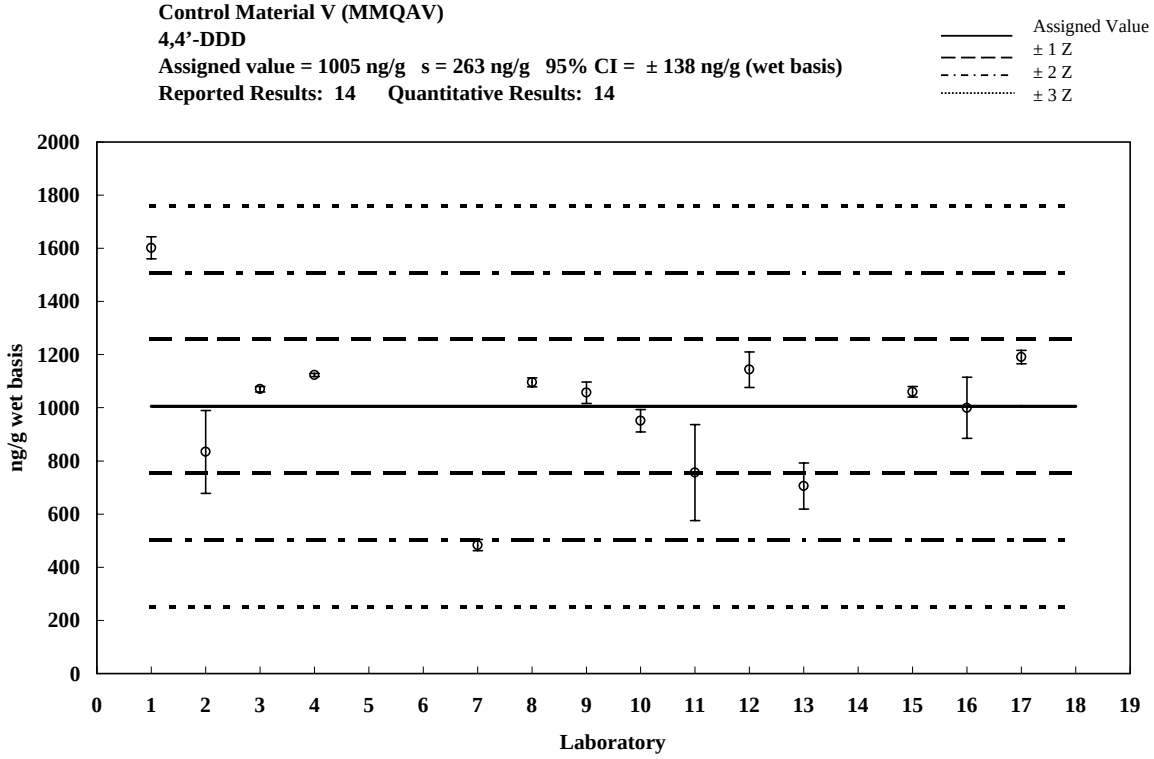
Control Material V (MMQAV)
2,4'-DDD
Assigned value = 46 ng/g s = 24 ng/g 95% CI = ± 14 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 11



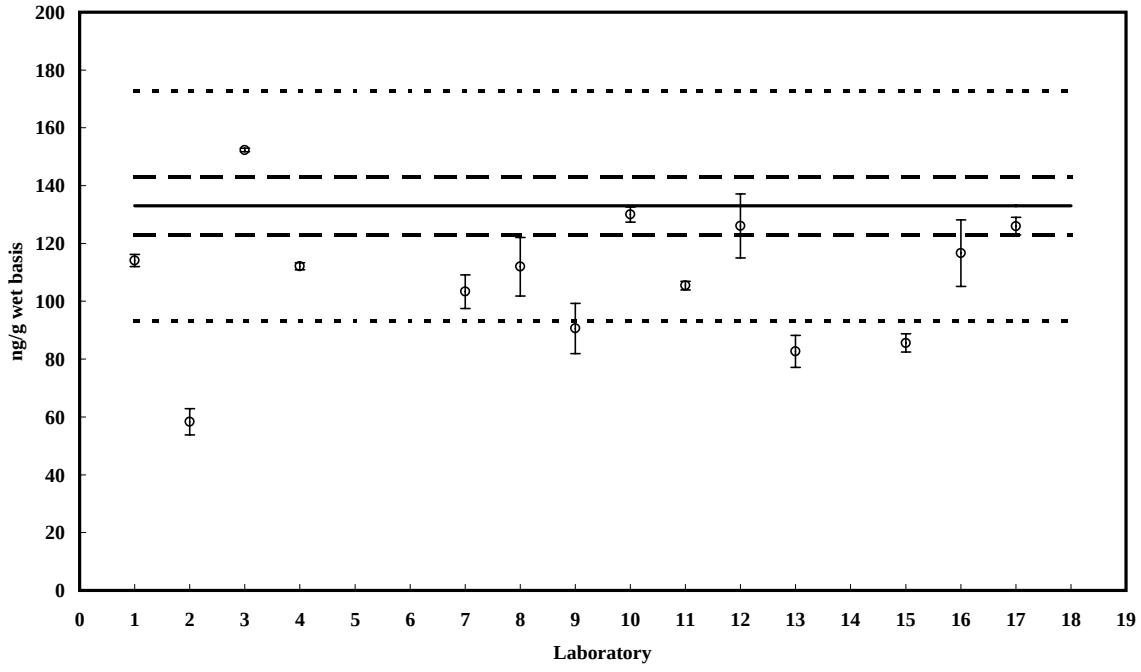
SRM 1945
2,4'-DDD
Value = 18.1 ± 2.8 ng/g (wet basis)
Reported Results: 11



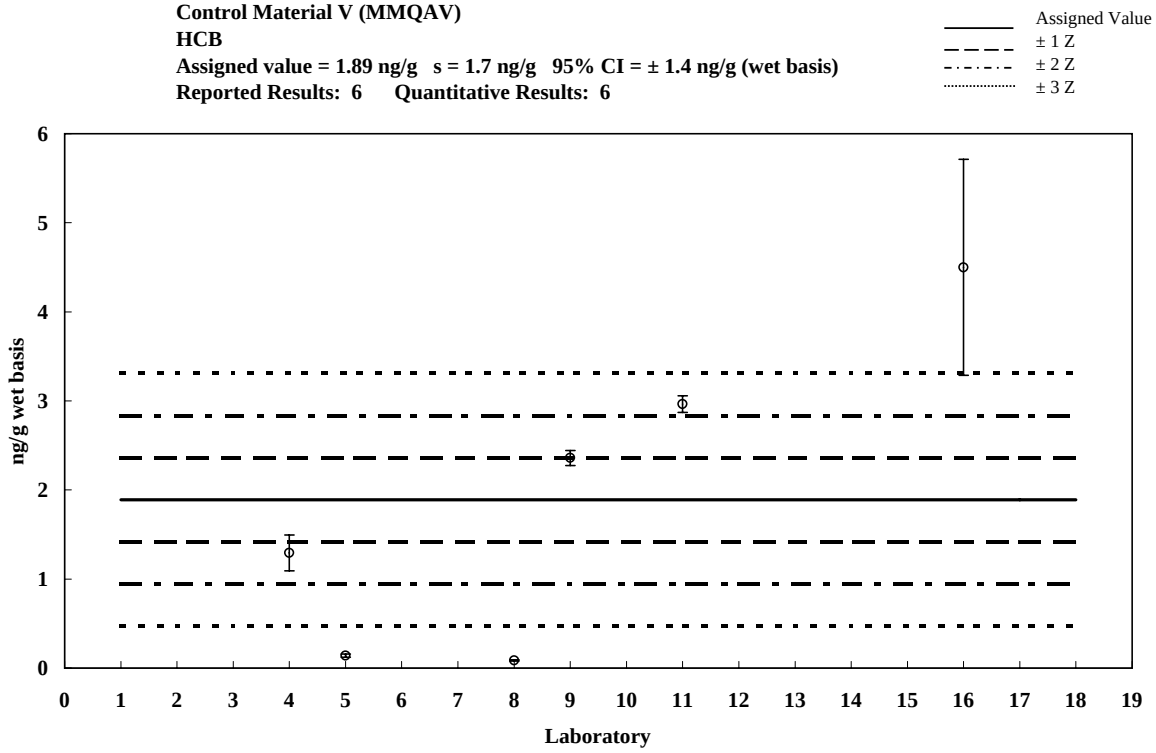
Control Material V (MMQAV)
4,4'-DDD
Assigned value = 1005 ng/g s = 263 ng/g 95% CI = ± 138 ng/g (wet basis)
Reported Results: 14 Quantitative Results: 14



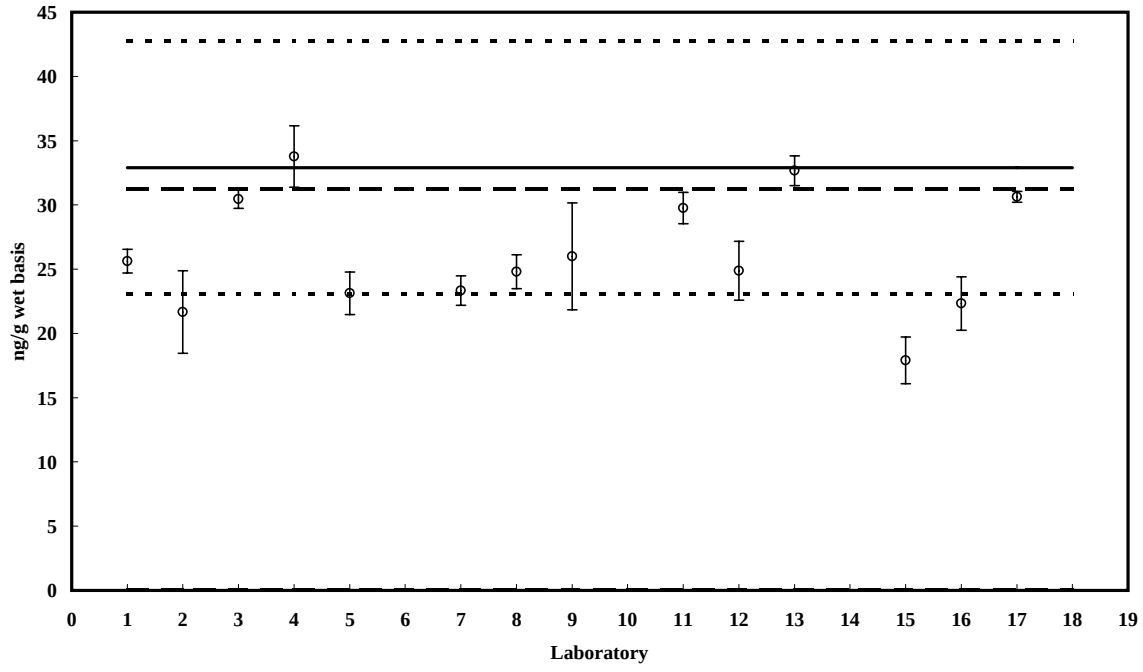
SRM 1945
4,4'-DDD
Value = 133 ± 10 ng/g (wet basis)
Reported Results: 14



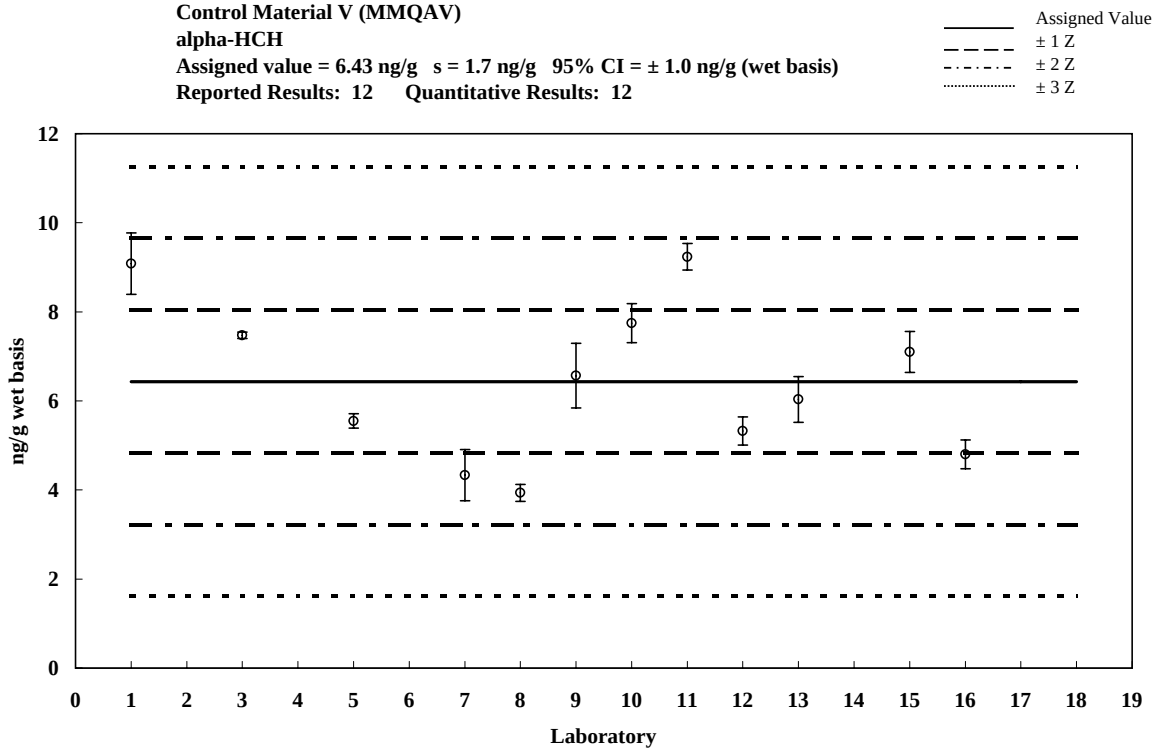
Control Material V (MMQAV)
HCB
Assigned value = 1.89 ng/g s = 1.7 ng/g 95% CI = ± 1.4 ng/g (wet basis)
Reported Results: 6 Quantitative Results: 6



