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National Status and Trends Program
for Marine Environmental Quality

NIST/NOAA NS&T/EPA EMAP Intercomparison Exercise Program for Organic Contaminants in the Marine Environment: Description and Results of 1995 Organic Intercomparison Exercises

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Office of Ocean Resources Conservation and Assessment
National Ocean Service

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United States Department of Commerce	National Oceanic and Atmospheric Administration	National Ocean Service
Michael Kantor Secretary	D. James Baker Under Secretary	W. Stanley Wilson Assistant Administrator

NIST/NOAA NS&T/EPA EMAP
Intercomparison Exercise Program
for Organic Contaminants in the Marine Environment

Description and Results of 1995 Organic Intercomparison Exercises

Exercise Materials: Fish Homogenate III (QA95FSH3)
Marine Sediment V (QA95SED5)

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Abstract

In support of marine monitoring measurement programs, NIST, in cooperation with the NOAA National Status and Trends Program (NS&T), and the EPA Environmental Monitoring and Assessment Program (EMAP), conducts yearly interlaboratory comparison exercises to provide one mechanism for participating laboratories/monitoring programs to evaluate the quality and comparability of their performance in measuring selected organic contaminates in environmental samples. In this report, results of the 1995 exercises of the NIST/NOAA NS&T/EPA EMAP Intercomparison Exercise Program for Organic Contaminants in the Marine Environment are described in which selected polychlorinated biphenyl (PCB) congeners, chlorinated pesticides, and polycyclic aromatic hydrocarbons (PAH) were determined in Fish Homogenate III and Marine Sediment V exercise materials. The analytical methods used by each participating laboratory in this performance-based program are summarized.

Introduction

The preparation and distribution of two materials, Fish Homogenate III (QA95FSH3) and Marine Sediment V (QA95SED5), used in interlaboratory comparison exercises of 1995 for the NIST/NOAA-NS&T/EPA-EMAP Organics Quality Assurance Program and the NIST Intercomparison Exercise Program for Organic Contaminants in the Marine Environment and the results of these exercises are described in this report. The analytical methods used by each participating laboratory are summarized.

Tools and mechanisms for the assessment of data produced by laboratories providing environmental analyses are critical because decision-making based on inaccurate results or data of unknown quality can have significant economic and health consequences. NIST provides a variety of activities in support of environmental monitoring programs for organic contaminants. The largest of these programs was initiated and funded for the past nine years by the NOAA National Status and Trends (NS&T) Marine Monitoring Program [1,2,3]. Upon inception, the EPA Environmental Monitoring and Assessment Program (EMAP) joined the existing NIST/NOAA NS&T effort. For this program, NIST efforts focus on providing mechanisms for assessing the interlaboratory and temporal comparability of data, and on improving measurements for the monitoring of organic contaminants such as polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl congeners (PCBs), and chlorinated pesticides in bivalve, sediment and fish samples. This program includes the development of improved analytical methods, production of needed NIST Standard Reference Materials (SRMs) and other control materials, conduct of semi-annual interlaboratory comparison exercises, and the coordination of workshops to discuss the results of these exercises and to provide a forum for cooperative problem-solving efforts by participants. Since 1993, private sector and other laboratories that cannot be accommodated under the NOAA, EPA, and NIST funding have reimbursed NIST for participation costs and have participated in these exercises and workshops as part of the NIST Intercomparison Exercise Program for Organic Contaminants in the Marine Environment. Current participants represent multi-laboratory monitoring programs as well as a number of individual programs, and include federal, state/municipal, university/college, private sector and international laboratories. In this performance-based program, each participating laboratory uses the methods currently being used by that laboratory for analysis of similar materials for its program customers. The target analytes are listed in Table 1.

For the annual intercomparison exercises, samples of two natural-matrix-based homogeneous materials derived from the marine environment that have not been fortified with any of the target analytes are analyzed by the participating laboratories. Typical materials, such as mussel or fish homogenates or wetted marine sediment, have target contaminant levels in the 1 to 15000 ng/g range.

Numerical indices (z- and p-scores) are used to assess and track laboratory performance (for accuracy and precision, respectively) and provide a mechanism for assessing the comparability of data being produced by the participating laboratories for 64 target analytes and percent moisture.

Sources and Preparation of Materials used in 1995 Intercomparison Exercises

The Fish Homogenate III is candidate NRC CRM CARP-2 and the Marine Sediment V was prepared from candidate NIST SRM 1944. Candidate CRMs, true unknowns during the time frame of the exercise, are used as exercise materials whenever possible. This enables eventual comparisons for accuracy-based evaluations of the exercise assigned values and the results of the individual laboratories with certified concentrations for these reference materials.

(PAHs are metabolized in the livers of fish, and laboratories participating in this exercise were not requested to analyze the fish for PAHs.)

The sediment material was issued as a wet sediment to more closely match the matrix of wet sediments being analyzed by the laboratories.

Marine Sediment V. Sediment used in the preparation of this material was collected in October, 1994 from six sites in the vicinity of New York Bay and Newark Bay with a modified Van Veen-type grab sampler and was stored in polyethylene-lined containers at approximately −15 °C until the material was freeze-dried. This material was granularized and then sieved. Both the −60 to +250 mesh (nominally, 250 μm to 61 μm) fraction and the −250 mesh (nominally, <61 μm) fraction of the material were separately collected, blended, radiation-sterilized, and homogenized. Approximately 3 kg of the bulk −60 to +250 mesh material was removed for use in the preparation of Marine Sediment (QA95SED5) and the remainder was then bottled for use as NIST SRM 1944. The material was blackish-brown, free-flowing, and appeared to be quite homogeneous in particle size, texture, and color. The collection and preparation of these materials are described in detail in NIST Reports of Analysis 839.04-95-005 and 839.04-95-062, respectively.

Clear, 2-oz, wide-mouth, glass bottles were rinsed with deionized water, thermally cleaned at 500 °C for 18 h in a ventilated oven, cooled, capped, and labeled. Each label contained the material's name and code (Marine Sediment V, QA95SED5) as well as an individual bottle number. The Teflon liners of the phenolic screw caps had been removed from the caps, cleaned with hexane, dried and reinserted in the caps. A calibrated Mettler PM200 Toploader balance (resolution of 0.01 g) was used for weighing the sediment and water. For each sample, 11.00 g of the candidate SRM 1944 sediment (as received) was weighed into a tared bottle which was then capped and stored in the dark at room temperature. Approximately four days before samples were to be shipped to laboratories participating in the intercomparison exercise, 9.0 g of HPLC-grade water was added by pipet to each tared bottle of sediment. (Preliminary trials had shown that a minimum of 9 g of water would moisten 11 g of this particular sediment without stirring.) The mass of sediment and water in each bottle were recorded. Each sample was "tilted" by hand until no "dry" sediment was visible. Only a very small amount of water was observed on the top of the wet sediment. After 24 h at room temperature (in the dark), followed by approximately 4 h at -20 °C, each bottle of material was stored at -80 °C until shipped. The bottles were never

inverted until the wet samples had been frozen in the bottom of the bottles. The material has not been enriched or spiked with any of the analytes of interest in this intercomparison exercise.

Fish Homogenate III. Ampoules of the candidate CARP-2 CRM were obtained from Scott Willie of the National Research Council of Canada (NRC) for use in this exercise. The carp were harvested from Saginaw Bay, Lake Huron. At NRC, the whole carp were comminuted and high pressure homogenized. A small amount of water was added to raise the moisture content to 85 percent and ethoxyquin (0.02 percent) was added to this slurry as an antioxidant. The material was dispensed into ampoules that were then flame sealed and heated for a very short time at 121 °C to destroy the enzyme that promotes rancidity. Each of the 5-mL glass ampoules contains approximately 9 g (wet weight) of Fish Homogenate III.

The material, as received from the NRC, consisted of individual unlabeled ampoules. At NIST, each ampoule was labeled with the exercise name and code (Fish Homogenate III, QA95FSH3). The ampoules were not given individual ampoule numbers.

Percent Moisture Determinations

Each bottle of Marine Sediment V, as prepared, contained 11.00 g of sediment plus 9.01 g (s=0.01 g; CV 0.1%; n=110, min=9.00 g; max=9.03 g) of HPLC water. For the purposes of this exercise, the calculated value for the percent water in the Marine Sediment V samples is based on the average of 9.01 g of water added to each bottle because the variability of the water mass added (0.1%) is much smaller than the expected analytical variability. However, the SRM 1944 sediment, as received, contained 1.25% moisture (n=22, s=0.07% water, CV 5.3%) and the assigned value for the percent moisture includes this component as well. For evaluation of exercise results, the NIST assigned value for moisture content in Marine Sediment V (with the uncertainty expressed as the 95% confidence interval) is:

$$\text{NIST}_{\text{assigned value}} = 45.73 \pm 0.03\% \text{ moisture}$$

The exercise results for Fish Homogenate III are reported and compared on a wet weight basis and an assigned value for the moisture content of this material was not determined.

Storage and Distribution of Materials

Each jar of Marine Sediment V material was stored at -80 °C and each ampoule of Fish Homogenate III was stored at room temperature in the dark until shipped via overnight delivery to participating laboratories. Instructions for the storage and use of the exercise material and a diskette with files for electronic submission of data were included with each set of material shipped. These instructions are shown in Appendices A and B. Samples of each of these materials have been archived in the National Biomonitoring Specimen Bank at NIST.

Each laboratory participating in these intercomparison exercises was sent the following by overnight delivery:

Exercise 1: Marine Sediment V (QA95SED5)
- Three jars of Marine Sediment V material (shipped on dry ice)
- Description of the materials and storage/use/reporting instructions for the exercise (See Appendix A.)
- Data diskette with files for the reporting of results

Exercise 2: Fish Homogenate III (QA93FSH3)
- Three ampoules of Fish Homogenate III material (shipped at ambient temperature)
- Description of the materials and storage/use/reporting instructions for the exercise (See Appendix B.)
- Data diskette with files for the reporting of results

In the letter accompanying each shipment each participant was asked to analyze each of three replicate samples in a separate batch/set/string/catalog in order to provide a more realistic assessment of laboratory precision and to concurrently analyze NIST SRM 1941a with Marine Sediment V and NRC CRM CARP-1 with Fish Homogenate III. A copy of the Certificate of Analysis of SRM 1941a, "Organics in Marine Sediment" was also included in each shipment. The NRC CARP-1 reference material has certified concentrations for selected chlorinated dioxins and furans and for nine of the PCB congeners on the exercise analyte list. In order to provide information on the concentrations of the additional target chlorinated compounds, a table of the NRC certified concentrations, the results of NIST analyses, and the exercise consensus results from 1993 in which this CARP-1 was used as an intercomparison material (QA93FSH1) was compiled at NIST and sent to each participant. These results for 33 program target chlorinated analytes, along with the NRC certified concentrations, are shown in Appendix A, Table 3. All concentrations are in ng/g wet weight. Concentrations were not determined in this material in 1993 for the seven chlorinated pesticides added to the program analyte list in 1994. Laboratories were requested to submit results for these exercises by October 1, 1995.

Evaluation of Exercise Results

Establishment of the Assigned Values

The following guidelines were used by the NIST exercise coordinators for the establishment of the exercise "Assigned Values" for these two exercises. In essence, the laboratory's performance on concurrent reference material analyses was used to determine if that laboratory's results would be included in the calculation of the exercise assigned value for the unknown material for a particular analyte. The results reported for the unknown materials from laboratories that did not report results for the reference materials were not used in these calculations. After the exercise assigned values, assigned values standard deviations, and 95% confidence limits had been

calculated, **all** reported results for the Mussel VI and Sediment IV materials were evaluated relative to these exercise "assigned values."

Laboratory data submission: Each participating laboratory was to submit data from three replicate determinations of the "unknown" materials (Fish III and Sediment V) and were requested to report results of concurrent analyses of NRC CRM CARP-1, a fish homogenate reference material, and SRM 1941a, a marine sediment reference material. Laboratories were requested to report these results, as if three figures were significant, and brief descriptions of their extraction, cleanup, and analytical procedures.

Determination of laboratory analyte means: The laboratory analyte mean of the S1, S2, and S3 results was calculated. Non-numerical data were treated as follows: A mean "<value" was calculated in three "<values" were reported; NA(not analyzed/determined) was used for three reported NA's, etc.; and, if the reported results were of mixed type, e.g., S1-mean and S2 were values and S3 was reported as < value, the two similar "types" were used to determine the value or non-numerical descriptor for the laboratory analyte mean.

Determination of assigned values: For a particular analyte, the performance on the reference material was deemed acceptable for the purpose of this exercise if the laboratory result was within 30% of the confidence interval for analytes listed in the Certificate of Analysis for SRM 1941a and within the certified interval for CARP-1. For each analyte of interest not certified in these materials, a "target" concentration and the associated uncertainty were calculated. The targets for SRM 1941a were based on noncertified concentrations of SRM 1941a, results of the 1992 Sediment III exercise in which SRM 1941a was used as the "unknown material," and 1994 exercise results when SRM 1941a was used as a control . For the CARP-1, targets were based on results of concurrent measurements made by NIST during PCB certification analyses of CARP-1 and results of the 1993 Fish I Exercise in which CRM CARP-1 was used as the "unknown" material. Laboratory results within target upper and lower limits, typically 30 to 40%, of these concentrations were deemed acceptable for this exercise. If a laboratory demonstrated acceptable performance on a particular analyte in the reference material, that laboratory's results for that analyte in the corresponding "unknown" exercise material was then used in the calculation of the analyte's exercise assigned value unless it was deemed an "outlier." For evaluation of potential outliers, statistical tests and expert analyst judgement were used after viewing both normal and log plots of the data. This judgement utilized knowledge of potential coeluters based on the laboratory's reported methods. In instances in which the analyte concentration was below the detection limit of most participating laboratories, no exercise assigned value was calculated. In data sets such as this with a number of laboratories reporting results as "not detected" at various detection limits, there is no consensus as to what "numerical" value should be assigned to these results in the computation of grand means, etc., e.g., "0," ½ Detection Limit (DL), and the DL value itself have all been used and the choice is influenced by the use of the particular data set. Laboratory 2 submitted results for the Sediment V material after the overall exercise results were discussed at the December QA workshop. The Laboratory 2 Sediment V results are listed here, but were not using in the computation of the assigned values.

For the 1995 exercises, NIST used three methods of analysis for the PCB and pesticide components in these materials, i.e., NIST PCB and pesticide analyses for the two materials utilized gas chromatography with electron capture detection with two capillary columns of different selectivity and gas chromatography with mass spectrographic detection. Schantz et al. has reported results of the validation of these three methods with NIST and European Bureau of Community Reference (BCR) reference materials [4].

By using candidate CRMs for both 1995 exercise materials, eventual comparisons of the exercise assigned values and the results of the individual laboratories with certified concentrations for these reference materials can be made for many of the analytes.

Reported Results

Laboratories were assigned numerical identification codes in order of receipt of data with the exception of NIST which is Laboratory 1 in these exercises. A laboratory was assigned the same code for each material. In this report, the triplicate results as reported by the laboratories for both the exercise materials and the two CRMs are shown in Appendix C (FISH III) and Appendix D (Sediment V) along with reference values for each of the materials and performance scores (numerical indicators of accuracy (bias) and precision (reproducibility)). The laboratory mean replicate data are shown in Tables 2 to 3 and Tables 4 to 6 for the FISH III and Sediment V materials, respectively. Included in the means tables are the exercise assigned values, the standard deviation of the assigned value, the percent relative standard deviation (RSD), and the calculated 95% confidence interval of the assigned value for the percent water, PAH, chlorinated pesticide, and PCB congener analytes as applicable. Figures 1 and 2 show charts of the mean concentrations of reported numerical results by laboratory for the pesticides and PCB congeners, respectively, in FISH III. Charts of these means by laboratory for the Marine Sediment V PAHs, pesticides, and PCBs are shown in Figures 3 to 5. Notes included by a laboratory with its data are listed in Appendices E and F. Summaries of the methods used by each laboratory are in Appendices G and H.

In Appendices I (FISH III) and J (Sediment V), charts of the mean reported numerical results by laboratory for **each analyte** are shown for the exercise material and the corresponding reference material except in those instances in which the majority of laboratories reported non-quantitative results.

Performance Scores

The exercise coordinators recognize that different programs have different data quality needs. The acceptability of the results submitted by a particular laboratory will be decided by the individual program(s) for which the particular 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 facilitate their use by these programs in their acceptability assessment.

IUPAC guidelines [5] describe the use of z-scores and p-scores for assessment of accuracy and precision in intercomparison exercises such as these. These indices assess the difference between the result of the laboratory and the exercise assigned value and can be used, with caution, to compared performance on different analytes and on different materials.

Accuracy Assessment (z-score)

$$\text{z-score} = \frac{\text{bias estimate}}{\text{performance criterion}}$$

$$z = \frac{(x - \overline{X})}{\sigma}$$

where x is the individual laboratory result, $\overline{X}$ is the "Exercise Assigned Value," and σ is the target value for standard deviation.

As described in the IUPAC guidelines, the choice of σ is dependent upon data quality objectives of particular program. It can be "fixed" and arrived at by perception, prescription, or reference to validated methodology (e.g., $\sigma = 0.125$ X, X is the analyte concentration) or it can be an estimate of the actual variation (e.g., the calculated s from the exercise data). 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.

We have calculated and reported z-scores using both approaches for each analyte for each laboratory. At a previous workshop, it was decided to use "25% of the exercise assigned value" as the fixed target value for standard deviation for this program, at least for a few years. We also calculated z-scores based on "one assigned value standard deviation." The z-scores calculated for these exercises can thus be interpreted as shown in the following examples:

z-score (25% X):

+1 ⇒ laboratory result is 25% higher than the assigned value
-2 ⇒ laboratory result is 50% lower than the assigned value

z-score (s):

+1 ⇒ laboratory result is one "exercise standard deviation" higher than the assigned value

-2 ⇒ laboratory result is "two exercise standard deviations" lower than the assigned value

From a scientific point of view, IUPAC does not recommend the classification of z-scores but allows that it is possible to classify scores, e. g.:

$\lvert z \rvert \leq 2$	Satisfactory
$2 < \lvert z \rvert < 3$	Questionable
$\lvert z \rvert \geq 3$	Unsatisfactory

The Tables in Appendices C (Fish III) and D (Sediment V) show the calculated z-scores for each laboratory for each reported analyte. These tables of the results and performance include a summary of the number of reported analytes that fall within each category for each laboratory. Figures 6 to 7 (Fish III) and 8 to 10 (Sediment V) show the distribution of z-scores (25%) by analyte. Figures 11 to 12 (Fish III) and 13 to 15 (Sediment V) show the z-scores (25%) by laboratory for the three chemical classes that are useful for assessing intra- and interlaboratory bias trends and relative performance.

Precision Assessment (p-score)

$$p = \frac{\sigma_{lab}}{\sigma_{target}} = \frac{CV_{lab}}{CV_{target}}$$

Prior to the 1994 exercises, participating laboratories typically analyzed the three replicate samples for an exercise with the same sample set, I. e., within one set of samples with the same blank, calibration curve, etc. being applicable for each. Since the repeatability for replicates within a set is generally better than for replicates in different sets, this does not result in data that is very useful for precision (repeatability) assessment. For these 1995 exercises, laboratories were requested to process each replicate in a different sample set for precision assessment. For the calculation of p-scores for this program, the current target CV for the three replicates is 15%.

The Tables in Appendices C (Fish III) and D (Sediment V) show the calculated p-scores for each laboratory for each reported analyte.

Discussion

These results were discussed at the QA workshop that was held December 5, 1995, in Silver Spring, MD.

For the reported laboratory means of the triplicate analyses of each material by each laboratory, 85.1% results for the FISH III material and 82.2% for the Sediment V material were within 50% of the exercise assigned value. The within-laboratory reproducibility results of the reported triplicate results show that 93.4% of the FISH III relative standard deviations (RSD) and 92% of the Sediment V RSDs were less than 30%. For the 1995 exercises, the data provided in the various figures and tables of this report can be used for assessing the comparability of results of the 64 analytes of interest in this program and the performance of an individual laboratory. Summaries of the numbers of z-scores and p-scores by category for each laboratory are shown in Tables 7 (Fish III z-scores), 8 and 9 (Sediment V z-scores), 10 (Fish III p-scores), and 11 to 12 (Sediment V p-scores). Summaries of the median of the absolute z- and p-scores by laboratory are shown in Tables 12 and 13. For both the sediment and fish tissue 1995 exercises, the highest percentage of z-scores and p-scores that were in the unsatisfactory category were for the chlorinated pesticides. The chlorinated pesticides were typically present at lower concentrations in both of these materials than were the PAHs and PCB congeners. In these exercises, interlaboratory variability is a greater contributor to measurement incomparability than is the intralaboratory variability.

These tables also show results from the group of laboratories that have participated in this Exercise Program for more than two years and the group of laboratories (Laboratories 7, 8, 9, 10, 15, 17, 18, and 19) that are in their first or second years of participation in these exercises. In past years, the performance of laboratories that have been participating for a number of years was better than that of the newcomers. For the 1995 exercises, the results of the newer laboratories are more comparable with the other participating laboratories for both the PAHs and PCB congeners in both matrices. The greatest differences were seen in the chlorinated pesticide results with the newly participating laboratories having 33.3% (Fish III) and 28.0% (Sediment V) of the pesticide z-scores in the "unsatisfactory" category versus 9.9% (Fish III) and 12.0% (Sediment V) for the laboratories that have participated more than two years. However, one only needs to look at Laboratory 10 which had no z-scores in the unsatisfactory category to find an exception to this generality. The PAH and PCB congener concentrations in the 1995 Sediment V are significantly higher than those determined in any of the previous sediment materials in this intercomparison program. Likewise, the PCB concentrations in the 1995 Fish III are higher than the levels seen in our previous mussel intercomparison exercise materials. Laboratories reporting concurrent reference material analyses results typically showed better performance than those who did not analyze the reference materials.

Subgroups of the exercise participants have demonstrated comparability of results for many analytes within the 0 to 2 z-range based on use of "25% of the analyte concentration" as the performance criterion. This implies that this subgroup can distinguish between two samples that have an analyte concentration difference of 100%. The acceptability of this performance in view of various participants' program needs is being assessed and use of 12.5% of the analyte concentration as the performance criterion is being considered. The reported accuracy and reproducibility indices (z- and p-scores, respectively) can be easily converted to conform to the acceptability requirements of a particular program. For example, a z-score based on 25% can be multiplied by two to convert to a z-score based on 12.5% of the analyte concentration.

It is important to evaluate the non-quantitative results reported by each laboratory as well. Although these results are not easily presented or numerically evaluated, they are listed in the various tables of this report that list the mean and individual results of the laboratories. The laboratory and its data users should look closely at these non-quantitative results. Areas of concern seen in this data set include a significant number of apparent false negative results or results that show extreme negative bias. For example, one laboratory reported <0.8 ng/g for a pesticide in Sediment V that has an assigned value of 40 ng/g. Decisions based on false negative results from a laboratory can lead to significant environmental consequences. Some laboratories reported detection limits in these "real" matrix materials that may be too high for the data quality needs of their program and these should be assessed also.

Very few quantitative results were reported for a number of chlorinated pesticides in the FISH III and the Sediment V materials such as the endosulfans, endrin, and oxychlordane. The pesticide concentrations ranged from ca. 1 to 81 ng/g wet basis (ca. 6 to 540 ng/g dry basis) in the FISH III and from ca. 2 to 131 ng/g dry basis in the Sediment V. Nine of the exercise assigned values for FISH III and eleven of those for Sediment V are reported as "less than" a specified value. For the remaining thirteen FISH III assigned values, the calculated relative standard deviation of the values ranged from 20 to 40% and from 30 to 59% of the eleven remaining Sediment V analytes.

The PCB congeners ranged in concentration from 4 to 170 ng/g wet basis (ca. 27 to 1100 ng/g dry basis) in the Fish III material. The exercise assigned value RSD was < 20% for 14 of the 18 PCB analytes. In the Sediment V, the PCB concentrations ranged from 4 to 92 ng/g dry and the RSD of the assigned values was < 20% for 11 of the 18 analytes. Very few of the PCB results were provided as qualitative information and numerical assigned values were calculated for all PCB analytes of interest.

Fewer laboratories reported results for the methylated PAH analytes than for the parent PAH analytes. The PAH concentrations in Sediment V range from 200 to 10000 ng/g (0.2 to 10 μg/g). The assigned value RSD for 19 of the 24 PAH analytes ranged from 12 to 30%. As in past exercises, acenaphthylene results are the least comparable.

Intercomparison exercises provide an important mechanism for assessing the comparability, accuracy, and reproducibility of data being produced by the participating laboratories. Exercise materials similar in matrix, form, and analyte concentration to typical samples being analyzed by the laboratories are most useful for demonstrating the level of comparability and for revealing potential problem areas.

For the determination of the target compounds in these complex marine matrices with relatively low levels of these analytes, the levels of bias and reproducibility of many of the participating laboratories meet their current acceptability requirements; however, there is certainly room for improvement. Minimizing the between-laboratory bias such that the analytical variability is significantly less than the sampling variability should be an achievable goal.

Acknowledgments

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List of Tables

Table 1. Analytes[a] of Interest in NIST Intercomparison Exercise Program for Organic Contaminants in the Marine Environment

Chlorinated Pesticides

hexachlorobenzene	2,4'-DDE
alpha-HCH (alpha-BHC)	4,4'-DDE
gamma-HCH (gamma-BHC, Lindane)	2,4'-DDD
heptachlor	4,4'-DDD
heptachlor epoxide	2,4'-DDT
cis-chlordane (alpha-chlordane)	4,4'-DDT
trans-chlordane (gamma-chlordane)	aldrin
oxychlordane	dieldrin
cis-nonachlor	endrin
trans-nonachlor	endosulfan I
mirex	endosulfan II

Polychlorinated Biphenyl Congeners

PCB No.	*Compound Name*
8	2,4'-dichlorobiphenyl
18	2,2',5-trichlorobiphenyl
28	2,4,4'-trichlorobiphenyl
44	2,2',3,5'-tetrachlorobiphenyl
52	2,2',5,5'-tetrachlorobiphenyl
66	2,3',4,4'-tetrachlorobiphenyl
101	2,2',4,5,5'-pentachlorobiphenyl
105	2,3,3',4,4'-pentachlorobiphenyl
118	2,3',4,4',5-pentachlorobiphenyl
128	2,2',3,3',4,4'-hexachlorobiphenyl
138	2,2',3,4,4',5'-hexachlorobiphenyl
153	2,2',4,4',5,5'-hexachlorobiphenyl
170	2,2',3,3',4,4',5-heptachlorobiphenyl
180	2,2',3,4,4',5,5'-heptachlorobiphenyl
187	2,2',3,4',5,5',6-heptachlorobiphenyl
195	2,2',3,3',4,4',5,6-octachlorobiphenyl
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl
209	decachlorobiphenyl

Table 1. (continued)

Polycyclic aromatic hydrocarbons (PAH)

naphthalene
2-methylnaphthalene
1-methylnaphthalene
biphenyl
2,6-dimethylnaphthalene
acenaphthylene
acenaphthene
1,6,7-trimethylnaphthalene
fluorene
phenanthrene
anthracene
1-methylphenanthrene
fluoranthene
pyrene
benz[*a*]anthracene
chrysene
benzo[fluoranthenes [*b*+*j*+*k*]
benzo[*e*]pyrene
benzo[*a*]pyrene
perylene
indeno[1,2,3-*cd*]pyrene
dibenz[*a,h*]anthracene
benzo[*ghi*]perylene

[a] Please note that the following are typically reported by participants as the sums of the indicated components:

PAH

chrysene + triphenylene
benzo[b]- + benzo[j]- + benzo[k]fluoranthene
dibenz[a,h]anthracene + dibenz[a,c]anthracene

PCB congeners

PCB 66 + PCB 95
PCB 101 + PCB 90
PCB 138 + PCB 163 + PCB 164
PCB 187 + PCB 182 + PCB 159
PCB 170 + PCB 190

Table 2. Fish Tissue III (QA95 FSH3): Laboratory means of three replicates and exercise assigned values - Pesticides

(reported as if three figures were significant)

ng/g wet basis

Laboratory No.	1a	1b	1c	2	3	4	6	7	8	9	10	11	12	13
alpha-HCH	5.60	5.13	on inte	1.07	<10	1.62	<5	<1	< 4.3	<0.5	< 3	NA	<2	NA
hexachlorobenzene	4.20	4.35	4.24	4.40	5.77	5.71	4.23	3.82	NA	NA	4.26	3.89	2.41	4.60
gamma-HCH	2.14	<3	on inte	1.37	<10	2.49	<5	<1	< 4.3	<0.5	< 3	1.87	<2	NA
heptachlor	<5	<5	<5	<0.08	1.96	<5	<5	<1	< 4.3	<0.5	< 3	NA	<5	NA
aldrin	1.02	<3	<3	<0.07	<10	<5	<5	**70.2**	< 4.3	<1	< 3	NA	<5	< 5
heptachlor epoxide	<4	3.21	3.03	**12.7**	<10	<5	<5	**28.3**	< 4.3	<0.5	< 3	NA	<5	NA
oxychlordane	<4	2.39	<4	**6.24**	<10	<5	<5	NA	NA	<0.5	< 3	NA	<5	NA
trans-chlordane	4.19	4.24	4.13	4.44	3.35	3.99	4.90	**<1**	6.09	**<1**	< 3	NA	4.3	NA
2,4'-DDE	3.01	3.21	3.27	2.79	1.16	**23.3**	<5	**97.7**	NA	<0.5	< 3	NA	<10	< 5
endosulfan I	<3	<3	<3	NA	<10	<5	<5	<1	< 4.3	<0.5	< 3	NA	<5	NA
cis-chlordane	7.56	7.11	7.11	6.22	**3.72**	8.52	8.13	**15.4**	**6.47**	7.89	7.86	**14.7**	8.05	NA
trans-nonachlor	10.8	10.6	10.8	8.05	4.27	18.3	8.47	**23.2**	NA	7.14	12.8	17.3	8.72	NA
dieldrin	8.52	8.18	on inte	6.01	**6.01**	14.3	6.40	**114**	< 8.6	7.04	7.02	NA	5.93	NA
4,4'-DDE	147	161	150	115	121	159	240	168	**47.9**	167	168	**318**	152	168
2,4'-DDD	21.8	22.2	20.8	**9.16**	18.6	19.2	21.0	**<2**	NA	**<0.5**	21.9	NA	21.3	NA
endrin	<5	<5	<5	<0.15	**17.7**	**25.0**	<5	**93.3**	< 8.6	<1	< 3	NA	<15	NA
endosulfan II	<3	<3	<3	<0.14	<10	<5	<5	<2	< 8.6	<0.5	< 3	NA	<7	NA
4,4'-DDD	97.1	96.6	93.1	59.8	100	100	84.3	**43.7**	69.4	59.1	78.8	**145**	84.2	NA
2,4'-DDT	8.47	7.95	8.34	**3.49**	4.67	**25.0**	<5	**16.2**	NA	**<0.5**	NA	NA	<10	NA
cis-nonachlor	5.29	4.87	5.08	4.84	**3.66**	6.3	4.73	4.42	NA	**<0.5**	< 3	NA	4.61	NA
4,4'-DDT	4.31	4.14	4.26	**0.64**	6.26	<5	<5	**11.7**	< 8.6	**2.54**	NA	**0.76**	9.72	NA
mirex	<2	<2	<2	0.33	<10	<5	<5	<1	NA	<0.5	< 3	NA	<5	6.0

Table 2. (continued)

ng/g wet basis

										Exercise assigned			
Laboratory No.	14	15	16	17	18	19	20	21	22	mean	s	%RSD	95%CI
alpha-HCH	**1.09**	**NA**	NA	NA	0.40	NA	0.66	NA	NA	<6			
hexachlorobenzene	**NA**	**6.61**	4.17	4.38	<0.2	NA	3.17	3.18	3.86	4.16	0.81	20	0.42
gamma-HCH	**2.85**	**61.7**	1.64	**8.16**	<0.3	NA	0.88	1.35	0.66	1.55	0.62	40	0.51
heptachlor	**14.4**	**11.9**	**0.53**	DL	4.20	NA	6.02	<0.08	<0.3	<5			
aldrin	**8.69**	**65.8**	1.82	NA	<0.3	NA	< 0.2	<0.12	0.16	<4			
heptachlor epoxide	**13.2**	**DL**	1.95	NA	<6.	NA	1.70	**15.5**	**15.7**	<4			
oxychlordane	**NA**	**DL**	NA	NA	NA	NA	1.45	NA	**7.47**	<5			
trans-chlordane	**NA**	**13.5**	NA	NA	NA	NA	4.32	NA	6.59	4.59	0.94	21	0.63
2,4'-DDE	**NA**	**41.6**	2.10	NA	**53.7**	NA	5.42	**<0.09**	1.78	2.84	1.28	45	1.07
endosulfan I	**6.21**	**NA**	1.99	NA	<0.2	NA	< 0.2	NA	NA	<5			
cis-chlordane	**NA**	**10.6**	11.0	10.1	<0.2	NA	4.86	7.17	6.63	7.73	1.52	20	0.88
trans-nonachlor	**NA**	**13.6**	8.48	12.7	<0.2	NA	10.9	10.9	9.90	10.6	3.5	33	1.9
dieldrin	**42.4**	**42.1**	6.69	**12.1**	<0.3	NA	6.32	8.17	8.86	7.65	2.24	29	1.42
4,4'-DDE	**28.7**	**142**	140	**342**	173	NA	181	97.0	165	157	31	20	16
2,4'-DDD	**NA**	**42.9**	25.1	**19**	**49.0**	NA	27.3	26.5	21.9	22.3	2.7	12	1.7
endrin	**23.2**	**54.3**	NA	NA	<0.6	NA	< 1.2	<0.19	NA	<5			
endosulfan II	**1.2**	**21.8**	1.48	NA	<0.3	NA	< 0.6	NA	NA	<5			
4,4'-DDD	**36.8**	**116**	65.0	**205**	30.3	NA	86.8	107	93.2	81.6	20.3	25	10.8
2,4'-DDT	**NA**	**8.94**	6.30	DL	**<1.**	NA	4.29	11.2	5.04	7.03	2.37	34	1.98
cis-nonachlor	**NA**	**NA**	NA	NA	NA	NA	4.46	NA	7.27	5.19	0.92	18	0.66
4,4'-DDT	**24.3**	**41.6**	**2.31**	DL	**<1.**	NA	**0.79**	**<0.12**	**0.75**	5.74	2.39	42	2.97
mirex	**NA**	**10.6**	0.00	NA	<6.	NA	1.11	7.15	0.77	<5			

Table 4. Marine Sediment V (QA95SED5): Laboratory means of three replicates and exercise assigned values - Water and PAHs

(reported as if three figures were significant)

Laboratory No.	1a	3	4	5	6	7*	8*	9	10	11	12	13
Water (percent)	45.7	45.2	45.9	45.4	42.7	NA	NA	43.1	44.7	45.7	43.4	45.0

ng/g dry basis

PAHs

Laboratory No.	1a	3	4	5	6	7*	8*	9	10	11	12	13
naphthalene	2097	1294	2130	1383	999	NA	**210**	1650	NA	NA	NA	1635
2-methylnaphthalene	938	541	880	917	NA	NA	NA	639	NA	NA	NA	1058
1-methylnaphthalene	531	419	**311**	**566**	NA	NA	NA	NA	NA	NA	NA	602
biphenyl	346	NA	364	199	NA	NA	NA	NA	NA	NA	NA	**516**
2,6-dimethylnaphthalene	**1237**	NA	852	602	589	NA	NA	NA	NA	NA	NA	758
acenaphthylene	138	546	208	206	1090	NA	**722**	920	NA	NA	NA	812
acenaphthene	545	653	591	559	387	NA	**< 31**	502	NA	NA	NA	580
1,6,7-trimethylnaphthalene	233	NA	646	537	NA	NA	NA	NA	NA	NA	NA	645
fluorene	861	856	1103	1372	742	NA	636	830	NA	**624**	NA	938
phenanthrene	4976	4380	4620	6082	3805	NA	3807	5273	NA	6117	NA	5345
anthracene	2149	1687	1697	1943	2160	NA	852	1580	NA	2480	NA	2725
1-methylphenanthrene	1780	NA	2063	1764	812	NA	NA	NA	NA	NA	NA	1520
fluoranthene	8924	7267	8000	9145	6990	NA	4691	7970	NA	11867	NA	8185
pyrene	9661	7517	8793	9431	7255	NA	4316	8350	NA	13067	NA	8510
benz[a]anthracene	4777	4833	5143	5774	4040	NA	3813	4113	NA	4317	NA	4455
chrysene + triphenylene	5654	6100	5517	6790	4335	NA	3825	4900	NA	5450	NA	4365
benzofluoranthenes [b+j+k]	7761	7470	6603	7091	6290	NA	6033	8477	NA	**6803**	NA	7700
benzo[e]pyrene	3213	3400	2823	2986	NA	NA	NA	NA	NA	2817	NA	3025
benzo[a]pyrene	4185	4980	4337	3968	3120	NA	3486	**3303**	NA	4070	NA	3815
perylene	926	992	1260	913	NA	NA	NA	NA	NA	1079	NA	1165
indeno[1,2,3-cd]pyrene	2849	2613	2287	2605	3630	NA	1701	1997	NA	1240	NA	2080
dibenz[a,h]anthracene + [a,c]	778	474	**1247**	1042	984	NA	517	624	NA	395	NA	733
benzo[ghi]perylene	2750	2347	2677	2801	763	NA	1309	1870	NA	1017	NA	2070

**Coordinator used exercise mean to convert wet basis to dry basis for Labs 7 and 8.*

**Laboratory 2 results were received after exercise results made public

Table 4. (continued)

Laboratory No.	14	15	17a	17b	18	21	22	2**	mean	s	%RSD	95%CI
Water (percent)	**26.9**	47.0	45.3	45.3	46.0	44.2	44.4	45.7	44.9	1.1	3	0.6

ng/g dry basis

PAHs **Exercise assigned**

Laboratory No.	14	15	17a	17b	18	21	22	2**	mean	s	%RSD	95%CI
naphthalene	**190**	**554**	NA	1063	1150	1457	1713	**1183**	1506	382	25	257
2-methylnaphthalene	**131**	**330**	NA	680	**510**	779	838	**713**	808	164	20	126
1-methylnaphthalene	**ND**	**174**	NA	360	**303**	464	534	**423**	510	86	17	90
biphenyl	**ND**	**88**	NA	254	**157**	225	244	**208**	272	67	25	70
2,6-dimethylnaphthalene	**ND**	**321**	NA	1030	**470**	600	856	**740**	755	169	22	156
acenaphthylene	**537**	**56**	NA	654	**420**	**838**	338	**812**	546	346	63	266
acenaphthene	**204**	**233**	NA	**947**	**620**	548	602	**539**	552	75	14	58
1,6,7-trimethylnaphthalene	**ND**	257	NA	384	**403**	471	526	**653**	462	159	34	133
fluorene	**212**	384	922	837	**783**	781	977	**932**	865	231	27	140
phenanthrene	**681**	**3589**	6840	5957	5080	3934	6747	**4537**	5212	1032	20	596
anthracene	**808**	**1156**	2192	2393	1677	1597	2193	**1663**	1952	477	24	275
1-methylphenanthrene	**ND**	1063	NA	1813	**967**	1138	1800	**1357**	1528	425	28	326
fluoranthene	**4327**	8180	10950	9280	8047	5800	12367	**6890**	8511	2071	24	1147
pyrene	**10563**	8226	14230	11000	8673	6597	12900	**7750**	9235	2636	29	1460
benz[a]anthracene	**8987**	7560	5225	6247	3833	4001	5440	**4590**	4715	765	16	441
chrysene + triphenylene	**3540**	7783	4417	6793	5203	4507	5943	**4497**	5439	1106	20	613
benzofluoranthenes [b+j+k]	**7237**	7459	6829	**14700**	6370	6307	8527	**5130**	7147	829	12	501
benzo[e]pyrene	**ND**	2971	NA	3850	**1357**	2757	3650	**2130**	3149	373	12	267
benzo[a]pyrene	**5997**	**3899**	5412	5500	3590	3553	4947	**3197**	4228	765	18	462
perylene	**ND**	**1035**	1636	1407	**523**	971	1180	**895**	1153	232	20	166
indeno[1,2,3-cd]pyrene	**1139**	1305	NA	3330	**950**	2637	3117	**1573**	2415	738	31	446
dibenz[a,h]anthracene + [a,c]	**64**	280	1182	**609**	587	777	796	**471**	705	262	37	158
benzo[ghi]perylene	**915**	**1380**	4004	2953	2103	2593	3190	**1510**	2362	809	34	467

**Coordinator used exercise mean to convert wet basis to dry basis for Labs 7 and 8.*

**Laboratory 2 results were received after exercise results made public

Table 5. Marine Sediment V (QA95SED5): Laboratory means of three replicates and exercise assigned values - Pesticides

(reported as if three figures were significant)

ng/g dry basis

Laboratory No.	1a	1b	1c	3	4	5	6	7*	8*	9	10	11	12
alpha-HCH	2.20	1.65	inf	<10	<2.0	NA	<3.0	**<1**	NA	<0.88	< 2	NA	<0.8
hexachlorobenzene	5.94	6.41	6.64	6.78	3.97	NA	**2.24**	**3.37**	NA	NA	5.36	5.70	5.14
gamma-HCH	<2	<2	inf	<10	<2.0	NA	<3.0	**<1**	NA	<0.88	< 2	0.36	<1.2
heptachlor	<1	<1	<3	<10	<2.0	NA	<3.0	**14.6**	NA	<0.88	< 2	NA	6.88
aldrin	<2	<2	<2	<10	<2.0	NA	<3.0	**91.9**	NA	<1.76	< 2	NA	9.45
heptachlor epoxide	<2	<2	<2	<10	<2.0	NA	8.02	**31.8**	NA	<0.88	< 2	NA	<1.6
oxychlordane	<5	<5	<2	<10	<2.0	NA	coel	**NA**	NA	<0.88	< 2	NA	<1.6
trans-chlordane	5.18	5.92	5.62	10.5	6.12	NA	18.1	**<1**	NA	**85.5**	13.1	NA	19.3
2,4'-DDE	23.6	20.9	21.3	**47.1**	31.0	NA	<3.0	**30.2**	NA	**<0.88**	11.8	NA	14.4
endosulfan I	<3	<2	<3	<15	<2.0	NA	<3.0	**<1**	NA	<0.88	< 2	NA	<2.0
cis-chlordane	15.6	16.0	16.9	8.30	8.54	NA	17.5	**21.5**	NA	10.1	14.7	23.6	11.5
trans-nonachlor	7.44	8.05	8.30	4.60	**17.8**	NA	10.8	**<1**	NA	**33.3**	8.50	13.6	10.9
dieldrin	2.10	1.95	inf	**27.4**	8.61	NA	7.83	**58.0**	NA	**<0.88**	5.70	NA	5.20
4,4'-DDE	94.5	97.2	95.4	75.8	80.1	NA	46.7	**47.0**	NA	67.3	46.4	122	70.3
2,4'-DDD	44.2	45.2	43.6	**33.1**	24.7	NA	40.9	**<1**	NA	**<0.88**	25.6	NA	24.3
endrin	<3	<3	<3	<10	<2.0	NA	<6.0	**68.1**	NA	<1.76	< 2	NA	<1.6
endosulfan II	<2	<2	<3	<15	<2.0	NA	NA	**<1**	NA	<0.88	< 2	NA	<2.0
4,4'-DDD	116	117	121	86.1	74.8	NA	105	**48.4**	NA	**187**	85.5	196	114
2,4'-DDT	<2	<2	<3	**82.0**	<2.0	NA	**10.9**	**<1**	NA	<0.88	3.13	NA	5.85
cis-nonachlor	3.18	3.31	3.54	1.86	2.46	NA	3.44	**<1**	NA	<0.88	6.10	NA	1.95
4,4'-DDT	123	124	124	24.1	70.7	NA	153	**56.8**	NA	**535**	other	**323**	219
mirex	<2	<2	<2	<15	<2.0	NA	<3.0	**<1**	NA	<0.88	< 2	NA	2.52

**Coordinator used exercise mean to convert wet basis to dry basis for Labs 7 and 8.*

**Laboratory 2 results were received after exercise results made public

Table 5. (continued)

ng/g dry basis

									Exercise assigned			
Laboratory No.	13	14	15	17a	18	21	22	2**	mean	s	%RSD	95%CI
alpha-HCH	NA	**64.7**	**DL**	NA	<0.5	NA	NA	**<1.17**	<2.5			
hexachlorobenzene	6.75	**ND**	**7.14**	6.15	4.76	**14.3**	5.90	**6.86**	5.79	0.86	15	0.55
gamma-HCH	NA	**46.7**	**34.6**	**6.27**	<0.5	**14.8**	2.43	**<0.50**	<3			
heptachlor	NA	**34.7**	**11.4**	6.44	<0.5	4.78	**5.60**	**Other**	<4			
aldrin	< 1	**58.0**	**882**	NA	<0.5	<0.09	<0.8	**<0.51**	<2			
heptachlor epoxide	NA	**60.9**	**DL**	NA	<9.	**<0.06**	**<0.9**	**<4.07**	<2			
oxychlordane	NA	**ND**	**DL**	NA	NA	NA	**7.57**	**<2.36**	<5			
trans-chlordane	NA	**ND**	**157**	NA	NA	NA	9.63	**27.6**	10.4	5.4	52	4.2
2,4'-DDE	13.6	**ND**	**42.6**	18.2	**46.4**	8.81	12.9	**16.1**	17.7	6.7	38	4.8
endosulfan I	NA	**11.2**	**DL**	NA	<2.	NA	NA	**NA**	<3			
cis-chlordane	NA	**ND**	**34.4**	**30.9**	**40.2**	24.2	20.1	**20.2**	15.6	5.4	34	3.4
trans-nonachlor	NA	**ND**	**36.1**	16.9	<2.	9.47	10.9	**10.8**	10.0	3.3	33	2.2
dieldrin	NA	**13.3**	**11.8**	15.0	13.1	**11.6**	12.3	**11.6**	7.98	4.72	59	3.63
4,4'-DDE	138	**10.0**	**86.7**	**164**	62.8	66.8	OTHE	**79.6**	79.3	27.6	35	15.9
2,4'-DDD	NA	**ND**	**83.3**	51.1	39.0	**86.9**	63.5	**56.8**	39.6	12.1	31	8.1
endrin	NA	**11.9**	**35.7**	NA	<0.9	<0.12	NA	**DL**	<3			
endosulfan II	NA	**15.6**	**40.4**	NA	<0.5	NA	NA	**2.3**	<3			
4,4'-DDD	NA	**19.9**	**141**	211	**49.8**	163	**136**	**102**	126	45	35	30
2,4'-DDT	NA	**ND**	**14.3**	1.86	**<9.**	**12.3**	<1.3	**9.8**	<6			
cis-nonachlor	NA	**ND**	**DL**	NA	NA	NA	5.83	**7.33**	3.5	1.5	43	1.2
4,4'-DDT	NA	**50.6**	**140**	186	154	**171**	OTHE	**150**	131	58	44	45
mirex	4.55	**ND**	**9.54**	NA	<9.	<0.13	<1	**<0.50**	<3			

**Coordinator used exercise mean to convert wet basis to dry basis for Labs 7 and 8.*

**Laboratory 2 results were received after exercise results made public

Table 6. Marine Sediment V (QA95SED5): Laboratory means of three replicates and exercise assigned values - PCBs

(reported as if three figures were significant)

ng/g dry basis

PCBs

Laboratory No.	1a	1b	1c	3	4	5	6	7*	8*	9	10	11	12
PCB 8	24.4	24.0	23.1	19.0	17.9	NA	NA	14.0	NA	NA	18.8	24.6	NA
PCB 18	53.0	53.8	53.1	51.0	33.9	NA	NA	42.2	NA	NA	45.3	53.9	NA
PCB 28	79.6	79.1	78.0	**200**	66.4	NA	NA	82.0	NA	NA	68.2	119	NA
PCB 52	79.7	78.9	79.0	97.6	53.8	NA	NA	67.1	NA	NA	60.2	73.0	NA
PCB 44	60.5	61.5	59.5	40.2	47.9	NA	NA	51.1	NA	NA	45.3	63.0	NA
PCB 66/95	135	141	137	**45.3**	78.8	NA	NA	105	NA	NA	69.0	76.9	NA
PCB 101/90	72.4	72.1	72.8	54.8	68.0	NA	NA	102	NA	NA	48.5	64.0	NA
PCB 118	62.9	64.5	64.5	44.1	53.8	NA	NA	47.3	NA	NA	40.5	56.0	NA
PCB 153	75.3	72.3	73.1	46.7	60.0	NA	NA	39.3	NA	NA	40.4	64.8	NA
PCB 105	25.8	25.3	25.4	8.94	**42.9**	NA	NA	**56.1**	NA	NA	15.4	24.9	NA
PCB 138/163/164	63.2	62.1	63.4	42.1	**65.1**	NA	NA	65.6	NA	NA	48.3	62.8	NA
PCB 187/182	25.4	26.1	25.7	18.9	27.4	NA	NA	21.2	NA	NA	15.8	22.4	NA
PCB 128	8.20	8.27	8.45	**22.6**	12.4	NA	NA	8.44	NA	NA	6.40	8.94	NA
PCB 180	44.3	45.0	44.8	57.4	**37.9**	NA	NA	31.5	NA	NA	**23.1**	39.4	NA
PCB 170/190	23.4	24.5	23.6	20.4	**19.9**	NA	NA	17.6	NA	NA	10.66	16.0	NA
PCB 195	3.67	3.73	3.65	9.28	7.87	NA	NA	2.83	NA	NA	2.64	4.73	NA
PCB 206	9.27	9.91	9.83	10.3	8.09	NA	NA	7.65	NA	NA	5.64	7.18	NA
PCB 209	6.85	7.01	7.24	5.71	5.87	NA	NA	5.67	NA	NA	4.13	5.35	NA

**Coordinator used exercise mean to convert wet basis to dry basis for Labs 7 and 8.*

**Laboratory 2 results were received after exercise results made public

Table 6. (continued)

ng/g dry basis

PCBs									**Exercise assigned**			
Laboratory No.	13	14	15	17a	18	21	22	2**	mean	s	%RSD	95%CI
PCB 8	20.5	**340**	**28.9**	28.8	**30.1**	**30.8**	NR	**21.7**	23.0	5.2	23	3.3
PCB 18	39.9	**422**	**28.3**	DL	77.9	63.3	54.6	**75.5**	49.5	8.3	17	5.6
PCB 28	88.1	**290**	**62.0**	95.6	110	66.4	82.1	**126**	84.6	16.6	20	10.6
PCB 52	63.5	**101**	**59.3**	89.5	**96.4**	76.0	79.0	**93.4**	76.4	13.2	17	8.0
PCB 44	56.3	**103**	**42.3**	71.9	**104**	54.5	63.0	**70.4**	56.2	8.9	16	5.6
PCB 66/95	**47.8**	**96.6**	**55.3**	89.3	57.2	61.3	63.4	**77.5**	92.1	32.1	35	21.6
PCB 101/90	87.5	**15.2**	**54.9**	99.9	58.9	76.2	66.2	**87.3**	72.6	16.0	22	9.7
PCB 118	54.2	**1.94**	**55.6**	67.9	**82.8**	**45.0**	46.2	**87.8**	54.7	9.4	17	6.3
PCB 153	58.8	**28.3**	**78.3**	**141**	63.3	109	75.4	**97.0**	64.8	18.8	29	12.0
PCB 105	27.1	**4.32**	**DL**	30.0	14.2	14.6	16.8	**31.0**	20.8	6.9	33	4.6
PCB 138/163/164	75.2	**6.54**	**51.4**	75.0	**129**	66.8	57.4	**78.6**	62.0	9.9	16	6.7
PCB 187/182	26.5	**10.9**	**22.3**	27.2	**7.45**	21.4	22.8	**24.6**	23.4	3.6	16	2.3
PCB 128	**14.3**	**9.60**	**19.1**	7.39	**22.7**	**34.3**	**21.0**	**10.8**	8.56	1.75	20	1.46
PCB 180	38.1	**5.54**	**31.1**	**50.8**	**39.4**	**41.4**	**35.8**	**47.6**	42.9	8.0	19	7.4
PCB 170/190	18.0	**1.95**	**21.1**	**38.0**	**28.3**	**112**	OTHE	**Other**	19.3	4.7	24	3.9
PCB 195	3.10	**123.5**	**8.21**	5.88	2.78	9.27	2.41	**8.23**	4.76	2.51	53	1.52
PCB 206	8.25	**ND**	**97.9**	8.21	6.21	8.24	7.32	**7.90**	8.16	1.40	17	0.85
PCB 209	**7.65**	**8.81**	**16.6**	5.85	4.66	**18.4**	7.05	**8.48**	5.94	1.02	17	0.68

**Coordinator used exercise mean to convert wet basis to dry basis for Labs 7 and 8.*

**Laboratory 2 results were received after exercise results made public

Table 7. Fish Homogenate III: Summary of number of z-scores (25%) by laboratory by category

Pesticides

Laboratory	Results, % Quantitative	Results, % Qualitative	Number of z (25%) by category S	Q	U
1a	68	32	13	0	0
1b	68	32	12	0	0
1c	55	32	11	0	0
2	77	18	10	2	1
3	64	36	9	3	0
4	64	36	**7**	**2**	**3**
6	41	59	8	1	0
7	59	36	**4**	**0**	**6**
8	18	45	3	1	0
9	27	68	5	1	0
10	32	59	7	0	0
11	32	0	**2**	**1**	**4**
12	46	55	9	1	0
13	14	9	2	0	0
14	55	0	**0**	**1**	**4**
15	77	9	**5**	**1**	**6**
16	77	0	10	1	0
17	36	14	**4**	**1**	**3**
18	27	59	**1**	**1**	**2**
19	0	0	0	0	0
20	82	18	*11*	*0*	*2*
21	50	23	8	1	0
22	77	5	11	1	1

PCBs

Laboratory	Results, % Quantitative	Results, % Qualitative	Number of z (25%) by category S	Q	U
1a	94	6	17	0	0
1b	89	11	16	0	0
1c	89	6	16	0	0
2	100	0	18	0	0
3	100	0	*16*	*0*	*2*
4	100	0	16	1	1
6	0	0	0	0	0
7	94	0	*14*	*1*	*2*
8	50	0	8	1	0
9	100	0	16	2	0
10	100	0	18	0	0
11	100	0	18	0	0
12	0	0	0	0	0
13	100	0	17	1	0
14	100	0	**5**	**5**	**8**
15	100	0	**13**	**0**	**5**
16	100	0	18	0	0
17	94	6	16	1	0
18	100	0	16	1	1
19	100	0	16	1	1
20	100	0	18	0	0
21	100	0	17	1	0
22	94	0	17	0	0

Bolded if >20% of z-scores were "U"

Italicized if >10% but <20% of z-scores were "U"

z category		
≤ 2	Satisfactory	S
2 to 3	Questionable	Q
≥ 3	Unsatisfactory	U

Table 8. Sediment V: Summary of number of z-scores (25%) by laboratory by category - PAHs

Laboratory	Results, % Quantitative	Results, % Qualitative	Number of z (25%) by category S	Q	U
1a	100	0	21	2	0
1b	0	0	0	0	0
1c	0	0	0	0	0
3	83	0	19	0	0
4	100	0	21	1	1
5	100	0	21	2	0
6	74	0	14	2	1
7	0	0	0	0	0
8	61	4	11	2	1
9	70	0	15	1	0
10	0	0	0	0	0
11	61	0	13	1	0
12	0	0	0	0	0
13	100	0	22	0	1
14	70	30	**6**	**4**	**6**
15	100	0	13	9	1
17a	52	0	9	3	0
17b	100	0	21	1	1
18	100	0	20	3	0
21	100	0	22	1	0
22	100	0	23	0	0
2*	100	0	23	0	0

Bolded if >20% of z-scores were "U"

Italicized if >10% but <20% of z-scores were "U"

*Lab 2 results were received after values were made public.

Table 9. Sediment V: Summary of number of z-scores by laboratory by category - pesticides and PCBs

	Pesticides					PCBs				
			Number of z (25%) by category					Number of z (25%) by category		
Laboratory	Results, % Quantitative	Results, % Qualitative	S	Q	U	Results, % Quantitative	Results, % Qualitative	S	Q	U
1a	55	45	9	2	0	100	0	18	0	0
1b	55	45	10	0	1	100	0	17	1	0
1c	46	55	10	0	0	100	0	18	0	0
3	55	45	**7**	**1**	**3**	100	0	*13*	*2*	*3*
4	50	50	*9*	*0*	*2*	100	0	16	1	1
5	0	0	0	0	0	0	0	0	0	0
6	55	41	8	2	0	0	0	0	0	0
7	50	45	*3*	*3*	*1*	100	0	17	0	1
8	0	0	0	0	0	0	0	0	0	0
9	27	68	**3**	**0**	**3**	0	0	0	0	0
10	50	50	9	1	0	100	0	18	0	0
11	32	0	*2*	*3*	*1*	100	0	18	0	0
12	68	32	9	1	1	0	0	0	0	0
13	18	5	2	1	0	100	0	17	1	0
14	55	45	**0**	**2**	**2**	94	6	**4**	**2**	**11**
15	77	23	**5**	**0**	**5**	94	6	*13*	*1*	*3*
17a	55	0	**4**	**2**	**3**	94	6	*15*	*0*	*2*
17b	0	0	0	0	0	0	0	0	0	0
18	36	50	**4**	**2**	**2**	100	0	*12*	*3*	*3*
21	55	18	**5**	**2**	**2**	100	0	**13**	**1**	**4**
22	55	27	6	3	0	89	11	15	0	1
2*	59	36	*9*	*0*	*2*	94	6	14	3	0

Bolded if >20% of z-scores were "U"

Italicized if >10% but <20% of z-scores were "U"

*Lab 2 results were received after values were made public.

z category		
≤ 2	Satisfactory	S
2 to 3	Questionable	Q
≥ 3	Unsatisfactory	U

Table 10. Fish Homogenate III: Summary of number of p-scores (15%) by laboratory by category

Laboratory	Pesticides: Number of p-scores by category S	Q	U	PCBs: Number of p-scores by category S	Q	U
1a	15	0	0	17	0	0
1b	15	0	0	16	0	0
1c	12	0	0	16	0	0
2	17	0	0	18	0	0
3	11	3	0	18	0	0
4	14	0	0	18	0	0
6	9	0	0	0	0	0
7	12	0	1	17	0	0
8	4	0	0	*8*	*0*	*1*
9	6	0	0	18	0	0
10	7	0	0	18	0	0
11	7	0	0	18	0	0
12	10	0	0	0	0	0
13	3	0	0	18	0	0
14	*6*	*4*	*2*	**11**	**3**	**4**
15	**10**	**0**	**7**	*11*	*4*	*3*
16	14	3	0	18	0	0
17	8	0	0	16	1	0
18	6	0	0	18	0	0
19	0	0	0	17	1	0
20	17	1	0	18	0	0
21	11	0	0	18	0	0
22	13	4	0	17	0	0

	Pesticides	PCBs
Acceptable	**1a,1b,1c,2,3,4,6, 7,12,16,17,20,21,22**	**1a,1b,1c,2,3,4,5,7,9,10,11, 13,16,17,18,19,20,21,22**
Fair	**14**	**8,15**
Others	**15**	**14**
Few analytes determined	**8,9,10,11,13,18**	

Bolded if >20% of p-scores were "U" *Italics if >10% but <20% of p-scores were "U"*

Table 11. Sediment V: Summary of number of p-scores (15%) by laboratory by category

	PAHs			Pesticides			PCBs		
	Number of p-scores by category			Number of p-scores by category			Number of p-scores by category		
Laboratory	**S**	**Q**	**U**	**S**	**Q**	**U**	**S**	**Q**	**U**
1a	23	0	0	11	0	0	18	0	0
1b				11	0	0	18	0	0
1c				10	0	0	18	0	0
3	19	0	0	12	0	0	17	1	0
4	23	0	0	10	1	0	18	0	0
5	23	0	0						
6	**12**	**1**	**4**	10	0	0			
7				*9*	*2*	*0*	18	0	0
8	13	1	0						
9	16	0	0	**0**	**1**	**4**			
10				11	0	0	18	0	0
11	13	1	0	6	0	0	18	0	0
12				14	1	0			
13	23	0	0	3	0	0	18	0	0
14	16	0	0	**6**	**3**	**3**	**8**	**3**	**6**
15	22	1	0	**7**	**5**	**5**	*11*	*3*	*3*
17a	12	0	0	11	0	1	15	2	0
17b	*19*	*0*	*4*						
18	23	0	0	8	0	0	*14*	*1*	*3*
21	23	0	0	11	0	1	18	0	0
22	23	0	0	12	0	0	16	0	0
2*	23	0	0	9	3	1	16	0	1
Acceptable	**1,3,4,5,8,9,11,13, 14,15,17a,18,21,22**			**1a,1b,1c,3,4,6,10, 12, 17a, 18, 11, 12**			**1a,1b,1c,3,4,7,10,11,13, 17a,21,22**		
Fair	**17b**			**7**			**15,18**		
Others	**6**			**9,14,15**			**14**		
Few analytes determined				**13**					

*Lab 2 results were received after values were made public.

Bolded if >20% of p-scores were "U" *Italics if >10% but <20% of p-scores were "U"*

Table 12. Fish Homogenate III: Summary of median |z-scores| and |p-scores| by laboratory

Laboratory	median |z| (25%) Pesticides	median |z| (25%) PCB	median |p| (15%) Pesticides	median |p| (15%) PCB
1a	0.3	0.4	0.2	0.2
1b	0.3	0.5	0.2	0.2
1c	0.3	0.4	0.2	0.2
2	0.9	0.6	0.3	0.4
3	1.1	0.5	1.3	0.4
4	1.2	0.7	1.0	0.4
6	0.3		1.3	
7	**4.1**		0.8	0.5
8	1.0	0.6	0.4	0.6
9	0.7	0.9	0.6	0.6
10	0.1	0.3	0.7	0.7
11	**3.1**	0.5	0.6	0.4
12	0.4		0.3	
13	0.4	0.7	0.2	0.4
14	**3.4**	*2.7*	*2.0*	
15	**3.0**	0.9	1.9	1.7
16	0.5	0.4	0.8	0.4
17	1.8	0.6	0.8	0.5
18	**3.7**	0.9	0.5	0.5
19		0.5		0.5
20	0.9	0.2	1.0	0.6
21	0.8	0.9	0.5	0.4
22	0.6	0.4	1.2	0.9

Table 13. Sediment V: Summary of median |z-scores) and |p-scores| by laboratory

Laboratory	median |z| (25%) PAH	Pesticides	PCB	median |p| (15%) PAH	Pesticides	PCB
1a	0.4	0.5	0.3	0.2	0.3	0.2
1b		0.6	0.4		0.2	0.1
1c		0.5	0.4		0.2	0.2
3	0.5	1.9	1.1	0.3	0.7	0.6
4	0.5	1.6	0.6	0.3	0.4	0.3
5	0.7			0.5		
6	1.0	0.6		1.2	0.8	
7		*2.3*	0.5		1.0	0.8
8	1.3			0.8		
9	0.5	**5.7**		0.7	**4.3**	
10		1.2	1.0		1.1	1.0
11	0.9	*2.1*	0.3	0.8	0.9	0.2
12		1.1			0.4	
13	0.3	0.9	0.6	0.4	0.6	0.2
14	*2.3*	**3.0**	**3.3**	1.1	*2.1*	*2.2*
15	*2.2*	**3.2**	1.0	1.2	*2.4*	1.4
17a	1.2	*2.7*	0.8	0.8	0.8	0.7
17b	0.9			0.5		
18	0.7		1.4	0.9	1.3	1.3
21	0.5	1.8	1.0	0.3	0.8	0.7
22	0.6	1.1	0.6	0.5	0.5	0.3
2*	0.6	0.8	1.1	0.5	1.2	0.6

2 to 3 *Italics*
≥ 3 **Bolded**

*Lab 2 results were received after values were made public.

List of Figures

Figure 1a. Fish Homogenate III: Pesticide mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results)

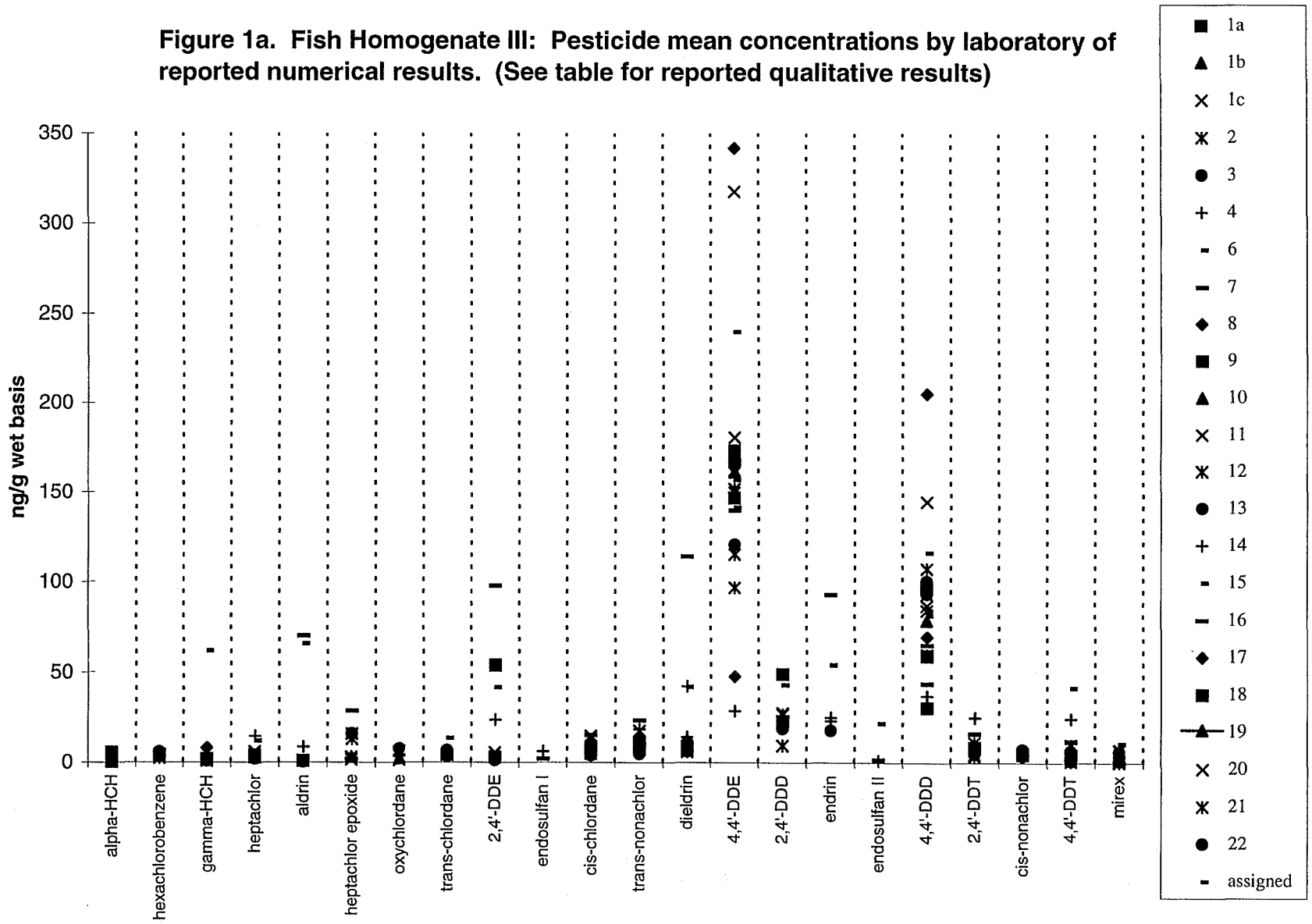


Figure 1b. Fish Homogenate III: Pesticide mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results)

Partial scale: 120 out of 350

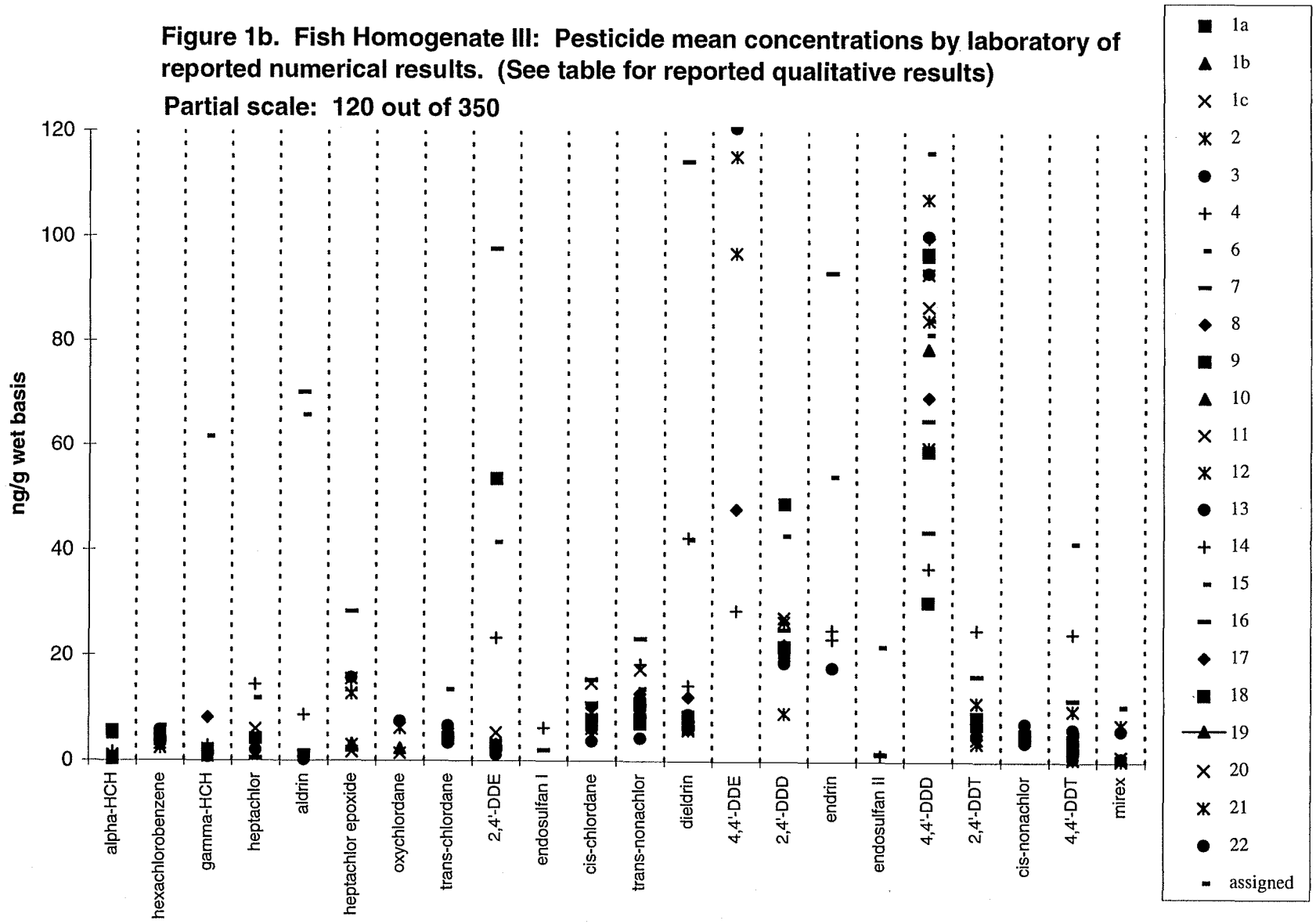


Figure 2. Fish Homogenate III: PCB mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results)

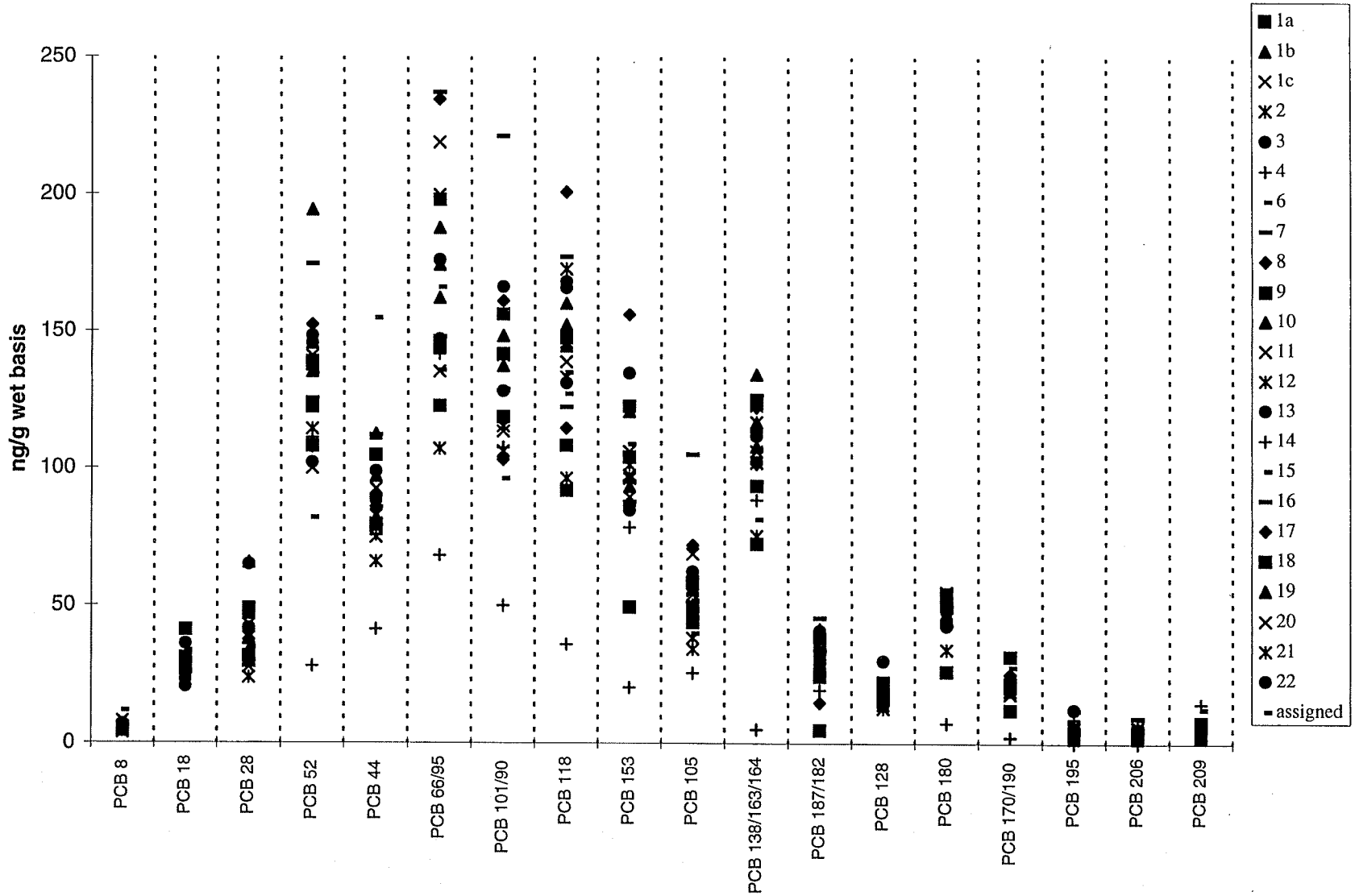


Figure 3a. Marine Sediment V: PAH mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)

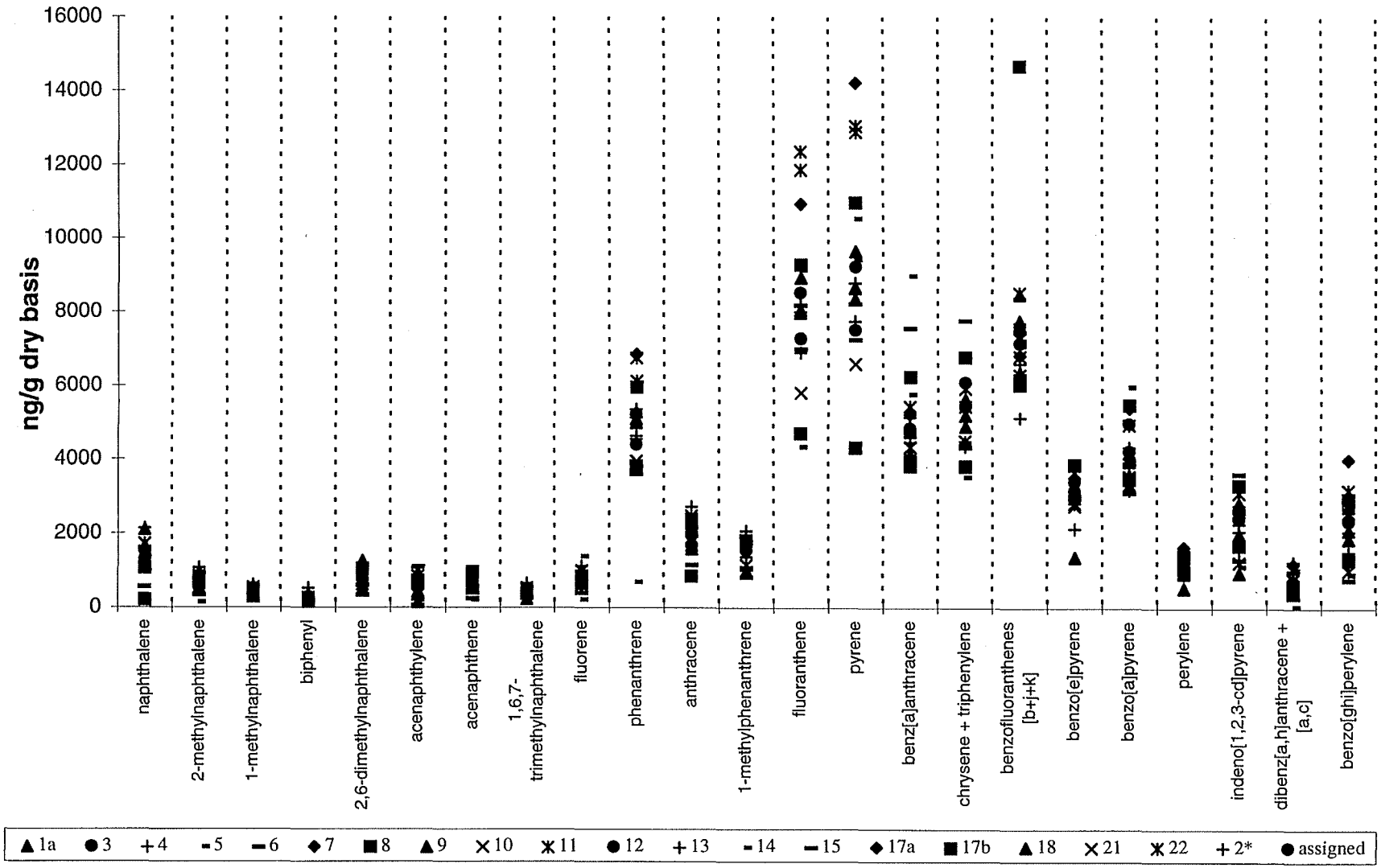


Figure 3b. Marine Sediment V: PAH mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)