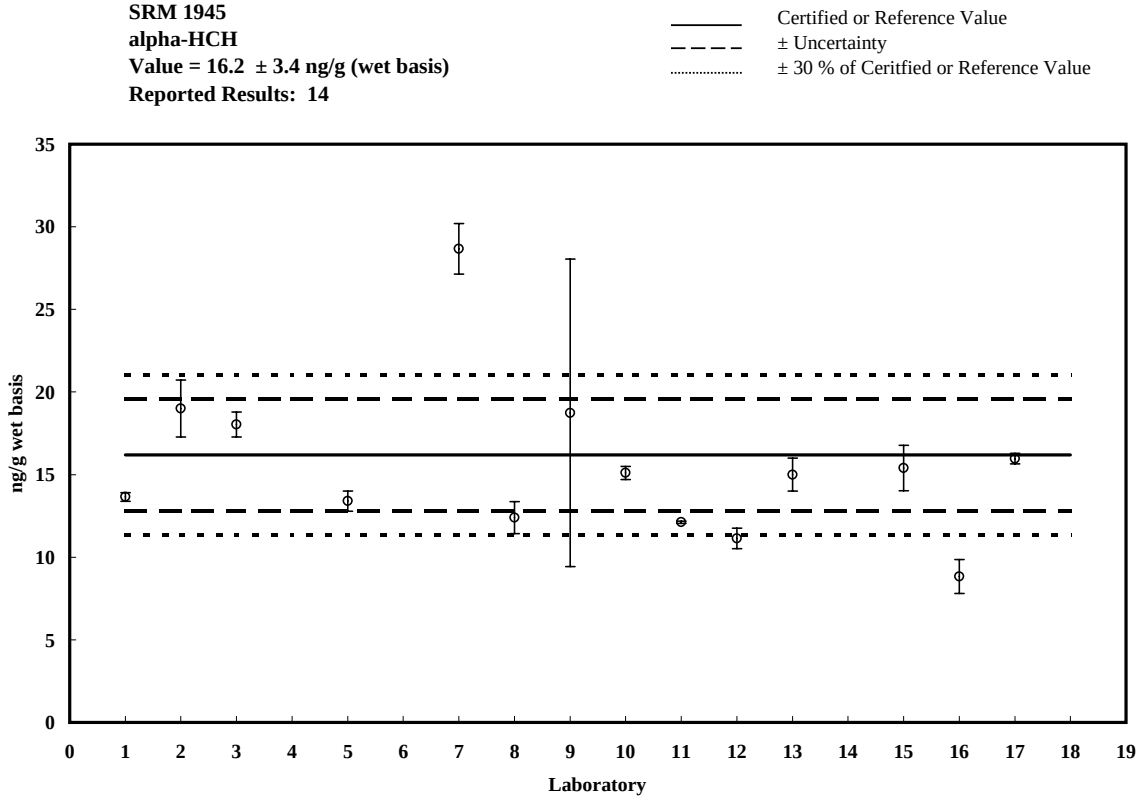
SRM 1945
HCB
Value = 33 ± 2 ng/g (wet basis)
Reported Results: 14



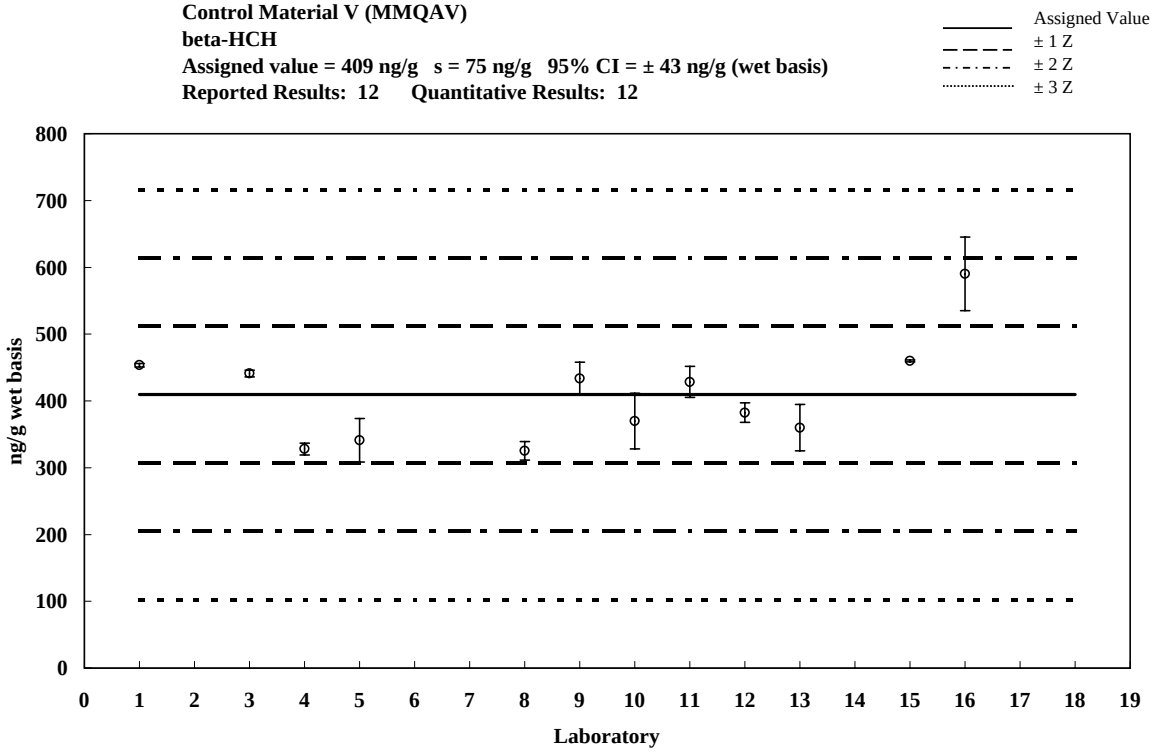
Control Material V (MMQAV)
alpha-HCH
Assigned value = 6.43 ng/g s = 1.7 ng/g 95% CI = ± 1.0 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 12



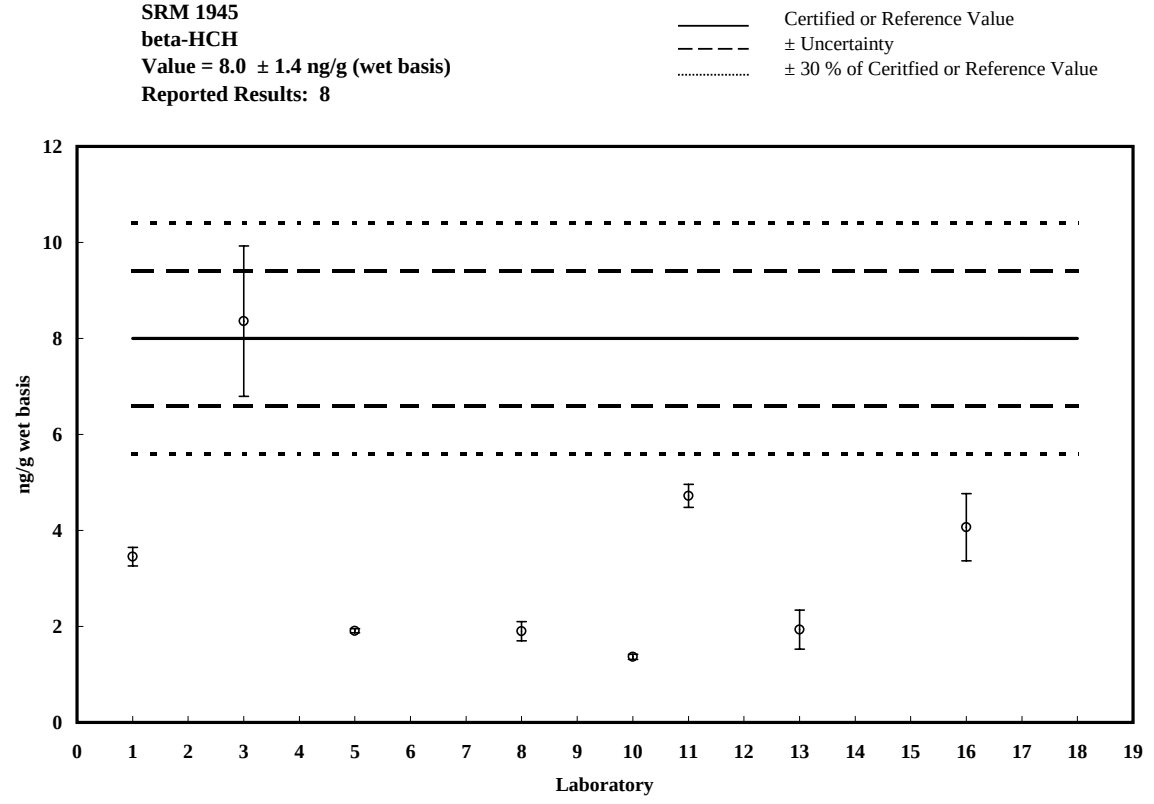
SRM 1945
alpha-HCH
Value = 16.2 ± 3.4 ng/g (wet basis)
Reported Results: 14



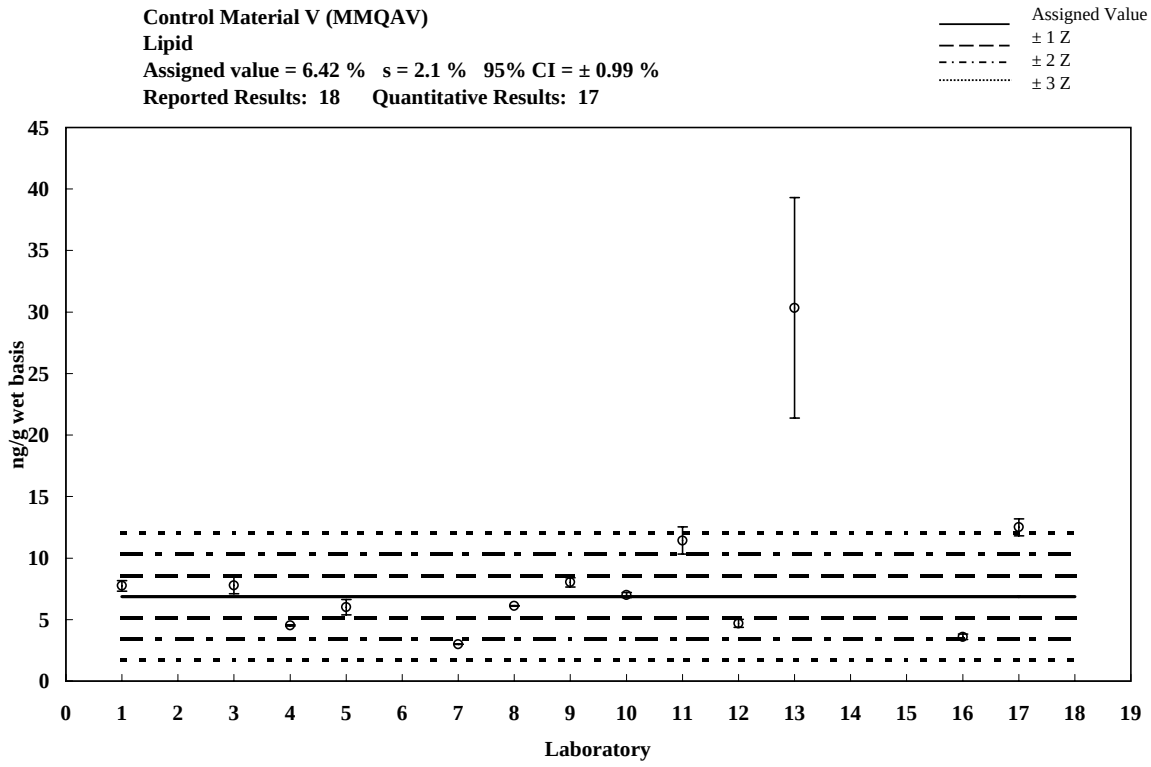
Control Material V (MMQAV)
beta-HCH
Assigned value = 409 ng/g s = 75 ng/g 95% CI = ± 43 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 12



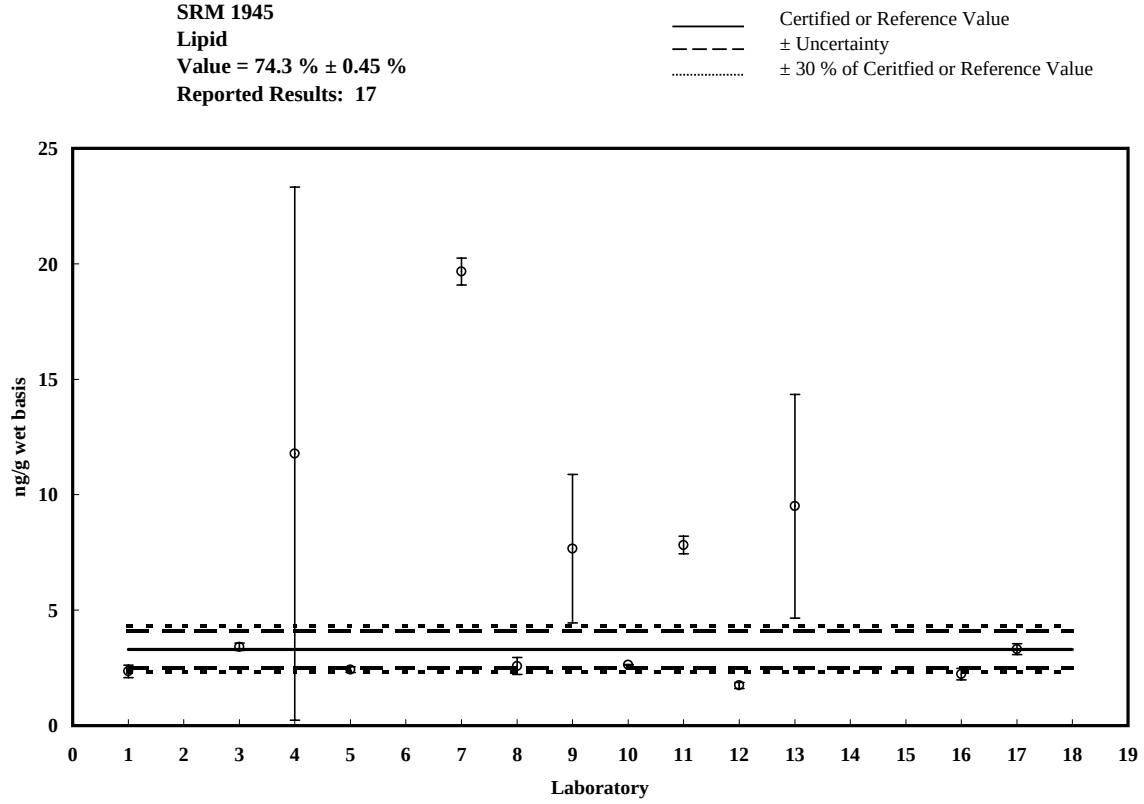
SRM 1945
beta-HCH
Value = 8.0 ± 1.4 ng/g (wet basis)
Reported Results: 8



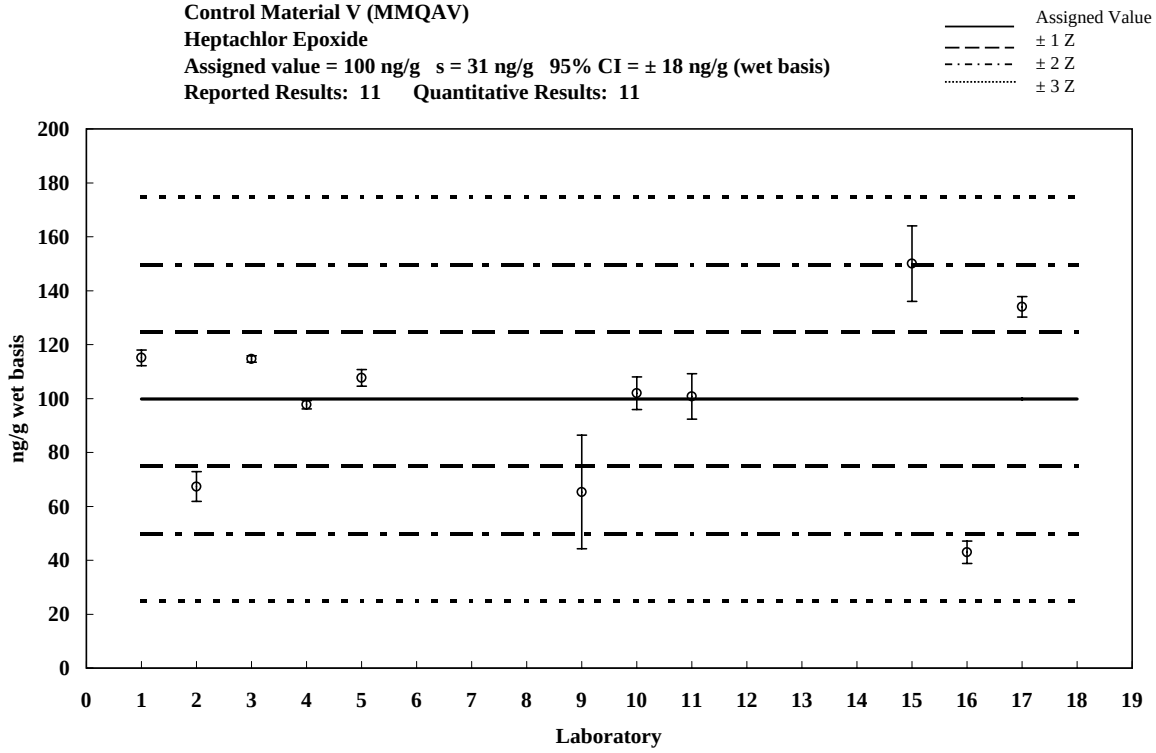
Control Material V (MMQAV)
Lipid
Assigned value = 6.42 % s = 2.1 % 95% CI = ± 0.99 %
Reported Results: 18 Quantitative Results: 17



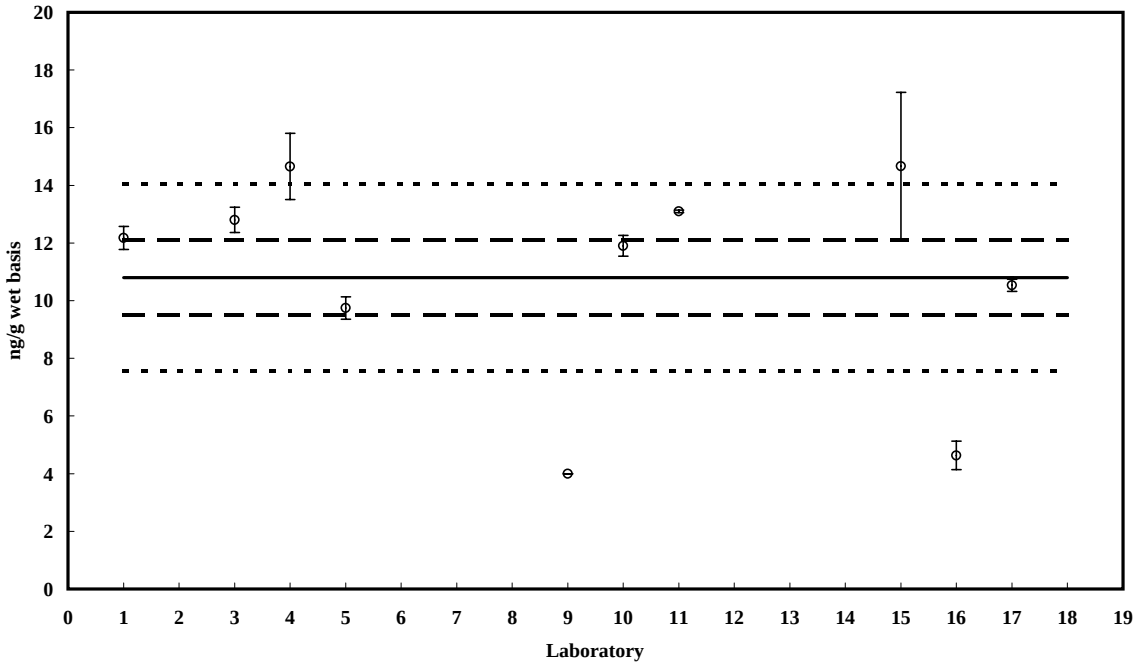
SRM 1945
Lipid
Value = 74.3 % ± 0.45 %
Reported Results: 17



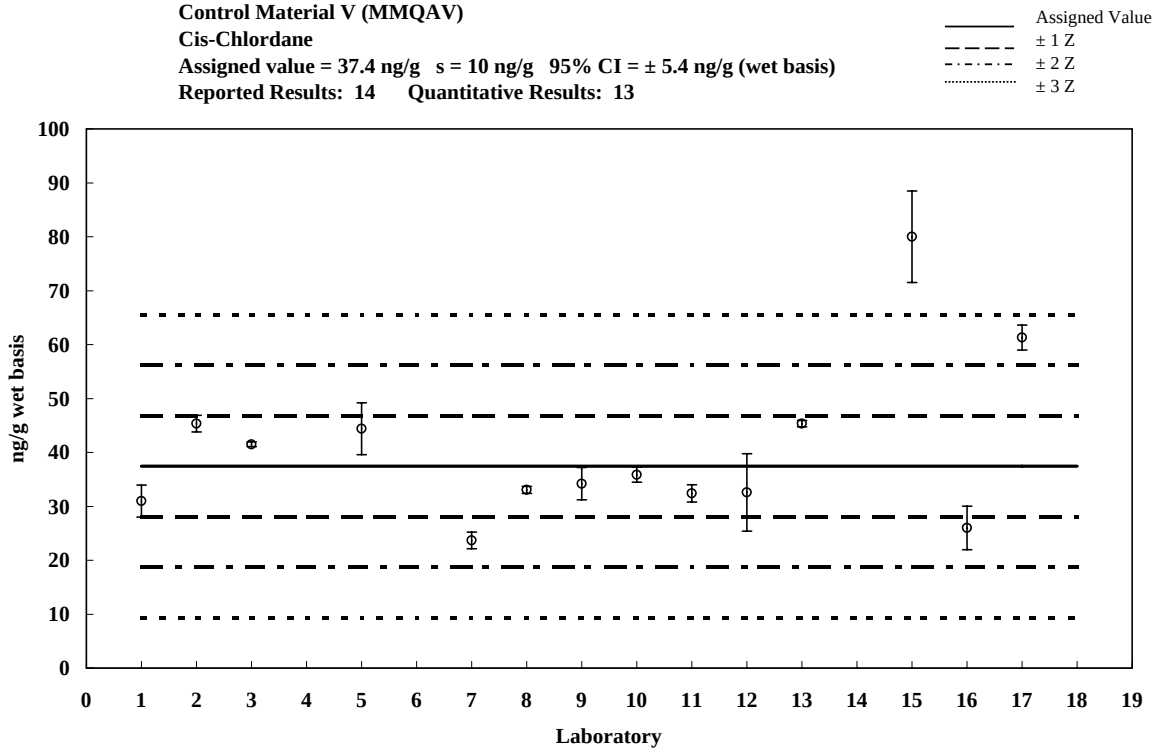
Control Material V (MMQAV)
Heptachlor Epoxide
Assigned value = 100 ng/g s = 31 ng/g 95% CI = ± 18 ng/g (wet basis)
Reported Results: 11 Quantitative Results: 11



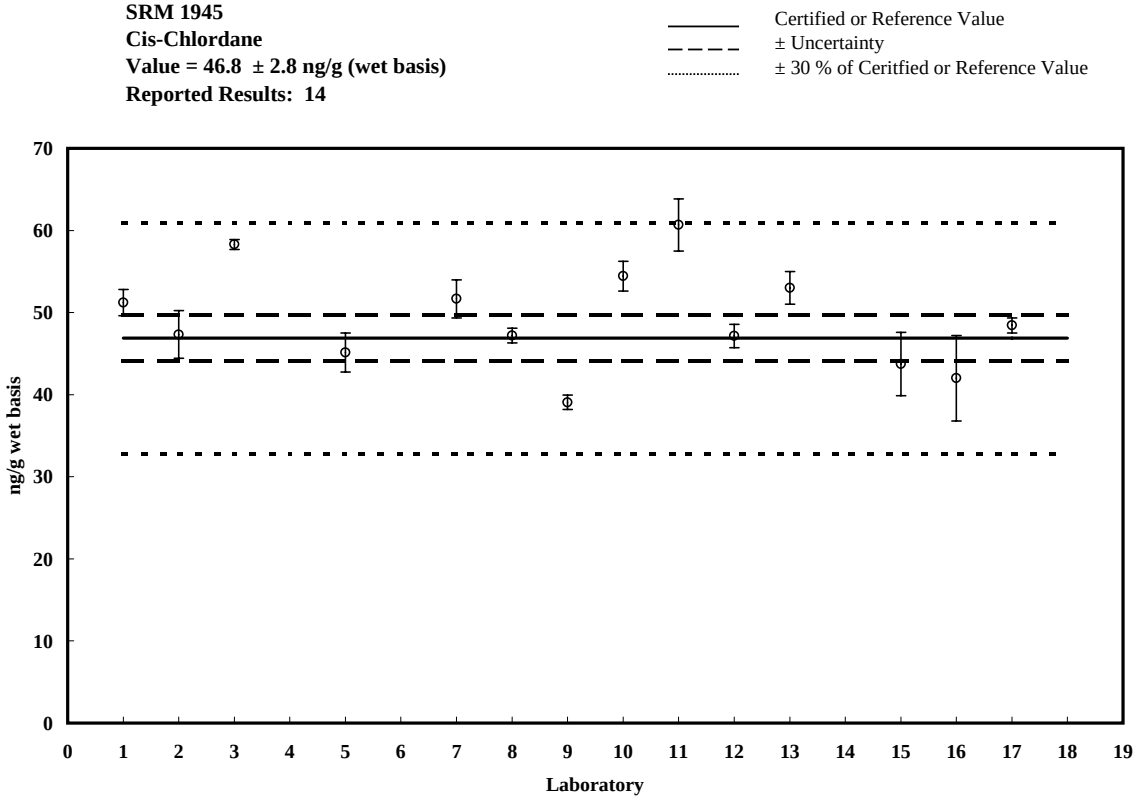
SRM 1945
Heptachlor Epoxide
Value = 10.8 ± 1.3 ng/g (wet basis)
Reported Results: 10