Partial scale: 4000 out of 16000

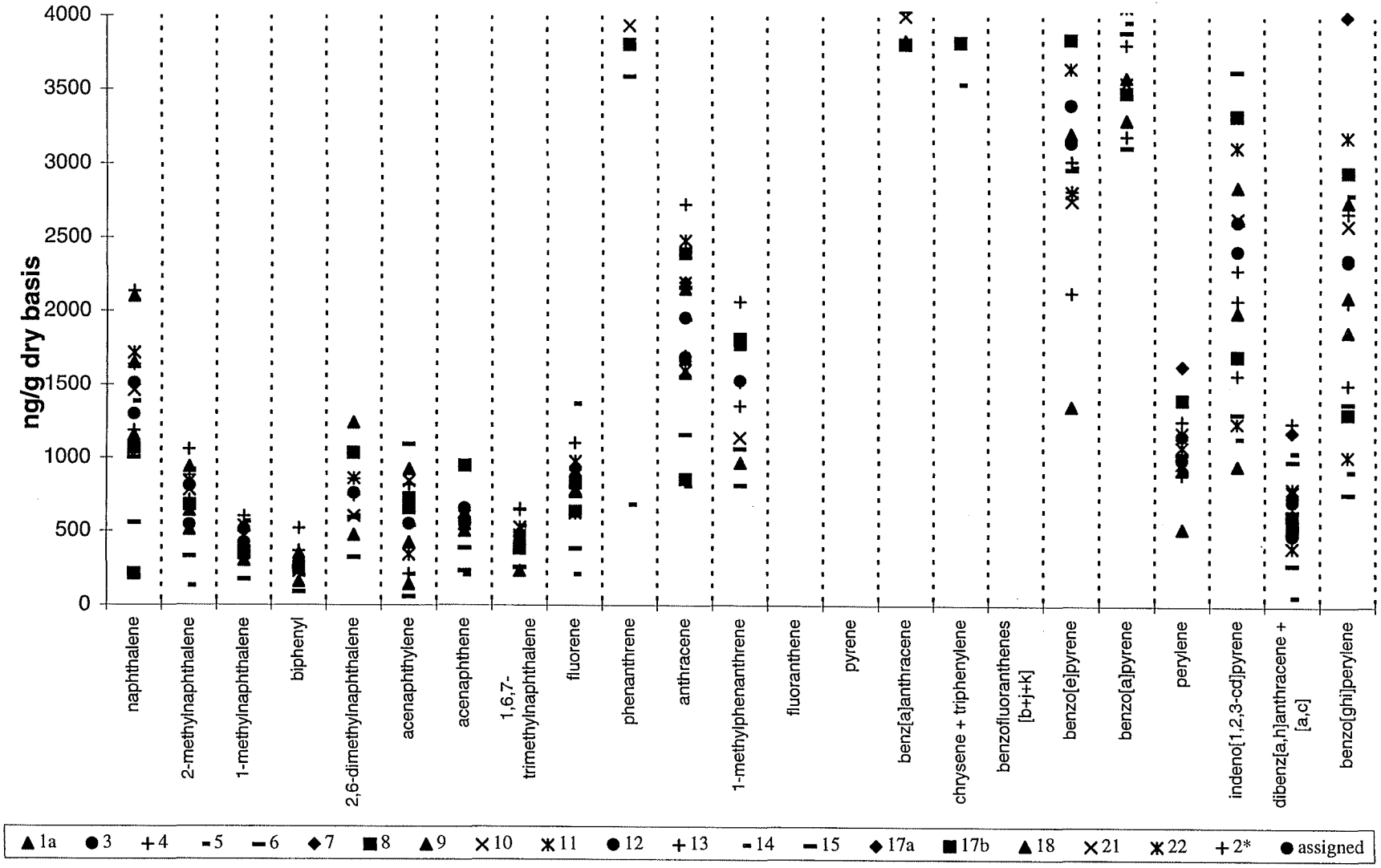


Figure 4. Marine Sediment V: Pesticide mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)

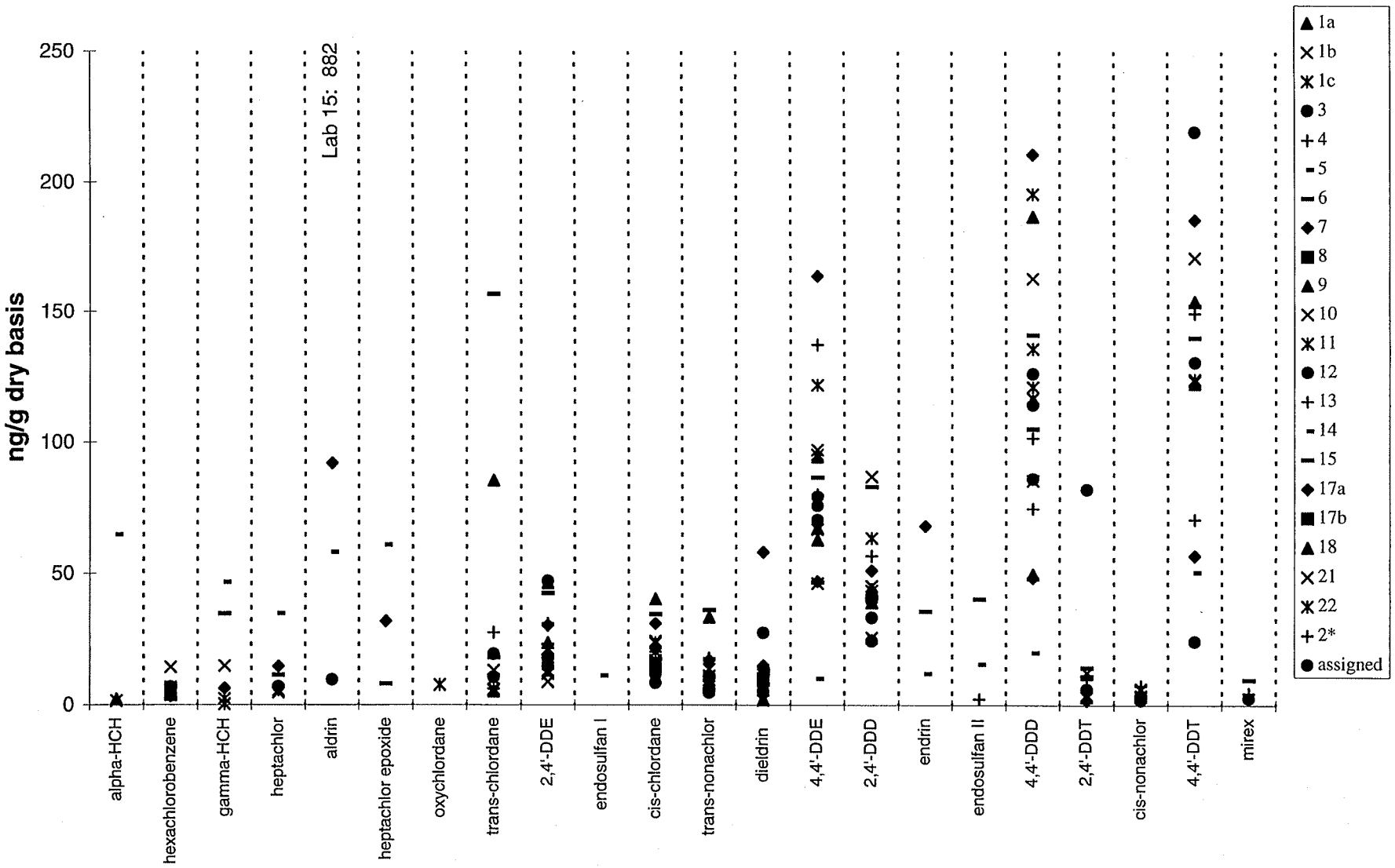


Figure 5. Marine Sediment V: PCB mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)

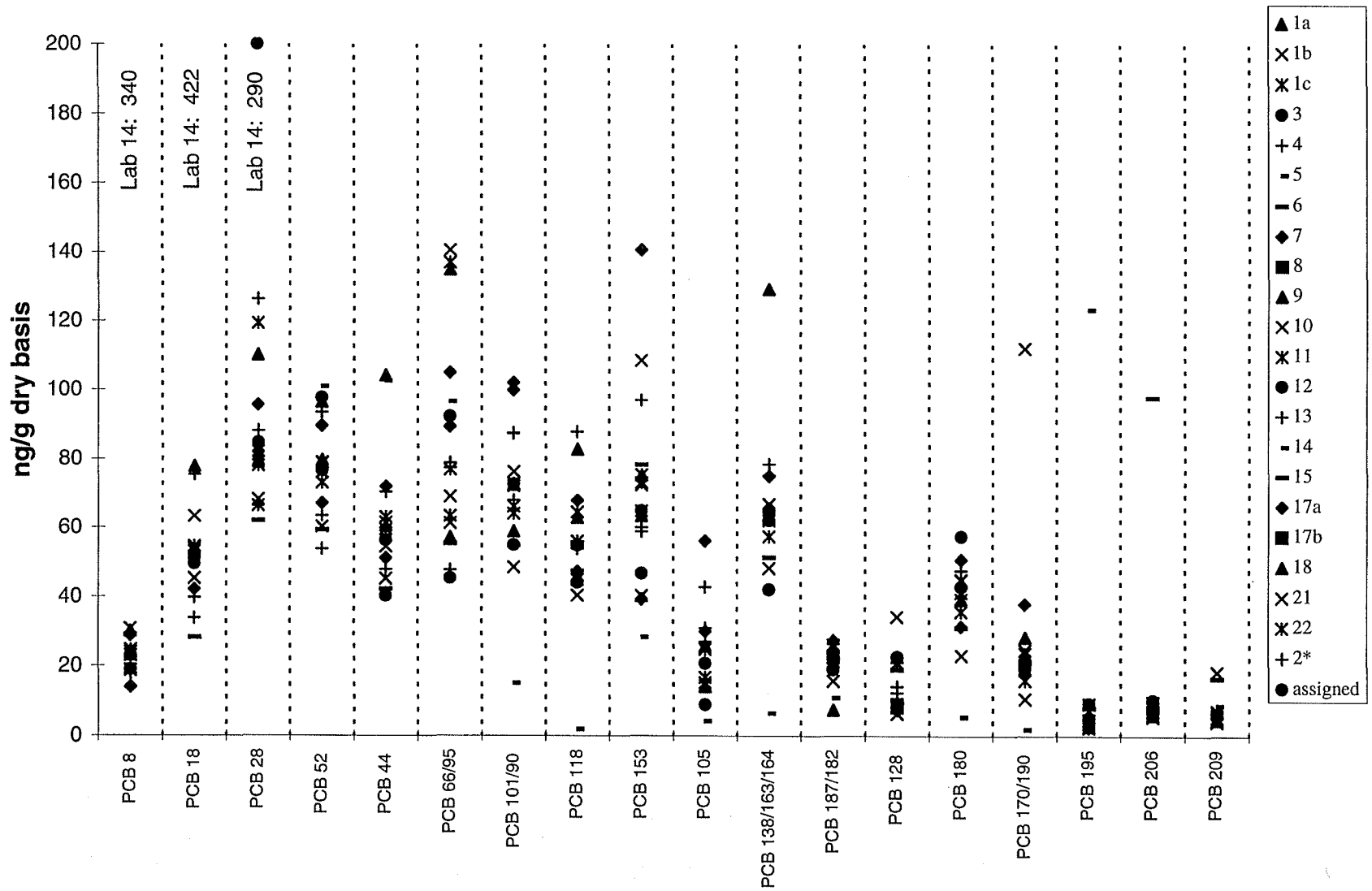


Figure 6. Fish Homogenate III: Pesticide z-scores (25%) by analyte

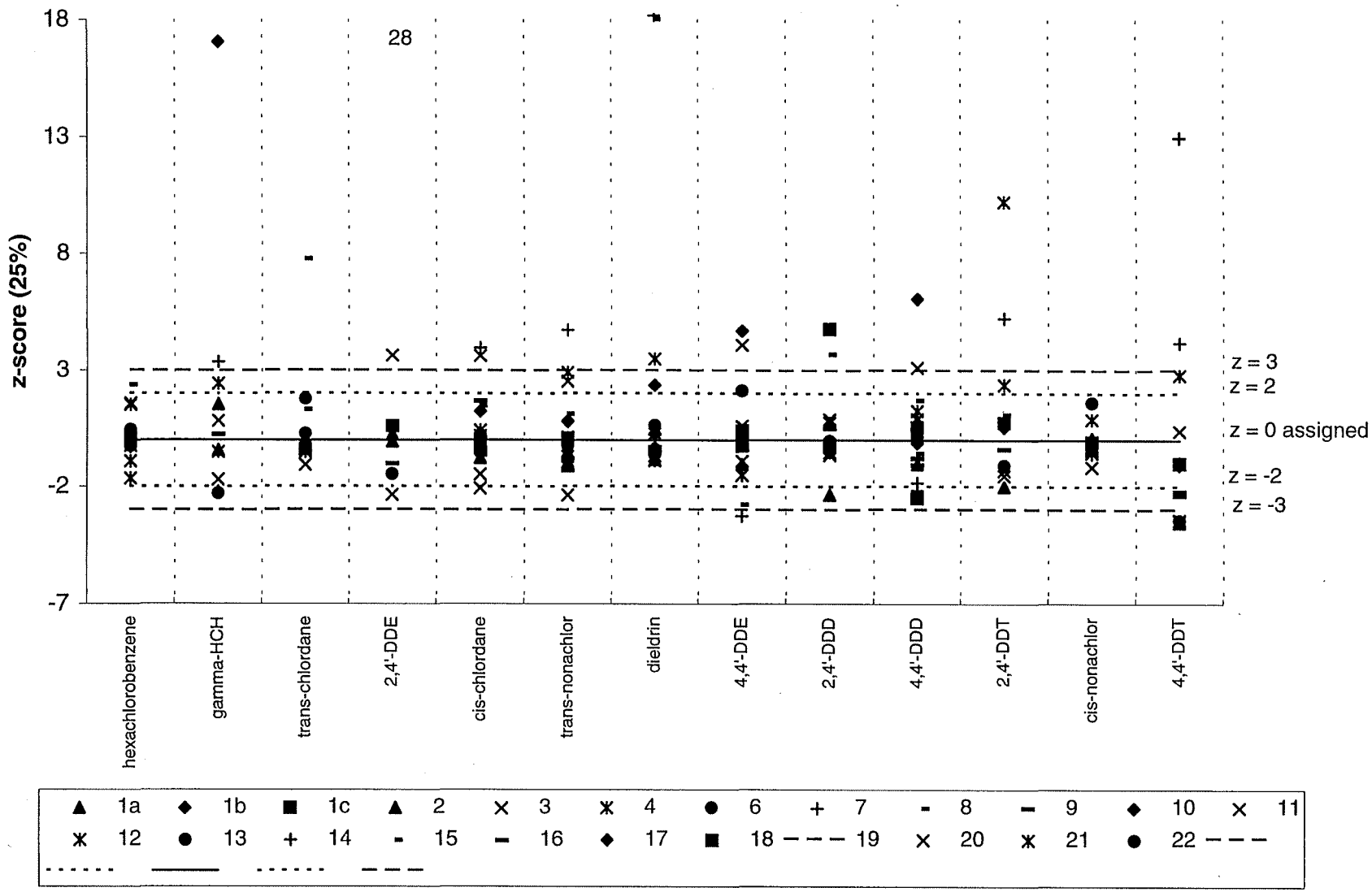


Figure 7. Fish Homogenate III: PCB z-scores (25%) by analyte

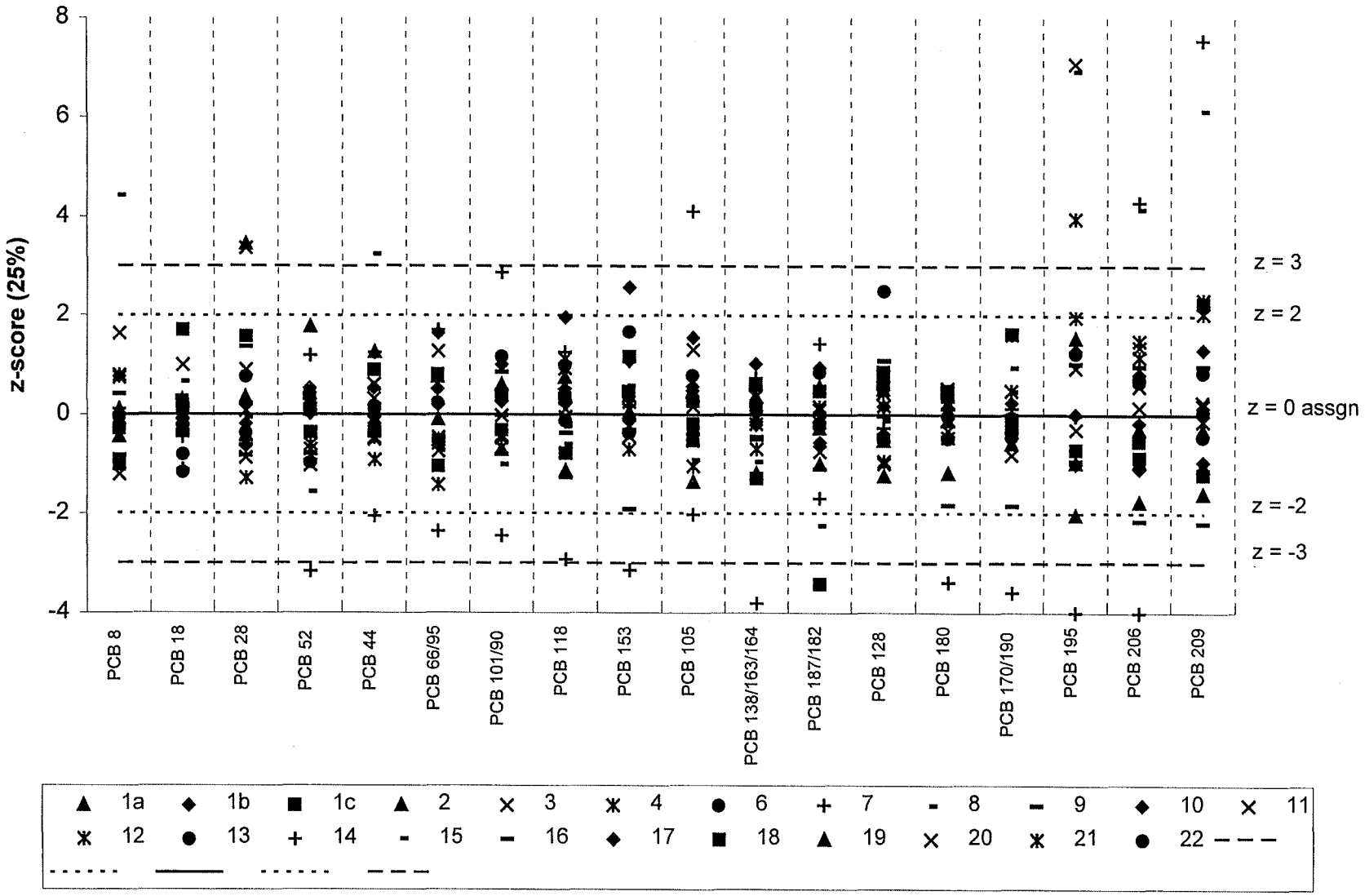


Figure 8. Marine Sediment V: PAH z-scores (25%) by analyte

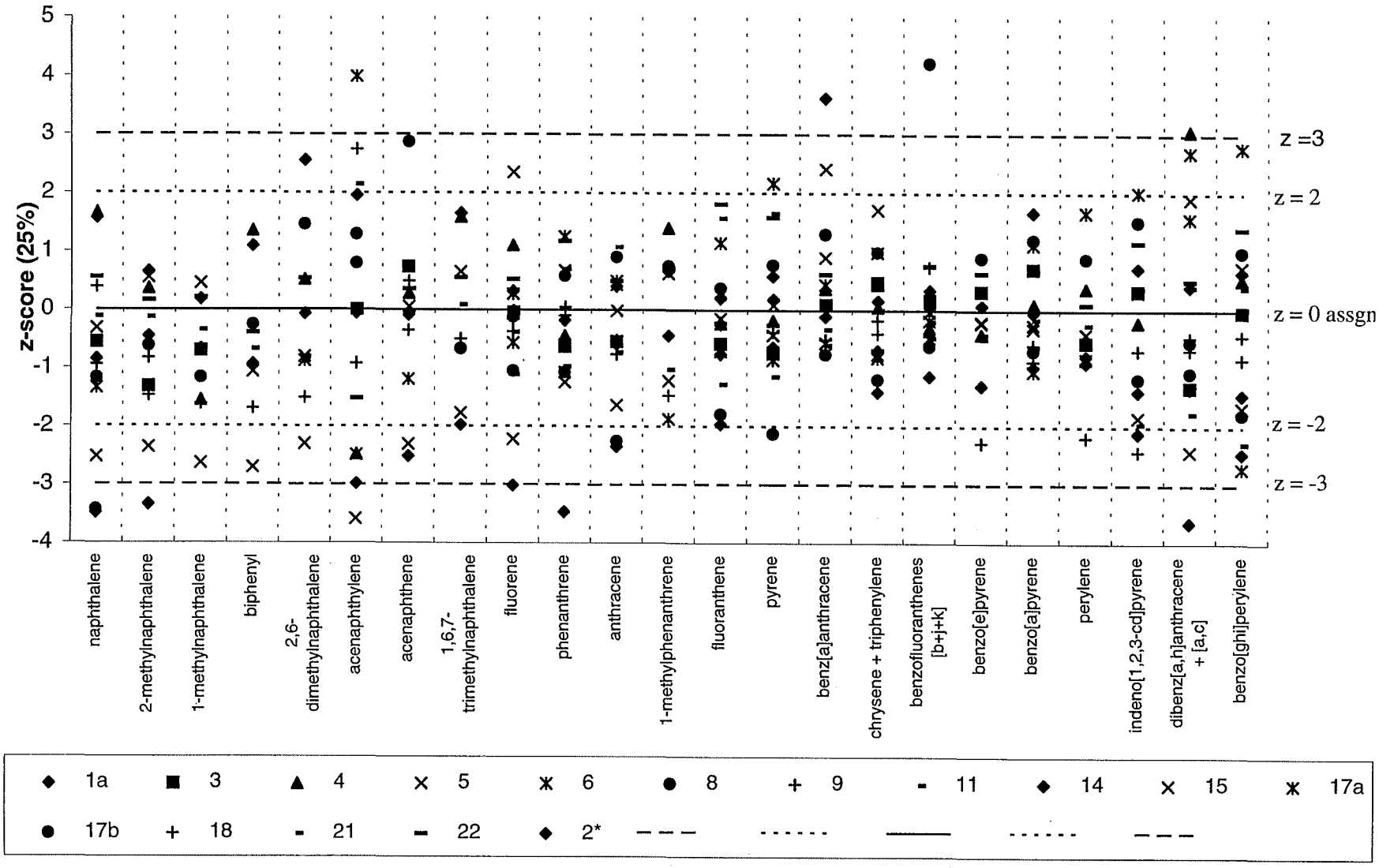


Figure 9. Marine Sediment V: Pesticide z-scores (25%) by analyte

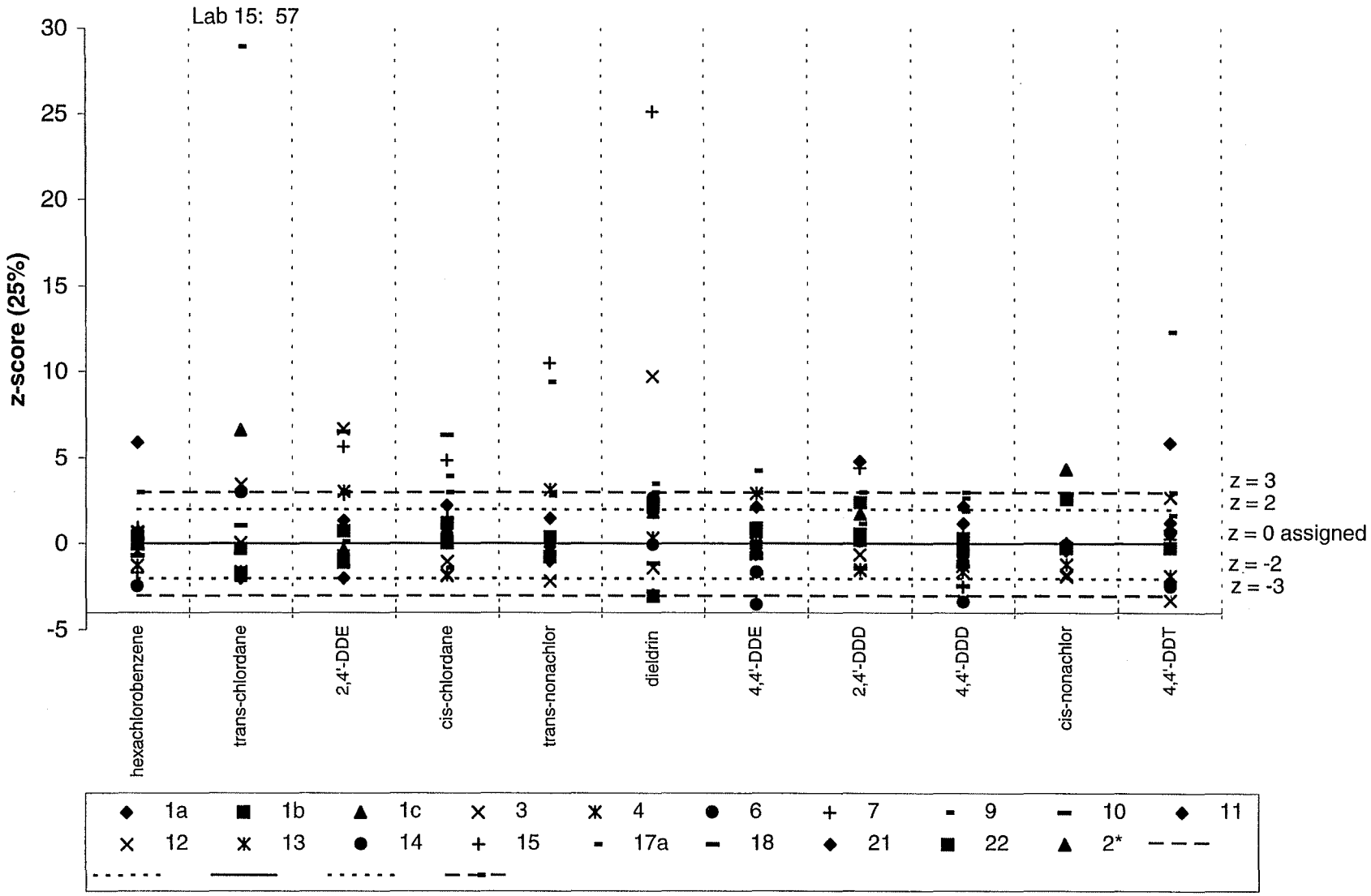


Figure 10. Marine Sediment V: PCB z-scores (25%) by analyte

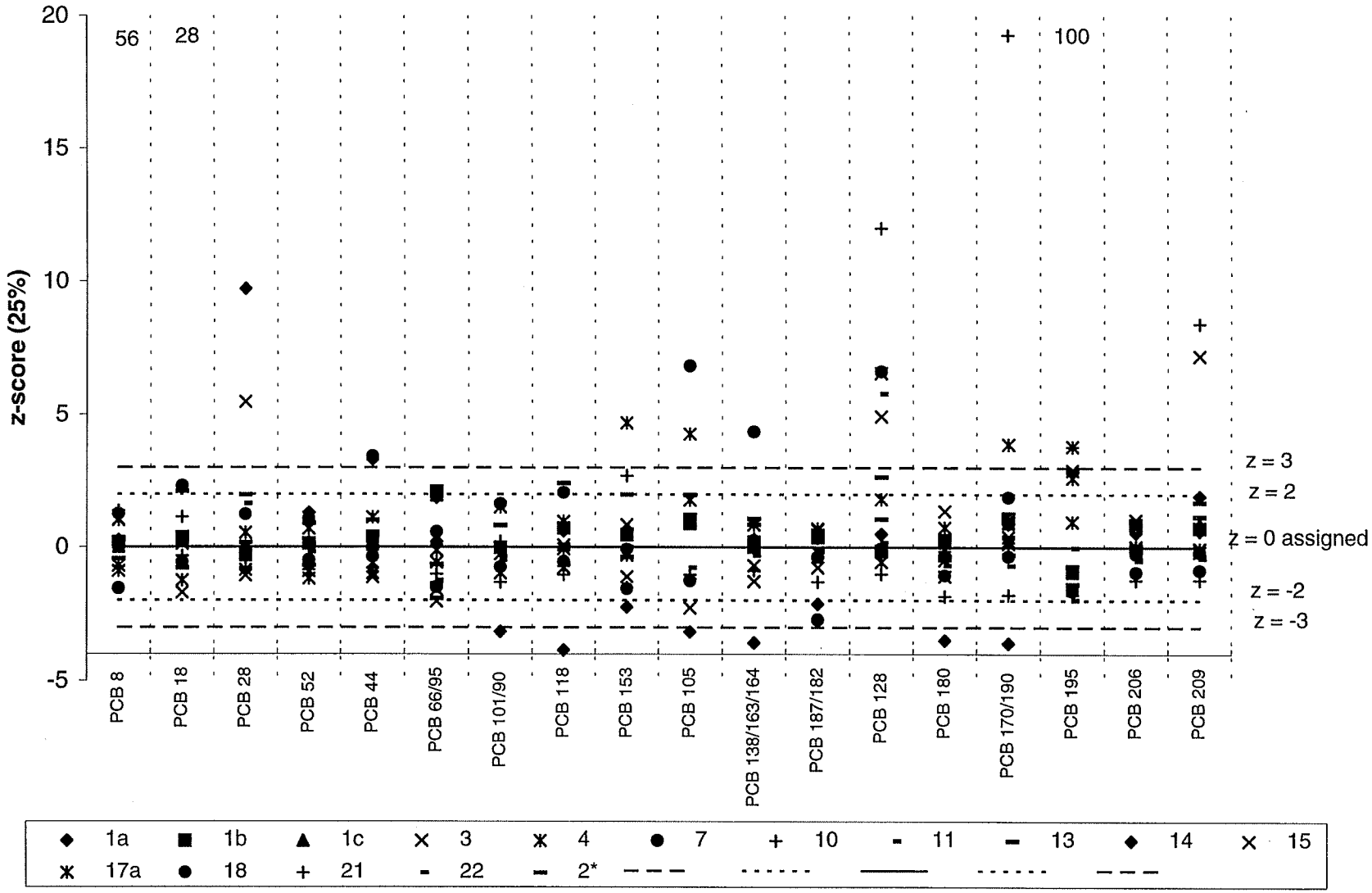


Figure 11. Fish Homogenate III: Pesticide z-scores (25%) by laboratory

z-scores >40 are not shown; see tables

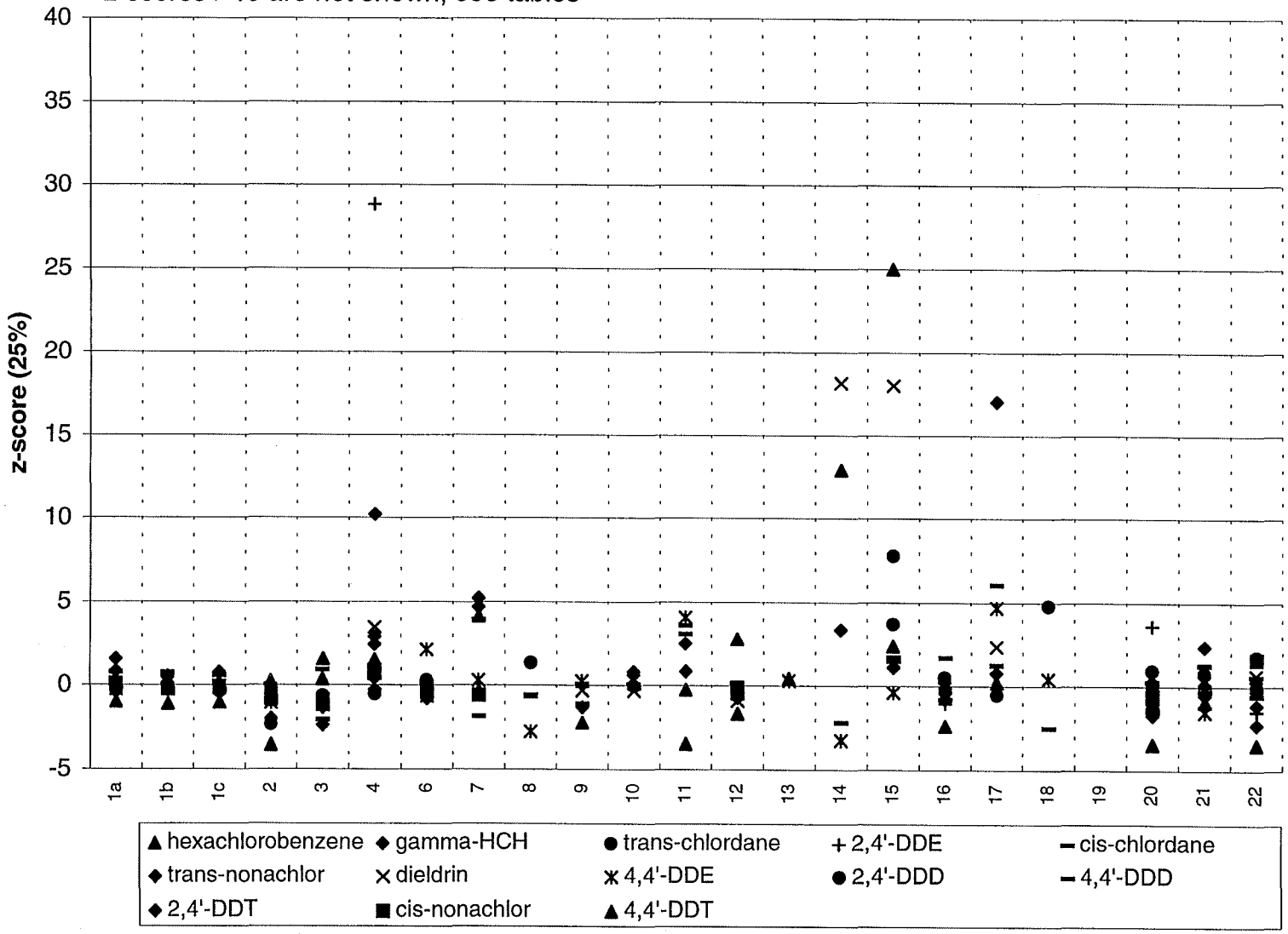


Figure 12. Fish Homogenate III: PCB z-scores (25%) by laboratory

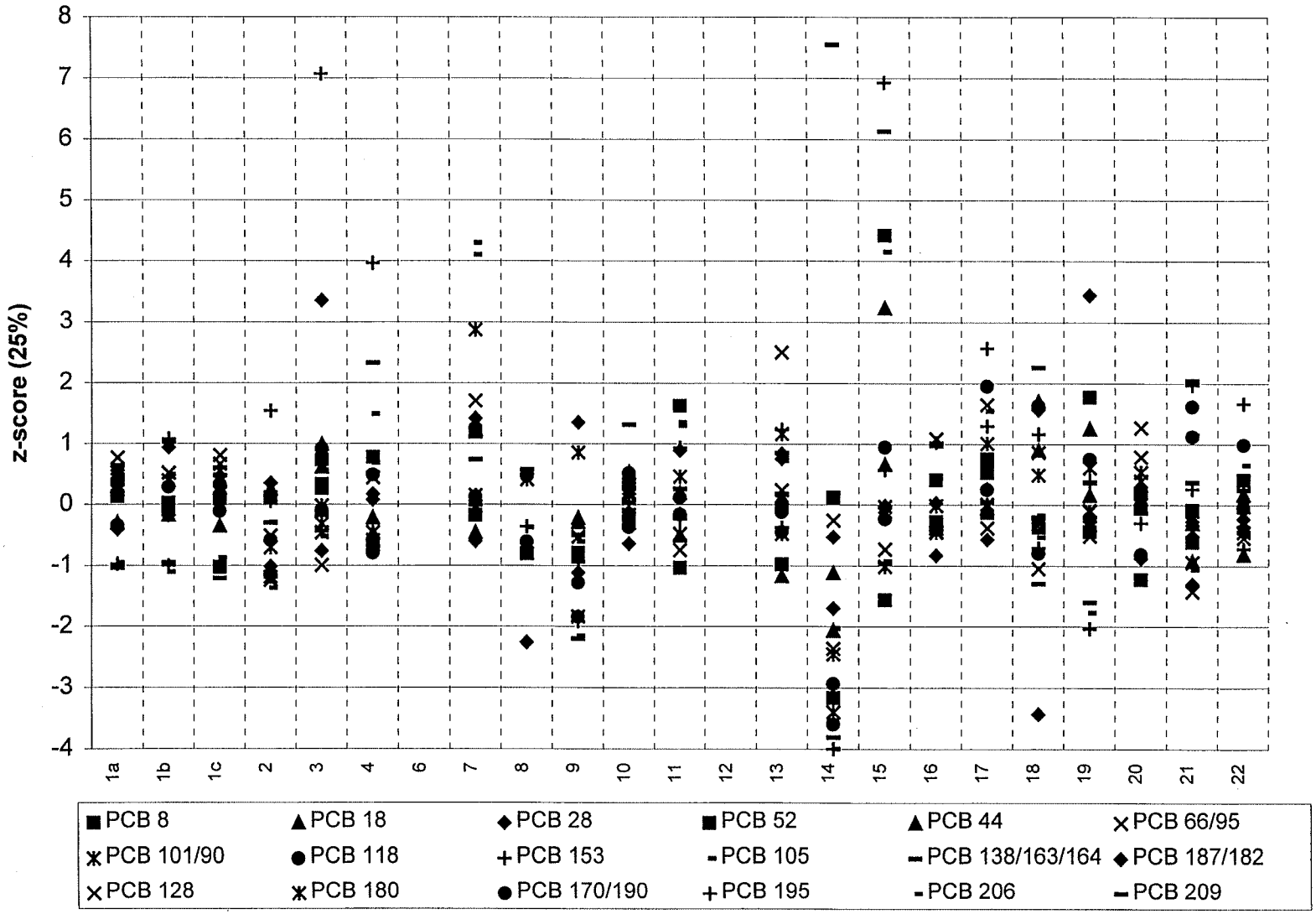
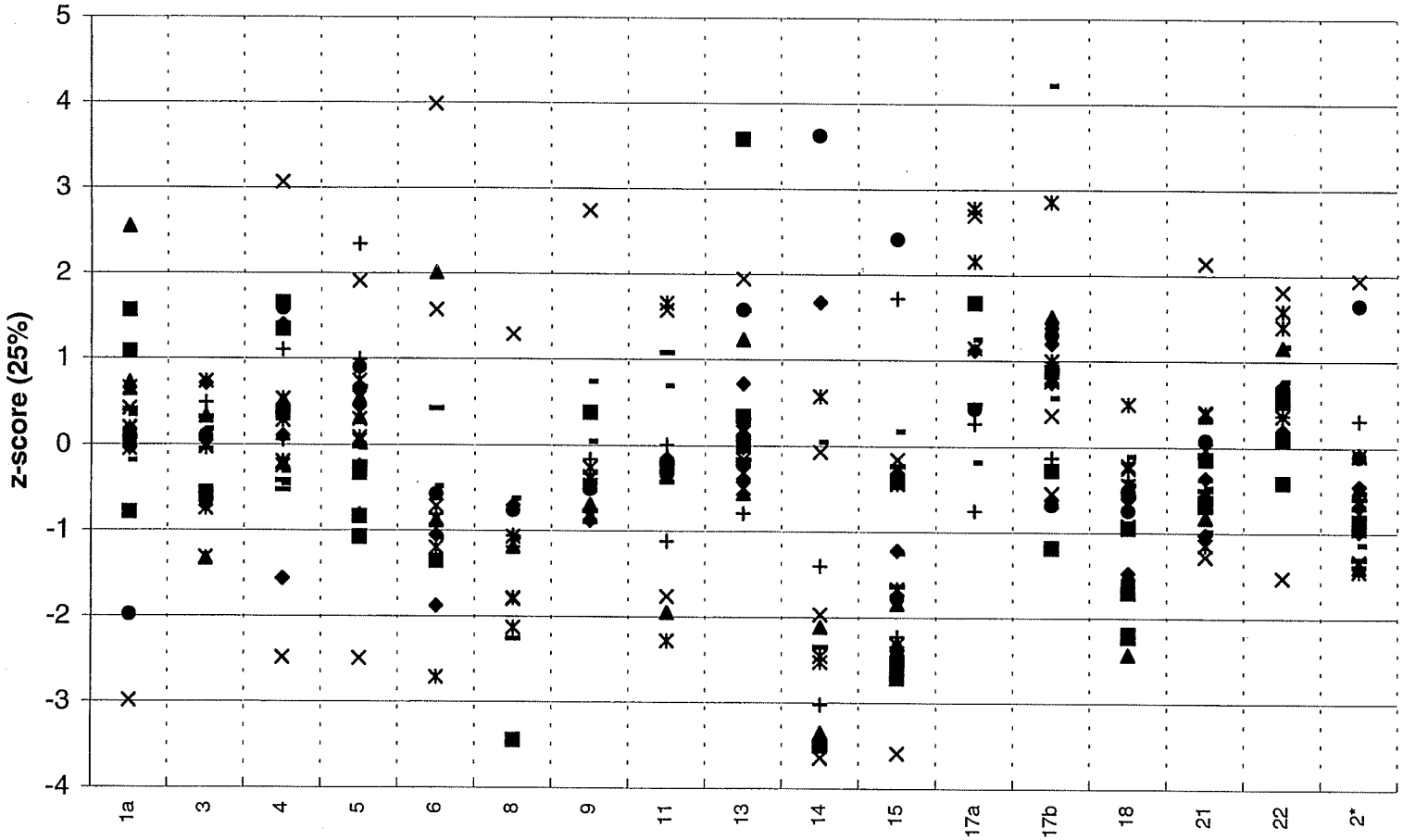


Figure 13. Marine Sediment V: PAH z-scores (25%) by laboratory



- naphthalene
- 2,6-dimethylnaphthalene
- fluorene
- fluoranthene
- benzofluoranthenes [b+j+k]
- indeno[1,2,3-cd]pyrene
- 2-methylnaphthalene
- acenaphthylene
- phenanthrene
- pyrene
- benzo[e]pyrene
- dibenz[a,h]anthracene + [a,c]
- 1-methylnaphthalene
- acenaphthene
- anthracene
- benz[a]anthracene
- benzo[a]pyrene
- benzo[ghi]perylene
- biphenyl
- 1,6,7-trimethylnaphthalene
- 1-methylphenanthrene
- chrysene + triphenylene
- perylene

Figure 14. Marine Sediment V: Pesticide z-scores (25%) by laboratory

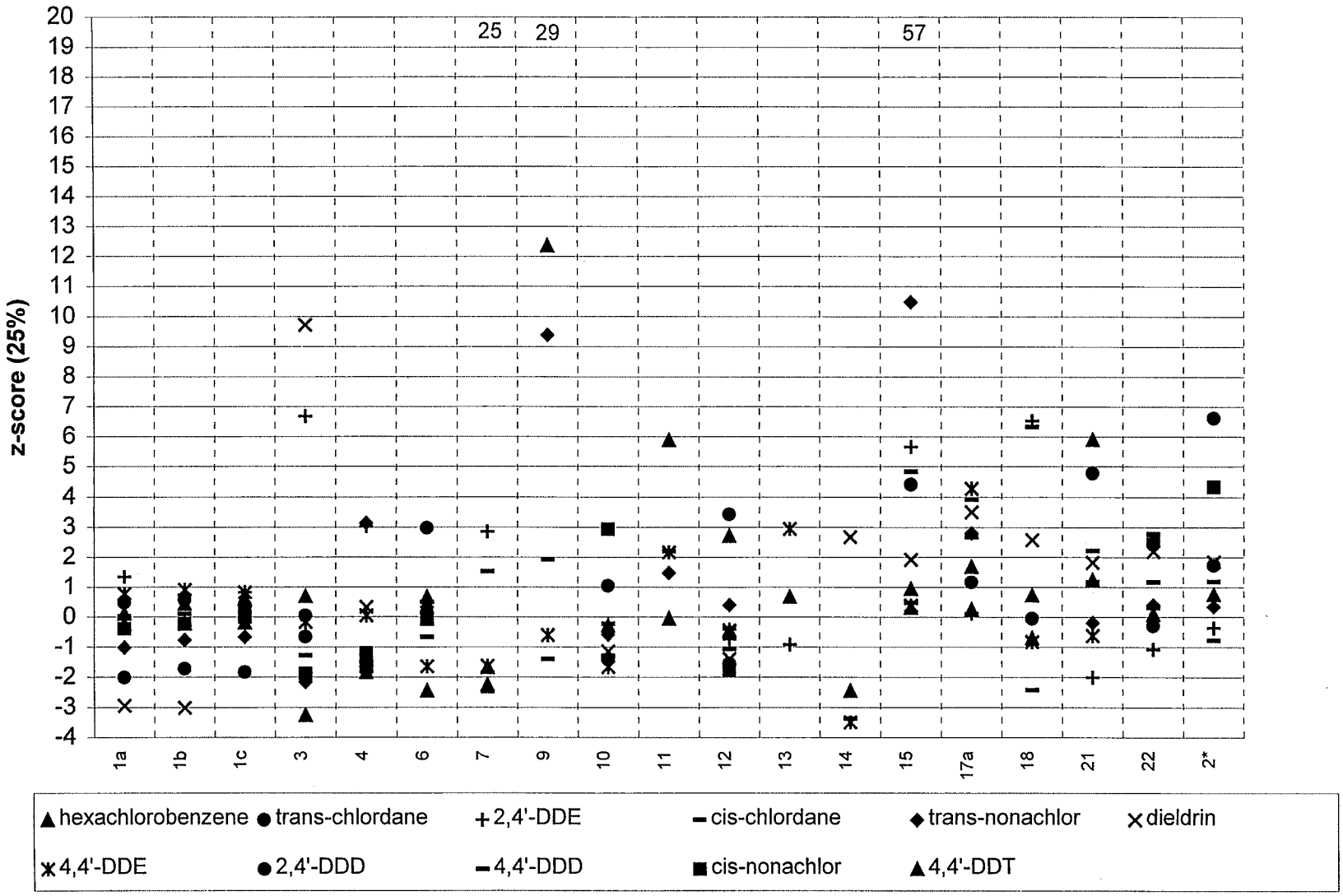
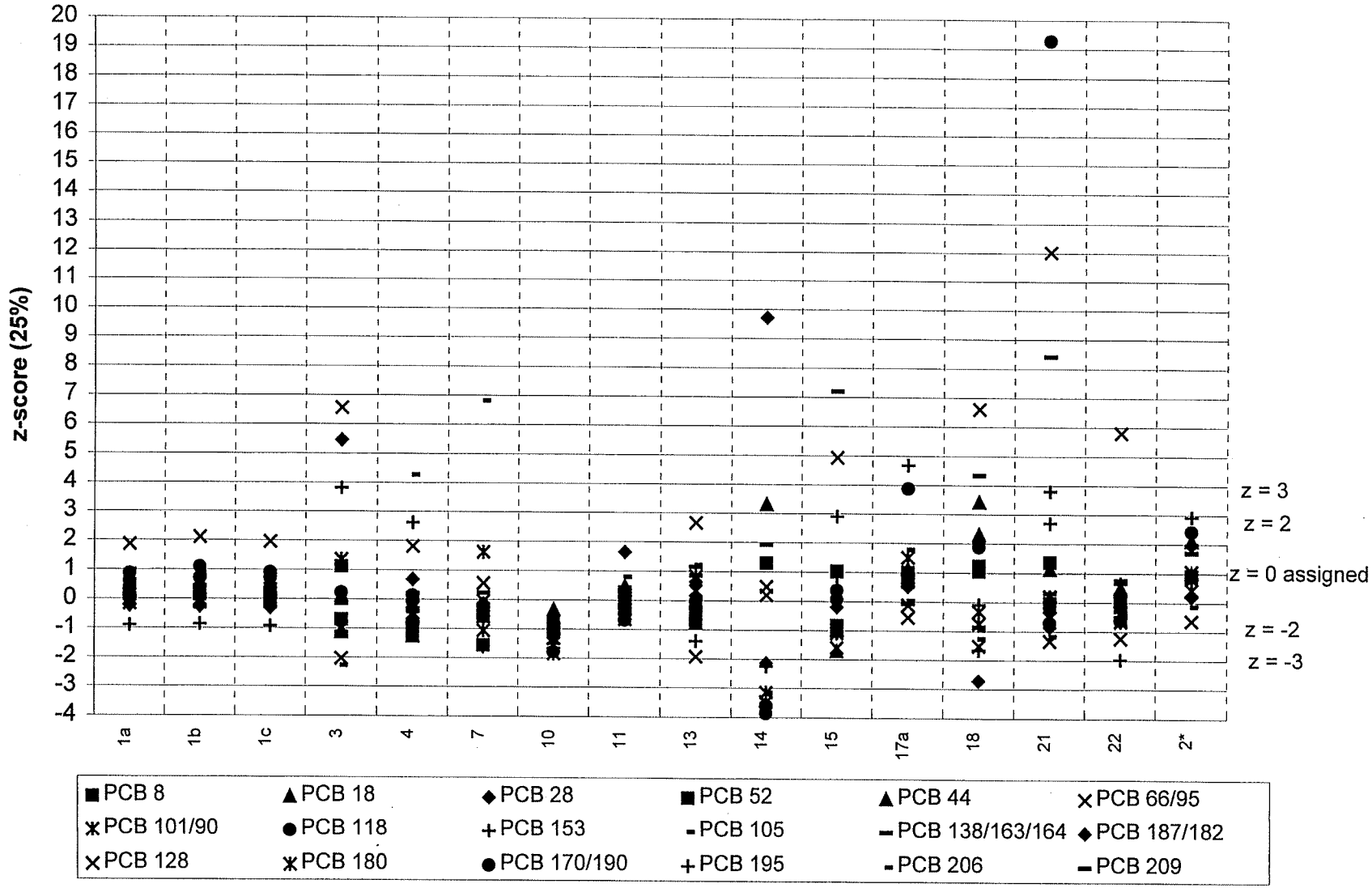


Figure 15. Marine Sediment V: PCB z-scores (25%) by laboratory

z-scores >20 are not shown; see tables



Appendix A: Description, Storage, Use, and Reporting Instructions for Fish Homogenate III

Intercomparison Exercise: Fish Homogenate III Description of Materials and Instructions

Intercomparison Exercise Materials:

QA95FSH3 (Fish Homogenate III)

Each of the three 5-mL glass ampoules contains approximately 9 g (wet weight) of Fish Homogenate III. The material, prepared by the National Research Council (NRC) of Canada, is ground whole carp to which a small amount of water was added to raise the moisture content to 85 percent and 0.02 percent of ethoxyquin was added as an antioxidant. The material has not been enriched or spiked with any of the analytes of interest in this program. The material in the sealed ampoules was heated for a very short time at 121 °C to destroy the enzyme that promotes rancidity.

In addition, concurrent analysis of NRC CARP-1 certified reference material (CRM) is recommended. Information for obtaining this material is enclosed. This NRC CARP-1 reference material has certified concentrations for selected chlorinated dioxins and furans and for nine of the PCB congeners on the exercise analyte list. In order to provide information on the concentrations of the additional target chlorinated compounds that may be useful to you, we have compiled a listing of the NRC certified concentrations, the results of NIST analyses, and the exercise consensus results from 1993 in which this CARP-1 was used as an intercomparison material (QA93FSH1) for the NIST/NOAA/EPA Organics QA program. These results for 33 program target chlorinated analytes, along with the NRC certified concentrations, are listed in Table 1.

Storage of Materials:

Fish Homogenate Material. This material should be stored in the dark at temperatures between 10 and 25 °C.

Instructions for Use:

There are two modifications in the following instructions for this exercise as

opposed to previous exercise instructions for mussel and sediment exercise materials. First, you do **not** have to analyze this material for PAHs, but only for the PCB congeners and chlorinated pesticides on the Program list of analytes. And second, the results are to be reported in ng/g **wet** weight.

You are to analyze Fish Homogenate III and CRM CARP-1, using **your** laboratory's and/or program's analytical protocols, for the concentrations (wt/wet wt) of the 22 chlorinated pesticides and 18 polychlorinated biphenyl (PCB) congeners[1] of interest in the current NIST Intercomparison Exercise Program for Organic Contaminants in the Marine Environment. These compounds are listed in Table 2. Concentrations of these analytes in the Fish Homogenate III samples are higher than in our previous intercomparison exercise mussel tissue samples and are in the range of 1 to 200 ng/g wet weight.

Removal of material from ampoule. NRC instructions require that the samples be sonicated for at least two minutes prior to removal from the ampoules in order to ensure quantitative sampling and suggest that the whole vial content be used for each analysis. If you wish to use less material for an analysis, they recommend that the vial contents be sonicated for at least one hour prior to opening the ampoule to produce a homogeneous sample which can then be quantitatively sampled. In analyses at both NIST and NRC, solvents were used to rinse the vials and this rinsate was combined with the material initially transferred from the ampoule prior to extraction. You may want to use the extraction solvent for this rinse; however, we found that methylene chloride was not useful for rinsing and that methanol or acetone was more suitable for this use. NRC successfully used a hexane/acetone mixture for this purpose. After removing the material for analysis from the ampoules, the samples should be used without delay.

You should analyze three samples of Fish Homogenate III and at least one, and more if possible, of CRM CARP-1 in three different batches/sets/strings/catalogs using your protocol for marine bivalve tissue samples. Specifically, we are asking that you analyze one sample of FISH III and one sample of CRM CARP-1 with one batch of laboratory samples; analyze a second sample of each material with another batch; and the third sample with yet another batch. This will allow a more realistic assessment of laboratory precision over a longer term than the assessment we have obtained previously when a laboratory typically would place all three samples in the same extraction and cleanup batch and the resulting extracts would be analyzed using the same calibration curve, etc.

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[1]If your laboratory is not analyzing samples for both of these chemical classes, you are expected to submit results only for those compounds currently being determined in your laboratory.

Reporting of Results:

Please report one result, as if three figures were significant, for each of the requested analytes in each of the three replicates of the FISH III and of CARP-1.

Report results in units of ng/g **wet** wt. Report the date of measurement of each sample in the requested m/d/y format.

We recognize that the reported concentrations for some of the requested determinands will probably include concentrations of compounds reported to coelute with the determinand of interest with methods commonly in use in environmental laboratories. The more common of these coelutions have been listed in the data table format shown in Table 3. Please note at the bottom of your table of reported results if any of these listed coelutions are not applicable to the data being reported by your laboratory and/or if other coelution qualifiers not listed are applicable to your data.

We prefer that concentrations be reported for each analyte determined. If the measured concentration is below your typical reporting concentration for an analyte in a particular matrix, you can report the number and list the appropriate detection limit, quantification limit, etc. at the bottom of the data table. However, if you need to report non-numerical data please use the following conventions:

NA	"Not analyzed", "not determined"
<"value"	"Less than specified concentration", e.g., <8 ng/g
Other interference	"Other"; add note of explanation at end of data table, e.g.,
DL	"Below detection limit" may be used, however, <"value" is preferable

Do not use negative numbers or parentheses to indicate "less than detection limits".

The enclosed floppy diskette (DOS format) contains files, any of which you may utilize to report your data. The files FSH3.WKS, .WK1 and .WK3 are for various versions of LOTUS, FSH3.XLS is in an EXCEL format, and FSH3.WQ1 is in a QuatroPro format. Text files FSH3.TXT and FSH3.CSV are also provided. If you have any software/hardware conversion problems, please contact Reenie Parris. The data file templates also include places for you to describe the methods used to remove the sample from the ampoule and to determine the mass of the sample for extraction, to list the surrogate/internal standards and type of calibration curve used, and to provide a brief description of the analyses. Please do not add

"spaces" before entering numbers in the table cells. Please **do not** insert any columns or rows **within** the table in the data file. If you wish to include additional data and/or other information or comments, you may add it to the bottom of the data table in the diskette file or send it in hard copy. A printout of the data file format is shown in Table 3.

Submit your results (on the enclosed diskette if possible) to Reenie M. Parris.

U. S. Postal Service address:
Bldg. 222, Room B-208
NIST
Gaithersburg, MD 20899

Commercial Carrier:
Bldg. 222, Room B-208
National Inst. of Standards & Technol. (NIST)
Quince Orchard Road

Gaithersburg, MD 20899

Further Information:

If you need further information, please contact Reenie at the address listed above or at the following phone numbers:

Phone: 301-975-3103
FAX: 301-977-0685
E-mail: rparris@nist.gov

February 1995

Table 1. Compilation of certified concentrations, results of NIST analyses, and '93 Intercomparison Exercise consensus results of selected PCB congeners and chlorinated pesticides in National Research Council of Canada (NRC) Certified Reference Material (CRM) CARP-1. All concentrations are in ng/g wet weight.

	NRC[a] Certified Concentrations	NIST[b] GC-ECD DB-5 Col.		NIST[b] GC-ECD C-18 Col.		NIST[b] GC-MSD DB-5 Col		'93 Exercise - Fish Homogenate I (QA93FSH1)[c] Consensus Results		95%CI
PCB Congeners										
PCB 8		<5		<5		<5		3.9	(2.7)	1.9
PCB 18		25.5	(1.4)	21.8	(1.8)	20.9	(1.3)	21.3	(4.9)	2.5
PCB 28		24.1	(0.9)	31.3	(1.0)	[d]		29.3	(8.2)	4.2
PCB 52	124 ± 32	119	(16)	103.0	(6.0)	122.0	(3.6)	113	(32)	17
PCB 44		65.0	(4.7)	62.4	(4.7)	71.6	(3.6)	68	(18)	9
PCB 66/95		161.0	(7.0)	170.0[e]	(3.9)	174.0[e]	(5.1)	134	(41)	19
PCB 101/90	124 ± 37	119.7	(2.2)	124.0	(5.9)	111.0	(7.0)	120	(19)	10
PCB 118	132 ± 60	95.5	(5.3)	102.0	(3.9)	103.0	(4.4)	117	(32)	16
PCB 153	83 ± 39	61.7	(3.7)	66.8	(6.7)	62.6	(5.3)	82	(21)	11
PCB 105	54 ± 24	44.3	(2.1)	40.8	(4.4)	42.3	(4.9)	51	(16)	8
PCB 138/163/164	102 ± 23	101.6	(6.4)	110.0	(5.2)	96.7	(3.8)	101	(26)	13
PCB 187/182	36 ± 16	33.0	(3.3)	37.1	(4.9)	28.70	(0.66)	29.6	(7.6)	3.5
PCB 128		21.5	(2.0)	22.2	(3.0)	18.3	(2.2)	16.9	(4.9)	2.4
PCB 180	46 ± 14	45.2	(5.3)	44.0	(3.5)	39.5	(2.3)	42	(11)	5
PCB 170/190	22 ± 8	20.6	(1.2)	-		16.3	(1.2)	21.1	(5.7)	2.3
PCB 195		5.79	(0.46)	4.86	(0.39)	5.13	(0.63)	4.5	(1.4)	0.7
PCB 206		4.89	(0.11)	5.17	(0.51)	4.86	(0.40)	4.6	(1.4)	0.7
PCB 209		5.55	(0.19)	5.20	(0.40)	5.87	(0.20)	4.7	(1.3)	0.7
PCB 28/31		53.7[f]	(1.2)	58.3[f]	(1.0)	56.50	(0.86)			
PCB 66		-		110.0	(5.5)	125.0	(3.5)			
PCB 95		-		60.0	(2.9)	48.7	(2.5)			
PCB 170		-		18.4	(1.3)	-	-			

Table 1. (Continued) Compilation of certified concentrations, results of NIST analyses, and '93 Intercomparison Exercise consensus results of selected PCB congeners and chlorinated pesticides in National Research Council of Canada (NRC) Certified Reference Material (CRM) CARP-1. All concentrations are in ng/g wet weight.

	NRC[a]	NIST[b]			'93 Exercise - Fish Homogenate I (QA93FSH1)[c]		
	Certified Concentrations	GC-ECD DB-5 Col.	GC-ECD C-18 Col.	GC-MSD DB-5 Col	Consensus Results		95%CI
Chlorinated Pesticides							
HCB	3.31 (0.31)	2.81 (0.20)	4.10 (0.43)		3.2	(1.0)	0.6
gamma-HCH	<5	<5	<5		1.4	(1.3)	0.9
heptachlor	<5	<5	<5		2.3	(2.3)	3.7
aldrin	<5	<5	<5		1.42	(0.57)	5.10
heptachlor epoxide	1.68 (0.36)	1.63 (0.32)	1.70 (0.32)		6.3	(6.6)	4.2
2,4'-DDE	2.27 (0.36)	2.12 (0.28)	2.55 (0.32)		2.36	(0.70)	0.58
cis-chlordane	13.1 (1.4)	11.9 (0.9)	12.70 (0.81)		9.1	(4.6)	2.8
trans-nonachlor	15.8 (0.50)	11.8 (0.4)	15.9 (0.5)		9.5	(9.9)	5.3
4,4'-DDE	124.0 (5.0)	124.0 (4.8)	128.0 (5.6)		149	(25)	12.6
dieldrin	6.91 (0.76)	7.32 (0.34)	6.84 (0.64)		7.2	(5.2)	3.1
2,4'-DDD	35.1 (3.0)	33.8 (2.9)	28.6 (2.6)		24.5	(8.6)	5.18
4,4'-DDD	77.8 (5.1)	70.8 (0.7)	83.1 (3.2)		74.4	(22.1)	12.2
2,4'-DDT	4.80 (0.79)	9.43 (0.77)	5.48 (0.37)		5.1	(2.3)	2.0
4,4'-DDT	7.79 (0.26)	11.6 (0.4)	7.58 (0.58)		15.0	(8.1)	6.77
mirex	<5	<5	<5		1.0	(1.1)	1.0

[a] Uncertainty is expressed as 95% confidence interval.

[b] Uncertainty, shown in parentheses, is expressed as one standard deviation of the mean (n=6). NIST, as a reference laboratory, analyzed FISH I with GC-ECD using two columns of different selectivity (DB-5 and C-18) and with GC-MS using DB-5 column. NIST results are from six independent sample preparations and analyses. Each sample was analyzed in duplicate using each of the three methods. The concentrations determined from the duplicate injections agreed to within 3% in all cases.

[c] CARP-1 was labeled as FISH I (93QAFSH1) for use in '93 NIST/NOAA NS&T/EPA EMAP intercomparison exercise. The uncertainty shown in parentheses is expressed as one standard deviation of the mean of reported results after exclusion of outliers.

[d] PCB 28 coeluted with PCB 31 under conditions used.

[e] PCB 66/95 is the sum of results for PCB 66 and for PCB 95 which can be selectively determined with MS.

[f] PCB 28/31 is the sum of results for PCB 28 and for PCB 31 which were resolved under the conditions used.

Table 2: Analytes of Interest in NIST Intercomparison Exercise Program for Organic Contaminants in the Marine Environment

Chlorinated Pesticides

hexachlorobenzene	2,4'-DDE
alpha-HCH (alpha-BHC)	4,4'-DDE
gamma-HCH (gamma-BHC, Lindane)	2,4'-DDD
heptachlor	4,4'-DDD
heptachlor epoxide	2,4'-DDT
cis-chlordane (alpha-chlordane)	4,4'-DDT
trans-chlordane (gamma-chlordane)	aldrin
oxychlordane	dieldrin
cis-nonachlor	endrin
trans-nonachlor	endosulfan I
mirex	endosulfan II

Polychlorinated Biphenyl Congeners

PCB No.	*Compound Name*
8	2,4'-dichlorobiphenyl
18	2,2',5-trichlorobiphenyl
28	2,4,4'-trichlorobiphenyl
44	2,2',3,5'-tetrachlorobiphenyl
52	2,2',5,5'-tetrachlorobiphenyl
66	2,3',4,4'-tetrachlorobiphenyl
101	2,2',4,5,5'-pentachlorobiphenyl
105	2,3,3',4,4'-pentachlorobiphenyl
118	2,3',4,4',5-pentachlorobiphenyl
128	2,2',3,3',4,4'-hexachlorobiphenyl
138	2,2',3,4,4',5'-hexachlorobiphenyl
153	2,2',4,4',5,5'-hexachlorobiphenyl
170	2,2',3,3',4,4',5-heptachlorobiphenyl
180	2,2',3,4,4',5,5'-heptachlorobiphenyl
187	2,2',3,4',5,5',6-heptachlorobiphenyl
195	2,2',3,3',4,4',5,6-octachlorobiphenyl
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl
209	decachlorobiphenyl

Table 2. (continued)

Polycyclic aromatic hydrocarbons (PAH)

naphthalene
2-methylnaphthalene
1-methylnaphthalene
biphenyl
2,6-dimethylnaphthalene
acenaphthylene
acenaphthene
1,6,7-trimethylnaphthalene
fluorene
phenanthrene
anthracene
1-methylphenanthrene
fluoranthene
pyrene
benz[*a*]anthracene
chrysene
benzo[fluoranthenes [*b*+*j*+*k*]
benzo[*e*]pyrene
benzo[*a*]pyrene
perylene
indeno[1,2,3-*cd*]pyrene
dibenz[*a,h*]anthracene
benzo[*ghi*]perylene

[a]Please note that the following are typically reported by exercise participants as the sums of the indicated components:

PAH

chrysene + triphenylene
benzo[b]- + benzo[j]- + benzo[k]fluoranthene
dibenz[a,h]anthracene + dibenz[a,c]anthracene

PCB congeners

PCB 66 + PCB 95
PCB 101 + PCB 90
PCB 138 + PCB 163 + PCB 164
PCB 187 + PCB 182 + PCB 159
PCB 170 + PCB 190

RESULTS:

PESTICIDE ANALYSES	FISH III Batch A Sample 1	FISH III Batch B Sample 2	FISH III Batch C Sample 3	CRM Carp-1 Batch A Sample 1	CRM Carp-1 Batch B Sample 2	CRM Carp-1 Batch C Sample 3
Analyst (Initials)	_____	_____	_____	_____	_____	_____
Date(s) of measurements (m/d/y)	_____	_____	_____	_____	_____	_____

	FISH III Sample 1 (ng/g wet wt)	FISH III Sample 2 (ng/g wet wt)	FISH III Sample 3 (ng/g wet wt)	CRM Carp-1 Sample 1 (ng/g wet wt)	CRM Carp-1 Sample 2 (ng/g wet wt)	CRM Carp-1 Sample 3 (ng/g wet wt)
alpha-HCH (a-BHC)	_____	_____	_____	_____	_____	_____
hexachlorobenzene	_____	_____	_____	_____	_____	_____
gamma-HCH (g-BHC,lindane)	_____	_____	_____	_____	_____	_____
heptachlor	_____	_____	_____	_____	_____	_____
aldrin	_____	_____	_____	_____	_____	_____
heptachlor epoxide	_____	_____	_____	_____	_____	_____
oxychlordane	_____	_____	_____	_____	_____	_____
gamma-chlordane	_____	_____	_____	_____	_____	_____
2,4'-DDE	_____	_____	_____	_____	_____	_____
endosulfan I	_____	_____	_____	_____	_____	_____
cis-chlordane (alpha-chlordane)	_____	_____	_____	_____	_____	_____
trans-nonachlor	_____	_____	_____	_____	_____	_____
dieldrin	_____	_____	_____	_____	_____	_____
4,4'-DDE	_____	_____	_____	_____	_____	_____
2,4'-DDD	_____	_____	_____	_____	_____	_____
endrin	_____	_____	_____	_____	_____	_____
endosulfan II	_____	_____	_____	_____	_____	_____
4,4'-DDD	_____	_____	_____	_____	_____	_____
2,4'-DDT	_____	_____	_____	_____	_____	_____
cis-nonachlor	_____	_____	_____	_____	_____	_____
4,4'-DDT	_____	_____	_____	_____	_____	_____
mirex	_____	_____	_____	_____	_____	_____

PCB CONGENER ANALYSES	FISH III Batch A Sample 1	FISH III Batch B Sample 2	FISH III Batch C Sample 3	CRM Carp-1 Batch A Sample 1	CRM Carp-1 Batch B Sample 2	CRM Carp-1 Batch C Sample 3
Analyst (Initials)	_____	_____	_____	_____	_____	_____
Date(s) of measurements (m/d/y)	_____	_____	_____	_____	_____	_____

	FISH III Sample 1 (ng/g wet wt)	FISH III Sample 2 (ng/g wet wt)	FISH III Sample 3 (ng/g wet wt)	CRM Carp-1 Sample 1 (ng/g wet wt)	CRM Carp-1 Sample 2 (ng/g wet wt)	CRM Carp-1 Sample 3 (ng/g wet wt)
PCB 8	_____	_____	_____	_____	_____	_____
PCB 18	_____	_____	_____	_____	_____	_____
PCB 28	_____	_____	_____	_____	_____	_____
PCB 52	_____	_____	_____	_____	_____	_____
PCB 44	_____	_____	_____	_____	_____	_____
PCB 66/95	_____	_____	_____	_____	_____	_____
PCB 101/90	_____	_____	_____	_____	_____	_____
PCB 118	_____	_____	_____	_____	_____	_____
PCB 153	_____	_____	_____	_____	_____	_____
PCB 105	_____	_____	_____	_____	_____	_____
PCB 138/163/164	_____	_____	_____	_____	_____	_____
PCB 187/182	_____	_____	_____	_____	_____	_____
PCB 128	_____	_____	_____	_____	_____	_____
PCB 180	_____	_____	_____	_____	_____	_____
PCB 170/190	_____	_____	_____	_____	_____	_____
PCB 195	_____	_____	_____	_____	_____	_____
PCB 206	_____	_____	_____	_____	_____	_____
PCB 209	_____	_____	_____	_____	_____	_____

(Any additional data/information should be added here.)

Intercomparison Exercise: Marine Sediment V
Description of Materials and Instructions

Intercomparison Exercise Materials:

QA95SED5 (Marine Sediment V)

Each of the three jars contains 20 g (wet weight) of Marine Sediment V. This wetted sediment was prepared from material that was collected in New York/New Jersey waterways, freeze-dried, granulated, sieved, homogenized, and radiation-sterilized. This material has not been enriched or spiked. Each 2-oz clear glass jar has a Teflon-lined screw cap and is labeled with an individual jar number as well as the above name.

In addition, three concurrent analyses of SRM 1941a, Organics in Marine Sediment, are recommended.
Marine Sediment V is expected to have significantly higher concentrations, especially for the PAH and PCB analytes, than SRM 1941a or previous sediments used in these interlaboratory comparisons; however, SRM 1941a is the closest available match in terms of matrix and certified analytes. Information needed to obtain SRM 1941a is enclosed. This material can be obtained from the NIST Standard Reference Materials Program ($365/50 g dry weight) (phone: 301/975-6776).

Storage of Materials:

Marine Sediment Material. This Marine Sediment V material should be stored in the dark at temperatures of -15 °C or lower. If only a portion of the contents of a jar is used, that jar should be tightly closed immediately after removal of a subsample to preserve the integrity of the remaining material for later analysis.

Instructions for Use:

You are to analyze Marine Sediment V and SRM 1941a, using **your** laboratory's and/or program's analytical protocols, for the concentrations (wt/dry wt) of the 23 polycyclic aromatic hydrocarbon (PAH) compounds, 22 chlorinated pesticides and 18 polychlorinated biphenyl

(PCB) congeners[1] of interest in the current NIST Intercomparison Exercise Program for Organic Contaminants in the Marine Environment. These compounds are listed in Table 1. Concentrations of these analytes, especially the PCBs and PAHs, in the Marine Sediment V samples are expected to be significantly higher than in our previous intercomparison exercise sediment samples and in SRM 1941a.

The percentage of water in the Sediment V material should be determined so the results can be reported on a dry weight basis. You should have received enough material so that you can perform separate determinations for the water content if you typically do not dry your sediment samples prior to analysis.

The amount of material used for each analysis should correspond to the amount (wet weight) of marine sediment you would typically analyze as prescribed in your protocols. Prior to removing an aliquot of Sediment V, you should thaw the sample in the jar and then stir or otherwise mix it thoroughly.

You should analyze three samples of Marine Sediment V and at least one, and more if possible, of SRM 1941a in three different batches/sets/strings/catalogs using your protocol for marine sediment samples. Specifically, we are asking that you analyze one sample of Sediment V and one sample of SRM 1941a with one batch of laboratory samples; analyze a second sample of each material with another batch; and the third sample with yet another batch. This will allow a more realistic assessment of laboratory precision over a longer term than the assessment we have obtained prior to 1994 when a laboratory typically would place all three samples in the same extraction and cleanup batch and the resulting extracts would be analyzed using the same calibration curve, etc.

Reporting of Results:

Please report one result, as if three figures were significant, for each of the requested analytes in each of the three replicates of the Marine Sediment V and of SRM 1941a. Report results in units of ng/g **dry** wt. Report the date of measurement of each sample in the requested m/d/y format. Also, report the results of your percentage water determinations of Marine Sediment V.

We recognize that the reported concentrations for some of the requested determinands will probably include concentrations of compounds reported to coelute with the determinand of interest with methods commonly in use in environmental laboratories. The more common of these coelutions have been listed in Table 1 and in the data table format as shown in Table 2. Please note at the bottom of your table of reported results if any of these listed coelutions are not applicable to the data being reported by your laboratory and/or if other coelution qualifiers not listed are applicable to your data.

---

[1]If your laboratory is not analyzing samples for all three chemical classes, you are expected to submit results only for those compounds currently being determined in your laboratory.

We prefer that concentrations be reported for each analyte determined. If the measured concentration is below your typical reporting concentration for an analyte in a particular matrix, you can report the number and list the appropriate detection limit, quantification limit, etc. at the bottom of the data table. However, if you need to report non-numerical data please use the following conventions:

NA	"Not analyzed", "not determined"
<"value"	"Less than specified concentration", e.g., <8 ng/g
Other	"Other"; add note of explanation at end of data table, e.g., interference
DL	"Below detection limit" may be used, however, <"value" is preferable

Do not use negative numbers or parentheses to indicate "less than detection limits".

The enclosed floppy diskette (DOS format) contains files, any of which you may utilize to report your data. The files SED5.WKS, .WK1 and .WK3 are for various versions of LOTUS, SED5.XLS is in an EXCEL format, and SED5.WQ1 is in a QuatroPro format. Text files SED5.TXT and SED5.CSV are also provided. If you have any software/hardware conversion problems, please contact Reenie Parris. The data file templates also include places for you to list the surrogate/internal standards and type of calibration curve used, and to provide a brief description of the analyses. Please do not add "spaces" before entering numbers in the table cells. Please **do not** insert any columns or rows **within** the table in the data file. If you wish to include additional data and/or other information or comments, you may add it to the bottom of the data table in the diskette file or send it in hard copy. A printout of the data file format is shown in Table 2.

Submit your results (on the enclosed diskette if possible) to Reenie M. Parris.

U. S. Postal Service address:
Bldg. 222, Room B-208
NIST
Gaithersburg, MD 20899

Commercial Carrier:
Bldg. 222, Room B-208
National Inst. of Standards & Technol. (NIST)
Quince Orchard Road
Gaithersburg, MD 20899

Further Information:

If you need further information, please contact Reenie at the address listed above or at the following phone numbers:

Phone: 301-975-3103
FAX: 301-977-0685
E-mail: rparris@nist.gov

April, 1995

Table 1: Analytes of Interest in NIST Intercomparison Exercise Program for Organic Contaminants in the Marine Environment

Chlorinated Pesticides

hexachlorobenzene	2,4'-DDE
alpha-HCH (alpha-BHC)	4,4'-DDE
gamma-HCH (gamma-BHC, Lindane)	2,4'-DDD
heptachlor	4,4'-DDD
heptachlor epoxide	2,4'-DDT
cis-chlordane (alpha-chlordane)	4,4'-DDT
trans-chlordane (gamma-chlordane)	aldrin
oxychlordane	dieldrin
cis-nonachlor	endrin
trans-nonachlor	endosulfan I
mirex	endosulfan II

Polychlorinated Biphenyl Congeners

PCB No.	*Compound Name*
8	2,4'-dichlorobiphenyl
18	2,2',5-trichlorobiphenyl
28	2,4,4'-trichlorobiphenyl
44	2,2',3,5'-tetrachlorobiphenyl
52	2,2',5,5'-tetrachlorobiphenyl
66	2,3',4,4'-tetrachlorobiphenyl
101	2,2',4,5,5'-pentachlorobiphenyl
105	2,3,3',4,4'-pentachlorobiphenyl
118	2,3',4,4',5-pentachlorobiphenyl
128	2,2',3,3',4,4'-hexachlorobiphenyl
138	2,2',3,4,4',5'-hexachlorobiphenyl
153	2,2',4,4',5,5'-hexachlorobiphenyl
170	2,2',3,3',4,4',5-heptachlorobiphenyl
180	2,2',3,4,4',5,5'-heptachlorobiphenyl
187	2,2',3,4',5,5',6-heptachlorobiphenyl
195	2,2',3,3',4,4',5,6-octachlorobiphenyl
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl
209	decachlorobiphenyl

Table 1. (continued)

Polycyclic aromatic hydrocarbons (PAH)

naphthalene
2-methylnaphthalene
1-methylnaphthalene
biphenyl
2,6-dimethylnaphthalene
acenaphthylene
acenaphthene
1,6,7-trimethylnaphthalene
fluorene
phenanthrene
anthracene
1-methylphenanthrene
fluoranthene
pyrene
benz[*a*]anthracene
chrysene
benzo[fluoranthenes [*b*+*j*+*k*]
benzo[*e*]pyrene
benzo[*a*]pyrene
perylene
indeno[1,2,3-*cd*]pyrene
dibenz[*a,h*]anthracene
benzo[*ghi*]perylene

[a]Please note that the following are typically reported by exercise participants as the sums of the indicated components:

PAH

chrysene + triphenylene
benzo[b]- + benzo[j]- + benzo[k]fluoranthene
dibenz[a,h]anthracene + dibenz[a,c]anthracene

PCB congeners

PCB 66 + PCB 95
PCB 101 + PCB 90
PCB 138 + PCB 163 + PCB 164
PCB 187 + PCB 182 + PCB 159
PCB 170 + PCB 190

Table 2. Diskette Data File Format (File: SED5.*)

NIST Intercomparison Exercise Program for Organics in the Marine Environment
NIST/NOAA-NS&T/EPA-EMAP QA Program
Sample: QA95SED5 - Marine Sediment V

Please fill in all blanks; Use requested units of concentration; Report results as if 3 figures were significant
DO NOT INSERT ROWS OR COLUMNS WITHIN THIS TABLE.

- If necessary, add additional data/information at the end of the table.
- Use one of the following if no concentration is reported for an analyte:
  NA = Not analyzed/determined; <"conc" = <detection limit conc.; Other = other, explain in a note at end of table
  (DL = "below detection limit" may be used, but <"conc", e.g., <8, is preferable.)
  Do not use parentheses or negative numbers to indicate "less than detection limit".