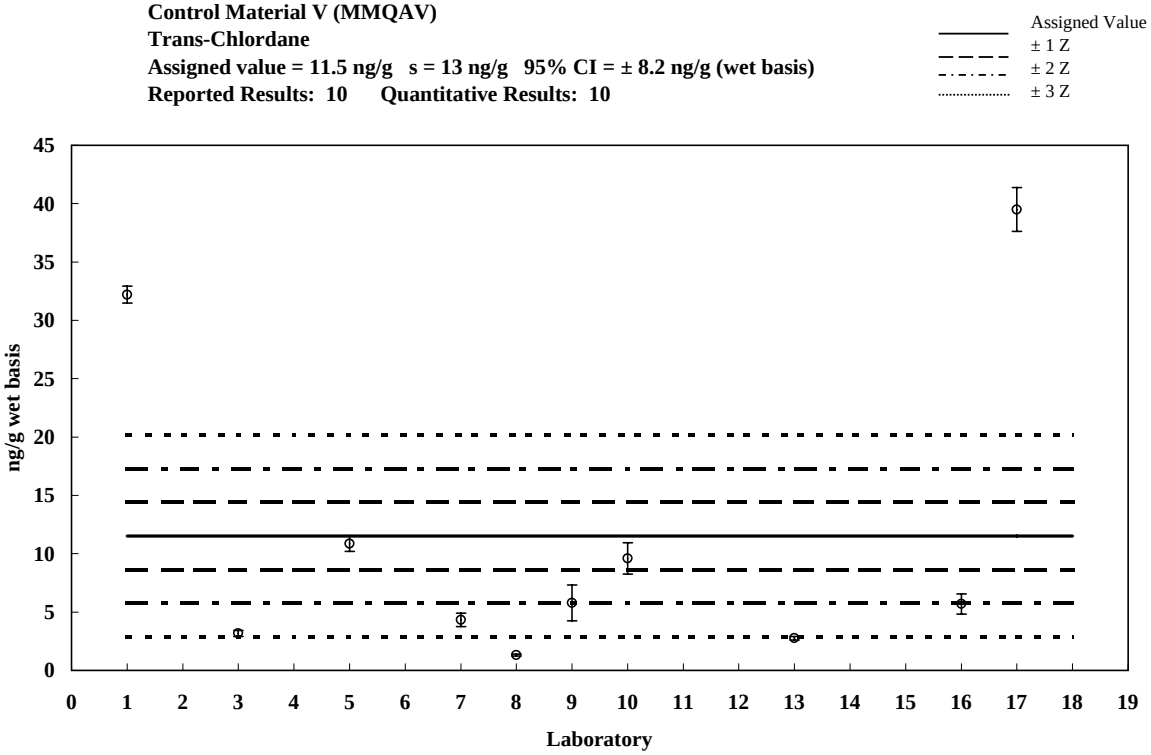
Control Material V (MMQAV)
Cis-Chlordane
Assigned value = 37.4 ng/g s = 10 ng/g 95% CI = ± 5.4 ng/g (wet basis)
Reported Results: 14 Quantitative Results: 13



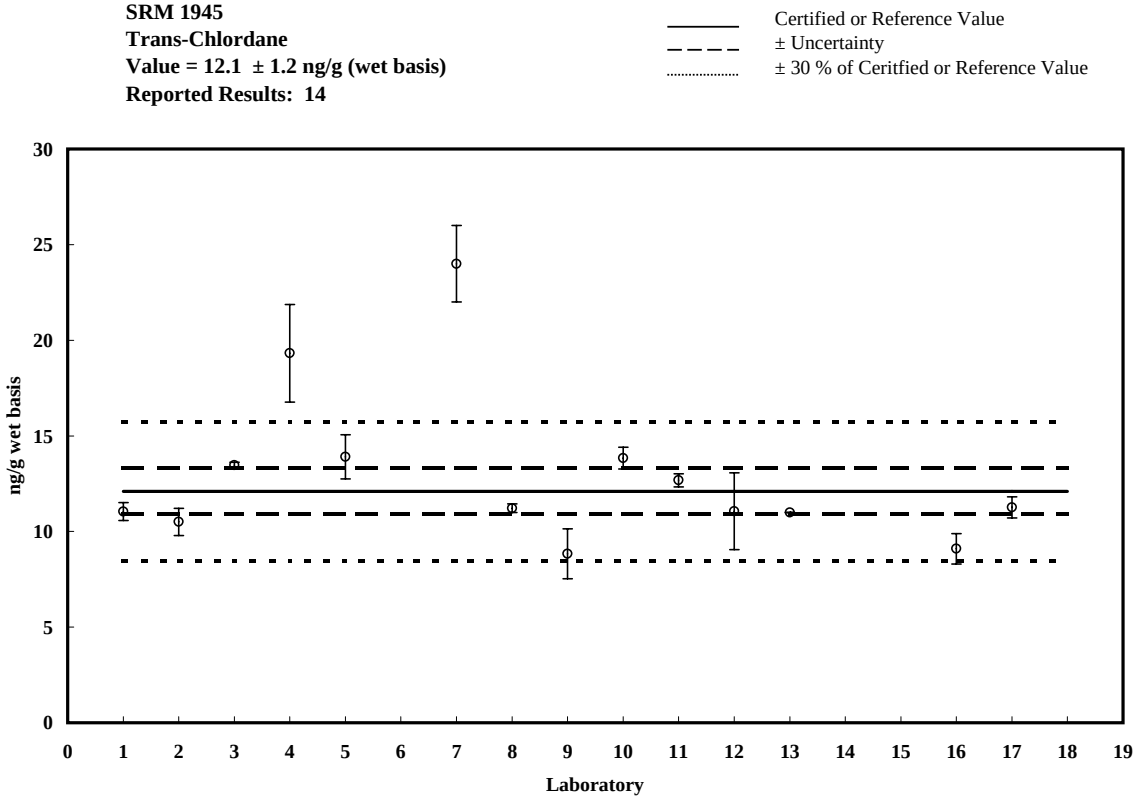
SRM 1945
Cis-Chlordane
Value = 46.8 ± 2.8 ng/g (wet basis)
Reported Results: 14



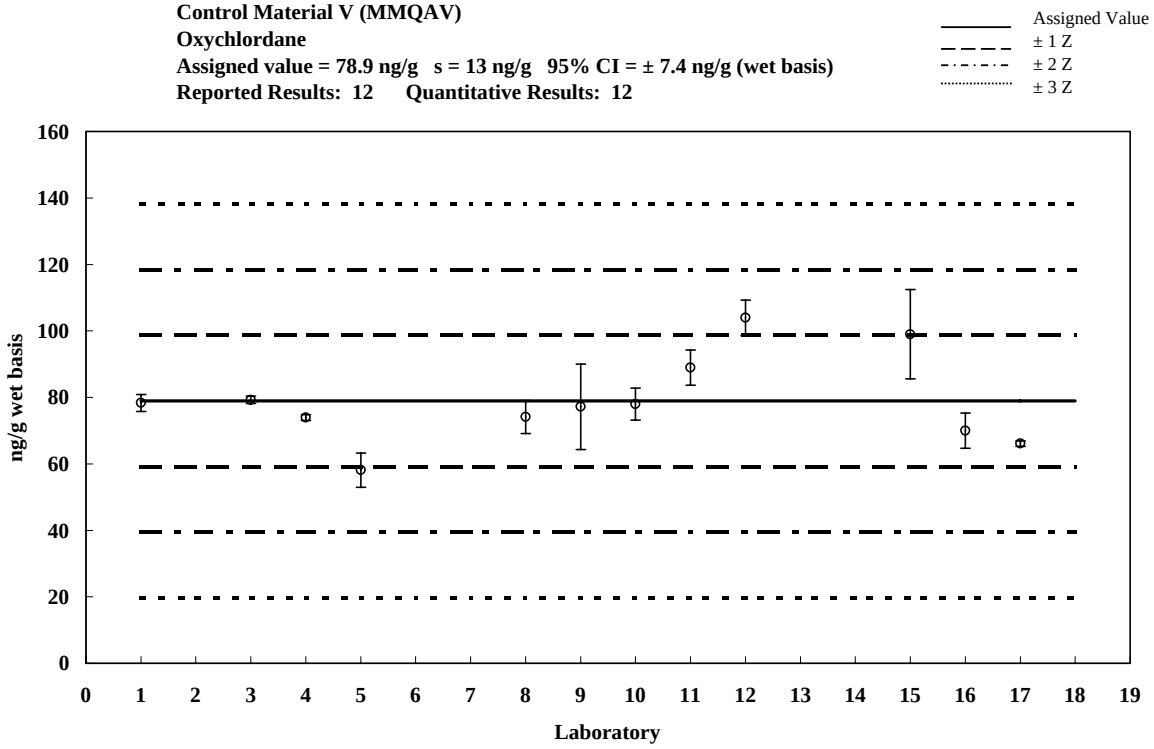
Control Material V (MMQAV)
Trans-Chlordane
Assigned value = 11.5 ng/g s = 13 ng/g 95% CI = ± 8.2 ng/g (wet basis)
Reported Results: 10 Quantitative Results: 10



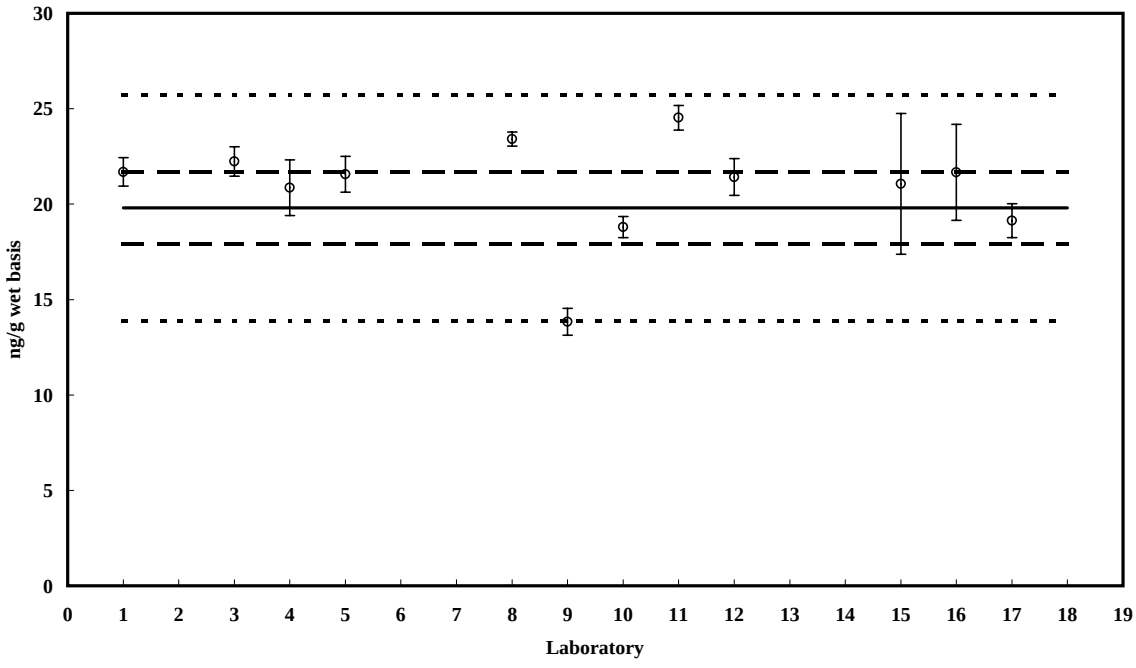
SRM 1945
Trans-Chlordane
Value = 12.1 ± 1.2 ng/g (wet basis)
Reported Results: 14



Control Material V (MMQAV)
Oxychlordane
Assigned value = 78.9 ng/g s = 13 ng/g 95% CI = ± 7.4 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 12

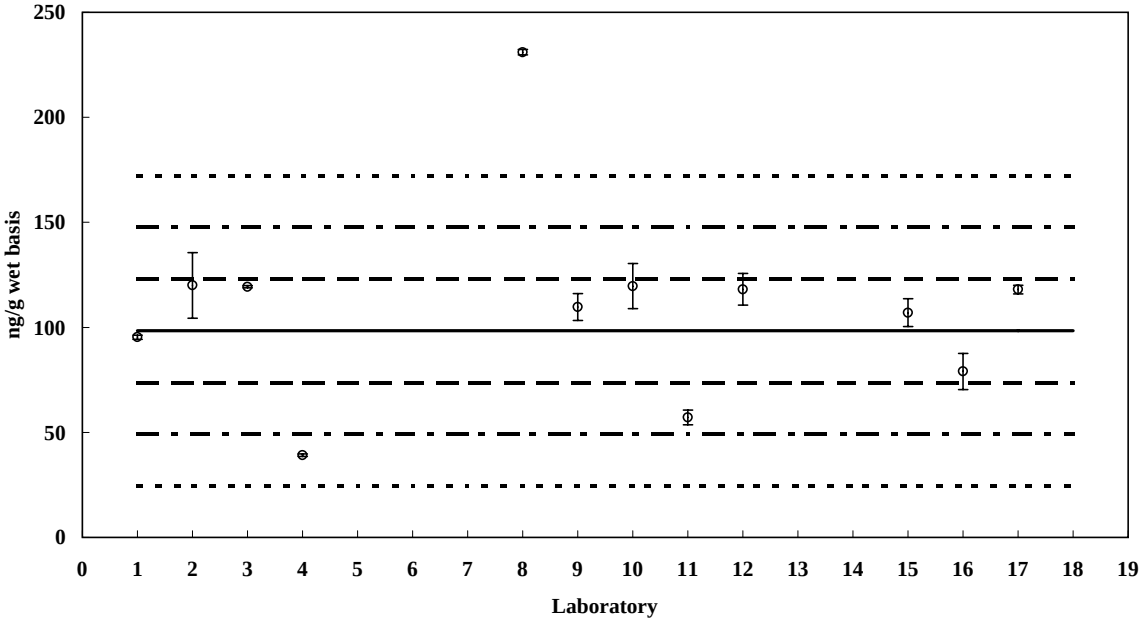


SRM 1945
Oxychlordane
Value = 19.8 ± 1.9 ng/g (wet basis)
Reported Results: 12



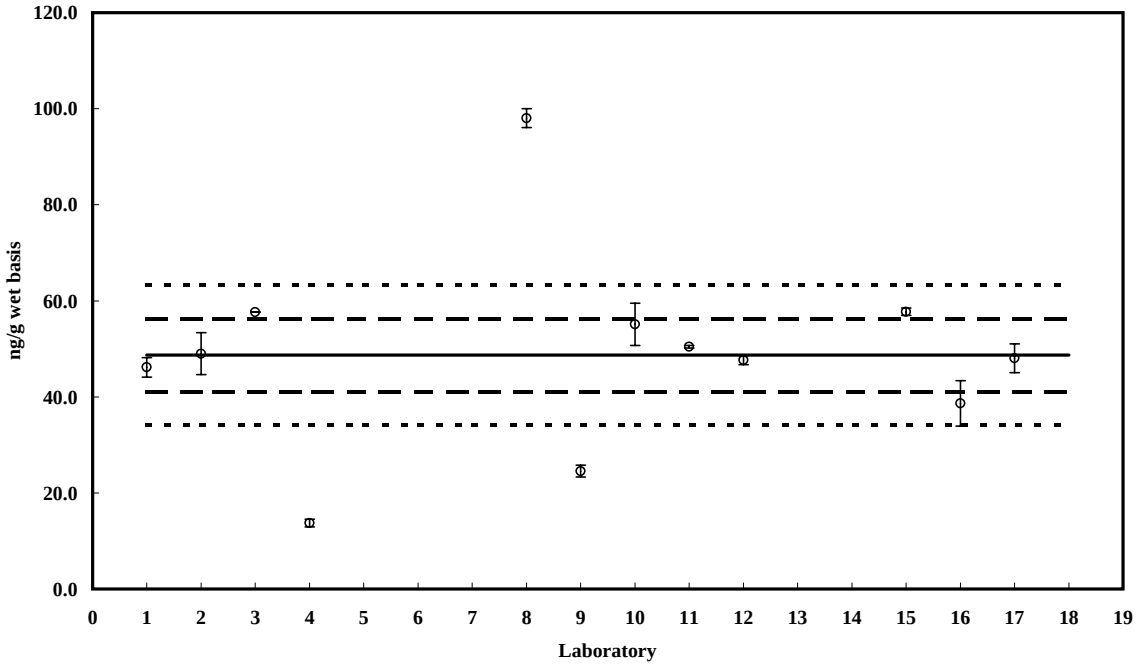
Control Material V (MMQAV)
Cis-Nonachlor
Assigned value = 98.4 ng/g s = 28 ng/g 95% CI = ± 17 ng/g (wet basis)
Reported Results: 12 Quantitative Results: 11

Assigned Value
± 1 Z
± 2 Z
± 3 Z

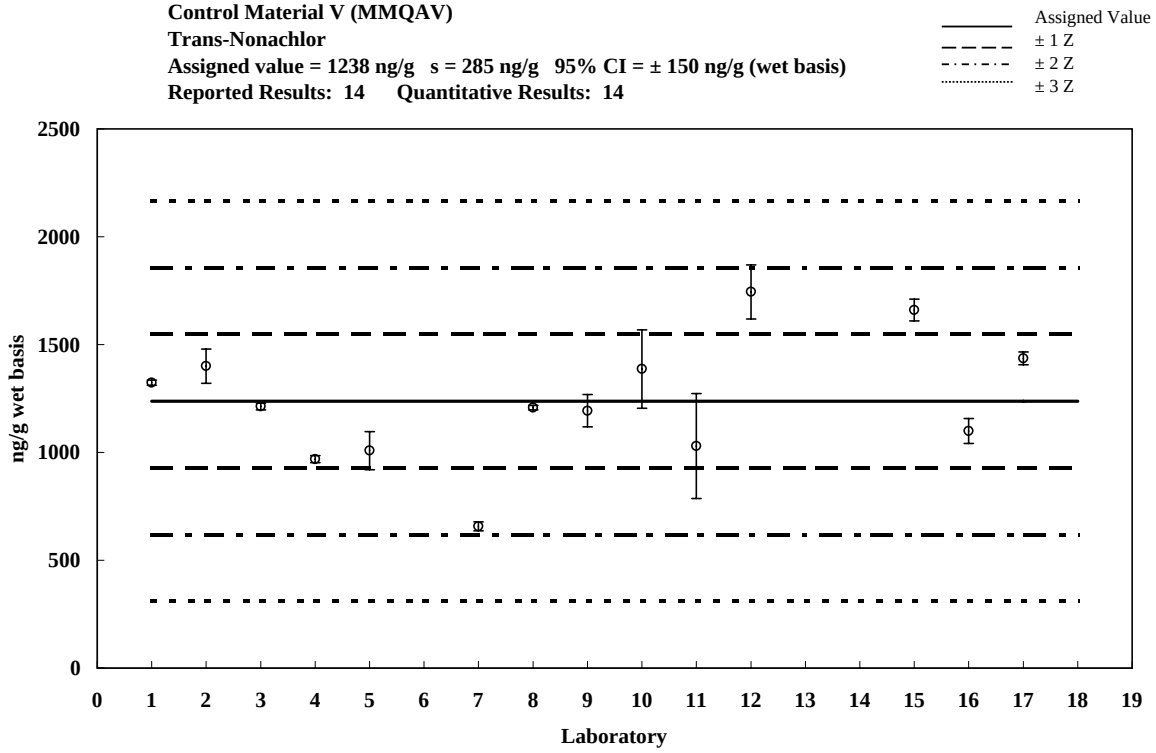


SRM 1945
Cis-Nonachlor
Value = 48.7 ± 7.6 ng/g (wet basis)
Reported Results: 12

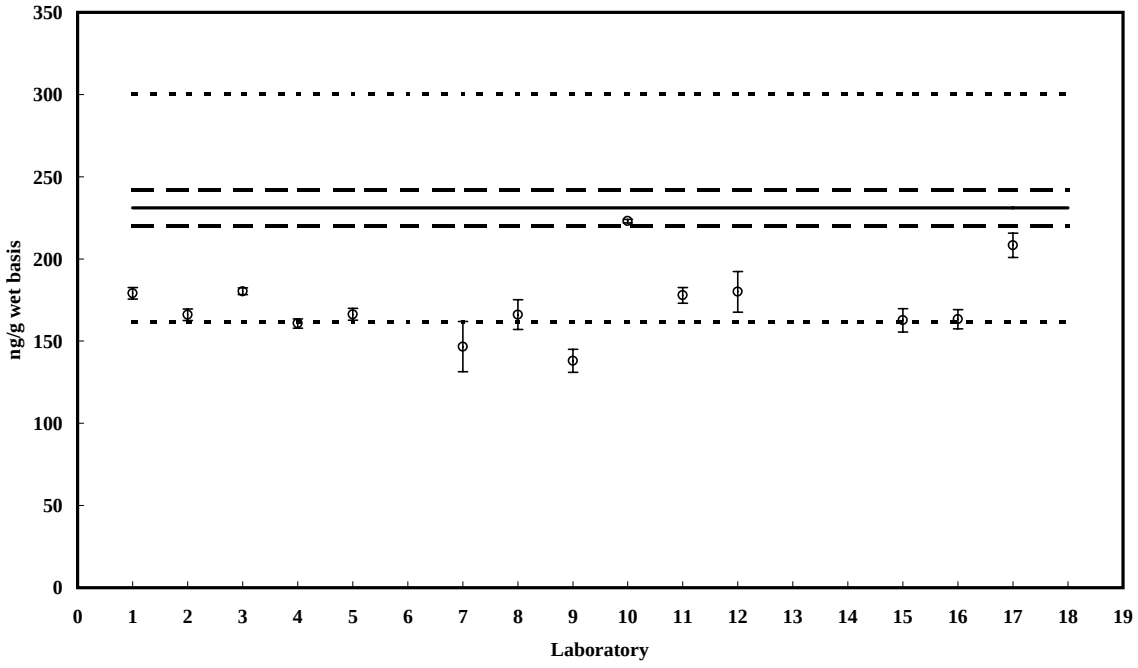
Certified or Reference Value
± Uncertainty
± 30 % of Ceritfied or Reference Value



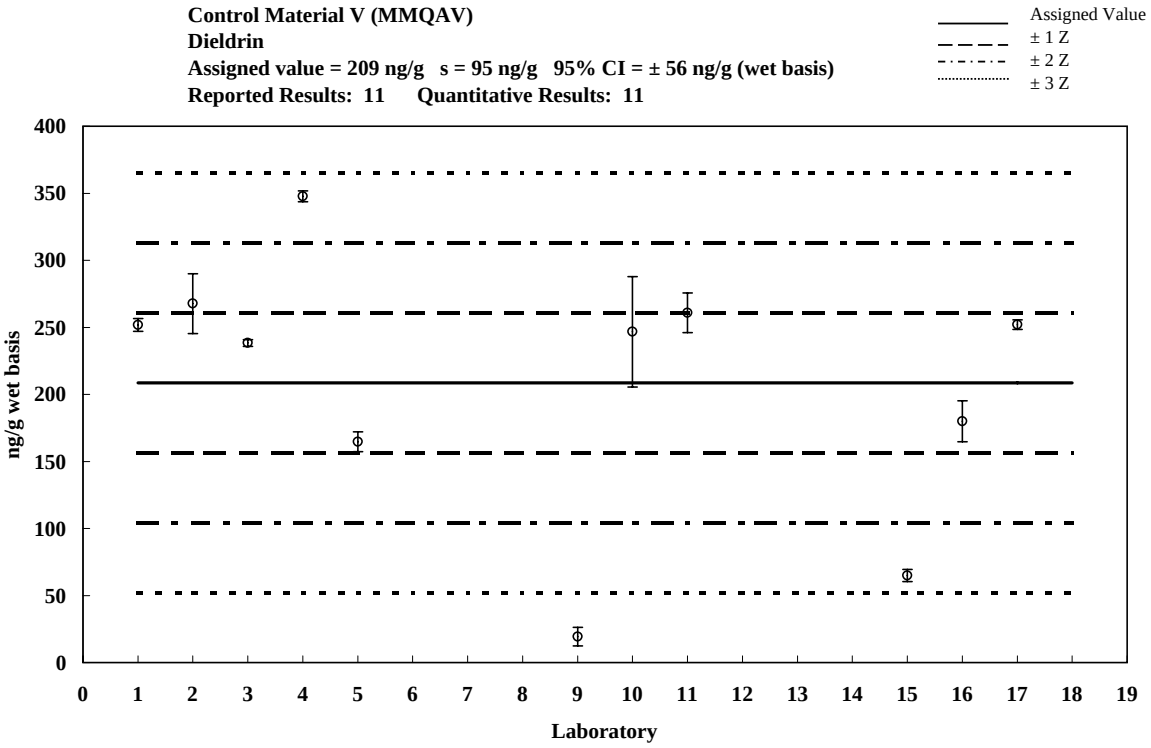
Control Material V (MMQAV)
Trans-Nonachlor
Assigned value = 1238 ng/g s = 285 ng/g 95% CI = ± 150 ng/g (wet basis)
Reported Results: 14 Quantitative Results: 14



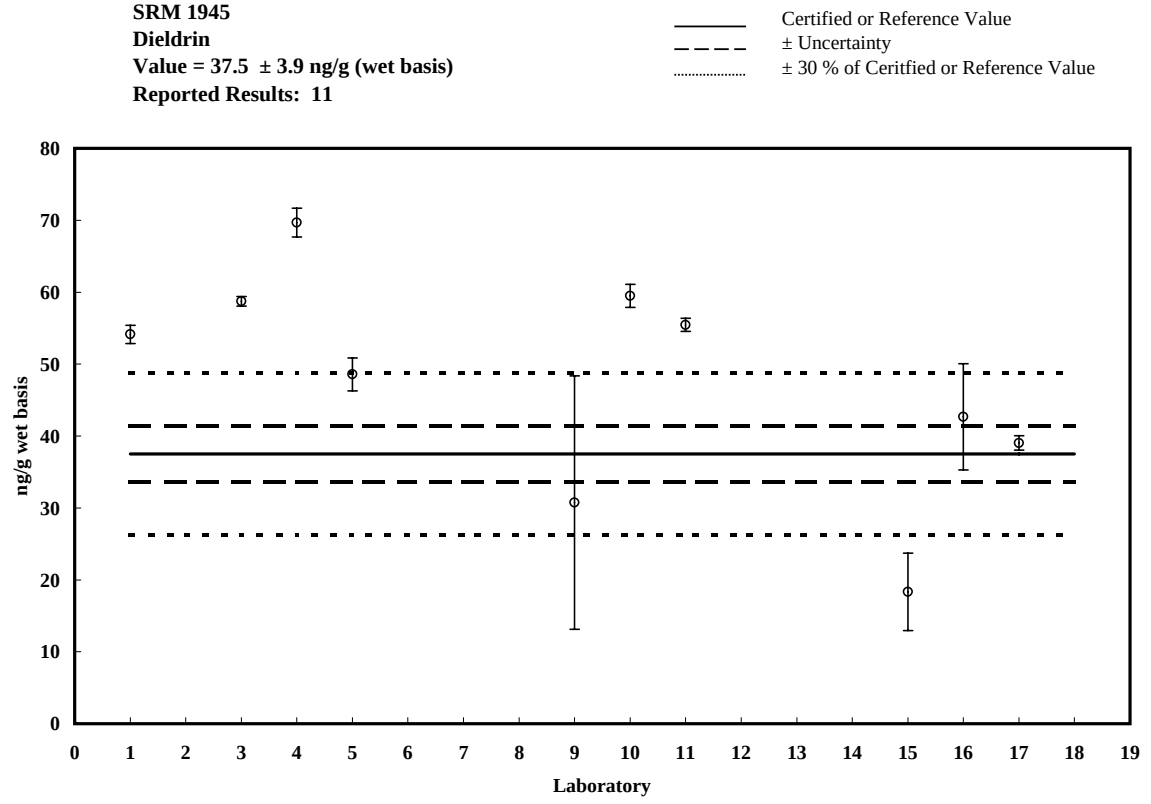
SRM 1945
Trans-Nonachlor
Value = 231 ± 11 ng/g (wet basis)
Reported Results: 14