Reporting Date (m/d/y): _____
Laboratory: _____
Submitted by: _____

BRIEF DESCRIPTION OF PROCEDURES USED:

Approximate amount of sample extracted: Sediment V _____ g, wet weight; SRM 1941a _____ g, dry weight

Method used for determining percentage water: _____

Were "wet" or "dry" samples extracted? Sediment V _____ SRM 1941a _____
Extraction method: _____
Extraction solvent: _____
Extraction time: _____
Extraction - other: _____

Sample extract cleanup method: _____

Analytical method used (e.g., GC-FID, GC-ECD):

	Analyt. Instr.	Column Phase	Col. Length, m	Col. i.d., mm	Col. film thickness, µm
PAH					
Pesticides					
PCB Congeners					

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

PAH _____

Pesticides _____

PCB Congeners _____

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:

PAH _____

Pesticides _____

PCB Congeners _____

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

PAH _____

Pesticides _____

PCB Congeners _____

Any others? Added at what point in analyses: _____

PAH _____

Pesticides _____

PCB Congeners _____

IS/surrogate standards used for quantitation calculations were:

_____ those added prior to extraction

_____ 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? _____

Calibration Curve

	Points	Conc. Range
PAH	_____	_____
Pesticides	_____	_____
PCB Congeners	_____	_____

Were PCB congeners separated from pesticides prior to GC? _____

Using your method, 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 1941a analyses from those for Marine Sediment V described above:

_____

_____

_____

_____

_____

RESULTS:

PERCENT WATER (List each result if determined more than once. Enter results as a number, for example 90.0. DO NOT change format of cell t

	Sediment V (percent)	Sediment V (percent)	Sediment V (percent)
Water	_____	_____	_____

PAH ANALYSES	Sediment V Batch A Sample 1	Sediment V Batch B Sample 2	Sediment V Batch C Sample 3	SRM 1941a Batch A Sample 1	SRM 1941a Batch B Sample 2	SRM 1941a Batch C Sample 3
Analyst (Initials)						
Date(s) of measurements (m/d/y)						
Sample Jar number						

	Sediment V Sample 1 (ng/g dry wt)	Sediment V Sample 2 (ng/g dry wt)	Sediment V Sample 3 (ng/g dry wt)	SRM 1941a Sample 1 (ng/g dry wt)	SRM 1941a Sample 2 (ng/g dry wt)	SRM 1941a Sample 3 (ng/g dry wt)
naphthalene						
2-methylnaphthalene						
1-methylnaphthalene						
biphenyl						
2,6-dimethylnaphthalene						
acenaphthylene						
acenaphthene						
1,6,7-trimethylnaphthalene						
fluorene						
phenanthrene						
anthracene						
1-methylphenanthrene						
fluoranthene						
pyrene						
benz[a]anthracene						
chrysene + triphenylene						
benzofluoranthenes [b+j+k]						
benzo[e]pyrene						
benzo[a]pyrene						
perylene						
indeno[1,2,3-cd]pyrene						
dibenz[a,h]anthracene + [a,c]						
benzo[ghi]perylene						

PESTICIDE ANALYSES	Sediment V Batch A Sample 1	Sediment V Batch B Sample 2	Sediment V Batch C Sample 3	SRM 1941a Batch A Sample 1	SRM 1941a Batch B Sample 2	SRM 1941a Batch C Sample 3
Analyst (Initials)	_____	_____	_____	_____	_____	_____
Date(s) of measurements (m/d/y)	_____	_____	_____	_____	_____	_____
Sample Jar number	_____	_____	_____			

	Sediment V Sample 1 (ng/g dry wt)	Sediment V Sample 2 (ng/g dry wt)	Sediment V Sample 3 (ng/g dry wt)	SRM 1941a Sample 1 (ng/g dry wt)	SRM 1941a Sample 2 (ng/g dry wt)	SRM 1941a Sample 3 (ng/g dry wt)
alpha-HCH (a-BHC)	_____	_____	_____	_____	_____	_____
hexachlorobenzene	_____	_____	_____	_____	_____	_____
gamma-HCH (g-BHC,lindane)	_____	_____	_____	_____	_____	_____
heptachlor	_____	_____	_____	_____	_____	_____
aldrin	_____	_____	_____	_____	_____	_____
heptachlor epoxide	_____	_____	_____	_____	_____	_____
oxychlordane	_____	_____	_____	_____	_____	_____
gamma-chlordane	_____	_____	_____	_____	_____	_____
2,4'-DDE	_____	_____	_____	_____	_____	_____
endosulfan I	_____	_____	_____	_____	_____	_____
cis-chlordane (alpha-chlordane)	_____	_____	_____	_____	_____	_____
trans-nonachlor	_____	_____	_____	_____	_____	_____
dieldrin	_____	_____	_____	_____	_____	_____
4,4'-DDE	_____	_____	_____	_____	_____	_____
2,4'-DDD	_____	_____	_____	_____	_____	_____
endrin	_____	_____	_____	_____	_____	_____
endosulfan II	_____	_____	_____	_____	_____	_____
4,4'-DDD	_____	_____	_____	_____	_____	_____
2,4'-DDT	_____	_____	_____	_____	_____	_____
cis-nonachlor	_____	_____	_____	_____	_____	_____
4,4'-DDT	_____	_____	_____	_____	_____	_____
mirex	_____	_____	_____	_____	_____	_____

PCB CONGENER ANALYSES	Sediment V Batch A Sample 1	Sediment V Batch B Sample 2	Sediment V Batch C Sample 3	SRM 1941a Batch A Sample 1	SRM 1941a Batch B Sample 2	SRM 1941a Batch C Sample 3
Analyst (Initials)	_____	_____	_____	_____	_____	_____
Date(s) of measurements (m/d/y)	_____	_____	_____	_____	_____	_____
Sample Jar number	_____	_____	_____			

	Sediment V Sample 1 (ng/g dry wt)	Sediment V Sample 2 (ng/g dry wt)	Sediment V Sample 3 (ng/g dry wt)	SRM 1941a Sample 1 (ng/g dry wt)	SRM 1941a Sample 2 (ng/g dry wt)	SRM 1941a Sample 3 (ng/g dry wt)
PCB 8	_____	_____	_____	_____	_____	_____
PCB 18	_____	_____	_____	_____	_____	_____
PCB 28	_____	_____	_____	_____	_____	_____
PCB 52	_____	_____	_____	_____	_____	_____
PCB 44	_____	_____	_____	_____	_____	_____
PCB 66/95	_____	_____	_____	_____	_____	_____
PCB 101/90	_____	_____	_____	_____	_____	_____
PCB 118	_____	_____	_____	_____	_____	_____
PCB 153	_____	_____	_____	_____	_____	_____
PCB 105	_____	_____	_____	_____	_____	_____
PCB 138/163/164	_____	_____	_____	_____	_____	_____
PCB 187/182/159	_____	_____	_____	_____	_____	_____
PCB 128	_____	_____	_____	_____	_____	_____
PCB 180	_____	_____	_____	_____	_____	_____
PCB 170/190	_____	_____	_____	_____	_____	_____
PCB 195	_____	_____	_____	_____	_____	_____
PCB 206	_____	_____	_____	_____	_____	_____
PCB 209	_____	_____	_____	_____	_____	_____

(Any additional data/information should be added here.)

Appendix C: Results by Laboratory, Fish III

FY95 NIST Intercomparison Exercise **Laboratory No.: 1a**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 4/24/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	3/29/95 Sample 1	3/30/95 Sample 2	3/31/95 Sample 3	3/29/95 Sample 1	3/30/95 Sample 2	3/31/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	5.66	5.52	5.63	7.04	6.75	6.66	5.60	1.3	6.82	2.9	<6		3.50	3.50			0.1
hexachlorobenzene	4.25	4.11	4.24	3.28	3.22	3.36	4.20	1.9	3.29	2.1	4.16	0.42	3.30	0.99	0.0	0.1	0.1
gamma-HCH	2.21	2.08	2.14	1.32	1.21	1.43	2.14	3.0	1.32	8.3	1.55	0.51	1.33	0.40	1.5	1.0	0.2
heptachlor	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.28	0.68			
aldrin	0.98	1.03	1.04	1.42	1.50	1.41	1.02	3.0	1.44	3.4	<4		1.42	0.43			0.2
heptachlor epoxide	<4	<4	<4	1.33	1.42	1.33	<4		1.36	3.8	<4		3.23	3.50			
oxychlordane	<4	<4	<4	2.40	2.24	2.33	<4		2.32	3.5	<5		2.36	1.42			
trans-chlordane	4.34	4.22	4.02	8.09	8.11	8.32	4.19	3.9	8.17	1.6	4.59	0.63	6.53	3.92	-0.3	-0.4	0.3
2,4'-DDE	3.00	3.06	2.98	1.99	2.32	2.26	3.01	1.4	2.19	8.0	2.84	1.07	2.48	0.74	0.2	0.1	0.1
endosulfan I	<3	<3	<3	<3	<3	<3	<3				<5		2.50	2.50			
cis-chlordane	7.54	7.78	7.36	10.30	10.90	10.40	7.56	2.8	10.53	3.1	7.73	0.88	10.17	4.07	-0.1	-0.1	0.2
trans-nonachlor	10.6	11.5	10.2	12.1	12.0	11.8	10.8	6.2	12.0	1.3	10.6	1.9	11.5	4.6	0.1	0.0	0.4
dieldrin	8.21	8.83	8.53	4.67	4.73	4.55	8.52	3.6	4.65	2.0	7.65	1.42	6.07	2.43	0.5	0.4	0.2
4,4'-DDE	146	144	151	131	128	126	147	2.5	128	2.0	157	16	137	41	-0.3	-0.3	0.2
2,4'-DDD	21.4	22.5	21.6	27.9	26.1	26.0	21.8	2.7	26.7	4.0	22.3	1.7	25.3	10.1	-0.1	-0.2	0.2
endrin	<5	<5	<5	<5	<5	<5	<5		<5		<5		<5				
endosulfan II	<3	<4	<3	<4	<4	<3	<3		<4		<5		2.50	2.50			
4,4'-DDD	96.7	99.0	95.5	73.7	76.3	74.5	97.1	1.8	74.8	1.8	81.6	10.8	74.3	22.3	0.8	0.8	0.1
2,4'-DDT	8.22	8.85	8.34	7.93	7.77	7.45	8.47	3.9	7.72	3.2	7.03	1.98	6.28	1.88	0.8	0.6	0.3
cis-nonachlor	5.03	5.33	5.51	6.21	6.76	6.53	5.29	4.6	6.50	4.2	5.19	0.66	5.98	2.39	0.1	0.1	0.3
4,4'-DDT	4.49	4.22	4.23	7.64	7.77	7.45	4.31	3.5	7.62	2.1	5.74	2.97	10.42	6.25	-1.0	-0.6	0.2
mirex	<2	<2	<2	<2	<2	<2	<2		<2		<5		2.50	2.50			

Laboratory: 1a
Pesticides in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	15	68
Qualitative	7	32
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 1a
Reporting Date: 4/24/95

PCBs	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	3/29/95 Sample 1	3/30/95 Sample 2	3/31/95 Sample 3	3/29/95 Sample 1	3/30/95 Sample 2	3/31/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	<5	<5	<5	<5	<5	<5	<5		<5		5.57	0.55	3.00	3.00			
PCB 18	30.7	30.5	31.8	26.8	26.5	23.3	31.0	2.3	25.5	1.9	28.9	2.3	22.5	6.8	0.3	0.5	0.2
PCB 28	32.0	32.8	30.1	23.8	22.5	22.4	31.6	4.4	22.9	0.8	35.2	3.5	27.0	9.4	-0.4	-0.5	0.3
PCB 52	143	132	142	117	121	115	139	4.4	118	3.1	135	11	**124**	**32**	0.1	0.2	0.3
PCB 44	80.6	79.3	77.6	68.2	68.3	66.3	79.2	1.9	67.6	1.1	85.6	5.5	69.3	20.8	-0.3	-0.5	0.1
PCB 66/95	198	205	191	152	155	158	198	3.5	155	3.0	166	18	157	47	0.8	0.8	0.2
PCB 101/90	146	133	146	134	129	131	142	5.3	131	2.5	129	9	**124**	**37**	0.4	0.6	0.4
PCB 118	152	151	140	144	132	131	148	4.5	136	7.2	135	11	**132**	**60**	0.4	0.5	0.3
PCB 153	109.0	100.0	103.0	92.3	89.0	93.3	104.0	4.4	91.5	2.3	95.1	7.5	**83**	**39**	0.4	0.5	0.3
PCB 105	59.1	56.9	58.3	57.5	51.3	55.6	58.1	1.9	54.8	3.2	51.9	4.6	54.0	24.0	0.5	0.6	0.1
PCB 138/163/164	127	122	123	120	110	111	124	2.1	114	5.5	107	8	**102**	**23**	0.6	1.0	0.1
PCB 187/182	38.5	39.2	37.6	34.4	33.2	30.7	38.4	2.1	32.8	1.9	33.8	2.6	**36**	**16**	0.6	0.8	0.1
PCB 128	21.3	20.7	20.2	19.7	18.0	19.3	20.7	2.7	19.0	0.9	18.4	1.5	18.4	5.5	0.5	0.7	0.2
PCB 180	52.2	50.5	51.3	43.5	46.2	44.9	51.3	1.7	44.9	1.4	48.5	2.4	**46**	**14**	0.2	0.5	0.1
PCB 170/190	20.4	21.2	20.1	17.5	17.0	16.3	20.6	2.8	16.9	0.6	22.5	2.0	**22**	**8**	-0.3	-0.4	0.2
PCB 195	3.33	3.41	3.27	4.02	4.11	4.31	3.34	2.1	4.15	0.1	4.41	0.62	4.58	1.37	-1.0	-0.8	0.1
PCB 206	3.61	3.43	3.21	4.01	4.23	4.44	3.42	5.9	4.23	0.2	4.49	0.58	4.47	1.34	-1.0	-0.9	0.4
PCB 209	3.75	3.56	3.82	3.73	3.45	3.12	3.71	3.6	3.43	0.3	5.01	0.76	4.48	2.01	-1.0	-0.8	0.2

Laboratory: 1a
PCBs in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	94
Qualitative	1	6
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 1b**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 4/24/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	4/7/95 Sample 1	4/8/95 Sample 2	4/9/95 Sample 3	4/7/95 Sample 1	4/8/95 Sample 2	4/9/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	4.99	5.06	5.34	4.99	4.98	4.76	5.13	3.6	4.91	2.6	<6		3.50	3.50			0.2
hexachlorobenzene	4.23	4.37	4.44	3.16	3.36	3.44	4.35	2.5	3.32	4.3	4.16	0.42	3.30	0.99	0.2	0.2	0.2
gamma-HCH	<3	<3	<3	<3	<3	<3	<3		<3		1.55	0.51	1.33	0.40			
heptachlor	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.28	0.68			
aldrin	<3	<3	<3	<3	<3	<3	<3		<3		<4		1.42	0.43			
heptachlor epoxide	3.33	3.19	3.11	3.49	3.33	3.23	3.21	3.5	3.35	3.9	<4		3.23	3.50			0.2
oxychlordane	2.34	2.51	2.33	2.51	2.25	2.45	2.39	4.2	2.40	5.7	<5		2.36	1.42			0.3
trans-chlordane	4.15	4.33	4.25	7.88	8.08	7.67	4.24	2.1	7.88	2.6	4.59	0.63	6.53	3.92	-0.3	-0.4	0.1
2,4'-DDE	3.22	3.15	3.26	3.02	2.34	2.67	3.21	1.7	2.68	12.7	2.84	1.07	2.48	0.74	0.5	0.3	0.1
endosulfan I	<3	<3	<3	<3	<3	<3	<3		<3		<5		2.50	2.50			
cis-chlordane	7.05	7.17	7.11	10.50	10.80	10.00	7.11	0.8	10.43	3.9	7.73	0.88	10.17	4.07	-0.3	-0.4	0.1
trans-nonachlor	11.0	10.4	10.3	11.4	11.0	12.3	10.6	3.6	11.6	5.8	10.6	1.9	11.5	4.6	0.0	0.0	0.2
dieldrin	8.12	8.33	8.09	4.31	4.67	4.33	8.18	1.6	4.44	4.6	7.65	1.42	6.07	2.43	0.3	0.2	0.1
4,4'-DDE	162	168	154	130	129	122	161	4.4	127	3.4	157	16	137	41	0.1	0.1	0.3
2,4'-DDD	22.1	22.9	21.5	21.2	20.7	21.4	22.2	3.2	21.1	1.7	22.3	1.7	25.3	10.1	0.0	-0.1	0.2
endrin	<5	<5	<5	<5	<5	<5	<5		<5		<5		<5				
endosulfan II	<3	<4	<3	<4	<4	<3	<3		<3		<5		2.50	2.50			
4,4'-DDD	97.8	95.8	96.2	74.5	77.0	73.6	96.6	1.1	75.0	2.3	81.6	10.8	74.3	22.3	0.7	0.7	0.1
2,4'-DDT	7.85	8.07	7.93	6.67	6.18	6.87	7.95	1.4	6.57	5.4	7.03	1.98	6.28	1.88	0.5	0.4	0.1
cis-nonachlor	4.89	4.90	4.82	6.61	6.34	6.44	4.87	0.9	6.46	2.1	5.19	0.66	5.98	2.39	-0.2	-0.3	0.1
4,4'-DDT	4.03	4.18	4.21	7.95	7.77	7.83	4.14	2.3	7.85	1.2	5.74	2.97	10.42	6.25	-1.1	-0.7	0.2
mirex	<2	<2	<2	<2	<2	<2	<2		<2		<5		2.50	2.50			

Laboratory: 1b
Pesticides in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	15	68
Qualitative	7	32
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant)

Laboratory No.: 1b
Reporting Date: 4/24/95

PCBs	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	4/7/95 Sample 1	4/8/95 Sample 2	4/9/95 Sample 3	4/7/95 Sample 1	4/8/95 Sample 2	4/9/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	<5	<5	<5	<5	<5	<5	<5		<5		5.57	0.55	3.00	3.00			
PCB 18	28.9	27.9	28.1	23.5	22.9	24.1	28.3	1.9	23.5	2.6	28.9	2.3	22.5	6.8	-0.1	-0.1	0.1
PCB 28	35.7	33.6	31.5	23.3	23.7	24.1	33.6	6.2	23.7	1.7	35.2	3.5	27.0	9.4	-0.2	-0.2	0.4
PCB 52	131	137	138	133	127	130	135	2.8	130	2.3	135	11	**124**	**32**	0.0	0.0	0.2
PCB 44	82.6	81.9	81.0	74.7	72.1	70.6	81.8	1.0	72.5	2.9	85.6	5.5	69.3	20.8	-0.2	-0.3	0.1
PCB 66/95	187	190	186	178	171	172	188	1.1	174	2.1	166	18	157	47	0.5	0.6	0.1
PCB 101/90	101 resolved from 90: see note						resolv see note		resolv see note		129	9	**124**	**37**			
PCB 118	141	144	149	159	152	151	145	2.8	154	2.8	135	11	**132**	**60**	0.3	0.4	0.2
PCB 153	121.0	123.0	118.0	88.1	90.5	90.3	120.7	2.1	89.6	1.5	95.1	7.5	**83**	**39**	1.1	1.5	0.1
PCB 105	59.0	57.3	58.5	48.4	47.2	49.0	58.3	1.5	48.2	1.9	51.9	4.6	54.0	24.0	0.5	0.6	0.1
PCB 138/163/164	135	131	137	116	121	115	134	2.3	117	2.7	107	8	**102**	**23**	1.0	1.6	0.2
PCB 187/182	40.8	41.9	42.3	37.2	34.6	34.1	41.7	1.9	35.3	4.7	33.8	2.6	**36**	**16**	0.9	1.4	0.1
PCB 128	20.7	21.3	20.1	16.9	16.6	15.9	20.7	2.9	16.5	3.1	18.4	1.5	18.4	5.5	0.5	0.7	0.2
PCB 180	54.8	52.1	52.7	49.1	47.3	46.6	53.2	2.7	47.7	2.7	48.5	2.4	**46**	**14**	0.4	0.9	0.2
PCB 170/190	21.8	22.5	21.2	19.2	18.6	18.5	21.8	3.0	18.8	2.0	22.5	2.0	**22**	**8**	-0.1	-0.1	0.2
PCB 195	3.11	3.45	3.36	4.32	4.44	3.99	3.31	5.3	4.25	5.5	4.41	0.62	4.58	1.37	-1.0	-0.9	0.4
PCB 206	3.34	3.31	3.10	3.76	3.68	3.55	3.25	4.0	3.66	2.9	4.49	0.58	4.47	1.34	-1.1	-1.0	0.3
PCB 209	3.99	3.67	3.78	3.34	3.25	3.11	3.81	4.3	3.23	3.6	5.01	0.76	4.48	2.01	-1.0	-0.8	0.3

Laboratory: 1b
PCBs in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	16	89
Qualitative	2	11
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 1c**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 4/24/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	4/5/95 Sample 1	4/6/95 Sample 2	4/7/95 Sample 3	4/5/95 Sample 1	4/6/95 Sample 2	4/7/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	ion interf	ion interf	ion interf	ion interf	ion interf	ion interf	ion interf		ion interf		<6		3.50	3.50			
hexachlorobenzene	4.12	4.33	4.27	2.98	3.22	3.41	4.24	2.6	3.20	6.7	4.16	0.42	3.30	0.99	0.1	0.1	0.2
gamma-HCH	ion interf	ion interf	ion interf	ion interf	ion interf	ion interf	ion interf		ion interf		1.55	0.51	1.33	0.40			
heptachlor	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.28	0.68			
aldrin	<3	<3	<3	<3	<3	<3	<3		<3		<4		1.42	0.43			
heptachlor epoxide	3.11	2.98	2.99	2.99	3.23	3.33	3.03	2.4	3.18	5.5	<4		3.23	3.50			0.2
oxychlordane	<4	<4	<4	<4	<4	<4	<4		<4		<5		2.36	1.42			
trans-chlordane	4.16	4.03	4.20	7.75	7.83	7.45	4.13	2.2	7.68	2.6	4.59	0.63	6.53	3.92	-0.4	-0.5	0.1
2,4'-DDE	3.33	3.27	3.21	<4	<4	<4	3.27	1.8	<4		2.84	1.07	2.48	0.74	0.6	0.3	0.1
endosulfan I	<3	<3	<3	<3	<3	<3	<3				<5		2.50	2.50			
cis-chlordane	6.99	7.31	7.04	11.70	11.30	10.40	7.11	2.4	11.13	6.0	7.73	0.88	10.17	4.07	-0.3	-0.4	0.2
trans-nonachlor	10.7	11.6	10.2	12.8	12.4	12.2	10.8	6.5	12.5	2.5	10.6	1.9	11.5	4.6	0.1	0.1	0.4
dieldrin	ion interf	ion interf	ion interf	ion interf	ion interf	ion interf	ion interf		ion interf		7.65	1.42	6.07	2.43			
4,4'-DDE	154	155	141	129	124	122	150	5.2	125	2.9	157	16	137	41	-0.2	-0.2	0.3
2,4'-DDD	20.6	21.7	20.1	19.7	20.3	20.3	20.8	3.9	20.1	1.7	22.3	1.7	25.3	10.1	-0.3	-0.6	0.3
endrin	<5	<5	<5	<5	<5	<5	<5		<5		<5		<5				
endosulfan II	<3	<4	<3	<4	<4	<3	<3		<3		<5		2.50	2.50			
4,4'-DDD	93.5	91.5	94.2	75.5	76.1	73.6	93.1	1.5	75.1	1.7	81.6	10.8	74.3	22.3	0.6	0.6	0.1
2,4'-DDT	8.34	8.56	8.11	7.09	6.78	7.01	8.34	2.7	6.96	2.3	7.03	1.98	6.28	1.88	0.7	0.6	0.2
cis-nonachlor	4.97	5.17	5.11	7.21	6.89	7.04	5.08	2.0	7.05	2.3	5.19	0.66	5.98	2.39	-0.1	-0.1	0.1
4,4'-DDT	3.99	4.35	4.44	7.58	7.34	7.44	4.26	5.6	7.45	1.6	5.74	2.97	10.42	6.25	-1.0	-0.6	0.4
mirex	<2	<2	<2	<2	<2	<2	<2		<2		<5		2.50	2.50			

Laboratory: 1c
Pesticides in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	12	55
Qualitative	7	32
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	11	11	12
2 to 3	0	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant)

Laboratory No.: 1c
Reporting Date: 4/24/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	4/5/95 Sample 1	4/6/95 Sample 2	4/7/95 Sample 3	4/5/95 Sample 1	4/6/95 Sample 2	4/7/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	4.33	4.12	3.98	3.78	3.99	4.01	4.14	4.3	3.93	3.2	5.57	0.55	3.00	3.00	-1.0	-1.3	0.3
PCB 18	31.7	30.5	30.1	24.1	23.9	23.9	30.8	2.7	24.0	0.5	28.9	2.3	22.5	6.8	0.3	0.4	0.2
PCB 28	coel			coel			coel		coel		35.2	3.5	27.0	9.4			
PCB 52	139	141	133	136	133	126	138	3.0	132	3.9	135	11	**124**	**32**	0.1	0.1	0.2
PCB 44	77.3	76.9	79.9	60.5	62.5	62.4	78.0	2.1	61.8	1.8	85.6	5.5	69.3	20.8	-0.4	-0.6	0.1
PCB 66/95	198	191	210	190	183	178	200	4.8	184	3.3	166	18	157	47	0.8	0.9	0.3
PCB 101/90	138	143	144	138	133	147	142	2.3	139	5.1	129	9	**124**	**37**	0.4	0.6	0.2
PCB 118	144	143	151	160	166	153	146	3.0	160	4.1	135	11	**132**	**60**	0.3	0.4	0.2
PCB 153	106.0	111.0	101.0	87.7	89.9	89.2	106.0	4.7	88.9	1.3	95.1	7.5	**83**	**39**	0.5	0.7	0.3
PCB 105	54.9	55.7	55.9	60.5	55.5	54.3	55.5	1.0	56.8	5.8	51.9	4.6	54.0	24.0	0.3	0.4	0.1
PCB 138/163/164	119	126	124	111	116	118	123	2.9	115	3.1	107	8	**102**	**23**	0.6	0.9	0.2
PCB 187/182	38.9	39.0	35.2	38.8	37.5	34.4	37.7	5.7	36.9	6.1	33.8	2.6	**36**	**16**	0.5	0.7	0.4
PCB 128	20.9	21.4	21.9	19.5	19.6	18.5	21.4	2.3	19.2	3.2	18.4	1.5	18.4	5.5	0.7	1.0	0.2
PCB 180	55.2	50.9	53.2	60.9	55.3	56.6	53.1	4.1	57.6	5.1	48.5	2.4	**46**	**14**	0.4	0.9	0.3
PCB 170/190	20.9	22.1	22.6	17.0	20.5	20.6	21.9	4.0	19.4	10.6	22.5	2.0	**22**	**8**	-0.1	-0.1	0.3
PCB 195	<4	<4	<4	<5	<5	<5	<5		<5		4.41	0.62	4.58	1.37			
PCB 206	3.33	3.75	3.45	3.44	3.66	3.52	3.51	6.2	3.54	3.1	4.49	0.58	4.47	1.34	-0.9	-0.8	0.4
PCB 209	3.44	3.55	3.49	2.70	3.05	2.98	3.49	1.6	2.91	6.4	5.01	0.76	4.48	2.01	-1.2	-1.0	0.1

Laboratory: 1c
PCBs in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	16	89
Qualitative	1	6
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

C-1

FY95 NIST Intercomparison Exercise **Laboratory No.: 2**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 4/18/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	4/3/95 Sample 1	4/4/95 Sample 2	4/4/95 Sample 3	4/4/95 Sample 1	4/4/95 Sample 2	4/5/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	0.87	1.25	1.10	1.15	1.74	1.40	1.07	17.8	1.43	20.7	<6		3.50	3.50			1.2
hexachlorobenzene	3.74	4.50	4.95	3.06	3.98	3.58	4.40	13.9	3.54	13.0	4.16	0.42	3.30	0.99	0.2	0.3	0.9
gamma-HCH	1.25	1.39	1.48	0.60	0.73	0.62	1.37	8.4	0.65	10.8	1.55	0.51	1.33	0.40	-0.5	-0.3	0.6
heptachlor	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08		<0.08		<5		2.28	0.68			
aldrin	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		<0.07		<4		1.42	0.43			
heptachlor epoxide	12.16	13.05	12.76	11.12	12.24	10.95	12.66	3.6	11.44	6.1	<4		3.23	3.50			0.2
oxychlordane	5.96	6.50	6.26	5.52	6.37	5.79	6.24	4.3	5.89	7.4	<5		2.36	1.42			0.3
trans-chlordane	4.09	4.69	4.53	4.28	4.92	4.04	4.44	7.0	4.41	10.3	4.59	0.63	6.53	3.92	-0.1	-0.2	0.5
2,4'-DDE	2.79	2.48	3.09	2.26	3.33	2.33	2.79	10.9	2.64	22.7	2.84	1.07	2.48	0.74	-0.1	0.0	0.7
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
cis-chlordane	5.95	6.44	6.26	5.94	6.84	5.77	6.22	4.0	6.18	9.3	7.73	0.88	10.17	4.07	-0.8	-1.0	0.3
trans-nonachlor	7.8	8.5	7.9	6.8	7.5	6.7	8.1	4.3	7.0	6.4	10.6	1.9	11.5	4.6	-1.0	-0.7	0.3
dieldrin	5.29	6.07	6.68	4.06	4.85	5.12	6.01	11.6	4.68	11.8	7.65	1.42	6.07	2.43	-0.9	-0.7	0.8
4,4'-DDE	111	119	115	128	126	117	115	3.5	124	5.0	157	16	137	41	-1.1	-1.3	0.2
2,4'-DDD	8.7	9.6	9.2	8.3	9.7	8.0	9.2	4.9	8.7	10.9	22.3	1.7	25.3	10.1	-2.4	**-4.9**	0.3
endrin	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15		<0.15		<5		<5				
endosulfan II	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14		<0.14		<5		2.50	2.50			
4,4'-DDD	56.9	62.9	59.5	61.9	60.1	54.6	59.8	5.0	58.8	6.5	81.6	10.8	74.3	22.3	-1.1	-1.1	0.3
2,4'-DDT	3.31	3.69	3.48	4.21	3.29	3.28	3.49	5.4	3.59	14.9	7.03	1.98	6.28	1.88	-2.0	-1.5	0.4
cis-nonachlor	4.64	5.02	4.85	5.07	4.34	4.07	4.84	3.9	4.49	11.5	5.19	0.66	5.98	2.39	-0.3	-0.4	0.3
4,4'-DDT	0.59	0.65	0.69	0.77	0.61	0.51	0.64	7.8	0.63	20.8	5.74	2.97	10.42	6.25	**-3.6**	-2.1	0.5
mirex	0.33	0.36	0.30	0.49	0.36	0.39	0.33	9.1	0.41	16.5	<5		2.50	2.50			0.6

Laboratory: 2

Pesticides in FISH III

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: ?

Reported Results	No. of Analytes	%
Quantitative	17	77
Qualitative	4	18
Not Determined	1	5

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	10	11	17
2 to 3	2	1	0
≥ 3	1	1	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant)

Laboratory No.: 2
Reporting Date: 4/18/95

PCBs	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	4/3/95 Sample 1	4/4/95 Sample 2	4/4/95 Sample 3	4/4/95 Sample 1	4/4/95 Sample 2	4/5/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	4.80	5.67	6.71	1.00	1.75	1.36	5.73	16.7	1.37	27.4	5.57	0.55	3.00	3.00	0.1	0.1	1.1
PCB 18	27.5	31.3	33.3	20.3	23.2	21.5	30.7	9.6	21.6	6.7	28.9	2.3	22.5	6.8	0.3	0.4	0.6
PCB 28	33.8	39.7	41.3	28.3	32.8	28.8	38.3	10.2	30.0	8.3	35.2	3.5	27.0	9.4	0.3	0.4	0.7
PCB 52	128	143	143	128	138	129	138	6.0	131	4.5	135	11	**124**	**32**	0.1	0.1	0.4
PCB 44	83.0	89.8	90.6	81.5	87.9	80.0	87.8	4.7	83.1	5.0	85.6	5.5	69.3	20.8	0.1	0.2	0.3
PCB 66/95	134	147	153	138	146	140	145	6.5	141	3.0	166	18	157	47	-0.5	-0.6	0.4
PCB 101/90	102	109	107	121	118	111	106	3.3	117	4.3	129	9	**124**	**37**	-0.7	-1.1	0.2
PCB 118	92	101	96	108	99	97	96	4.9	101	6.2	135	11	**132**	**60**	-1.1	-1.6	0.3
PCB 153	89.6	102.4	96.7	109.5	93.2	88.6	96.2	6.7	97.1	11.3	95.1	7.5	**83**	**39**	0.0	0.1	0.4
PCB 105	33.2	35.0	34.3	36.6	34.4	33.0	34.2	2.7	34.7	5.2	51.9	4.6	54.0	24.0	-1.4	-1.8	0.2
PCB 138/163/164	72	79	75	82	74	71	75	5.1	75	7.7	107	8	**102**	**23**	-1.2	-1.9	0.3
PCB 187/182	24.5	26.9	24.2	29.8	24.9	24.5	25.2	5.9	26.4	11.1	33.8	2.6	**36**	**16**	-1.0	-1.5	0.4
PCB 128	12.0	13.6	12.5	13.9	12.4	11.7	12.7	6.4	12.7	8.7	18.4	1.5	18.4	5.5	-1.2	-1.8	0.4
PCB 180	31.8	36.4	34.1	35.7	33.4	31.2	34.1	6.8	33.4	6.8	48.5	2.4	**46**	**14**	-1.2	-2.7	0.5
PCB 170/190	20.3	15.9	21.3	19.4	19.0	17.8	19.2	15.0	18.7	4.4	22.5	2.0	**22**	**8**	-0.6	-0.7	1.0
PCB 195	5.72	6.29	6.30	5.99	6.10	5.69	6.10	5.4	5.93	3.6	4.41	0.62	4.58	1.37	1.5	1.3	0.4
PCB 206	3.66	4.78	4.03	3.72	4.39	4.24	4.16	13.7	4.12	8.5	4.49	0.58	4.47	1.34	-0.3	-0.3	0.9
PCB 209	4.56	4.80	4.52	4.60	4.14	4.10	4.63	3.3	4.28	6.5	5.01	0.76	4.48	2.01	-0.3	-0.2	0.2

Laboratory: 2
PCBs in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: ?

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	18	17	18
2 to 3	0	1	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 3**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 09/15/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	07/10 Sample 1	08/10 Sample 2	09/10 Sample 3	07/10 Sample 1	08/10 Sample 2	09/10 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<10	<10	<10	<10	<10	<10	<10		<10		<6		3.50	3.50			
hexachlorobenzene	5.54	5.88	5.90	3.99	2.90	5.05	5.77	3.5	3.98	27.0	4.16	0.42	3.30	0.99	1.6	2.0	0.2
gamma-HCH	<10	<10	<10	<10	<10	<10	<10		<10		1.55	0.51	1.33	0.40			
heptachlor	1.61	2.73	1.53	1.02	2.22	1.45	1.96	34.3	1.56	38.9	<5		2.28	0.68			2.3
aldrin	<10	<10	<10	<10	<10	<10	<10		<10		<4		1.42	0.43			
heptachlor epoxide	<10	<10	<10	<10	<10	<10	<10		<10		<4		3.23	3.50			
oxychlordane	<10	<10	<10	<10	<10	<10	<10		<10		<5		2.36	1.42			
trans-chlordane	4.31	3.81	1.94	1.86	2.06	2.63	3.35	37.3	2.18	18.3	4.59	0.63	6.53	3.92	-1.1	-1.3	2.5
2,4'-DDE	1.45	1.22	0.80	1.88	3.98	3.09	1.16	28.5	2.98	35.3	2.84	1.07	2.48	0.74	-2.4	-1.3	1.9
endosulfan I	<10	<10	<10	<10	<10	<10	<10		<10		<5		2.50	2.50			
cis-chlordane	3.55	4.15	3.46	4.20	2.06	3.07	3.72	10.1	3.11	34.4	7.73	0.88	10.17	4.07	-2.1	-2.6	0.7
trans-nonachlor	4.2	5.1	3.5	5.9	5.8	7.1	4.3	18.9	6.3	12.0	10.6	1.9	11.5	4.6	-2.4	-1.8	1.3
dieldrin	4.81	5.22	8.00	14.20	14.90	10.80	6.01	28.9	13.30	16.5	7.65	1.42	6.07	2.43	-0.9	-0.7	1.9
4,4'-DDE	116	129	117	159	133	155	121	6.0	149	9.4	157	16	137	41	-0.9	-1.2	0.4
2,4'-DDD	27.8	14.1	13.9	21.8	23.7	22.7	18.6	42.8	22.7	4.2	22.3	1.7	25.3	10.1	-0.7	-1.4	2.9
endrin	16.80	16.70	19.60	19.70	21.50	21.80	17.70	9.3	21.00	5.4	<5		<5				0.6
endosulfan II	<10	<10	<10	<10	<10	<10	<10		<10		<5		2.50	2.50			
4,4'-DDD	116.0	84.9	100.0	77.0	60.8	62.0	100.3	15.5	66.6	13.6	81.6	10.8	74.3	22.3	0.9	0.9	1.0
2,4'-DDT	4.37	3.91	5.74	2.40	15.00	4.55	4.67	20.4	7.32	92.1	7.03	1.98	6.28	1.88	-1.3	-1.0	1.4
cis-nonachlor	4.46	2.77	3.76	2.71	2.15	2.91	3.66	23.2	2.59	15.2	5.19	0.66	5.98	2.39	-1.2	-1.7	1.5
4,4'-DDT	5.43	6.40	6.95	14.44	15.02	8.37	6.26	12.3	12.61	29.2	5.74	2.97	10.42	6.25	0.4	0.2	0.8
mirex	<10	<10	<10	<10	<10	<10	<10		<10		<5		2.50	2.50			

Laboratory: 3

Pesticides in FISH III

Quantitation mode: internal standards (added just prior to GC)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	14	64
Qualitative	8	36
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 3
Reporting Date: 09/15/95

PCBs

Analysis date	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
	07/10 Sample 1	08/10 Sample 2	09/10 Sample 3	07/10 Sample 1	08/10 Sample 2	09/10 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	6.52	7.00	6.26	2.01	1.85	2.30	6.59	5.7	2.05	11.1	5.57	0.55	3.00	3.00	0.7	1.0	0.4
PCB 18	31.2	39.6	37.2	28.7	29.0	28.9	36.0	12.0	28.9	0.5	28.9	2.3	22.5	6.8	1.0	1.5	0.8
PCB 28	63.0	67.2	64.0	52.0	50.6	51.1	64.7	3.4	51.2	1.4	35.2	3.5	27.0	9.4	**3.4**	**4.1**	0.2
PCB 52	138	155	144	143	142	139	146	5.9	141	1.5	135	11	**124**	**32**	0.3	0.5	0.4
PCB 44	94.8	102.0	99.2	98.1	92.3	96.7	98.7	3.7	95.7	3.2	85.6	5.5	69.3	20.8	0.6	1.1	0.2
PCB 66/95	140	156	145	187	183	185	147	5.6	185	1.1	166	18	157	47	-0.5	-0.5	0.4
PCB 101/90	119	130	135	159	143	134	128	6.4	145	8.7	129	9	**124**	**37**	0.0	0.0	0.4
PCB 118	156	169	173	168	170	170	166	5.4	169	0.7	135	11	**132**	**60**	0.9	1.3	0.4
PCB 153	83.8	86.6	83.0	85.7	84.2	78.3	84.5	2.2	82.7	4.7	95.1	7.5	**83**	**39**	-0.4	-0.6	0.1
PCB 105	44.6	47.4	43.4	32.3	38.9	33.7	45.1	4.5	35.0	9.9	51.9	4.6	54.0	24.0	-0.5	-0.7	0.3
PCB 138/163/164	97	103	107	118	114	111	102	5.1	114	3.1	107	8	**102**	**23**	-0.2	-0.3	0.3
PCB 187/182	25.8	28.0	28.3	29.3	29.5	28.3	27.4	5.0	29.0	2.2	33.8	2.6	**36**	**16**	-0.8	-1.1	0.3
PCB 128	11.1	14.1	16.2	20.8	9.9	24.9	13.8	18.6	18.5	41.8	18.4	1.5	18.4	5.5	-1.0	-1.4	1.2
PCB 180	42.8	46.3	45.0	44.8	44.1	42.6	44.7	4.0	43.8	2.6	48.5	2.4	**46**	**14**	-0.3	-0.7	0.3
PCB 170/190	21.1	22.4	22.4	19.8	20.2	19.6	22.0	3.4	19.9	1.5	22.5	2.0	**22**	**8**	-0.1	-0.1	0.2
PCB 195	11.10	11.90	13.60	10.90	10.30	10.00	12.20	10.5	10.40	4.4	4.41	0.62	4.58	1.37	**7.1**	**6.0**	0.7
PCB 206	5.00	4.89	5.48	4.48	4.78	4.91	5.12	6.1	4.72	4.7	4.49	0.58	4.47	1.34	0.6	0.5	0.4
PCB 209	5.00	5.05	5.68	3.98	4.31	4.40	5.24	7.2	4.23	5.2	5.01	0.76	4.48	2.01	0.2	0.1	0.5

Laboratory: 3
PCBs in FISH III
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	16	16	18
2 to 3	0	0	0
≥ 3	2	2	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 4**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/25/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/18/95 Sample 1	8/18/95 Sample 2	8/18/95 Sample 3	9/13/95 Sample 1	9/13/95 Sample 2	Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	1.57	1.49	1.79	<5	<5		1.62	9.6	<5		<6		3.50	3.50			0.6
hexachlorobenzene	5.85	6.40	4.88	4.01	4.28		5.71	13.5	4.15	4.6	4.16	0.42	3.30	0.99	1.5	1.9	0.9
gamma-HCH	2.69	1.96	2.81	<5	<5		2.49	18.5	<5		1.55	0.51	1.33	0.40	2.4	1.5	1.2
heptachlor	<5	<5	<5	<5	<5		<5		<5		<5		2.28	0.68			
aldrin	<5	<5	<5	<5	<5		<5		<5		<4		1.42	0.43			
heptachlor epoxide	<5	<5	<5	2.11	2.79		<5		2.45	19.6	<4		3.23	3.50			
oxychlordane	<5	<5	<5	<5	<5		<5		<5		<5		2.36	1.42			
trans-chlordane	4.58	4.28	3.10	<5	<5		3.99	19.6	<5		4.59	0.63	6.53	3.92	-0.5	-0.6	1.3
2,4'-DDE	24.00	25.00	21.00	<5	<5		23.33	8.9	<5		2.84	1.07	2.48	0.74	**28.8**	**16.0**	0.6
endosulfan I	<5	<5	<5	<5	<5		<5		<5		<5		2.50	2.50			
cis-chlordane	7.24	10.10	8.21	12.75	8.00		8.52	17.1	10.38	32.4	7.73	0.88	10.17	4.07	0.4	0.5	1.1
trans-nonachlor	17.9	20.1	16.9	12.0	11.2		18.3	8.9	11.6	4.9	10.6	1.9	11.5	4.6	2.9	2.2	0.6
dieldrin	16.40	14.90	11.60	9.23	6.40		14.30	17.2	7.82	25.6	7.65	1.42	6.07	2.43	**3.5**	3.0	1.1
4,4'-DDE	162	170	146	120	116		159	7.7	118	2.4	157	16	137	41	0.1	0.1	0.5
2,4'-DDD	19.4	21.0	17.3	26.0	24.4		19.2	9.6	25.2	4.5	22.3	1.7	25.3	10.1	-0.6	-1.1	0.6
endrin	28.10	26.00	20.80	<5	<5		24.97	15.1	<5		<5		<5				1.0
endosulfan II	<5	<5	<5	<5	<5		<5		<5		<5		2.50	2.50			
4,4'-DDD	110.0	105.0	85.0	60.0	50.0		100.0	13.2	55.0	12.9	81.6	10.8	74.3	22.3	0.9	0.9	0.9
2,4'-DDT	28.10	26.00	20.80	9.33	4.27		24.97	15.1	6.80	52.6	7.03	1.98	6.28	1.88	**10.2**	**7.6**	1.0
cis-nonachlor	7.61	6.00	5.40	<5	<5		6.34	18.0	<5		5.19	0.66	5.98	2.39	0.9	1.3	1.2
4,4'-DDT	<5	<5	<5	5.40	7.93		<5		6.67	26.8	5.74	2.97	10.42	6.25			
mirex	<5	<5	<5	<5	<5		<5		<5		<5		2.50	2.50			

Laboratory: 4
Pesticides in FISH III
Quantitation mode: external standards
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	14	64
Qualitative	8	36
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	7	8	14
2 to 3	2	2	0
≥ 3	3	2	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 4
Reporting Date: 9/25/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/18/95 Sample 1	8/18/95 Sample 2	8/18/95 Sample 3	9/13/95 Sample 1	9/13/95 Sample 2	Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	6.52	8.04	5.41	2.91	2.81		6.66	19.8	2.86	2.5	5.57	0.55	3.00	3.00	0.8	1.0	1.3
PCB 18	28.2	29.8	23.8	20.3	19.8		27.3	11.4	20.1	1.8	28.9	2.3	22.5	6.8	-0.2	-0.3	0.8
PCB 28	36.4	38.4	32.8	28.7	27.8		35.9	7.9	28.3	2.3	35.2	3.5	27.0	9.4	0.1	0.1	0.5
PCB 52	113	119	101	95	93		111	8.3	94	1.5	135	11	**124**	**32**	-0.7	-1.0	0.6
PCB 44	76.0	81.7	69.0	64.5	63.1		75.6	8.4	63.8	1.6	85.6	5.5	69.3	20.8	-0.5	-0.9	0.6
PCB 66/95	142	152	131	127	124		142	7.4	126	1.7	166	18	157	47	-0.6	-0.7	0.5
PCB 101/90	108	115	99	97	95		107	7.4	96	1.5	129	9	**124**	**37**	-0.7	-1.1	0.5
PCB 118	108	115	102	104	103		108	6.0	104	0.7	135	11	**132**	**60**	-0.8	-1.1	0.4
PCB 153	78.6	83.0	73.4	72.4	72.0		78.3	6.1	72.2	0.4	95.1	7.5	**83**	**39**	-0.7	-1.0	0.4
PCB 105	60.0	65.0	57.2	53.0	53.0		60.7	6.5	53.0	0.0	51.9	4.6	54.0	24.0	0.7	0.9	0.4
PCB 138/163/164	89	94	83	82	81		89	6.2	82	1.1	107	8	**102**	**23**	-0.7	-1.1	0.4
PCB 187/182	35.5	37.0	33.0	35.0	33.8		35.2	5.7	34.4	2.5	33.8	2.6	**36**	**16**	0.2	0.3	0.4
PCB 128	20.2	21.7	19.2	18.2	17.9		20.4	6.2	18.1	1.2	18.4	1.5	18.4	5.5	0.4	0.6	0.4
PCB 180	43.0	45.0	41.0	42.0	41.6		43.0	4.7	41.8	0.7	48.5	2.4	**46**	**14**	-0.5	-1.0	0.3
PCB 170/190	25.1	26.5	24.0	23.4	23.4		25.2	5.0	23.4	0.0	22.5	2.0	**22**	**8**	0.5	0.6	0.3
PCB 195	9.00	9.13	8.20	8.80	8.80		8.78	5.7	8.80	0.0	4.41	0.62	4.58	1.37	**4.0**	**3.4**	0.4
PCB 206	6.30	6.32	5.84	6.60	6.89		6.15	4.4	6.75	3.0	4.49	0.58	4.47	1.34	1.5	1.3	0.3
PCB 209	8.10	8.07	7.59	8.60	8.80		7.92	3.6	8.70	1.6	5.01	0.76	4.48	2.01	2.3	1.8	0.2

Laboratory: 4
PCBs in FISH III
Quantitation mode: external standards
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	16	17	18
2 to 3	1	0	0
≥ 3	1	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 6**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/28/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/18/95 Sample 1	9/18/95 Sample 2	9/27/95 Sample 3	8/18/95 Sample 1	9/18/95 Sample 2	9/27/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<5	<5	<5	<5	<5	<5	<5		<5		<6		3.50	3.50			
hexachlorobenzene	5.20	3.30	4.20	4.10	1.00	2.90	4.23	22.5	2.67	58.6	4.16	0.42	3.30	0.99	0.1	0.1	1.5
gamma-HCH	<5	<5	<5	<5	<5	<5	<5		<5		1.55	0.51	1.33	0.40			
heptachlor	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.28	0.68			
aldrin	<5	<5	<5	<5	<5	<5	<5		<5		<4		1.42	0.43			
heptachlor epoxide	<5	<5	<5	<5	<5	<5	<5		<5		<4		3.23	3.50			
oxychlordane	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.36	1.42			
trans-chlordane	5.80	4.40	4.50	3.00	2.50	3.50	4.90	15.9	3.00	16.7	4.59	0.63	6.53	3.92	0.3	0.3	1.1
2,4'-DDE	<5	<5	<5	<5	<5	<5	<5		<5		2.84	1.07	2.48	0.74			
endosulfan I	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.50	2.50			
cis-chlordane	8.10	7.10	9.20	5.80	3.90	9.00	8.13	12.9	6.23	41.3	7.73	0.88	10.17	4.07	0.2	0.3	0.9
trans-nonachlor	10.0	8.0	7.4	7.0	5.1	8.2	8.5	16.1	6.8	23.1	10.6	1.9	11.5	4.6	-0.8	-0.6	1.1
dieldrin	7.50	5.10	6.60	4.70	3.30	4.60	6.40	18.9	4.20	18.6	7.65	1.42	6.07	2.43	-0.7	-0.6	1.3
4,4'-DDE	260	210	250	210	150	230	240	11.0	197	21.2	157	16	137	41	2.1	2.7	0.7
2,4'-DDD	27.0	17.0	19.0	21.0	12.0	18.0	21.0	25.2	17.0	27.0	22.3	1.7	25.3	10.1	-0.2	-0.5	1.7
endrin	<5	<5	<5	<5	<5	<5	<5		<5		<5		<5				
endosulfan II	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.50	2.50			
4,4'-DDD	88.0	67.0	98.0	94.0	71.0	89.0	84.3	18.8	84.7	14.3	81.6	10.8	74.3	22.3	0.1	0.1	1.3
2,4'-DDT	<5	<5	<5	<5	<5	<5	<5		<5		7.03	1.98	6.28	1.88			
cis-nonachlor	6.00	3.70	4.50	4.20	2.80	5.00	4.73	24.7	4.00	27.8	5.19	0.66	5.98	2.39	-0.4	-0.5	1.6
4,4'-DDT	<5	<5	<5	<5	<5	<5	<5		<5		5.74	2.97	10.42	6.25			
mirex	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.50	2.50			

Laboratory: 6
Pesticides in FISH III

Quantitation mode: external standards

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	9	41
Qualitative	13	59
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	8	8	9
2 to 3	1	1	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant)

Laboratory No.: 6
Reporting Date: 9/28/95

PCBs	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/18/95 Sample 1	9/18/95 Sample 2	9/27/95 Sample 3	8/18/95 Sample 1	9/18/95 Sample 2	9/27/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA		NA		5.57	0.55	3.00	3.00			
PCB 18							NA		NA		28.9	2.3	22.5	6.8			
PCB 28							NA		NA		35.2	3.5	27.0	9.4			
PCB 52							NA		NA		135	11	**124**	**32**			
PCB 44							NA		NA		85.6	5.5	69.3	20.8			
PCB 66/95							NA		NA		166	18	157	47			
PCB 101/90							NA		NA		129	9	**124**	**37**			
PCB 118							NA		NA		135	11	**132**	**60**			
PCB 153							NA		NA		95.1	7.5	**83**	**39**			
PCB 105							NA		NA		51.9	4.6	54.0	24.0			
PCB 138/163/164							NA		NA		107	8	**102**	**23**			
PCB 187/182							NA		NA		33.8	2.6	**36**	**16**			
PCB 128							NA		NA		18.4	1.5	18.4	5.5			
PCB 180							NA		NA		48.5	2.4	**46**	**14**			
PCB 170/190							NA		NA		22.5	2.0	**22**	**8**			
PCB 195							NA		NA		4.41	0.62	4.58	1.37			
PCB 206							NA		NA		4.49	0.58	4.47	1.34			
PCB 209							NA		NA		5.01	0.76	4.48	2.01			

Laboratory: 6
PCBs in FISH III
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	18	100

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 7**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/29/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/20/95 Sample 1	9/21/95 Sample 2	9/22/95 Sample 3	9/20/95 Sample 1	9/21/95 Sample 2	9/22/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<1	<1	<1	<1	<1	<1	<1		<1		<6		3.50	3.50			
hexachlorobenzene	3.20	3.65	4.62	2.37	<1	3.65	3.82	15.5	3.01	21.3	4.16	0.42	3.30	0.99	-0.3	-0.4	1.0
gamma-HCH	<1	<1	<1	<1	<1	<1	<1		<1		1.55	0.51	1.33	0.40			
heptachlor	3.04	<1	<1	<1	<1	<1	<1		<1		<5		2.28	0.68			
aldrin	62.40	66.40	81.80	46.90	69.80	58.90	70.20	11.9	58.53	16.0	<4		1.42	0.43			0.8
heptachlor epoxide	23.10	28.80	33.10	20.00	26.90	18.50	28.33	14.5	21.80	16.8	<4		3.23	3.50			1.0
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.36	1.42			
trans-chlordane	<1	<1	<1	<1	<1	<1	<1		<1		4.59	0.63	6.53	3.92			
2,4'-DDE	33.60	40.60	219.00	<1	<1	<1	97.73	87.8	<1		2.84	1.07	2.48	0.74	**133.6**	**74.0**	**5.9**
endosulfan I	<1	<1	<1	<1	<1	<1	<1		<1		<5		2.50	2.50			
cis-chlordane	14.50	13.90	17.80	12.10	17.60	15.50	15.40	11.1	15.07	15.0	7.73	0.88	10.17	4.07	**4.0**	**5.0**	0.7
trans-nonachlor	21.8	22.4	25.3	16.8	21.9	22.7	23.2	6.6	20.5	12.8	10.6	1.9	11.5	4.6	**4.7**	**3.6**	0.4
dieldrin	107.00	108.00	128.00	74.70	105.00	79.40	114.33	8.5	86.37	15.4	7.65	1.42	6.07	2.43	**55.8**	**47.6**	0.6
4,4'-DDE	163	159	181	67	171	90	168	5.7	109	41.1	157	16	137	41	0.3	0.3	0.4
2,4'-DDD	<2	<2	<2	<2	<2	<2	<2		<2		22.3	1.7	25.3	10.1			
endrin	92.70	91.70	95.40	66.60	85.40	70.50	93.27	1.7	74.17	10.9	<5		<5				0.1
endosulfan II	<2	<2	<2	<2	<2	<2	<2		<2		<5		2.50	2.50			
4,4'-DDD	52.4	37.6	41.1	41.6	34.3	35.2	43.7	14.5	37.0	8.8	81.6	10.8	74.3	22.3	-1.9	-1.9	1.0
2,4'-DDT	13.40	16.80	18.50	15.40	11.80	12.60	16.23	13.1	13.27	11.6	7.03	1.98	6.28	1.88	**5.2**	**3.9**	0.9
cis-nonachlor	4.57	4.21	4.47	<1	<1	<1	4.42	3.4	<1		5.19	0.66	5.98	2.39	-0.6	-0.8	0.2
4,4'-DDT	10.60	10.70	13.90	17.30	28.10	11.20	11.73	13.1	18.87	37.0	5.74	2.97	10.42	6.25	**4.2**	2.5	0.9
mirex	<1	<1	<1	<1	<1	<1	<1		<1		<5		2.50	2.50			

Laboratory: 7
Pesticides in FISH III

Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	13	59
Qualitative	8	36
Not Determined	1	5

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	4	4	12
2 to 3	0	1	0
≥ 3	6	5	1

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 7**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/29/95

PCBs	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/20/95 Sample 1	9/21/95 Sample 2	9/22/95 Sample 3	9/20/95 Sample 1	9/21/95 Sample 2	9/22/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	5.96	4.74	5.28	<1	<1	<1	5.33	9.4	<1		5.57	0.55	3.00	3.00	-0.2	-0.2	0.6
PCB 18	24.4	24.7	27.6	19.9	19.2	18.8	25.6	5.6	19.3	2.4	28.9	2.3	22.5	6.8	-0.5	-0.7	0.4
PCB 28	28.8	28.6	32.4	24.1	23.7	23.8	29.9	5.8	23.9	0.7	35.2	3.5	27.0	9.4	-0.6	-0.7	0.4
PCB 52	166	167	191	154	150	151	175	6.6	152	1.1	135	11	**124**	**32**	1.2	1.6	0.4
PCB 44	107.0	108.0	121.0	102.0	97.6	97.7	112.0	5.7	99.1	2.1	85.6	5.5	69.3	20.8	1.2	2.2	0.4
PCB 66/95	224	227	260	222	215	214	237	6.9	217	1.6	166	18	157	47	1.7	1.9	0.5
PCB 101/90	211	214	239	205	199	199	221	5.7	201	1.4	129	9	**124**	**37**	2.9	**4.6**	0.4
PCB 118	165	171	196	226	222	220	177	7.6	223	1.1	135	11	**132**	**60**	1.3	1.7	0.5
PCB 153	91.0	85.4	109.0	88.4	87.0	85.6	95.1	10.6	87.0	1.3	95.1	7.5	**83**	**39**	0.0	0.0	0.7
PCB 105	97.3	102.0	116.0	94.1	93.0	92.2	105.1	7.6	93.1	0.8	51.9	4.6	54.0	24.0	**4.1**	**5.3**	0.5
PCB 138/163/164	117	124	139	117	115	113	127	7.2	115	1.4	107	8	**102**	**23**	0.7	1.2	0.5
PCB 187/182	40.3	46.1	50.7	42.3	43.7	42.8	45.7	9.3	42.9	1.3	33.8	2.6	**36**	**16**	1.4	2.1	0.6
PCB 128	17.0	17.2	20.4	20.1	16.5	15.6	18.2	8.6	17.4	11.2	18.4	1.5	18.4	5.5	0.0	-0.1	0.6
PCB 180	45.2	49.8	55.8	46.4	48.4	44.8	50.3	8.6	46.5	3.2	48.5	2.4	**46**	**14**	0.1	0.3	0.6
PCB 170/190	21.3	22.4	25.9	21.7	21.5	21.1	23.2	8.5	21.4	1.2	22.5	2.0	**22**	**8**	0.1	0.2	0.6
PCB 195	3.91	4.23	5.02	4.21	4.20	4.14	4.39	10.6	4.18	0.7	4.41	0.62	4.58	1.37	0.0	0.0	0.7
PCB 206	8.12	9.29	10.50	9.53	9.24	83.80	9.30	10.4	34.19	102.6	4.49	0.58	4.47	1.34	**4.3**	**3.9**	0.7
PCB 209	NA	NA	6.10	NA	NA	4.75	NA		NA		5.01	0.76	4.48	2.01			

Laboratory: 7
PCBs in FISH III
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	94
Qualitative	0	0
Not Determined	1	6

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	14	12	17
2 to 3	1	2	0
≥ 3	2	3	0

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 8**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/27/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/27/95 Sample 1	9/27/95 Sample 2	9/27/95 Sample 3	9/27/95 Sample 1	9/27/95 Sample 2	9/27/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3		< 4.3		<6		3.50	3.50			
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA		NA		4.16	0.42	3.30	0.99			
gamma-HCH	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3		< 4.3		1.55	0.51	1.33	0.40			
heptachlor	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3		< 4.3		<5		2.28	0.68			
aldrin	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3		< 4.3		<4		1.42	0.43			
heptachlor epoxide	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3		< 4.3		<4		3.23	3.50			
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.36	1.42			
trans-chlordane	7.12	6.21	4.93	4.30	3.90	3.80	6.09	18.1	4.00	6.6	4.59	0.63	6.53	3.92	1.3	1.6	1.2
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA		NA		2.84	1.07	2.48	0.74			
endosulfan I	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3		< 4.3		<5		2.50	2.50			
cis-chlordane	6.71	6.57	6.13	4.70	3.70	4.90	6.47	4.7	4.43	14.5	7.73	0.88	10.17	4.07	-0.7	-0.8	0.3
trans-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		10.6	1.9	11.5	4.6			
dieldrin	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6		< 8.6		7.65	1.42	6.07	2.43			
4,4'-DDE	48	45	51	22	30	16	48	6.9	23	32.2	157	16	137	41	-2.8	**-3.5**	0.5
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA		NA		22.3	1.7	25.3	10.1			
endrin	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6		< 8.6		<5		<5				
endosulfan II	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6		< 8.6		<5		2.50	2.50			
4,4'-DDD	72.2	69.7	66.4	56.5	62.1	57.2	69.4	4.2	58.6	5.2	81.6	10.8	74.3	22.3	-0.6	-0.6	0.3
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		7.03	1.98	6.28	1.88			
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		5.19	0.66	5.98	2.39			
4,4'-DDT	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6		< 8.6		5.74	2.97	10.42	6.25			
mirex	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			

Laboratory: 8

Pesticides in FISH III

Quantitation mode: external standards

Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	4	18
Qualitative	10	45
Not Determined	8	36

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 8
Reporting Date: 9/27/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/27/95 Sample 1	9/27/95 Sample 2	9/27/95 Sample 3	9/27/95 Sample 1	9/27/95 Sample 2	9/27/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	NA	NA	NA	NA	NA	NA	NA		NA		5.57	0.55	3.00	3.00			
PCB 18	NA	NA	NA	NA	NA	NA	NA		NA		28.9	2.3	22.5	6.8			
PCB 28	NA	NA	NA	NA	NA	NA	NA		NA		35.2	3.5	27.0	9.4			
PCB 52	103	105	115	92	99	88	108	6.0	93	6.2	135	11	**124**	**32**	-0.8	-1.1	0.4
PCB 44	NA	NA	NA	NA	NA	NA	NA		NA		85.6	5.5	69.3	20.8			
PCB 66/95	NA	NA	NA	NA	NA	NA	NA		NA		166	18	157	47			
PCB 101/90	82	99	128	124	99	112	103	22.6	112	11.4	129	9	**124**	**37**	-0.8	-1.3	1.5
PCB 118	112	107	125	132	99	113	115	8.3	115	14.3	135	11	**132**	**60**	-0.6	-0.8	0.6
PCB 153	85.0	80.5	94.0	79.4	74.4	80.0	86.5	7.9	77.9	3.9	95.1	7.5	**83**	**39**	-0.4	-0.5	0.5
PCB 105	50.5	40.6	50.0	44.8	51.7	56.8	47.0	11.9	51.1	11.8	51.9	4.6	54.0	24.0	-0.4	-0.5	0.8
PCB 138/163/164	121	112	134	116	102	115	122	9.1	111	7.0	107	8	**102**	**23**	0.6	0.9	0.6
PCB 187/182	12.2	8.4	23.5	18.0	13.3	19.1	14.7	53.3	16.8	18.3	33.8	2.6	**36**	**16**	-2.3	**-3.4**	**3.6**
PCB 128	NA	NA	NA	NA	NA	NA	NA		NA		18.4	1.5	18.4	5.5			
PCB 180	56.9	55.7	47.7	44.4	40.5	44.2	53.4	9.4	43.0	5.1	48.5	2.4	**46**	**14**	0.4	0.9	0.6
PCB 170/190	23.6	23.5	28.2	27.5	26.2	27.2	25.1	10.7	27.0	2.5	22.5	2.0	**22**	**8**	0.5	0.6	0.7
PCB 195	NA	NA	NA	NA	NA	NA	NA		NA		4.41	0.62	4.58	1.37			
PCB 206	NA	NA	NA	NA	NA	NA	NA		NA		4.49	0.58	4.47	1.34			
PCB 209	NA	NA	NA	NA	NA	NA	NA		NA		5.01	0.76	4.48	2.01			

Laboratory: 8
PCBs in FISH III
Quantitation mode: external standards
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	9	50
Qualitative	0	0
Not Determined	9	50

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 9**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/12/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	6/13-7/21 Sample 1	6/13-7/21 Sample 2	6/13-7/21 Sample 3	6/13-7/21 Sample 1	6/13-7/21 Sample 2	6/13-7/21 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		<6		3.50	3.50			
hexachlorobenzene	N/A	N/A	N/A	N/A	N/A	N/A	NA		NA		4.16	0.42	3.30	0.99			
gamma-HCH	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		1.55	0.51	1.33	0.40			
heptachlor	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		<5		2.28	0.68			
aldrin	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1		<1		<4		1.42	0.43			
heptachlor epoxide	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		<4		3.23	3.50			
oxychlordane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		<5		2.36	1.42			
trans-chlordane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1		<1		4.59	0.63	6.53	3.92			
2,4'-DDE	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		2.84	1.07	2.48	0.74			
endosulfan I	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		<5		2.50	2.50			
cis-chlordane	8.35	7.77	7.56	7.16	5.64	6.56	7.89	5.2	6.45	11.9	7.73	0.88	10.17	4.07	0.1	0.1	0.3
trans-nonachlor	7.8	7.2	6.4	6.4	5.3	6.2	7.1	9.3	6.0	10.0	10.6	1.9	11.5	4.6	-1.3	-1.0	0.6
dieldrin	7.17	8.62	5.34	5.68	6.11	6.16	7.04	23.3	5.98	4.4	7.65	1.42	6.07	2.43	-0.3	-0.3	1.6
4,4'-DDE	179	169	153	179	145	169	167	7.9	164	10.6	157	16	137	41	0.3	0.3	0.5
2,4'-DDD	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		22.3	1.7	25.3	10.1			
endrin	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1		<1		<5		<5				
endosulfan II	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		<5		2.50	2.50			
4,4'-DDD	65.0	56.8	55.4	62.3	43.4	59.4	59.1	8.8	55.0	18.5	81.6	10.8	74.3	22.3	-1.1	-1.1	0.6
2,4'-DDT	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		7.03	1.98	6.28	1.88			
cis-nonachlor	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		5.19	0.66	5.98	2.39			
4,4'-DDT	2.85	2.16	2.62	<0.500	<0.500	1.73	2.54	13.8	<0.5		5.74	2.97	10.42	6.25	-2.2	-1.3	0.9
mirex	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5		<0.5		<5		2.50	2.50			

Laboratory: 9

Pesticides in FISH III

Quantitation mode: external standards

Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	6	27
Qualitative	15	68
Not Determined	1	5

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	5	6	6
2 to 3	1	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant)

Laboratory No.: 9
Reporting Date: 9/12/95

PCBs	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	6/13-7/21 Sample 1	6/13-7/21 Sample 2	6/13-7/21 Sample 3	6/13-7/21 Sample 1	6/13-7/21 Sample 2	6/13-7/21 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	4.78	4.29	4.15	DL	DL	DL	4.41	7.5	DL		5.57	0.55	3.00	3.00	-0.8	-1.1	0.5
PCB 18	27.2	28.3	26.3	18.1	18.9	17.7	27.3	3.7	18.2	3.4	28.9	2.3	22.5	6.8	-0.2	-0.3	0.2
PCB 28	50.7	50.1	40.5	40.4	35.3	34.5	47.1	12.2	36.7	8.7	35.2	3.5	27.0	9.4	1.4	1.7	0.8
PCB 52	118	114	92	106	94	96	108	12.9	99	6.5	135	11	**124**	**32**	-0.8	-1.1	0.9
PCB 44	87.0	83.0	68.4	78.2	70.2	70.7	79.5	12.3	73.0	6.1	85.6	5.5	69.3	20.8	-0.3	-0.5	0.8
PCB 66/95	155	157	121	150	122	132	144	14.0	135	10.5	166	18	157	47	-0.5	-0.6	0.9
PCB 101/90	169	167	133	159	138	143	156	12.9	147	7.5	129	9	**124**	**37**	0.9	1.4	0.9
PCB 118	101	94	81	124	83	92	92	11.1	100	21.6	135	11	**132**	**60**	-1.3	-1.8	0.7
PCB 153	51.6	51.4	45.3	58.2	43.8	48.4	49.4	7.2	50.1	14.7	95.1	7.5	**83**	**39**	-1.9	-2.8	0.5
PCB 105	48.1	45.3	38.7	48.0	38.6	41.5	44.0	11.0	42.7	11.3	51.9	4.6	54.0	24.0	-0.6	-0.8	0.7
PCB 138/163/164	100	97	84	101	81	89	94	9.4	90	11.0	107	8	**102**	**23**	-0.5	-0.8	0.6
PCB 187/182	25.5	24.9	22.7	28.3	21.9	23.9	24.4	6.1	24.7	13.3	33.8	2.6	**36**	**16**	-1.1	-1.7	0.4
PCB 128	17.6	15.5	14.7	17.1	14.8	15.0	15.9	9.4	15.6	8.1	18.4	1.5	18.4	5.5	-0.5	-0.8	0.6
PCB 180	27.5	27.0	24.0	30.5	22.0	25.3	26.2	7.2	25.9	16.5	48.5	2.4	**46**	**14**	-1.8	**-4.2**	0.5
PCB 170/190	12.6	12.2	11.5	14.4	11.5	12.2	12.1	4.6	12.7	11.9	22.5	2.0	**22**	**8**	-1.8	-2.3	0.3
PCB 195	3.79	2.86	3.45	4.38	3.29	3.58	3.37	14.0	3.75	15.1	4.41	0.62	4.58	1.37	-0.9	-0.8	0.9
PCB 206	2.20	1.94	2.05	2.96	1.98	2.02	2.06	6.3	2.32	23.9	4.49	0.58	4.47	1.34	-2.2	-2.0	0.4
PCB 209	2.27	2.31	2.16	3.18	1.88	2.35	2.25	3.5	2.47	26.7	5.01	0.76	4.48	2.01	-2.2	-1.7	0.2

Laboratory: 9
PCBs in FISH III
Quantitation mode: external standards
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	16	15	18
2 to 3	2	2	0
≥ 3	0	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 10**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/29/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/14/95 Sample 1	9/18/95 Sample 2	9/19/95 Sample 3	9/14/95 Sample 1	9/18/95 Sample 2	9/19/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		<6		3.50	3.50			
hexachlorobenzene	3.94	4.17	4.66	2.73	3.76	3.56	4.26	8.6	3.35	16.3	4.16	0.42	3.30	0.99	0.1	0.1	0.6
gamma-HCH	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		1.55	0.51	1.33	0.40			
heptachlor	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		<5		2.28	0.68			
aldrin	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		<4		1.42	0.43			
heptachlor epoxide	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		<4		3.23	3.50			
oxychlordane	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		<5		2.36	1.42			
trans-chlordane	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		4.59	0.63	6.53	3.92			
2,4'-DDE	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		2.84	1.07	2.48	0.74			
endosulfan I	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		<5		2.50	2.50			
cis-chlordane	7.70	7.44	8.43	5.88	5.91	5.98	7.86	6.5	5.92	0.9	7.73	0.88	10.17	4.07	0.1	0.1	0.4
trans-nonachlor	12.5	11.3	14.5	8.5	9.1	10.5	12.8	12.7	9.4	11.1	10.6	1.9	11.5	4.6	0.8	0.6	0.8
dieldrin	6.92	6.37	7.78	3.57	4.52	4.04	7.02	10.1	4.04	11.7	7.65	1.42	6.07	2.43	-0.3	-0.3	0.7
4,4'-DDE	183	142	178	154	143	168	168	13.3	155	8.1	157	16	137	41	0.3	0.3	0.9
2,4'-DDD	21.1	21.1	23.5	16.3	15.6	16.6	21.9	6.3	16.2	3.2	22.3	1.7	25.3	10.1	-0.1	-0.2	0.4
endrin	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		<5		<5				
endosulfan II	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		<5		2.50	2.50			
4,4'-DDD	83.7	68.8	83.8	68.0	63.7	73.0	78.8	11.0	68.2	6.8	81.6	10.8	74.3	22.3	-0.1	-0.1	0.7
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		7.03	1.98	6.28	1.88			
cis-nonachlor	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		5.19	0.66	5.98	2.39			
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		5.74	2.97	10.42	6.25			
mirex	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3		<5		2.50	2.50			

Laboratory: 10
Pesticides in FISH III
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	7	32
Qualitative	13	59
Not Determined	2	9

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	7	7	7
2 to 3	0	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant)

Laboratory No.: 10
Reporting Date: 9/29/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/14/95 Sample 1	9/18/95 Sample 2	9/19/95 Sample 3	9/14/95 Sample 1	9/18/95 Sample 2	9/19/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	4.89	4.67	6.05	1.68	1.65	1.98	5.20	14.2	1.77	10.3	5.57	0.55	3.00	3.00	-0.3	-0.3	0.9
PCB 18	24.9	25.5	29.7	17.5	19.1	19.9	26.7	9.8	18.8	6.5	28.9	2.3	22.5	6.8	-0.3	-0.5	0.7
PCB 28	29.2	26.7	32.9	22.5	22.8	25.5	29.6	10.5	23.6	7.0	35.2	3.5	27.0	9.4	-0.6	-0.8	0.7
PCB 52	153	128	156	135	128	140	146	10.6	134	4.5	135	11	**124**	**32**	0.3	0.5	0.7
PCB 44	102.0	85.8	103.0	88.2	83.5	93.0	96.9	10.0	88.2	5.4	85.6	5.5	69.3	20.8	0.5	1.0	0.7
PCB 66/95	185	152	186	163	154	172	174	11.1	163	5.5	166	18	157	47	0.2	0.2	0.7
PCB 101/90	145	122	145	132	124	138	137	9.7	131	5.3	129	9	**124**	**37**	0.3	0.4	0.6
PCB 118	155	139	163	142	142	155	152	8.0	146	5.1	135	11	**132**	**60**	0.5	0.7	0.5
PCB 153	98.8	83.1	97.8	87.5	81.7	90.7	93.2	9.4	86.6	5.3	95.1	7.5	**83**	**39**	-0.1	-0.1	0.6
PCB 105	59.8	50.4	58.6	52.5	48.3	54.3	56.3	9.1	51.7	6.0	51.9	4.6	54.0	24.0	0.3	0.4	0.6
PCB 138/163/164	116	96	112	104	94	107	108	10.0	102	6.8	107	8	**102**	**23**	0.0	0.0	0.7
PCB 187/182	33.6	29.3	35.2	32.0	30.9	34.1	32.7	9.3	32.3	5.0	33.8	2.6	**36**	**16**	-0.1	-0.2	0.6
PCB 128	19.8	17.0	20.7	16.2	16.7	18.5	19.2	10.1	17.1	7.1	18.4	1.5	18.4	5.5	0.2	0.3	0.7
PCB 180	53.7	43.8	53.6	46.2	44.3	48.3	50.4	11.3	46.3	4.3	48.5	2.4	**46**	**14**	0.2	0.3	0.8
PCB 170/190	21.2	18.0	22.1	18.3	18.1	19.9	20.4	10.5	18.8	5.3	22.5	2.0	**22**	**8**	-0.4	-0.5	0.7
PCB 195	4.39	4.00	4.86	4.96	4.29	4.56	4.42	9.7	4.60	7.3	4.41	0.62	4.58	1.37	0.0	0.0	0.6
PCB 206	4.55	3.66	4.71	3.77	3.87	4.22	4.31	13.1	3.95	6.0	4.49	0.58	4.47	1.34	-0.2	-0.1	0.9
PCB 209	6.81	6.04	7.10	6.35	6.42	6.88	6.65	8.2	6.55	4.4	5.01	0.76	4.48	2.01	1.3	1.0	0.5

Laboratory: 10
PCBs in FISH III
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	18	18	18
2 to 3	0	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 11**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/28/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/22/95 Sample 1	8/28/95 Sample 2	9/6/95 Sample 3	8/22/95 Sample 1	8/28/95 Sample 2	9/6/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA		NA		<6		3.50	3.50			
hexachlorobenzene	3.69	3.69	4.29	3.14	3.33	3.10	3.89	8.9	3.19	3.9	4.16	0.42	3.30	0.99	-0.3	-0.3	0.6
gamma-HCH	1.85	1.74	2.02	0.91	0.77	1.16	1.87	7.5	0.95	20.6	1.55	0.51	1.33	0.40	0.8	0.5	0.5
heptachlor	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.28	0.68			
aldrin	NA	NA	NA	NA	NA	NA	NA		NA		<4		1.42	0.43			
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA		NA		<4		3.23	3.50			
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.36	1.42			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		4.59	0.63	6.53	3.92			
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA		NA		2.84	1.07	2.48	0.74			
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
cis-chlordane	15.48	13.10	15.57	11.60	11.30	11.75	14.72	9.5	11.55	2.0	7.73	0.88	10.17	4.07	**3.6**	**4.6**	0.6
trans-nonachlor	17.5	15.7	18.6	13.2	12.7	14.0	17.3	8.6	13.3	4.8	10.6	1.9	11.5	4.6	**2.5**	1.9	0.6
dieldrin	NA	NA	NA	NA	NA	NA	NA		NA		7.65	1.42	6.07	2.43			
4,4'-DDE	318	297	338	289	294	309	318	6.5	297	3.5	157	16	137	41	**4.1**	**5.2**	0.4
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA		NA		22.3	1.7	25.3	10.1			
endrin	NA	NA	NA	NA	NA	NA	NA		NA		<5		<5				
endosulfan II	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
4,4'-DDD	149.9	120.0	164.0	126.0	120.0	131.0	144.6	15.5	125.7	4.4	81.6	10.8	74.3	22.3	**3.1**	**3.1**	1.0
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		7.03	1.98	6.28	1.88			
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		5.19	0.66	5.98	2.39			
4,4'-DDT	< 0.66	0.70	0.81	< 0.66	< 0.66	< 0.66	0.76	10.6	< 0.66		5.74	2.97	10.42	6.25	-3.5	-2.1	0.7
mirex	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			

Laboratory: 11

Pesticides in FISH III

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	7	32
Qualitative	0	0
Not Determined	15	68

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 11
Reporting Date: 9/28/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/22/95 Sample 1	8/28/95 Sample 2	9/6/95 Sample 3	8/22/95 Sample 1	8/28/95 Sample 2	9/6/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	7.36	7.62	8.53	2.97	3.94	3.91	7.84	7.8	3.60	15.3	5.57	0.55	3.00	3.00	1.6	2.1	0.5
PCB 18	29.2	29.3	32.3	21.4	22.7	22.5	30.3	5.8	22.2	3.0	28.9	2.3	22.5	6.8	0.2	0.3	0.4
PCB 28	41.4	41.1	46.6	33.4	33.9	33.2	43.0	7.1	33.5	1.1	35.2	3.5	27.0	9.4	0.9	1.1	0.5
PCB 52	102	94	104	83	86	87	100	5.4	85	3.0	135	11	**124**	**32**	-1.0	-1.4	0.4
PCB 44	76.7	70.4	77.2	63.7	65.1	66.2	74.8	5.1	65.0	1.9	85.6	5.5	69.3	20.8	-0.5	-0.9	0.3
PCB 66/95	137	125	144	116	122	126	135	7.1	121	4.2	166	18	157	47	-0.7	-0.8	0.5
PCB 101/90	114	107	119	98	105	107	113	5.3	103	4.6	129	9	**124**	**37**	-0.5	-0.8	0.4
PCB 118	136	130	151	121	129	133	139	7.8	128	4.8	135	11	**132**	**60**	0.1	0.2	0.5
PCB 153	88.2	84.9	95.2	76.0	80.5	82.0	89.4	5.9	79.5	3.9	95.1	7.5	**83**	**39**	-0.2	-0.3	0.4
PCB 105	68.4	64.9	72.9	60.1	60.8	62.8	68.7	5.8	61.2	2.3	51.9	4.6	54.0	24.0	1.3	1.7	0.4
PCB 138/163/164	101	97	108	86	93	93	102	5.4	91	4.8	107	8	**102**	**23**	-0.2	-0.3	0.4
PCB 187/182	31.8	30.4	35.2	30.2	31.5	32.3	32.5	7.6	31.3	3.4	33.8	2.6	**36**	**16**	-0.2	-0.2	0.5
PCB 128	19.1	18.2	20.3	17.1	16.7	17.2	19.2	5.5	17.0	1.5	18.4	1.5	18.4	5.5	0.2	0.3	0.4
PCB 180	52.8	52.2	57.2	47.6	49.2	49.4	54.1	5.0	48.7	2.0	48.5	2.4	**46**	**14**	0.5	1.0	0.3
PCB 170/190	20.8	20.6	23.3	19.3	19.3	19.9	21.6	7.0	19.5	1.8	22.5	2.0	**22**	**8**	-0.2	-0.2	0.5
PCB 195	5.33	5.12	5.86	4.99	5.09	5.19	5.44	7.0	5.09	2.0	4.41	0.62	4.58	1.37	0.9	0.8	0.5
PCB 206	5.84	5.65	6.53	5.68	5.73	5.88	6.01	7.7	5.76	1.8	4.49	0.58	4.47	1.34	1.4	1.2	0.5
PCB 209	5.25	5.00	5.72	5.04	5.22	5.19	5.32	6.9	5.15	1.9	5.01	0.76	4.48	2.01	0.3	0.2	0.5