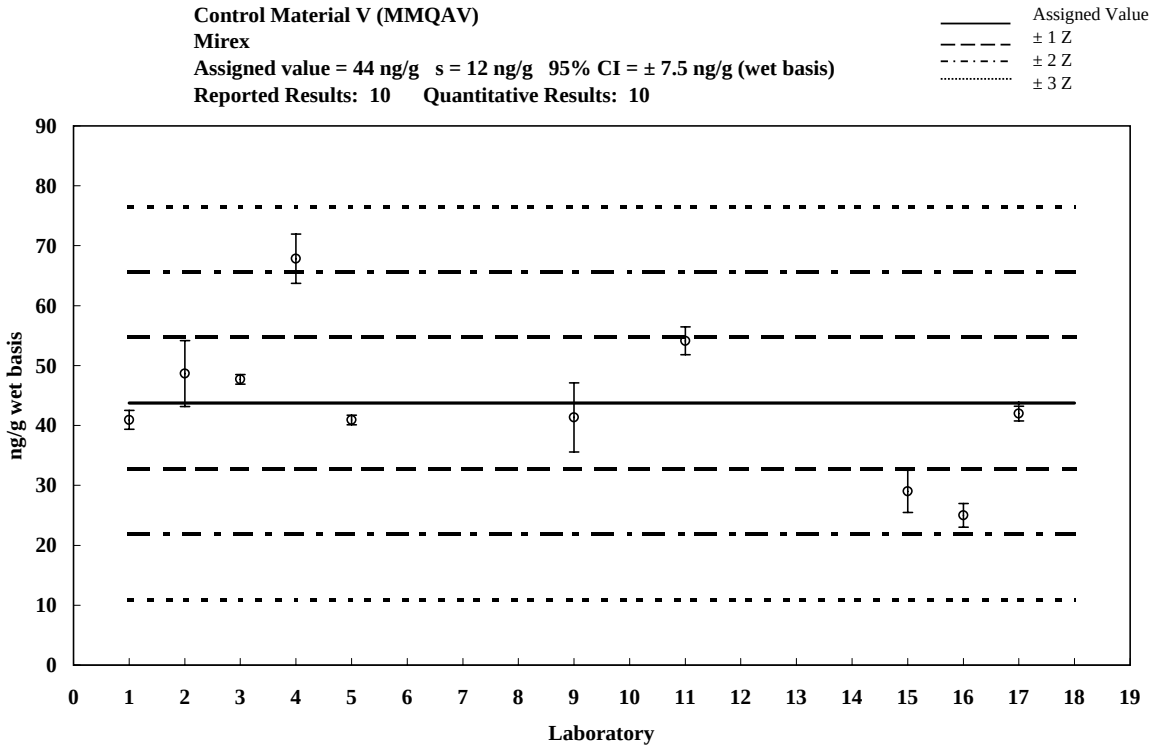
Control Material V (MMQAV)
Dieldrin
Assigned value = 209 ng/g s = 95 ng/g 95% CI = ± 56 ng/g (wet basis)
Reported Results: 11 Quantitative Results: 11



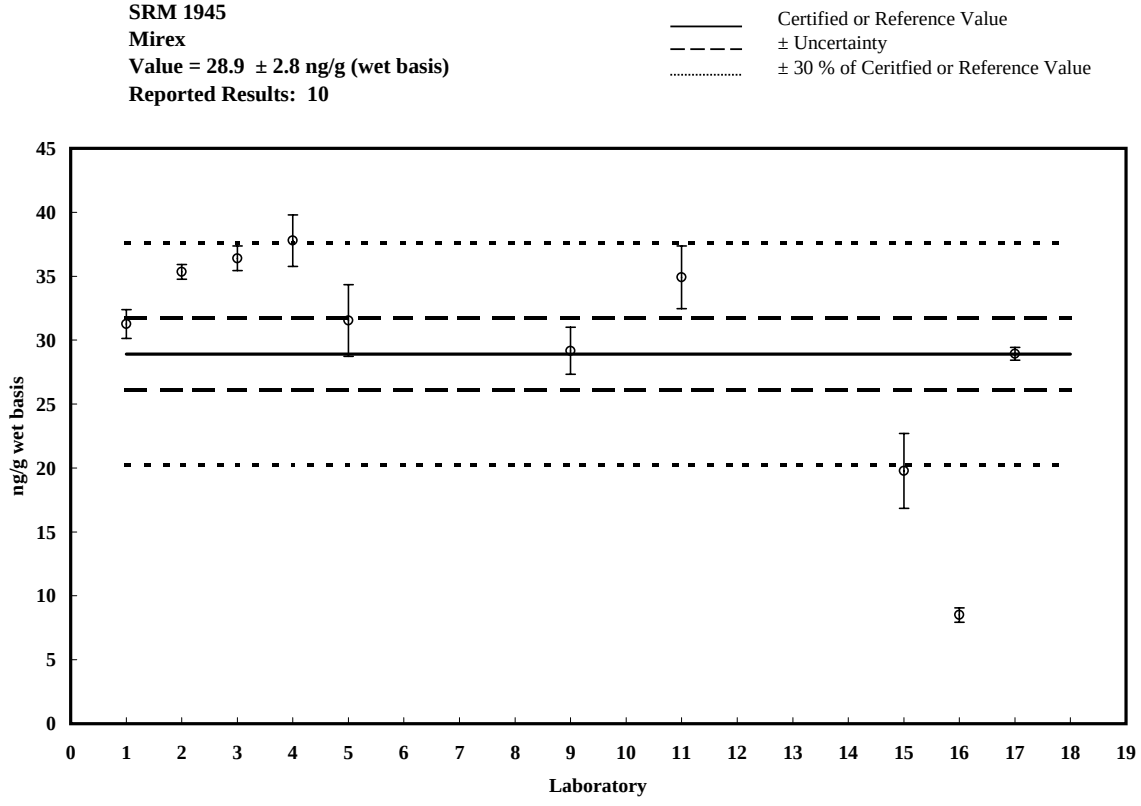
SRM 1945
Dieldrin
Value = 37.5 ± 3.9 ng/g (wet basis)
Reported Results: 11



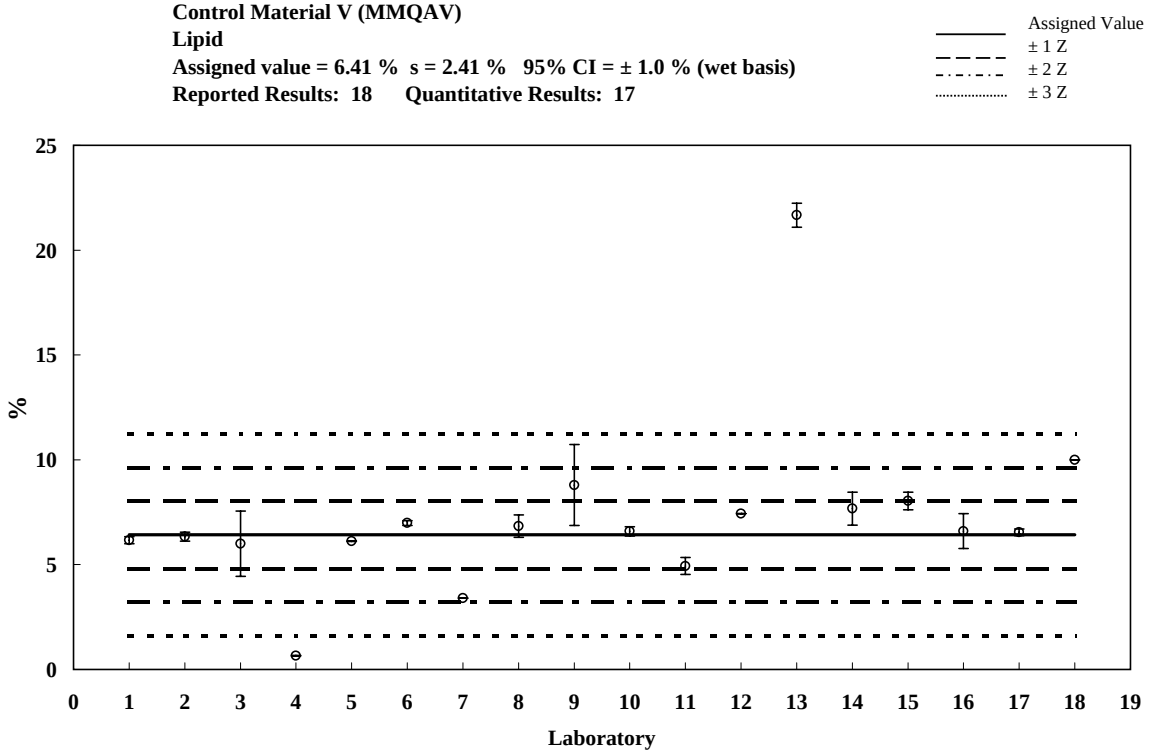
Control Material V (MMQAV)
Mirex
Assigned value = 44 ng/g s = 12 ng/g 95% CI = ± 7.5 ng/g (wet basis)
Reported Results: 10 Quantitative Results: 10



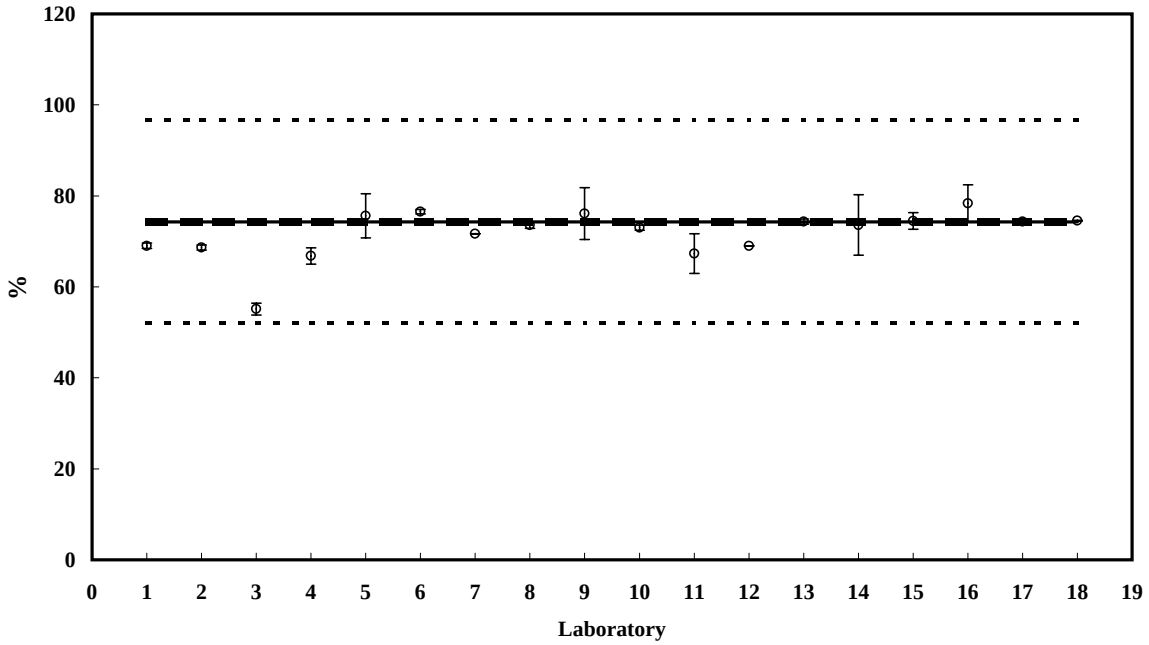
SRM 1945
Mirex
Value = 28.9 ± 2.8 ng/g (wet basis)
Reported Results: 10



Control Material V (MMQAV)
Lipid
Assigned value = 6.41 % s = 2.41 % 95% CI = ± 1.0 % (wet basis)
Reported Results: 18 Quantitative Results: 17



SRM 1945
Lipid
Value = 74.3 ± 0.45 % (wet basis)
Reported Results: 17



APPENDIX D

Tabular summary of methods used for analysis by each laboratory.