Laboratory: 11
PCBs in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	18	17	18
2 to 3	0	1	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 12**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 10/4/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/18/95 Sample 1	9/18/95 Sample 2	9/18/95 Sample 3	9/25/95 Sample 1	9/25/95 Sample 2	9/25/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<2	<2	<2	<2	<2	<2	<2		<2		<6		3.50	3.50			
hexachlorobenzene	2.35	2.45	2.44	2.26	2.22	2.61	2.41	2.3	2.36	9.1	4.16	0.42	3.30	0.99	-1.7	-2.1	0.2
gamma-HCH	<2	<2	<2	<2	<2	<2	<2		<2		1.55	0.51	1.33	0.40			
heptachlor	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.28	0.68			
aldrin	<5	<5	<5	<5	<5	<5	<5		<5		<4		1.42	0.43			
heptachlor epoxide	<5	<5	<5	<5	<5	<5	<5		<5		<4		3.23	3.50			
oxychlordane	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.36	1.42			
trans-chlordane	4.42	4.00	4.45	3.31	3.85	4.16	4.29	5.9	3.77	11.4	4.59	0.63	6.53	3.92	-0.3	-0.3	0.4
2,4'-DDE	<10	<10	<10	<10	<10	<10	<10		<10		2.84	1.07	2.48	0.74			
endosulfan I	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.50	2.50			
cis-chlordane	8.46	7.83	7.87	6.26	6.07	6.12	8.05	4.4	6.15	1.6	7.73	0.88	10.17	4.07	0.2	0.2	0.3
trans-nonachlor	8.8	9.2	8.3	6.5	6.2	6.8	8.7	5.2	6.5	4.2	10.6	1.9	11.5	4.6	-0.7	-0.5	0.3
dieldrin	6.29	6.23	5.26	4.34	4.17	4.29	5.93	9.8	4.27	2.0	7.65	1.42	6.07	2.43	-0.9	-0.8	0.7
4,4'-DDE	150	157	146	153	153	155	152	3.7	154	0.9	157	16	137	41	-0.1	-0.2	0.2
2,4'-DDD	22.1	20.6	21.2	17.4	17.8	17.6	21.3	3.5	17.6	1.1	22.3	1.7	25.3	10.1	-0.2	-0.4	0.2
endrin	<15	<15	<15	<15	<15	<15	<15		<15		<5		<5				
endosulfan II	<7	<7	<7	<7	<7	<7	<7		<7		<5		2.50	2.50			
4,4'-DDD	86.2	83.4	83.1	68.7	73.1	73.4	84.2	2.0	71.7	3.7	81.6	10.8	74.3	22.3	0.1	0.1	0.1
2,4'-DDT	<10	<10	<10	<10	<10	<10	<10		<10		7.03	1.98	6.28	1.88			
cis-nonachlor	4.85	4.40	4.58	2.96	3.25	3.18	4.61	4.9	3.13	4.8	5.19	0.66	5.98	2.39	-0.4	-0.6	0.3
4,4'-DDT	9.62	10.10	9.43	10.60	8.60	8.65	9.72	3.6	9.28	12.3	5.74	2.97	10.42	6.25	2.8	1.7	0.2
mirex	<5	<5	<5	<5	<5	<5	<5		<5		<5		2.50	2.50			

Laboratory: 12

Pesticides in FISH III

Quantitation mode: external standards

Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	10	46
Qualitative	12	55
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 12
Reporting Date: 10/4/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/18/95 Sample 1	9/18/95 Sample 2	9/18/95 Sample 3	9/25/95 Sample 1	9/25/95 Sample 2	9/25/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA		NA		5.57	0.55	3.00	3.00			
PCB 18							NA		NA		28.9	2.3	22.5	6.8			
PCB 28							NA		NA		35.2	3.5	27.0	9.4			
PCB 52							NA		NA		135	11	**124**	**32**			
PCB 44							NA		NA		85.6	5.5	69.3	20.8			
PCB 66/95							NA		NA		166	18	157	47			
PCB 101/90							NA		NA		129	9	**124**	**37**			
PCB 118							NA		NA		135	11	**132**	**60**			
PCB 153							NA		NA		95.1	7.5	**83**	**39**			
PCB 105							NA		NA		51.9	4.6	54.0	24.0			
PCB 138/163/164							NA		NA		107	8	**102**	**23**			
PCB 187/182							NA		NA		33.8	2.6	**36**	**16**			
PCB 128							NA		NA		18.4	1.5	18.4	5.5			
PCB 180							NA		NA		48.5	2.4	**46**	**14**			
PCB 170/190							NA		NA		22.5	2.0	**22**	**8**			
PCB 195							NA		NA		4.41	0.62	4.58	1.37			
PCB 206							NA		NA		4.49	0.58	4.47	1.34			
PCB 209							NA		NA		5.01	0.76	4.48	2.01			

Laboratory: 12
PCBs in FISH III
Quantitation mode: external standards
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	18	100

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 13**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/27/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/18/95 Sample 1	8/28/95 Sample 2	9/14/95 Sample 3	8/18/95 Sample 1	8/28/95 Sample 2	9/14/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA		NA		<6		3.50	3.50			
hexachlorobenzene	4.30	4.70	4.80	4.20	3.80	3.90	4.60	5.8	3.97	5.2	4.16	0.42	3.30	0.99	0.4	0.5	0.4
gamma-HCH	NA	NA	NA	NA	NA	NA	NA		NA		1.55	0.51	1.33	0.40			
heptachlor	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.28	0.68			
aldrin	< 5	< 5	< 5	< 5	< 5	< 5	< 5		< 5		<4		1.42	0.43			
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA		NA		<4		3.23	3.50			
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.36	1.42			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		4.59	0.63	6.53	3.92			
2,4'-DDE	< 5	< 5	< 5	< 5	< 5	< 5	< 5		< 5		2.84	1.07	2.48	0.74			
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
cis-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		7.73	0.88	10.17	4.07			
trans-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		10.6	1.9	11.5	4.6			
dieldrin	NA	NA	NA	NA	NA	NA	NA		NA		7.65	1.42	6.07	2.43			
4,4'-DDE	169	167	169	138	135	152	168	0.7	142	6.4	157	16	137	41	0.3	0.4	0.0
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA		NA		22.3	1.7	25.3	10.1			
endrin	NA	NA	NA	NA	NA	NA	NA		NA		<5		<5				
endosulfan II	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA		NA		81.6	10.8	74.3	22.3			
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		7.03	1.98	6.28	1.88			
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		5.19	0.66	5.98	2.39			
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		5.74	2.97	10.42	6.25			
mirex	6.50	6.90	4.60	5.90	5.00	5.10	6.00	20.5	5.33	9.2	<5		2.50	2.50			1.4

Laboratory: 13

Pesticides in FISH III

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	3	14
Qualitative	2	9
Not Determined	17	77

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 13
Reporting Date: 9/27/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/18/95 Sample 1	8/28/95 Sample 2	9/14/95 Sample 3	8/18/95 Sample 1	8/28/95 Sample 2	9/14/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	6.00	5.40	5.10	3.30	3.70	3.60	5.50	8.3	3.53	5.9	5.57	0.55	3.00	3.00	-0.1	-0.1	0.6
PCB 18	20.2	21.0	20.1	16.6	16.5	16.3	20.4	2.4	16.5	0.9	28.9	2.3	22.5	6.8	-1.2	-1.8	0.2
PCB 28	41.4	43.7	40.4	37.1	37.7	37.8	41.8	4.0	37.5	1.0	35.2	3.5	27.0	9.4	0.8	0.9	0.3
PCB 52	98	109	99	103	107	99	102	6.1	103	3.9	135	11	**124**	**32**	-1.0	-1.4	0.4
PCB 44	93.3	88.4	82.5	65.8	65.0	69.7	88.1	6.1	66.8	3.8	85.6	5.5	69.3	20.8	0.1	0.2	0.4
PCB 66/95	188	178	162	141	143	145	176	7.5	143	1.4	166	18	157	47	0.2	0.3	0.5
PCB 101/90	175	168	156	134	138	141	166	5.8	138	2.6	129	9	**124**	**37**	1.2	1.9	0.4
PCB 118	137	132	124	112	112	116	131	5.0	113	2.0	135	11	**132**	**60**	-0.1	-0.2	0.3
PCB 153	87.6	87.6	83.3	70.6	72.7	73.4	86.2	2.9	72.2	2.0	95.1	7.5	**83**	**39**	-0.4	-0.5	0.2
PCB 105	61.2	60.6	64.6	47.9	46.5	52.5	62.1	3.5	49.0	6.4	51.9	4.6	54.0	24.0	0.8	1.0	0.2
PCB 138/163/164	111	112	112	93	93	98	112	0.5	95	3.0	107	8	**102**	**23**	0.2	0.3	0.0
PCB 187/182	40.3	39.5	42.7	34.3	34.9	36.9	40.8	4.1	35.4	3.8	33.8	2.6	**36**	**16**	0.8	1.3	0.3
PCB 128	28.7	30.3	30.5	23.9	23.1	26.6	29.8	3.3	24.5	7.5	18.4	1.5	18.4	5.5	2.5	**3.6**	0.2
PCB 180	40.4	42.8	44.9	38.7	39.4	40.2	42.7	5.3	39.4	1.9	48.5	2.4	**46**	**14**	-0.5	-1.1	0.4
PCB 170/190	17.6	19.7	22.6	17.3	17.9	19.2	20.0	12.6	18.1	5.4	22.5	2.0	**22**	**8**	-0.4	-0.6	0.8
PCB 195	5.30	6.00	6.00	5.40	4.80	6.80	5.77	7.0	5.67	18.1	4.41	0.62	4.58	1.37	1.2	1.1	0.5
PCB 206	4.60	5.70	5.60	4.80	4.70	5.20	5.30	11.5	4.90	5.4	4.49	0.58	4.47	1.34	0.7	0.7	0.8
PCB 209	5.20	6.20	6.80	5.70	6.10	5.90	6.07	13.3	5.90	3.4	5.01	0.76	4.48	2.01	0.8	0.7	0.9

Laboratory: 13
PCBs in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	17	17	18
2 to 3	1	0	0
≥ 3	0	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 14**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 10/02/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	09/21/95 Sample 1	09/21/95 Sample 2	09/21/95 Sample 3	09/22/95 Sample 1	09/22/95 Sample 2	09/22/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	1.55	0.84	0.87	3.38	2.04	1.20	1.09	30.2	2.21	40.7	<6		3.50	3.50			2.0
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA		NA		4.16	0.42	3.30	0.99			
gamma-HCH	1.68	3.20	3.67	3.85	1.08	4.41	2.85	29.8	3.11	46.8	1.55	0.51	1.33	0.40	**3.4**	2.1	2.0
heptachlor	34.30	6.78	2.08	0.00	2.49	34.80	14.39	98.8	12.43	127.5	<5		2.28	0.68			**6.6**
aldrin	9.15	7.15	9.78	7.22	14.60	21.20	8.69	12.9	14.34	39.8	<4		1.42	0.43			0.9
heptachlor epoxide	19.60	8.64	11.30	10.40	21.70	21.70	13.18	35.4	17.93	29.7	<4		3.23	3.50			2.4
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.36	1.42			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		4.59	0.63	6.53	3.92			
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA		NA		2.84	1.07	2.48	0.74			
endosulfan I	8.94	4.54	5.14	108.00	11.40	19.60	6.21	31.4	46.33	94.4	<5		2.50	2.50			2.1
cis-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		7.73	0.88	10.17	4.07			
trans-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		10.6	1.9	11.5	4.6			
dieldrin	36.60	37.40	53.20	2.68	5.74	67.40	42.40	18.0	25.27	118.0	7.65	1.42	6.07	2.43	**18.2**	**15.5**	1.2
4,4'-DDE	29	25	32	32	37	40	29	9.4	36	9.4	157	16	137	41	**-3.3**	**-4.1**	0.6
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA		NA		22.3	1.7	25.3	10.1			
endrin	24.90	22.10	22.70	28.40	25.90	40.10	23.23	5.2	31.47	19.7	<5		<5				0.3
endosulfan II	0.00	3.45	0.00	3.67	2.22	6.04	1.15	141.4	3.98	39.6	<5		2.50	2.50			**9.4**
4,4'-DDD	40.2	28.9	41.3	43.9	35.4	43.7	36.8	15.2	41.0	9.7	81.6	10.8	74.3	22.3	-2.2	-2.2	1.0
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		7.03	1.98	6.28	1.88			
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		5.19	0.66	5.98	2.39			
4,4'-DDT	34.60	28.90	9.48	49.50	7.19	55.40	24.33	44.2	37.36	57.5	5.74	2.97	10.42	6.25	**13.0**	**7.8**	2.9
mirex	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			

Laboratory: 14

Pesticides in FISH III

Quantitation mode: internal standards (added just prior to GC)

Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	12	55
Qualitative	0	0
Not Determined	10	45

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 14
Reporting Date: 10/02/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	09/21/95 Sample 1	09/21/95 Sample 2	09/21/95 Sample 3	09/22/95 Sample 1	09/22/95 Sample 2	09/22/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	8.18	4.42	4.60	17.80	10.70	47.40	5.73	30.2	25.30	62.8	5.57	0.55	3.00	3.00	0.1	0.1	2.0
PCB 18	14.5	17.6	30.3	18.5	14.6	13.6	20.8	32.9	15.6	13.6	28.9	2.3	22.5	6.8	-1.1	-1.7	2.2
PCB 28	37.5	24.7	29.4	69.0	32.5	76.4	30.5	17.3	59.3	32.4	35.2	3.5	27.0	9.4	-0.5	-0.6	1.2
PCB 52	29	23	32	11	38	58	28	12.9	35	54.5	135	11	**124**	**32**	**-3.2**	**-4.4**	0.9
PCB 44	68.5	41.3	14.2	11.8	21.9	21.0	41.3	53.6	18.2	25.0	85.6	5.5	69.3	20.8	-2.1	**-3.8**	**3.6**
PCB 66/95	107	42	55	11	78	114	68	41.2	68	63.3	166	18	157	47	-2.4	-2.6	2.7
PCB 101/90	51	44	55	55	65	69	50	9.4	63	9.3	129	9	**124**	**37**	-2.5	**-3.9**	0.6
PCB 118	32	33	42	0	0	nd	36	12.9	0	0.0	135	11	**132**	**60**	-2.9	**-4.0**	0.9
PCB 153	39.5	10.3	10.9	56.6	8.2	11.3	20.2	67.3	25.4	87.2	95.1	7.5	**83**	**39**	**-3.1**	**-4.5**	**4.5**
PCB 105	24.4	24.1	28.1	56.6	48.5	60.0	25.5	7.1	55.0	8.8	51.9	4.6	54.0	24.0	-2.0	-2.6	0.5
PCB 138/163/164	8	8	0	11	9	21	5	70.7	13	37.9	107	8	**102**	**23**	**-3.8**	**-6.1**	**4.7**
PCB 187/182	16.1	19.9	22.1	7.3	5.3	11.4	19.4	12.8	8.0	31.8	33.8	2.6	**36**	**16**	-1.7	-2.6	0.9
PCB 128	13.1	15.4	23.0	40.7	25.9	42.2	17.2	24.6	36.3	20.3	18.4	1.5	18.4	5.5	-0.3	-0.4	1.6
PCB 180	5.6	6.4	9.8	13.0	10.6	5.6	7.3	25.2	9.7	31.7	48.5	2.4	**46**	**14**	**-3.4**	**-7.8**	1.7
PCB 170/190	1.1	4.3	1.4	0.6	0.3	0.4	2.3	63.5	0.4	31.5	22.5	2.0	**22**	**8**	**-3.6**	**-4.6**	**4.2**
PCB 195	0.00	0.00	0.00	3.21	5.69	2.40	0.00	0.0	3.77	37.2	4.41	0.62	4.58	1.37	**-4.0**	**-3.4**	0.0
PCB 206	0.00	0.00	0.00	0.00	0.00	nd	0.00	0.0	0.00	0.0	4.49	0.58	4.47	1.34	**-4.0**	**-3.6**	0.0
PCB 209	12.00	11.70	19.70	0.00	0.00	1.50	14.47	25.6	0.50	141.4	5.01	0.76	4.48	2.01	**7.6**	**6.0**	1.7

Laboratory: 14
PCBs in FISH III
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	5	4	11
2 to 3	5	3	3
≥ 3	8	11	4

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 15**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 10/2/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	4/25/95 Sample 1	5/9/95 Sample 2	6/7/95 Sample 3	4/25/95 Sample 1	5/9/95 Sample 2	6/7/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	0.00	0.00	0.00	0.00	0.00	0.00	NA		NA		<6		3.50	3.50			
hexachlorobenzene	9.35	3.42	7.06	5.11	2.63	5.85	6.61	45.3	4.53	37.3	4.16	0.42	3.30	0.99	2.4	**3.0**	**3.0**
gamma-HCH	30.7	57.5	96.8	27.0	74.4	85.1	61.7	53.9	62.2	49.7	1.55	0.51	1.33	0.40	**155.1**	**97.7**	**3.6**
heptachlor	14.02	9.34	12.30	12.22	5.35	9.27	11.9	19.9	8.95	38.5	<5		2.28	0.68			1.3
aldrin	0.00	0.00	197.45	172.44	0.00	0.00	65.8	173.2	57.5	173.2	<4		1.42	0.43			**11.5**
heptachlor epoxide	DL	DL	DL	DL	DL	DL	DL		DL		<4		3.23	3.50			
oxychlordane	DL	DL	DL	DL	DL	DL	DL		DL		<5		2.36	1.42			
trans-chlordane	18.9	6.6	15.0	14.7	9.64	15.9	13.5	46.5	13.4	24.8	4.59	0.63	6.53	3.92	**7.8**	**9.4**	**3.1**
2,4'-DDE	44.2	32.6	48.0	37.5	30.0	34.8	41.6	19.3	34.1	11.2	2.84	1.07	2.48	0.74	**54.5**	**30.2**	1.3
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
cis-chlordane	12.4	7.60	11.8	10.2	7.10	8.60	10.59	24.6	8.62	17.7	7.73	0.88	10.17	4.07	1.5	1.9	1.6
trans-nonachlor	17.0	9.2	14.6	13.8	8.9	10.3	13.6	29.4	11.0	23.1	10.6	1.9	11.5	4.6	1.1	0.8	2.0
dieldrin	12.1	54.2	60.0	8.67	50.6	49.9	42.1	62.1	36.4	66.0	7.65	1.42	6.07	2.43	**18.0**	**15.4**	**4.1**
4,4'-DDE	146	137	143	148	125	175	142	3.3	149	16.7	157	16	137	41	-0.4	-0.5	0.2
2,4'-DDD	31.9	31.1	65.8	30.6	40.5	70.1	42.9	46.2	47.1	43.6	22.3	1.7	25.3	10.1	**3.7**	**7.7**	**3.1**
endrin	60.0	53.6	49.3	13.5	18.7	43.3	54.3	9.9	25.2	63.2	<5		<5				0.7
endosulfan II	17.6	22.0	25.8	16.3	16.1	20.2	21.8	18.9	17.5	13.0	<5		2.50	2.50			1.3
4,4'-DDD	152	108	89.0	152	88.7	54.6	116	27.7	98.4	50.2	81.6	10.8	74.3	22.3	1.7	1.7	1.8
2,4'-DDT	6.55	6.01	14.27	DL	6.85	7.91	8.94	51.7	7.38	10.2	7.03	1.98	6.28	1.88	1.1	0.8	**3.4**
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		5.19	0.66	5.98	2.39			
4,4'-DDT	45.1	42.3	37.3	49.6	38.3	29.4	41.6	9.5	39.1	25.9	5.74	2.97	10.42	6.25	**25.0**	**15.0**	0.6
mirex	13.32	8.10	10.50	14.94	8.97	9.52	10.6	24.6	11.1	29.6	<5		2.50	2.50			1.6

Laboratory: 15
Pesticides in FISH III
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	77
Qualitative	2	9
Not Determined	3	14

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	5	5	10
2 to 3	1	0	0
≥ 3	6	7	7

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 15
Reporting Date: 10/2/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	4/25/95 Sample 1	5/9/95 Sample 2	6/7/95 Sample 3	4/25/95 Sample 1	5/9/95 Sample 2	6/7/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	6.64	3.13	25.41	0.00	2.25	26.22	11.73	102.1	9.49	153.1	5.57	0.55	3.00	3.00	**4.4**	**5.8**	**6.8**
PCB 18	77.7	14.0	9.1	133.8	22.8	16.3	33.6	113.9	57.6	114.6	28.9	2.3	22.5	6.8	0.7	1.0	**7.6**
PCB 28	58.2	23.5	22.5	15.5	27.4	16.9	34.7	58.6	19.9	32.7	35.2	3.5	27.0	9.4	-0.1	-0.1	**3.9**
PCB 52	73	73	100	73	65	86	82	18.9	75	14.5	135	11	**124**	**32**	-1.6	-2.2	1.3
PCB 44	87.0	187.4	190.1	79.8	166.4	248.2	154.8	38.0	164.8	51.1	85.6	5.5	69.3	20.8	**3.2**	**5.9**	2.5
PCB 66/95	135	114	159	122	114	117	136	16.6	117	3.5	166	18	157	47	-0.7	-0.8	1.1
PCB 101/90	100	86	103	102	79	79	96	9.7	87	15.2	129	9	**124**	**37**	-1.0	-1.6	0.6
PCB 118	129	122	130	135	119	99	127	3.3	117	15.3	135	11	**132**	**60**	-0.2	-0.3	0.2
PCB 153	151.4	85.7	89.0	153.3	74.5	64.3	108.7	34.0	97.4	50.0	95.1	7.5	**83**	**39**	0.6	0.8	2.3
PCB 105	DL	39.4	40.4	DL	34.2	28.4	39.9	1.9	31.3	13.1	51.9	4.6	54.0	24.0	-0.9	-1.2	0.1
PCB 138/163/164	91	75	79	92	64	60	81	10.5	72	24.1	107	8	**102**	**23**	-1.0	-1.5	0.7
PCB 187/182	39.3	31.5	30.0	42.1	29.7	23.9	33.6	14.8	31.9	29.1	33.8	2.6	**36**	**16**	0.0	0.0	1.0
PCB 128	22.7	15.8	15.0	22.8	14.7	11.0	17.8	23.7	16.2	37.6	18.4	1.5	18.4	5.5	-0.1	-0.2	1.6
PCB 180	63.1	42.2	39.1	68.6	36.5	28.5	48.1	27.1	44.5	47.7	48.5	2.4	**46**	**14**	0.0	-0.1	1.8
PCB 170/190	36.8	26.7	19.9	36.6	23.8	14.6	27.8	30.6	25.0	44.2	22.5	2.0	**22**	**8**	0.9	1.2	2.0
PCB 195	16.03	12.79	7.31	12.49	12.15	5.23	12.04	36.6	9.96	41.1	4.41	0.62	4.58	1.37	**6.9**	**5.9**	2.4
PCB 206	9.97	10.67	6.80	11.28	9.61	4.97	9.15	22.6	8.62	37.9	4.49	0.58	4.47	1.34	**4.1**	**3.8**	1.5
PCB 209	13.26	15.69	9.11	15.08	12.79	6.65	12.68	26.2	11.51	37.9	5.01	0.76	4.48	2.01	**6.1**	**4.9**	1.7

Laboratory: 15
PCBs in FISH III

Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	13	12	11
2 to 3	0	1	4
≥ 3	5	5	3

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 16**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/29/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/12/95 Sample 1	9/13/95 Sample 2	9/22/95 Sample 3	9/12/95 Sample 1	Sample 2	9/22/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA		NA	NA		NA		<6		3.50	3.50			
hexachlorobenzene	3.89	4.25	4.36	4.09		3.91	4.17	5.9	4.00	3.2	4.16	0.42	3.30	0.99	0.0	0.0	0.4
gamma-HCH	1.67	1.89	1.36	1.67		1.36	1.64	16.2	1.52	14.5	1.55	0.51	1.33	0.40	0.2	0.1	1.1
heptachlor	0.43	0.70	0.45	0.65		1.06	0.53	28.1	0.86	33.6	<5		2.28	0.68			1.9
aldrin	1.58	1.90	1.97	2.31		2.51	1.82	11.4	2.41	5.9	<4		1.42	0.43			0.8
heptachlor epoxide	1.69	1.96	2.19	1.79		1.99	1.95	12.9	1.89	7.5	<4		3.23	3.50			0.9
oxychlordane	NA	NA	NA	NA		NA	NA		NA		<5		2.36	1.42			
trans-chlordane	NA	NA	NA	NA		NA	NA		NA		4.59	0.63	6.53	3.92			
2,4'-DDE	2.15	1.29	2.87	1.97		1.72	2.10	37.6	1.85	9.6	2.84	1.07	2.48	0.74	-1.0	-0.6	2.5
endosulfan I	1.74	2.18	2.04	1.81		1.72	1.99	11.3	1.77	3.6	<5		2.50	2.50			0.8
cis-chlordane	9.87	13.50	9.56	13.00		11.10	10.98	20.0	12.05	11.1	7.73	0.88	10.17	4.07	1.7	2.1	1.3
trans-nonachlor	7.4	9.5	8.6	13.4		11.5	8.5	12.0	12.5	10.8	10.6	1.9	11.5	4.6	-0.8	-0.6	0.8
dieldrin	6.52	7.02	6.53	4.86		9.88	6.69	4.3	7.37	48.2	7.65	1.42	6.07	2.43	-0.5	-0.4	0.3
4,4'-DDE	138	149	133	143		128	140	5.8	136	7.8	157	16	137	41	-0.4	-0.6	0.4
2,4'-DDD	21.8	27.1	26.3	29.4		25.6	25.1	11.4	27.5	9.8	22.3	1.7	25.3	10.1	0.5	1.0	0.8
endrin	NA	NA	NA	NA		NA	NA		NA		<5		<5				
endosulfan II	0.97	1.24	2.22	1.13		2.47	1.48	44.7	1.80	52.6	<5		2.50	2.50			3.0
4,4'-DDD	64.2	70.1	60.8	76.4		78.1	65.0	7.2	77.3	1.6	81.6	10.8	74.3	22.3	-0.8	-0.8	0.5
2,4'-DDT	5.49	6.13	7.28	5.38		6.60	6.30	14.4	5.99	14.4	7.03	1.98	6.28	1.88	-0.4	-0.3	1.0
cis-nonachlor	NA	NA	NA	NA		NA	NA		NA		5.19	0.66	5.98	2.39			
4,4'-DDT	1.58	1.91	3.45	1.98		3.37	2.31	43.1	2.68	36.7	5.74	2.97	10.42	6.25	-2.4	-1.4	2.9
mirex	0.00	0.00	0.00	0.00		0.00	0.00		0.00		<5		2.50	2.50			0.0

Laboratory: 16

Pesticides in FISH III

Quantitation mode: internal standards (added just prior to GC)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	77
Qualitative	0	0
Not Determined	5	23

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	10	10	14
2 to 3	1	1	3
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 16
Reporting Date: 9/29/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/12/95	9/13/95	9/22/95	9/12/95		9/22/95	lab mean	lab	lab mean	lab	assigned		target		z-score	z-score	p-score
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	ng/g wet	%RSD	ng/g wet	%RSD	value	95% CL	value[b]	95% CL	(25%)	(s)	(15%)
PCB 8	5.90	5.94	6.58	4.16		4.42	6.14	6.2	4.29	4.3	5.57	0.55	3.00	3.00	0.4	0.5	0.4
PCB 18	24.1	25.3	28.9	22.6		24.7	26.1	9.6	23.7	6.3	28.9	2.3	22.5	6.8	-0.4	-0.6	0.6
PCB 28	25.5	27.9	30.4	25.1		23.7	27.9	8.8	24.4	4.1	35.2	3.5	27.0	9.4	-0.8	-1.0	0.6
PCB 52	119	125	132	117		130	125	5.2	124	7.4	135	11	**124**	**32**	-0.3	-0.4	0.3
PCB 44	74.7	79.7	82.9	71.2		87.7	79.1	5.2	79.5	14.7	85.6	5.5	69.3	20.8	-0.3	-0.6	0.3
PCB 66/95	145	150	149	144		142	148	1.8	143	1.0	166	18	157	47	-0.4	-0.5	0.1
PCB 101/90	123	125	137	123		140	128	5.9	132	9.1	129	9	**124**	**37**	0.0	0.0	0.4
PCB 118	123	126	118	127		122	122	3.3	125	2.8	135	11	**132**	**60**	-0.4	-0.5	0.2
PCB 153	85.4	86.6	90.8	80.1		91.5	87.6	3.2	85.8	9.4	95.1	7.5	**83**	**39**	-0.3	-0.5	0.2
PCB 105	50.0	50.3	45.6	48.5		39.8	48.6	5.4	44.2	13.9	51.9	4.6	54.0	24.0	-0.3	-0.3	0.4
PCB 138/163/164	94	95	96	89		95	95	1.0	92	4.3	107	8	**102**	**23**	-0.5	-0.7	0.1
PCB 187/182	31.6	31.9	38.4	35.6		37.1	34.0	11.3	36.4	2.9	33.8	2.6	**36**	**16**	0.0	0.0	0.8
PCB 128	21.5	22.4	26.1	22.4		23.7	23.3	10.4	23.1	4.0	18.4	1.5	18.4	5.5	1.1	1.6	0.7
PCB 180	42.8	42.5	43.8	41.0		45.9	43.0	1.6	43.5	8.0	48.5	2.4	**46**	**14**	-0.5	-1.0	0.1
PCB 170/190	18.6	19.4	23.5	19.7		20.4	20.5	12.8	20.1	2.5	22.5	2.0	**22**	**8**	-0.4	-0.4	0.9
PCB 195	5.41	4.89	6.31	5.41		5.67	5.54	13.0	5.54	3.3	4.41	0.62	4.58	1.37	1.0	0.9	0.9
PCB 206	5.30	5.19	6.23	5.63		5.82	5.57	10.3	5.73	2.3	4.49	0.58	4.47	1.34	1.0	0.9	0.7
PCB 209	5.83	5.57	7.28	6.32		6.73	6.23	14.8	6.53	4.4	5.01	0.76	4.48	2.01	1.0	0.8	1.0

Laboratory: 16
PCBs in FISH III

Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	18	18	18
2 to 3	0	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 17**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 9/29/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/13/95 Sample 1	9/19/95 Sample 2	9/13/95 Sample 3	9/13/95 Sample 1	9/19/95 Sample 2	9/13/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA		NA		<6		3.50	3.50			
hexachlorobenzene	3.92	4.70	4.51	2.72	2.90	3.98	4.38	9.3	3.20	21.3	4.16	0.42	3.30	0.99	0.2	0.3	0.6
gamma-HCH	7.48	7.48	9.51	4.81	2.04	6.02	8.16	14.4	4.29	47.6	1.55	0.51	1.33	0.40	**17.0**	**10.7**	1.0
heptachlor	DL	DL	DL	DL	DL	DL	DL		DL		<5		2.28	0.68			
aldrin	NA	NA	NA	NA	NA	NA	NA		NA		<4		1.42	0.43			
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA		NA		<4		3.23	3.50			
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.36	1.42			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		4.59	0.63	6.53	3.92			
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA		NA		2.84	1.07	2.48	0.74			
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
cis-chlordane	9.06	9.00	12.30	7.86	8.09	8.78	10.12	18.7	8.24	5.8	7.73	0.88	10.17	4.07	1.2	1.6	1.2
trans-nonachlor	11.6	11.6	14.8	11.3	11.9	11.8	12.7	14.6	11.7	2.8	10.6	1.9	11.5	4.6	0.8	0.6	1.0
dieldrin	10.90	9.90	15.60	7.80	11.60	12.40	12.13	25.1	10.60	23.2	7.65	1.42	6.07	2.43	2.3	2.0	1.7
4,4'-DDE	355	336	335	293	257	308	342	3.3	286	9.2	157	16	137	41	**4.7**	**6.0**	0.2
2,4'-DDD	17.7	19.1	21.0	16.2	18.0	22.7	19.3	8.6	19.0	17.7	22.3	1.7	25.3	10.1	-0.5	-1.1	0.6
endrin	NA	NA	NA	NA	NA	NA	NA		NA		<5		<5				
endosulfan II	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
4,4'-DDD	219.0	216.0	180.0	187.0	139.0	142.0	205.0	10.6	156.0	17.2	81.6	10.8	74.3	22.3	**6.1**	**6.1**	0.7
2,4'-DDT	DL	DL	DL	DL	DL	DL	DL		DL		7.03	1.98	6.28	1.88			
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		5.19	0.66	5.98	2.39			
4,4'-DDT	DL	DL	DL	DL	DL	DL	DL		DL		5.74	2.97	10.42	6.25			
mirex	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			

Laboratory: 17

Pesticides in FISH III

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: ?

Reported Results	No. of Analytes	%
Quantitative	8	36
Qualitative	3	14
Not Determined	11	50

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	4	5	8
2 to 3	1	0	0
≥ 3	3	3	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant)

Laboratory No.: 17
Reporting Date: 9/29/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/13/95 Sample 1	9/19/95 Sample 2	9/13/95 Sample 3	9/13/95 Sample 1	9/19/95 Sample 2	9/13/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	5.56	7.69	6.62	3.18	2.45	2.81	6.62	16.1	2.81	13.0	5.57	0.55	3.00	3.00	0.8	1.0	1.1
PCB 18	DL	DL	DL	DL	DL	DL	DL		DL		28.9	2.3	22.5	6.8			
PCB 28	36.8	36.8	38.8	39.3	29.8	30.7	37.5	3.1	33.3	15.8	35.2	3.5	27.0	9.4	0.3	0.3	0.2
PCB 52	141	142	174	158	162	165	152	12.3	162	2.2	135	11	**124**	**32**	0.5	0.7	0.8
PCB 44	69.5	80.2	104.0	65.4	60.4	68.5	84.6	20.9	64.8	6.3	85.6	5.5	69.3	20.8	0.0	-0.1	1.4
PCB 66/95	236	250	217	171	175	208	234	7.1	185	11.0	166	18	157	47	1.6	1.8	0.5
PCB 101/90	155	154	175	168	171	170	161	7.4	170	0.9	129	9	**124**	**37**	1.0	1.6	0.5
PCB 118	199	197	206	215	200	198	201	2.3	204	4.5	135	11	**132**	**60**	1.9	2.7	0.2
PCB 153	151.0	164.5	153.0	140.0	137.0	153.0	156.2	4.7	143.3	5.9	95.1	7.5	**83**	**39**	2.6	**3.7**	0.3
PCB 105	70.1	70.4	75.3	66.4	69.2	66.2	71.9	4.1	67.3	2.5	51.9	4.6	54.0	24.0	1.5	2.0	0.3
PCB 138/163/164	98	103	104	119	104	107	102	3.5	110	7.2	107	8	**102**	**23**	-0.2	-0.3	0.2
PCB 187/182	28.3	29.2	29.4	30.6	29.1	31.8	29.0	2.0	30.5	4.4	33.8	2.6	**36**	**16**	-0.6	-0.9	0.1
PCB 128	15.7	16.1	18.0	16.3	16.8	17.8	16.6	7.4	17.0	4.5	18.4	1.5	18.4	5.5	-0.4	-0.6	0.5
PCB 180	46.0	46.6	53.1	46.5	49.7	50.6	48.6	8.1	48.9	4.4	48.5	2.4	**46**	**14**	0.0	0.0	0.5
PCB 170/190	22.8	23.3	25.5	23.5	24.3	24.1	23.9	6.0	24.0	1.7	22.5	2.0	**22**	**8**	0.2	0.3	0.4
PCB 195	4.52	4.83	8.15	5.13	6.80	7.13	5.83	34.5	6.35	16.9	4.41	0.62	4.58	1.37	1.3	1.1	2.3
PCB 206	4.67	5.84	5.69	5.71	5.66	5.40	5.40	11.8	5.59	3.0	4.49	0.58	4.47	1.34	0.8	0.7	0.8
PCB 209	4.76	4.76	5.68	4.66	5.41	6.30	5.07	10.5	5.46	15.0	5.01	0.76	4.48	2.01	0.0	0.0	0.7

Laboratory: 17
PCBs in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: ?

Reported Results	No. of Analytes	%
Quantitative	17	94
Qualitative	1	6
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 18**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 10/6/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	10/5/95 Sample 1	10/5/95 Sample 2	10/5/95 Sample 3	Sample 1	Sample 2	Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	0.40	0.40	0.40				0.40	0.0	See Note		<6		3.50	3.50			0.0
hexachlorobenzene	<0.2	<0.2	<0.2				<0.2		See Note		4.16	0.42	3.30	0.99			
gamma-HCH	<0.3	<0.3	<0.3				<0.3		See Note		1.55	0.51	1.33	0.40			
heptachlor	3.70	4.50	4.40				4.20	10.4	See Note		<5		2.28	0.68			0.7
aldrin	<0.3	<0.3	<0.3				<0.3		See Note		<4		1.42	0.43			
heptachlor epoxide	<6.	<6.	<6.				<6.		See Note		<4		3.23	3.50			
oxychlordane	NA	NA	NA				NA		See Note		<5		2.36	1.42			
trans-chlordane	NA	NA	NA				NA		See Note		4.59	0.63	6.53	3.92			
2,4'-DDE	48.00	57.00	56.00				53.67	9.2	See Note		2.84	1.07	2.48	0.74	**71.5**	**39.7**	0.6
endosulfan I	<2.	<2.	<2.				<0.2		See Note		<5		2.50	2.50			
cis-chlordane	<2.	<2.	<2.				<0.2		See Note		7.73	0.88	10.17	4.07			
trans-nonachlor	<2.	<2.	<2.				<0.2		See Note		10.6	1.9	11.5	4.6			
dieldrin	<0.3	<0.3	<0.3				<0.3		See Note		7.65	1.42	6.07	2.43			
4,4'-DDE	160	180	180				173	6.7	See Note		157	16	137	41	0.4	0.5	0.4
2,4'-DDD	47.0	50.0	50.0				49.0	3.5	See Note		22.3	1.7	25.3	10.1	**4.8**	**10.0**	0.2
endrin	<0.6	<0.6	<0.6				<0.6		See Note		<5		<5				
endosulfan II	<0.3	<0.3	<0.3				<0.3		See Note		<5		2.50	2.50			
4,4'-DDD	28.0	32.0	31.0				30.3	6.9	See Note		81.6	10.8	74.3	22.3	-2.5	-2.5	0.5
2,4'-DDT	<1.	<1.	<1.				<1.		See Note		7.03	1.98	6.28	1.88			
cis-nonachlor	NA	NA	NA				NA		See Note		5.19	0.66	5.98	2.39			
4,4'-DDT	<1.	<1.	<1.				<1.		See Note		5.74	2.97	10.42	6.25			
mirex	<6.	<6.	<6.				<6.		See Note		<5		2.50	2.50			

Laboratory: 18
Pesticides in FISH III
Quantitation mode: external standards
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	6	27
Qualitative	13	59
Not Determined	3	14

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant)

Laboratory No.: 18
Reporting Date: 10/6/95

PCBs	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	10/5/95 Sample 1	10/5/95 Sample 2	10/5/95 Sample 3	Sample 1	Sample 2	Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	3.77	5.97	5.81				5.18	23.7	See note		5.57	0.55	3.00	3.00	-0.3	-0.4	1.6
PCB 18	38.8	44.3	40.3				41.1	6.9	See note		28.9	2.3	22.5	6.8	1.7	2.6	0.5
PCB 28	46.6	50.4	49.8				48.9	4.2	See note		35.2	3.5	27.0	9.4	1.6	1.9	0.3
PCB 52	116	132	119				122	7.0	See note		135	11	**124**	**32**	-0.4	-0.5	0.5
PCB 44	97.2	110.0	107.0				104.7	6.4	See note		85.6	5.5	69.3	20.8	0.9	1.6	0.4
PCB 66/95	118	127	123				123	3.7	See note		166	18	157	47	-1.0	-1.2	0.2
PCB 101/90	114	126	116				119	5.4	See note		129	9	**124**	**37**	-0.3	-0.5	0.4
PCB 118	78	113	134				108	26.1	See note		135	11	**132**	**60**	-0.8	-1.1	1.7
PCB 153	116.0	118.0	134.0				122.7	8.0	See note		95.1	7.5	**83**	**39**	1.2	1.7	0.5
PCB 105	48.4	49.5	51.0				49.6	2.6	See note		51.9	4.6	54.0	24.0	-0.2	-0.2	0.2
PCB 138/163/164	71	76	71				72	3.6	See note		107	8	**102**	**23**	-1.3	-2.1	0.2
PCB 187/182	4.8	4.2	5.4				4.8	12.7	See note		33.8	2.6	**36**	**16**	**-3.4**	**-5.2**	0.8
PCB 128	23.6	25.6	17.7				22.3	18.4	See note		18.4	1.5	18.4	5.5	0.9	1.2	1.2
PCB 180	49.9	55.9	57.4				54.4	7.3	See note		48.5	2.4	**46**	**14**	0.5	1.1	0.5
PCB 170/190	27.2	29.4	38.3				31.6	18.6	See note		22.5	2.0	**22**	**8**	1.6	2.1	1.2
PCB 195	3.94	3.30	3.64				3.63	8.8	See note		4.41	0.62	4.58	1.37	-0.7	-0.6	0.6
PCB 206	4.20	3.69	3.79				3.89	6.9	See note		4.49	0.58	4.47	1.34	-0.5	-0.5	0.5
PCB 209	7.80	8.22	7.47				7.83	4.8	See note		5.01	0.76	4.48	2.01	2.3	1.8	0.3

Laboratory: 18
PCBs in FISH III
Quantitation mode: external standards
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	16	14	18
2 to 3	1	3	0
≥ 3	1	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 19**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 10/9/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	NA Sample 1	NA Sample 2	NA Sample 3	NA Sample 1	NA Sample 2	NA Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA		NA		<6		3.50	3.50			
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA		NA		4.16	0.42	3.30	0.99			
gamma-HCH	NA	NA	NA	NA	NA	NA	NA		NA		1.55	0.51	1.33	0.40			
heptachlor	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.28	0.68			
aldrin	NA	NA	NA	NA	NA	NA	NA		NA		<4		1.42	0.43			
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA		NA		<4		3.23	3.50			
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.36	1.42			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		4.59	0.63	6.53	3.92			
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA		NA		2.84	1.07	2.48	0.74			
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
cis-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		7.73	0.88	10.17	4.07			
trans-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		10.6	1.9	11.5	4.6			
dieldrin	NA	NA	NA	NA	NA	NA	NA		NA		7.65	1.42	6.07	2.43			
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA		NA		157	16	137	41			
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA		NA		22.3	1.7	25.3	10.1			
endrin	NA	NA	NA	NA	NA	NA	NA		NA		<5		<5				
endosulfan II	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA		NA		81.6	10.8	74.3	22.3			
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		7.03	1.98	6.28	1.88			
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		5.19	0.66	5.98	2.39			
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		5.74	2.97	10.42	6.25			
mirex	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			

Laboratory: 19

Pesticides in FISH III

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	22	100

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

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 19**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 10/9/95

PCBs	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	NA Sample 1	NA Sample 2	NA Sample 3	NA Sample 1	NA Sample 2	NA Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	5.00	4.60	5.28	2.02	1.59	2.05	4.96	6.9	1.89	13.6	5.57	0.55	3.00	3.00	-0.4	-0.6	0.5
PCB 18	35.0	26.6	28.3	20.7	22.4	25.4	30.0	14.8	22.8	10.4	28.9	2.3	22.5	6.8	0.2	0.2	1.0
PCB 28	59.6	70.2	66.7	57.3	55.9	49.9	65.5	8.2	54.4	7.2	35.2	3.5	27.0	9.4	**3.4**	**4.2**	0.5
PCB 52	237	181	165	149	162	152	194	19.5	154	4.4	135	11	**124**	**32**	1.8	2.5	1.3
PCB 44	124	107	106	92	102	100	112	9	97.9	5.5	85.6	5.5	69.3	20.8	1.2	2.3	0.6
PCB 66/95	154	164	169	184	164	148	162	4.7	165	10.9	166	18	157	47	-0.1	-0.1	0.3
PCB 101/90	149	148	148	137	153	146	148	0.4	145	5.5	129	9	**124**	**37**	0.6	1.0	0.0
PCB 118	166	164	151	142	168	159	160	5.1	156	8.4	135	11	**132**	**60**	0.8	1.0	0.3
PCB 153	104	107	102	101	106	98	104	2	102	4	95.1	7.5	**83**	**39**	0.4	0.6	0.2
PCB 105	51.8	47.2	46.7	43.7	51.3	46.4	48.6	5.8	47.1	8.2	51.9	4.6	54.0	24.0	-0.3	-0.3	0.4
PCB 138/163/164	110	119	121	112	131	115	117	5.0	119	8.6	107	8	**102**	**23**	0.4	0.6	0.3
PCB 187/182	29.8	30.4	34.3	31.3	34.9	33.0	31.5	7.8	33.1	5.4	33.8	2.6	**36**	**16**	-0.3	-0.4	0.5
PCB 128	15.4	16.2	16.4	15.3	17.4	16.7	16.0	3.3	16.5	6.5	18.4	1.5	18.4	5.5	-0.5	-0.7	0.2
PCB 180	48.7	46.9	46.0	42.4	46.8	44.8	47.2	2.9	44.7	4.9	48.5	2.4	**46**	**14**	-0.1	-0.2	0.2
PCB 170/190	22.6	18.8	22.4	10.0	21.8	17.8	21.3	10.1	16.5	36.3	22.5	2.0	**22**	**8**	-0.2	-0.3	0.7
PCB 195	1.75	1.69	3.05	1.34	3.19	2.70	2.16	35.5	2.41	39.8	4.41	0.62	4.58	1.37	-2.0	-1.7	2.4
PCB 206	2.60	2.07	2.83	1.18	3.68	3.91	2.50	15.6	2.92	51.8	4.49	0.58	4.47	1.34	-1.8	-1.6	1.0
PCB 209	3.60	2.05	3.35	3.30	3.70	3.09	3.00	27.7	3.36	9.2	5.01	0.76	4.48	2.01	-1.6	-1.3	1.8

Laboratory: 19

PCBs in FISH III

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 20
Reporting Date: 10/13/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/13, 9/24 Sample 1	9/15, 9/24 Sample 2	10/6, 9/24 Sample 3	9/13, 9/24 Sample 1	9/15, 9/24 Sample 2	10/6, 9/24 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	0.62	0.68	0.68	0.68	0.70	0.48	0.66	4.8	0.62	19.8	<6		3.50	3.50			0.3
hexachlorobenzene	3.40	3.33	2.79	2.65	2.86	2.45	3.17	10.5	2.65	7.7	4.16	0.42	3.30	0.99	-0.9	-1.2	0.7
gamma-HCH	1.12	0.87	0.67	0.66	0.67	0.78	0.88	25.7	0.70	10.0	1.55	0.51	1.33	0.40	-1.7	-1.1	1.7
heptachlor	7.26	6.05	4.76	4.28	4.56	3.87	6.02	20.8	4.24	8.2	<5		2.28	0.68			1.4
aldrin	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2		< 0.2		<4		1.42	0.43			
heptachlor epoxide	2.16	1.89	1.04	1.75	1.14	1.84	1.70	34.4	1.58	24.2	<4		3.23	3.50			2.3
oxychlordane	1.62	1.55	1.18	1.31	1.16	1.34	1.45	16.3	1.27	7.6	<5		2.36	1.42			1.1
trans-chlordane	4.87	4.32	3.77	4.11	3.53	4.74	4.32	12.7	4.13	14.7	4.59	0.63	6.53	3.92	-0.2	-0.3	0.8
2,4'-DDE	6.18	5.11	4.96	5.18	4.86	5.22	5.42	12.3	5.09	3.9	2.84	1.07	2.48	0.74	**3.6**	2.0	0.8
endosulfan I	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2		< 0.2		<5		2.50	2.50			
cis-chlordane	5.53	4.97	4.07	5.85	4.40	4.31	4.86	15.2	4.85	17.8	7.73	0.88	10.17	4.07	-1.5	-1.9	1.0
trans-nonachlor	12.4	10.8	9.6	9.5	9.1	9.6	10.9	12.8	9.4	2.7	10.6	1.9	11.5	4.6	0.1	0.1	0.9
dieldrin	7.30	6.35	5.32	5.07	4.82	6.32	6.32	15.7	5.40	14.9	7.65	1.42	6.07	2.43	-0.7	-0.6	1.0
4,4'-DDE	202	174	166	183	173	158	181	10.5	171	7.3	157	16	137	41	0.6	0.8	0.7
2,4'-DDD	31.0	27.4	23.4	25.2	24.4	24.7	27.3	13.9	24.8	1.6	22.3	1.7	25.3	10.1	0.9	1.9	0.9
endrin	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2		< 1.2		<5		<5				
endosulfan II	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6		< 0.6		<5		2.50	2.50			
4,4'-DDD	96.7	92.5	71.2	71.7	74.4	76.2	86.8	15.8	74.1	3.1	81.6	10.8	74.3	22.3	0.3	0.3	1.1
2,4'-DDT	3.95	3.78	5.15	3.16	3.41	4.93	4.29	17.4	3.83	25.0	7.03	1.98	6.28	1.88	-1.6	-1.2	1.2
cis-nonachlor	4.67	4.53	4.18	3.64	3.98	4.11	4.46	5.7	3.91	6.2	5.19	0.66	5.98	2.39	-0.6	-0.8	0.4
4,4'-DDT	0.92	0.88	0.56	1.38	1.51	1.27	0.79	25.0	1.39	8.5	5.74	2.97	10.42	6.25	**-3.5**	*-2.1*	1.7
mirex	1.07	1.13	1.12	0.78	1.13	1.12	1.11	2.9	1.01	20.0	<5		2.50	2.50			0.2

Laboratory: 20
Pesticides in FISH III

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	82
Qualitative	4	18
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	11	11	17
2 to 3	0	2	1
≥ 3	2	0	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 20
Reporting Date: 10/13/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	9/13, 9/24 Sample 1	9/15, 9/24 Sample 2	10/6, 9/24 Sample 3	9/13, 9/24 Sample 1	9/15, 9/24 Sample 2	10/6, 9/24 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	4.09	3.98	3.54	0.93	1.02	0.91	3.87	7.5	0.95	6.2	5.57	0.55	3.00	3.00	-1.2	-1.6	0.5
PCB 18	34.3	30.2	24.4	21.1	22.4	19.1	29.6	16.8	20.9	8.0	28.9	2.3	22.5	6.8	0.1	0.2	1.1
PCB 28	30.3	26.4	25.8	21.5	23.6	20.4	27.5	8.9	21.8	7.4	35.2	3.5	27.0	9.4	-0.9	-1.1	0.6
PCB 52	156	137	130	136	131	115	141	9.5	127	8.6	135	11	**124**	**32**	0.2	0.3	0.6
PCB 44	103.0	89.1	85.3	89.0	86.4	76.9	92.5	10.1	84.1	7.6	85.6	5.5	69.3	20.8	0.3	0.6	0.7
PCB 66/95	244	214	198	213	203	176	219	10.6	197	9.8	166	18	157	47	1.3	1.4	0.7
PCB 101/90	150	142	132	146	136	122	141	6.4	135	9.0	129	9	**124**	**37**	0.4	0.6	0.4
PCB 118	150	129	121	138	129	114	133	11.2	127	9.5	135	11	**132**	**60**	0.0	-0.1	0.7
PCB 153	108.0	94.7	89.6	96.8	90.8	80.7	97.4	9.7	89.4	9.1	95.1	7.5	**83**	**39**	0.1	0.1	0.6
PCB 105	60.9	52.5	48.7	52.1	49.9	44.3	54.0	11.6	48.8	8.2	51.9	4.6	54.0	24.0	0.2	0.2	0.8
PCB 138/163/164	120	102	97	105	99	88	106	11.5	97	8.7	107	8	**102**	**23**	0.0	0.0	0.8
PCB 187/182	31.4	37.1	35.3	28.7	36.4	33.8	34.6	8.4	33.0	11.9	33.8	2.6	**36**	**16**	0.1	0.2	0.6
PCB 128	24.6	20.2	21.1	16.0	17.9	17.8	22.0	10.6	17.2	6.2	18.4	1.5	18.4	5.5	0.8	1.1	0.7
PCB 180	61.2	53.6	50.1	55.0	51.3	47.2	55.0	10.3	51.2	7.6	48.5	2.4	**46**	**14**	0.5	1.2	0.7
PCB 170/190	17.8	17.3	18.6	15.7	16.5	17.3	17.9	3.7	16.5	4.8	22.5	2.0	**22**	**8**	-0.8	-1.0	0.2
PCB 195	4.01	4.15	4.08	3.66	4.13	4.14	4.08	1.7	3.98	6.9	4.41	0.62	4.58	1.37	-0.3	-0.3	0.1
PCB 206	4.83	4.67	4.47	4.46	4.69	4.91	4.66	3.9	4.69	4.8	4.49	0.58	4.47	1.34	0.1	0.1	0.3
PCB 209	4.80	4.91	4.82	4.23	4.75	4.42	4.84	1.2	4.47	5.9	5.01	0.76	4.48	2.01	-0.1	-0.1	0.1

Laboratory: 20
PCBs in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	18	18	18
2 to 3	0	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 21**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 10/15/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/31/95 Sample 1	9/7/95 Sample 2	9/15/95 Sample 3	Sample 1	Sample 2	Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA				NA		NA		<6		3.50	3.50			
hexachlorobenzene	3.02	3.43	3.09				3.18	7.0	NA		4.16	0.42	3.30	0.99	-0.9	-1.2	0.5
gamma-HCH	1.56	1.35	1.12				1.35	16.2	NA		1.55	0.51	1.33	0.40	-0.5	-0.3	1.1
heptachlor	<0.078	<0.078	<0.078				<0.078		NA		<5		2.28	0.68			
aldrin	<0.115	<0.115	<0.115				<0.115		NA		<4		1.42	0.43			
heptachlor epoxide	14.76	15.99	15.73				15.49	4.2	NA		<4		3.23	3.50			0.3
oxychlordane	NA	NA	NA				NA		NA		<5		2.36	1.42			
trans-chlordane	NA	NA	NA				NA		NA		4.59	0.63	6.53	3.92			
2,4'-DDE	<0.086	<0.086	<0.086				<0.086		NA		2.84	1.07	2.48	0.74			
endosulfan I	NA	NA	NA				NA		NA		<5		2.50	2.50			
cis-chlordane	7.31	8.30	5.90				7.17	16.8	NA		7.73	0.88	10.17	4.07	-0.3	-0.4	1.1
trans-nonachlor	11.3	12.1	9.2				10.9	14.1	NA		10.6	1.9	11.5	4.6	0.1	0.1	0.9
dieldrin	8.34	7.66	8.52				8.17	5.5	NA		7.65	1.42	6.07	2.43	0.3	0.2	0.4
4,4'-DDE	100	107	85				97	11.4	NA		157	16	137	41	-1.5	-1.9	0.8
2,4'-DDD	25.6	27.8	26.2				26.5	4.2	NA		22.3	1.7	25.3	10.1	0.8	1.6	0.3
endrin	<0.186	<0.186	<0.186				<0.186		NA		<5		<5				
endosulfan II	NA	NA	NA				NA		NA		<5		2.50	2.50			
4,4'-DDD	104.6	110.4	107.0				107.3	2.7	NA		81.6	10.8	74.3	22.3	1.3	1.3	0.2
2,4'-DDT	10.20	11.95	11.34				11.16	7.9	NA		7.03	1.98	6.28	1.88	2.4	1.7	0.5
cis-nonachlor	NA	NA	NA				NA		NA		5.19	0.66	5.98	2.39			
4,4'-DDT	<0.121	<0.121	<0.121				<0.121		NA		5.74	2.97	10.42	6.25			
mirex	7.22	7.72	6.50				7.15	8.6	NA		<5		2.50	2.50			0.6

Laboratory: 21

Pesticides in FISH III

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	11	50
Qualitative	5	23
Not Determined	6	27

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	8	9	11
2 to 3	1	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III

(data reported as if three figures were significant)

Laboratory No.: 21
Reporting Date: 10/15/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/31/95	9/7/95	9/15/95														
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	5.32	6.45	4.59				5.45	17.2	NA		5.57	0.55	3.00	3.00	-0.1	-0.1	1.1
PCB 18	25.7	27.4	27.0				26.7	3.2	NA		28.9	2.3	22.5	6.8	-0.3	-0.5	0.2
PCB 28	22.9	25.1	23.4				23.8	4.8	NA		35.2	3.5	27.0	9.4	-1.3	-1.6	0.3
PCB 52	115	116	112				114	1.9	NA		135	11	**124**	**32**	-0.6	-0.8	0.1
PCB 44	59.5	68.1	69.8				65.8	8.5	NA		85.6	5.5	69.3	20.8	-0.9	-1.7	0.6
PCB 66/95	100	117	104				107	8.5	NA		166	18	157	47	-1.4	-1.6	0.6
PCB 101/90	114	120	111				115	4.2	NA		129	9	**124**	**37**	-0.4	-0.7	0.3
PCB 118	184	187	147				173	12.9	NA		135	11	**132**	**60**	1.1	1.5	0.9
PCB 153	98.3	107.9	97.1				101.1	5.9	NA		95.1	7.5	**83**	**39**	0.3	0.4	0.4
PCB 105	39.6	39.3	35.9				38.3	5.4	NA		51.9	4.6	54.0	24.0	-1.1	-1.4	0.4
PCB 138/163/164	120	125	105				117	8.9	NA		107	8	**102**	**23**	0.4	0.6	0.6
PCB 187/182	30.0	33.3	31.2				31.5	5.3	NA		33.8	2.6	**36**	**16**	-0.3	-0.4	0.4
PCB 128	13.0	15.0	14.1				14.0	6.9	NA		18.4	1.5	18.4	5.5	-0.9	-1.4	0.5
PCB 180	47.1	49.9	44.9				47.3	5.3	NA		48.5	2.4	**46**	**14**	-0.1	-0.2	0.4
PCB 170/190	39.6	31.6	23.5				31.6	25.6	NA		22.5	2.0	**22**	**8**	1.6	2.1	1.7
PCB 195	6.56	6.78	6.39				6.58	3.0	NA		4.41	0.62	4.58	1.37	2.0	1.7	0.2
PCB 206	5.71	6.18	5.46				5.78	6.3	NA		4.49	0.58	4.47	1.34	1.2	1.0	0.4
PCB 209	8.29	7.55	6.84				7.56	9.6	NA		5.01	0.76	4.48	2.01	2.0	1.6	0.6

Laboratory: 21
PCBs in FISH III

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	17	17	18
2 to 3	1	1	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 22**

Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant) Reporting Date: 10/18/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/11/95 Sample 1	8/28/95 Sample 2	8/21/95 Sample 3	8/11/95 Sample 1	8/28/95 Sample 2	8/21/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA		NA		<6		3.50	3.50			
hexachlorobenzene	3.29	4.06	4.24	3.81	3.47	3.50	3.86	13.1	3.59	5.2	4.16	0.42	3.30	0.99	-0.3	-0.4	0.9
gamma-HCH	0.37	0.86	0.75	0.91	0.35	0.33	0.66	38.3	0.53	61.5	1.55	0.51	1.33	0.40	-2.3	-1.4	2.6
heptachlor	<0.0631	<0.0465	<0.195	<0.0651	<0.0542	<0.0616	<0.3		<0.06		<5		2.28	0.68			
aldrin	0.18	0.14	<0.141	0.13	0.12	0.11	0.16	18.0	0.12	10.2	<4		1.42	0.43			1.2
heptachlor epoxide	13.20	16.70	17.10	15.80	14.30	15.80	15.67	13.7	15.30	5.7	<4		3.23	3.50			0.9
oxychlordane	6.29	7.52	8.61	6.90	6.73	7.81	7.47	15.5	7.15	8.1	<5		2.36	1.42			1.0
trans-chlordane	5.35	7.17	7.26	6.47	5.90	6.52	6.59	16.3	6.30	5.5	4.59	0.63	6.53	3.92	1.7	2.1	1.1
2,4'-DDE	1.18	2.28	1.87	2.36	2.49	1.77	1.78	31.3	2.21	17.4	2.84	1.07	2.48	0.74	-1.5	-0.8	2.1
endosulfan I	NA	NA	NA	NA	NA	NA	NA				<5		2.50	2.50			
cis-chlordane	5.05	9.19	5.65	6.72	7.08	6.33	6.63	33.7	6.71	5.6	7.73	0.88	10.17	4.07	-0.6	-0.7	2.2
trans-nonachlor	7.6	11.4	10.7	9.9	8.8	9.3	9.9	20.5	9.3	6.1	10.6	1.9	11.5	4.6	-0.3	-0.2	1.4
dieldrin	5.19	10.60	10.80	8.44	6.75	7.10	8.86	35.9	7.43	12.0	7.65	1.42	6.07	2.43	0.6	0.5	2.4
4,4'-DDE	175	164	155	181	181	184	165	6.1	182	1.0	157	16	137	41	0.2	0.2	0.4
2,4'-DDD	18.3	23.3	24.2	21.7	20.0	22.3	21.9	14.5	21.3	5.6	22.3	1.7	25.3	10.1	-0.1	-0.1	1.0
endrin	NA	NA	NA	NA	NA	NA	NA		NA		<5		<5				
endosulfan II	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.50	2.50			
4,4'-DDD	83.2	97.8	98.6	92.8	88.2	96.9	93.2	9.3	92.6	4.7	81.6	10.8	74.3	22.3	0.6	0.6	0.6
2,4'-DDT	3.98	4.64	6.49	4.60	4.29	5.07	5.04	25.8	4.65	8.4	7.03	1.98	6.28	1.88	-1.1	-0.8	1.7
cis-nonachlor	5.83	7.49	8.48	7.07	6.26	7.14	7.27	18.4	6.82	7.2	5.19	0.66	5.98	2.39	1.6	2.3	1.2
4,4'-DDT	0.61	0.66	0.99	0.83	0.58	0.62	0.75	27.2	0.67	19.7	5.74	2.97	10.42	6.25	**-3.5**	-2.1	1.8
mirex	0.61	0.77	0.93	0.69	0.67	0.79	0.77	20.9	0.72	9.2	<5		2.50	2.50			1.4

Laboratory: 22

Pesticides in FISH III

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	77
Qualitative	1	5
Not Determined	4	18

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	11	10	13
2 to 3	1	3	4
≥ 3	1	0	0

[a]z- and p-scores ≥ 3 are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95FSH3 - Fish Homogenate III (data reported as if three figures were significant)

Laboratory No.: 22
Reporting Date: 10/18/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	FISH III, ng/g wet			CRM Carp-1, ng/g wet			FISH III		CRM Carp-1		FISH III, ng/g wet		CRM Carp-1, ng/g wet		FISH III		
Analysis date	8/11/95 Sample 1	8/28/95 Sample 2	8/21/95 Sample 3	8/11/95 Sample 1	8/28/95 Sample 2	8/21/95 Sample 3	lab mean ng/g wet	lab %RSD	lab mean ng/g wet	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	NA	NA	NA	NA	NA	NA	NA		NA		5.57	0.55	3.00	3.00			
PCB 18	16.8	23.8	28.4	22.0	18.3	19.1	23.0	25.4	19.8	9.8	28.9	2.3	22.5	6.8	-0.8	-1.2	1.7
PCB 28	23.6	38.8	33.5	29.7	27.6	28.8	32.0	24.1	28.7	3.7	35.2	3.5	27.0	9.4	-0.4	-0.4	1.6
PCB 52	120	158	167	135	140	146	148	16.8	140	3.9	135	11	**124**	**32**	0.4	0.6	1.1
PCB 44	76.2	94.6	96.9	84.5	86.7	88.6	89.2	12.7	86.6	2.4	85.6	5.5	69.3	20.8	0.2	0.3	0.8
PCB 66/95	133	131	167	146	142	177	144	14.1	155	12.4	166	18	157	47	-0.5	-0.6	0.9
PCB 101/90	120	154	150	129	145	145	141	13.1	140	6.6	129	9	**124**	**37**	0.4	0.6	0.9
PCB 118	145	178	182	153	171	179	168	12.1	168	7.9	135	11	**132**	**60**	1.0	1.4	0.8
PCB 153	109	152	143	121	147	120	135	17	129	12	95.1	7.5	**83**	**39**	1.7	2.4	1.1
PCB 105	41.6	46.1	48.3	47.2	35.8	52.3	45.3	7.5	45.1	18.7	51.9	4.6	54.0	24.0	-0.5	-0.7	0.5
PCB 138/163/164	98	119	124	108	109	115	114	12.4	111	3.4	107	8	**102**	**23**	0.2	0.4	0.8
PCB 187/182	27.4	31.3	36.8	28.5	30.6	34.3	31.8	14.8	31.1	9.4	33.8	2.6	**36**	**16**	-0.2	-0.3	1.0
PCB 128	13.9	16.5	18.5	15.4	15.2	16.7	16.3	14.2	15.8	5.2	18.4	1.5	18.4	5.5	-0.4	-0.7	0.9
PCB 180	42.0	51.0	51.6	45.7	47.2	50.6	48.2	11.2	47.8	5.2	48.5	2.4	**46**	**14**	0.0	-0.1	0.7
PCB 170/190	19.6	22.7	24.3	21.0	21.5	23.4	22.2	10.8	22.0	5.8	22.5	2.0	**22**	**8**	-0.1	-0.1	0.7
PCB 195	3.14	3.50	4.22	3.24	3.52	4.12	3.62	15.2	3.63	12.4	4.41	0.62	4.58	1.37	-0.7	-0.6	1.0
PCB 206	4.70	4.93	6.03	4.56	4.66	5.73	5.22	13.6	4.98	13.0	4.49	0.58	4.47	1.34	0.7	0.6	0.9
PCB 209	3.99	4.05	5.30	3.97	3.93	5.07	4.45	16.6	4.32	15.0	5.01	0.76	4.48	2.01	-0.4	-0.4	1.1

Laboratory: 22
PCBs in FISH III
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	94
Qualitative	0	0
Not Determined	1	6

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

Appendix D: Results by Laboratory, Sediment V

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 1a
Reporting Date: 11/15/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	25.1	24.7	23.5	1.33	1.42	1.41	24.4	3.4	1.39	3.6	23.0	3.3	1.39	0.19	0.3	0.3	0.2
PCB 18	52.7	54.2	52.1	1.25	1.22	1.10	53.0	2.0	1.19	6.7	49.5	5.6	1.15	0.16	0.3	0.4	0.1
PCB 28	80.5	81.0	77.3	7.98	7.77	7.45	79.6	2.5	7.73	3.5	84.6	10.6	9.8	3.7	-0.2	-0.3	0.2
PCB 52	82.2	79.3	77.5	7.04	6.88	6.95	79.7	3.0	6.96	1.2	76.4	8.0	**6.89**	**0.56**	0.2	0.2	0.2
PCB 44	59.3	60.2	62.1	5.04	4.93	4.88	60.5	2.4	4.95	1.7	56.2	5.6	**4.80**	**0.62**	0.3	0.5	0.2
PCB 66/95	134.0	140.0	131.0	14.1	14.9	14.6	135.0	3.4	14.5	2.8	92.1	21.6	**14.3**	**2.5**	1.9	1.3	0.2
PCB 101/90	71.2	72.6	73.5	10.6	10.2	10.9	72.4	1.6	10.6	3.3	72.6	9.7	**11.0**	**1.6**	0.0	0.0	0.1
PCB 118	64.5	61.8	62.4	9.56	9.45	9.31	62.9	2.3	9.44	1.3	54.7	6.3	**10.0**	**1.1**	0.6	0.9	0.2
PCB 153	79.9	74.4	71.6	15.3	16.3	16.1	75.3	5.6	15.9	3.3	64.8	12.0	**17.6**	**1.9**	0.6	0.6	0.4
PCB 105	27.0	24.1	26.3	3.11	3.34	3.22	25.8	5.9	3.22	3.6	20.8	4.6	**3.65**	**0.27**	1.0	0.7	0.4
PCB 138/163/164	65.1	61.3	63.2	12.5	12.7	12.0	63.2	3.0	12.4	2.9	62.0	6.7	**13.38**	**0.97**	0.1	0.1	0.2
PCB 187/182	26.1	25.3	24.9	6.02	5.99	6.14	25.4	2.4	6.05	1.3	23.4	2.3	7.0	2.6	0.3	0.6	0.2
PCB 128	8.33	8.34	7.93	1.55	1.63	1.49	8.2	2.9	1.56	4.5	8.56	1.46	**1.87**	**0.32**	-0.2	-0.2	0.2
PCB 180	45.0	43.6	44.2	6.03	6.15	5.96	44.3	1.6	6.05	1.6	42.9	7.4	**5.83**	**0.58**	0.1	0.2	0.1
PCB 170/190	22.6	24.6	23.1	2.98	3.14	3.22	23.4	4.4	3.11	3.9	19.3	3.9	**3.00**	**0.46**	0.9	0.9	0.3
PCB 195	3.83	3.56	3.61	<2	<2	<2	3.67	3.9	<2		4.76	1.52	<3		-0.9	-0.4	0.3
PCB 206	9.51	9.33	8.96	3.21	3.31	3.17	9.27	3.0	3.23	2.2	8.16	0.85	**3.67**	**0.87**	0.5	0.8	0.2
PCB 209	6.54	7.01	7.00	8.44	8.34	8.67	6.85	3.9	8.48	2.0	5.94	0.68	**8.34**	**0.49**	0.6	0.9	0.3

Laboratory: 1a
PCBs in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	18	18	18
2 to 3	0	0	0
≥ 3	0	0	0

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.7			45.7		45.7	0.8	44.9	0.6	0.0	0.0	

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 1b**

Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant) Reporting Date: 11/15/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		1506	257	**1010**	**140**			
2-methylnaphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		808	126	325	60			
1-methylnaphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		510	90	150	30			
biphenyl	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		272	70	175	18			
2,6-dimethylnaphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		755	156	120	24			
acenaphthylene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		546	266	37.0	14.0			
acenaphthene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		552	58	41.0	10.0			
1,6,7-trimethylnaphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		462	133	48.0	10.0			
fluorene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		865	140	**97.3**	**8.6**			
phenanthrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		5212	596	**489**	**23**			
anthracene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		1952	275	**184**	**14**			
1-methylphenanthrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		1528	326	101	27			
fluoranthene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		8511	1147	**981**	**78**			
pyrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		9235	1460	**811**	**24**			
benz[a]anthracene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		4715	441	**427**	**25**			
chrysene + triphenylene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		5439	613	577	35			
benzofluoranthenes [b+j+k]	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		7147	501	1441	150			
benzo[e]pyrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		3149	267	**553**	**59**			
benzo[a]pyrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		4228	462	**628**	**52**			
perylene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		1153	166	**452**	**58**			
indeno[1,2,3-cd]pyrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		2415	446	**501**	**72**			
dibenz[a,h]anthracene + [a,c]	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		705	158	**117**	**14**			
benzo[ghi]perylene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		2362	467	**525**	**67**			

Laboratory: 1b

PAH in Sediment V

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	23	100

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

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 1b
Reporting Date: 11/15/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	1.54	1.65	1.77	<1	<1	<1	1.65	7.0	<1		<2.5		<2				
hexachlorobenzene	6.66	6.34	6.22	62.5	65.2	63.3	6.41	3.6	63.7	2.2	5.79	0.55	**70**	**25**	0.4	0.7	0.2
gamma-HCH	<2	<2	<2	<2	<2	<2	<2		<2		<3		<2				
heptachlor	<1	<1	<1	<1	<1	<1	<1		<1		<4		<2				
aldrin	<2	<2	<2	<2	<2	<2	<2		<2		<2		<2				
heptachlor epoxide	<2	<2	<2	<2	<2	<2	<2		<2		<2		<2				
oxychlordane	<5	<5	<5	<3	<3	<3	<5		<3		<5		2.59	0.20			
trans-chlordane	5.99	6.02	5.76	1.55	1.45	1.59	5.92	2.4	1.53	4.7	10.4	4.2	<2		-1.7	-0.8	0.2
2,4'-DDE	21.4	20.6	20.7	0.6	0.5	0.5	20.9	2.1	0.54	3.2	17.7	4.8	**0.73**	**0.11**	0.7	0.5	0.1
endosulfan I	<2	<2	<2	<3	<3	<3	<2		<3		<3		<2				
cis-chlordane	15.9	15.2	16.8	1.46	1.48	1.42	16.0	5.0	1.45	2.1	15.6	3.4	**2.33**	**0.56**	0.1	0.1	0.3
trans-nonachlor	8.00	8.32	7.84	1.43	1.33	1.32	8.05	3.0	1.36	4.5	10.0	2.2	**1.26**	**0.13**	-0.8	-0.6	0.2
dieldrin	1.98	1.88	2.00	1.25	1.29	1.22	1.95	3.3	1.25	2.8	7.98	3.63	1.26	0.37	**-3.0**	-1.3	0.2
4,4'-DDE	100	95.3	96.3	6.8	7.0	6.8	97.2	2.5	6.87	1.5	79.3	15.9	**6.59**	**0.56**	0.9	0.7	0.2
2,4'-DDD	46.5	44.3	44.9	1.33	1.54	1.33	45.2	2.5	1.40	8.7	39.6	8.1	<2		0.6	0.5	0.2
endrin	<3	<3	<3	<3	<3	<3	<3		<3		<3		<2				
endosulfan II	<2	<2	<2	<2	<2	<2	<2		<2		<3		<2				
4,4'-DDD	121	116	114	4.35	4.65	4.47	117	3.1	4.49	3.4	126	30	**5.06**	**0.56**	-0.3	-0.2	0.2
2,4'-DDT	<2	<2	<2	<2	<2	<2	<2		<2		<6		<2				
cis-nonachlor	3.45	3.03	3.44	<2	<2	<2	3.31	7.2	<2		3.52	1.17	<2		-0.2	-0.1	0.5
4,4'-DDT	127	119	125	1.33	1.28	1.22	124	3.4	1.28	4.3	131	45	1.25	0.10	-0.2	-0.1	0.2
mirex	<2	<2	<2	<1	<1	<1	<2		<1		<3		<2				

Laboratory: 1b
Pesticides in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	12	55
Qualitative	10	45
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.
[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 1b
Reporting Date: 11/15/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	23.5	24.5	23.9	1.41	1.33	1.42	24.0	2.1	1.39	3.6	23.0	3.3	1.39	0.19	0.2	0.2	0.1
PCB 18	53.8	55.0	52.7	1.22	1.19	1.21	53.8	2.1	1.21	1.3	49.5	5.6	1.15	0.16	0.4	0.5	0.1
PCB 28	79.4	80.3	77.5	7.54	7.53	7.81	79.1	1.8	7.63	2.1	84.6	10.6	9.8	3.7	-0.3	-0.3	0.1
PCB 52	80.5	77.8	78.3	6.78	6.66	7.03	78.9	1.8	6.82	2.8	76.4	8.0	**6.89**	**0.56**	0.1	0.2	0.1
PCB 44	60.5	61.7	62.2	5.00	4.89	4.90	61.5	1.4	4.93	1.2	56.2	5.6	**4.80**	**0.62**	0.4	0.6	0.1
PCB 66/95	133	145	144	14.7	15.0	15.1	141	4.7	14.9	1.4	92.1	21.6	**14.3**	**2.5**	2.1	1.5	0.3
PCB 101/90	70.9	71.5	74.0	10.0	10.4	10.4	72.1	2.3	10.3	2.3	72.6	9.7	**11.0**	**1.6**	0.0	0.0	0.2
PCB 118	66.9	63.4	63.2	9.2	9.8	9.4	64.5	3.2	9.5	2.9	54.7	6.3	**10.0**	**1.1**	0.7	1.0	0.2
PCB 153	70.5	73.4	73.1	16.0	15.3	15.3	72.3	2.2	15.5	2.6	64.8	12.0	**17.6**	**1.9**	0.5	0.4	0.1
PCB 105	25.8	24.9	25.3	2.99	3.42	3.31	25.3	1.8	3.24	6.9	20.8	4.6	**3.65**	**0.27**	0.9	0.7	0.1
PCB 138/163/164	60.9	63.3	62.1	11.9	12.7	12.4	62.1	1.9	12.3	3.3	62.0	6.7	**13.38**	**0.97**	0.0	0.0	0.1
PCB 187/182	25.4	26.9	26.0	6.66	6.33	6.34	26.1	2.9	6.44	2.9	23.4	2.3	7.0	2.6	0.5	0.7	0.2
PCB 128	8.45	8.25	8.11	1.45	1.52	1.55	8.27	2.1	1.51	3.4	8.56	1.46	**1.87**	**0.32**	-0.1	-0.2	0.1
PCB 180	44.0	45.9	45.1	5.99	6.12	6.13	45.0	2.1	6.08	1.3	42.9	7.4	**5.83**	**0.58**	0.2	0.3	0.1
PCB 170/190	23.9	25.3	24.4	3.05	3.22	3.05	24.5	2.9	3.11	3.2	19.3	3.9	**3.00**	**0.46**	1.1	1.1	0.2
PCB 195	3.98	3.66	3.54	<2	<2	<2	3.73	6.1	<2		4.76	1.52	<3		-0.9	-0.4	0.4
PCB 206	10.3	9.88	9.54	3.29	3.44	3.17	9.91	3.8	3.30	4.1	8.16	0.85	**3.67**	**0.87**	0.9	1.2	0.3
PCB 209	6.68	7.33	7.02	8.43	8.55	8.22	7.01	4.6	8.40	2.0	5.94	0.68	**8.34**	**0.49**	0.7	1.0	0.3

Laboratory: 1b
PCBs in Sediment V

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	17	18	18
2 to 3	1	0	0
≥ 3	0	0	0

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	45.7			45.7		45.7	0.8	44.9	0.6	0.0	0.0	

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 1c
Reporting Date: 11/15/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		1506	257	**1010**	**140**			
2-methylnaphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		808	126	325	60			
1-methylnaphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		510	90	150	30			
biphenyl	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		272	70	175	18			
2,6-dimethylnaphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		755	156	120	24			
acenaphthylene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		546	266	37.0	14.0			
acenaphthene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		552	58	41.0	10.0			
1,6,7-trimethylnaphthalene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		462	133	48.0	10.0			
fluorene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		865	140	**97.3**	**8.6**			
phenanthrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		5212	596	**489**	**23**			
anthracene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		1952	275	**184**	**14**			
1-methylphenanthrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		1528	326	101	27			
fluoranthene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		8511	1147	**981**	**78**			
pyrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		9235	1460	**811**	**24**			
benz[a]anthracene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		4715	441	**427**	**25**			
chrysene + triphenylene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		5439	613	577	35			
benzofluoranthenes [b+j+k]	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		7147	501	1441	150			
benzo[e]pyrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		3149	267	**553**	**59**			
benzo[a]pyrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		4228	462	**628**	**52**			
perylene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		1153	166	**452**	**58**			
indeno[1,2,3-cd]pyrene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		2415	446	**501**	**72**			
dibenz[a,h]anthracene + [a,c]	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		705	158	**117**	**14**			
benzo[ghi]perylene	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a	See 1a		See 1a		2362	467	**525**	**67**			

Laboratory: 1c
PAH in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	23	100