Summary of Methods Used

Lab No.	Approximate mass of sample extracted (g): SRM 1945	Homog. V	Procedure used to measure Lipid	Were "wet" or "dry" samples extracted? SRM 1945	Homog. V
1	1	1	Subsampled the dichloromethane extract, evaporated the solvent and weighed the remaining residue.	wet	wet
2	1.3	2.1	gravimetric; 1/10 of sample dried at 104 ^{o}C	wet	wet
3	1	1	Methylene chloride extraction modified Dye and Bligher.	wet	wet
4	1.7	4.9	After extraction with dichloromethane, each extract was concentrated to 10ml. 2ml of this extract was added to a previously weighed aluminum weighling pan. The contents were allowed to evaporate, and the pan was reweighed.	wet	wet
5	1	1	Gravimetric determination of non-volatile extractable weight.	wet	wet
6	0.4	0.8	A weighed portion of the sample ground with anhydrous Na_2SO_4, eluted with 1:1 DCM:hexane; solvent removed under nitrogen. Concentrated sample is baked at 35 C for 48 hours. The dried sample is placed in a desiccator over sodium sulfate to cool and then weighed.	wet	wet
7	5.02	4.65	Following hexane extraction, 50 mL of extract evaported to dryness.	wet	wet
8	0.5	0.5	Extactable lipid.	dry	dry
9	1.3	4.8	Gravimetric	wet	wet
10	0.55	1.3	Gravimetric determination from portion of the Soxhlet extraction.	wet	wet
11	0.6	0.6	Gravimetric weight of extract.	wet	wet
12	2.3	2.4	An aliquot of the Soxhlet extract was dried and weighed.	wet	wet
13	0.25	0.5	Samples were evaporated just to dryness after exraction, flask weighed.	wet	wet
14	1	1	Gravimeteric; extracts from Soxhlet extract dried to constant weight.	wet	wet
15	0.2-0.8	0.2-0.8	Gravimetric of whole extract.	wet	wet
16	0.24	0.24		wet	wet
17	0.6	1	From extract, remove 90 uL and allow to dry. Percent lipid based on gravimetric ratios.	wet	wet
18	1.5	5.1	Gravimetric.	wet	wet

Summary of Methods Used

Lab No.	Extraction Method	Extraction Solvent	Extraction Time	Extraction Other
1	Pressurized Fluid Extaction (Dionex, ASE)	Dichloromethane	15 min	Sample dried with 45 g sodium sulfate, then packed into a 33 mL PFE cell. PFE Conditions: cell temp 100 deg. C. equilibration 5 min, static time 5 min, cell pressure 2000 psi and there were three cylces. Samples were first run through a Gel Permeation chromatogramphy column (PL Gel 600 mm) using DCM.
2	Accelerated Solvent Extraction	Dichloromethane	20 min	
3	NOAA Technical Memorandum NOS ORCA 71 Volume IV, Chapter 2	Dichloromethane		Sodium sulfate added to samples prior to extraction; Silica/Alumina and HPLC-SEC chromatography; see reference above.
4	Soxhlet extraction	Dichloromethane	18 h	Each extract was eluted through a glass chromatography column packed with florisil, silica,and alumina and was concentrated to 10 mL. 2 mL of each extract was taken for the lipid determination. The volume of the remaining eluate of Homogenate V was adjusted to 10 mL and split into two 5mL portions. Final sample cleanup was done using 2 Phenogel size exclusion HPLC columns in series. The two resulting extracts 5 mL sample was injected into the HPLC columns by manually over-filling a 5 mL loop with 6 mL of sample. The extracts were combined and concentrated to 1 mL for initial GC screening, then diluted to 10 mL for final analysis.
5	Soxhlet	Dichloromethane	12 h	
6	Weighed sample is spiked with I.S., ground with anhydrous Na_2SO_4, transferred to a column and eluted with solvent.	1:1 dichloromethane:hexane	approximately 1 h	
7	Soxhlet	n Hexane	4 h	
8	Soxhlet extraction with mixed solvent system (hexane:acetone)	Hexane:acetone (4:1)	6 h	
9	ASE	Dichloromethane + acetone (1:1)	5 min x 3	
10	Soxhlet	Mixture of hexane: diethylether (1:3)	8 h	Sample was ground with anhydrous sodium sulfate.
11	Tissumizer	Dichloromethane	3 min x 3	$NaSO_4$
12	Soxhlet	Dichloromethane:hexane (4:1)	7 h	
13	Soxhlet, with sodium sulphate added to sample	Dichloromethane	18 h	
14	Soxhlet	Dichloromethane and hexane (3:1)	16 h	
15	Soxhlet; PCB's, Pesticides ASE	PCBs, Hexane: Pesticides, 1:1 Hexane : Acetone	7 h	
16	Blubber extraction	Dichloromethane:hexane		
17	PFE	Dichloromethane	approx. 15 min	100 ^{o}C, 2000 psi, 3 cycles
18	Modified soxhlet extractor	Dichloromethane/hexane	6 h	

Summary of Methods Used

Lab No.		Instrument	Column Phase	Length (m)	Column i.d. (mm)	Film Thickness (um)	Points	Conc. Range	Analytes Outside of Calibration
1	**Pest.**	GC-MS	DB-5ms	60	0.25	0.25	5	1-1000 ng/mL	
	PCB	GC-MS	DB-5ms	60	0.25	0.25	5	1-1000 ng/mL	
2	**Pest.**	GC/MS EI	DB-5	30	0.25	0.25	5	0.2-15 ng	
	PCB						5	0.05-15 ng	
3	**Pest.**	GC-MS (SIM)	DB-5	60	0.25	0.25	10	0.003-100 ng/µL	
	PCB	GC-MS (SIM)	DB-5	60	0.25	0.25	8	0.003-10 ng/µL	
4	**Pest.**	GC-ECD	DB-5	60	0.25	0.25	1	100 ng/mL	4,4'-DDE in Homogenate V
	PCB	GC-ECD	DB-5	60	0.25	0.25	1	100 ng/mL	
5	**Pest.**	GC-ECD	HP5-MS	30	0.25	0.25	4	2-150 ng/mL	Yes (some)
	PCB	GC-ECD	HP5-MS	30	0.25	0.25	4	0.5-120 ng/mL	Yes (some)
6	**Pest.**								
	PCB	Autospec	DB-5	55	0.25	0.1	5	0.5 to 1500 ng/mL	
7	**Pest.**	GC-ECD	5% phenyl methyl siloxane	50	0.2	0.33	6	e.g. G-HCH 0.702 - 35.1 ng/mL	4,4-DDD AND 4,4-DDE
	PCB	GC-ECD	5% phenyl methyl siloxane	50	0.2	0.33	7	e.g. CB28 0.78 - 78 ng/mL	
8	**Pest.**	GC-MS					8	0,25-100 ng/mL	Samples were diluted to match the conc. range.
	PCB	GC-ECD					7	0,5 - 200 ng/mL	Samples were diluted to match the conc. range.
9	**Pest.**	HP 6890 GC/ECI	DB-XLB/DB-5	60/60	0.25	0.25	5	2.5-200 ng/mL	the ones out of calibration were reported from dilution analysis
	PCB	HP 6890 GC/ECI	DB-XLB/DB-5	60/60	0.25	0.25	5	2.5-200 ng/mL	the ones out of calibration were reported from dilution analysis

Summary of Methods Used

Lab No.		Instrument	Column Phase	Length (m)	Column i.d. (mm)	Film Thickness (um)	Points	Conc. Range	Analytes Outside of Calibration
10	**Pest.**	GC-ECD	DB-1	30	0.25	0.25	1	10 ng/mL	
	PCB	GC-EI-MS	DB-1	30	0.25	0.25	1	40 ng/mL	
11	**Pest.**	GC-ECD	DB-5	30	0.25	0.25	5	5-200 ng/mL	Dilute
	PCB	GC-ECD	DB-5	30	0.25	0.25	5	5-200ng/mL	Dilute
12	**Pest.**	GC-ECD	DB -1	30	0.25	0.25			
	PCB	GC-MS	DB-1	30	0.25	0.25	5	10-300 ng/mL	
13	**Pest.**	GC-EIMS	CPSil-8	50	0.25	0.12	7	2.5 - 200 ng/mL	Samples diluted to within range
	PCB	GC-EIMS	CPSil-8	50	0.25	0.12	7	1.25 - 100 ng/mL	Samples diluted to within range
14	**Pest.**	PE	ZB-5	30	0.25	0.25			
	PCB								
15	**Pest.**	GC	db-5, db-608	30	0.53	1.5, 0.83	3	2 to 250 ng/mL	were diluted until inside range
	PCB	GC/MS	DB-XLB	60	0.25	0.25	5	1 to 100 ng/mL	estimated with existing curve
16	**Pest.**	GC-ECD	DB5/DB17ht	60	0.25	250	6	2 pg/ul-500 ng/mL	
	PCB	GC-ECD	DB5/DB17ht	60	0.25	250	6	2 pg/ul-500 ng/mL	10x dilution
17	**Pest.**	GC/MS	DB-17MS	60	0.25	0.25	4	6ng - 600 ng	4,4'-DDE and trans-nonachlor in Homog. V
	PCB	GC/MS	DB-17MS	60	0.25	0.25	4	6ng - 600 ng	
18	**Pest.**	GC-MS-MS	DB 5	30	0.25	0.25			
	PCB	GC-MS-MS	DB 5	30	0.25	0.25			

Summary of Methods Used

Lab Number		Method of Quantitation	Added Prior to Extraction	Indentity of Internal Standards Added Prior to Chromatographic Analysis
1	**Pest.**	IS	4,4'-DDD-d_8, 4,4'-DDT-d_8, ^{13}C-cis chlordane	
	PCB	IS	PCB 103 and PCB 198	
2	**Pest.**	IS	PCB 103 and PCB 198	Phenanthrene-d_{10}
	PCB	IS	PCB 103 and PCB 198	Phenanthrene-d_{10}
3	**Pest.**	IS	PCB 103	tetrachloro-o-xylene
	PCB	IS	PCB 103	tetrachloro-o-xylene
4	**Pest.**	IS For SRM 1945; ES for Homog. V	Ronnel	Tetrachloro-m-xylene (TCMX)
	PCB	IS For SRM 1945; ES for Homog. V	4,4' Dibromooctafluorobiphenyl (DOB), PCB 198	PCB 103
5	**Pest.**	ES		
	PCB	ES		
6	**Pest.**			
	PCB	IS	(ALL ^{13}C-PCB):15, 77, 126, 169, 28, 118, 105, 156, 52, 101, 128, 180, 194, 208, 209; and PCB 38-d_5	depending on fraction either ^{13}C-PCB 101 or ^{13}C-PCB 111
7	**Pest.**	IS		PCB 155
	PCB	IS		PCB 155
8	**Pest.**	IS	PCB-198 (GC-MS); PCB-3 , PCB-40 , PCB-198 (GC-ECD)	^{13}C-transchlordane (GC-MS); PCB-53, PCB-55 PCB-207 (GC-ECD)
	PCB	IS	PCB-3 , PCB-40 , PCB-198	PCB-53 , PCB-55 , PCB-207
9	**Pest.**	IS	1-bromo-2-nitrobenzene (BNB), dibromooctofluorobiphenyl (DBOFB), octachloronaphthalene (OCN)	BNB
	PCB	IS	BNB,DBOFB, OCN	BNB
10	**Pest.**	ES		
	PCB	ES		
11	**Pest.**	IS	PCB 103	PCB 198, DBOFBP
	PCB	IS	PCB 103	PCB 198, DBOFBP
12	**Pest.**	ES		
	PCB	IS		^{13}C-28, 52, 101, 153, 138, 180, 209
13	**Pest.**	IS	^{13}C labelled PCBs: 28, 52, 101, 138, 153, 180	PCB 30, ^{13}C labelled PCB 141
	PCB	IS	^{13}C labelled PCBs: 28, 52, 101, 138, 153, 180	PCB 30, ^{13}C labelled PCB 141
14	**Pest.**			
	PCB	ES	PCB 30 (Surrogate)	
15	**Pest.**	ES		
	PCB	IS		Chrysene-d_{12}
16	**Pest.**	ES	PCNB	DOB
	PCB	ES	PCB 103, 207, 209	DOB
17	**Pest.**	IS	4,4'-DDD-d_8 and 4,4'-DDT-d_8	
	PCB	IS	PCB 103 and PCB 198	
18	**Pest.**	IS,ES		
	PCB	IS,ES		

Summary of Methods Used

Lab Number		Any Other Internal Standards?	Added When?	IS Surrogate Standards Used for Quantitation Were Added:	If the IS/surrogates Added After Extraction/Cleanup, Were Results Corrected for Recovery?
1	**Pest.**			Prior to extraction	
	PCB				
2	**Pest.**			Prior to extraction	
	PCB				
3	**Pest.**	tetrachloro-o-xylene	Just prior to HPLC-SEC	Prior to extraction	
	PCB	tetrachloro-o-xylene			No
4	**Pest.**	1,2,3-Trichlorobenzene (123-TCB)	Before HPLC cleanup.	After extraction/cleanup prior to GC analysis	
	PCB	PCB 192			
5	**Pest.**				
	PCB				
6	**Pest.**			Prior to extraction	Yes
	PCB				
7	**Pest.**	PCB 155	Post analysis for samples requiring dilution	After extraction/cleanup prior to GC analysis	No
	PCB	PCB 155			
8	**Pest.**			After extraction/cleanup prior to GC analysis	No
	PCB				
9	**Pest.**	DBOFBP	Before extraction	After extraction/cleanup prior to GC analysis	No
	PCB	DBOFBP			
10	**Pest.**				
	PCB				
11	**Pest.**	PCB 198, DBOFBP	Before extraction	Prior to extraction	
	PCB	PCB 198, DBOFBP			
12	**Pest.**				Yes
	PCB	Added a ^{13}C-105	Just before GC-MS injection as an internal standard		
13	**Pest.**			After extraction/cleanup prior to GC analysis	No
	PCB				
14	**Pest.**				No
	PCB				
15	**Pest.**			After extraction/cleanup prior to GC analysis	No
	PCB				
16	**Pest.**			Prior to extraction	No
	PCB			After extraction/cleanup prior to GC analysis.	
17	**Pest.**			Prior to extraction	
	PCB				
18	**Pest.**	^{13}C labeled DDE, DDT	After extraction before cleanup		
	PCB	^{13}C labeled PCB 52, 101, 153, 138, 180			