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

[a]z- and p-scores ≥ 3 are bolded.
[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 1c
Reporting Date: 11/15/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	inf	inf	inf	inf	inf	inf	inf		inf		<2.5		<2				
hexachlorobenzene	7.01	6.56	6.34	59.8	63.4	61.5	6.64	5.1	61.6	2.9	5.79	0.55	**70**	**25**	0.6	1.0	0.3
gamma-HCH	inf	inf	inf	inf	inf	inf	inf		inf		<3		<2				
heptachlor	<3	<3	<3	<3	<3	<3	<3		<3		<4		<2				
aldrin	<2	<2	<2	<2	<2	<2	<2		<2		<2		<2				
heptachlor epoxide	<2	<2	<2	<2	<2	<2	<2		<2		<2		<2				
oxychlordane	<2	<2	<2	<2	<2	<2	<2		<2		<5		2.59	0.20			
trans-chlordane	5.54	5.89	5.44	1.34	1.39	1.55	5.62	4.2	1.43	7.7	10.4	4.2	<2		-1.8	-0.9	0.3
2,4'-DDE	21.6	20.8	21.5	0.57	0.51	0.54	21.3	2.0	0.54	5.0	17.7	4.8	**0.73**	**0.11**	0.8	0.5	0.1
endosulfan I	<3	<3	<3	<3	<3	<3	<3		<3		<3		<2				
cis-chlordane	17.2	17.1	16.4	1.47	1.50	1.43	16.9	2.6	1.47	2.4	15.6	3.4	**2.33**	**0.56**	0.3	0.2	0.2
trans-nonachlor	8.88	8.04	7.99	1.34	1.26	1.44	8.30	6.0	1.35	6.7	10.0	2.2	**1.26**	**0.13**	-0.7	-0.5	0.4
dieldrin	inf	inf	inf	inf	inf	inf	inf		inf		7.98	3.63	1.26	0.37			
4,4'-DDE	95.2	98.5	92.4	6.66	6.36	6.34	95.4	3.2	6.45	2.8	79.3	15.9	**6.59**	**0.56**	0.8	0.6	0.2
2,4'-DDD	43.2	45.8	41.7	1.26	1.55	1.34	43.6	4.8	1.38	10.8	39.6	8.1	<2		0.4	0.3	0.3
endrin	<3	<3	<3	<3	<3	<3	<3		<3		<3		<2				
endosulfan II	<3	<3	<3	<3	<3	<3	<3		<3		<3		<2				
4,4'-DDD	117	125	122	4.25	4.43	4.37	121	3.3	4.35	2.1	126	30	**5.06**	**0.56**	-0.2	-0.1	0.2
2,4'-DDT	<3	<3	<3	<3	<3	<3	<3		<3		<6		<2				
cis-nonachlor	3.65	3.44	3.52	<3	<3	<3	3.54	3.0	<3		3.52	1.17	<2		0.0	0.0	0.2
4,4'-DDT	124	127	122	1.55	1.48	1.34	124	2.0	1.46	7.3	131	45	1.25	0.10	-0.2	-0.1	0.1
mirex	<2	<2	<2	<3	<3	<3	<2		<3		<3		<2				

Laboratory: 1c
Pesticides in Sediment V

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	10	46
Qualitative	12	55
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 1c
Reporting Date: 11/15/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	7/11/95 S 1	7/27/95 S 2	10/3/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	22.4	23.7	23.1	1.32	1.41	1.33	23.1	2.8	1.35	3.6	23.0	3.3	1.39	0.19	0.0	0.0	0.2
PCB 18	52.7	54.2	52.3	1.11	1.22	1.26	53.1	1.9	1.20	6.5	49.5	5.6	1.15	0.16	0.3	0.4	0.1
PCB 28	77.3	79.9	76.8	6.99	7.44	7.65	78.0	2.1	7.36	4.6	84.6	10.6	9.8	3.7	-0.3	-0.4	0.1
PCB 52	79.7	78.0	79.2	6.66	6.83	6.88	79.0	1.1	6.79	1.7	76.4	8.0	**6.89**	**0.56**	0.1	0.2	0.1
PCB 44	59.2	58.9	60.3	4.88	5.03	5.01	59.5	1.2	4.97	1.6	56.2	5.6	**4.80**	**0.62**	0.2	0.4	0.1
PCB 66/95	141	137	133	14.6	15.2	14.2	137	2.9	14.7	3.4	92.1	21.6	**14.3**	**2.5**	1.9	1.4	0.2
PCB 101/90	73.4	70.6	74.4	9.1	10.3	10.0	72.8	2.7	9.8	6.7	72.6	9.7	**11.0**	**1.6**	0.0	0.0	0.2
PCB 118	65.7	64.5	63.4	9.0	9.7	9.2	64.5	1.8	9.3	3.6	54.7	6.3	**10.0**	**1.1**	0.7	1.0	0.1
PCB 153	74.4	72.2	72.6	16.3	16.0	15.7	73.1	1.6	16.0	1.9	64.8	12.0	**17.6**	**1.9**	0.5	0.4	0.1
PCB 105	24.7	25.8	25.7	3.56	3.61	3.26	25.4	2.4	3.48	5.4	20.8	4.6	**3.65**	**0.27**	0.9	0.7	0.2
PCB 138/163/164	61.4	64.6	64.2	12.6	11.7	12.1	63.4	2.8	12.1	3.7	62.0	6.7	**13.38**	**0.97**	0.1	0.1	0.2
PCB 187/182	24.7	26.4	26.1	6.44	6.23	6.31	25.7	3.5	6.33	1.7	23.4	2.3	7.0	2.6	0.4	0.6	0.2
PCB 128	8.67	8.34	8.33	1.45	1.73	1.52	8.4	2.3	1.57	9.3	8.56	1.46	**1.87**	**0.32**	-0.1	-0.1	0.2
PCB 180	45.8	44.6	44.1	5.76	6.23	6.02	44.8	1.9	6.00	3.9	42.9	7.4	**5.83**	**0.58**	0.2	0.2	0.1
PCB 170/190	22.6	24.7	23.6	3.55	3.25	3.33	23.6	4.4	3.38	4.6	19.3	3.9	**3.00**	**0.46**	0.9	0.9	0.3
PCB 195	3.61	3.56	3.77	<3	<3	<3	3.65	3.0	<3		4.76	1.52	<3		-0.9	-0.4	0.2
PCB 206	9.88	9.93	9.67	3.33	3.51	3.25	9.83	1.4	3.36	4.0	8.16	0.85	**3.67**	**0.87**	0.8	1.2	0.1
PCB 209	7.05	7.34	7.33	8.43	8.11	8.43	7.24	2.3	8.32	2.2	5.94	0.68	**8.34**	**0.49**	0.9	1.3	0.2

Laboratory: 1c
PCBs in Sediment V

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	18	18	18
2 to 3	0	0	0
≥ 3	0	0	0

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	%RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	45.7			45.7		45.7	0.8	44.9	0.6	0.0	0.0	

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise *Data submitted after exercise results publicized at 12/5 QA meeting. **Laboratory No.: 2***

Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant) Reporting Date: 1/10/96

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	12/3/95 S 1	12/4/95 S 2	12/4/95 S 3	12/3/95 S 1	12/4/95 S 2	12/4/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	1180	1200	1170	855	768	648	1183	1.3	757	13.7	1506	257	**1010**	**140**	-0.9	-0.8	0.1
2-methylnaphthalene	717	735	688	310	289	253	713	3.3	284	10.2	808	126	325	60	-0.5	-0.6	0.2
1-methylnaphthalene	398	433	437	146	134	122	423	5.1	134	9.0	510	90	150	30	-0.7	-1.0	0.3
biphenyl	209	203	212	101	98	93	208	2.2	97	4.2	272	70	175	18	-0.9	-1.0	0.1
2,6-dimethylnaphthalene	726	747	748	139	150	123	740	1.7	137	9.9	755	156	120	24	-0.1	-0.1	0.1
acenaphthylene	818	776	842	71.0	70.8	67.1	812	4.1	70	3.2	546	266	37.0	14.0	2.0	0.8	0.3
acenaphthene	522	552	543	40.5	50.0	37.5	539	2.9	43	15.3	552	58	41.0	10.0	-0.1	-0.2	0.2
1,6,7-trimethylnaphthalene	639	661	659	60.6	67.0	54.7	653	1.9	61	10.1	462	133	48.0	10.0	1.7	1.2	0.1
fluorene	909	939	948	86.1	91.9	80.3	932	2.2	86.1	6.7	865	140	**97.3**	**8.6**	0.3	0.3	0.1
phenanthrene	4320	4590	4700	489	476	419	4537	4.3	461	8.1	5212	596	**489**	**23**	-0.5	-0.7	0.3
anthracene	1640	1660	1690	195	179	179	1663	1.5	184	5.0	1952	275	**184**	**14**	-0.6	-0.6	0.1
1-methylphenanthrene	1290	1430	1350	104	95	79	1357	5.2	92	14.0	1528	326	101	27	-0.4	-0.4	0.3
fluoranthene	6750	6630	7290	989	1000	877	6890	5.1	955	7.1	8511	1147	**981**	**78**	-0.8	-0.8	0.3
pyrene	7860	7310	8080	948	796	840	7750	5.1	861	9.1	9235	1460	**811**	**24**	-0.6	-0.6	0.3
benz[a]anthracene	4800	4550	4420	387	400	420	4590	4.2	402	4.1	4715	441	**427**	**25**	-0.1	-0.2	0.3
chrysene + triphenylene	4690	4500	4300	448	458	419	4497	4.3	442	4.6	5439	613	577	35	-0.7	-0.9	0.3
benzofluoranthenes [b+j+k]	5510	5070	4810	1350	1260	1190	5130	6.9	1267	6.3	7147	501	1441	150	-1.1	-2.4	0.5
benzo[e]pyrene	2330	2070	1990	490	510	496	2130	8.3	499	2.1	3149	267	**553**	**59**	-1.3	-2.7	0.6
benzo[a]pyrene	3560	3100	2930	516	510	523	3197	10.2	516	1.3	4228	462	**628**	**52**	-1.0	-1.3	0.7
perylene	908	840	936	277	299	291	895	5.5	289	3.9	1153	166	**452**	**58**	-0.9	-1.1	0.4
indeno[1,2,3-cd]pyrene	1740	1530	1450	445	476	402	1573	9.5	441	8.4	2415	446	**501**	**72**	-1.4	-1.1	0.6
dibenz[a,h]anthracene + [a,c]	533	449	431	100	98	97	471	11.6	98	1.8	705	158	**117**	**14**	-1.3	-0.9	0.8
benzo[ghi]perylene	1750	1450	1330	425	435	370	1510	14.3	410	8.5	2362	467	**525**	**67**	-1.4	-1.1	1.0

Laboratory: 2*

PAH in Sediment V

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	23	100
Qualitative	0	0
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

*Data submitted after exercise results publicized
(data reported as if three figures were significant)

Laboratory No.: 2*
Reporting Date: 1/10/96

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	11/28/95 S 1	11/30/95 S 2	11/30/95 S 3	11/27/95 S 1	11/29/95 S 2	11/29/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<1.16	1.70	<1.17	<1.16	<1.28	<1.22	<1.17		<1.22		<2.5		<2				
hexachlorobenzene	5.18	9.88	5.53	62.7	66.5	65.1	6.86	38.2	64.8	3.0	5.79	0.55	**70**	**25**	0.7	1.2	2.5
gamma-HCH	<0.50	<0.51	<0.50	<0.50	<0.55	<0.53	<0.50		<0.53		<3		<2				
heptachlor	<0.67	Other	Other	<2.38	<2.61	2.69	Other		<2.5		<4		<2				
aldrin	<0.50	<0.51	<0.51	<0.50	<0.55	<0.53	<0.51		<0.53		<2		<2				
heptachlor epoxide	<4.05	<4.10	<4.07	<4.05	<4.45	<4.26	<4.07		<4.26		<2		<2				
oxychlordane	<2.34	<2.37	<2.36	<2.34	<2.58	<2.47	<2.36		<2.47		<5		2.59	0.20			
trans-chlordane	24.1	26.4	32.2	1.6	3.0	2.0	27.6	15.1	2.20	33.1	10.4	4.2	<2		**6.6**	**3.2**	1.0
2,4'-DDE	13.9	18.8	15.5	0.7	<0.63	0.8	16.1	15.6	0.74	17.2	17.7	4.8	**0.73**	**0.11**	-0.4	-0.2	1.0
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
cis-chlordane	21.0	20.1	19.5	2.4	2.2	2.9	20.2	3.7	2.5	13.6	15.6	3.4	**2.33**	**0.56**	1.2	0.9	0.2
trans-nonachlor	9.7	11.8	10.9	1.2	1.3	1.2	10.8	9.9	1.2	3.6	10.0	2.2	**1.26**	**0.13**	0.3	0.3	0.7
dieldrin	13.60	9.33	12.00	<5.35	<5.88	<5.63	11.64	18.5	<5.63		7.98	3.63	1.26	0.37	1.8	0.8	1.2
4,4'-DDE	63.9	81.5	93.3	6.2	7.9	6.4	79.6	18.6	6.8	13.4	79.3	15.9	**6.59**	**0.56**	0.0	0.0	1.2
2,4'-DDD	46.6	44.6	79.1	2.2	1.5	1.4	56.8	34.1	1.7	26.3	39.6	8.1	<2		1.7	1.4	2.3
endrin	DL	DL	DL	DL	DL	DL	DL		DL		<3		<2				
endosulfan II	2.96	1.57	<1.08	<1.08	1.25	<1.13	2.27	43.4	<1.13		<3		<2				2.9
4,4'-DDD	131	82	93	7.84	8.65	6.48	102	25.4	7.66	14.3	126	30	**5.06**	**0.56**	-0.8	-0.6	1.7
2,4'-DDT	13.80	5.77	<4.21	<4.18	<4.60	<4.40	9.79	58.0	<4.40		<6		<2				**3.9**
cis-nonachlor	6.02	8.23	7.75	1.04	1.35	1.32	7.33	15.9	1.24	13.8	3.52	1.17	<2		**4.3**	2.5	1.1
4,4'-DDT	164	159	126	<1.07	<1.17	<1.12	150	13.8	<1.12		131	45	1.25	0.10	0.6	0.3	0.9
mirex	<0.50	<0.51	<0.50	<0.50	<0.55	<0.53	<0.50		<0.53		<3		<2				

Laboratory: 2*
Pesticides in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	13	59
Qualitative	8	36
Not Determined	1	5

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

[a]z- and p-scores ≥ 3 are bolded.
[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

*Data submitted after exercise results publicized
(data reported as if three figures were significant)

Laboratory No.: 2*
Reporting Date: 1/10/96

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	11/28/95 S 1	11/30/95 S 2	11/30/95 S 3	11/27/95 S 1	11/29/95 S 2	11/29/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	19.5	19.5	26.1	<1.85	<2.03	<1.94	21.7	17.6	<1.94		23.0	3.3	1.39	0.19	-0.2	-0.2	1.2
PCB 18	72.7	79.6	74.1	1.96	2.48	2.70	75.5	4.8	2.38	16.0	49.5	5.6	1.15	0.16	2.1	**3.1**	0.3
PCB 28	116	128	135	7.65	<0.91	10.10	126	7.6	8.88	19.5	84.6	10.6	9.8	3.7	2.0	2.5	0.5
PCB 52	93.7	95.9	90.6	11.4	12.6	10.7	93.4	2.9	11.57	8.3	76.4	8.0	**6.89**	**0.56**	0.9	1.3	0.2
PCB 44	64.9	70.6	75.6	5.09	8.09	5.76	70.4	7.6	6.31	24.9	56.2	5.6	**4.80**	**0.62**	1.0	1.6	0.5
PCB 66/95	74.4	Other	80.5	9.0	23.2	9.8	77.5	5.6	14.0	56.9	92.1	21.6	**14.3**	**2.5**	-0.6	-0.5	0.4
PCB 101/90	73.0	101.0	87.9	12.9	22.9	18.0	87.3	16.0	17.9	27.9	72.6	9.7	**11.0**	**1.6**	0.8	0.9	1.1
PCB 118	81.0	90.0	92.5	13.0	40.6	14.3	87.8	6.9	22.6	68.8	54.7	6.3	**10.0**	**1.1**	2.4	**3.5**	0.5
PCB 153	92.2	89.8	109.0	15.9	17.1	18.7	97.0	10.8	17.2	8.2	64.8	12.0	**17.6**	**1.9**	2.0	1.7	0.7
PCB 105	30.0	34.0	29.0	3.71	3.58	4.01	31.0	8.5	3.77	5.9	20.8	4.6	**3.65**	**0.27**	2.0	1.5	0.6
PCB 138/163/164	82.6	78.4	74.7	15.3	15.0	15.8	78.6	5.0	15.4	2.6	62.0	6.7	**13.38**	**0.97**	1.1	1.7	0.3
PCB 187/182	27.3	22.2	24.3	8.13	7.05	7.36	24.6	10.4	7.51	7.4	23.4	2.3	7.0	2.6	0.2	0.3	0.7
PCB 128	13.20	10.50	8.78	<2.82	<3.10	<2.96	10.8	20.6	<2.96		8.56	1.46	**1.87**	**0.32**	1.1	1.3	1.4
PCB 180	54.7	40.8	47.4	14.90	9.87	9.95	47.6	14.6	11.57	24.9	42.9	7.4	**5.83**	**0.58**	0.4	0.6	1.0
PCB 170/190	Other	Other	Other	Other	Other	Other	Other		Other		19.3	3.9	**3.00**	**0.46**			
PCB 195	9.06	6.98	8.65	4.78	2.58	<1.50	8.23	13.4	3.68	42.3	4.76	1.52	<3		2.9	1.4	0.9
PCB 206	12.30	3.39	8.00	5.37	3.31	2.69	7.90	56.4	3.79	37.0	8.16	0.85	**3.67**	**0.87**	-0.1	-0.2	**3.8**
PCB 209	9.10	9.96	6.37	11.30	9.08	8.11	8.48	22.1	9.50	17.2	5.94	0.68	**8.34**	**0.49**	1.7	2.5	1.5

Laboratory: 2*
PCBs in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	94
Qualitative	1	6
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	14	13	16
2 to 3	3	2	0
≥ 3	0	2	1

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.5	46.2	45.5	45.7	0.9	45.7	0.8	44.9	0.6	0.0	0.0	0.1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 3
Reporting Date: 09/26/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	07/08/95 S 1	08/07/95 S 2	09/05/95 S 3	07/08/95 S 1	08/07/95 S 2	09/05/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	881	1630	1370	1000	852	756	1294	24.0	869	11.5	1506	257	**1010**	**140**	-0.6	-0.6	1.6
2-methylnaphthalene	466	575	582	348	294	268	541	9.8	303	11.0	808	126	325	60	-1.3	-1.6	0.7
1-methylnaphthalene	375	421	461	78	73	63	419	8.4	71	8.8	510	90	150	30	-0.7	-1.1	0.6
biphenyl	na	na	na	na	na	na	NA		NA		272	70	175	18			
2,6-dimethylnaphthalene	na	na	na	na	na	na	NA		NA		755	156	120	24			
acenaphthylene	559	539	540	64.2	50.1	43.9	546	1.7	53	16.1	546	266	37.0	14.0	0.0	0.0	0.1
acenaphthene	693	587	679	49.7	38.0	44.2	653	7.2	44	10.9	552	58	41.0	10.0	0.7	1.4	0.5
1,6,7-trimethylnaphthalene	na	na	na	na	na	na	NA		NA		462	133	48.0	10.0			
fluorene	951	799	819	93.3	90.7	93.7	856	7.9	92.6	1.4	865	140	**97.3**	**8.6**	0.0	0.0	0.5
phenanthrene	4470	4350	4320	439	413	376	4380	1.5	409	6.3	5212	596	**489**	**23**	-0.6	-0.8	0.1
anthracene	1660	1740	1660	200	200	148	1687	2.2	183	13.4	1952	275	**184**	**14**	-0.5	-0.6	0.1
1-methylphenanthrene	na	na	na	na	na	na	NA		NA		1528	326	101	27			
fluoranthene	7150	7520	7130	892	606	730	7267	2.5	743	15.8	8511	1147	**981**	**78**	-0.6	-0.6	0.2
pyrene	7870	7980	6700	783	519	644	7517	7.7	649	16.6	9235	1460	**811**	**24**	-0.7	-0.7	0.5
benz[a]anthracene	4610	5090	4800	479	415	460	4833	4.1	451	5.9	4715	441	**427**	**25**	0.1	0.2	0.3
chrysene + triphenylene	6010	6220	6070	617	527	509	6100	1.4	551	8.6	5439	613	577	35	0.5	0.6	0.1
benzofluoranthenes [b+j+k]	7470	7520	7420	1200	1202	1310	7470	0.5	1237	4.2	7147	501	1441	150	0.2	0.4	0.0
benzo[e]pyrene	3410	3450	3340	559	535	622	3400	1.3	572	6.4	3149	267	**553**	**59**	0.3	0.7	0.1
benzo[a]pyrene	4750	5220	4970	578	531	578	4980	3.9	562	3.9	4228	462	**628**	**52**	0.7	1.0	0.3
perylene	979	988	1010	326	308	334	992	1.3	323	3.4	1153	166	**452**	**58**	-0.6	-0.7	0.1
indeno[1,2,3-cd]pyrene	2400	2720	2720	472	485	509	2613	5.8	489	3.1	2415	446	**501**	**72**	0.3	0.3	0.4
dibenz[a,h]anthracene + [a,c]	474	442	507	101	100	98	474	5.6	100	1.3	705	158	**117**	**14**	-1.3	-0.9	0.4
benzo[ghi]perylene	2160	2430	2450	427	415	442	2347	5.6	428	2.6	2362	467	**525**	**67**	0.0	0.0	0.4

Laboratory: 3
PAH in Sediment V

Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	19	83
Qualitative	0	0
Not Determined	4	17

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 3
Reporting Date: 09/26/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	07/10/95 S 1	08/10/95 S 2	09/10/95 S 3	07/10/95 S 1	08/10/95 S 2	09/10/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<10	<10	<10	<10	<10	<10	<10		<10		<2.5		<2				
hexachlorobenzene	7.37	5.37	7.61	78.40	76.30	64.90	6.78	14.8	73.20	8.1	5.79	0.55	**70**	**25**	0.7	1.2	1.0
gamma-HCH	<10	<10	<10	<10	<10	<10	<10		<10		<3		<2				
heptachlor	<10	<10	<10	<10	<10	<10	<10		<10		<4		<2				
aldrin	<10	<10	<10	<10	<10	<10	<10		<10		<2		<2				
heptachlor epoxide	<10	<10	<10	<10	<10	<10	<10		<10		<2		<2				
oxychlordane	<10	<10	<10	1.99	1.28	5.28	<10		2.85	61.1	<5		2.59	0.20			
trans-chlordane	12.1	8.8	10.6	1.8	2.0	1.2	10.5	13.1	1.68	21.4	10.4	4.2	<2		0.0	0.0	0.9
2,4'-DDE	53.6	41.7	46.0	3.5	2.3	1.9	47.1	10.4	2.58	26.8	17.7	4.8	**0.73**	**0.11**	**6.7**	**4.4**	0.7
endosulfan I	<15	<15	<15	<15	<15	<15	<15		<15		<3		<2				
cis-chlordane	9.0	7.4	8.5	1.8	1.3	0.8	8.3	8.2	1.3	31.2	15.6	3.4	**2.33**	**0.56**	-1.9	-1.4	0.5
trans-nonachlor	4.8	4.3	4.7	1.3	0.8	0.5	4.6	4.6	0.9	36.4	10.0	2.2	**1.26**	**0.13**	-2.2	-1.6	0.3
dieldrin	25.12	28.95	28.02	1.73	1.77	3.19	27.4	6.0	2.23	30.4	7.98	3.63	1.26	0.37	**9.7**	**4.1**	0.4
4,4'-DDE	76.6	75.0	75.8	7.7	5.2	4.9	75.8	0.9	5.9	21.3	79.3	15.9	**6.59**	**0.56**	-0.2	-0.1	0.1
2,4'-DDD	42.5	33.8	23.2	11.7	6.8	3.9	33.1	23.7	7.4	43.4	39.6	8.1	<2		-0.7	-0.5	1.6
endrin	<10	<10	<10	<10	<10	<10	<10		<10		<3		<2				
endosulfan II	<15	<15	<15	<15	<15	<15	<15		<15		<3		<2				
4,4'-DDD	96	81	81	5	5	5	86	8	5	3	126	30	**5.06**	**0.56**	-1.3	-0.9	0.6
2,4'-DDT	85.2	70.7	90.2	15.2	10.6	16.4	82.0	10.1	14.1	17.8	<6		<2				0.7
cis-nonachlor	2.21	1.46	1.92	0.62	0.48	0.71	1.86	16.6	0.60	16	3.52	1.17	<2		-1.9	-1.1	1.1
4,4'-DDT	26	31	15	<10	<10	<10	24	27	<10		131	45	1.25	0.10	**-3.3**	-1.8	1.8
mirex	<15	<15	<15	<15	<15	<15	<15		<15		<3		<2				

Laboratory: 3
Pesticides in Sediment V
Quantitation mode: IS (added just prior to GC) (Recovery corrected)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	12	55
Qualitative	10	45
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	7	9	12
2 to 3	1	0	0
≥ 3	3	2	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 3
Reporting Date: 09/26/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	07/10/95 S 1	08/10/95 S 2	09/10/95 S 3	07/10/95 S 1	08/10/95 S 2	09/10/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	24.2	13.2	19.5	2.93	2.47	3.00	19.0	23.8	2.80	8.4	23.0	3.3	1.39	0.19	-0.7	-0.8	1.6
PCB 18	48.3	55.0	49.6	2.94	2.48	2.40	51.0	5.7	2.61	9.1	49.5	5.6	1.15	0.16	0.1	0.2	0.4
PCB 28	197.0	181.0	222.0	16.80	12.50	13.00	200.0	8.4	14.10	13.6	84.6	10.6	9.8	3.7	**5.5**	**6.9**	0.6
PCB 52	99.2	85.6	108.0	11.00	8.51	8.39	97.6	9.4	9.30	12.9	76.4	8.0	**6.89**	**0.56**	1.1	1.6	0.6
PCB 44	39.2	38.3	43.2	5.71	3.82	3.79	40.2	5.3	4.44	20.2	56.2	5.6	**4.80**	**0.62**	-1.1	-1.8	0.4
PCB 66/95	45.9	42.1	47.9	7.9	6.0	7.1	45.3	5.3	7.0	10.9	92.1	21.6	**14.3**	**2.5**	-2.0	-1.5	0.4
PCB 101/90	56.4	53.2	54.8	10.6	7.9	7.7	54.8	2.4	8.7	15.1	72.6	9.7	**11.0**	**1.6**	-1.0	-1.1	0.2
PCB 118	40.1	41.2	51.1	11.3	7.5	7.8	44.1	11.2	8.9	19.5	54.7	6.3	**10.0**	**1.1**	-0.8	-1.1	0.7
PCB 153	47.2	43.2	49.7	17.2	10.5	11.7	46.7	5.7	13.1	22.2	64.8	12.0	**17.6**	**1.9**	-1.1	-1.0	0.4
PCB 105	6.5	11.2	9.1	4.05	2.61	2.85	8.9	21.6	3.17	19.9	20.8	4.6	**3.65**	**0.27**	-2.3	-1.7	1.4
PCB 138/163/164	41.6	38.6	46.1	14.7	9.6	9.2	42.1	7.3	11.2	22.7	62.0	6.7	**13.38**	**0.97**	-1.3	-2.0	0.5
PCB 187/182	14.9	24.9	17.0	5.23	3.03	3.23	18.9	22.7	3.83	25.9	23.4	2.3	7.0	2.6	-0.8	-1.2	1.5
PCB 128	22.00	21.90	23.90	4.43	5.21	6.68	22.6	4.1	5.44	17.1	8.56	1.46	**1.87**	**0.32**	**6.6**	**8.0**	0.3
PCB 180	49.1	66.7	56.5	11.48	6.10	6.47	57.4	12.6	8.02	30.6	42.9	7.4	**5.83**	**0.58**	1.4	1.8	0.8
PCB 170/190	16.0	28.3	16.8	5.18	3.80	2.67	20.4	27.6	3.88	26.4	19.3	3.9	**3.00**	**0.46**	0.2	0.2	1.8
PCB 195	8.89	9.09	9.86	1.27	3.08	1.83	9.28	4.5	2.06	36.7	4.76	1.52	<3		**3.8**	1.8	0.3
PCB 206	6.06	14.1	10.6	3.18	2.81	2.67	10.25	32.1	2.89	7.5	8.16	0.85	**3.67**	**0.87**	1.0	1.5	2.1
PCB 209	5.31	4.55	7.28	7.51	5.16	6.26	5.71	20.1	6.31	15.2	5.94	0.68	**8.34**	**0.49**	-0.2	-0.2	1.3

Laboratory: 3
PCBs in Sediment V

Quantitation mode: IS (added just prior to GC) (Recovery corrected)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

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

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.0	44.8	45.6	45.2	0.8	45.7	0.8	44.9	0.6	0.0	-0.6	0.1

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise

Laboratory No.: 4

Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant)

Reporting Date: 9/25/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/13/95 S 1	9/14/95 S 2	9/14/95 S 3	9/14/95 S 1	S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	2330	1970	2090	1010			2130	8.6	1010		1506	257	**1010**	**140**	1.7	1.6	0.6
2-methylnaphthalene	701	973	965	184			880	17.6	184		808	126	325	60	0.4	0.4	1.2
1-methylnaphthalene	251	355	328	50			311	17.3	50		510	90	150	30	-1.6	-2.3	1.2
biphenyl	445	311	336	199			364	19.6	199		272	70	175	18	1.4	1.4	1.3
2,6-dimethylnaphthalene	803	864	889	97			852	5.2	97		755	156	120	24	0.5	0.6	0.3
acenaphthylene	137	241	245	22.3			208	29.5	22		546	266	37.0	14.0	-2.5	-1.0	2.0
acenaphthene	583	590	599	45.7			591	1.4	46		552	58	41.0	10.0	0.3	0.5	0.1
1,6,7-trimethylnaphthalene	670	612	655	45.0			646	4.7	45		462	133	48.0	10.0	1.6	1.2	0.3
fluorene	1140	1080	1090	76.6			1103	2.9	76.6		865	140	**97.3**	**8.6**	1.1	1.0	0.2
phenanthrene	4680	4590	4590	441			4620	1.1	441		5212	596	**489**	**23**	-0.5	-0.6	0.1
anthracene	1670	1740	1680	201			1697	2.2	201		1952	275	**184**	**14**	-0.5	-0.5	0.1
1-methylphenanthrene	2040	1940	2210	106			2063	6.6	106		1528	326	101	27	1.4	1.3	0.4
fluoranthene	8800	7490	7710	931			8000	8.8	931		8511	1147	**981**	**78**	-0.2	-0.2	0.6
pyrene	9560	8000	8820	822			8793	8.9	822		9235	1460	**811**	**24**	-0.2	-0.2	0.6
benz[a]anthracene	5190	5040	5200	457			5143	1.7	457		4715	441	**427**	**25**	0.4	0.6	0.1
chrysene + triphenylene	5650	5120	5780	601			5517	6.3	601		5439	613	577	35	0.1	0.1	0.4
benzofluoranthenes [b+j+k]	6960	6270	6580	1310			6603	5.2	1310		7147	501	1441	150	-0.3	-0.7	0.3
benzo[e]pyrene	3100	2610	2760	556			2823	8.9	556		3149	267	**553**	**59**	-0.4	-0.9	0.6
benzo[a]pyrene	4490	4280	4240	581			4337	3.1	581		4228	462	**628**	**52**	0.1	0.1	0.2
perylene	1330	1250	1200	412			1260	5.2	412		1153	166	**452**	**58**	0.4	0.5	0.3
indeno[1,2,3-cd]pyrene	2390	2310	2160	523			2287	5.1	523		2415	446	**501**	**72**	-0.2	-0.2	0.3
dibenz[a,h]anthracene + [a,c]	1260	1340	1140	53			1247	8.1	53		705	158	**117**	**14**	**3.1**	2.1	0.5
benzo[ghi]perylene	2730	2680	2620	461			2677	2.1	461		2362	467	**525**	**67**	0.5	0.4	0.1

Laboratory: 4

PAH in Sediment V

Quantitation mode: external standards

Replicates in three separate batches: ?

Reported Results	No. of Analytes	%
Quantitative	23	100
Qualitative	0	0
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 4
Reporting Date: 9/25/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	/15-17, '9	/15-17,'9	/15-17,1'9	/15-17, '9			lab mean	lab	lab mean	lab	assigned		target		z-score	z-score	p-score
	S 1	S 2	S 3	S 1	S 2	S 3	ng/g dry	%RSD	ng/g dry	%RSD	value	95% CL	value[b]	95% CL	(25%)	(s)	(15%)
alpha-HCH	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<2.5		<2				
hexachlorobenzene	4.17	4.44	3.29	53.0			3.97	15.2	53.0		5.79	0.55	**70**	**25**	-1.3	-2.1	1.0
gamma-HCH	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<3		<2				
heptachlor	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<4		<2				
aldrin	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<2		<2				
heptachlor epoxide	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<2		<2				
oxychlordane	<2.0	<2.0	<2.0	2.20			<2.0		2.20		<5		2.59	0.20			
trans-chlordane	6.5	7.1	4.8	<2.0			6.1	19.7	<2.0		10.4	4.2	<2		-1.6	-0.8	1.3
2,4'-DDE	31.4	30.7	30.9	<2.0			31.0	1.3	<2.0		17.7	4.8	**0.73**	**0.11**	**3.0**	2.0	0.1
endosulfan I	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<3		<2				
cis-chlordane	9.2	9.4	7.1	2.4			8.5	14.9	2.4		15.6	3.4	**2.33**	**0.56**	-1.8	-1.3	1.0
trans-nonachlor	18.1	17.9	17.4	2.3			17.8	2.0	2.3		10.0	2.2	**1.26**	**0.13**	**3.1**	2.4	0.1
dieldrin	8.79	9.03	8.02	1.64			8.61	6.1	1.64		7.98	3.63	1.26	0.37	0.3	0.1	0.4
4,4'-DDE	82.1	79.9	78.3	8.8			80.1	2.4	8.8		79.3	15.9	**6.59**	**0.56**	0.0	0.0	0.2
2,4'-DDD	25.9	25.3	22.8	<2.0			24.7	6.7	<2.0		39.6	8.1	<2		-1.5	-1.2	0.4
endrin	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<3		<2				
endosulfan II	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<3		<2				
4,4'-DDD	71	89	65	5			75	17	5		126	30	**5.06**	**0.56**	-1.6	-1.2	1.1
2,4'-DDT	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<6		<2				
cis-nonachlor	2.53	2.56	2.29	<2.0			2.46	6.0	<2.0		3.52	1.17	<2		-1.2	-0.7	0.4
4,4'-DDT	88	INT	54	INT			71	34	<2.0		131	45	1.25	0.10	-1.8	-1.0	2.3
mirex	<2.0	<2.0	<2.0	<2.0			<2.0		<2.0		<3		<2				

Laboratory: 4
Pesticides in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	11	50
Qualitative	11	50
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	9	8	10
2 to 3	0	3	1
≥ 3	2	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 4
Reporting Date: 9/25/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	/13-17, '9	/13-17, '9	/13-17, '9	/13-17, '9													
	S 1	S 2	S 3	S 1	S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	17.4	19.0	17.2	2.53			17.9	5.5	2.53		23.0	3.3	1.39	0.19	-0.9	-1.0	0.4
PCB 18	33.6	35.1	33.0	3.82			33.9	3.2	3.82		49.5	5.6	1.15	0.16	-1.3	-1.9	0.2
PCB 28	61.5	77.1	60.5	8.10			66.4	14.0	8.10		84.6	10.6	9.8	3.7	-0.9	-1.1	0.9
PCB 52	58.5	52.2	50.6	7.87			53.8	7.8	7.87		76.4	8.0	**6.89**	**0.56**	-1.2	-1.7	0.5
PCB 44	47.0	49.1	47.6	7.30			47.9	2.3	7.30		56.2	5.6	**4.80**	**0.62**	-0.6	-0.9	0.2
PCB 66/95	85.0	76.0	75.5	15.5			78.8	6.8	15.5		92.1	21.6	**14.3**	**2.5**	-0.6	-0.4	0.5
PCB 101/90	68.0	68.3	67.6	14.2			68.0	0.5	14.2		72.6	9.7	**11.0**	**1.6**	-0.3	-0.3	0.0
PCB 118	55.6	53.4	52.5	11.2			53.8	3.0	11.2		54.7	6.3	**10.0**	**1.1**	-0.1	-0.1	0.2
PCB 153	60.8	59.2	60.1	15.6			60.0	1.4	15.6		64.8	12.0	**17.6**	**1.9**	-0.3	-0.3	0.1
PCB 105	43.3	43.3	42.2	7.80			42.9	1.5	7.80		20.8	4.6	**3.65**	**0.27**	**4.3**	**3.2**	0.1
PCB 138/163/164	66.5	64.7	64.1	21.1			65.1	1.9	21.1		62.0	6.7	**13.38**	**0.97**	0.2	0.3	0.1
PCB 187/182	28.6	26.2	27.5	8.15			27.4	4.4	8.15		23.4	2.3	7.0	2.6	0.7	1.1	0.3
PCB 128	12.90	12.50	11.90	2.67			12.4	4.0	2.67		8.56	1.46	**1.87**	**0.32**	1.8	2.2	0.3
PCB 180	38.7	36.2	38.7	10.9			37.9	3.8	10.9		42.9	7.4	**5.83**	**0.58**	-0.5	-0.6	0.3
PCB 170/190	20.3	19.4	20.1	5.40			19.9	2.4	5.40		19.3	3.9	**3.00**	**0.46**	0.1	0.1	0.2
PCB 195	7.86	7.47	8.27	<2.0			7.87	5.1	<2.0		4.76	1.52	<3		2.6	1.2	0.3
PCB 206	8.09	7.55	8.64	4.03			8.09	6.7	4.03		8.16	0.85	**3.67**	**0.87**	0.0	0.0	0.4
PCB 209	6.87	5.42	5.32	10.7			5.87	14.8	10.7		5.94	0.68	**8.34**	**0.49**	-0.1	-0.1	1.0

Laboratory: 4
PCBs in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	16	16	18
2 to 3	1	1	0
≥ 3	1	1	0

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.9	45.8	45.9	45.9	0.1	45.7	0.8	44.9	0.6	0.0	0.2	0.0

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 5

Reporting Date: 9/27/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/12/95 S 1	8/24/95 S 2	9/15/95 S 3	9/12/95 S 1	8/24/95 S 2	9/15/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	1389	1380	1380	752	785	791	1383	0.3	776	2.2	1506	257	**1010**	**140**	-0.3	-0.3	0.0
2-methylnaphthalene	949	919	884	299	312	289	917	2.9	300	3.1	808	126	325	60	0.5	0.7	0.2
1-methylnaphthalene	582	580	537	149	153	143	566	3.7	148	2.8	510	90	150	30	0.4	0.7	0.2
biphenyl	202	185	211	74	78	77	199	5.4	76	2.4	272	70	175	18	-1.1	-1.1	0.4
2,6-dimethylnaphthalene	619	587	600	97	119	109	602	2.2	108	8.4	755	156	120	24	-0.8	-0.9	0.1
acenaphthylene	207	206	205	40.0	35.2	30.8	206	0.4	35	10.6	546	266	37.0	14.0	-2.5	-1.0	0.0
acenaphthene	557	564	556	35.2	39.2	40.0	559	0.6	38	5.5	552	58	41.0	10.0	0.1	0.1	0.0
1,6,7-trimethylnaphthalene	550	535	525	31.5	18.8	36.7	537	1.9	29	25.9	462	133	48.0	10.0	0.6	0.5	0.1
fluorene	1369	1366	1380	81.1	87.5	85.6	1372	0.4	84.7	3.2	865	140	**97.3**	**8.6**	2.3	2.2	0.0
phenanthrene	6084	5994	6167	533	544	558	6082	1.2	545	1.9	5212	596	**489**	**23**	0.7	0.8	0.1
anthracene	1821	1881	2127	185	182	186	1943	6.8	184	0.9	1952	275	**184**	**14**	0.0	0.0	0.5
1-methylphenanthrene	1836	1358	2099	107	103	111	1764	17.4	107	3.1	1528	326	101	27	0.6	0.6	1.2
fluoranthene	10154	7163	10119	1159	1090	1167	9145	15.3	1139	3.0	8511	1147	**981**	**78**	0.3	0.3	1.0
pyrene	10568	7409	10316	928	868	952	9431	15.2	916	3.9	9235	1460	**811**	**24**	0.1	0.1	1.0
benz[a]anthracene	6179	6087	5057	510	518	444	5774	8.8	491	6.8	4715	441	**427**	**25**	0.9	1.4	0.6
chrysene + triphenylene	7307	6985	6079	739	762	667	6790	7.7	723	5.6	5439	613	577	35	1.0	1.2	0.5
benzofluoranthenes [b+j+k]	7321	7670	6283	1266	1312	1148	7091	8.3	1242	5.6	7147	501	1441	150	0.0	-0.1	0.6
benzo[e]pyrene	3068	3348	2542	514	538	471	2986	11.2	508	5.5	3149	267	**553**	**59**	-0.2	-0.4	0.7
benzo[a]pyrene	3928	4547	3430	474	491	415	3968	11.5	460	7.1	4228	462	**628**	**52**	-0.2	-0.3	0.8
perylene	949	1011	778	283	288	242	913	10.8	271	7.6	1153	166	**452**	**58**	-0.8	-1.0	0.7
indeno[1,2,3-cd]pyrene	2581	3007	2228	452	485	381	2605	12.2	439	9.9	2415	446	**501**	**72**	0.3	0.3	0.8
dibenz[a,h]anthracene + [a,c]	991	1233	903	137	151	110	1042	13.4	133	12.8	705	158	**117**	**14**	1.9	1.3	0.9
benzo[ghi]perylene	2930	3110	2364	446	455	376	2801	11.3	426	8.3	2362	467	**525**	**67**	0.7	0.5	0.8

Laboratory: 5

PAH in Sediment V

Quantitation mode: internal standards (added prior to extraction)

Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	23	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	21	22	23
2 to 3	2	1	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 5
Reporting Date: 9/27/95

PESTICIDES

Analysis date	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
	S 1	S 2	S 3	S 1	S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH							NA		NA		<2.5		<2				
hexachlorobenzene							NA		NA		5.79	0.55	**70**	**25**			
gamma-HCH							NA		NA		<3		<2				
heptachlor							NA		NA		<4		<2				
aldrin							NA		NA		<2		<2				
heptachlor epoxide							NA		NA		<2		<2				
oxychlordane							NA		NA		<5		2.59	0.20			
trans-chlordane							NA		NA		10.4	4.2	<2				
2,4'-DDE							NA		NA		17.7	4.8	**0.73**	**0.11**			
endosulfan I							NA		NA		<3		<2				
cis-chlordane							NA		NA		15.6	3.4	**2.33**	**0.56**			
trans-nonachlor							NA		NA		10.0	2.2	**1.26**	**0.13**			
dieldrin							NA		NA		7.98	3.63	1.26	0.37			
4,4'-DDE							NA		NA		79.3	15.9	**6.59**	**0.56**			
2,4'-DDD							NA		NA		39.6	8.1	<2				
endrin							NA		NA		<3		<2				
endosulfan II							NA		NA		<3		<2				
4,4'-DDD							NA		NA		126	30	**5.06**	**0.56**			
2,4'-DDT							NA		NA		<6		<2				
cis-nonachlor							NA		NA		3.52	1.17	<2				
4,4'-DDT							NA		NA		131	45	1.25	0.10			
mirex							NA		NA		<3		<2				

Laboratory: 5
Pesticides in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	22	100

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 5
Reporting Date: 9/27/95

PCBs

Analysis date	Data as submitted by laboratory: Sediment V, ng/g dry S 1	S 2	S 3	SRM 1941a, ng/g dry S 1	S 2	S 3	Sediment V lab mean ng/g dry	Sediment V lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment V, ng/g dry assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment V z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA		NA		23.0	3.3	1.39	0.19			
PCB 18							NA		NA		49.5	5.6	1.15	0.16			
PCB 28							NA		NA		84.6	10.6	9.8	3.7			
PCB 52							NA		NA		76.4	8.0	**6.89**	**0.56**			
PCB 44							NA		NA		56.2	5.6	**4.80**	**0.62**			
PCB 66/95							NA		NA		92.1	21.6	**14.3**	**2.5**			
PCB 101/90							NA		NA		72.6	9.7	**11.0**	**1.6**			
PCB 118							NA		NA		54.7	6.3	**10.0**	**1.1**			
PCB 153							NA		NA		64.8	12.0	**17.6**	**1.9**			
PCB 105							NA		NA		20.8	4.6	**3.65**	**0.27**			
PCB 138/163/164							NA		NA		62.0	6.7	**13.38**	**0.97**			
PCB 187/182							NA		NA		23.4	2.3	7.0	2.6			
PCB 128							NA		NA		8.56	1.46	**1.87**	**0.32**			
PCB 180							NA		NA		42.9	7.4	**5.83**	**0.58**			
PCB 170/190							NA		NA		19.3	3.9	**3.00**	**0.46**			
PCB 195							NA		NA		4.76	1.52	<3				
PCB 206							NA		NA		8.16	0.85	**3.67**	**0.87**			
PCB 209							NA		NA		5.94	0.68	**8.34**	**0.49**			

Laboratory: 5
PCBs in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	18	100

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

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	46.0	45.2	45.0	45.4	0.9	45.7	0.8	44.9	0.6	0.0	-0.3	0.1

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant)

Laboratory No.: 6
Reporting Date: 9/29/95

PAH

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	7/25/95 S 1	Ruined fo S 2	9/13/95 S 3	S 1	S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	978		1020				999	3.0	NA		1506	257	**1010**	**140**	-1.3	-1.3	0.2
2-methylnaphthalene	NA		NA				NA		NA		808	126	325	60			
1-methylnaphthalene	NA		NA				NA		NA		510	90	150	30			
biphenyl	NA		NA				NA		NA		272	70	175	18			
2,6-dimethylnaphthalene	491		687				589	23.5	NA		755	156	120	24	-0.9	-1.0	1.6
acenaphthylene	1000		1180				1090	11.7	NA		546	266	37.0	14.0	**4.0**	1.6	0.8
acenaphthene	362		412				387	9.1	NA		552	58	41.0	10.0	-1.2	-2.2	0.6
1,6,7-trimethylnaphthalene	NA		NA				NA		NA		462	133	48.0	10.0			
fluorene	663		820				742	15.0	NA		865	140	**97.3**	**8.6**	-0.6	-0.5	1.0
phenanthrene	3460		4150				3805	12.8	NA		5212	596	**489**	**23**	-1.1	-1.4	0.9
anthracene	2440		1880				2160	18.3	NA		1952	275	**184**	**14**	0.4	0.4	1.2
1-methylphenanthrene	474		1150				812	58.9	NA		1528	326	101	27	-1.9	-1.7	**3.9**
fluoranthene	5800		8180				6990	24.1	NA		8511	1147	**981**	**78**	-0.7	-0.7	1.6
pyrene	5790		8720				7255	28.6	NA		9235	1460	**811**	**24**	-0.9	-0.8	1.9
benz[a]anthracene	3740		4340				4040	10.5	NA		4715	441	**427**	**25**	-0.6	-0.9	0.7
chrysene + triphenylene	4080		4590				4335	8.3	NA		5439	613	577	35	-0.8	-1.0	0.6
benzofluoranthenes [b+j+k]	4770		7810				6290	34.2	NA		7147	501	1441	150	-0.5	-1.0	2.3
benzo[e]pyrene	NA		NA				NA		NA		3149	267	**553**	**59**			
benzo[a]pyrene	1480		4760				3120	74.3	NA		4228	462	**628**	**52**	-1.0	-1.4	**5.0**
perylene	NA		NA				NA		NA		1153	166	**452**	**58**			
indeno[1,2,3-cd]pyrene	2120		5140				3630	58.8	NA		2415	446	**501**	**72**	2.0	1.6	**3.9**
dibenz[a,h]anthracene + [a,c]	867		1100				984	16.8	NA		705	158	**117**	**14**	1.6	1.1	1.1
benzo[ghi]perylene	326		1200				763	81.0	NA		2362	467	**525**	**67**	-2.7	-2.0	**5.4**

Laboratory: 6
PAH in Sediment V
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	74
Qualitative	0	0
Not Determined	6	26

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	14	16	12
2 to 3	2	1	1
≥ 3	1	0	4

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 6
Reporting Date: 9/29/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/21/95 S 1	9/22/95 S 2	for this S 3	S 1	S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<3.0	<3.0					<3.0		NA		<2.5		<2				
hexachlorobenzene	2.29	2.19					2.24	3.2	NA		5.79	0.55	**70**	**25**	-2.5	**-4.1**	0.2
gamma-HCH	<3.0	<3.0					<3.0		NA		<3		<2				
heptachlor	<3.0	<3.0					<3.0		NA		<4		<2				
aldrin	<3.0	<3.0					<3.0		NA		<2		<2				
heptachlor epoxide	7.17	8.87					8.02	15.0	NA		<2		<2				1.0
oxychlordane	e note	e note					coel		NA		<5		2.59	0.20			
trans-chlordane	15.7	20.5					18.1	18.8	NA		10.4	4.2	<2		3.0	1.4	1.3
2,4'-DDE	<3.0	<3.0					<3.0		NA		17.7	4.8	**0.73**	**0.11**			
endosulfan I	<3.0	<3.0					<3.0		NA		<3		<2				
cis-chlordane	16.2	18.8					17.5	10.5	NA		15.6	3.4	**2.33**	**0.56**	0.5	0.4	0.7
trans-nonachlor	10.3	11.2					10.8	5.9	NA		10.0	2.2	**1.26**	**0.13**	0.3	0.2	0.4
dieldrin	8.82	6.84					7.83	17.9	NA		7.98	3.63	1.26	0.37	-0.1	0.0	1.2
4,4'-DDE	47.0	46.4					46.7	0.9	NA		79.3	15.9	**6.59**	**0.56**	-1.6	-1.2	0.1
2,4'-DDD	33.2	48.6					40.9	26.6	NA		39.6	8.1	<2		0.1	0.1	1.8
endrin	<6.0	<6.0					<6.0		NA		<3		<2				
endosulfan II	NA	NA					NA		NA		<3		<2				
4,4'-DDD	96	115					105	13	NA		126	30	**5.06**	**0.56**	-0.7	-0.5	0.9
2,4'-DDT	<6.0	10.90					10.90		NA		<6		<2				
cis-nonachlor	<3.0	3.44					3.44		NA		3.52	1.17	<2		-0.1	-0.1	
4,4'-DDT	146	159					153	6	NA		131	45	1.25	0.10	0.7	0.4	0.4
mirex	<3.0	<3.0					<3.0		NA		<3		<2				

Laboratory: 6
Pesticides in Sediment V
Quantitation mode: ES Fract. 1; IS (added just prior to GC) Fract. 2
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	12	55
Qualitative	9	41
Not Determined	1	5

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	8	9	10
2 to 3	2	0	0
≥ 3	0	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 6
Reporting Date: 9/29/95

PCBs

Analysis date	Data as submitted by laboratory: Sediment V, ng/g dry S 1	S 2	S 3	SRM 1941a, ng/g dry S 1	S 2	S 3	Sediment V lab mean ng/g dry	Sediment V lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment V, ng/g dry assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment V z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA		NA		23.0	3.3	1.39	0.19			
PCB 18							NA		NA		49.5	5.6	1.15	0.16			
PCB 28							NA		NA		84.6	10.6	9.8	3.7			
PCB 52							NA		NA		76.4	8.0	**6.89**	**0.56**			
PCB 44							NA		NA		56.2	5.6	**4.80**	**0.62**			
PCB 66/95							NA		NA		92.1	21.6	**14.3**	**2.5**			
PCB 101/90							NA		NA		72.6	9.7	**11.0**	**1.6**			
PCB 118							NA		NA		54.7	6.3	**10.0**	**1.1**			
PCB 153							NA		NA		64.8	12.0	**17.6**	**1.9**			
PCB 105							NA		NA		20.8	4.6	**3.65**	**0.27**			
PCB 138/163/164							NA		NA		62.0	6.7	**13.38**	**0.97**			
PCB 187/182							NA		NA		23.4	2.3	7.0	2.6			
PCB 128							NA		NA		8.56	1.46	**1.87**	**0.32**			
PCB 180							NA		NA		42.9	7.4	**5.83**	**0.58**			
PCB 170/190							NA		NA		19.3	3.9	**3.00**	**0.46**			
PCB 195							NA		NA		4.76	1.52	<3				
PCB 206							NA		NA		8.16	0.85	**3.67**	**0.87**			
PCB 209							NA	#####	NA		5.94	0.68	**8.34**	**0.49**			

Laboratory: 6
PCBs in Sediment V
Quantitation mode: ES Fract. 1; IS (added just prior to GC) Fract. 2
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	18	100

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

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	42.8	41.9	43.3	42.7	1.7	45.7	0.8	44.9	0.6	-0.3	-3.0	0.1

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 7

Reporting Date: 9/29/95

PAH

Analysis date	Data as submitted by laboratory: Sediment V, ng/g dry S 1	S 2	S 3	SRM 1941a, ng/g dry S 1	S 2	S 3	Sediment V lab mean ng/g dry	Sediment V lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment V, ng/g dry assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment V z-score (25%)	z-score (s)	p-score (15%)
naphthalene	NA	NA	NA	NA	NA	NA	NA		NA		1506	257	**1010**	**140**			
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		808	126	325	60			
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		510	90	150	30			
biphenyl	NA	NA	NA	NA	NA	NA	NA		NA		272	70	175	18			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		755	156	120	24			
acenaphthylene	NA	NA	NA	NA	NA	NA	NA		NA		546	266	37.0	14.0			
acenaphthene	NA	NA	NA	NA	NA	NA	NA		NA		552	58	41.0	10.0			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		462	133	48.0	10.0			
fluorene	NA	NA	NA	NA	NA	NA	NA		NA		865	140	**97.3**	**8.6**			
phenanthrene	NA	NA	NA	NA	NA	NA	NA		NA		5212	596	**489**	**23**			
anthracene	NA	NA	NA	NA	NA	NA	NA		NA		1952	275	**184**	**14**			
1-methylphenanthrene	NA	NA	NA	NA	NA	NA	NA		NA		1528	326	101	27			
fluoranthene	NA	NA	NA	NA	NA	NA	NA		NA		8511	1147	**981**	**78**			
pyrene	NA	NA	NA	NA	NA	NA	NA		NA		9235	1460	**811**	**24**			
benz[a]anthracene	NA	NA	NA	NA	NA	NA	NA		NA		4715	441	**427**	**25**			
chrysene + triphenylene	NA	NA	NA	NA	NA	NA	NA		NA		5439	613	577	35			
benzofluoranthenes [b+j+k]	NA	NA	NA	NA	NA	NA	NA		NA		7147	501	1441	150			
benzo[e]pyrene	NA	NA	NA	NA	NA	NA	NA		NA		3149	267	**553**	**59**			
benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA		NA		4228	462	**628**	**52**			
perylene	NA	NA	NA	NA	NA	NA	NA		NA		1153	166	**452**	**58**			
indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA		NA		2415	446	**501**	**72**			
dibenz[a,h]anthracene + [a,c]	NA	NA	NA	NA	NA	NA	NA		NA		705	158	**117**	**14**			
benzo[ghi]perylene	NA	NA	NA	NA	NA	NA	NA		NA		2362	467	**525**	**67**			

Laboratory: 7
PAH in Sediment V

Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: ?

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	23	100

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 7
Reporting Date: 9/29/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/20/95	9/21/95	9/22/95				lab mean	lab	lab mean	lab	assigned		target		z-score	z-score	p-score
	S 1	S 2	S 3	S 1	S 2	S 3	ng/g dry	%RSD	ng/g dry	%RSD	value	95% CL	value[b]	95% CL	(25%)	(s)	(15%)
alpha-HCH	<1	<1	<1	NA	NA	NA	<1		NA		<2.5		<2				
hexachlorobenzene	3.23	2.40	4.49	NA	NA	NA	3.37	31.2	NA		5.79	0.55	**70**	**25**	-1.7	-2.8	2.1
gamma-HCH	<1	<1	<1	NA	NA	NA	<1		NA		<3		<2				
heptachlor	12.84	14.15	16.96	NA	NA	NA	14.65	14.4	NA		<4		<2				1.0
aldrin	115.31	78.08	82.44	NA	NA	NA	91.94	22.1	NA		<2		<2				1.5
heptachlor epoxide	33.77	29.42	32.14	NA	NA	NA	31.78	6.9	NA		<2		<2				0.5
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.59	0.20			
trans-chlordane	<1	<1	<1	NA	NA	NA	<1		NA		10.4	4.2	<2				
2,4'-DDE	24.3	36.1	**<1**	NA	NA	NA	30.2	27.6	NA		17.7	4.8	**0.73**	**0.11**	2.9	1.9	1.8
endosulfan I	<1	<1	<1	NA	NA	NA	<1		NA		<3		<2				
cis-chlordane	20.5	19.1	25.1	NA	NA	NA	21.5	14.5	NA		15.6	3.4	**2.33**	**0.56**	1.5	1.1	1.0
trans-nonachlor	<1	<1	<1	NA	NA	NA	<1		NA		10.0	2.2	**1.26**	**0.13**			
dieldrin	54.48	61.01	58.65	NA	NA	NA	58.05	5.7	NA		7.98	3.63	1.26	0.37	**25.1**	**10.6**	0.4
4,4'-DDE	48.7	41.8	50.5	NA	NA	NA	47.0	9.8	NA		79.3	15.9	**6.59**	**0.56**	-1.6	-1.2	0.7
2,4'-DDD	<1	<1	<1	NA	NA	NA	<1		NA		39.6	8.1	<2				
endrin	73.00	62.83	68.46	NA	NA	NA	68.09	7.5	NA		<3		<2				0.5
endosulfan II	<1	<1	<1	NA	NA	NA	<1		NA		<3		<2				
4,4'-DDD	65	36	44	NA	NA	NA	48	31	NA		126	30	**5.06**	**0.56**	-2.5	-1.7	2.1
2,4'-DDT	<1	<1	<1	NA	NA	NA	<1		NA		<6		<2				
cis-nonachlor	<1	<1	<1	NA	NA	NA	<1		NA		3.52	1.17	<2				
4,4'-DDT	68	52	51	NA	NA	NA	57	16	NA		131	45	1.25	0.10	-2.3	-1.3	1.1
mirex	<1	<1	<1	NA	NA	NA	<1		NA		<3		<2				

Laboratory: 7
Pesticides in Sediment V
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	11	50
Qualitative	10	45
Not Determined	1	5

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	3	5	9
2 to 3	3	1	2
≥ 3	1	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 7
Reporting Date: 9/29/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/20/95 S 1	9/21/95 S 2	9/22/95 S 3	NA S 1	NA S 2	NA S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	10.2	17.5	14.5	NA	NA	NA	14.0	26.1	NA		23.0	3.3	1.39	0.19	-1.6	-1.7	1.7
PCB 18	34.0	47.6	45.2	NA	NA	NA	42.2	17.2	NA		49.5	5.6	1.15	0.16	-0.6	-0.9	1.1
PCB 28	71.9	85.3	88.6	NA	NA	NA	82.0	10.8	NA		84.6	10.6	9.8	3.7	-0.1	-0.2	0.7
PCB 52	57.7	72.5	71.0	NA	NA	NA	67.1	12.1	NA		76.4	8.0	**6.89**	**0.56**	-0.5	-0.7	0.8
PCB 44	44.5	55.0	53.9	NA	NA	NA	51.1	11.3	NA		56.2	5.6	**4.80**	**0.62**	-0.4	-0.6	0.8
PCB 66/95	100.8	108.8	105.3	NA	NA	NA	105.0	3.8	NA		92.1	21.6	**14.3**	**2.5**	0.6	0.4	0.3
PCB 101/90	86.1	108.2	111.9	NA	NA	NA	102.1	13.7	NA		72.6	9.7	**11.0**	**1.6**	1.6	1.8	0.9
PCB 118	40.5	51.2	50.1	NA	NA	NA	47.3	12.5	NA		54.7	6.3	**10.0**	**1.1**	-0.5	-0.8	0.8
PCB 153	33.6	43.2	41.2	NA	NA	NA	39.3	12.9	NA		64.8	12.0	**17.6**	**1.9**	-1.6	-1.4	0.9
PCB 105	46.5	63.6	58.3	NA	NA	NA	56.1	15.6	NA		20.8	4.6	**3.65**	**0.27**	**6.8**	**5.1**	1.0
PCB 138/163/164	56.8	74.4	65.6	NA	NA	NA	65.6	13.4	NA		62.0	6.7	**13.38**	**0.97**	0.2	0.4	0.9
PCB 187/182	18.9	23.1	21.6	NA	NA	NA	21.2	10.0	NA		23.4	2.3	7.0	2.6	-0.4	-0.6	0.7
PCB 128	7.54	9.50	8.28	NA	NA	NA	8.4	11.7	NA		8.56	1.46	**1.87**	**0.32**	-0.1	-0.1	0.8
PCB 180	27.6	35.6	31.2	NA	NA	NA	31.5	12.7	NA		42.9	7.4	**5.83**	**0.58**	-1.1	-1.4	0.8
PCB 170/190	16.7	19.2	16.8	NA	NA	NA	17.6	8.1	NA		19.3	3.9	**3.00**	**0.46**	-0.3	-0.4	0.5
PCB 195	2.49	3.29	2.72	NA	NA	NA	2.83	14.5	NA		4.76	1.52	<3		-1.6	-0.8	1.0
PCB 206	6.86	8.46	7.63	NA	NA	NA	7.65	10.4	NA		8.16	0.85	**3.67**	**0.87**	-0.2	-0.4	0.7
PCB 209	NA	NA	5.67	NA	NA	NA	5.67	0.0	NA		5.94	0.68	**8.34**	**0.49**	-0.2	-0.3	0.0

Laboratory: 7
PCBs in Sediment V
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	17	17	18
2 to 3	0	0	0
≥ 3	1	1	0

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	%RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	ND	ND	ND	NA	0.0	45.7	0.8	44.9	0.6			

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise

Laboratory No.: 8

Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant)

Reporting Date: 9/29/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/18/95 S 1	9/18/95 S 2	9/18/95 S 3	9/18/95 S 1	9/18/95 S 2	9/18/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	249	200	182	200	200	167	210	16.5	189	10.0	1506	257	**1010**	**140**	**-3.4**	**-3.4**	1.1
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		808	126	325	60			
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		510	90	150	30			
biphenyl	NA	NA	NA	NA	NA	NA	NA		NA		272	70	175	18			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		755	156	120	24			
acenaphthylene	843	857	467	112.2	87.0	102.2	722	30.7	100	12.7	546	266	37.0	14.0	1.3	0.5	2.0
acenaphthene	< 31	< 31	< 31	< 29	< 29	< 29	< 31		< 29		552	58	41.0	10.0			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		462	133	48.0	10.0			
fluorene	706	695	507	67.2	61.7	73.5	636	17.7	67.5	8.8	865	140	**97.3**	**8.6**	-1.1	-1.0	1.2
phenanthrene	4067	3831	3523	392	378	399	3807	7.2	390	2.8	5212	596	**489**	**23**	-1.1	-1.4	0.5
anthracene	837	810	910	138	139	138	852	6.1	139	0.5	1952	275	**184**	**14**	-2.3	-2.3	0.4
1-methylphenanthrene	NA	NA	NA	NA	NA	NA	NA		NA		1528	326	101	27			
fluoranthene	4449	4612	5012	830	908	897	4691	6.2	878	4.8	8511	1147	**981**	**78**	-1.8	-1.8	0.4
pyrene	4213	3668	5066	603	606	597	4316	16.3	602	0.8	9235	1460	**811**	**24**	-2.1	-1.9	1.1
benz[a]anthracene	4249	3831	3359	530	454	458	3813	11.7	481	9.0	4715	441	**427**	**25**	-0.8	-1.2	0.8
chrysene + triphenylene	3886	3795	3795	632	621	695	3825	1.4	649	6.2	5439	613	577	35	-1.2	-1.5	0.1
benzofluoranthenes [b+j+k]	5992	6773	5335	1514	1531	1602	6033	11.9	1549	3.0	7147	501	1441	150	-0.6	-1.3	0.8
benzo[e]pyrene	NA	NA	NA	NA	NA	NA	NA		NA		3149	267	**553**	**59**			
benzo[a]pyrene	3614	3577	3269	643	588	630	3486	5.4	620	4.6	4228	462	**628**	**52**	-0.7	-1.0	0.4
perylene	NA	NA	NA	NA	NA	NA	NA		NA		1153	166	**452**	**58**			
indeno[1,2,3-cd]pyrene	1943	1411	1750	450	523	487	1701	15.8	487	7.5	2415	446	**501**	**72**	-1.2	-1.0	1.1
dibenz[a,h]anthracene + [a,c]	518	499	534	<116	129	163	517	3.3	146	16.7	705	158	**117**	**14**	-1.1	-0.7	0.2
benzo[ghi]perylene	1536	1051	1340	320	367	347	1309	18.6	344	6.9	2362	467	**525**	**67**	-1.8	-1.3	1.2

Laboratory: 8

PAH in Sediment V

Quantitation mode: internal standards (added just prior to GC)

Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	14	61
Qualitative	1	4
Not Determined	8	35

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	11	12	13
2 to 3	2	1	1
≥ 3	1	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 8
Reporting Date: 9/29/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/25/95 S 1	9/25/95 S 2	9/25/95 S 3	9/25/95 S 1	9/25/95 S 2	9/25/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH							NA		NA		<2.5		<2				
hexachlorobenzene							NA		NA		5.79	0.55	**70**	**25**			
gamma-HCH							NA		NA		<3		<2				
heptachlor							NA		NA		<4		<2				
aldrin							NA		NA		<2		<2				
heptachlor epoxide							NA		NA		<2		<2				
oxychlordane							NA		NA		<5		2.59	0.20			
trans-chlordane							NA		NA		10.4	4.2	<2				
2,4'-DDE							NA		NA		17.7	4.8	**0.73**	**0.11**			
endosulfan I							NA		NA		<3		<2				
cis-chlordane							NA		NA		15.6	3.4	**2.33**	**0.56**			
trans-nonachlor							NA		NA		10.0	2.2	**1.26**	**0.13**			
dieldrin							NA		NA		7.98	3.63	1.26	0.37			
4,4'-DDE							NA		NA		79.3	15.9	**6.59**	**0.56**			
2,4'-DDD							NA		NA		39.6	8.1	<2				
endrin							NA		NA		<3		<2				
endosulfan II							NA		NA		<3		<2				
4,4'-DDD							NA		NA		126	30	**5.06**	**0.56**			
2,4'-DDT							NA		NA		<6		<2				
cis-nonachlor							NA		NA		3.52	1.17	<2				
4,4'-DDT							NA		NA		131	45	1.25	0.10			
mirex							NA		NA		<3		<2				

Laboratory: 8
Pesticides in Sediment V
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	22	100

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 8
Reporting Date: 9/29/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/25/95 S 1	9/25/95 S 2	9/25/95 S 3	9/25/95 S 1	9/25/95 S 2	9/25/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA		NA		23.0	3.3	1.39	0.19			
PCB 18							NA		NA		49.5	5.6	1.15	0.16			
PCB 28							NA		NA		84.6	10.6	9.8	3.7			
PCB 52							NA		NA		76.4	8.0	**6.89**	**0.56**			
PCB 44							NA		NA		56.2	5.6	**4.80**	**0.62**			
PCB 66/95							NA		NA		92.1	21.6	**14.3**	**2.5**			
PCB 101/90							NA		NA		72.6	9.7	**11.0**	**1.6**			
PCB 118							NA		NA		54.7	6.3	**10.0**	**1.1**			
PCB 153							NA		NA		64.8	12.0	**17.6**	**1.9**			
PCB 105							NA		NA		20.8	4.6	**3.65**	**0.27**			
PCB 138/163/164							NA		NA		62.0	6.7	**13.38**	**0.97**			
PCB 187/182							NA		NA		23.4	2.3	7.0	2.6			
PCB 128							NA		NA		8.56	1.46	**1.87**	**0.32**			
PCB 180							NA		NA		42.9	7.4	**5.83**	**0.58**			
PCB 170/190							NA		NA		19.3	3.9	**3.00**	**0.46**			
PCB 195							NA		NA		4.76	1.52	<3				
PCB 206							NA		NA		8.16	0.85	**3.67**	**0.87**			
PCB 209							NA		NA		5.94	0.68	**8.34**	**0.49**			

Laboratory: 8
PCBs in Sediment V
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	18	100

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

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	NA	NA	NA	NA		45.7	0.8	44.9	0.6			

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 9

Reporting Date: 9/15/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/12/95 S 1	8/12/95 S 2	8/12/95 S 3	8/4/95 S 1	8/4/95 S 2	8/4/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	1190	2130	1630	716	305	827	1650	28.5	616	44.6	1506	257	**1010**	**140**	0.4	0.4	1.9
2-methylnaphthalene	479	781	658	184	126	205	639	23.8	172	23.8	808	126	325	60	-0.8	-1.0	1.6
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		510	90	150	30			
biphenyl	NA	NA	NA	NA	NA	NA	NA		NA		272	70	175	18			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		755	156	120	24			
acenaphthylene	830	840	1090	72.8	53.1	<290	920	16.0	63	22.1	546	266	37.0	14.0	2.7	1.1	1.1
acenaphthene	433	512	560	<280	<280	<280	502	12.8	<280		552	58	41.0	10.0	-0.4	-0.7	0.9
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		462	133	48.0	10.0			
fluorene	633	877	979	73.5	75.6	<400	830	21.4	74.6	2.0	865	140	**97.3**	**8.6**	-0.2	-0.2	1.4
phenanthrene	4650	5440	5730	419	475	484	5273	10.6	459	7.7	5212	596	**489**	**23**	0.0	0.1	0.7
anthracene	1480	1370	1890	162	67	179	1580	17.3	136	44.4	1952	275	**184**	**14**	-0.8	-0.8	1.2
1-methylphenanthrene	NA	NA	NA	NA	NA	NA	NA		NA		1528	326	101	27			
fluoranthene	7330	8200	8380	803	873	816	7970	7.0	831	4.5	8511	1147	**981**	**78**	-0.3	-0.3	0.5
pyrene	7950	8200	8900	636	580	646	8350	5.9	621	5.7	9235	1460	**811**	**24**	-0.4	-0.3	0.4
benz[a]anthracene	4130	3780	4430	391	268	393	4113	7.9	351	20.4	4715	441	**427**	**25**	-0.5	-0.8	0.5
chrysene + triphenylene	4910	4700	5090	534	515	547	4900	4.0	532	3.0	5439	613	577	35	-0.4	-0.5	0.3
benzofluoranthenes [b+j+k]	9460	8180	7790	1352	1384	1242	8477	10.3	1326	5.6	7147	501	1441	150	0.7	1.6	0.7
benzo[e]pyrene	NA	NA	NA	NA	NA	NA	NA		NA		3149	267	**553**	**59**			
benzo[a]pyrene	3540	2470	3900	480	102	458	3303	22.5	347	61.2	4228	462	**628**	**52**	-0.9	-1.2	1.5
perylene	NA	NA	NA	NA	NA	NA	NA		NA		1153	166	**452**	**58**			
indeno[1,2,3-cd]pyrene	1980	1960	2050	399	368	392	1997	2.4	386	4.2	2415	446	**501**	**72**	-0.7	-0.6	0.2
dibenz[a,h]anthracene + [a,c]	604	600	667	<350	<350	<350	624	6.0	<350		705	158	**117**	**14**	-0.5	-0.3	0.4
benzo[ghi]perylene	1890	1820	1900	367	335	414	1870	2.3	372	10.7	2362	467	**525**	**67**	-0.8	-0.6	0.2

Laboratory: 9

PAH in Sediment V

Quantitation mode: internal standards (added just prior to GC)

Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	16	70
Qualitative	0	0
Not Determined	7	30

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 9**

Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant) Reporting Date: 9/15/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/12/95 S 1	8/12/95 S 2	8/12/95 S 3	8/12/95 S 1	8/12/95 S 2	8/12/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	3.50	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88		<0.88		<2.5		<2				
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA		NA		5.79	0.55	**70**	**25**			
gamma-HCH	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88		<0.88		<3		<2				
heptachlor	<0.88	<0.88	<0.88	11.70	4.59	3.09	<0.88		6.46	71.2	<4		<2				
aldrin	<1.76	<1.76	4.52	<1.76	<1.76	<1.76	<1.76		<1.76		<2		<2				
heptachlor epoxide	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88		<0.88		<2		<2				
oxychlordane	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88		<0.88		<5		2.59	0.20			
trans-chlordane	<1.76	98.7	72.2	<1.76	7.5	<1.76	85.5	21.9	<1.76		10.4	4.2	<2		**28.9**	**13.9**	**U**
2,4'-DDE	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	**<0.88**		<0.88		17.7	4.8	**0.73**	**0.11**	**X**		
endosulfan I	<0.88	<0.88	18.50	<0.88	<0.88	<0.88	<0.88		<0.88		<3		<2				**U**
cis-chlordane	6.6	<0.88	13.7	<0.88	4.0	<0.88	10.1	49.9	<0.88		15.6	3.4	**2.33**	**0.56**	-1.4	-1.0	**3.3**
trans-nonachlor	6.5	<0.88	60.2	<0.88	<0.88	<0.88	33.3	113.9	<0.88		10.0	2.2	**1.26**	**0.13**	**9.4**	**7.1**	**7.6**
dieldrin	<0.88	<0.88	14.00	<0.88	<0.88	<0.88	**<0.88**		<0.88		7.98	3.63	1.26	0.37	**X**		**U**
4,4'-DDE	39.9	76.9	85.0	9.0	8.2	8.4	67.3	35.7	8.6	4.9	79.3	15.9	**6.59**	**0.56**	-0.6	-0.4	2.4
2,4'-DDD	55.3	<0.88	<0.88	<0.88	<0.88	<0.88	**<0.88**		<0.88		39.6	8.1	<2		**X**		**U**
endrin	<1.76	<1.76	<1.76	<1.76	<1.76	<1.76	<1.76		<1.76		<3		<2				
endosulfan II	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88		<0.88		<3		<2				
4,4'-DDD	66	308	187	<1.76	<1.76	<1.76	187	65	<1.76		126	30	**5.06**	**0.56**	1.9	1.4	**4.3**
2,4'-DDT	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88		<0.88		<6		<2				
cis-nonachlor	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88		<0.88		3.52	1.17	<2				
4,4'-DDT	126	1288	190	<0.88	<0.88	<0.88	535	122	<0.88		131	45	1.25	0.10	**12.3**	**6.9**	**8.1**
mirex	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88		<0.88		<3		<2				

Laboratory: 9
Pesticides in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	6	27
Qualitative	15	68
Not Determined	1	5

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

"X":Compare with ref.val.
"U": Look at individual replicate results for precision.

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 9
Reporting Date: 9/15/95

PCBs

Analysis date	Data as submitted by laboratory: Sediment V, ng/g dry S 1	S 2	S 3	SRM 1941a, ng/g dry S 1	S 2	S 3	Sediment V lab mean ng/g dry	Sediment V lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment V, ng/g dry assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a]: Sediment V z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA		NA		23.0	3.3	1.39	0.19			
PCB 18							NA		NA		49.5	5.6	1.15	0.16			
PCB 28							NA		NA		84.6	10.6	9.8	3.7			
PCB 52							NA		NA		76.4	8.0	**6.89**	**0.56**			
PCB 44							NA		NA		56.2	5.6	**4.80**	**0.62**			
PCB 66/95							NA		NA		92.1	21.6	**14.3**	**2.5**			
PCB 101/90							NA		NA		72.6	9.7	**11.0**	**1.6**			
PCB 118							NA		NA		54.7	6.3	**10.0**	**1.1**			
PCB 153							NA		NA		64.8	12.0	**17.6**	**1.9**			
PCB 105							NA		NA		20.8	4.6	**3.65**	**0.27**			
PCB 138/163/164							NA		NA		62.0	6.7	**13.38**	**0.97**			
PCB 187/182							NA		NA		23.4	2.3	7.0	2.6			
PCB 128							NA		NA		8.56	1.46	**1.87**	**0.32**			
PCB 180							NA		NA		42.9	7.4	**5.83**	**0.58**			
PCB 170/190							NA		NA		19.3	3.9	**3.00**	**0.46**			
PCB 195							NA		NA		4.76	1.52	<3				
PCB 206							NA		NA		8.16	0.85	**3.67**	**0.87**			
PCB 209							NA		NA		5.94	0.68	**8.34**	**0.49**			

Laboratory: 9
PCBs in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	18	100

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

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	40.9	44.5	43.8	43.1	4.4	45.7	0.8	44.9	0.6	-0.2	-2.6	0.3

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 10
Reporting Date: 10/17/95

PAH

Analysis date	Data as submitted by laboratory: Sediment V, ng/g dry S 1	S 2	S 3	SRM 1941a, ng/g dry S 1	S 2	S 3	Sediment V lab mean ng/g dry	Sediment V lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment V, ng/g dry assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment V z-score (25%)	z-score (s)	p-score (15%)
naphthalene							NA		NA		1506	257	**1010**	**140**			
2-methylnaphthalene							NA		NA		808	126	325	60			
1-methylnaphthalene							NA		NA		510	90	150	30			
biphenyl							NA		NA		272	70	175	18			
2,6-dimethylnaphthalene							NA		NA		755	156	120	24			
acenaphthylene							NA		NA		546	266	37.0	14.0			
acenaphthene							NA		NA		552	58	41.0	10.0			
1,6,7-trimethylnaphthalene							NA		NA		462	133	48.0	10.0			
fluorene							NA		NA		865	140	**97.3**	**8.6**			
phenanthrene							NA		NA		5212	596	**489**	**23**			
anthracene							NA		NA		1952	275	**184**	**14**			
1-methylphenanthrene							NA		NA		1528	326	101	27			
fluoranthene							NA		NA		8511	1147	**981**	**78**			
pyrene							NA		NA		9235	1460	**811**	**24**			
benz[a]anthracene							NA		NA		4715	441	**427**	**25**			
chrysene + triphenylene							NA		NA		5439	613	577	35			
benzofluoranthenes [b+j+k]							NA		NA		7147	501	1441	150			
benzo[e]pyrene							NA		NA		3149	267	**553**	**59**			
benzo[a]pyrene							NA		NA		4228	462	**628**	**52**			
perylene							NA		NA		1153	166	**452**	**58**			
indeno[1,2,3-cd]pyrene							NA		NA		2415	446	**501**	**72**			
dibenz[a,h]anthracene + [a,c]							NA		NA		705	158	**117**	**14**			
benzo[ghi]perylene							NA		NA		2362	467	**525**	**67**			

Laboratory: 10
PAH in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	23	100

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 10
Reporting Date: 10/17/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/21/95 S 1	9/22/95 S 2	9/23/95 S 3	9/15/95 S 1	9/21/95 S 2	9/23/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<2.5		<2				
hexachlorobenzene	6.10	4.85	5.14	54.10	50.90	65.70	5.36	12.2	56.90	13.7	5.79	0.55	**70**	**25**	-0.3	-0.5	0.8
gamma-HCH	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<3		<2				
heptachlor	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<4		<2				
aldrin	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<2		<2				
heptachlor epoxide	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<2		<2				
oxychlordane	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<5		2.59	0.20			
trans-chlordane	16.0	11.8	11.5	< 2	< 2	< 2	13.1	19.2	< 2		10.4	4.2	<2		1.0	0.5	1.3
2,4'-DDE	13.8	11.2	10.5	< 2	< 2	< 2	11.8	14.7	< 2		17.7	4.8	**0.73**	**0.11**	-1.3	-0.9	1.0
endosulfan I	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<3		<2				
cis-chlordane	17.6	13.5	13.0	2.3	1.8	2.2	14.7	17.2	2.1	11.9	15.6	3.4	**2.33**	**0.56**	-0.2	-0.2	1.1
trans-nonachlor	10.3	7.7	7.6	< 2	< 2	< 2	8.5	18.3	< 2		10.0	2.2	**1.26**	**0.13**	-0.6	-0.4	1.2
dieldrin	5.72	5.42	5.95	1.62	1.33	1.56	5.70	4.7	1.50	10.2	7.98	3.63	1.26	0.37	-1.1	-0.5	0.3
4,4'-DDE	52.2	44.3	42.6	7.0	6.6	7.6	46.4	11.0	7.1	7.0	79.3	15.9	**6.59**	**0.56**	-1.7	-1.2	0.7
2,4'-DDD	26.4	26.3	24.2	< 2	< 2	< 2	25.6	4.8	< 2		39.6	8.1	<2		-1.4	-1.2	0.3
endrin	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<3		<2				
endosulfan II	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<3		<2				
4,4'-DDD	101	82	74	6	5	6	86	16	6	9	126	30	**5.06**	**0.56**	-1.3	-0.9	1.1
2,4'-DDT	4.13	2.30	2.95	< 2	< 2	< 2	3.13	29.7	< 2		<6		<2				2.0
cis-nonachlor	7.77	5.58	4.94	< 2	< 2	< 2	6.10	24.3	< 2		3.52	1.17	<2		2.9	1.7	1.6
4,4'-DDT	other	other	other	< 2	< 2	< 2	other		< 2		131	45	1.25	0.10			
mirex	< 2	< 2	< 2	< 2	< 2	< 2	< 2		< 2		<3		<2				

Laboratory: 10
Pesticides in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	11	50
Qualitative	11	50
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 10
Reporting Date: 10/17/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/21/95 S 1	9/22/95 S 2	9/23/95 S 3	9/15/95 S 1	9/21/95 S 2	9/23/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	21.6	17.2	17.6	3.44	4.03	3.02	18.8	12.9	3.50	14.5	23.0	3.3	1.39	0.19	-0.7	-0.8	0.9
PCB 18	53.5	42.8	39.7	3.44	2.90	3.33	45.3	16.0	3.22	8.9	49.5	5.6	1.15	0.16	-0.3	-0.5	1.1
PCB 28	80.4	63.2	61.1	6.89	6.84	8.26	68.2	15.5	7.33	11.0	84.6	10.6	9.8	3.7	-0.8	-1.0	1.0
PCB 52	69.8	54.8	55.9	8.18	7.52	9.04	60.2	13.9	8.25	9.2	76.4	8.0	**6.89**	**0.56**	-0.9	-1.2	0.9
PCB 44	53.3	41.8	40.7	5.39	4.18	5.36	45.3	15.4	4.98	13.9	56.2	5.6	**4.80**	**0.62**	-0.8	-1.2	1.0
PCB 66/95	81.8	63.5	61.8	7.4	7.4	7.5	69.0	16.1	7.4	0.9	92.1	21.6	**14.3**	**2.5**	-1.0	-0.7	1.1
PCB 101/90	56.7	45.6	43.2	11.8	10.1	12.1	48.5	14.8	11.3	9.5	72.6	9.7	**11.0**	**1.6**	-1.3	-1.5	1.0
PCB 118	48.7	36.4	36.3	10.4	9.2	10.7	40.5	17.6	10.1	7.8	54.7	6.3	**10.0**	**1.1**	-1.0	-1.5	1.2
PCB 153	47.5	37.7	35.9	13.1	12.4	13.1	40.4	15.5	12.9	3.1	64.8	12.0	**17.6**	**1.9**	-1.5	-1.3	1.0
PCB 105	17.9	14.3	13.9	3.23	2.66	2.91	15.4	14.3	2.93	9.7	20.8	4.6	**3.65**	**0.27**	-1.0	-0.8	1.0
PCB 138/163/164	60.5	42.7	41.7	15.5	14.8	16.1	48.3	21.9	15.5	4.2	62.0	6.7	**13.38**	**0.97**	-0.9	-1.4	1.5
PCB 187/182	19.8	14.2	13.3	6.44	6.14	6.32	15.8	22.3	6.30	2.4	23.4	2.3	7.0	2.6	-1.3	-2.1	1.5
PCB 128	7.07	6.85	5.27	1.67	1.52	1.67	6.4	15.4	1.62	5.3	8.56	1.46	**1.87**	**0.32**	-1.0	-1.2	1.0
PCB 180	27.1	22.1	20.1	8.82	10.10	8.85	23.1	15.6	9.26	7.9	42.9	7.4	**5.83**	**0.58**	-1.8	-2.5	1.0
PCB 170/190	12.3	9.8	9.8	3.50	3.18	3.35	10.7	13.4	3.34	4.8	19.3	3.9	**3.00**	**0.46**	-1.8	-1.8	0.9
PCB 195	2.83	2.50	2.59	0.93	1.04	0.95	2.64	6.5	0.97	6.2	4.76	1.52	<3		-1.8	-0.8	0.4
PCB 206	6.46	5.59	4.87	5.12	3.62	3.86	5.64	14.1	4.20	19.2	8.16	0.85	**3.67**	**0.87**	-1.2	-1.8	0.9
PCB 209	4.89	4.31	3.18	12.20	10.00	11.50	4.13	21.1	11.23	10.0	5.94	0.68	**8.34**	**0.49**	-1.2	-1.8	1.4

Laboratory: 10
PCBs in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	18	16	18
2 to 3	0	2	0
≥ 3	0	0	0

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	47.3	41.4	45.4	44.7	6.7	45.7	0.8	44.9	0.6	-0.1	-1.0	0.4

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 11
Reporting Date: 10/17/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	10/12/95 S 1	10/12/95 S 2	10/12/95 S 3	10/12/95 S 1	10/12/95 S 2	10/12/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	NA	NA	NA	NA	NA	NA	NA		NA		1506	257	**1010**	**140**			
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		808	126	325	60			
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		510	90	150	30			
biphenyl	NA	NA	NA	NA	NA	NA	NA		NA		272	70	175	18			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		755	156	120	24			
acenaphthylene	NA	NA	NA	NA	NA	NA	NA		NA		546	266	37.0	14.0			
acenaphthene	NA	NA	NA	NA	NA	NA	NA		NA		552	58	41.0	10.0			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		462	133	48.0	10.0			
fluorene	636	573	662	50.8	40.0	53.6	624	7.3	48.1	14.9	865	140	**97.3**	**8.6**	-1.1	-1.0	0.5
phenanthrene	6010	5700	6640	505	433	500	6117	7.8	479	8.4	5212	596	**489**	**23**	0.7	0.9	0.5
anthracene	2470	2170	2800	182	168	193	2480	12.7	181	6.9	1952	275	**184**	**14**	1.1	1.1	0.8
1-methylphenanthrene	NA	NA	NA	NA	NA	NA	NA		NA		1528	326	101	27			
fluoranthene	11200	11600	12800	1190	1100	1180	11867	7.0	1157	4.3	8511	1147	**981**	**78**	1.6	1.6	0.5
pyrene	12700	12600	13900	1030	950	1010	13067	5.5	997	4.2	9235	1460	**811**	**24**	1.7	1.5	0.4
benz[a]anthracene	4270	3840	4840	342	308	356	4317	11.6	335	7.4	4715	441	**427**	**25**	-0.3	-0.5	0.8
chrysene + triphenylene	5400	4880	6070	556	489	555	5450	10.9	533	7.2	5439	613	577	35	0.0	0.0	0.7
benzofluoranthenes [b+j+k]	5280	5970	9160	911	822	760	6803	30.4	831	9.1	7147	501	1441	150	-0.2	-0.4	2.0
benzo[e]pyrene	2380	2580	3490	399	349	331	2817	21.0	360	9.8	3149	267	**553**	**59**	-0.4	-0.9	1.4
benzo[a]pyrene	3460	3710	5040	426	378	369	4070	20.9	391	7.8	4228	462	**628**	**52**	-0.1	-0.2	1.4
perylene	921	987	1330	348	289	298	1079	20.3	312	10.2	1153	166	**452**	**58**	-0.3	-0.3	1.4
indeno[1,2,3-cd]pyrene	1290	1190	1240	541	428	509	1240	4.0	493	11.8	2415	446	**501**	**72**	-1.9	-1.6	0.3
dibenz[a,h]anthracene + [a,c]	445	406	335	104	106	111	395	14.1	107	3.4	705	158	**117**	**14**	-1.8	-1.2	0.9
benzo[ghi]perylene	1060	980	1010	550	391	477	1017	4.0	473	16.8	2362	467	**525**	**67**	-2.3	-1.7	0.3

Laboratory: 11
PAH in Sediment V

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	14	61
Qualitative	0	0
Not Determined	9	39

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 11
Reporting Date: 10/17/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/9/95 S 1	8/22/95 S 2	8/28/95 S 3	8/9/95 S 1	8/22/95 S 2	8/28/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA		NA		<2.5		<2				
hexachlorobenzene	6.50	5.29	5.31	66.34	65.56	71.38	5.70	12.1	67.76	4.7	5.79	0.55	**70**	**25**	-0.1	-0.1	0.8
gamma-HCH	<0.30	0.36	<0.30	0.73	0.53	1.17	0.36		0.81	40.2	<3		<2				
heptachlor	NA	NA	NA	NA	NA	NA	NA		NA		<4		<2				
aldrin	NA	NA	NA	NA	NA	NA	NA		NA		<2		<2				
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA		NA		<2		<2				
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.59	0.20			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		10.4	4.2	<2				
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA		NA		17.7	4.8	**0.73**	**0.11**			
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
cis-chlordane	20.5	27.5	22.8	1.34	1.36	1.71	23.6	14.9	1.47	14.2	15.6	3.4	**2.33**	**0.56**	2.1	1.5	1.0
trans-nonachlor	14.1	13.1	13.6	0.90	0.99	1.18	13.6	3.6	1.02	13.9	10.0	2.2	**1.26**	**0.13**	1.5	1.1	0.2
dieldrin	NA	NA	NA	NA	NA	NA	NA		NA		7.98	3.63	1.26	0.37			
4,4'-DDE	101	131	134	5.0	5.2	5.6	122	15.0	5.25	5.6	79.3	15.9	**6.59**	**0.56**	2.2	1.6	1.0
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA		NA		39.6	8.1	<2				
endrin	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
endosulfan II	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
4,4'-DDD	168	230	188	7.41	5.62	6.14	196	16	6.39	14	126	30	**5.06**	**0.56**	2.2	1.5	1.1
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA		NA		<6		<2				
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		3.52	1.17	<2				
4,4'-DDT	368	319	282	0.68	0.82	0.52	323	13	0.67	23	131	45	1.25	0.10	**5.9**	**3.3**	0.9
mirex	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				

Laboratory: 11
Pesticides in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	7	32
Qualitative	0	0
Not Determined	15	68

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	2	5	6
2 to 3	3	0	0
≥ 3	1	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 11
Reporting Date: 10/17/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/9/95 S 1	8/22/95 S 2	8/28/95 S 3	8/9/95 S 1	8/22/95 S 2	8/28/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	24.5	25.0	24.2	3.96	3.28	3.26	24.6	1.5	3.50	11.5	23.0	3.3	1.39	0.19	0.3	0.3	0.1
PCB 18	54.9	54.5	52.3	4.34	4.73	4.64	53.9	2.5	4.57	4.5	49.5	5.6	1.15	0.16	0.4	0.5	0.2
PCB 28	123	118	117	10	10	9.98	119.3	2.5	10	1.5	84.6	10.6	9.8	3.7	1.6	2.1	0.2
PCB 52	75.5	74.1	69.5	5.77	6.94	6.86	73.0	4.3	6.52	10.0	76.4	8.0	**6.89**	**0.56**	-0.2	-0.3	0.3
PCB 44	64.7	64.5	59.9	3.79	4.39	4.39	63.0	4.3	4.19	8.3	56.2	5.6	**4.80**	**0.62**	0.5	0.8	0.3
PCB 66/95	76.4	78.7	75.5	6.97	7.66	7.66	76.9	2.2	7.43	5.4	92.1	21.6	**14.3**	**2.5**	-0.7	-0.5	0.1
PCB 101/90	66.3	64.0	61.8	12.1	12.7	12.4	64.0	3.5	12.4	2.4	72.6	9.7	**11.0**	**1.6**	-0.5	-0.5	0.2
PCB 118	58.0	55.0	55.0	8.55	9.08	9.21	56.0	3.1	8.95	3.9	54.7	6.3	**10.0**	**1.1**	0.1	0.1	0.2
PCB 153	66.6	64.6	63.3	12.9	13.4	13.7	64.8	2.6	13.3	3.2	64.8	12.0	**17.6**	**1.9**	0.0	0.0	0.2
PCB 105	19.9	27.1	27.6	2.24	3.07	3.47	24.9	17.4	2.93	21.5	20.8	4.6	**3.65**	**0.27**	0.8	0.6	1.2
PCB 138/163/164	65.2	62.0	61.3	11.4	11.3	11.8	62.8	3.3	11.5	2.3	62.0	6.7	**13.38**	**0.97**	0.1	0.1	0.2
PCB 187/182	23.4	21.8	22.0	6.35	6.29	6.69	22.4	3.9	6.44	3.4	23.4	2.3	7.0	2.6	-0.2	-0.3	0.3
PCB 128	9.26	8.76	8.81	1.47	1.43	1.56	8.9	3.1	1.49	4.4	8.56	1.46	**1.87**	**0.32**	0.2	0.2	0.2
PCB 180	40.1	39.2	39.0	8.18	8.28	8.88	39.4	1.5	8.45	4.5	42.9	7.4	**5.83**	**0.58**	-0.3	-0.4	0.1
PCB 170/190	16.7	15.5	15.8	3.48	2.76	3.09	16.0	3.9	3.11	11.6	19.3	3.9	**3.00**	**0.46**	-0.7	-0.7	0.3
PCB 195	5.07	4.43	4.68	1.98	1.88	2.19	4.73	6.8	2.02	7.9	4.76	1.52	<3		0.0	0.0	0.5
PCB 206	8.00	6.63	6.90	3.41	3.21	3.87	7.18	10.1	3.50	9.7	8.16	0.85	**3.67**	**0.87**	-0.5	-0.7	0.7
PCB 209	5.32	5.21	5.53	7.90	7.50	8.86	5.35	3.0	8.09	8.7	5.94	0.68	**8.34**	**0.49**	-0.4	-0.6	0.2

Laboratory: 11
PCBs in Sediment V

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	18	17	18
2 to 3	0	1	0
≥ 3	0	0	0

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	46.0	46.0	45.0	45.7	1.3	45.7	0.8	44.9	0.6	0.0	0.0	0.1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise **Laboratory No.: 12**

Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant) Reporting Date: 10/16/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	S 1	S 2	S 3	S 1	S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	NA	NA	NA	NA	NA	NA	NA		NA		1506	257	**1010**	**140**			
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		808	126	325	60			
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		510	90	150	30			
biphenyl	NA	NA	NA	NA	NA	NA	NA		NA		272	70	175	18			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		755	156	120	24			
acenaphthylene	NA	NA	NA	NA	NA	NA	NA		NA		546	266	37.0	14.0			
acenaphthene	NA	NA	NA	NA	NA	NA	NA		NA		552	58	41.0	10.0			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA		NA		462	133	48.0	10.0			
fluorene	NA	NA	NA	NA	NA	NA	NA		NA		865	140	**97.3**	**8.6**			
phenanthrene	NA	NA	NA	NA	NA	NA	NA		NA		5212	596	**489**	**23**			
anthracene	NA	NA	NA	NA	NA	NA	NA		NA		1952	275	**184**	**14**			
1-methylphenanthrene	NA	NA	NA	NA	NA	NA	NA		NA		1528	326	101	27			
fluoranthene	NA	NA	NA	NA	NA	NA	NA		NA		8511	1147	**981**	**78**			
pyrene	NA	NA	NA	NA	NA	NA	NA		NA		9235	1460	**811**	**24**			
benz[a]anthracene	NA	NA	NA	NA	NA	NA	NA		NA		4715	441	**427**	**25**			
chrysene + triphenylene	NA	NA	NA	NA	NA	NA	NA		NA		5439	613	577	35			
benzofluoranthenes [b+j+k]	NA	NA	NA	NA	NA	NA	NA		NA		7147	501	1441	150			
benzo[e]pyrene	NA	NA	NA	NA	NA	NA	NA		NA		3149	267	**553**	**59**			
benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA		NA		4228	462	**628**	**52**			
perylene	NA	NA	NA	NA	NA	NA	NA		NA		1153	166	**452**	**58**			
indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA		NA		2415	446	**501**	**72**			
dibenz[a,h]anthracene + [a,c]	NA	NA	NA	NA	NA	NA	NA		NA		705	158	**117**	**14**			
benzo[ghi]perylene	NA	NA	NA	NA	NA	NA	NA		NA		2362	467	**525**	**67**			

Laboratory: 12
PAH in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	23	100

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

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant)

Laboratory No.: 12
Reporting Date: 10/16/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/18/95 S 1	9/18/95 S 2	9/18/95 S 3	9/18/95 S 1	9/18/95 S 2	9/18/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8		<0.8		<2.5		<2				
hexachlorobenzene	5.22	5.13	5.07	42.40	44.80	44.50	5.14	1.5	43.90	3.0	5.79	0.55	**70**	**25**	-0.4	-0.8	0.1
gamma-HCH	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2		<1.2		<3		<2				
heptachlor	6.23	6.83	7.58	<1.0	<1.0	<1.0	6.88	9.8	<1.0		<4		<2				0.7
aldrin	9.56	9.45	9.34	1.21	1.27	1.23	9.45	1.2	1.24	2.5	<2		<2				0.1
heptachlor epoxide	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6		<1.6		<2		<2				
oxychlordane	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6		<1.6		<5		2.59	0.20			
trans-chlordane	19.7	19.2	19.0	2.02	2.13	1.92	19.3	1.9	2.02	5.2	10.4	4.2	<2		**3.4**	1.6	0.1
2,4'-DDE	16.2	13.2	13.9	<2.0	<2.0	<2.0	14.4	10.9	<2.0		17.7	4.8	**0.73**	**0.11**	-0.7	-0.5	0.7
endosulfan I	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		<2.0		<3		<2				
cis-chlordane	11.7	11.6	11.1	<1.7	<1.7	<1.7	11.5	2.8	<1.7		15.6	3.4	**2.33**	**0.56**	-1.1	-0.8	0.2
trans-nonachlor	11.1	10.7	11.0	1.08	<1.0	<1.0	10.9	1.9	<1.0		10.0	2.2	**1.26**	**0.13**	0.4	0.3	0.1
dieldrin	5.30	5.42	4.88	2.42	1.94	2.08	5.20	5.5	2.15	11.5	7.98	3.63	1.26	0.37	-1.4	-0.6	0.4
4,4'-DDE	76.1	66.0	68.8	5.9	5.4	5.4	70.3	7.4	5.5	5.2	79.3	15.9	**6.59**	**0.56**	-0.5	-0.3	0.5
2,4'-DDD	22.8	23.0	27.1	<4.0	<4.0	<4.0	24.3	10.0	<4.0		39.6	8.1	<2		-1.5	-1.3	0.7
endrin	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6		<1.6		<3		<2				
endosulfan II	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		<2.0		<3		<2				
4,4'-DDD	100	109	134	<4.0	<4.0	<4.0	114	15.4	<4.0		126	30	**5.06**	**0.56**	-0.4	-0.3	1.0
2,4'-DDT	7.71	5.32	4.53	<2.0	<2.0	<2.0	5.85	28.3	<2.0		<6		<2				1.9
cis-nonachlor	2.00	1.87	1.98	1.91	2.09	1.87	1.95	3.6	1.96	6	3.52	1.17	<2		-1.8	-1.0	0.2
4,4'-DDT	157	316	185	<2.5	<2.5	<2.5	219	38.7	<2.5		131	45	1.25	0.10	2.7	1.5	2.6
mirex	2.58	2.48	2.50	<2.5	<2.5	<2.5	2.52	2.1	<2.5		<3		<2				0.1

Laboratory: 12
Pesticides in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	15	68
Qualitative	7	32
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	9	11	14
2 to 3	1	0	1
≥ 3	1	0	0

[a]z- and p-scores ≥ 3 are bolded.
[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 12
Reporting Date: 10/16/95

PCBs

Analysis date	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
	S 1	S 2	S 3	S 1	S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	NA	NA	NA	NA	NA	NA	NA		NA		23.0	3.3	1.39	0.19			
PCB 18	NA	NA	NA	NA	NA	NA	NA		NA		49.5	5.6	1.15	0.16			
PCB 28	NA	NA	NA	NA	NA	NA	NA		NA		84.6	10.6	9.8	3.7			
PCB 52	NA	NA	NA	NA	NA	NA	NA		NA		76.4	8.0	**6.89**	**0.56**			
PCB 44	NA	NA	NA	NA	NA	NA	NA		NA		56.2	5.6	**4.80**	**0.62**			
PCB 66/95	NA	NA	NA	NA	NA	NA	NA		NA		92.1	21.6	**14.3**	**2.5**			
PCB 101/90	NA	NA	NA	NA	NA	NA	NA		NA		72.6	9.7	**11.0**	**1.6**			
PCB 118	NA	NA	NA	NA	NA	NA	NA		NA		54.7	6.3	**10.0**	**1.1**			
PCB 153	NA	NA	NA	NA	NA	NA	NA		NA		64.8	12.0	**17.6**	**1.9**			
PCB 105	NA	NA	NA	NA	NA	NA	NA		NA		20.8	4.6	**3.65**	**0.27**			
PCB 138/163/164	NA	NA	NA	NA	NA	NA	NA		NA		62.0	6.7	**13.38**	**0.97**			
PCB 187/182	NA	NA	NA	NA	NA	NA	NA		NA		23.4	2.3	7.0	2.6			
PCB 128	NA	NA	NA	NA	NA	NA	NA		NA		8.56	1.46	**1.87**	**0.32**			
PCB 180	NA	NA	NA	NA	NA	NA	NA		NA		42.9	7.4	**5.83**	**0.58**			
PCB 170/190	NA	NA	NA	NA	NA	NA	NA		NA		19.3	3.9	**3.00**	**0.46**			
PCB 195	NA	NA	NA	NA	NA	NA	NA		NA		4.76	1.52	<3				
PCB 206	NA	NA	NA	NA	NA	NA	NA		NA		8.16	0.85	**3.67**	**0.87**			
PCB 209	NA	NA	NA	NA	NA	NA	NA		NA		5.94	0.68	**8.34**	**0.49**			

Laboratory: 12
PCBs in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	18	100

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

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	43.7	43.4	43.2	43.4	0.6	45.7	0.8	44.9	0.6	-0.2	-2.3	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 13
Reporting Date: 9/27/95

PAH

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/18/09 S 1	8/28/95 S 2	S 3	8/18/95 S 1	8/28/95 S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	1730	1540		872	785		1635	8.2	829	7.4	1506	257	**1010**	**140**	0.3	0.3	0.5
2-methylnaphthalene	1140	976		358	304		1058	11.0	331	11.5	808	126	325	60	1.2	1.5	0.7
1-methylnaphthalene	637	566		166	146		602	8.3	156	9.1	510	90	150	30	0.7	1.1	0.6
biphenyl	554	478		169	153		516	10.4	161	7.0	272	70	175	18	**3.6**	**3.6**	0.7
2,6-dimethylnaphthalene	806	709		147	125		758	9.1	136	11.4	755	156	120	24	0.0	0.0	0.6
acenaphthylene	807	817		33.3	70.6		812	0.9	52	50.8	546	266	37.0	14.0	2.0	0.8	0.1
acenaphthene	588	571		44.4	39.5		580	2.1	42	8.3	552	58	41.0	10.0	0.2	0.4	0.1
1,6,7-trimethylnaphthalene	676	614		52.8	47.7		645	6.8	50	7.2	462	133	48.0	10.0	1.6	1.1	0.5
fluorene	986	889		71.8	82.7		938	7.3	77.3	10.0	865	140	**97.3**	**8.6**	0.3	0.3	0.5
phenanthrene	5530	5160		476	378		5345	4.9	427	16.2	5212	596	**489**	**23**	0.1	0.1	0.3
anthracene	2780	2670		192	193		2725	2.9	193	0.4	1952	275	**184**	**14**	1.6	1.6	0.2
1-methylphenanthrene	1540	1500		78	87		1520	1.9	83	8.0	1528	326	101	27	0.0	0.0	0.1
fluoranthene	8170	8200		762	719		8185	0.3	741	4.1	8511	1147	**981**	**78**	-0.2	-0.2	0.0
pyrene	8400	8620		699	624		8510	1.8	662	8.0	9235	1460	**811**	**24**	-0.3	-0.3	0.1
benz[a]anthracene	4450	4460		348	295		4455	0.2	322	11.7	4715	441	**427**	**25**	-0.2	-0.3	0.0
chrysene + triphenylene	4260	4470		466	433		4365	3.4	450	5.2	5439	613	577	35	-0.8	-1.0	0.2
benzofluoranthenes [b+j+k]	8250	7150		1240	1110		7700	10.1	1175	7.8	7147	501	1441	150	0.3	0.7	0.7
benzo[e]pyrene	3010	3040		442	420		3025	0.7	431	3.6	3149	267	**553**	**59**	-0.2	-0.3	0.0
benzo[a]pyrene	4010	3620		439	372		3815	7.2	406	11.7	4228	462	**628**	**52**	-0.4	-0.5	0.5
perylene	1150	1180		386	332		1165	1.8	359	10.6	1153	166	**452**	**58**	0.0	0.1	0.1
indeno[1,2,3-cd]pyrene	2200	1960		366	323		2080	8.2	345	8.8	2415	446	**501**	**72**	-0.6	-0.5	0.5
dibenz[a,h]anthracene + [a,c]	763	703		122	97		733	5.8	110	16.0	705	158	**117**	**14**	0.2	0.1	0.4
benzo[ghi]perylene	2190	1950		352	327		2070	8.2	340	5.2	2362	467	**525**	**67**	-0.5	-0.4	0.5

Laboratory: 13
PAH in Sediment V

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	23	100
Qualitative	0	0
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 13
Reporting Date: 9/27/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/18/09 S 1	8/28/95 S 2	S 3	8/18/95 S 1	8/28/95 S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA		NA	NA		NA		NA		<2.5		<2				
hexachlorobenzene	7.20	6.30		71.8	71.6		6.75	9.4	71.7	0.2	5.79	0.55	**70**	**25**	0.7	1.1	0.6
gamma-HCH	NA	NA		NA	NA		NA		NA		<3		<2				
heptachlor	NA	NA		NA	NA		NA		NA		<4		<2				
aldrin	< 1	< 1		< 1	< 1		< 1		< 1		<2		<2				
heptachlor epoxide	NA	NA		NA	NA		NA		NA		<2		<2				
oxychlordane	NA	NA		NA	NA		NA		NA		<5		2.59	0.20			
trans-chlordane	NA	NA		NA	NA		NA		NA		10.4	4.2	<2				
2,4'-DDE	15.6	11.6		< 1	< 1		13.6	20.8	< 1		17.7	4.8	**0.73**	**0.11**	-0.9	-0.6	1.4
endosulfan I	NA	NA		NA	NA		NA		NA		<3		<2				
cis-chlordane	NA	NA		NA	NA		NA		NA		15.6	3.4	**2.33**	**0.56**			
trans-nonachlor	NA	NA		NA	NA		NA		NA		10.0	2.2	**1.26**	**0.13**			
dieldrin	NA	NA		NA	NA		NA		NA		7.98	3.63	1.26	0.37			
4,4'-DDE	146	129		7.40	6.90		138	8.7	7.15	4.9	79.3	15.9	**6.59**	**0.56**	2.9	2.1	0.6
2,4'-DDD	NA	NA		NA	NA		NA		NA		39.6	8.1	<2				
endrin	NA	NA		NA	NA		NA		NA		<3		<2				
endosulfan II	NA	NA		NA	NA		NA		NA		<3		<2				
4,4'-DDD	NA	NA		NA	NA		NA		NA		126	30	**5.06**	**0.56**			
2,4'-DDT	NA	NA		NA	NA		NA		NA		<6		<2				
cis-nonachlor	NA	NA		NA	NA		NA		NA		3.52	1.17	<2				
4,4'-DDT	NA	NA		NA	NA		NA		NA		131	45	1.25	0.10			
mirex	4.30	4.80		1.20	< 1		4.55	7.8	1.20		<3		<2				

Laboratory: 13
Pesticides in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	4	18
Qualitative	1	5
Not Determined	17	77

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 13
Reporting Date: 9/27/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/18/09 S 1	8/28/95 S 2	S 3	8/18/95 S 1	8/28/95 S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	20.9	20.1		3.00	2.80		20.5	2.8	2.90	4.9	23.0	3.3	1.39	0.19	-0.4	-0.5	0.2
PCB 18	41.1	38.6		3.30	2.90		39.9	4.4	3.10	9.1	49.5	5.6	1.15	0.16	-0.8	-1.2	0.3
PCB 28	87.2	88.9		7.30	7.30		88.1	1.4	7.30	0.0	84.6	10.6	9.8	3.7	0.2	0.2	0.1
PCB 52	61.9	65.0		8.20	8.20		63.5	3.5	8.20	0.0	76.4	8.0	**6.89**	**0.56**	-0.7	-1.0	0.2
PCB 44	60.2	52.4		5.10	4.70		56.3	9.8	4.90	5.8	56.2	5.6	**4.80**	**0.62**	0.0	0.0	0.7
PCB 66/95	50.0	45.5		6.90	6.70		47.8	6.7	6.80	2.1	92.1	21.6	**14.3**	**2.5**	-1.9	-1.4	0.4
PCB 101/90	90.8	84.2		15.1	14.3		87.5	5.3	14.7	3.8	72.6	9.7	**11.0**	**1.6**	0.8	0.9	0.4
PCB 118	54.5	53.9		8.70	8.90		54.2	0.8	8.80	1.6	54.7	6.3	**10.0**	**1.1**	0.0	-0.1	0.1
PCB 153	59.6	58.0		13.2	12.9		58.8	1.9	13.1	1.6	64.8	12.0	**17.6**	**1.9**	-0.4	-0.3	0.1
PCB 105	27.8	26.3		3.00	2.70		27.1	3.9	2.85	7.4	20.8	4.6	**3.65**	**0.27**	1.2	0.9	0.3
PCB 138/163/164	75.2	75.2		16.0	15.6		75.2	0.0	15.8	1.8	62.0	6.7	**13.38**	**0.97**	0.9	1.3	0.0
PCB 187/182	26.9	26.0		6.70	6.70		26.5	2.4	6.70	0.0	23.4	2.3	7.0	2.6	0.5	0.8	0.2
PCB 128	13.80	14.70		4.40	4.30		14.3	4.5	4.35	1.6	8.56	1.46	**1.87**	**0.32**	2.7	**3.2**	0.3
PCB 180	37.8	38.3		8.30	7.90		38.1	0.9	8.10	3.5	42.9	7.4	**5.83**	**0.58**	-0.5	-0.6	0.1
PCB 170/190	17.9	18.0		3.40	3.60		18.0	0.4	3.50	4.0	19.3	3.9	**3.00**	**0.46**	-0.3	-0.3	0.0
PCB 195	3.00	3.20		1.00	1.00		3.10	4.6	1.00	0.0	4.76	1.52	<3		-1.4	-0.7	0.3
PCB 206	8.10	8.40		3.80	3.80		8.25	2.6	3.80	0.0	8.16	0.85	**3.67**	**0.87**	0.0	0.1	0.2
PCB 209	7.30	8.00		12.0	12.2		7.65	6.5	12.1	1.2	5.94	0.68	**8.34**	**0.49**	1.1	1.7	0.4

Laboratory: 13
PCBs in Sediment V

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	17	17	18
2 to 3	1	0	0
≥ 3	0	1	0

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.1	44.7	45.3	45.0	0.7	45.7	0.8	44.9	0.6	-0.1	-0.7	0.0

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 14
Reporting Date: 10/2/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	09/19/95 S 1	9/20/95 S 2	09/20/95 S 3	09/22/95 S 1	09/22/95 S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	155	199	216	197	165		190	13.5	181	8.8	1506	257	**1010**	**140**	**-3.5**	**-3.4**	0.9
2-methylnaphthalene	108	144	141	48	46		131	12.5	47	1.9	808	126	325	60	**-3.4**	**-4.1**	0.8
1-methylnaphthalene	ND	ND	ND	ND	ND	ND	ND		ND		510	90	150	30			
biphenyl	ND	ND	ND	ND	ND	ND	ND		ND		272	70	175	18			
2,6-dimethylnaphthalene	ND	ND	ND	ND	ND	ND	ND		ND		755	156	120	24			
acenaphthylene	480	604	526	51.6	65.0		537	9.5	58	11.5	546	266	37.0	14.0	-0.1	0.0	0.6
acenaphthene	158	237	217	17.8	20.3		204	16.4	19	6.6	552	58	41.0	10.0	-2.5	**-4.6**	1.1
1,6,7-trimethylnaphthalene	ND	ND	ND	ND	ND	ND	ND		ND		462	133	48.0	10.0			
fluorene	191	213	231	33.1	35.3		212	7.7	34.2	3.2	865	140	**97.3**	**8.6**	**-3.0**	-2.8	0.5
phenanthrene	462	810	771	96	111		681	22.9	104	7.1	5212	596	**489**	**23**	**-3.5**	**-4.4**	1.5
anthracene	588	987	850	81	98		808	20.5	90	9.4	1952	275	**184**	**14**	-2.3	-2.4	1.4
1-methylphenanthrene	ND	ND	ND	ND	ND	ND	ND		ND		1528	326	101	27			
fluoranthene	3510	5230	4240	335	533		4327	16.3	434	22.8	8511	1147	**981**	**78**	-2.0	-2.0	1.1
pyrene	8590	12700	10400	573	870		10563	15.9	722	20.6	9235	1460	**811**	**24**	0.6	0.5	1.1
benz[a]anthracene	8390	11500	7070	689	740		8987	20.7	715	3.6	4715	441	**427**	**25**	**3.6**	**5.6**	1.4
chrysene + triphenylene	2420	4530	3670	318	459		3540	24.5	389	18.1	5439	613	577	35	-1.4	-1.7	1.6
benzofluoranthenes [b+j+k]	6090	9030	6590	2220	2270		7237	17.7	2245	1.1	7147	501	1441	150	0.0	0.1	1.2
benzo[e]pyrene	ND	ND	ND	ND	ND	ND	ND		ND		3149	267	**553**	**59**			
benzo[a]pyrene	5200	7440	5350	511	515		5997	17.0	513	0.4	4228	462	**628**	**52**	1.7	2.3	1.1
perylene	ND	ND	ND	ND	ND	ND	ND		ND		1153	166	**452**	**58**			
indeno[1,2,3-cd]pyrene	1440	908	1070	240	78		1139	19.5	159	51.1	2415	446	**501**	**72**	-2.1	-1.7	1.3
dibenz[a,h]anthracene + [a,c]	65	69	57	0	0		64	7.5	0		705	158	**117**	**14**	**-3.6**	-2.4	0.5
benzo[ghi]perylene	1180	684	881	158	41		915	22.3	99	59.0	2362	467	**525**	**67**	-2.5	-1.8	1.5

Laboratory: 14
PAH in Sediment V

Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	16	70
Qualitative	7	30
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	6	6	16
2 to 3	4	5	0
≥ 3	6	5	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 14
Reporting Date: 10/2/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	09/20/95	09/20/95	09/20/95	09/20/95	09/20/95		lab mean	lab	lab mean	lab	assigned		target		z-score	z-score	p-score
	S 1	S 2	S 3	S 1	S 2	S 3	ng/g dry	%RSD	ng/g dry	%RSD	value	95% CL	value[b]	95% CL	(25%)	(s)	(15%)
alpha-HCH	36.5	70.4	87.2	4.07	6.25		64.7	32.6	5.16	21.1	<2.5		<2				2.2
hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND		ND		5.79	0.55	**70**	**25**			
gamma-HCH	27.2	53.8	59.1	4.25	14.3		46.7	29.9	9.28	54.2	<3		<2				2.0
heptachlor	33.4	70.8	0.00	43.0	5.80		34.7	83.3	24.4	76.2	<4		<2				**5.6**
aldrin	49.1	125	0.00	101	48.7		58.0	88.6	74.9	34.9	<2		<2				**5.9**
heptachlor epoxide	64.6	118	0.00	2.14	19.8		60.9	79.3	11.0	80.5	<2		<2				**5.3**
oxychlordane	ND	ND	ND	ND	ND	ND	ND		ND		<5		2.59	0.20			
trans-chlordane	ND	ND	ND	ND	ND	ND	ND		ND		10.4	4.2	<2				
2,4'-DDE	ND	ND	ND	ND	ND	ND	ND		ND		17.7	4.8	**0.73**	**0.11**			
endosulfan I	14.9	7.61	11.0	6.11	4.89		11.2	26.7	5.50	11.1	<3		<2				1.8
cis-chlordane	ND	ND	ND	ND	ND	ND	ND		ND		15.6	3.4	**2.33**	**0.56**			
trans-nonachlor	ND	ND	ND	ND	ND	ND	ND		ND		10.0	2.2	**1.26**	**0.13**			
dieldrin	13.5	13.2	13.2	11.2	22.8		13.3	1.1	17.0	34.1	7.98	3.63	1.26	0.37	2.7	1.1	0.1
4,4'-DDE	8.98	10.4	10.6	11.8	16.9		10.0	7.2	14.4	17.8	79.3	15.9	**6.59**	**0.56**	**-3.5**	-2.5	0.5
2,4'-DDD	ND	ND	ND	ND	ND	ND	ND		ND		39.6	8.1	<2				
endrin	9.05	7.99	18.7	31.8	76.9		11.9	40.4	54.4	41.5	<3		<2				2.7
endosulfan II	14.1	13.6	19.0	6.22	8.92		15.6	15.7	7.57	17.8	<3		<2				1.0
4,4'-DDD	18.9	18.8	22.1	53.4	38.1		19.9	7.7	46	17	126	30	**5.06**	**0.56**	**-3.4**	-2.4	0.5
2,4'-DDT	ND	ND	ND	ND	ND	ND	ND		ND		<6		<2				
cis-nonachlor	ND	ND	ND	ND	ND	ND	ND		ND		3.52	1.17	<2				
4,4'-DDT	78.9	36.6	36.2	46.3	104		50.6	40	75	38	131	45	1.25	0.10	-2.5	-1.4	2.6
mirex	ND	ND	ND	ND	ND	ND	ND		ND		<3		<2				

Laboratory: 14
Pesticides in Sediment V
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	12	55
Qualitative	10	45
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 14
Reporting Date: 10/2/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	09/20/95	09/20/95	09/20/95	09/20/95	09/20/95		lab mean	lab	lab mean	lab	assigned	95% CL	target	95% CL	z-score	z-score	p-score
	S 1	S 2	S 3	S 1	S 2	S 3	ng/g dry	%RSD	ng/g dry	%RSD	value		value[b]		(25%)	(s)	(15%)
PCB 8	191	370	459	107	127		340	32.8	117	8.5	23.0	3.3	1.39	0.19	**55.2**	**61.0**	2.2
PCB 18	233	585	449	78.3	165		422	34.3	122	35.6	49.5	5.6	1.15	0.16	**30.2**	**44.9**	2.3
PCB 28	279	591	0.00	178	55.0		290	83.2	117	52.8	84.6	10.6	9.8	3.7	**9.7**	**12.4**	**5.5**
PCB 52	152	151	0.00	260	157		101	70.7	209	24.7	76.4	8.0	**6.89**	**0.56**	1.3	1.9	**4.7**
PCB 44	76.0	232	0.00	7.81	11.8		103	94.1	9.81	20.3	56.2	5.6	**4.80**	**0.62**	**3.3**	**5.2**	**6.3**
PCB 66/95	75.6	98.3	116	9.3	0.00		96.6	17.1	4.67	100.0	92.1	21.6	**14.3**	**2.5**	0.2	0.1	1.1
PCB 101/90	14.4	15.7	15.5	20.6	29.4		15.2	3.8	25.0	17.6	72.6	9.7	**11.0**	**1.6**	**-3.2**	-3.6	0.3
PCB 118	2.42	1.64	1.76	8.92	7.57		1.94	17.7	8.25	8.2	54.7	6.3	**10.0**	**1.1**	**-3.9**	**-5.6**	1.2
PCB 153	1.59	41.9	41.5	34.2	119		28.3	66.7	76.6	55.4	64.8	12.0	**17.6**	**1.9**	-2.3	-1.9	**4.4**
PCB 105	9.82	1.44	1.70	9.10	9.25		4.32	90.1	9.18	0.8	20.8	4.6	**3.65**	**0.27**	**-3.2**	-2.4	**6.0**
PCB 138/163/164	4.30	7.10	8.22	46.1	62.5		6.54	25.2	54.3	15.1	62.0	6.7	**13.38**	**0.97**	**-3.6**	**-5.6**	1.7
PCB 187/182	8.21	11.7	12.9	31.6	38.3		10.9	18.2	35.0	9.6	23.4	2.3	7.0	2.6	-2.1	**-3.4**	1.2
PCB 128	8.85	8.36	11.6	5.84	10.8		9.60	14.8	8.32	29.8	8.56	1.46	**1.87**	**0.32**	0.5	0.6	1.0
PCB 180	5.16	4.9	6.6	3.05	3.70		5.54	13.4	3.38	9.6	42.9	7.4	**5.83**	**0.58**	**-3.5**	**-4.7**	0.9
PCB 170/190	1.32	0.8	3.8	10.9	23.6		1.95	66.6	17.3	36.8	19.3	3.9	**3.00**	**0.46**	**-3.6**	**-3.7**	**4.4**
PCB 195	80.4	184	106	442	149		123	35.7	296	49.6	4.76	1.52	<3		**99.9**	**47.3**	2.4
PCB 206	ND	ND	ND	ND	ND		ND		ND		8.16	0.85	**3.67**	**0.87**			
PCB 209	11.0	6.05	9.38	11.5	14.9		8.81	23.4	13.2	12.9	5.94	0.68	**8.34**	**0.49**	1.9	**2.8**	1.6

Laboratory: 14
PCBs in Sediment V
Quantitation mode: Internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	94
Qualitative	1	6
Not Determined	0	0

Look at replicate data.

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

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	26.9	26.9	26.9	26.9	0.0	45.7	0.8	44.9	0.6	**-1.6**	**-18.8**	0.0

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise

Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant)

Laboratory No.: 15

Reporting Date: 10/2/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	6/29/95 S 1	6/29/95 S 2	6/29/95 S 3	6/29/95 S 1	____ S 2	____ S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	582	689	391	377	____	____	554	27.3	377		1506	257	**1010**	**140**	-2.5	-2.5	1.8
2-methylnaphthalene	367	386	238	156	____	____	330	24.3	156		808	126	325	60	-2.4	-2.9	1.6
1-methylnaphthalene	200	198	124	82	____	____	174	24.9	82		510	90	150	30	-2.6	**-3.9**	1.7
biphenyl	101	103	60	42	____	____	88	27.7	42		272	70	175	18	-2.7	-2.7	1.8
2,6-dimethylnaphthalene	367	349	247	80	____	____	321	20.1	80		755	156	120	24	-2.3	-2.6	1.3
acenaphthylene	56	67	46	DL	____	____	56	18.6	DL		546	266	37.0	14.0	**-3.6**	-1.4	1.2
acenaphthene	242	259	197	DL	____	____	233	13.9	DL		552	58	41.0	10.0	-2.3	**-4.3**	0.9
1,6,7-trimethylnaphthalene	252	276	243	DL	____	____	257	6.7	DL		462	133	48.0	10.0	-1.8	-1.3	0.4
fluorene	362	394	396	DL	____	____	384	5.0	DL		865	140	**97.3**	**8.6**	-2.2	-2.1	0.3
phenanthrene	3132	4045	3591	293	____	____	3589	12.7	293		5212	596	**489**	**23**	-1.2	-1.6	0.8
anthracene	975	1343	1150	90	____	____	1156	15.9	90		1952	275	**184**	**14**	-1.6	-1.7	1.1
1-methylphenanthrene	895	1126	1168	56	____	____	1063	13.8	56		1528	326	101	27	-1.2	-1.1	0.9
fluoranthene	7162	8719	8660	768	____	____	8180	10.8	768		8511	1147	**981**	**78**	-0.2	-0.2	0.7
pyrene	6641	8998	9038	567	____	____	8226	16.7	567		9235	1460	**811**	**24**	-0.4	-0.4	1.1
benz[a]anthracene	5789	7082	9809	484	____	____	7560	27.1	484		4715	441	**427**	**25**	2.4	**3.7**	1.8
chrysene + triphenylene	6660	8025	8664	695	____	____	7783	13.2	695		5439	613	577	35	1.7	2.1	0.9
benzofluoranthenes [b+j+k]	5234	8437	8707	1272	____	____	7459	25.9	1272		7147	501	1441	150	0.2	0.4	1.7
benzo[e]pyrene	2276	3136	3502	418	____	____	2971	21.2	418		3149	267	**553**	**59**	-0.2	-0.5	1.4
benzo[a]pyrene	3043	4200	4455	362	____	____	3899	19.3	362		4228	462	**628**	**52**	-0.3	-0.4	1.3
perylene	723	954	1428	234	____	____	1035	34.7	234		1153	166	**452**	**58**	-0.4	-0.5	2.3
indeno[1,2,3-cd]pyrene	1067	1485	1364	334	____	____	1305	16.5	334		2415	446	**501**	**72**	-1.8	-1.5	1.1
dibenz[a,h]anthracene + [a,c]	254	281	303	DL	____	____	280	8.7	DL		705	158	**117**	**14**	-2.4	-1.6	0.6
benzo[ghi]perylene	977	1463	1699	304	____	____	1380	26.7	304		2362	467	**525**	**67**	-1.7	-1.2	1.8

Laboratory: 15

PAH in Sediment V

Quantitation mode: internal standards (added just prior to GC)

Reported Results	No. of Analytes	%
Quantitative	23	100

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	13	14	22

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 15
Reporting Date: 10/2/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	6/29/95 S 1	6/29/95 S 2	6/29/95 S 3	6/29/95 S 1	S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	DL	DL	DL	DL			DL		DL		<2.5		<2				
hexachlorobenzene	5.62	6.44	9.35	42.90			7.14	27.4	42.9		5.79	0.55	**70**	**25**	0.9	1.6	1.8
gamma-HCH	34.5	35.9	33.5	8.49			34.6	3.5	8.49		<3		<2				0.2
heptachlor	11.9	13.9	8.2	11.7			11.4	25.6	11.7		<4		<2				1.7
aldrin	950	1166	531	161			882	36.6	161		<2		<2				2.4
heptachlor epoxide	DL	DL	DL	DL			DL		DL		<2		<2				
oxychlordane	DL	DL	DL	DL			DL		DL		<5		2.59	0.20			
trans-chlordane	173	206	91.8	19.9			157	37.5	19.9		10.4	4.2	<2		**56.5**	**27.1**	2.5
2,4'-DDE	11.5	14.2	102	16.3			42.6	120.8	16.3		17.7	4.8	**0.73**	**0.11**	**5.7**	**3.7**	**8.1**
endosulfan I	DL	DL	DL	DL			DL		DL		<3		<2				
cis-chlordane	22.8	50.5	30.0	17.4			34.4	41.7	17.4		15.6	3.4	**2.33**	**0.56**	**4.8**	**3.5**	2.8
trans-nonachlor	36.4	55.3	16.5	13.2			36.1	53.7	13.2		10.0	2.2	**1.26**	**0.13**	**10.5**	**7.9**	**3.6**
dieldrin	9.82	12.8	12.7	4.71			11.8	14.4	4.71		7.98	3.63	1.26	0.37	1.9	0.8	1.0
4,4'-DDE	84.6	90.8	84.7	8.7			86.7	4.1	8.72		79.3	15.9	**6.59**	**0.56**	0.4	0.3	0.3
2,4'-DDD	59.0	69.7	121	19.5			83.3	39.8	19.5		39.6	8.1	<2		**4.4**	**3.6**	2.7
endrin	16.5	21.4	69.1	9.01			35.7	81.4	9.01		<3		<2				**5.4**
endosulfan II	34.5	35.4	51.2	52.2			40.4	23.3	52.2		<3		<2				1.6
4,4'-DDD	112	119	193	19			141	32	19.1		126	30	**5.06**	**0.56**	0.5	0.3	2.1
2,4'-DDT	8.84	10.3	23.7	6.25			14.3	57.2	6.25		<6		<2				**3.8**
cis-nonachlor	NA	NA	NA	NA			DL		DL		3.52	1.17	<2				
4,4'-DDT	154	124	143	26			140	11	26.4		131	45	1.25	0.10	0.3	0.2	0.7
mirex	13.2	12.9	2.60	5.92			9.54	63.0	5.92		<3		<2				**4.2**

Laboratory: 15
Pesticides in Sediment V
Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	77
Qualitative	5	23
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	5	5	7
2 to 3	0	0	5
≥ 3	5	5	5

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 15
Reporting Date: 10/2/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	6/29/95 S 1	6/29/95 S 2	6/29/95 S 3	6/29/95 S 1	S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	22.6	25.7	38.5	19.81			28.9	29.2	19.8		23.0	3.3	1.39	0.19	1.0	1.1	1.9
PCB 18	12.3	13.8	58.8	20.61			28.3	93.5	20.6		49.5	5.6	1.15	0:16	-1.7	-2.6	**6.2**
PCB 28	56.8	62.3	66.9	15.09			62.0	8.2	15.1		84.6	10.6	9.8	3.7	-1.1	-1.4	0.5
PCB 52	54.3	57.2	66.4	16.58			59.3	10.7	16.6		76.4	8.0	**6.89**	**0.56**	-0.9	-1.3	0.7
PCB 44	37.2	38.4	51.2	9.66			42.3	18.4	9.66		56.2	5.6	**4.80**	**0.62**	-1.0	-1.6	1.2
PCB 66/95	37.5	43.6	85.0	22.7			55.3	46.7	22.7		92.1	21.6	**14.3**	**2.5**	-1.6	-1.1	**3.1**
PCB 101/90	63.4	47.9	53.2	29.1			54.9	14.3	29.1		72.6	9.7	**11.0**	**1.6**	-1.0	-1.1	1.0
PCB 118	47.3	48.0	71.6	35.2			55.6	24.8	35.2		54.7	6.3	**10.0**	**1.1**	0.1	0.1	1.7
PCB 153	75.3	71.2	88.5	23.3			78.3	11.6	23.3		64.8	12.0	**17.6**	**1.9**	0.8	0.7	0.8
PCB 105	DL	1.44	DL	13.55			DL		13.5		20.8	4.6	**3.65**	**0.27**			
PCB 138/163/164	52.5	46.8	54.9	15.9			51.4	8.0	15.9		62.0	6.7	**13.38**	**0.97**	-0.7	-1.1	0.5
PCB 187/182	21.4	21.8	23.8	14.90			22.3	5.7	14.9		23.4	2.3	7.0	2.6	-0.2	-0.3	0.4
PCB 128	15.85	14.22	27.33	9.47			19.1	37.3	9.47		8.56	1.46	**1.87**	**0.32**	**4.9**	**6.0**	2.5
PCB 180	35.2	34.5	23.8	15.15			31.1	20.5	15.2		42.9	7.4	**5.83**	**0.58**	-1.1	-1.5	1.4
PCB 170/190	22.2	23.7	17.5	15.60			21.1	15.4	15.6		19.3	3.9	**3.00**	**0.46**	0.4	0.4	1.0
PCB 195	15.90	2.09	6.65	2.10			8.21	85.7	2.10		4.76	1.52	<3		2.9	1.4	**5.7**
PCB 206	53.7	138	102	15.0			97.9	43.2	15.0		8.16	0.85	**3.67**	**0.87**	**44.0**	**64.1**	2.9
PCB 209	11.5	24.6	13.8	14.7			16.6	42.1	14.7		5.94	0.68	**8.34**	**0.49**	**7.2**	**10.5**	2.8

Laboratory: 15
PCBs in Sediment V

Quantitation mode: internal standards (added just prior to GC)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	94
Qualitative	1	6
Not Determined	0	0

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

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	%RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	47.2	46.8	47.1	47.0	0.5	45.7	0.8	44.9	0.6	0.1	1.3	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V (data reported as if three figures were significant)

Laboratory No.: 17a
Reporting Date: 9/29/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene							NA		NA		1506	257	**1010**	**140**			
2-methylnaphthalene							NA		NA		808	126	325	60			
1-methylnaphthalene							NA		NA		510	90	150	30			
biphenyl							NA		NA		272	70	175	18			
2,6-dimethylnaphthalene							NA		NA		755	156	120	24			
acenaphthylene							NA		NA		546	266	37.0	14.0			
acenaphthene							NA		NA		552	58	41.0	10.0			
1,6,7-trimethylnaphthalene							NA		NA		462	133	48.0	10.0			
fluorene	894	978	894	124.0	103.0	119.0	922	5.3	115.3	9.5	865	140	**97.3**	**8.6**	0.3	0.2	0.4
phenanthrene	6143	7762	6616	503	450	533	6840	12.2	495	8.5	5212	596	**489**	**23**	1.3	1.6	0.8
anthracene	1883	2510	2184	181	155	189	2192	14.3	175	10.2	1952	275	**184**	**14**	0.5	0.5	1.0
1-methylphenanthrene							NA		NA		1528	326	101	27			
fluoranthene	9958	12626	10265	836	856	874	10950	13.3	855	2.2	8511	1147	**981**	**78**	1.1	1.2	0.9
pyrene	15794	12963	13932	717	807	663	14230	10.1	729	10.0	9235	1460	**811**	**24**	2.2	1.9	0.7
benz[a]anthracene	4819	6321	4534	427	457	391	5225	18.4	425	7.8	4715	441	**427**	**25**	0.4	0.7	1.2
chrysene + triphenylene	4013	4810	4429	571	519	449	4417	9.0	513	11.9	5439	613	577	35	-0.8	-0.9	0.6
benzofluoranthenes [b+j+k]	6668	7021	6798	1017	944	1073	6829	2.6	1011	6.4	7147	501	1441	150	-0.2	-0.4	0.2
benzo[e]pyrene							NA		NA		3149	267	**553**	**59**			
benzo[a]pyrene	5141	6080	5016	662	746	640	5412	10.7	683	8.2	4228	462	**628**	**52**	1.1	1.5	0.7
perylene	1474	1610	1825	511	508	479	1636	10.8	499	3.5	1153	166	**452**	**58**	1.7	2.1	0.7
indeno[1,2,3-cd]pyrene					0	0	NA		NA		2415	446	**501**	**72**			
dibenz[a,h]anthracene + [a,c]	988	1407	1150	5	89	109	1182	17.9	68	81.6	705	158	**117**	**14**	2.7	1.8	1.2
benzo[ghi]perylene	3215	4414	4382	512	589	572	4004	17.1	558	7.3	2362	467	**525**	**67**	2.8	2.0	1.1

Laboratory: 17a
PAH in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	12	52
Qualitative	0	0
Not Determined	11	48

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	9	10	12
2 to 3	3	2	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 17a
Reporting Date: 9/29/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA		NA		<2.5		<2				
hexachlorobenzene	5.93	6.31	6.20	66.5	62.7	60.2	6.15	3.2	63.1	5.0	5.79	0.55	**70**	**25**	0.2	0.4	0.2
gamma-HCH	5.70	6.10	7.00	1.44	1.11	3.39	6.27	10.6	1.98	62.2	<3		<2				0.7
heptachlor	6.54	5.73	7.04	1.79	1.23	DL	6.44	10.3	1.51	26.2	<4		<2				0.7
aldrin	NA	NA	NA	NA	NA	NA	NA		NA		<2		<2				
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA		NA		<2		<2				
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.59	0.20			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		10.4	4.2	<2				
2,4'-DDE	19.5	15.9	19.2	DL	DL	DL	18.2	11.0	DL		17.7	4.8	**0.73**	**0.11**	0.1	0.1	0.7
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
cis-chlordane	30.1	27.1	35.4	2.87	4.22	3.19	30.9	13.6	3.43	20.6	15.6	3.4	**2.33**	**0.56**	**3.9**	2.9	0.9
trans-nonachlor	19.6	17.4	13.8	1.35	1.53	1.36	16.9	17.3	1.41	7.2	10.0	2.2	**1.26**	**0.13**	2.8	2.1	1.2
dieldrin	11.90	17.10	15.90	DL	DL	DL	15.0	18.2	DL		7.98	3.63	1.26	0.37	**3.5**	1.5	1.2
4,4'-DDE	175.0	149.0	168.0	6.87	10.3	9.41	164	8.2	8.85	20.0	79.3	15.9	**6.59**	**0.56**	**4.3**	**3.1**	0.5
2,4'-DDD	45.8	55.2	52.4	DL	DL	DL	51.1	9.4	DL		39.6	8.1	<2		1.2	1.0	0.6
endrin	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
endosulfan II	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
4,4'-DDD	188	275	169	4.74	1.96	6.37	211	27	4.36	51	126	30	**5.06**	**0.56**	2.7	1.9	1.8
2,4'-DDT	2.10	2.70	0.79	DL	DL	DL	1.86	52.4	DL		<6		<2				**3.5**
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		3.52	1.17	<2				
4,4'-DDT	202	205	150	DL	DL	DL	186	17	DL		131	45	1.25	0.10	1.7	0.9	1.1
mirex	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				

Laboratory: 17a
Pesticides in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	12	55
Qualitative	0	0
Not Determined	10	45

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 17a
Reporting Date: 9/29/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	26.9	29.7	29.7	4.67	5.73	5.96	28.8	5.6	5.45	12.6	23.0	3.3	1.39	0.19	1.0	1.1	0.4
PCB 18	DL	DL	DL	DL	DL	DL	DL		DL		49.5	5.6	1.15	0.16			
PCB 28	93.9	75.1	117.7	5.83	5.92	5.42	95.6	22.3	5.72	4.7	84.6	10.6	9.8	3.7	0.5	0.7	1.5
PCB 52	89.0	90.4	89.0	9.60	9.78	9.10	89.5	0.9	9.49	3.7	76.4	8.0	**6.89**	**0.56**	0.7	1.0	0.1
PCB 44	85.5	70.2	60.1	6.12	7.58	6.13	71.9	17.8	6.61	12.7	56.2	5.6	**4.80**	**0.62**	1.1	1.8	1.2
PCB 66/95	86.7	82.8	98.3	10.3	11.0	10.4	89.3	9.0	10.6	3.6	92.1	21.6	**14.3**	**2.5**	-0.1	-0.1	0.6
PCB 101/90	110.0	101.0	88.6	15.1	17.1	15.3	99.9	10.8	15.8	7.0	72.6	9.7	**11.0**	**1.6**	1.5	1.7	0.7
PCB 118	74.8	81.2	47.7	9.2	13.0	10.3	67.9	26.2	10.8	18.1	54.7	6.3	**10.0**	**1.1**	1.0	1.4	1.7
PCB 153	191.0	152.0	79.1	16.8	24.7	22.1	140.7	40.4	21.2	19.0	64.8	12.0	**17.6**	**1.9**	**4.7**	**4.0**	2.7
PCB 105	29.1	36.3	24.5	4.60	4.61	4.56	30.0	19.8	4.59	0.6	20.8	4.6	**3.65**	**0.27**	1.8	1.3	1.3
PCB 138/163/164	69.7	75.9	79.5	14.9	12.4	14.6	75.0	6.6	14.0	9.8	62.0	6.7	**13.38**	**0.97**	0.8	1.3	0.4
PCB 187/182	24.4	27.2	30.1	7.47	7.31	8.69	27.2	10.5	7.82	9.6	23.4	2.3	7.0	2.6	0.7	1.1	0.7
PCB 128	7.04	8.32	6.80	DL	DL	DL	7.4	11.1	DL		8.56	1.46	**1.87**	**0.32**	-0.6	-0.7	0.7
PCB 180	47.3	50.7	54.3	10.10	10.20	10.00	50.8	6.9	10.10	1.0	42.9	7.4	**5.83**	**0.58**	0.7	1.0	0.5
PCB 170/190	30.9	42.5	40.5	3.26	5.43	5.58	38.0	16.3	4.76	27.3	19.3	3.9	**3.00**	**0.46**	**3.9**	**4.0**	1.1
PCB 195	5.90	6.26	5.48	1.99	0.82	1.98	5.88	6.6	1.60	42.1	4.76	1.52	<3		0.9	0.4	0.4
PCB 206	8.22	8.92	7.50	4.42	4.71	3.91	8.21	8.6	4.35	9.3	8.16	0.85	**3.67**	**0.87**	0.0	0.0	0.6
PCB 209	7.96	5.84	3.76	11.00	9.49	9.78	5.85	35.9	10.09	7.9	5.94	0.68	**8.34**	**0.49**	-0.1	-0.1	2.4

Laboratory: 17a
PCBs in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	17	94
Qualitative	1	6
Not Determined	0	0

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

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.0	45.4	45.5	45.3	0.6	45.7	0.8	44.9	0.6	0.0	-0.4	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 17b
Reporting Date: 9/29/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/29/95 S 1	9/29/95 S 2	9/29/95 S 3	9/29/95 S 1	9/29/95 S 2	9/29/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	225	1900	ND	ND	949	1030	1063	111.5	990	5.8	1506	257	**1010**	**140**	-1.2	-1.2	**7.4**
2-methylnaphthalene	692	1200	148	35	375	431	680	77.4	280	76.4	808	126	325	60	-0.6	-0.8	**5.2**
1-methylnaphthalene	386	571	124	20	175	202	360	62.3	132	74.2	510	90	150	30	-1.2	-1.7	**4.2**
biphenyl	245	323	193	40	95	107	254	25.8	81	44.2	272	70	175	18	-0.3	-0.3	1.7
2,6-dimethylnaphthalene	941	1110	1040	115	103	118	1030	8.2	112	7.1	755	156	120	24	1.5	1.6	0.5
acenaphthylene	531	261	1170	46.5	49.1	48.3	654	71.4	48	2.8	546	266	37.0	14.0	0.8	0.3	**4.8**
acenaphthene	801	809	1230	73.0	59.7	62.5	947	25.9	65	10.8	552	58	41.0	10.0	2.9	**5.3**	1.7
1,6,7-trimethylnaphthalene	345	490	316	14.4	30.3	21.6	384	24.3	22	36.0	462	133	48.0	10.0	-0.7	-0.5	1.6
fluorene	760	1060	692	65.0	77.7	84.8	837	23.4	75.8	13.2	865	140	**97.3**	**8.6**	-0.1	-0.1	1.6
phenanthrene	5640	6320	5910	550	497	498	5957	5.7	515	5.9	5212	596	**489**	**23**	0.6	0.7	0.4
anthracene	2150	2810	2220	203	184	185	2393	15.1	191	5.6	1952	275	**184**	**14**	0.9	0.9	1.0
1-methylphenanthrene	1740	1790	1910	103	94	95	1813	4.8	97	5.0	1528	326	101	27	0.7	0.7	0.3
fluoranthene	9070	9450	9320	925	910	863	9280	2.1	899	3.6	8511	1147	**981**	**78**	0.4	0.4	0.1
pyrene	11500	10900	10600	784	748	718	11000	4.2	750	4.4	9235	1460	**811**	**24**	0.8	0.7	0.3
benz[a]anthracene	6480	6370	5890	456	452	468	6247	5.0	459	1.8	4715	441	**427**	**25**	1.3	2.0	0.3
chrysene + triphenylene	6550	6940	6890	665	645	622	6793	3.1	644	3.3	5439	613	577	35	1.0	1.2	0.2
benzofluoranthenes [b+j+k]	14500	11300	18300	1770	1790	1990	14700	23.8	1850	6.6	7147	501	1441	150	**4.2**	**9.1**	1.6
benzo[e]pyrene	3760	3760	4030	556	508	475	3850	4.0	513	7.9	3149	267	**553**	**59**	0.9	1.9	0.3
benzo[a]pyrene	5480	5480	5540	613	553	508	5500	0.6	558	9.4	4228	462	**628**	**52**	1.2	1.7	0.0
perylene	1350	1360	1510	359	347	353	1407	6.4	353	1.7	1153	166	**452**	**58**	0.9	1.1	0.4
indeno[1,2,3-cd]pyrene	3040	3410	3540	497	510	550	3330	7.8	519	5.3	2415	446	**501**	**72**	1.5	1.2	0.5
dibenz[a,h]anthracene + [a,c]	591	608	629	24	51	86	609	3.1	54	58.1	705	158	**117**	**14**	-0.5	-0.4	0.2
benzo[ghi]perylene	2790	2960	3110	481	461	505	2953	5.4	482	4.6	2362	467	**525**	**67**	1.0	0.7	0.4

Laboratory: 17b
PAH in Sediment V

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	23	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	21	20	19
2 to 3	1	1	0
≥ 3	1	2	4

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 17b
Reporting Date: 9/29/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH							NA				<2.5		<2				
hexachlorobenzene							NA				5.79	0.55	**70**	**25**			
gamma-HCH							NA				<3		<2				
heptachlor							NA				<4		<2				
aldrin							NA				<2		<2				
heptachlor epoxide							NA				<2		<2				
oxychlordane							NA				<5		2.59	0.20			
trans-chlordane							NA				10.4	4.2	<2				
2,4'-DDE							NA				17.7	4.8	**0.73**	**0.11**			
endosulfan I							NA				<3		<2				
cis-chlordane							NA				15.6	3.4	**2.33**	**0.56**			
trans-nonachlor							NA				10.0	2.2	**1.26**	**0.13**			
dieldrin							NA				7.98	3.63	1.26	0.37			
4,4'-DDE							NA				79.3	15.9	**6.59**	**0.56**			
2,4'-DDD							NA				39.6	8.1	<2				
endrin							NA				<3		<2				
endosulfan II							NA				<3		<2				
4,4'-DDD							NA				126	30	**5.06**	**0.56**			
2,4'-DDT							NA				<6		<2				
cis-nonachlor							NA				3.52	1.17	<2				
4,4'-DDT							NA				131	45	1.25	0.10			
mirex							NA				<3		<2				

Laboratory: 17b
Pesticides in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	22	100

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

[a]z- and p-scores ≥ 3 are bolded.
[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 17b
Reporting Date: 9/29/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	8/24/95 S 1	8/29/95 S 2	8/16/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA		NA		23.0	3.3	1.39	0.19			
PCB 18							NA		NA		49.5	5.6	1.15	0.16			
PCB 28							NA		NA		84.6	10.6	9.8	3.7			
PCB 52							NA		NA		76.4	8.0	**6.89**	**0.56**			
PCB 44							NA		NA		56.2	5.6	**4.80**	**0.62**			
PCB 66/95							NA		NA		92.1	21.6	**14.3**	**2.5**			
PCB 101/90							NA		NA		72.6	9.7	**11.0**	**1.6**			
PCB 118							NA		NA		54.7	6.3	**10.0**	**1.1**			
PCB 153							NA		NA		64.8	12.0	**17.6**	**1.9**			
PCB 105							NA		NA		20.8	4.6	**3.65**	**0.27**			
PCB 138/163/164							NA		NA		62.0	6.7	**13.38**	**0.97**			
PCB 187/182							NA		NA		23.4	2.3	7.0	2.6			
PCB 128							NA		NA		8.56	1.46	**1.87**	**0.32**			
PCB 180							NA		NA		42.9	7.4	**5.83**	**0.58**			
PCB 170/190							NA		NA		19.3	3.9	**3.00**	**0.46**			
PCB 195							NA		NA		4.76	1.52	<3				
PCB 206							NA		NA		8.16	0.85	**3.67**	**0.87**			
PCB 209							NA		NA		5.94	0.68	**8.34**	**0.49**			

Laboratory: 17b
PCBs in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	0	0
Not Determined	18	100

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

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.0	45.4	45.5	45.3	0.6	45.7	0.8	44.9	0.6	0.0	-0.4	0.0

[a]z- and p-scores ≥ 3 are bolded. [b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 18
Reporting Date: 10/6/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	9/28/95 S 1	9/28/95 S 2	10/2/95 S 3	9/28/95 S 1	9/28/95 S 2	10/2/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	1180	1020	1250	660	690	630	1150	10.3	660	4.5	1506	257	**1010**	**140**	-0.9	-0.9	0.7
2-methylnaphthalene	540	430	560	NA	NA	NA	510	13.7	NA		808	126	325	60	-1.5	-1.8	0.9
1-methylnaphthalene	310	270	330	NA	NA	NA	303	10.1	NA		510	90	150	30	-1.6	-2.4	0.7
biphenyl	170	130	170	NA	NA	NA	157	14.7	NA		272	70	175	18	-1.7	-1.7	1.0
2,6-dimethylnaphthalene	500	390	520	NA	NA	NA	470	14.9	NA		755	156	120	24	-1.5	-1.7	1.0
acenaphthylene	440	380	440	NA	NA	NA	420	8.2	NA		546	266	37.0	14.0	-0.9	-0.4	0.5
acenaphthene	650	540	670	NA	NA	NA	620	11.3	NA		552	58	41.0	10.0	0.5	0.9	0.8
1,6,7-trimethylnaphthalene	430	300	480	NA	NA	NA	403	23.0	NA		462	133	48.0	10.0	-0.5	-0.4	1.5
fluorene	850	640	860	80.0	66.0	70.0	783	15.9	72.0	10.0	865	140	**97.3**	**8.6**	-0.4	-0.4	1.1
phenanthrene	5370	4300	5570	420	400	360	5080	13.4	393	7.8	5212	596	**489**	**23**	-0.1	-0.1	0.9
anthracene	1830	1400	1800	180	170	150	1677	14.3	167	9.2	1952	275	**184**	**14**	-0.6	-0.6	1.0
1-methylphenanthrene	1070	890	940	NA	NA	NA	967	9.6	NA		1528	326	101	27	-1.5	-1.3	0.6
fluoranthene	8510	6800	8830	840	740	680	8047	13.6	753	10.7	8511	1147	**981**	**78**	-0.2	-0.2	0.9
pyrene	8880	7160	9980	640	640	580	8673	16.4	620	5.6	9235	1460	**811**	**24**	-0.2	-0.2	1.1
benz[a]anthracene	4070	3400	4030	390	330	320	3833	9.8	347	10.9	4715	441	**427**	**25**	-0.7	-1.2	0.7
chrysene + triphenylene	5550	4300	5760	530	500	470	5203	15.2	500	6.0	5439	613	577	35	-0.2	-0.2	1.0
benzofluoranthenes [b+j+k]	6850	5540	6720	1110	1150	930	6370	11.3	1063	11.0	7147	501	1441	150	-0.4	-0.9	0.8
benzo[e]pyrene	1550	1290	1230	310	260	200	1357	12.5	257	21.5	3149	267	**553**	**59**	-2.3	**-4.8**	0.8
benzo[a]pyrene	3890	3040	3840	440	450	420	3590	13.3	437	3.5	4228	462	**628**	**52**	-0.6	-0.8	0.9
perylene	590	500	480	200	170	130	523	11.2	167	21.1	1153	166	**452**	**58**	-2.2	-2.7	0.7
indeno[1,2,3-cd]pyrene	1110	910	830	240	210	130	950	15.2	193	29.4	2415	446	**501**	**72**	-2.4	-2.0	1.0
dibenz[a,h]anthracene + [a,c]	560	450	750	110	140	120	587	25.9	123	12.4	705	158	**117**	**14**	-0.7	-0.5	1.7
benzo[ghi]perylene	2220	1790	2300	420	480	420	2103	13.0	440	7.9	2362	467	**525**	**67**	-0.4	-0.3	0.9

Laboratory: 18
PAH in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: no

Reported Results	No. of Analytes	%
Quantitative	23	100
Qualitative	0	0
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 18
Reporting Date: 10/6/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	10/4/95 S 1	10/4/95 S 2	10/4/95 S 3	10/4/95 S 1	10/4/95 S 2	10/4/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	6.15	<0.5	<0.5	<0.2	<0.2	<0.2	<0.5		<0.2		<2.5		<2				
hexachlorobenzene	5.54	3.77	4.98	48.0	61.0	53.0	4.76	19.0	54.0	12.1	5.79	0.55	**70**	**25**	-0.7	-1.2	1.3
gamma-HCH	<0.5	<0.5	<0.5	<0.3	<0.3	<0.3	<0.5		<0.3		<3		<2				
heptachlor	<0.5	<0.5	<0.5	<0.3	<0.3	<0.3	<0.5		<0.3		<4		<2				
aldrin	<0.5	<0.5	<0.5	<0.3	<0.3	<0.3	<0.5		<0.3		<2		<2				
heptachlor epoxide	<10.	<9.	<9.	<6.	<6.	<6.	<9.		<6.		<2		<2				
oxychlordane	NA	NA	NA	NA	NA	NA	NA		NA		<5		2.59	0.20			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA		NA		10.4	4.2	<2				
2,4'-DDE	42.8	40.0	56.5	3.70	4.00	5.70	46.4	19.0	4.47	24.1	17.7	4.8	**0.73**	**0.11**	**6.5**	**4.3**	1.3
endosulfan I	<2.	<2.	<2.	<1.	<1.	<1.	<2.		<1.		<3		<2				
cis-chlordane	36.8	34.1	49.8	<1.	<1.	<1.	40.2	20.9	<1.		15.6	3.4	**2.33**	**0.56**	**6.3**	**4.6**	1.4
trans-nonachlor	<2.	<2.	<2.	<1.	<1.	<1.	<2.		<1.		10.0	2.2	**1.26**	**0.13**			
dieldrin	14.1	10.5	14.7	1.70	1.60	2.00	13.1	17.3	1.77	11.8	7.98	3.63	1.26	0.37	2.6	1.1	1.2
4,4'-DDE	56.7	53.9	77.7	5.20	5.60	5.70	62.8	20.7	5.50	4.8	79.3	15.9	**6.59**	**0.56**	-0.8	-0.6	1.4
2,4'-DDD	36.7	32.0	48.3	<1.	<1.	<1.	39.0	21.5	<1.		39.6	8.1	<2		-0.1	0.0	1.4
endrin	<1.	<0.9	<0.9	<0.6	<0.6	<0.6	<0.9		<0.6		<3		<2				
endosulfan II	<0.5	<0.5	<0.5	<0.3	<0.3	<0.3	<0.5		<0.3		<3		<2				
4,4'-DDD	47.4	42.0	60.0	<1.	17.0	18	49.8	19	17.5	4	126	30	**5.06**	**0.56**	-2.4	-1.7	1.2
2,4'-DDT	<10.	<9.	<9.	5.40	<1.	21.00	<9.		13.20	83.6	<6		<2				
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA		NA		3.52	1.17	<2				
4,4'-DDT	150	125	188	<1.	<1.	<1.	154	21	<1.		131	45	1.25	0.10	0.7	0.4	1.4
mirex	<10.	<9.	<9.	<6.	<6.	<6.	<9.		<6.		<3		<2				

Laboratory: 18
Pesticides in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	8	36
Qualitative	11	50
Not Determined	3	14

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 18
Reporting Date: 10/6/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	10/4/95 S 1	10/4/95 S 2	10/4/95 S 3	10/4/95 S 1	10/4/95 S 2	10/4/95 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	27.6	22.1	40.6	7.13	6.65	10.60	30.1	31.6	8.13	26.5	23.0	3.3	1.39	0.19	1.2	1.4	2.1
PCB 18	78.5	66.3	88.8	5.32	4.24	5.29	77.9	14.5	4.95	12.4	49.5	5.6	1.15	0.16	2.3	3.4	1.0
PCB 28	129.0	89.5	112.0	9.50	8.52	9.02	110.2	18.0	9.01	5.4	84.6	10.6	9.8	3.7	1.2	1.5	1.2
PCB 52	102.0	77.3	110.0	12.20	11.50	11.60	96.4	17.7	11.77	3.2	76.4	8.0	**6.89**	**0.56**	1.0	1.5	1.2
PCB 44	97.8	90.9	124.0	8.22	8.07	8.03	104.2	16.8	8.11	1.2	56.2	5.6	**4.80**	**0.62**	**3.4**	**5.4**	1.1
PCB 66/95	58.2	40.7	72.7	7.6	7.9	7.0	57.2	28.0	7.5	6.6	92.1	21.6	**14.3**	**2.5**	-1.5	-1.1	1.9
PCB 101/90	61.7	44.3	70.8	12.0	12.0	12.2	58.9	22.8	12.1	1.0	72.6	9.7	**11.0**	**1.6**	-0.8	-0.9	1.5
PCB 118	137.0	16.8	94.6	33.5	33.4	33.8	82.8	73.6	33.6	0.6	54.7	6.3	**10.0**	**1.1**	2.1	3.0	**4.9**
PCB 153	67.0	54.6	68.4	10.9	10.2	10.3	63.3	12.0	10.5	3.6	64.8	12.0	**17.6**	**1.9**	-0.1	-0.1	0.8
PCB 105	14.3	12.0	16.2	3.96	4.36	4.66	14.2	14.8	4.33	8.1	20.8	4.6	**3.65**	**0.27**	-1.3	-1.0	1.0
PCB 138/163/164	194.0	170.0	24.0	13.6	6.8	7.5	129.3	71.1	9.3	40.6	62.0	6.7	**13.38**	**0.97**	**4.3**	**6.8**	**4.7**
PCB 187/182	2.9	8.2	11.2	4.11	4.10	<3.	7.5	56.1	4.11	0.2	23.4	2.3	7.0	2.6	-2.7	**-4.4**	**3.7**
PCB 128	20.60	20.20	27.30	5.20	5.25	5.12	22.7	17.6	5.19	1.3	8.56	1.46	**1.87**	**0.32**	**6.6**	**8.1**	1.2
PCB 180	39.8	32.0	46.3	8.85	9.15	9.72	39.4	18.2	9.24	4.8	42.9	7.4	**5.83**	**0.58**	-0.3	-0.4	1.2
PCB 170/190	28.9	22.5	33.6	5.77	6.12	6.49	28.3	19.7	6.13	5.9	19.3	3.9	**3.00**	**0.46**	1.9	1.9	1.3
PCB 195	3.48	2.02	2.83	<3.	<3.	<3.	2.78	26.3	<3.		4.76	1.52	<3		-1.7	-0.8	1.8
PCB 206	5.26	5.25	8.13	3.69	3.85	3.73	6.21	26.7	3.76	2.2	8.16	0.85	**3.67**	**0.87**	-1.0	-1.4	1.8
PCB 209	4.74	4.21	5.02	7.58	6.84	8.02	4.66	8.8	7.48	8.0	5.94	0.68	**8.34**	**0.49**	-0.9	-1.3	0.6

Laboratory: 18
PCBs in Sediment V
Quantitation mode: external standards
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	12	12	14
2 to 3	3	1	1
≥ 3	3	5	3

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	46.0	44.0	48.0	46.0	4.3	45.7	0.8	44.9	0.6	0.0	0.3	0.3

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 21
Reporting Date: 10/15/95