Summary of Methods Used

Lab Number		Recovery Range (%)	Were PCBs Separated From Pesticides Prior to GC?	Does PCB 132 coelute with PCB 153 or with PCB 105 or is it separated from both?	Please Note Any Differences in Procedures Used for SRM 1945 Analyses from Those Used for Homog. V
1	Pest.		Yes	132 Coelutes with 153, Resolved from 105	
	PCB				
2	Pest.		No	Unknown	
	PCB				
3	Pest.	100-126	No	132 Coelutes with 153, Resolved from 105	
	PCB	100-126			
4	Pest.	Ronnel: Homog. V (73.0 ± 4.1), SRM1945 (107.4 ± 1.9%); 123-TCB: Homog. V (67.8 ± 0.7), SRM1945 (101.1 ± 1.5)	No	132 Coelutes with 153, Resolved from 105	After the column cleanup and lipid determination for each SRM 1945 sample was done, the volume was adjusted to 10mL. Two extracts for each SRM sample was prepared by taking 1mL of the sample and diluting it to 5mL. Final sample cleanup of each sample portion was done by the same procedure as for Homogenate V. The two portions of HPLC cleaned extract for SRM 1945 sample 1 and 2 were combined together during the concentration step to a final volume of 1mL for GC analysis. For sample 3, only 1 portion was concentrated to 1mL.
	PCB	DOB: Homog. V (67.8 ± 0.7), SRM1945 (101.1 ± 1.5); PCB 198: Homog. V (93.1 ± 2.0), SRM1945 (117.2 ± 11.2); PCB 192: Homog. V (128.8 ± 2.5), SRM1945 (101.0 ±			
5	Pest.		Yes	Separates	
	PCB				
6	Pest.	5-86	No	132 Coelutes with 153, Resolved from 105	
	PCB				
7	Pest.		Yes	Coelutes with Both	
	PCB				
8	Pest.	99.0 - 108.7 (GC-MS); 75.4 - 110.4 (GC-ECD)	No	Separates	SRM 1945 was analysed with three replicates, while Homogenate V was analysed with two replicates.
	PCB	75.4 - 110.4			
9	Pest.		No	PCB 132 Was Not in Standard Mixture	The quantity of samples used for analysis are about three times more for SRM 1945 than for Whale Blubber Homegenate V.
	PCB				
10	Pest.		Yes	Separates	
	PCB				
11	Pest.		No		
	PCB				
12	Pest.		Yes		
	PCB	86 - 105			
13	Pest.		No	132 Coelutes with 153, Resolved from 105	
	PCB	67 - 91			
14	Pest.			Coelutes	
	PCB	75 - 105			
15	Pest.		Yes	Separates	
	PCB				
16	Pest.	58 - 69	Yes	Separates	
	PCB	58 - 71			
17	Pest.		No	Separates	
	PCB				
18	Pest.		No	132 Coelutes with 153, Resolved from 105	
	PCB				

APPENDIX E

Additional analyte data reported by individual laboratories.

Additional Analytical Results

Lab 1	Analyte	Homog V Sample 1 (ng/g wet wt)	Homog V Sample 2 (ng/g wet wt)	Homog V Sample 3 (ng/g wet wt)	SRM 1945 Sample 1 (ng/g wet wt)	SRM 1945 Sample 2 (ng/g wet wt)	SRM 1945 Sample 3 (ng/g wet wt)
	PCB 63	1.67	1.76	2.09	1.52	1.67	2.27
	PCB 74	57.9	56.7	56.3	16.8	16.5	16.8
	PCB 70+76	59.8	60.0	59.4	12.5	12.4	12.9
	PCB 56+60	11.7	11.5	12.5	10.3	10.1	10.4
	PCB 92+84+89	100	102	100	24.2	25.0	24.5
	PCB 110	161	167	158	33.2	33.0	33.6
	PCB 154	30.4	33.1	31.3	6.49	7.17	7.64
	PCB 82	19.2	19.4	18.0	4.62	4.23	4.31
	PCB 107	21.8	22.2	21.1	8.10	8.33	7.79
	PCB 146	291	297	284	42.4	41.9	43.3
	PCB 158	315	319	297	39.2	38.1	40.0
	PCB 163	60.4	63.5	64.1	12.2	11.2	10.9
	PCB 174	88.0	88.9	86.2	30.6	30.6	31.3
	PCB 157	8.11	7.16	7.61	4.35	3.93	4.09
Lab 3	PCB 17	<1.57	<2.10	<1.87	2.05	<2.34	<1.69
	PCB 70	<1.80	<2.41	<2.15	10.2	10.4	10.3
	PCB 74	63.4	63.2	63.2	17.2	17.7	17.2
	PCB 82	19.2	19.4	19.1	3.92	4.04	3.85
	PCB 110	173	173	174	36.5	36.4	36
	PCB 158	76.6	77.8	76.7	10.4	10.3	9.95
	PCB 171	77.8	80.2	78.8	11.3	11.3	10.8
	PCB 177	187	192	188	30.6	30.9	29.9
	PCB 191	8.77	9.23	8.82	<2.01	<2.71	<1.95
	PCB 199	219	226	219	88.1	88.3	83.8
	PCB205	4.06	4.17	4.1	<2.01	<2.71	<1.96
	PCB 208	38.8	39.8	38.8	24.6	24.7	23.7
	Nonachlor III	139	137	137	28.2	28.6	27.9
Lab 4	Heptachlor	1.36	1.81	1.76	3.53	4.27	1.20
	Aldrin	0.08	0.07	0.08	0.22	DL	0.45
	Chlorpyrifos	DL	DL	DL	DL	DL	DL
	Endrin	4.30	4.31	4.14	25.8	25.9	28.0
	Endosulfan I	Other[B]	Other[B]	Other[B]	Other[B]	Other[B]	Other[B]
	Endosulfan II	7.52	7.70	7.90	46.6	46.2	49.1
	Endosulfan Sulfate	23.8	24.7	23.9	121	126	144
	PCB 77	Other[D]	Other[D]	Other[D]	Other[D]	Other[D]	Other[D]
	PCB 110	Other[D]	Other[D]	Other[D]	Other[D]	Other[D]	Other[D]
	PCB 126	3.13	3.08	2.97	8.16	29.4	33.4
	PCB 169	1.98	1.72	1.64	14.9	14.7	16.6
Lab 6	PBC 52 (+73)	167	171	172	40.6	41.5	39.3
	PCB 87 (+115)	190	185	201	23.4	24.5	22.8
	PCB 132 (+153)	3290	3830	3930	328	378	505
	PCB 138 (+163+164+160))	2080	2250	2300	225	250	297
	PCB 187 (+182)	530	592	610	144	152	174
Lab 8	PCB 110	136	135		24.6	26.9	24.7
	PCB 188	30.3	30.3		8.28	8.74	7.45
Lab 10	Tris(4-chlorophenyl) methane	152	148	159	1.29	1.21	1.32
	Tris(4-chlorophenyl) methanol	149	140	153	1.60	1.54	1.60

Other: We found that these pairs of analytes coelute from our DB-5 column.

Other[A] : PCB 8 and alpha-HCH Other[B] : endosulfan I and PCB 101 Other[C] : alpha-chlordane and PCB 99.

Other[D] : Since PCB 77and PCB 110 coelute from our column and the response of each congener vary from each other, the relative ratios of two congeners can not be determined. We do not report the concentrations of either PCB 77 or PCB 110.

One replicate value for PCB 126 for SRM 1945 is questionable.

PCDD/DFs and non-ortho coplanar PCBs in SRM1945

BRIEF DESCRIPTION OF PROCEDURES USED:

Mass of sample extracted: Homogenate V NA g, WET basis SRM 1945 4.5-4.8 g, WET basis

Method used for determining percentage lipid: Gravimetric determination from portion of the Soxhlet extraction

Were "wet" or "dry" samples extracted? Homogen, V NA SRM 1945 wet

Extraction method: Soxhlet

Extraction solvent: Mixture of hexane:dichloromethane (1:3)

Extraction time: 8 hours

Extraction - other: Sample was ground with anhydrous sodium sulfate.

Additional Analytical Results

Sample extract cleanup method: A gel premeantion chromatography (GPC) (Gel: Bio-bead S-X3, Column: 2cm i.d. 50cm length)
After GPC, a silica-gel column was used for clean-up.
After Silica-gel column, an alumina and a carbon impressed silica-gel column were used for separation between PCBs and PCDD/DFs.

Analytical method used (e.g., GC-MS (include ionization type), GC-ECD):

	Analyt. Instr.	Column Phase	Col. Length, m	Col. i.d., mm	Col. film thickness, µm
Non-ortho PCBs, Hp-OCDD/DFs	GC-EI-HRMS	DB-5ms	60	0.25	0.25
Te-HxCDD/DFs	GC-EI-HRMS	CP-Sil 88	60	0.25	0.1

Method of quantitation (IS = internal standard, ES = external standard):

DDs/DFs IS
Non-ortho PCBs IS

IF internal standard method was used, please complete the following section:
Identity of internal standards/surrogates used that were added PRIOR to extraction of sample:

PCDD/DFs (All 13C12-PCDD/DFs) 2378-TeCDD, 12378-PeCDD, 123678-HxCDD, 1234678-HpCDD, OCDD, 2378-TeCDF, 12378-PeCDF, 123678-HxCDF, 123789-HxCDF, 1234678-HpCDF, OCDF
Non-ortho PCBs (All 13C12-PCBs) CB77,CB 81, CB126, CB169

Added after extraction/cleanup and JUST PRIOR to chromatographic analysis:

PCDD/DFs (All 13C12-PCDDs) 1234-TeCDD and 123789-HxCDD
Non-ortho PCBs 13C12 1234-TeCDD

Any others? Added at what point in analyses: no

PCDD/DFs _____
Non-ortho PCBs _____

IS/surrogate standards used for quantitation calculations were:
_____ those added prior to extraction
yes those added after extraction/cleanup and just prior to chromatographic analysis

If the IS/surrogates added after extraction/cleanup extraction were used for quantitation, were results corrected for percent recovery? yes
Percent recovery range:

PCDD/DFs 35-105%
Non-ortho PCBs 80-97%

Calibration Curve

	Points	Conc. Range
Te-PeCDD/DFs	5	0.4-16 ng/ml
Hx-HpCDD/DFs	5	0.8-32 ng/ml
OCDD/DF	5	1.6-64ng/ml
Non-ortho PCBs	5	2.5-100ng/ml

RESULTS:

	Homog V (percent)	Homog V (percent)	Homog V (percent)	SRM 1945 (percent)	SRM 1945 (percent)	SRM 1945 (percent)
Analyst (Initials)	NA	NA	NA	M.W.	M.W.	M.W.
Date(s) of measurements (m/d/y)	NA	NA	NA	8/23-27/01	8/23-27/01	8/23-27/01
PCDD/DFCongener	Homog V Sample 1 (ng/g wet wt)	Homog V Sample 2 (ng/g wet wt)	Homog V Sample 3 (ng/g wet wt)	SRM 1945 Sample 1 (ng/g wet wt)	SRM 1945 Sample 2 (ng/g wet wt)	SRM 1945 Sample 3 (ng/g wet wt)
2378-TeCDD	NA	NA	NA	0.000569	0.000435	0.000443
12378-PeCDD	NA	NA	NA	0.000584	<0.0005	<0.0005
123478-HxCDD	NA	NA	NA	<0.0005	<0.0005	<0.0005
123678-HxCDD	NA	NA	NA	0.00117	0.00102	0.00112
123789-HxCDD	NA	NA	NA	<0.0005	<0.0005	<0.0005
1234678-HpCDD	NA	NA	NA	0.00124	0.00116	0.00115
OCDD	NA	NA	NA	0.00297	0.00242	0.00217
2378-TeCDF	NA	NA	NA	0.00613	0.00577	0.00598
12378-PeCDF	NA	NA	NA	0.000886	0.000687	0.000655
23478-PeCDF	NA	NA	NA	0.00103	0.00106	0.00107
123478-HxCDF	NA	NA	NA	0.000647	0.000555	0.000559
123678-HxCDF	NA	NA	NA	0.000757	0.000681	0.000634
123789-HxCDF	NA	NA	NA	<0.0005	<0.0005	<0.0005
234678-HxCDF	NA	NA	NA	0.00183	0.00152	0.00150
1234678-HpCDF	NA	NA	NA	0.00105	0.000840	0.000834
1234789-HCDF	NA	NA	NA	<0.0005	<0.0005	<0.0005
OCDF	NA	NA	NA	<0.001	<0.001	<0.001

Additional Analytical Results

	Non-ortho PCB congener						
	PCB 77	NA	NA	NA	0.381	0.368	0.369
	PCB 81	NA	NA	NA	0.0576	0.0579	0.0556
	PCB 126	NA	NA	NA	0.129	0.131	0.126
	PCB 169	NA	NA	NA	0.117	0.116	0.117
Lab 13	PCB 74	71.0	58.0	67.0	18.0	21.0	18.0
	PCB 110	200	170	200	38.0	46.0	40.0
	PCB 114	8.00	7.30	7.99	2.10	2.59	2.28
	PCB 141	28.0	27.0	28.0	16.0	19.0	17.0
	PCB 157	21.0	21.0	21.0	7.61	9.54	8.77
	PCB 158	100	120	105	10.0	12.0	11.0
	PCB 167	13.0	11.0	10.0	9.20	12.0	9.72
	PCB 174	95.0	86.0	99.0	24.0	27.0	25.0
	PCB 199	11.0	10.0	11.0	3.84	4.36	3.88
	PCB 203	210	200	220	72.0	73.0	68.0
Lab 17	PCB 45 & 49	108	112	103	22.7	23.4	23.2
	PCB 74	55	56	51.9	14.4	14.3	14.7
	PCB 70	<2	<2	<2	10.6	10.6	9.83
	PCB 92	84.8	89.4	56	15.8	15.5	15.2
	PCB 110	141	144	143	26.7	26.8	27.2
	PCB 146	252	255	240	33.4	32.2	34.7
	PCB 163	263	266	247	29.7	30.7	32.5
	PCB 138 + 158	779	772	740	94.2	93.4	100
	PCB 174	99.8	114	100	26.8	26.8	28.5
	PCB 180+193	617	611	593	102	108	111
Lab 18	PCB 92	69.0	58.0	81.0	13.0	11.0	8.0
	PCB 146	280	300	300	36.0	37.0	25.0
	PCB 177	160	150	150	44.0	29.0	26.0
	PCB 110 (+ 77)	170	160	180	29.0	41.0	29.0