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	8/2/95 S 1	8/3/95 S 2	10/12/95 S 3	7/28/95 S 1	7/31/95 S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	1490	1490	1390	880	927		1457	4.0	904	3.7	1506	257	**1010**	**140**	-0.1	-0.1	0.3
2-methylnaphthalene	777	771	789	311	310		779	1.2	310	0.4	808	126	325	60	-0.1	-0.2	0.1
1-methylnaphthalene	469	466	456	154	155		464	1.5	154	0.6	510	90	150	30	-0.4	-0.5	0.1
biphenyl	223	225	228	99	106		225	1.1	103	4.7	272	70	175	18	-0.7	-0.7	0.1
2,6-dimethylnaphthalene	593	588	617	154	149		600	2.6	152	2.2	755	156	120	24	-0.8	-0.9	0.2
acenaphthylene	899	809	807	73.4	71.9		838	6.3	73	1.5	546	266	37.0	14.0	2.1	0.8	0.4
acenaphthene	564	537	545	36.3	37.9		548	2.6	37	3.1	552	58	41.0	10.0	0.0	0.0	0.2
1,6,7-trimethylnaphthalene	486	460	468	62.5	64.1		471	2.8	63	1.8	462	133	48.0	10.0	0.1	0.1	0.2
fluorene	794	780	770	73.0	70.9		781	1.5	71.9	2.0	865	140	**97.3**	**8.6**	-0.4	-0.4	0.1
phenanthrene	4205	3970	3629	491	507		3934	7.4	499	2.3	5212	596	**489**	**23**	-1.0	-1.2	0.5
anthracene	1660	1560	1570	175	179		1597	3.4	177	1.5	1952	275	**184**	**14**	-0.7	-0.7	0.2
1-methylphenanthrene	1300	1330	783	94	99		1138	27.0	97	4.0	1528	326	101	27	-1.0	-0.9	1.8
fluoranthene	6990	6570	3840	917	934		5800	29.5	925	1.4	8511	1147	**981**	**78**	-1.3	-1.3	2.0
pyrene	7640	7170	4980	743	752		6597	21.5	748	0.8	9235	1460	**811**	**24**	-1.1	-1.0	1.4
benz[a]anthracene	4000	3913	4090	380	386		4001	2.2	383	1.0	4715	441	**427**	**25**	-0.6	-0.9	0.1
chrysene + triphenylene	4800	4630	4090	558	569		4507	8.2	563	1.4	5439	613	577	35	-0.7	-0.8	0.5
benzofluoranthenes [b+j+k]	6660	6240	6020	1230	1270		6307	5.2	1250	2.3	7147	501	1441	150	-0.5	-1.0	0.3
benzo[e]pyrene	2750	2610	2910	479	494		2757	5.5	486	2.3	3149	267	**553**	**59**	-0.5	-1.1	0.4
benzo[a]pyrene	3860	3600	3200	444	460		3553	9.4	452	2.5	4228	462	**628**	**52**	-0.6	-0.9	0.6
perylene	993	927	993	317	322		971	3.9	319	1.2	1153	166	**452**	**58**	-0.6	-0.8	0.3
indeno[1,2,3-cd]pyrene	2780	2560	2570	460	476		2637	4.7	468	2.4	2415	446	**501**	**72**	0.4	0.3	0.3
dibenz[a,h]anthracene + [a,c]	808	767	756	110	112		777	3.5	111	1.5	705	158	**117**	**14**	0.4	0.3	0.2
benzo[ghi]perylene	2770	2490	2520	422	442		2593	5.9	432	3.2	2362	467	**525**	**67**	0.4	0.3	0.4

Laboratory: 21
PAH in Sediment V

Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	23	100
Qualitative	0	0
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 21
Reporting Date: 10/15/95

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	Not Rept S 1	Not Rept S 2	Not Rept S 3	Not Rept S 1	Not Rept S 2	S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	0.00	NA		NA		<2.5		<2				
hexachlorobenzene	14.3	6.53	22.1	80.4	91.6		14.3	54.3	86.0	9.2	5.79	0.55	**70**	**25**	**5.9**	**9.9**	**3.6**
gamma-HCH	13.0	13.4	18.1	1.87	1.24		14.8	19.3	1.56	28.6	<3		<2				1.3
heptachlor	4.70	3.84	5.78	<0.09	<0.09		4.78	20.4	<0.09		<4		<2				1.4
aldrin	<0.09	<0.09	<0.09	<0.09	<0.09		<0.09		<0.09		<2		<2				
heptachlor epoxide	<0.06	<0.06	<0.06	5.98	4.55		<0.06		5.27	19.2	<2		<2				
oxychlordane	NA	NA	NA	NA	NA	0.00	NA		NA		<5		2.59	0.20			
trans-chlordane	NA	NA	NA	NA	NA		NA		NA		10.4	4.2	<2				
2,4'-DDE	7.70	8.94	9.79	<0.07	<0.07		8.81	11.9	<0.07		17.7	4.8	**0.73**	**0.11**	-2.0	-1.3	0.8
endosulfan I	NA	NA	NA	NA	NA	0.00	NA		NA		<3		<2				
cis-chlordane	26.4	21.1	25.1	1.36	1.04		24.2	11.4	1.20	18.9	15.6	3.4	**2.33**	**0.56**	2.2	1.6	0.8
trans-nonachlor	9.15	8.38	10.9	1.01	0.60		9.47	13.5	0.81	36.0	10.0	2.2	**1.26**	**0.13**	-0.2	-0.1	0.9
dieldrin	9.62	14.0	11.2	7.30	6.05		11.6	19.0	6.68	13.2	7.98	3.63	1.26	0.37	1.8	0.8	1.3
4,4'-DDE	66.4	67.1	67.0	6.63	5.41		66.8	0.6	6.02	14.3	79.3	15.9	**6.59**	**0.56**	-0.6	-0.5	0.0
2,4'-DDD	83.3	92.4	85.1	5.15	3.04		86.9	5.5	4.10	36.4	39.6	8.1	<2		**4.8**	**3.9**	0.4
endrin	<0.12	<0.12	<0.12	<0.12	<0.12		<0.12		<0.12		<3		<2				
endosulfan II	NA	NA	NA	NA	NA	0.00	NA		NA		<3		<2				
4,4'-DDD	163	179	148	4.13	3.19		163	10	3.66	18	126	30	**5.06**	**0.56**	1.2	0.8	0.6
2,4'-DDT	12.9	11.2	12.9	<0.14	<0.14		12.3	8.1	<0.14		<6		<2				0.5
cis-nonachlor	NA	NA	NA	NA	NA	0.00	NA		NA		3.52	1.17	<2				
4,4'-DDT	168	147	199	4.61	5.05		171	15	4.83	6	131	45	1.25	0.10	1.2	0.7	1.0
mirex	<0.13	<0.13	<0.13	<0.13	<0.13		<0.13		<0.13		<3		<2				

Laboratory: 21
Pesticides in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	12	55
Qualitative	4	18
Not Determined	6	27

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	5	7	11
2 to 3	2	0	0
≥ 3	2	2	1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 21
Reporting Date: 10/15/95

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	Not Rep	Not Rept	Not Rept	Not Rept	Not Rept		lab mean	lab	lab mean	lab	assigned		target		z-score	z-score	p-score
	S 1	S 2	S 3	S 1	S 2	S 3	ng/g dry	%RSD	ng/g dry	%RSD	value	95% CL	value[b]	95% CL	(25%)	(s)	(15%)
PCB 8	26.4	26.1	40.0	9.95	6.25		30.8	25.8	8.10	32.3	23.0	3.3	1.39	0.19	1.4	1.5	1.7
PCB 18	67.6	59.1	ee belo	5.40	1.97		63.3	9.5	3.69	65.8	49.5	5.6	1.15	0.16	1.1	1.7	0.6
PCB 28	78.2	55.1	66.0	6.17	3.61		66.4	17.4	4.89	37.0	84.6	10.6	9.8	3.7	-0.9	-1.1	1.2
PCB 52	75.8	64.7	87.5	7.55	5.91		76.0	15.0	6.73	17.2	76.4	8.0	**6.89**	**0.56**	0.0	0.0	1.0
PCB 44	61.9	57.7	43.9	7.49	6.02		54.5	17.3	6.76	15.4	56.2	5.6	**4.80**	**0.62**	-0.1	-0.2	1.2
PCB 66/95	70.6	61.4	51.9	9.3	9.7		61.3	15.3	9.5	3.4	92.1	21.6	**14.3**	**2.5**	-1.3	-1.0	1.0
PCB 101/90	81.4	70.1	77.2	17.5	13.1		76.2	7.4	15.3	20.5	72.6	9.7	**11.0**	**1.6**	0.2	0.2	0.5
PCB 118	44.4	42.7	47.9	28.4	27.4		45.0	5.8	27.9	2.4	54.7	6.3	**10.0**	**1.1**	-0.7	-1.0	0.4
PCB 153	116	112	97.8	13.5	10.2		109	8.8	11.9	20.0	64.8	12.0	**17.6**	**1.9**	2.7	2.3	0.6
PCB 105	14.9	14.3	14.7	4.01	2.99		14.6	2.1	3.50	20.6	20.8	4.6	**3.65**	**0.27**	-1.2	-0.9	0.1
PCB 138/163/164	75.4	61.4	63.7	NA	NA		66.8	11.2	NA		62.0	6.7	**13.38**	**0.97**	0.3	0.5	0.7
PCB 187/182	22.1	19.5	22.5	4.68	5.32		21.4	7.7	5.00	9.1	23.4	2.3	7.0	2.6	-0.3	-0.6	0.5
PCB 128	36.9	36.5	29.4	1.95	2.07		34.3	12.3	2.01	4.2	8.56	1.46	**1.87**	**0.32**	**12.0**	**14.7**	0.8
PCB 180	39.9	40.6	43.6	9.02	9.79		41.4	4.7	9.41	5.8	42.9	7.4	**5.83**	**0.58**	-0.1	-0.2	0.3
PCB 170/190	116	130	90.3	10.8	10.3		112	18.0	10.6	3.3	19.3	3.9	**3.00**	**0.46**	**19.3**	**19.7**	1.2
PCB 195	9.22	9.24	9.36	1.59	1.56		9.27	0.8	1.58	1.3	4.76	1.52	<3		**3.8**	1.8	0.1
PCB 206	7.24	8.36	9.11	3.02	2.54		8.24	11.4	2.78	12.2	8.16	0.85	**3.67**	**0.87**	0.0	0.1	0.8
PCB 209	17.7	18.6	19.1	8.89	9.99		18.4	4.0	9.44	8.2	5.94	0.68	**8.34**	**0.49**	**8.4**	**12.3**	0.3

Laboratory: 21
PCBs in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	18	100
Qualitative	0	0
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	13	14	18
2 to 3	1	1	0
≥ 3	4	3	0

Water in Sediment V

	Sediment V, %			lab		Sediment V, %		exercise, %		Sediment V		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	43.9	44.4	44.3	44.2	0.6	45.7	0.8	44.9	0.6	-0.1	-1.5	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 22
Reporting Date: 11/21/91

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	10/3/91 S 1	10/19/91 S 2	9/14/91 S 3	10/3/91 S 1	10/19/91 S 2	9/14/91 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	1710	1690	1740	961	992	1000	1713	1.5	984	2.1	1506	257	**1010**	**140**	0.5	0.5	0.1
2-methylnaphthalene	864	825	826	323	310	329	838	2.7	321	3.0	808	126	325	60	0.2	0.2	0.2
1-methylnaphthalene	589	498	516	141	183	169	534	9.0	164	13.0	510	90	150	30	0.2	0.3	0.6
biphenyl	242	253	238	95	98	94	244	3.2	96	1.9	272	70	175	18	-0.4	-0.4	0.2
2,6-dimethylnaphthalene	915	831	821	123	162	154	856	6.0	146	14.1	755	156	120	24	0.5	0.6	0.4
acenaphthylene	303	347	365	35.1	31.4	37.6	338	9.4	35	9.0	546	266	37.0	14.0	-1.5	-0.6	0.6
acenaphthene	588	588	629	44.7	44.2	42.5	602	3.9	44	2.6	552	58	41.0	10.0	0.4	0.7	0.3
1,6,7-trimethylnaphthalene	541	485	552	41.8	40.7	42.3	526	6.8	42	2.0	462	133	48.0	10.0	0.6	0.4	0.5
fluorene	1020	922	988	83.7	84.5	87.0	977	5.1	85.1	2.0	865	140	**97.3**	**8.6**	0.5	0.5	0.3
phenanthrene	7280	6170	6790	539	550	557	6747	8.2	549	1.7	5212	596	**489**	**23**	1.2	1.5	0.5
anthracene	2360	1960	2260	189	167	214	2193	9.5	190	12.4	1952	275	**184**	**14**	0.5	0.5	0.6
1-methylphenanthrene	1890	1660	1850	87	80	104	1800	6.8	90	13.8	1528	326	101	27	0.7	0.6	0.5
fluoranthene	14400	10900	11800	1040	974	1180	12367	14.7	1065	9.9	8511	1147	**981**	**78**	1.8	1.9	1.0
pyrene	14800	11400	12500	875	822	983	12900	13.4	893	9.2	9235	1460	**811**	**24**	1.6	1.4	0.9
benz[a]anthracene	5890	5510	4920	415	422	443	5440	9.0	427	3.4	4715	441	**427**	**25**	0.6	0.9	0.6
chrysene + triphenylene	6450	5930	5450	569	587	610	5943	8.4	589	3.5	5439	613	577	35	0.4	0.5	0.6
benzofluoranthenes [b+j+k]	9090	8440	8050	1280	1320	1390	8527	6.2	1330	4.2	7147	501	1441	150	0.8	1.7	0.4
benzo[e]pyrene	3840	3690	3420	513	575	590	3650	5.8	559	7.3	3149	267	**553**	**59**	0.6	1.3	0.4
benzo[a]pyrene	5400	4920	4520	519	563	576	4947	8.9	553	5.4	4228	462	**628**	**52**	0.7	0.9	0.6
perylene	1240	1220	1080	333	383	393	1180	7.4	370	8.7	1153	166	**452**	**58**	0.1	0.1	0.5
indeno[1,2,3-cd]pyrene	3320	3040	2990	531	538	546	3117	5.7	538	1.4	2415	446	**501**	**72**	1.2	1.0	0.4
dibenz[a,h]anthracene + [a,c]	867	782	738	92	115	114	796	8.2	107	12.1	705	158	**117**	**14**	0.5	0.3	0.5
benzo[ghi]perylene	3350	3160	3060	502	536	548	3190	4.6	529	4.5	2362	467	**525**	**67**	1.4	1.0	0.3

Laboratory: 22
PAH in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	23	100
Qualitative	0	0
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5 - Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 22
Reporting Date: 11/21/91

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	10/3/91 S 1	10/19/91 S 2	9/14/91 S 3	10/3/91 S 1	10/19/91 S 2	9/14/91 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA		NA		<2.5		<2				
hexachlorobenzene	6.27	5.57	5.87	77.3	71.4	74.3	5.90	5.9	74.3	4.0	5.79	0.55	**70**	**25**	0.1	0.1	0.4
gamma-HCH	2.63	2.36	2.30	1.90	1.38	1.41	2.43	7.2	1.56	18.7	<3		<2				0.5
heptachlor	4.94	6.75	5.11	4.77	5.25	5.85	5.60	17.8	5.29	10.2	<4		<2				1.2
aldrin	<0.941	<0.618	<0.859	<1.54	<0.601	<0.821	<0.8		<1		<2		<2				
heptachlor epoxide	<1.03	<0.687	<0.940	4.54	4.38	4.63	<0.9		4.52	2.8	<2		<2				
oxychlordane	6.97	8.02	7.73	<1.66	<0.686	<0.890	7.57	7.2	<1.1		<5		2.59	0.20			0.5
trans-chlordane	11.0	9.26	8.63	<1.51	<0.603	<0.810	9.63	12.7	<1		10.4	4.2	<2		-0.3	-0.1	0.8
2,4'-DDE	12.1	13.5	13.1	<2.03	<0.783	<1.08	12.9	5.6	<1.3		17.7	4.8	**0.73**	**0.11**	-1.1	-0.7	0.4
endosulfan I	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
cis-chlordane	17.7	22.8	19.9	1.91	3.22	2.50	20.1	12.7	2.54	25.8	15.6	3.4	**2.33**	**0.56**	1.2	0.8	0.8
trans-nonachlor	10.8	10.7	11.3	1.51	1.58	0.98	10.9	2.9	1.36	24.3	10.0	2.2	**1.26**	**0.13**	0.4	0.3	0.2
dieldrin	11.3	11.5	14.2	1.84	3.07	2.72	12.3	13.1	2.54	24.9	7.98	3.63	1.26	0.37	2.2	0.9	0.9
4,4'-DDE	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER		OTHER		79.3	15.9	**6.59**	**0.56**			
2,4'-DDD	60.4	63.0	67.1	3.91	4.70	3.90	63.5	5.3	4.17	11.0	39.6	8.1	<2		2.4	2.0	0.4
endrin	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
endosulfan II	NA	NA	NA	NA	NA	NA	NA		NA		<3		<2				
4,4'-DDD	133	138	137	9	8	9	136	2	8.56	4	126	30	**5.06**	**0.56**	0.3	0.2	0.1
2,4'-DDT	<1.58	<1.09	<1.45	<2.58	<1.06	<1.38	<1.3		<1.8		<6		<2				
cis-nonachlor	6.25	5.91	5.33	<1.53	<0.651	<0.820	5.83	8.0	<1		3.52	1.17	<2		2.6	1.5	0.5
4,4'-DDT	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER		OTHER		131	45	1.25	0.10			
mirex	<1.09	<0.795	<1.14	<2.70	<1.10	<1.44	<1		<1.4		<3		<2				

Laboratory: 22
Pesticides in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	12	55
Qualitative	6	27
Not Determined	4	18

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	6	9	12
2 to 3	3	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

FY95 NIST Intercomparison Exercise
Sample: QA95SED5-Marine Sediment V

(data reported as if three figures were significant)

Laboratory No.: 22
Reporting Date: 11/21/91

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment V, ng/g dry			SRM 1941a, ng/g dry			Sediment V		SRM 1941a		Sediment V, ng/g dry		SRM 1941a, ng/g dry		Sediment V		
Analysis date	10/3/91 S 1	10/19/91 S 2	9/14/91 S 3	10/3/91 S 1	10/19/91 S 2	9/14/91 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CL	target value[b]	95% CL	z-score (25%)	z-score (s)	p-score (15%)
PCB 8	NR	NR	NR	NR	NR	NR	NR		NR		23.0	3.3	1.39	0.19			
PCB 18	54.8	52.5	56.4	4.13	3.88	3.59	54.6	3.6	3.87	7.0	49.5	5.6	1.15	0.16	0.4	0.6	0.2
PCB 28	76.7	83.6	86.0	7.76	7.35	7.70	82.1	5.9	7.60	2.9	84.6	10.6	9.8	3.7	-0.1	-0.1	0.4
PCB 52	79.5	78.4	79.0	9.74	8.79	9.32	79.0	0.7	9.28	5.1	76.4	8.0	**6.89**	**0.56**	0.1	0.2	0.0
PCB 44	64.6	61.6	62.9	7.00	7.25	6.76	63.0	2.4	7.00	3.5	56.2	5.6	**4.80**	**0.62**	0.5	0.8	0.2
PCB 66/95	57.4	68.0	64.8	9.2	8.5	9.1	63.4	8.6	8.9	3.9	92.1	21.6	**14.3**	**2.5**	-1.2	-0.9	0.6
PCB 101/90	68.1	63.8	66.7	16.9	15.8	15.9	66.2	3.3	16.2	3.8	72.6	9.7	**11.0**	**1.6**	-0.4	-0.4	0.2
PCB 118	47.4	44.9	46.4	13.4	10.4	12.1	46.2	2.7	12.0	12.6	54.7	6.3	**10.0**	**1.1**	-0.6	-0.9	0.2
PCB 153	78.8	78.4	69.0	24.6	20.3	21.9	75.4	7.4	22.3	9.8	64.8	12.0	**17.6**	**1.9**	0.7	0.6	0.5
PCB 105	17.3	15.0	18.2	3.35	3.30	2.94	16.8	9.8	3.20	7.0	20.8	4.6	**3.65**	**0.27**	-0.8	-0.6	0.7
PCB 138/163/164	59.3	57.3	55.6	17.9	15.1	14.7	57.4	3.2	15.9	11.0	62.0	6.7	**13.38**	**0.97**	-0.3	-0.5	0.2
PCB 187/182	22.9	23.6	22.0	7.03	8.29	8.01	22.8	3.5	7.78	8.5	23.4	2.3	7.0	2.6	-0.1	-0.2	0.2
PCB 128	24.00	19.20	19.70	2.73	2.45	2.17	21.0	12.6	2.45	11.4	8.56	1.46	**1.87**	**0.32**	**5.8**	**7.1**	0.8
PCB 180	36.6	34.8	35.9	12.10	11.50	12.30	35.8	2.5	12.0	3.5	42.9	7.4	**5.83**	**0.58**	-0.7	-0.9	0.2
PCB 170/190	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER		OTHER		19.3	3.9	**3.00**	**0.46**			
PCB 195	2.08	2.56	2.58	1.21	2.86	1.87	2.41	11.8	1.98	41.9	4.76	1.52	<3		-2.0	-0.9	0.8
PCB 206	7.32	8.31	6.33	2.42	1.54	1.79	7.32	13.5	1.92	23.7	8.16	0.85	**3.67**	**0.87**	-0.4	-0.6	0.9
PCB 209	6.70	7.11	7.35	10.80	10.10	11.00	7.05	4.7	10.6	4.4	5.94	0.68	**8.34**	**0.49**	0.7	1.1	0.3

Laboratory: 22
PCBs in Sediment V
Quantitation mode: internal standards (added prior to extraction)
Replicates in three separate batches: yes

Reported Results	No. of Analytes	%
Quantitative	16	89
Qualitative	2	11
Not Determined	0	0

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

Water in Sediment V

	Sediment V, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment V, % assigned	95% CL	exercise, % mean	95% CL	Sediment V z (25%)	z (s)	p (15%)
water	45.3	42.7	45.2	44.4	3.3	45.7	0.8	44.9	0.6	-0.1	-1.3	0.2

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified material reference values are bolded.

Appendix E: Laboratory Notes Accompanying Data, Fish III

Fish Homogenate III: Notes included with e-files used for data submission by the participating laboratories

Lab Notes

1a		FISH III Sample 1 (ng/g wet wt)	FISH III Sample 2 (ng/g wet wt)	FISH III Sample 3 (ng/g wet wt)	CRM Carp-1 Sample 1 (ng/g wet wt)	CRM Carp-1 Sample 2 (ng/g wet wt)	CRM Carp-1 Sample 3 (ng/g wet wt)
	PCB 31	33.9	34.7	35.6	31.6	30.6	29.5
	PCB 49	119	124	117	144	137	133
	PCB 99	107	111	107	103	100	110
	PCB 87	68.3	68.9	66.5	84.1	88.8	87.3
	PCB 151	11.7	12.6	13.1	16.3	18.1	17.4
	PCB 149	67.8	66.3	66.9	60.7	61.1	62.3
	PCB 183	13.5	13.2	12.6	13.7	13.3	13.2
	PCB 156	10.3	9.96	9.91	8.78	8.94	9.04
	PCB 194	10.9	11.3	10.2	10.2	11.6	10.4
1b	PCB 66	120	123	122	117	111	113
	PCB 95	67.3	66.9	63.5	61.2	60.4	59.3
	PCB 31	32.8	33.3	34.9	25.7	27.4	26.7
	PCB 49	121	121	128	128	137	134
	PCB 99	118	109	113	98.9	101	108
	PCB 87	68.9	67.1	65.9	81.1	87.6	84.6
	PCB 151	12.8	12.6	13	19.6	18.4	18.4
	PCB 149	68	66.2	67.3	66.8	62.5	61.4
	PCB 183	13.6	13.9	12.8	12.9	14	13.4
	PCB 156	9.92	8.99	10.4	8.91	8.88	9.12
	PCB 194	11	10.3	10.4	13.7	13.3	12.4
	PCB 101	136	133	140	129	131	136
1c	PCB 31/28	69	67.3	67.1	50.5	48.2	52.7
	PCB 66	118	113	120	124	117	117
	PCB 95	65.3	66.1	64.2	66.2	66.2	61.3
	PCB 49	119	117	126	118	134	133
	PCB 99	119	124	116	112	111	105
	PCB 87	66.4	64.1	63.7	80	80.4	83.6
	PCB 151	11.9	11.4	13	18	17.3	17.2
	PCB 149	67.3	64.6	66.9	57.8	59.4	56.2
	PCB 183	13.3	12.4	13.1	15.3	15.7	13.3
	PCB 156	10.9	10.2	9.92	10.1	9.34	9.45
	PCB 194	10.4	10.3	11.2	12.4	12.4	11.4

alpha-HCH (a-BHC) Too many interferences in this ion.
gamma-HCH (g-BHC,lindane Too many interferences in this ion.

Lab Notes

2

	FISH III Sample 1 (ng/g wet wt)	FISH III Sample 2 (ng/g wet wt)	FISH III Sample 3 (ng/g wet wt)	CRM Carp-1 Sample 1 (ng/g wet wt)	CRM Carp-1 Sample 2 (ng/g wet wt)	CRM Carp-1 Sample 3 (ng/g wet wt)
PCB 95	39.3	41.8	42.4	38.1	40.8	36.0

1. PCB66 and PCB95 are chromatographically resolved (partially) and are reported separately.
2. PCB187/182/159 co-elute.
3. PCB118/108/149 co-elute.

3 None

4 None

6 The GC-ECD is set up as dual column with RTX-5 and RTX-1701 columns.

7 PCB 209 was spiked as a surrogate into the 9/20 and 9/21 batches.
We were unable to obtain a standard of oxychlordane or PCB 132 in time to include them in the analyses.

8 None

9 PCB AROCLOR ANALYSIS

	FISH III Sample 1 (ng/g wet wt)	FISH III Sample 2 (ng/g wet wt)	FISH III Sample 3 (ng/g wet wt)	CRM Carp-1 Sample 1 (ng/g wet wt)	CRM Carp-1 Sample 2 (ng/g wet wt)	CRM Carp-1 Sample 3 (ng/g wet wt)
AR 1248	43.8	41.2	42.6	31.6	30.6	29.5
AR 1254	1140	1080	1080	1360	882	1140
AR 1260	409	403	401	463	295	400
AR 1242	33.8	27	31.2	<10	<10	<10
EXT. DATES	5/9/95	5/16/95	5/24/95	5/9/95	5/16/95	5/24/95
LAB ID	T95063	T95064	T95102	T95061	T95065	T95103
PESTICIDE ANALYSES						
EXT. DATES	5/9/95	5/16/95	5/24/95	5/9/95	5/16/95	5/24/95
sample wt., g	9.15	9.27	7.41	8.7	8.86	8.69
LAB ID	T95063	T95064	T95102	T95061	T95065	T95103
LOG #	SS53021	SS53022	SS53021	T55029	T55029	T55029

10 * For some Pesticide parameters, a correction for losses in SEC/LC clean up procedure was used based on results derived from Sulfuric Acid clean up procedure.

11 None

12 None

Lab Notes

13 NA = Not Analyzed

	FISH III Batch A Sample 1	FISH III Batch B Sample 2	FISH III Batch C Sample 3	CRM Carp-1 Batch A Sample 1	CRM Carp-1 Batch B Sample 2	CRM Carp-1 Batch C Sample 3
Analyst (Initials)	MD	MD	MD	MD	MD	MD
Date(s) of meas	8/18/95	8/28/95	9/14/95	8/18/95	8/28/95	9/14/95
% LIPID:	5.9	6.4	6.4	4.9	4.4	5

14 None

15 None

16 The CARP-1 analyzed with batch A and batch B was leftover QA93FSH1 fish homogenate material from the 1993 intercomparison exercise

17 GC Conditions: The clean extract was injected into a HP 5890 series II GC equipped with a splitless injector. The injector was fitted with a guard column connected to a "Y" juction which coupled the two columns. The columns used were a DB-5 (5% phenyl -95% methylpolysiloxane stationary phase) and a RXT-50 (50 % phenyl-50% methylpolysiloxane stationary phase).
The separated anayltes were detected on two electron capture detectors.
The individual analyte concentrations from the columns were compared.
The lowest concentration for each analyte among the columns are reported.

Lab Notes

18 We were not able to procure the NRC CARP-1 CRM because of
our late participation in the program.
We had three containers of NIST Mussel 1974 which we analyzed concurrently with QA95FSH3.
analyzed concurrently with QA95FSH3.
Results for NIST 1974 are as follows:

PESTICIDE ANALYSES	SRM 1974	SRM 1974	SRM 1974
Date(s) of meas.:	10/5/95	10/5/95	10/5/95
	Sample 1	Sample 2	Sample 3
	(ng/g wet wt)	(ng/g wet wt)	(ng/g wet wt)
alpha-HCH	0.13	0.13	0.132
hexachlorobenzene	0.4	0.4	0.37
gamma-HCH	<0.1	<0.1	<0.1
heptachlor	<0.1	4.85	4.76
aldrin	<0.1	<0.1	<0.1
heptachlor epoxide	<3.	<3.	<3.
oxychlordane	NA	NA	NA
gamma-chlordane	NA	NA	NA
2,4'-DDE	5.66	5.52	5.22
endosulfan I	<0.7	<0.7	<0.6
cis-chlordane	<0.7	<0.7	<0.6
trans-nonachlor	<0.7	<0.7	<0.6
dieldrin	<0.1	<0.1	<0.1
4,4'-DDE	5.11	5.02	4.91
2,4'-DDD	10.3	6.9	6.76
endrin	4.83	5.5	5.41
endosulfan II	<0.1	<0.1	<0.1
4,4'-DDD	<0.6	<0.6	<0.5
2,4'-DDT	3.22	3.68	3.58
cis-nonachlor	NA	NA	NA
4,4'-DDT	0.66	0.53J	0.69
mirex	<3.	<3.	<3.

Lab Notes

18 (cont.	PCB CONGENER ANALYSES	SRM 1974	SRM 1974	SRM 1974
	Date(s) of measurements (m/d/y)	10/5/95	10/5/95	10/5/95
		Sample 1	Sample 2	Sample 3
		(ng/g wet wt)	(ng/g wet wt)	(ng/g wet wt)
	PCB 8	2.46	1.9	2.5
	PCB 18	4.86	5.03	5.4
	PCB 28	10.1	10.2	9.8
	PCB 52	9.37	10.3	9
	PCB 44	5.51	9.46	6.8
	PCB 66/95	9.1	9.97	9.1
	PCB 101/90	9.97	11	10.6
	PCB 118	10.7	17.9	18.6
	PCB 153	10.2	10.5	11.2
	PCB 105	3.16	3.4	3.3
	PCB 138/163/164	10	10.7	10.4
	PCB 187/182	<1.	<1.	<1.
	PCB 128	1.15	1.29	1.24
	PCB 180	<1.	<1.	<1.
	PCB 170/190	<1.	<1.	<1.
	PCB 195	<1.	<1.	<1.
	PCB 206	<1.	<1.	<1.
	PCB 209	<1.	<1.	<1.

19 PCB 206 and 209 FISH III results are above MDL but less than10 times MDL
PCB 195 CARP- Result is less than 10 times MDL.
PCBS analyzed by GC/MS using selected ion monitoring for a quantation ion and a confirmation ion for identification.

20 Removal of Sample from Ampoules
Sample removal procedure for the first analysis did not incorporate sonication at solvent rinsing stage.
Extraction mass may have been slightly under estimated.

Pesticide and PCB quantitation clarification.
Due to the high concentrations in these samples, and the need to utilize the entire sample for the analyses, all of the samples required dilution and reanalysis for a number of compounds.
Diluted samples were quantitated by ES methods and corrected for surrogate recoveries in the original analysis.
The reported PCB 66/95 values are the sum of these two congeners quantitated from the DB-17 analytical column.

Lab Notes

20 (cont.)	FISH III Sample 1 (ng/g wet wt)	FISH III Sample 2 (ng/g wet wt)	FISH III Sample 3 (ng/g wet wt)	CRM Carp-1 Sample 1 (ng/g wet wt)	CRM Carp-1 Sample 2 (ng/g wet wt)	CRM Carp-1 Sample 3 (ng/g wet wt)
Analytical % Lipid						
	6.73	6.98	7.22	4.86	5.29	5.43
Additional PCB Results (* indicates quantitation from DB-17)						
PCB 5*	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
PCB 27	4.05	3.45	2.84	2.21	2.34	1.84
PCB 29	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
PCB 31	34.9	30.8	29.8	26.3	25.9	21.7
PCB 49	116	98.6	92.7	102	97.8	86.4
PCB 66*	166	145	133	146	139	118
PCB 70	46.6	41	39.5	37.9	36.3	31.7
PCB 74	75.1	64.5	61.5	69.1	65.8	57.9
PCB 87*	68.7	58.9	56.1	60.2	57.8	51.7
PCB 95*	78.1	69.3	65.4	67.1	64.4	57.8
PCB 97*	61.3	55.7	51.7	57.2	54.3	48.9
PCB 99	102	89.8	84.9	93.9	90.9	80.1
PCB 110	148	128	121	121	116	104
PCB 132*	24	23.5	27.1	18.8	20.6	23.2
PCB 137*	5.71	5.73	5.66	5	5.39	5.25
PCB 149*	60.1	52.5	50.7	40.6	39.9	42.5
PCB 151	12.3	10.4	8.1	8.66	9.11	7.81
PCB 156	10.9	9.13	7.21	8.7	8.68	7.42
PCB 157*	15.4	12.6	12.9	12.5	12.1	10.9
PCB 158	10.4	8.88	6.88	8.25	8.61	8.97
PCB 174	11.6	11	9.95	9.06	9.68	9.33
PCB 177	12.4	12.7	14.1	10.1	11.7	13.3
PCB 183	11.8	11.1	9.6	9.74	10.2	9.47
PCB 189	1.39	1.56	1.64	1.19	1.39	1.42
PCB 194	10.9	10.4	11.5	9.92	10.2	10.7
PCB 201	10.9	10.5	11.9	9.75	10.3	11.3
PCB 203	13.5	11.8	11.4	12.5	11.5	10.8

Lab Notes

20 (cont.)	FISH III Sample 1 (ng/g wet wt)	FISH III Sample 2 (ng/g wet wt)	FISH III Sample 3 (ng/g wet wt)	CRM Carp-1 Sample 1 (ng/g wet wt)	CRM Carp-1 Sample 2 (ng/g wet wt)	CRM Carp-1 Sample 3 (ng/g wet wt)
Aroclor Values generated from congener results (data valid to 2 sig figs)						
Aroclor 1248	793	693	495	546	565	633
Aroclor 1254	1580	1350	1210	1390	1350	1280
Aroclor 1260	421	397	400	385	390	411
Additional Pesticide results						
p,p'-DDMS	16.4	15	14.2	14.3	12.4	20.1
p,p'-DDMU	23.8	20.5	21.1	19.4	17.4	18.6

21 CARP not purchased/processed

Additional PCB Congeners:

	FISH III Sample 1 (ng/g wet wt)	FISH III Sample 2 (ng/g wet wt)	FISH III Sample 3 (ng/g wet wt)
Cl4(49)	106	111	107
Cl5(87)	53.6	58.3	51.2
Cl7(183)	10.5	11.2	10.2

22 None

Appendix F: Laboratory Notes Accompanying Data, Sediment V

Marine Sediment V: Notes included with e-files used for data submission by the participating laboratories

Lab Notes

1a 2,6-dimethylnaphthalene is coeluting with another dimethylnaphthalene under the analytical conditions used

	Sediment V Sample 1 (ng/g dry wt)	Sediment V Sample 2 (ng/g dry wt)	Sediment V Sample 3 (ng/g dry wt)	SRM 1941a Sample 1 (ng/g dry wt)	SRM 1941a Sample 2 (ng/g dry wt)	SRM 1941a Sample 3 (ng/g dry wt)
PCB 31	79.9	78.1	79	5.67	5.01	5.55
PCB 49	53.6	51.9	52.1	8.05	8.11	7.93
PCB 99	38.4	37.1	37	4.45	4.25	4.66
PCB 151	17.2	16.8	16.4	2.66	2.54	2.5
PCB 149	50.5	48.2	48.2	9.34	9.94	9.44
PCB 183	12.3	11.4	11.3	1.76	1.77	1.88
PCB 156	7.34	6.99	6.23	0.956	1.03	0.978
PCB 194	10.3	10.1	9.94	1.99	1.78	1.83

1b 2,6-dimethylnaphthalene is coeluting with another dimethylnaphthalene under the analytical conditions used

	Sediment V Sample 1 (ng/g dry wt)	Sediment V Sample 2 (ng/g dry wt)	Sediment V Sample 3 (ng/g dry wt)	SRM 1941a Sample 1 (ng/g dry wt)	SRM 1941a Sample 2 (ng/g dry wt)	SRM 1941a Sample 3 (ng/g dry wt)
PCB 31	76.9	77.3	78.2	5.55	5.22	5.26
PCB 49	56.7	50.6	51.2	7.93	8.44	8.32
PCB 99	35.6	36.2	35.8	4.67	4.43	4.22
PCB 151	16.4	17.1	16.4	2.44	2.64	2.62
PCB 149	49	50.2	47.9	8.99	9.45	9.34
PCB 183	11.9	12.5	11	1.69	1.75	1.83
PCB 156	6.98	7.55	7.42	1	0.955	0.976
PCB 194	9.99	10.6	10.6	2	2.1	1.89
PCB 66	70.7	74.2	73.5	8.43	8.77	8.12
PCB 95	62.5	71.3	71.3	6.31	6.26	6.98

Lab Notes

1c 2,6-dimethylnaphthalene is coeluting with another dimethylnaphthalene:
GC-MS ion interferences for the HCH's and dieldrin

	Sediment V Sample 1 (ng/g dry wt)	Sediment V Sample 2 (ng/g dry wt)	Sediment V Sample 3 (ng/g dry wt)	SRM 1941a Sample 1 (ng/g dry wt)	SRM 1941a Sample 2 (ng/g dry wt)	SRM 1941a Sample 3 (ng/g dry wt)
PCB 31	76.3	77.2	77.3	5.63	5.22	5.62
PCB 49	55.6	55.4	52.2	8.09	8.52	8.22
PCB 99	36.1	33.6	35.6	4.45	4.66	4.62
PCB 151	16.5	16.4	17	2.46	2.37	2.52
PCB 149	50.3	48.9	48.2	9.44	9.56	9.25
PCB 183	12.6	11.6	11.7	1.78	1.67	1.88
PCB 156	7.04	7.67	7.33	0.999	1.16	1.11
PCB 194	10.4	10.3	10.2	2.1	2.22	1.98
PCB 66	69.2	70.3	73.3	8.88	8.47	8.42
PCB 95	72.3	68.2	60.5	5.71	6.74	5.82

3 pcb 28/31 coelute

4 2,4'-DDE - interference with PCBs

5 none

6 Due to the difficulty [our laboratory] methods have using SRM 1941a, we routinely use CRM 327.
We routinely analyze inland water sediments for our national programs.
(1) [Laboratory] does not analyze for triphenylene
(2) [Laboratory] does not analyze for benzo(j)fluoranthrene
(3) Instead of SRM 1941a, [laboratory] uses CRM 327, which is produced by Environmental Resource Associates of Arvada, Colorado, 80002.
(4) There was a co-elution interference; compound not reported.

7 PCB 209 was spiked as a surrogate into the 9/20 and 9/21 batches.
We were unable to obtain a standard of oxychlordane or PCB 132 in time to include them in these analyses.

Coordinator's note: concentrations converted to dry weight basis using mean of laboratory results for percent water.

8 ***Coordinator's note: concentrations converted to dry weight basis using mean of laboratory results for percent water.***

Lab Notes

9 PAH ANALYSIS:

	Sediment V Sample 1 (ng/g dry wt)	Sediment V Sample 2 (ng/g dry wt)	Sediment V Sample 3 (ng/g dry wt)	SRM 1941a Sample 1 (ng/g dry wt)	SRM 1941a Sample 2 (ng/g dry wt)	SRM 1941a Sample 3 (ng/g dry wt)
EXT, DATE:	6/28/95	7/12/95	7/12/95	6/28/95	7/12/95	6/13/95
ID#	N95039	N95041	N95042	N95038	N95040	N95037
Weight(g)	3.01	3.1	3.1	3.03	3.03	3.02
PESTICIDE ANALYSIS:						
EXT, DATE:	6/28/95	7/12/95	7/12/95	6/28/95	7/12/95	6/13/95
AR-1242	205	398	717	76.7	199	51.6
AR-1248	750	1790	1450	ND	ND	ND
AR-1260	ND	263	181	49.3	ND	91.2
LAB ID#	X95023	X95025	X95026	X95022	X95024	X95021
Weight(g)	3.01	3.1	3.1	3.03	3.03	1.85

Method listings for PCB Congeners are for PCBs as Aroclor listed above
Aroclor ES

10 Other = 4,4'-DDT detected but quantitation is unstable. Estimated value 143 ng/g.

11 none

12 none

13 none

14 none

15 none

Lab Notes

17a Using our HPLC method, B(b)F and B(k)F were totally resolved and are reported here separately .

	Sediment V Sample 1 (ng/g dry wt)	Sediment V Sample 2 (ng/g dry wt)	Sediment V Sample 3 (ng/g dry wt)	SRM 1941a Sample 1 (ng/g dry wt)	SRM 1941a Sample 2 (ng/g dry wt)	SRM 1941a Sample 3 (ng/g dry wt)
B[b]F	4327	3443	4171	655	581	648
B[k]F	2471	3578	2497	362	363	425

Gas Chromatographic Conditions: The clean extract was injected into a HP 5890 series II GC equipped with a splitless injector. The injector was fitted with a guard column connected to a Y junction which coupled the two columns. The columns used were a DB-5 (5% phenyl -95% methylpolysiloxane stationary phase) and a RXT-50 (50 % phenyl-50% methylpolysiloxane stationary phase). The separated anayltes were detected on two electron capture detectors.

The individual analyte concentration from the columns were compared. The lowest concentration for each analyte among the columns are reported.

17b The above PAH data supplements analyses reported elsewhere and was determined using the same identical extracts.
Data for naphthalene, C1 naphthalenes and biphenyl are highly suspect in samples 171 and 1941a-16.

GC/ITMS Conditions: The extract was injected into a Finnigan Magnum ion trap mass spectromete equipped with a Varian 3400 GC and 8200 autosampler. Injections were made into a Varian Septu Programmable Injector in the cool direct injection mode, and the injector then ballistically heated to the final temperature.

18 Note 1- Isotopes added prior to extraction include: napthalene, acenapthylene, acenapthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benz[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, dibenz[a,h]anthracene, benzo[g,h,i]perylene.

Qualifiers
"A"- calculation was based on average response factor (internal standard method).
"B"- calculation was based on average relative response over concentration ratio (isotope dilution method).
"E"- calculated value is approximate since the result is below the MDL but detectable.
"J"- analyte was detected below the PQL at the concentration reported.
"*"- analyte was quantitated using the internal standard (2,2'-Difluorobiphenyl).

Lab Notes

		Sediment V	SRM 1941a
18 (cont.	naphthalene	B	B
	2-methylnaphthalene	*	NA
	1-methylnaphthalene	*	NA
	biphenyl	A	NA
	2,6-dimethylnaphthalene	*	NA
	acenaphthylene	B	NA
	acenaphthene	B	NA
	1,6,7-trimethylnaphthalene	*	NA
	fluorene	B	B
	phenanthrene	B	B
	anthracene	B	B
	1-methylphenanthrene	*	NA
	fluoranthene	B	B
	pyrene	B	B
	benz[a]anthracene	B	B
	chrysene + triphenylene	B	B
	benzofluoranthenes [b+j+k]	B	B
	benzo[e]pyrene	*	E*
	benzo[a]pyrene	B	B
	perylene	*	E*
	indeno[1,2,3-cd]pyrene	A	A
	dibenz[a,h]anthracene + [a,c]	B	B
	benzo[ghi]perylene	B	B
	PCB 195	J	
	PCB 209	J	

21 NA = Not Analyzed

Fish Sample 3: HCB and Cl3(18) - matrix interference.

Additional PCB data:

	Sediment V Sample 1 (ng/g dry wt)	Sediment V Sample 2 (ng/g dry wt)	Sediment V Sample 3 (ng/g dry wt)
Cl4(49)	52.0	46.7	38.1
Cl5(87)	21.7	20.3	24.1
Cl7(183)	7.92	8.48	8.11

22 OTHER: Values for p,p'-DDE, p,p'-DDT and PCB 170 will be reported at a later date, after confirmation on GC/MS.
(Coordinator's note: results not received)

Appendix G: Laboratory Methods Used, Fish III

Summary of Methods Used

Fish Homogenate III QA95FSH3

Lab No./ Reporting Date	Approximate amount of sample extracted:		Procedures used to remove material from ampoule and to determine mass of sample used
1a-c 4/24/95	FISH III, g (wet basis) CARP-1, g (wet basis)	8-9 8-9	The ampoule was scraped with a spatula and rinsed with acetone. The ampoule with top was weighed before and after removal of the sample. The residual acetone was allowed to evaporate before the weighing.
2 4/18/95	FISH III, g (wet basis) CARP-1, g (wet basis)	9	Sonicated ampoule for 5 minutes, weighed ampoule, opened ampoule, pipetted sample to extraction flask, rinsed ampoule with 50:50 hexane:acetone until no more sample visible in ampoule. Weighed empty ampoule and top. Sample mass calculated by difference.
3 9/15/95	FISH III, g (wet basis) CARP-1, g (wet basis)	9 9	Ampoule was sonicated for 5 minutes, ampuole was opened and sample removed and weighed.
4 9/25/95	FISH III, g (wet basis) CARP-1, g (wet basis)	8.8 8.8	
6 9/28/95	FISH III, g (wet basis) CARP-1, g (wet basis)	8–10 8–10	Gravimetric
7 9/29/95	FISH III, g (wet basis) CARP-1, g (wet basis)	8 8	Ampoule shaken for several minutes, opened, weighed, as much tissue as could be recovered from the ampoule with a spatula was transferred to extraction beaker. Ampoule was reweighed to determine the mass of sample transferred.
8 9/27/95	FISH III, g (wet basis) CARP-1, g (wet basis)	9 8.5	Samples were defrosted to room temperature and vortexed to homogenize. The samples were opened and shaken onto a tared beaker and the mass was determined.
9 9/12/95	FISH III, g (wet basis) CARP-1, g (wet basis)	9 9	Samples were sonicated prior to remove from ampoules
10 9/29/95	FISH III, g (wet basis) CARP-1, g (wet basis)	9 9	Whole vial content was used: vial was rinsed with acetone.
11 9/28/95	FISH III, g (wet basis) CARP-1, g (wet basis)	9.25 8.87	The ampoules were weighed prior to sonication. The ampoule FSH3 was sonicated for 2 to 3 minutes and the ampoule CARP-1 for 15 minutes. After this as much material as possible was transferred into the extraction vessel. The inside and the top of the ampoules were washed with a small amount of hexane /acetone mixture and the washes were added to the sample. The empty ampoule, top and any broken pieces were weighed and the mass of the sample was calculated by difference.
12 10/4/95	FISH III, g (wet basis) CARP-1, g (wet basis)	9 8.5	Sonicated ampoules for 30 minutes. Ampoules vigorously shaken before breaking off top and emptying tissue into a tared Quorpak bottle.

Summary of Methods Used

Fish Homogenate III QA95FSH3

Lab No./ Reporting Date	Approximate amount of sample extracted:		Procedures used to remove material from ampoule and to determine mass of sample used
13 9/27/95	FISH III, g (wet basis) CARP-1, g (wet basis)	9 9	Sonicate sample for about 3 minutes, open ampoule and pour contents into tared round bottom flask. Sample + flask then immediately weighed on a top loading balance to the nearest 10 mg.
14 10/02/95	FISH III, g (wet basis) CARP-1, g (wet basis)	9 8.9	Allowed sample to come to room temperature. Sonicated vial for ten minutes. Removed sample and weighed. Rinsed sample vial with 2 mL acetone
15 10/2/95	FISH III, g (wet basis) CARP-1, g (wet basis)	8.8 7.8	Ampoule was shaken and tapped to get as much as possible of the sample into the bottom part of the ampoule. The ampoule was then broken open and as much of the sample as possible shaken out of the ampoule and into a tared mortar, and then weighed. Sodium sulfate was then added to the mortar and ground into the sample to dry it.
16 9/29/95	FISH III, g (wet basis) CARP-1, g (wet basis)	4.5 4.5	Ampoule containing sample was sonicated for 3 hours in sonication bath; approximately half of ampoule content was removed with a pipet and weighed into a tared beaker.
17 9/29/95	FISH III, g (wet basis) CARP-1, g (wet basis)	4 2	Each sample was mixed on a Vortex Mixer for two minutes immediately before sampling. The top of the ampoule was broken and an aliquot was weighed into a glass mortar containing anhydrous sudium sulfate.
18 10/6/95	FISH III, g (wet basis) CARP-1, g (wet basis)	20	The ampoule was opened and weighed. Sample was removed from the ampoule with a pipette and transferred directly to the soxhlet thimble. The ampoule was rinsed with hexane and the rinsate added to the soxhlet. The empty ampoule was weighed to determine mass.
19 10/9/95	FISH III, g (wet basis) CARP-1, g (wet basis)	8 9	Ampoules were weighed. sonicated 15 min, then entire contents were transferred with a solvent rinse into the extraction container. The ampoules were dried and reweighed to determine the sample mass analyzed.
20 10/13/95	FISH III, g (wet basis) CARP-1, g (wet basis)	8.5 8.5	Ampoules were sonicated for 1 hour, vortexed, dried, rinsed with dichloromethane, opened, and weighed. Majority of sample was physically removed. Ampoules were rinsed twice by filling with 1:1 acetone:hexane and sonicating briefly (~15 s). All solvent was combined with the sample. Ampoule was dried and reweighed.
21 10/15/95	FISH III, g (wet basis) CARP-1, g (wet basis)	6	Ampoule sonicated and entire contents poured into pre-tared Teflon extraction vessel - no rinse.
22 10/18/95	FISH III, g (wet basis) CARP-1, g (wet basis)	3 3	For batches A and B, contents were removed to a 20 mL vial, stirred, weighed into a tube and extracted.

Summary of Methods Used

Fish Homogenate III QA95FSH3

Lab No.	Extraction method	Extraction solvent	Extraction time	Extraction - other
1a-c	Soxhlet	methylene chloride	16-18 h	
2	Extracted with DCM and 40 grams sodium sulfate. Tissumized 3 times, pooled extracts.	methylene chloride	3 min, 3 times	
3	Soxhlet extraction	Dichloromethane	18 h	Samples dried using anhydrous sodium sulfate, prior to extraction
4	Soxhlet extraction	Methylene chloride	16 h	
6	Soxhlet	Methylene Chloride	Overnight ~16 h	
7	Sonication	1:1 DCM/Acetone 50 mL	2 min x 4 replicates on 50% duty cycle	
8	Method 3550-sonication	50/50 v/v mehylene chloride/ acetone	3 X 3 min	
9	Soxhlet Extraction	2:1 methylene chloride: acetone	24 h	
10	soxhlet	Methylene Chloride	18 h	
11	microwave assisted extraction.	30 mL of 20/80 hexane/acetone solvent mixture.	15 min microwave extraction at 115 C and about an hour to cool to room temperature before opening the vessels.	The samples were then partitioned into hexane and volume reduced to 1 mL
12	orbit shaker	2 x 100 ml acetonitrile	1 hr then filtered for each	ACN filtrate was extracted with 50 mL petroleum ether. This soln was washed with 300 mL water and 10 mL sat'd NaCl soln. The water portion was discarded.
13	Reflux wet sample and solvent	Acetonitrile	2 h	

Lab No.	Extraction method	Extraction solvent	Extraction time	Extraction - other
14		Acetonitrile, methylene chloride, acetone, hexane	4 h including clean up	
15	soxhlet	methylene chloride	36 h	
16	Samples are mixed with anhydrous sodium sulphate and solvent extracted	Dichloromethane	3 min per extraction (9 minutes /sample)	
17	The sample was mixed with 100 g of anhydrous sodium sulfate and Soxhlet extracted for 18 hours.	250 mL of methylene chloride.	18 h	
18	EPA 3540	MeCL2/acetone 1:1	18 h	final solvent hexane
19	Three serial solvent extractions using rotary tumbler	methylene chloride	38 h	rotated at 40 rpm in 500 mL teflon bottles for 16, 6, and 16 h.
20	Homogenized sample with solvent and sodium sulfate followed by centrifugation.	DCM:hexane, 1:1 by volume.	Two 5 min homogenizations.	
21	Peven and Uhler, 1993 (from NOAA Technical Memorandum)	methylene chloride	6 min (three macerations at 2 min each)	
22	NOAA Technical Memorandum NOS ORCA 71 Volume IV, Chapter 2	methylene chloride	approximately 3 1/2 days for a sample set, from weighing of samples through HPLC cleanup	

Note: DCM = dichloromethane

Summary of Methods Used

Fish Homogenate III QA95FSH3

Lab No.	"Wet" or "dry" samples extracted? Fish III	CRM CARP-1	Sample extract cleanup method
1a-c	wet	wet	size exclusion chromatography to remove the lipid and biogenic components, followed by semi-preparative scale aminopropyl silane column to separate the PCB and lower polarity pesticides from the more polar pesticides
2	as received	as received	1. Silica/alumina column cleanup: 10 g alumina (400C activation) deactivated with 1% water, 20 g silica gel (170 C activation) deactivated with 5% water. Sample placed on Si/Al column, eluted with 200 mL 50:50 pentane:DCM. 2. HPLC gel permeation cleanup.
3	wet	wet	Extracts were cleaned up using high performance GPC on a porous styrene divinylbenzene coplymer gel to remove lipids. Extracts were then fractionated using semipreparative aminosilane HPLC.
4	wet with Na_2SO_4	wet with Na_2SO_4	Florisil dry column technique was used to separate organochlorine compounds from fat. Silica gel column clean up and concentrated sulfuric acid treatment were done to eliminate interfering materials.
6	dry	dry	(1) Kuderna-Danish and nitrogen evaporation to 5 mL (2) Extract passed through sodium sulfate column (3) One ml used for lipid determination; 4 mL passed through GPC cleanup. (4) After GPC sample volume reduced by nitrogen evaportion to 1 mL; (5) followed with alumina, silica cleanup. (6) Collect two fractions; (7) Reduce volumes of both fractions . to 1 mL with N_2 evaporation
7	dry	dry	PCB fraction: shaking w/ H_2SO4 Pesticide Fraction: 7% de-activated Florisil followed by bright Cu for Sulfur
8	wet	wet	GPC -SX-3 biobeads using methylene chloride as mobile phase, alumina column and florosil sep-pak cleanup
9	wet	wet	
10	wet	wet	1. Sulfuric Acid for PCB congeners, HCB, trans-Nonachlor, 4,4'-DDE and 4,4'-DDD. 2. Size exclusion chromatography coupled with normal-phase LC on aminopropylsilane column for the other chlorinated pesticides.
11	wet	wet	Extracts were cleaned up with Silica gel Chromatography, which also separated PCBs and Pesticides into two fractions. Fractions were volume reduced, brought to 1 mL, and analyzed separately.

Lab No.	"Wet" or "dry" samples extracted? Fish III	CRM CARP-1	Sample extract cleanup method
12	wet	wet	The PE extract was dried with sodium sulfate and then eluted through a Florisil column with ~200 mLs of the following solns: petr. ether; 6% ethyl ether/petr. ether, 15% ee/pe and 50% ee/pe.
13	wet	wet	Solvent exchange from acetonitrile to hexane. Cleanup using silica gel column chromatography to give two fractions: fraction 1 = PCBs and 5 low polarity pesticides; fraction 2 = PAHs.
14	wet	wet	florisil, silica gel, sodium sulfate
15	dry	dry	size-exclusion HPLC
16	wet	wet	1) Extracts are filtered and lipid removed by SEC (100% dichloromethane) 2) Extracts are solvent exchanged and fractionated on deactivated silica gel columns
17	wet	wet	Clean-up procedure began with gel permeation chromatography and followed with solid phase extraction (cyanopropyl). After extraction and all clean-up steps, each extract was concentrated to 500 uL on an automatic concentrator (TurboVap).
18	wet		EPA 3640 EPA 3665 (sulfuric acid cleanup)
19	wet	wet	eluted through alumina-silica column and HPLC equipped with GPC column
20	wet	Wet	Raw extracts are eluted through silica/alumina columns. 1% DCM in pentane is used to isolate the non-polar residues including the majority of the PCBs. DCM is used to elute the remaining residues. The DCM fraction is then passed through an HPLC equiped with a polystyrene-divinyl benzene size exclusion column to minimize biological interferences.
21	wet		alumina column followed by size exclusion chromatography by HPLC
22	wet	wet	NOAA Technical Memorandum NOS ORCA 71 Volume IV, Chapter 2

Lab No.		Pesticides	PCB Congeners	Method of quantitation	
1a	Instrument:	GC-ECD	GC-ECD	Pesticides:	IS
	Column Phase:	DB-5	DB-5	PCBs:	IS
	Col. Length, m:	60	60		
	Col. Inner Diameter, mm:	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25		
1b	Instrument:	GC-ECD	GC-ECD	Pesticides:	IS
	Column Phase:	CP SIL 5 C18	CP SIL 5 C18	PCBs:	IS
	Col. Length, m:	100	100		
	Col. Inner Diameter, mm:	0.25	0.25		
	Col. film thickness, µm:	0.1	0.1		
1c	Instrument:	GC-MS	GC-MS	Pesticides:	IS
	Column Phase:	DB-5 MS	DB-5 MS	PCBs:	IS
	Col. Length, m:	60	60		
	Col. Inner Diameter, mm:	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25		
2	Instrument:	GC-ECD	GC-ECD	Pesticides:	IS
	Column Phase:	DB-5	DB-5	PCBs:	IS
	Col. Length, m:	30	30		
	Col. Inner Diameter, mm:	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25		
3	Instrument:	GC-MS	GC-MS	Pesticides:	IS
	Column Phase:	HP-5	HP-5	PCBs:	IS
	Col. Length, m:	30 m	30 m		
	Col. Inner Diameter, mm:	32 mm	32 mm		
	Col. film thickness, µm:	.25 um	.25 um		
4	Instrument:	GC-ECD	GC-ECD	Pesticides:	ES
	Column Phase:	DB-5 & DB-1701	DB-5	PCBs:	ES
	Col. Length, m:	30m	30 m		
	Col. Inner Diameter, mm:	0.25mm	0.25mm		
	Col. film thickness, µm:	0.25 micron	0.25 micron		
6	Instrument:	GC-ECD	Not presently	Pesticides:	ES
	Column Phase:	RTX-5/1701*	doing PCB congeners	PCBs:	NA
	Col. Length, m:	30 m	determinations.		
	Col. Inner Diameter, mm:	0.25 mm			
	Col. film thickness, µm:	25 µm			
7	Instrument:	HP 5890 II	HP 5890 II	Pesticides:	IS
	Column Phase:	RTX-5	RTX-5	PCBs:	IS
	Col. Length, m:	60	60		
	Col. Inner Diameter, mm:	0.32	0.32		
	Col. film thickness, µm:	0.5	0.5		

Summary of Methods Used

Fish Homogenate III QA95FSH3

Lab No.		Pesticides	PCB Congeners	Method of quantitation	
8	Instrument:	GC/ITD	GC/ITD	Pesticides:	ES
	Column Phase:	DB-5MS	DB-5MS	PCBs:	ES
	Col. Length, m:	30 M	30 M		
	Col. Inner Diameter, mm:	0.25 mm	0.25 mm		
	Col. film thickness, µm:	0.25 um	0.25 um		
9	Instrument:	GC-ECD	GC-ECD	Pesticides:	ES
	Column Phase:	DB5/DB608	DB5/DB608	PCBs:	ES
	Col. Length, m:	30	30		
	Col. Inner Diameter, mm:	0.53	0.53		
	Col. film thickness, µm:	0.83	0.83		
10	Instrument:	HP5890	HP5890	Pesticides:	ES
	Column Phase:	DB-5/DB-1701	DB-5/DB-1701	PCBs:	ES
	Col. Length, m:	60/60	60/60		
	Col. Inner Diameter, mm:	0.25/0.25	0.25/0.25		
	Col. film thickness, µm:	0.25/0.25	0.25/0.25		
11	Instrument:	GC-ECD	GC-ECD	Pesticides:	IS
	Column Phase:	DB - 5 J&W	DB - 5 J&W	PCBs:	IS
	Col. Length, m:	30m	30m		
	Col. Inner Diameter, mm:	0.25mm	0.25mm		
	Col. film thickness, µm:	0.25 µm	0.25 µm		
12	Instrument:	GC-ECD		Pesticides:	ES
	Column Phase:	DB5 & DB17		PCBs:	
	Col. Length, m:	60 m			
	Col. Inner Diameter, mm:	0.25 mm			
	Col. film thickness, µm:	0.25 microns			
13	Instrument:	GC-ECD	GC-ECD	Pesticides:	: IS
	Column Phase:	DB-5	DB-5	PCBs:	: IS
	Col. Length, m:	60	60		
	Col. Inner Diameter, mm:	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25		
14	Instrument:	GC-ECD	GC-ECD	Pesticides:	IS
	Column Phase:	J&W DB-625/DB-17	J&W DB-625/DB-17	PCBs:	IS
	Col. Length, m:	30	30		
	Col. Inner Diameter, mm:	0.32mm	0.32mm		
	Col. film thickness, µm:	1.0/0.5	1.0/0.5		
15	Instrument:	HP5890 - II	HP5890 - II	Pesticides:	IS
	Column Phase:	DB5	DB5	PCBs:	IS
	Col. Length, m:	30	30		
	Col. Inner Diameter, mm:	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25		

Lab No.		Pesticides	PCB Congeners	Method of quantitation	
16	Instrument:	GC-ECD	GC-ECD	Pesticides:	IS
	Column Phase:	DB-5/DB-17	DB-5	PCBs:	IS
	Col. Length, m:	30	30		
	Col. Inner Diameter, mm:	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25		
17	Instrument:	GC/ECD	GC/ECD	Pesticides:	IS
	Column Phase:	DB-5 and RTX-50	DB-5 and RTX-50	PCBs:	IS
	Col. Length, m:	30 m	30 m		
	Col. Inner Diameter, mm:	0.25 mm	0.25 mm		
	Col. film thickness, µm:	0.25 micron	0.25 micron		
18	Instrument:	GC-ECD	GC-ECD	Pesticides:	ES
	Column Phase:	DB608/DB1701	DB608/DB1701	PCBs:	ES
	Col. Length, m:	30m	30m		
	Col. Inner Diameter, mm:	0.53	0.53		
	Col. film thickness, µm:	1,1	1,1		
19	Instrument:	NA	GC-MS-SIM	Pesticides:	NA
	Column Phase:	NA	DB5-MS	PCBs:	IS
	Col. Length, m:	NA	30		
	Col. Inner Diameter, mm:	NA	0.32		
	Col. film thickness, µm:	NA	0.25		
20	Instrument:	GC-ECD	GC-ECD	Pesticides:	IS
	Column Phase:	DB-5/DB-17	DB-5/DB-17	PCBs:	IS/ES
	Col. Length, m:	60	60		
	Col. Inner Diameter, mm:	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25		
21	Instrument:	GC/ECD	GC/ECD	Pesticides:	IS
	Column Phase:	DB-5	DB-5	PCBs:	IS
	Col. Length, m:	30 m	30 m		
	Col. Inner Diameter, mm:	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25		
22	Instrument:	GC/ECD	GC/ECD	Pesticides:	IS
	Column Phase:	DB-5	DB-5	PCBs:	IS
	Col. Length, m:	30	30		
	Col. Inner Diameter, mm:	0.32	0.32		
	Col. film thickness, µm:	0.25	0.25		

Summary of Methods Used

Fish Homogenate III QA95FSH3

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatographic analysis	Other(s)
1a-c	Pesticides:	4,4'-DDT d_8	none	none
	PCBs:	PCB 103 and PCB 198	none	none
2	Pesticides:	DBOFB, PCB103, PCB198	TCMX	NA
	PCBs:	DBOFB, PCB103, PCB198	TCMX	NA
3	Pesticides:		anthracene d10, chyrsene d12	no
	PCBs:		anthracene d10, chyrsene d12	no
4	Pesticides:			
	PCBs:			
6	Pesticides:	Not Applicable		
	PCBs:			
7	Pesticides:	Tetrachloro-m-xylene Decachlorobiphenyl	Dibromo-octaflorobiphenyl Dibromo-octaflorobiphenyl	no
	PCBs:	Tetrachloro-m-xylene Decachlorobiphenyl		
8	Pesticides:			
	PCBs:			
9	Pesticides:			
	PCBs:			
10	Pesticides:			
	PCBs:			
11	Pesticides:	2,5-dichloro-m-terphenyl		
	PCBs:	PCB 30 and 198		
12	Pesticides:			
	PCBs:			
13	Pesticides:	: DBOFB, BZ198, OCN		BZ100
	PCBs:	: DBOFB, BZ198, OCN		BZ100 ES, added just prior to GC analysis to calculate recovery of IS.
14	Pesticides:	tetrachlorometaxylene, decachlorobiphenyl	alachlor alachlor	
	PCBs:	tetrachlorometaxylene, decachlorobiphenyl		

Summary of Methods Used

Fish Homogenate III QA95FSH3

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatographic analysis	Other(s)
15	Pesticides:	ronnel	tetrachloro-m-xylene	1,2,3-trichlorobenzene
	PCBs:	4,4'-dibromooctafluoro-biphenyl and BZ #198	BZ #103 and 3,3',4,4'-tetrabromobiphenyl	BZ #192 added before size-exclusion HPLC
16	Pesticides:	gamma-chlordene	4,4'-dibromooctafluorobiphenyl	no
	PCBs:	PCB 103 and PCB-198	4,4'-dibromooctafluorobiphenyl	
17	Pesticides:	dibromooctafluorobiphenyl, PCB congeners 103 and 198	None	N/A
			None	N/A
	PCBs:	dibromooctafluorobiphenyl, PCB congeners 103 and 198		N/A
18	Pesticides:			
	PCBs:			
19	Pesticides:	NA	NA	NA
	PCBs:	4,4'-dibromooctafluoro-biphenyl, 4,4'-dibromobiphenyl	3,3',4,4'-tetrabromobiphenyl	4-terphenyl-d_{14} added prior to extraction of sample
20	Pesticides:	d_8-p,p'-DDD	Dibromo-octafluoro-biphenyl	Pentachloronitrobenzene.
	PCBs:	PCB 103 and PCB 207	Dibromo-octafluoro-biphenyl	added just prior to HPLC cleanup.
21	Pesticides:	Cl3(34), Cl5(103), Cl5(112)	Cl3(29), Cl6(166)	
	PCBs:	Cl3(34), Cl5(103), Cl5(112)	Cl3(29), Cl6(166)	
22	Pesticides:	4,4'-dibromooctafluoro-biphenyl,	tetrachloro-m-xylene	tetrachloro-o-xylene added just prior to clean-up
	PCBs:	4,4'-dibromooctafluoro-biphenyl,	tetrachloro-m-xylene	tetrachloro-o-xylene added just prior to clean-up

Summary of Methods Used **Fish Homogenate III QA95FSH3**

Lab No.	Internal standards/surrogates used for quantitation were added: prior to extraction	after extraction/cleanup and just prior to chromatographic analysis	If used those added just prior to chr. analysis, were results recovery corrected?
1a-c	x		
2	x		
3		x	no
4			
6			
7		x	no
8	surrogates	ISTDs	no
	(Coordinator's note: laboratory used ES for quantitation; used these standards for retention time information only.]		
9			
10			
11	x		
12			
13	x		
14		yes	no
15		x	no
16		x	no
17	yes		
18			
19	yes	no	
20	x		
21	x		
22	x		

Summary of Methods Used

Fish Homogenate III QA95FSH3

Lab No.	Calibration	Pesticides	PCBs	Were PCBs separated from pesticides prior to GC?	Is PCB 132 separated from PCB 153, PCB 105 or both?
1a-c	Points:	5 pts	5 pts	yes	separated
	Range:	2 to 1000 ng/g	2 to 1000 ng/g		
2	Points:	5	5	no	PCB 153
	Range:	5 m- 200 pg/uL	5 m- 200 pg/uL		
3	Points:	6	6	yes	coelutes
	Range:	0.2, 0.5, 1, 2, 6, 12	1, 2, 4, 8, 10, 16		
4	Points:	5	5	yes	PCB105
	Range:	16,32,48,64,80pg	17,33,50,67,83 pg		
6	Points:	3–6	N/A		
	Range:	5–200pg/µl			
7	Points:	3	3	no	Unknown
	Range:	5 - 50 ng/mL	5 - 20 ng/mL		
8	Points:	6 points	4 points	yes	PCB 132 not analyzed
	Range:	2 ng/ml to 80 ng/ml	25 ng/ml to 250 ng/ml		
9	Points:	5	5		
	Range:	5-100 ppb	5-100 ppb		
10	Points:	5	4	no/yes	Yes, separated from both
	Range:	200/5 ng/g	88/2 ng/g		
11	Points:	5	5	yes	PCB 132 coelutes with PCB 153,
	Range:	3-30 pg/ul	3-30 pg/ul		
12	Points:	5		no	
	Range:	0.3-50 pg/uL			
13	Points:	3	3	no	both - We don't measure BZ 132.
	Range:	2-100 pg	2-100 pg		
14	Points:	5	5	no	n/a for PCB132, 105 and 153 do not coelute
	Range:	25-400ng/ml	25-400ng/ml		
15	Points:	1	1	no	BZ #132 not analyzed
	Range:	0.05	0.05		
16	Points:	4	4	yes	PCB 132 coelutes with PCB 153
	Range:	1 - 100 ng/mL	1 - 100ng/mL		

Summary of Methods Used

Fish Homogenate III QA95FSH3

Lab No.	Calibration	Pesticides	PCBs	Were PCBs separated from pesticides prior to GC?	Is PCB 132 separated from PCB 153, PCB 105 or both?
17	Points: Range:	3 1, 10 and 30 pg/uL	3 1, 10 and 30 pg/uL	no	Using dual columns, it appears that PCB 132 was separated from both PCB 153 and PCB 105.
18	Points: Range:	5 0.005 TO 0.05 ppm	5 0.05 TO 0.5 ppm	no	unknown
19	Points: Range:	NA NA	5 2 TO 500 ng/g	no	separated
20	Points: Range:	5 to 7 ~0.001-0.5 ng/uL	6 ~0.001-0.3ng/uL	Samples were fractionated by polarity.	132/105 are partially resolved on DB-5.
21	Points: Range:	5 0.008 ng/uL to 0.12 ng/uL	5 0.008 ng/uL to 0.12 ng/uL	no	Separated, not baseline
22	Points: Range:	6 0.001-0.500ng/µL	6 0.001-0.500ng/µL	no	Coelutes with PCB 153.

Appendix H: Laboratory Methods Used, Sediment V

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No./ Reporting Date	Approximate amount of sample extracted:		Procedure used to determine percentage water
1a-c 11/15/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	2 10	freeze drying + gravimetric.
3 09/26/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	17 6	A portion of the sample was weighed, dried at 120 C overnight, and cooled in a desicator. (Pan weight + wet weight of sample)-(dry weight of sample + pan) = dry weight of sediment. (Wet weight - Dry weight) /wet weight X 100% = % Moisture.
4 9/25/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)		NIST sample bottle was weighed and then freeze dried for about 48 hrs. The bottle with sample was weighed . Percent moisture: ((Sample wet wt. - Sample dry weight)/ Sample wet wt.)*100
5 9/27/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	5 5	gravimetric
6 9/29/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	14	Residual water is poured off after centrifugation. Sample is placed on drying balance.
7 9/29/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	18 NA	Due to an analyst error, the percent water determination was not made. All results are given in wet weights. ***Coordinators note: Results converted to dry basis for comparison in exercise.***
8 9/29/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	19 20	Dry weights were not determined because all of the sample was extracted ***Coordinators note: Results converted to dry basis for comparison in exercise.***
9 9/15/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	3 3	
10 10/17/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	18.5 10	1) Approx. 1 g of wet sample was weighed 2) oven dried overnight at approx. 120 degree C 3) weighed again
11 10/17/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	6 3	Weighed approximately 2 grams of sample into a preweighed aluminum pan and dried for 24 hours in an oven set at 120 degrees centigrade to get the dry weight. To calculate the percent of water the dry weight was divided by the wet weight and multiplied by 100 ***(Coordinator's note: This calculation yields % dry basis; reported results subtracted from 100 to get % moisture.)***

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No./ Reporting Date	Approximate amount of sample extracted:		Procedure used to determine percentage water
12 10/16/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)		~ 3g sample placed in a tared aluminum weighing dish, dried at 70 deg C for 48 hours; then placed in a desicator to cool prior to determining percent moisture
13 9/27/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	3.5 2	Heat at 110-120 deg. C. to constant dry weight.
14 10/2/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	15 10.41	AMRL
15 10/2/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	10 7.5	Approximately 1 g of sample was weighed into a previously weighed aluminum milk boat. Samples were then wrapped loosely in aluminum foil and dried for 12 hours in a 200 C oven. Samples were transferred from oven to desiccator, allowed to cool for 1 hour, and then weighed again.
17a 9/29/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	1.1 0.5	Between 0.8 and 1.7 grams of sample were weighed into aluminum weighing pans. The pan with the sample was then placed into an aluminum foil envelope and allowed to dry for 24 hours at 100 C.
17b 9/29/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	1.1 0.5	Between 0.8 and 1.7 grams of sample were weighed into aluminum weighing pans. The pan with the sample was then placed into an aluminum foil envelope and allowed to dry for 24 hours at 100 C.
18 10/6/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	10-SV 6-PEST/P 10	EPA 160.3
21 10/15/95	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	15 5	Weigh aliquot (to nearest 0.01 g) into aluminum weighing pan. Dry overnight at 105 C, weigh. Re-dry overnight. Re-weigh. Average of 2 "dry weights" used to calculate percent moisture
22 11/21/91	Sediment V, g (wet basis) SRM 1941a, g (dry basis)	2 2	Gravimetric oven drying.

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.	Extraction method	Extraction solvent	Extraction time
1a-c	Soxhlet	dichloromethane	16- 20 hrs
3	Soxhlet Extraction Samples were dried with anhydrous sodium sulfate prior to extraction	dichloromethane	18 hours
4	Soxhlet extraction	methylene chloride	16 hrs
5	Samples are agitated on a rock tumbler.	methylene chloride	16 hrs, 6 hrs, 16 hrs
6	Soxhlet extraction of sample/sodium sulfate mixture.	93%/7% methylene chloride/methanol	Overnight (~16 hours)
7	Sonication	1:1 DCM/acetone 50 mL	2 minutes x 4 replicates on 50% duty cycle
8	Method 3550 sonication	50/50 v/v methylene chloride/acetone	3 x 3 min
9	Soxhlet extraction	2:1 methylene chloride:acetone	20 h
10	soxhlet	methylene chloride.	18 h
11	Microwave Assisted Extraction	30 mls of methylene chloride.	15 min microwave extraction at 115 C and ~1 h to cool to room temperature.
12	Orbit shaker Cleaned sodium sulfate and granular copper is added to wet sediment and mixed until sample is dry.	~150 mL of 1:1 hexane:acetone	2 x 2 hr filtered after each
13	Reflux wet sample and solvent	Acetonitrile	2 h
14	EPA 3550	methylene chloride, acetone, hexane	2 h/sample including cleanup
15	soxhlet	methylene chloride	36 h

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.	Extraction method	Extraction solvent	Extraction time
17a-b	The sample was mixed with 100 g of anhydrous sodium sulfate and Soxhlet extracted for 18 hours.	250 mL methylene chloride	18 h
18	EPA 3540 final solvent semivolatiles: MeCl2 pest/PCB: hexane	MeCl2:acetone, 1:01	18 h
21	Peven and Uhler, 1993 (from NOAA Technical Memorandum NOS/ORCA/CMBAD 71 Vol. IV	methylene chloride	16.5 h total shake
22	NOAA Technical memorandum NOS ORCA 71 Volume IV, Chapter 2	methylene chloride	

DCM=dichloromethane

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.	Wet or "dry" samples extracted? Sediment V	SRM 1941a	Sample extract cleanup method
1a-c	wet	dry	copper powder for sulfur removal silica SPE column - cleaned and eluted with 15 mL of 10% methylene chloride in hexane normal phase LC using an aminopropylsilane column for the PAHs and for the PCB congeners and pesticides.
3	wet	wet	Extracts were cleaned up using high performance GPC on porous styrene divinylbenzene copolymer gel to remove sulfur and lipids. The extracts werethen fractionated using semipreparative aminosilane HPLC.
4	dry	dry	After Soxhlet extraction, the extract was K-D concentrated to about 5 ml Silica gel column chromatography, copper treatment to remove sulfur and concentrated sulfuric acid treatment (for PCBs fraction) were performed.
5	wet	dry	Isolation of PAHs on silica gel/alumina chromatography column. Extract purification by GPC
6	wet	dry	(1) GPC; (2) solvent exchange into hexane; (3) fractionated on alumina, silica cleanup column; (4) First fraction is eluted with hexane and second fraction is eluted with acetone/hexane (v/v)
7	dry	NA	PCB fraction: shaking w/ H2SO4 Pesticide Fraction: 7% de-activated Florisil followed by bright Cu for sulfur
8	wet	dry	PAHs: GPC - SX-3 biobeads using Mecl2 as mobile phase
9	wet	dry (as received)	
10	wet	dry	1. Sulfuric Acid for PCB congeners and most of chlorinated pestcides 2. Size exclusion /LC on aminopropylsilane column for some of chlorinated pesticides
11	wet	dry	Extractions were cleaned up with Silica Gel Chromatography, which separated PCBs from pesticides and PAHs into two fractions. Fractions were volume reduced, exchanged to hexane, brought to 1 mL, and analyzed separately.
12		dry	Extract eluted through Florisil column with 230 mL petr. ether and 200 mL 50% ethyl ether/petr. ether. Extracts evaporated to 10 mL final volume.
13	wet	wet	Solvent exchange from acetonitrile to hexane. Cleanup using silica gel column chromatography to give two fractions: fraction 1 = PCBs and 5 low polarity pesticides; fraction 2 = PAHs.
14	wet	wet	AMRL, sodium sulfate/copper

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.	Wet or "dry" samples extracted? Sediment V	SRM 1941a	Sample extract cleanup method
15	dry	dry	size-exclusion HPLC
17a-b	wet	dry	Clean-up procedure began with gel permeation chromatography and followed with activated copper and solid phase extraction (aminopropyl). After extraction and all clean-up steps, each extract was concentrated to 500 uL on an automatic concentrator (TurboVap)
18	wet	dry	EPA 3640 EPA 3660 (copper) for pest/PCB EPA 3665 (sulfuric acid cleanup) for pest/PCB
21	wet	dry	alumina cleanup column followed by HPLC/size exclusion chromatography
22	dry	dry	NOAA Technical Memorandum NOS ORCA 71 Volume IV, Chapter 2 NOS ORCA 71 Volume IV, Chapter 2

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.		PAH	Pesticides	PCB Congeners	Method of quantitation	
1a	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	IS
	Column Phase:	DB-5 MS	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	60	60	60	PCBs:	IS
	Col. Inner Diameter, mm:	0.25	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25	0.25		
1b	Instrument:		GC-ECD	GC-ECD	PAH	
	Column Phase:		C-18	C-18	Pesticides:	IS
	Col. Length, m:		100	100	PCBs:	IS
	Col. Inner Diameter, mm:		0.32	0.32		
	Col. film thickness, µm:		0.1	0.1		
1c	Instrument:		GC-MS	GC-MS	PAH	
	Column Phase:		DB-5 MS	DB-5 MS	Pesticides:	IS
	Col. Length, m:		60	60	PCBs:	IS
	Col. Inner Diameter, mm:		0.25	0.25		
	Col. film thickness, µm:		0.25	0.25		
3	Instrument:	GC-MS (scan)	GC-MS (SIM)	GC-MS (SIM)	PAH	IS
	Column Phase:	HP-5	HP-5	HP-5	Pesticides:	IS
	Col. Length, m:	30	30	30	PCBs:	IS
	Col. Inner Diameter, mm:	32	32	32		
	Col. film thickness, µm:	0.25	0.25	0.25		
4	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	ES
	Column Phase:	DB-5	DB-5, DB1701	DB-5	Pesticides:	ES
	Col. Length, m:	30	30	30	PCBs:	ES
	Col. Inner Diameter, mm:	0.25	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25	0.25		
5	Instrument:	GC-MSD			PAH	IS
	Column Phase:	phenyl methyl silicone			Pesticides:	
	Col. Length, m:	25			PCBs:	
	Col. Inner Diameter, mm:	0.2				
	Col. film thickness, µm:	0.33				
6	Instrument:	GC-MS	GC-ECD	N/A	PAH	IS
	Column Phase:	5% phenyl–*	RTX-5/1701		Pesticides:	
	Col. Length, m:	25	30		1st fraction:	ES
	Col. Inner Diameter, mm:	0.2	0.25		2nd fraction:	IS
	Col. film thickness, µm:	0.33	0.25		PCBs:	N/A
7	Instrument:	NA	HP 5890 II	HP 5890 II	PAH	NA
	Column Phase:	NA	RTX-5	RTX-5	Pesticides:	IS
	Col. Length, m:	NA	60	60	PCBs:	IS
	Col. Inner Diameter, mm:	NA	0.32	0.32		
	Col. film thickness, µm:	NA	0.5	0.5		

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.		PAH	Pesticides	PCB Congeners	Method of quantitation	
8	Instrument:	GC/MS			PAH	IS
	Column Phase:	DB-5			Pesticides:	
	Col. Length, m:	30			PCBs:	
	Col. Inner Diameter, mm:	0.25				
	Col. film thickness, µm:	0.25				
9	Instrument:	GCMS	GC/FCD	GC/FCD	PAH	IS
	Column Phase:	DB5	DB/DB608	DB/DB608	Pesticides:	ES
	Col. Length, m:	30	30	30	PCBs:	ES
	Col. Inner Diameter, mm:	0.25	0.53	0.53		
	Col. film thickness, µm:	0.25	0.83	0.83		
10	Instrument:		HP5890	HP5890	PAH	NA
	Column Phase:		DB-5/DB-1701	DB-5/DB-1701	Pesticides:	ES
	Col. Length, m:		60/60	60/60	PCBs:	ES
	Col. Inner Diameter, mm:		0.25/0.25	0.25/0.25		
	Col. film thickness, µm:		0.25/0.25	0.25/0.25		
11	Instrument:	GC-MSD	GC-ECD	GC-ECD	PAH	IS
	Column Phase:	DB-5(J&W)	DB-5(J&W)	DB-5(J&W)	Pesticides:	IS
	Col. Length, m:	30	30	30	PCBs:	IS
	Col. Inner Diameter, mm:	0.25	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25	0.25		
12	Instrument:		GC-ECD		PAH	
	Column Phase:		DB5 & DB17		Pesticides:	ES
	Col. Length, m:		60		PCBs:	
	Col. Inner Diameter, mm:		0.25			
	Col. film thickness, µm:		0.25			
13	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	IS
	Column Phase:	DB-5MS	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	30	60	60	PCBs:	IS
	Col. Inner Diameter, mm:	0.25	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25	0.25		
14	Instrument:	GC/MS	GC-ECD	GC-ECD	PAH	IS
	Column Phase:	J&W DB-625	J&W DB-5/DB-17	J&W DB-5/DB-17	Pesticides:	IS
	Col. Length, m:	30	30	30	PCBs:	IS
	Col. Inner Diameter, mm:	0.32	0.32	0.32		
	Col. film thickness, µm:	0.25	1/0.5	1/0.5		
15	Instrument:	HP5890 - MSD	HP5890 - II	HP5890 - II	PAH	IS
	Column Phase:	HP-5	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	30	30	30	PCBs:	IS
	Col. Inner Diameter, mm:	0.25	0.25	0.25		
	Col. film thickness, µm:	0.5	0.25	0.25		

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.		PAH	Pesticides	PCB Congeners	Method of quantitation	
17a	Instrument:	HPLC/FL	GC/ECD	GC/ECD	PAH	IS
	Column Phase:	Supelcosil LC-PAH	DB-5 & RTX-50	DB-5 & RTX-50	Pesticides:	IS
	Col. Length, m:	25cm	30	30	PCBs:	IS
	Col. Inner Diameter, mm:	4.5 mm	0.25 mm	0.25 mm		
	Col. film thickness, µm:	N/A	0.25	0.25		
17b	Instrument:	GC/Ion Trap MS			PAH	IS
	Column Phase:	DB5-MS ITD			Pesticides:	
	Col. Length, m:	30			PCBs:	
	Col. Inner Diameter, mm:	0.25				
	Col. film thickness, µm:	0.25				
18	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	IS & ES
	Column Phase:	DB5	DB608/DB1701	DB608/DB/1701	Pesticides:	ES
	Col. Length, m:	30	30	30	PCBs:	ES
	Col. Inner Diameter, mm:	0.25	0.53	0.53		
	Col. film thickness, µm:	0.25	1,1	1,1		
21	Instrument:	GC/MS	GC/ECD	GC/ECD	PAH	IS
	Column Phase:	DB5-MS	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	30 m	30 m	30 m	PCBs:	IS
	Col. Inner Diameter, mm:	0.25	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25	0.25		
22	Instrument:	GC/MS	GC/ECD	GC/ECD	PAH	IS
	Column Phase:	DB-5	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	30	30	30	PCBs:	IS
	Col. Inner Diameter, mm:	0.32	0.32	0.32		
	Col. film thickness, µm:	0.25	0.25	0.25		

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatographic analysis	Other(s)
1a-c	PAH:	biphenyl-d10, phenanthrene-d10, fluoranthene-d10, dibenz[ah]anthracene-d14, benz[a]anthracene-d12, naphthalene-d8, acenaphthene-d10, pyrene-d10, benzo[a]pyrene-d12, perylene-d12, benzo[ghi]perylene-d12		
	Pesticides:	4,4'-DDT-d10		
	PCBs:	PCB 103, PCB 198		
3	PAH:	bromononane, octanophenone, dibromobiphenyl, isodrin	anthracene d10, chyrsene d12	no no
	Pesticides:	bromononane, octanophenone, dibromobiphenyl, isodrin	anthracene d10, chyrsene d12	no
	PCBs:	bromononane, octanophenone, dibromobiphenyl, isodrin	anthracene d10, chyrsene d12	
4	PAH:			
	Pesticides:			
	PCBs:			
5	PAH:	deuterated naphthalene, acenaphthene, phenanthrene, chrysene, benzo[a]pyrene, perylene	HMB	deuterated anthracene, benz[a]anthracene added just prior to GPC purification
	Pesticides:			
	PCBs:			
6	PAH:	nitrobenzene d5; 2-fluorobiphenyl; terphenyl d14	naphthalene -d8; acenaphthene-d10; phenanthrene-d10; crysene-d12; perlyene-d12	benzo-e-pyrene-d12 Added before GPC cleanup
	Pesticides:	3,5-dichloro biphenyl; 2,2',3,4,4',5,6,6'-octachlorobiphenyl; alpha-d6-HCH (surrogates)	tetrachloro-m-xylene; decachlorobiphenyl (IS 2nd fraction, only)	
	PCBs:			
7	PAH:	NA	NA	
	Pesticides:	Tetrachloro-m-xylene Decachlorobiphenyl	Dibromo-octaflorobiphenyl	
	PCBs:	Tetrachloro-m-xylene Decachlorobiphenyl	Dibromo-octaflorobiphenyl	
8	PAH:	surrogates (2-fluorophenol, d5-phenol, d5-nitrobenzene, d4-2-chlorophenol, d4-1,2-dichlorobenzene, d14-terphenyl, 2-fluorobiphenyl, 2,4,6-tribromophenol)	ISTDS (d4-1,4 dichlorobenzene, d8-naphthalene, d10-phenanthrene, d10-acenaphthalene, d12-chrysene, d12-perylene)	
	Pesticides:			
	PCBs:			

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatographic analysis	Other(s)
9	PAH:		phenathrene-d10;chrysene-d12; perylene-d12;acenaphthene; naphthalene-d8;1,2-diichlorobenzene-d4	
	Pesticides:			
	PCBs:			
10	PAH:			
	Pesticides:			
	PCBs:			
11	PAH:	d10-phenanthrene, d12- benz(a)anthracene, d12-perylene		
	Pesticides:	2,5-dichloro-m-terphenyl		
	PCBs:	PCB 198 and PCB 30		
12	PAH:			
	Pesticides:			
	PCBs:			
13	PAH:	NAP-d8, BIP-d10, ACT-d10, ANT-d10, PER-d12		o-terphenyl BZ100
	Pesticides:	: DBOFB, BZ198, OCN		BZ100
	PCBs:	: DBOFB, BZ198, OCN		ES, added just prior to GC analysis to calculate recovery of IS.
14	PAH:	nitrobenzene, 2-fluorobiphenyl, terphenyl d14	1,4-dichlorobenzene-d4, naphthalene-d8, acenaththene-d10, phenanthrene-d10, chrysene-d12, perylene-d12	
	Pesticides:	tetrachloro-m-xylene, decachlorobiphenyl	alachlor	
	PCBs:	tetrachloro-m-xylene, decachlorobiphenyl	alachlor	
15	PAH:	naphthalene-d8, acenaphthylene-d8, pyrene-d10, benzo(g,h,i)perylene-d12	acenaphthene-d10, phenanthrene-d10, perylene-d12	chrysene-d12 1,2,3-trichlorobenzene
	Pesticides:	ronnel	tetrachloro-m-xylene	BZ #192
	PCBs:	4,4'-dibromooctafluorobiphenyl and BZ #198	BZ #103; 3,3',4,4'-tetrabromobiphenyl	before size-exclusion HPLC
17a	PAH:	d- phenanthrene, d-fluoranthene, d-perylene	None	
	Pesticides:	dibromooctafluorobiphenyl , PCB 103, PCB 198	None	
	PCBs:	dibromooctafluorobiphenyl , PCB 103, PCB 198	None	

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatographic analysis	Other(s)
17b	PAH:	d8-naphthalene, d10-acenaphthene, d10-phenanthrene, d10-fluoranthene, d12-perylene	None	
	Pesticides:		None	
	PCBs:		None	
18	PAH:	ISOTOPES (see note 1)	2,2'-Difluorobiphenyl	
	Pesticides:			
	PCBs:			
21	PAH:	Naphthalene-d8, acenaphthene-d10, chrysene-d12	Fluorene-d10, phenanthrene-d10, benzo[a]pyrene-d12	
	Pesticides:	Cl3(34), Cl5(103), Cl5(112)	Cl3(29), Cl6(166)	
	PCBs:	Cl3(34), Cl5(103), Cl5(112)	Cl3(29), Cl6(166)	
22	PAH:	naphthalene-d8, ancenaphthlene-d10, ben:	hexamethylbenzene	phenanthrene-d10, biphenyl-d10, fluorene-d10
	Pesticides:	4,4-dibromooctafluorobiphenyl	tetrachloro-m-xylene	tetrachloro-o-xylene
	PCBs:	4,4-dibromooctafluorobiphenyl	tetrachloro-m-xylene	tetrachloro-o-xylene just prior to HPLC clean-up

Summary of Methods Used **Marine Sediment V QA95SED5**

Lab No.	Internal standards/surrogates used for quantitation were added: prior to extraction	after extraction/cleanup and just prior to chromatographic analysis	If used those added just prior to chr. analysis, were results recovery corrected?
1a-c	yes		
3	no	yes	yes
4	x ? ES mode reported		
5	x		
6		x	no
7		x	no
8		x	no
9		x	no
10			
11	x		
12			
13	x		
14		yes	no
15		x	no
17a	yes		
17b	yes		
18	x	x	no
21	x		
22	x		

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.	Calibration	PAH	Pesticides	PCBs
1a-c	Points:	6	6	6
	Range:	10-10,000 ng/g	1-250 ng/g	1-250 ng/g
3	Points:	6	6	6
	Range:	2,4,8,16,24,40	0.2,0.5,1.0,2.0,6.0,12.0	1,2,4,8,10,16
4	Points:	5	6	5
	Range:	0.75,3.75,7.5,15,30	8,16,32,48,64,80pg	8.6, 33.3, 49.9, 66.5 and 83.2pg
5	Points:	5		
	Range:	6 - 1800 ng/g		
6	Points:	6	6	
	Range:	25–1000 ng/g	5–200 pg/µL	
7	Points:	NA	3	3
	Range:	NA	5 - 50 ng/mL	5 - 20 ng/mL
8	Points:	6 points		
	Range:	2.5 ng/ul to 80 ng/ul		
9	Points:	5	5	5
	Range:	20-100 ppm	5-100 ppb	100-1000 ppb
10	Points:		5	4
	Range:		200/5 ng/g	88/2 ng/g
11	Points:	5	5	5
	Range:	0.5-20 ng/ul	3-30 pg/ul	3-30 pg/ul
12	Points:		five	
	Range:		0.3-50 pg/uL	
13	Points:	4	3	3
	Range:	5- 40 ng	2-100 pg	2-100 pg
14	Points:	5	5	5
	Range:	25-400UG/ML	25-400NG/ML	25-400 ng/mL
15	Points:	1	1	1
	Range:	0.5	0.05	0.05
17a	Points:	1	3	3
	Range:	.35 ng/ uL	1, 10 and 30 pg/uL	1, 10 and 30 pg/uL
17b	Points:	6		
	Range:	0.1ng - 6.6 ng		

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.	Calibration	PAH	Pesticides	PCBs
18	Points:	5	5	5
	Range:	1,5,10,20,50 PPM	.005 TO .05 PPM	.05 TO 0.5 PPM
21	Points:	6	5	5
	Range:	0.05 ng/uL to 5 ng/uL	0.008 ng/uL to 0.12 ng/uL	0.008 ng/uL to 0.12 ng/uL
22	Points:		6	6
	Range:		0.001-0.500 ng/µL	0.001-0.500 ng/µL

Summary of Methods Used

Marine Sediment V QA95SED5

Lab No.	Were PCBs separated from pesticides prior to GC?	Is PCB 132 separated from PCB 153, PCB 105 or both?	Differences in procedures used for SRM 1941a from those for described Marine Sediment V
1a-c	yes	from both	
3	yes		
4	yes	coelutes with PCB-105	Marine Sediment V was freeze dried, prior to extraction
5			none
6	yes	N/A	
7	no	unknown	Due to a shipping error at NIST SRMP we did not receive SRM 1941a in time to analyze it with these samples. The sediment samples were analyzed concurrent with the tissue samples and CRM Carp-1.
8			none
9	N/A	N/A	None
10	no/yes	Yes, separated from both	
11	yes	PCB 132 coelutes with PCB153	SRM1941a was brought to the same moisture level as the marine sediment prior to the microwave extraction.
12	no		
13	no	both - We don't measure BZ132.	none
14	no	105 and 153 are separate,	none
15	no	BZ #132 not analyzed	
17a-b	No	Using dual columns, it appears that PCB 132 was separated from both PCB 153 and PCB 105.	The same procedure was used for both SRM 1941a and Marine Sediment V.
18	no	unknown	1941a was extracted dry, Marine Sediment V was extracted wet.
21	no	separated (not baseline - approx. 30%)	none
22	NO	Coelutes with PCB 153	none

Appendix I: Charts of Fish III and CRM CARP-1 Results by Analyte

See Tables 2 and 3 and Appendix C for results reported as <*number*, DL, etc.
Charts for analytes with few reported numerical results are not included in this appendix.

For Fish III plots:

Solid line:	exercise assigned value
Dotted line:	$z = \pm 1$, I. e., 25% from assigned value
Dotted/dashed line:	$z = \pm 2$, I. e., 50% from assigned value
Dashed line:	$z = \pm 3$, I. e., 75% from assigned value

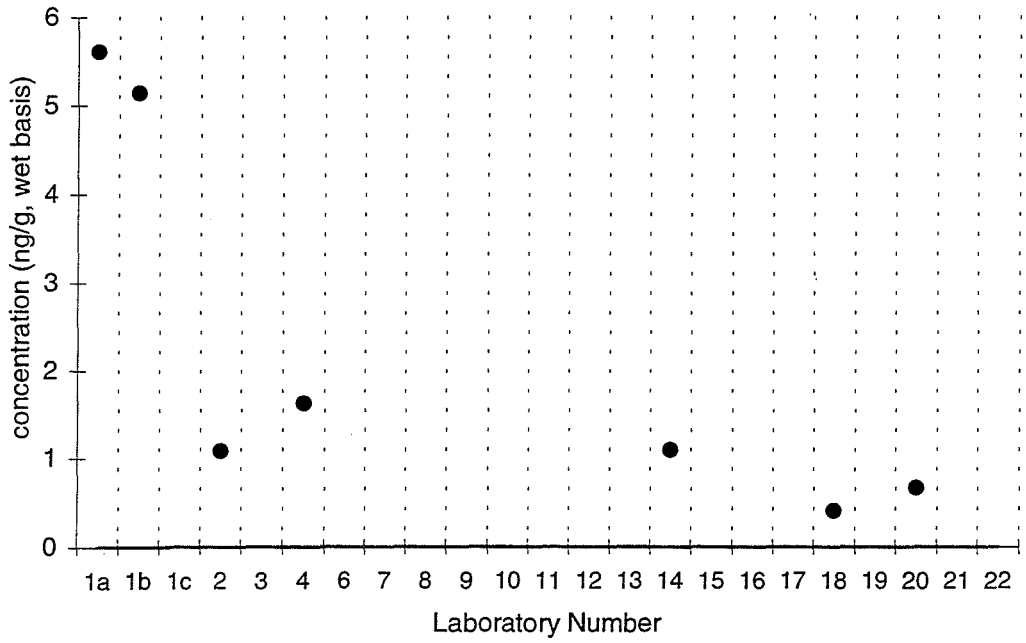
For CRM CARP-1 plots:

Solid line:	material certified concentration or target value (see caption of each plot)
Dotted line:	95% confidence limits
Dashed line:	30% from 95% confidence limits

alpha-HCH — Fish Homogenate III (QA95FSH3)

Assigned value = <6 ng/g (wet basis)

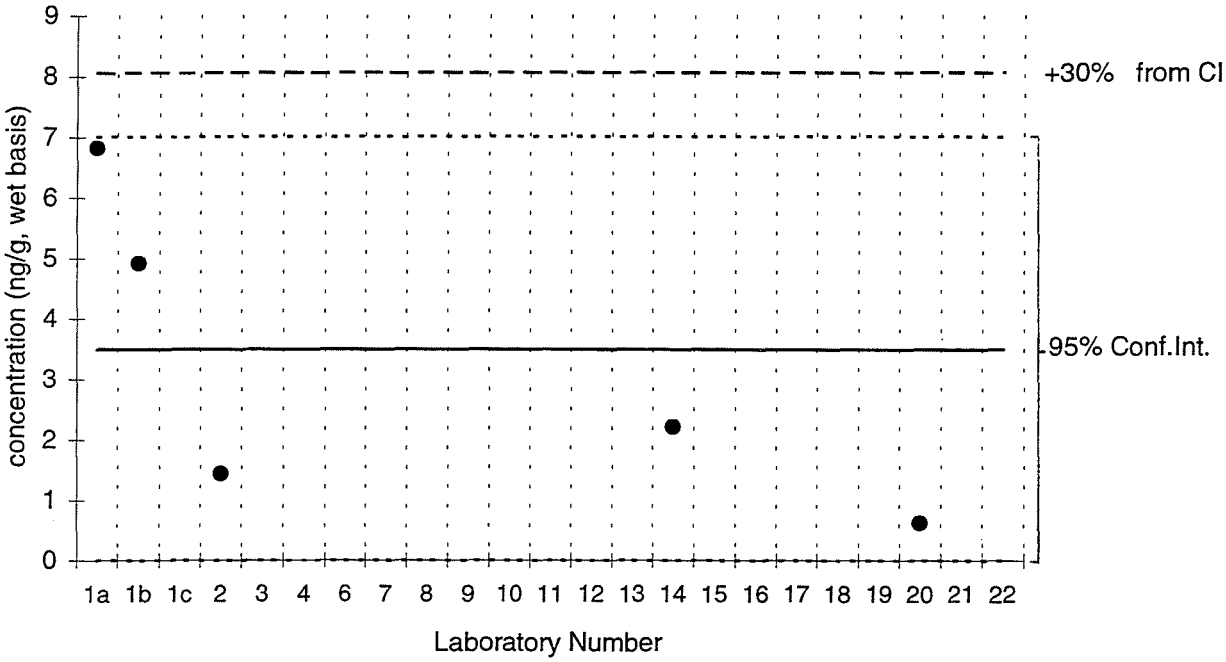
Reported Results: 14 Quantitative results: 7



alpha-HCH — CRM CARP-1

Target Value = 3.5 ± 3.5 ng/g (wet basis)

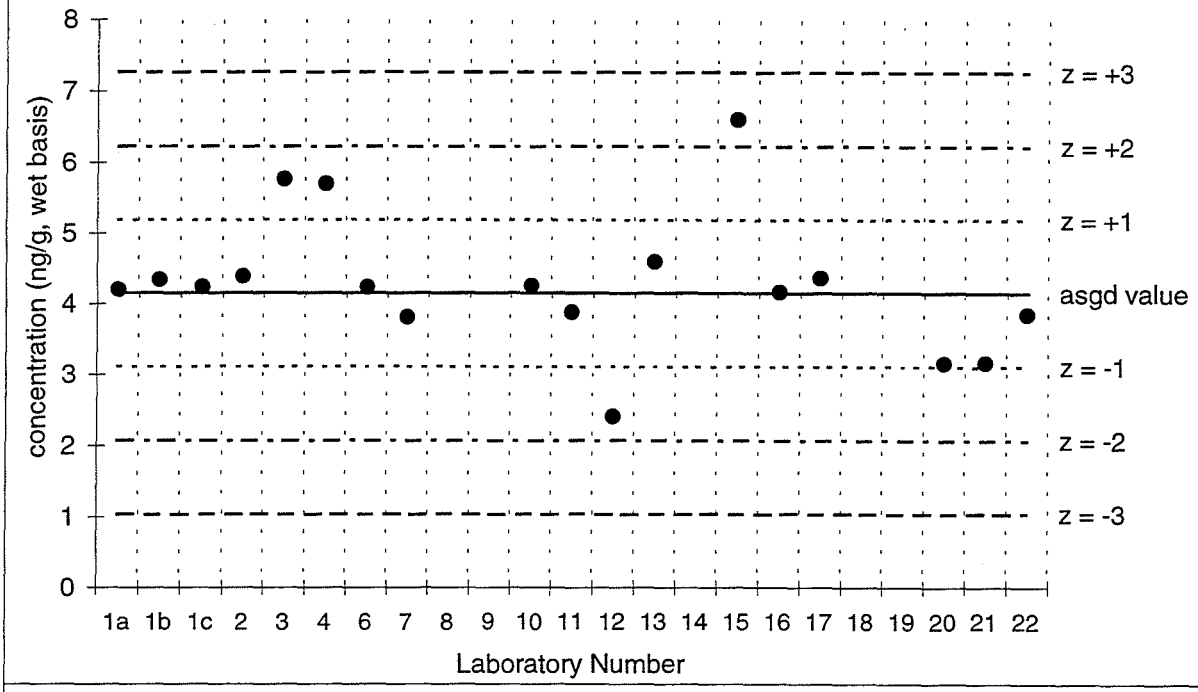
Reported Results: 13 Quantitative Results: 5



hexachlorobenzene — Fish Homogenate III (QA95FSH3)

Assigned value = 4.16 ng/g s = 0.81 ng/g 95% CL = 0.42 ng/g (wet basis)

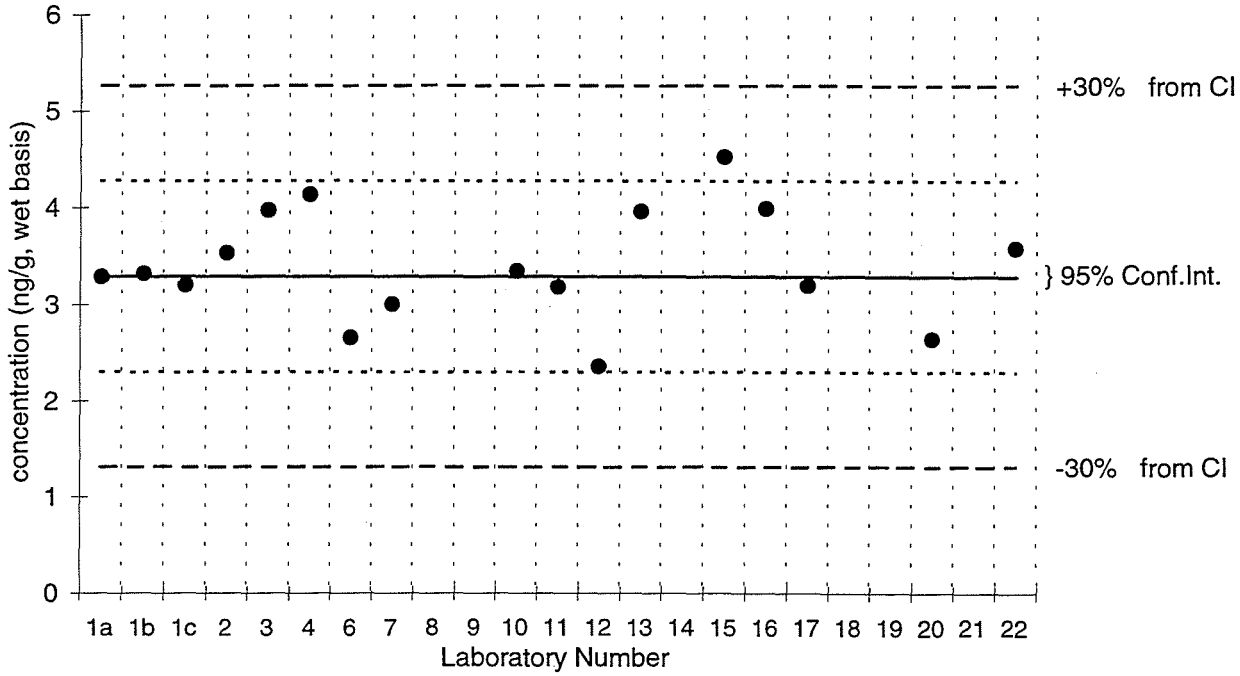
Reported Results: 19 Quantitative results: 18



hexachlorobenzene — CRM CARP-1

Target Value = 3.30 ± 0.99 ng/g (wet basis)

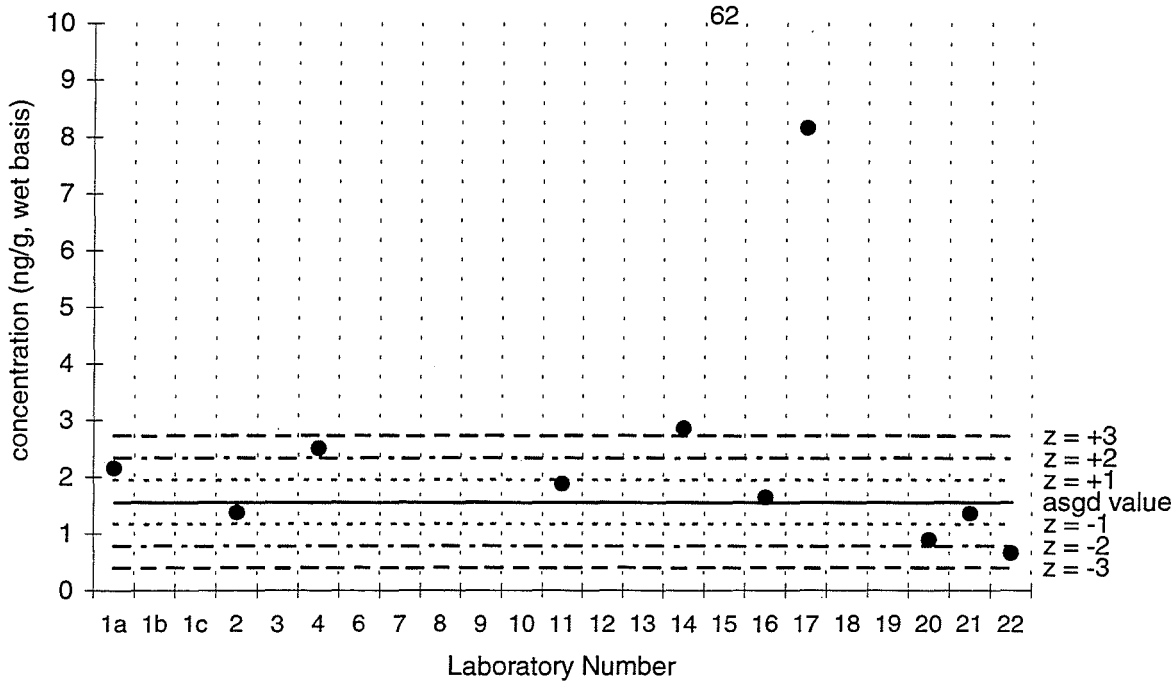
Reported Results: 17 Quantitative Results: 17



gamma-HCH — Fish Homogenate III (QA95FSH3)

Assigned value = 1.55 ng/g s = 0.62 ng/g 95% CL = 0.51 ng/g (wet basis)

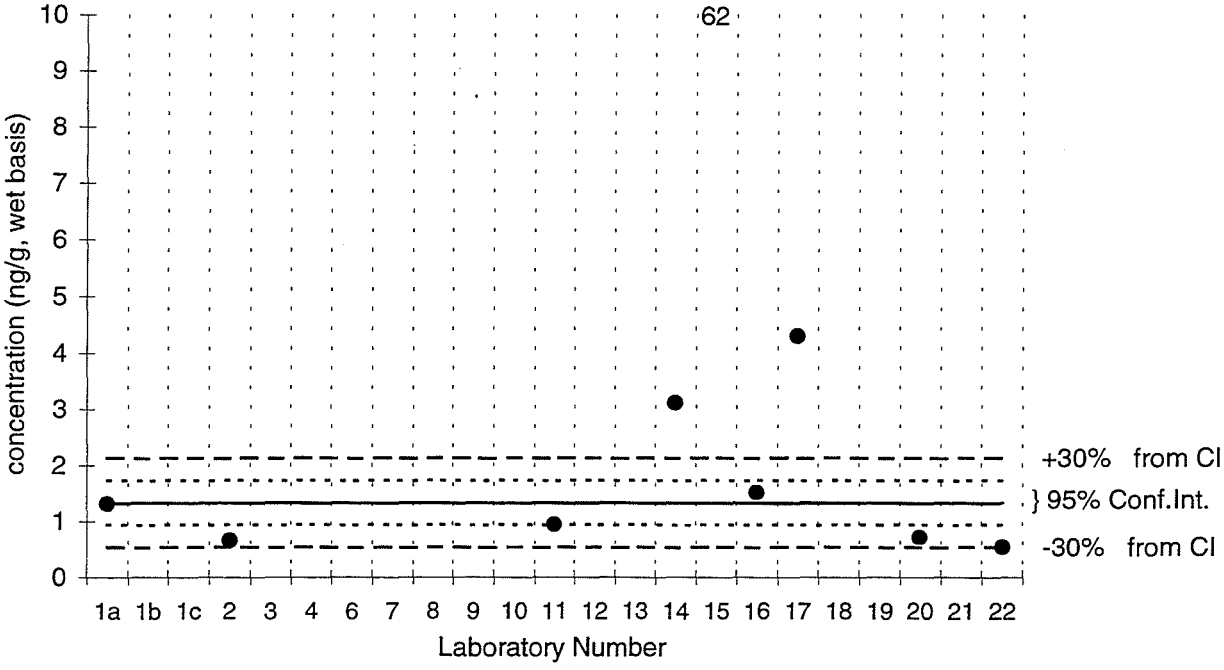
Reported Results: 20 Quantitative results: 11



gamma-HCH — CRM CARP-1

Target Value = 1.33 ± 0.40 ng/g (wet basis)

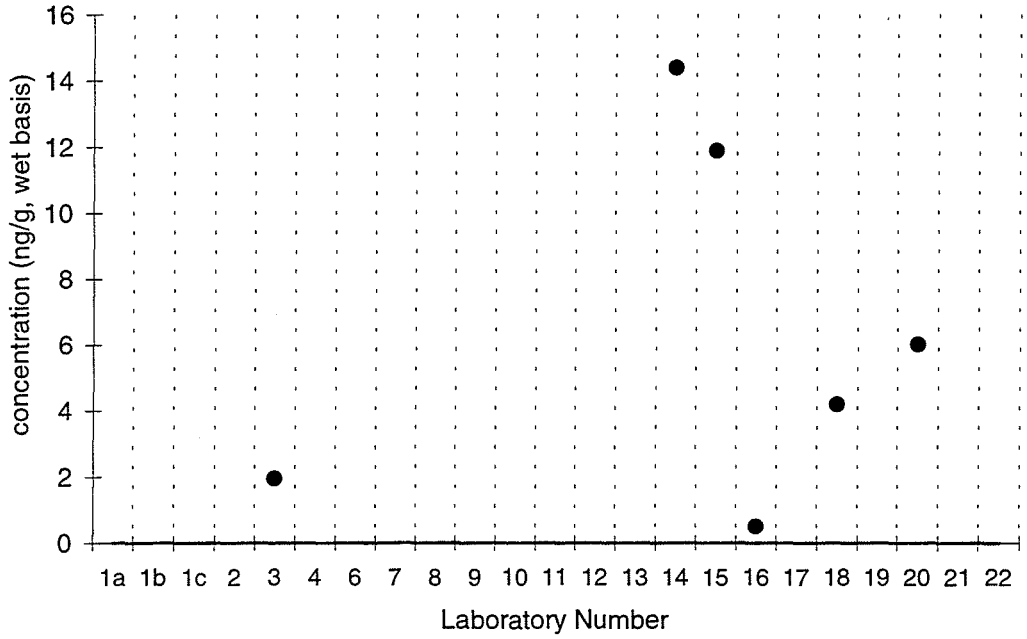
Reported Results: 18 Quantitative Results: 9



heptachlor **Fish Homogenate III (QA95FSH3)**

Assigned value = <5 ng/g (wet basis)

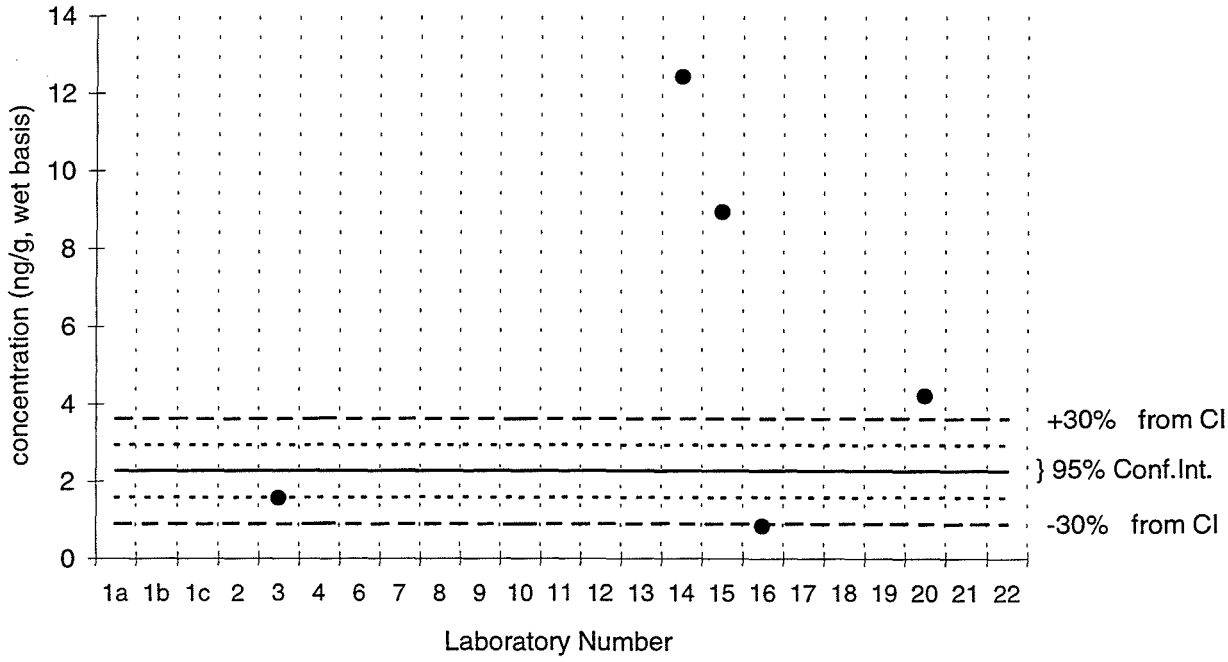
Reported Results: 20 Quantitative results: 6



heptachlor **CRM CARP-1**

Target Value = 2.28 ± 0.68 ng/g (wet basis)

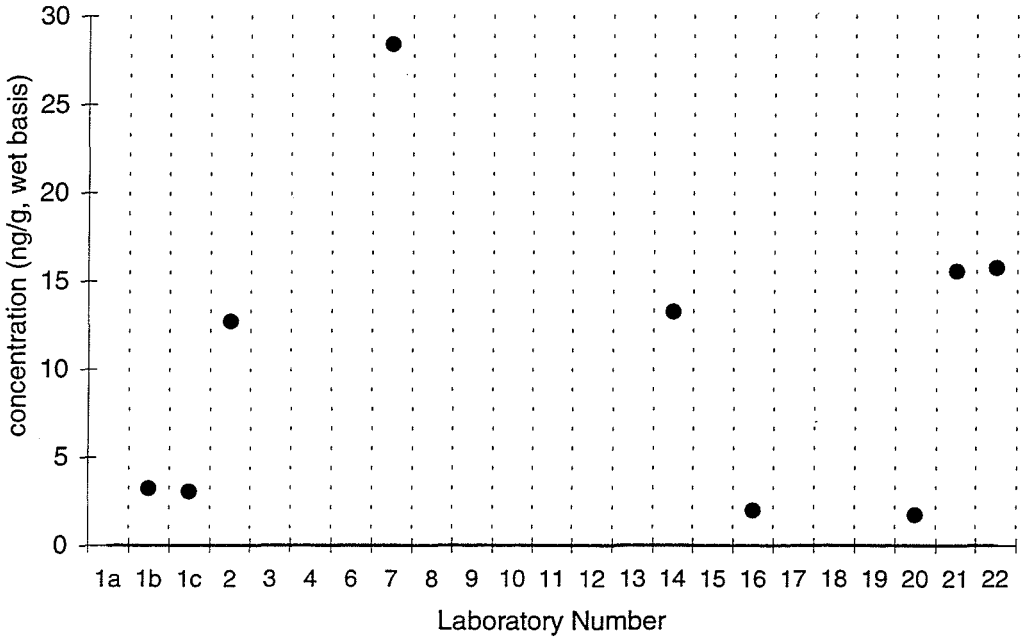
Reported Results: 18 Quantitative Results: 5



heptachlor epoxide **Fish Homogenate III (QA95FSH3)**

Assigned value = <4 ng/g (wet basis)

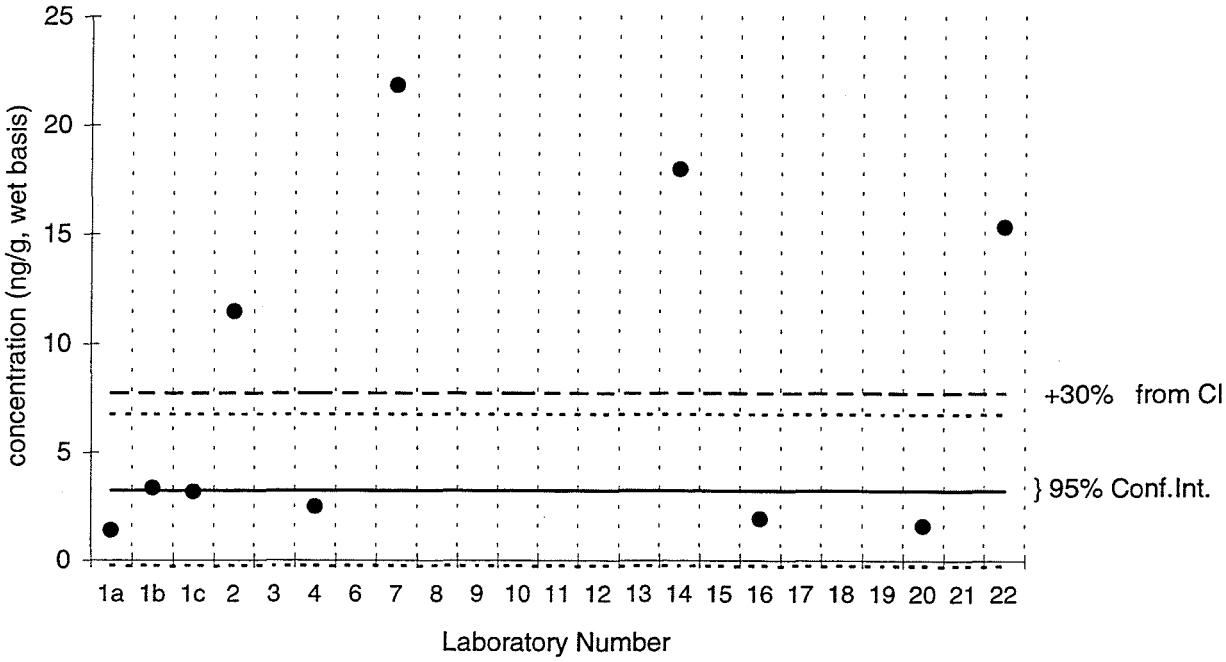
Reported Results: 19 Quantitative results: 9



heptachlor epoxide **CRM CARP-1**

Target Value = 3.23 ± 3.50 ng/g (wet basis)

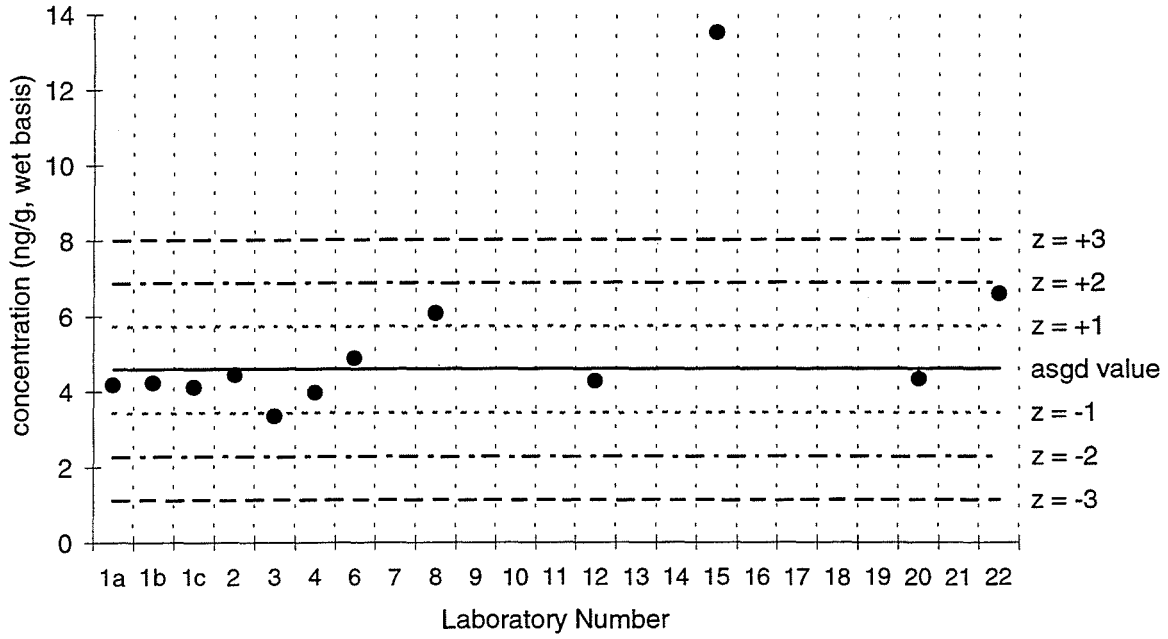
Reported Results: 17 Quantitative Results: 10



trans-chlordane **Fish Homogenate III (QA95FSH3)**

Assigned value = 4.59 ng/g s = 0.94 ng/g 95% CL = 0.63 ng/g (wet basis)

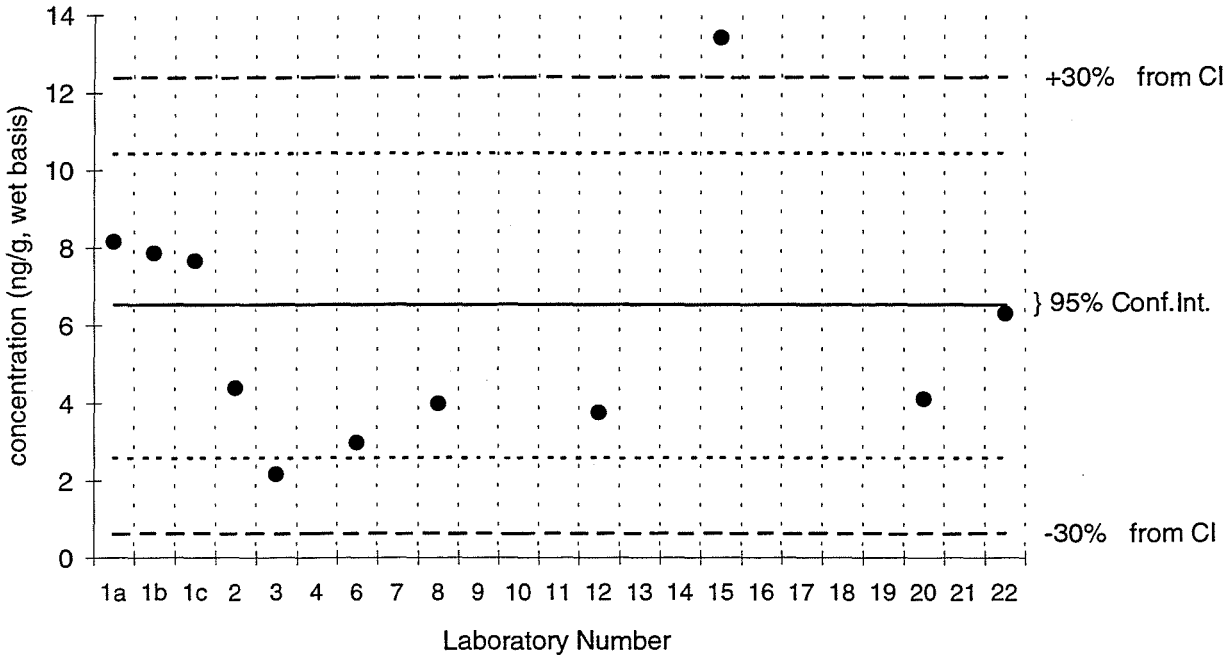
Reported Results: 15 Quantitative results: 12



trans-chlordane **CRM CARP-1**

Target Value = 6.53 ± 3.92 ng/g (wet basis)

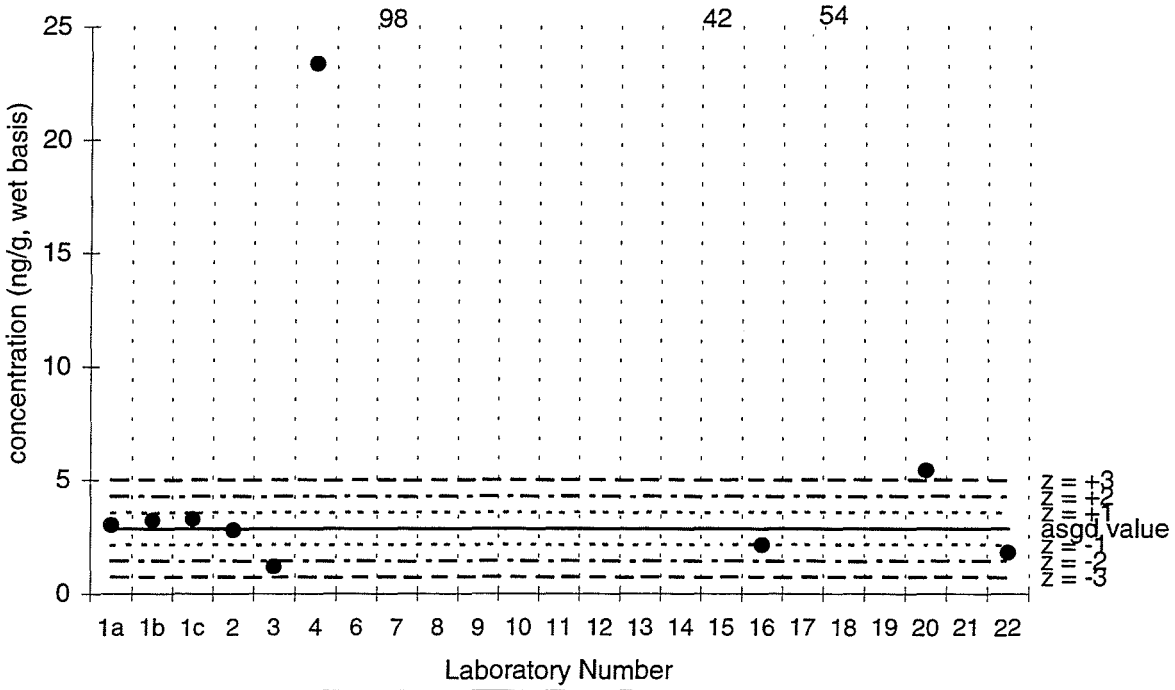
Reported Results: 15 Quantitative Results: 11



2,4'-DDE — Fish Homogenate III (QA95FSH3)

Assigned value = 2.84 ng/g s = 1.28 ng/g 95% CL = 1.07 ng/g (wet basis)

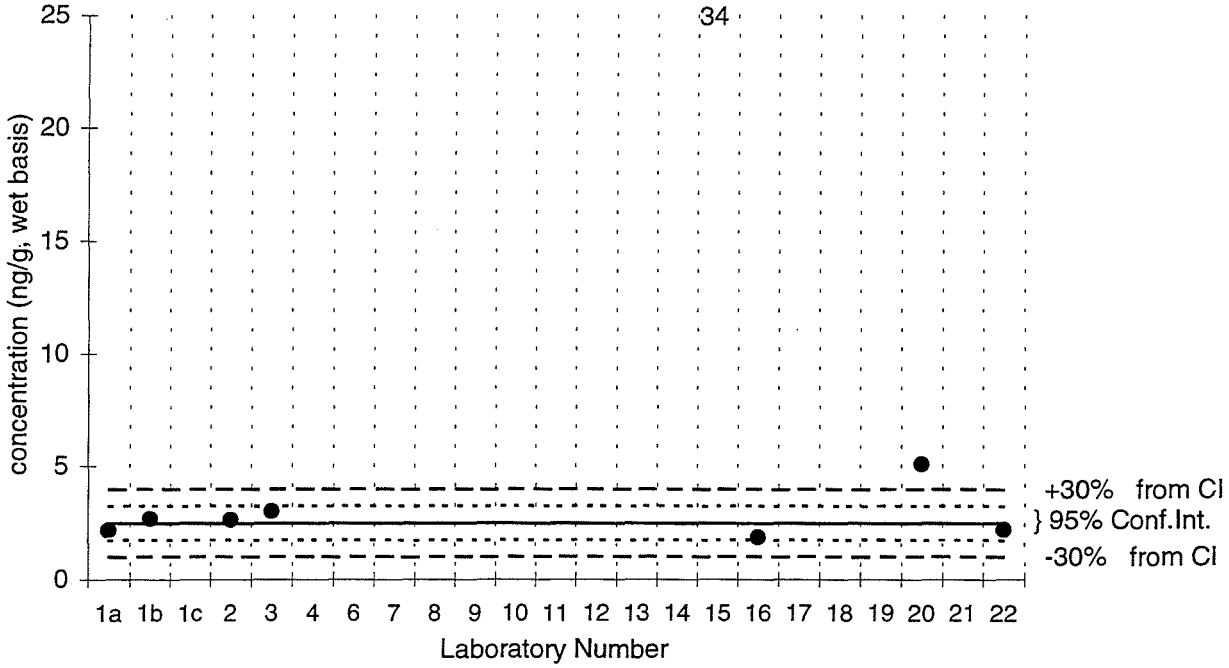
Reported Results: 18 Quantitative results: 12



2,4'-DDE — CRM CARP-1

Target Value = 2.48 ± 0.74 ng/g (wet basis)

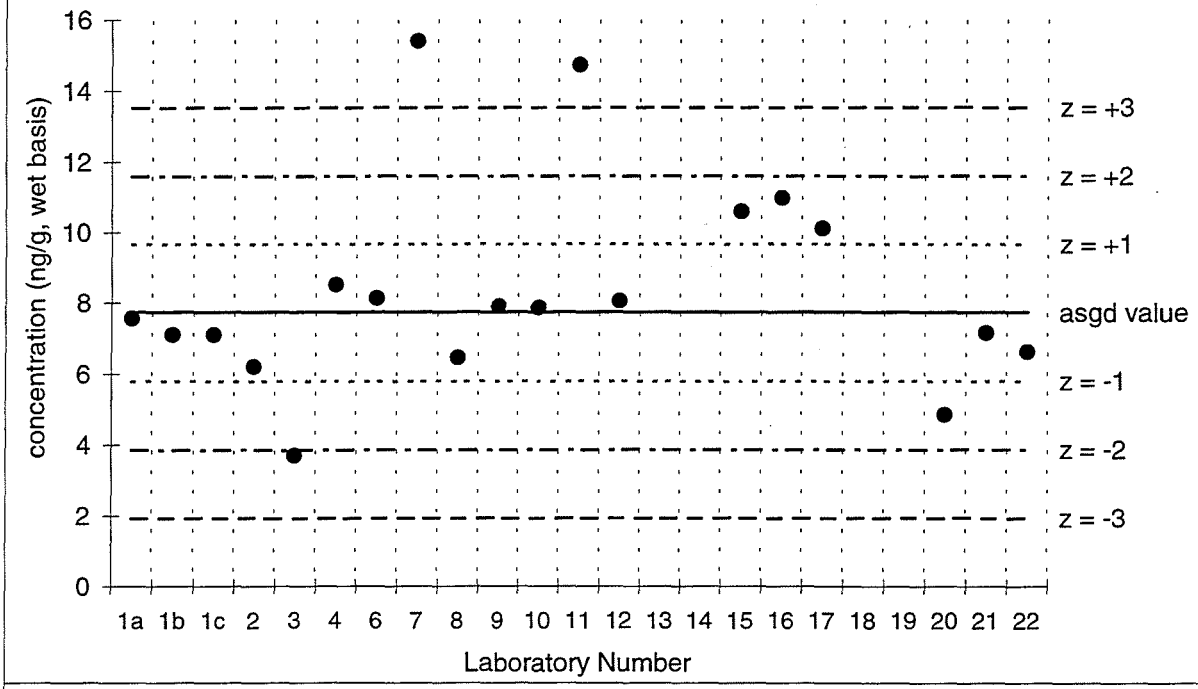
Reported Results: 16 Quantitative Results: 8



cis-chlordane — Fish Homogenate III (QA95FSH3)

Assigned value = 7.73 ng/g s = 1.52 ng/g 95% CL = 0.88 ng/g (wet basis)

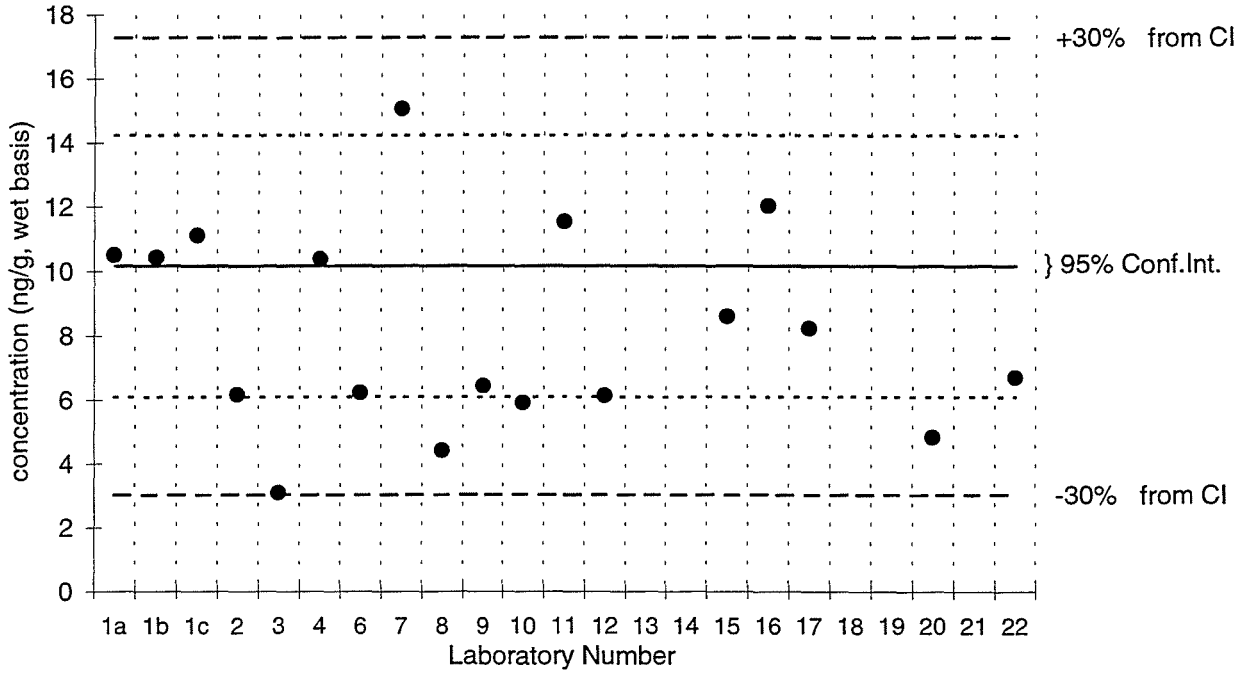
Reported Results: 20 Quantitative results: 19



cis-chlordane — CRM CARP-1

Target Value = 10.2 ± 4.1 ng/g (wet basis)

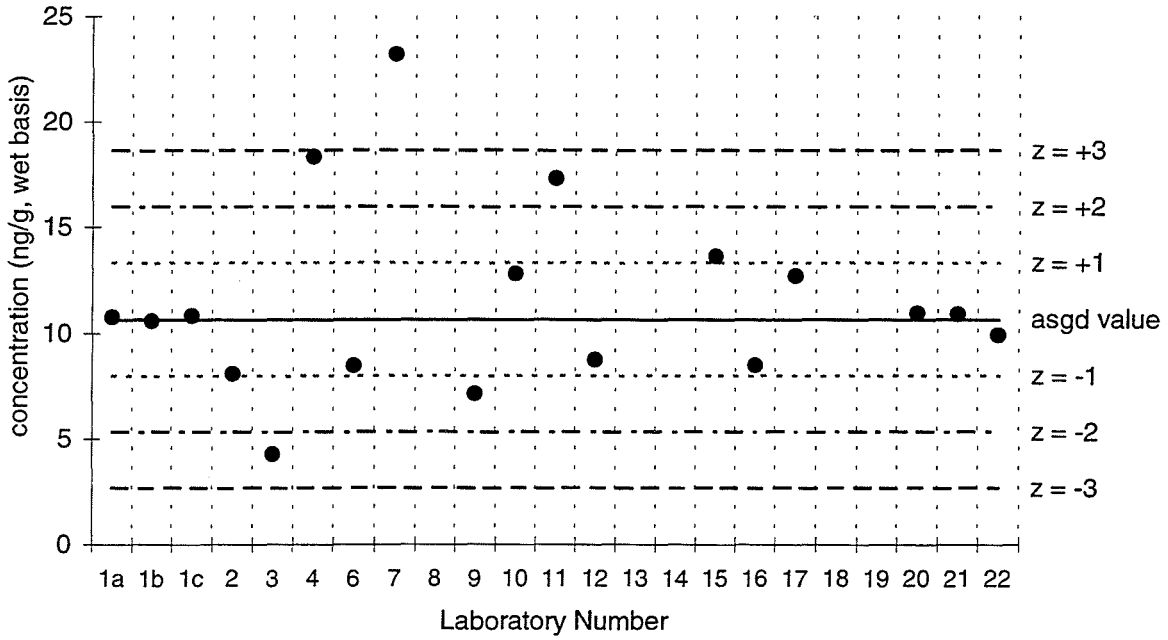
Reported Results: 18 Quantitative Results: 18



trans-nonachlor **Fish Homogenate III (QA95FSH3)**

Assigned value = 10.6 ng/g s = 3.5 ng/g 95% CL = 1.9 ng/g (wet basis)

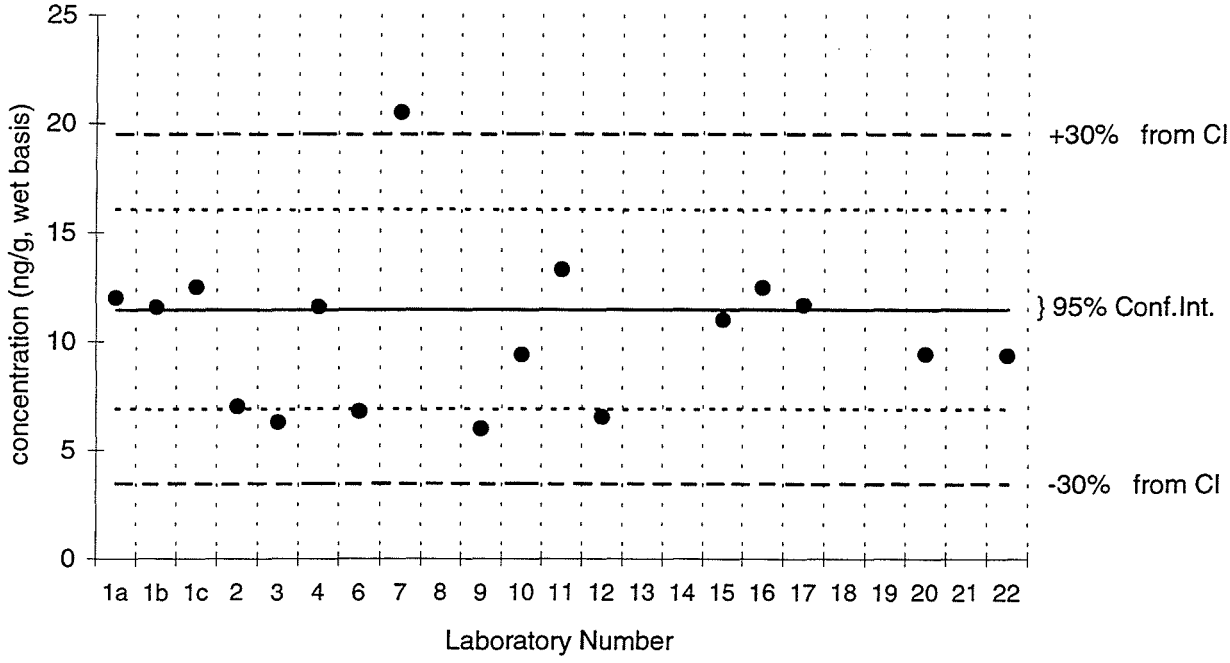
Reported Results: 19 Quantitative results: 18



trans-nonachlor **CRM CARP-1**

Target Value = 11.5 ± 4.6 ng/g (wet basis)

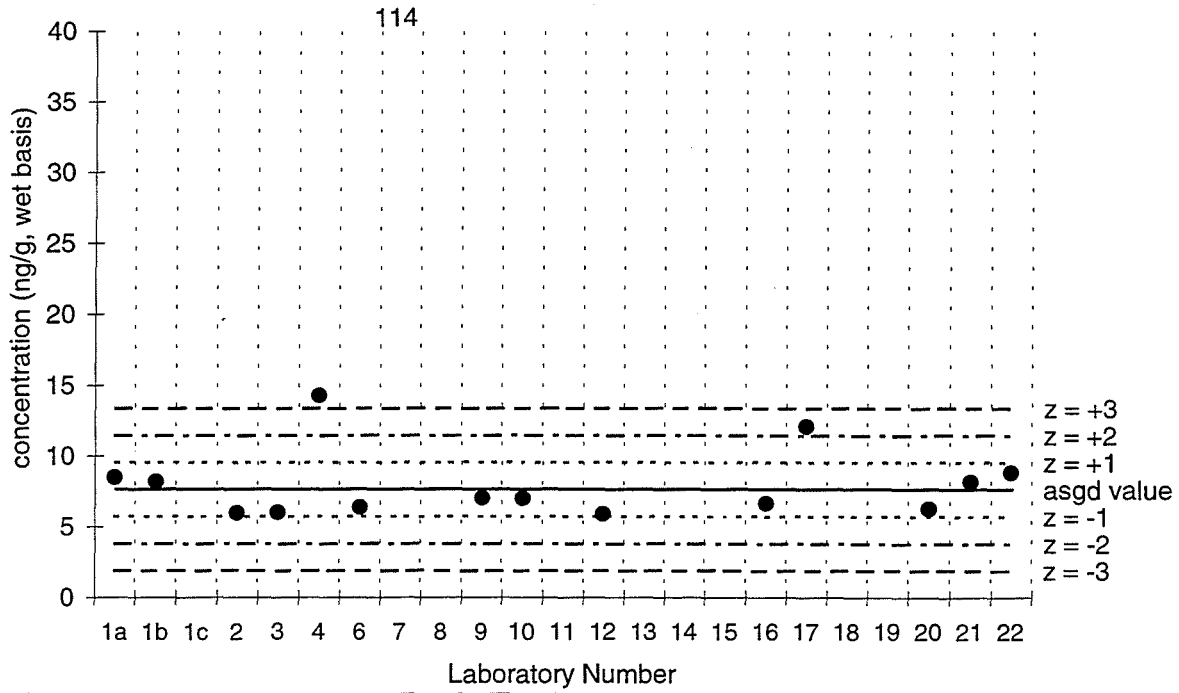
Reported Results: 17 Quantitative Results: 17



dieldrin **Fish Homogenate III (QA95FSH3)**

Assigned value = 7.65 ng/g s = 2.24 ng/g 95% CL = 1.42 ng/g (wet basis)

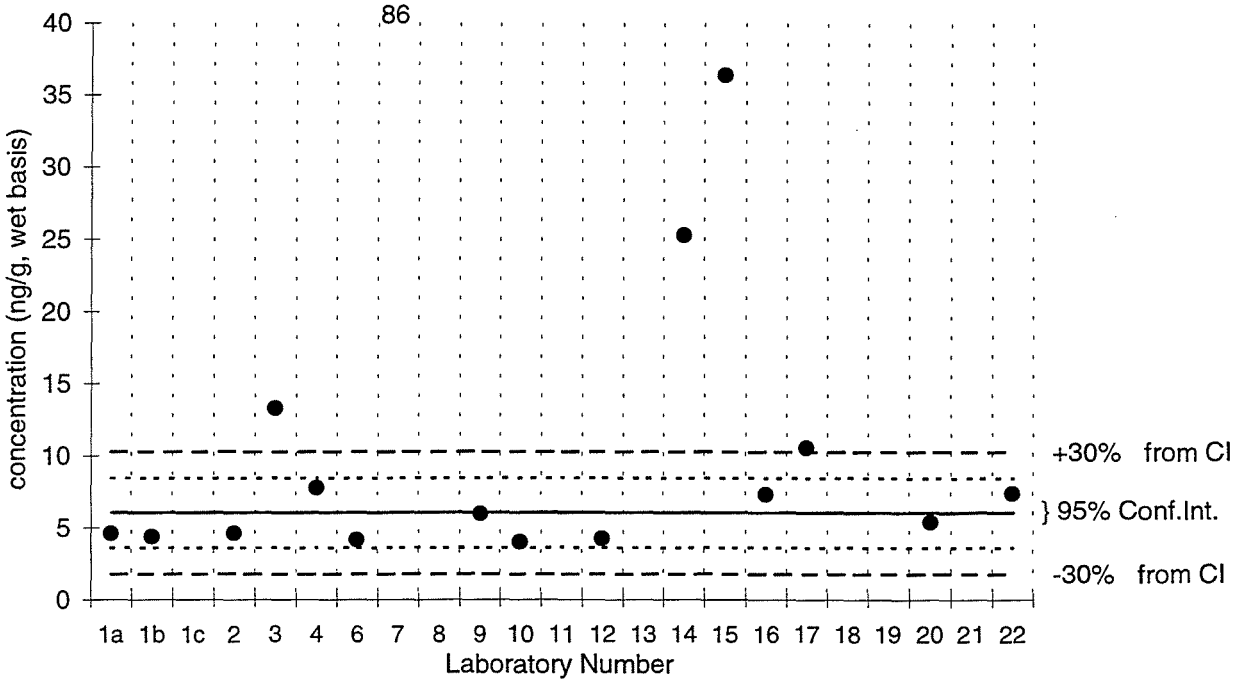
Reported Results: 19 Quantitative results: 17



dieldrin **CRM CARP-1**

Target Value = 6.07 ± 2.43 ng/g (wet basis)

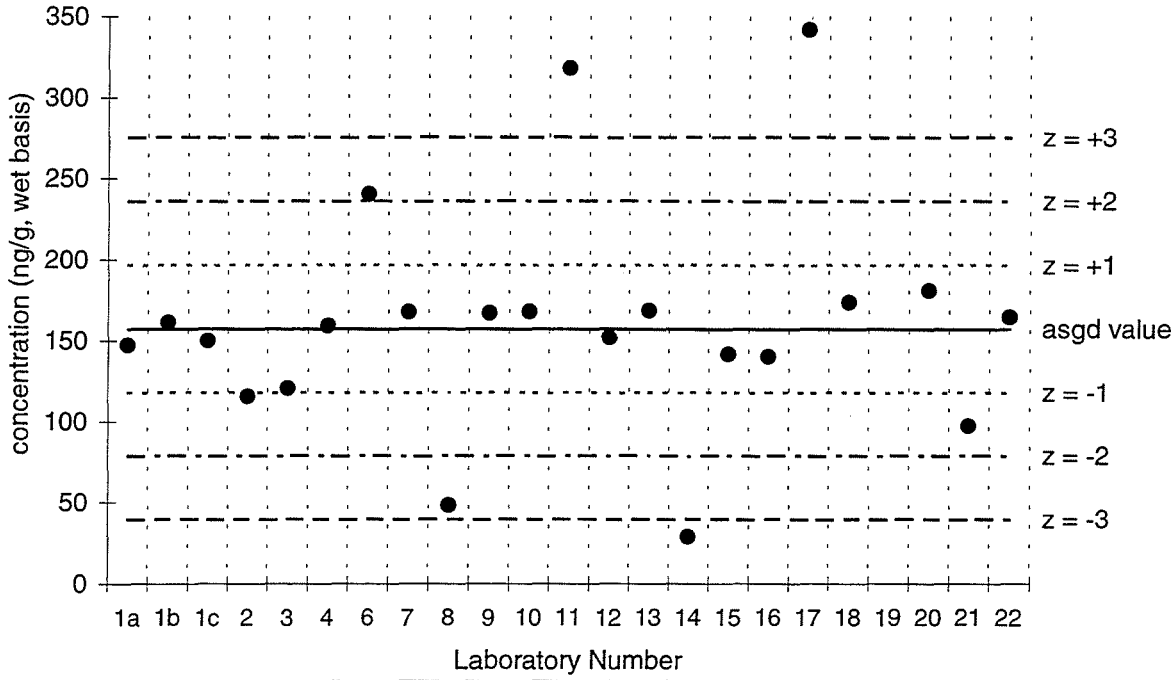
Reported Results: 17 Quantitative Results: 16



4,4'-DDE — Fish Homogenate III (QA95FSH3)

Assigned value = 157 ng/g s = 31 ng/g 95% CL = 16 ng/g (wet basis)

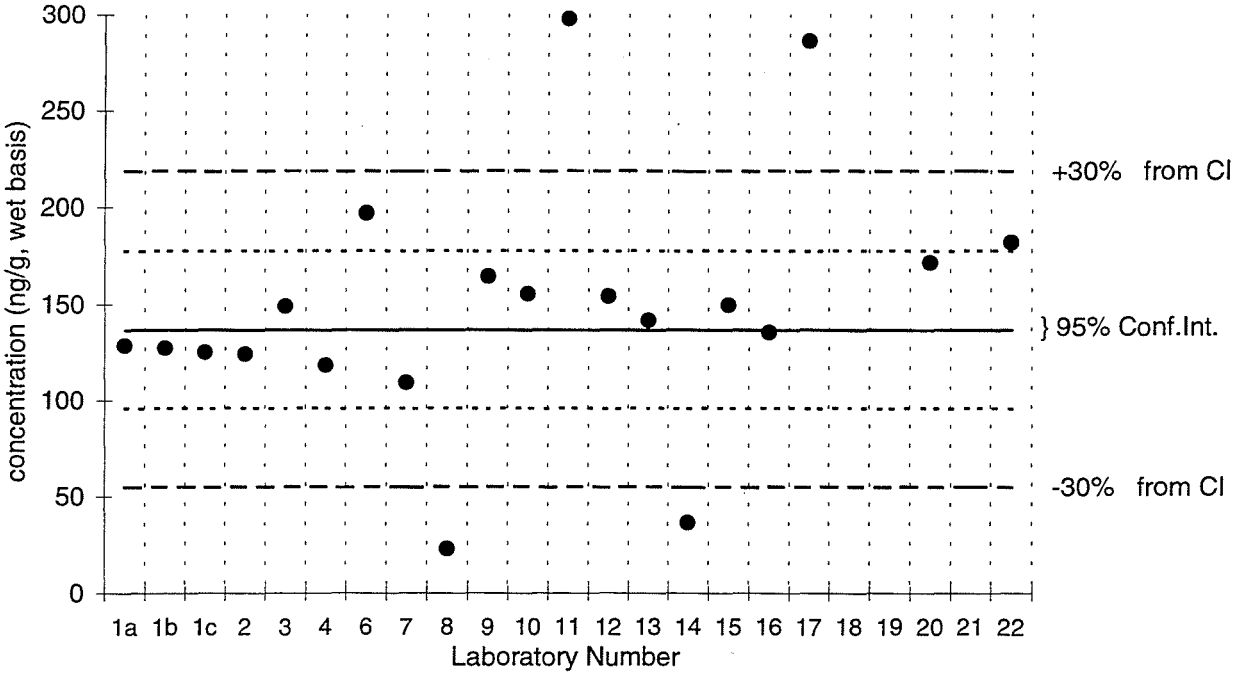
Reported Results: 22 Quantitative results: 22



4,4'-DDE — CRM CARP-1

Target Value = 137 ± 41 ng/g (wet basis)

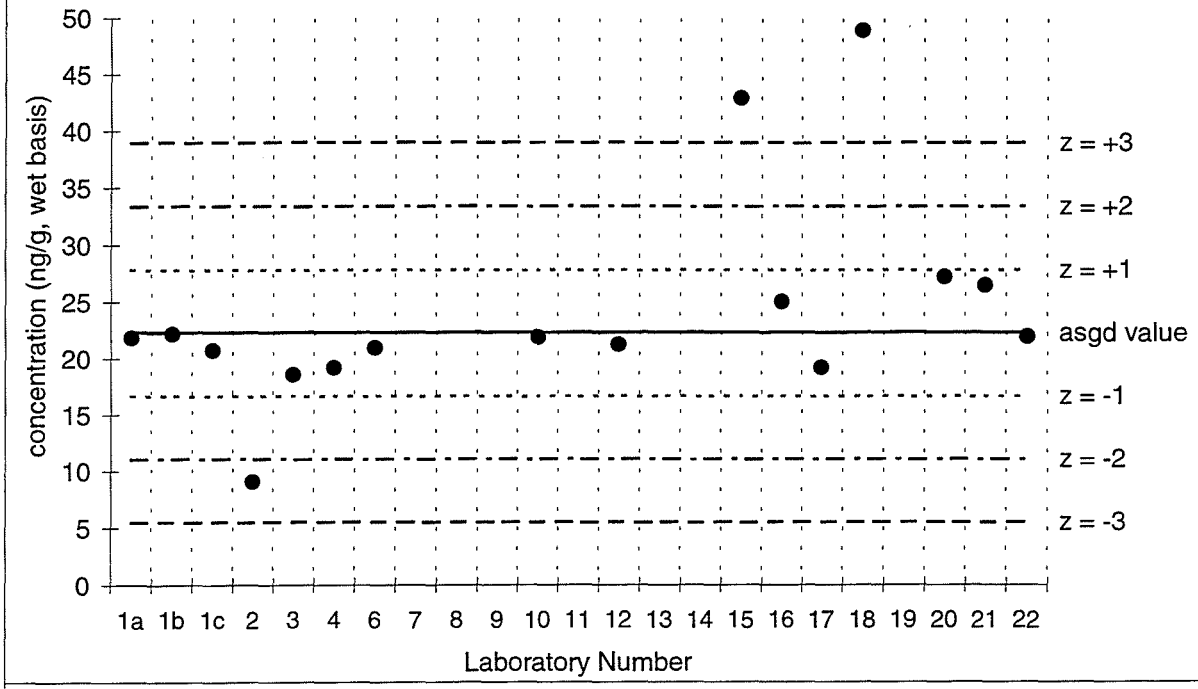
Reported Results: 20 Quantitative Results: 20



2,4'-DDD — Fish Homogenate III (QA95FSH3)

Assigned value = 22.3 ng/g s = 2.7 ng/g 95% CL = 1.7 ng/g (wet basis)

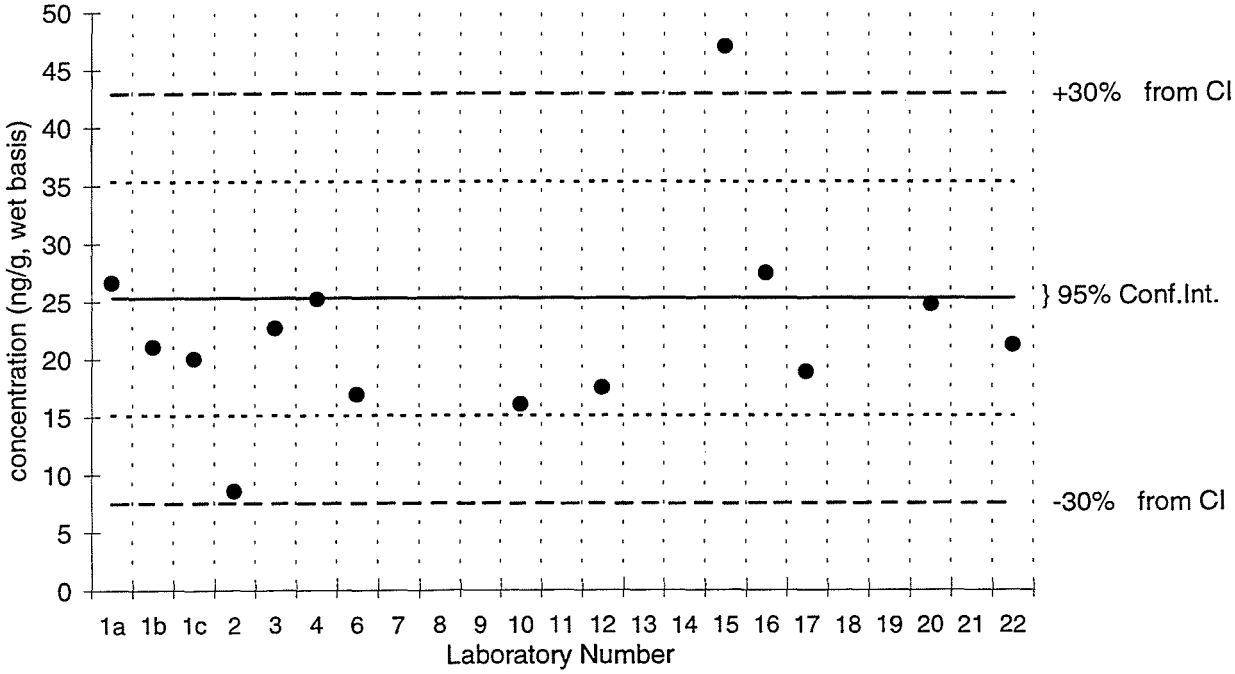
Reported Results: 18 Quantitative results: 16



2,4'-DDD — CRM CARP-1

Target Value = 25.3 ± 10.1 ng/g (wet basis)

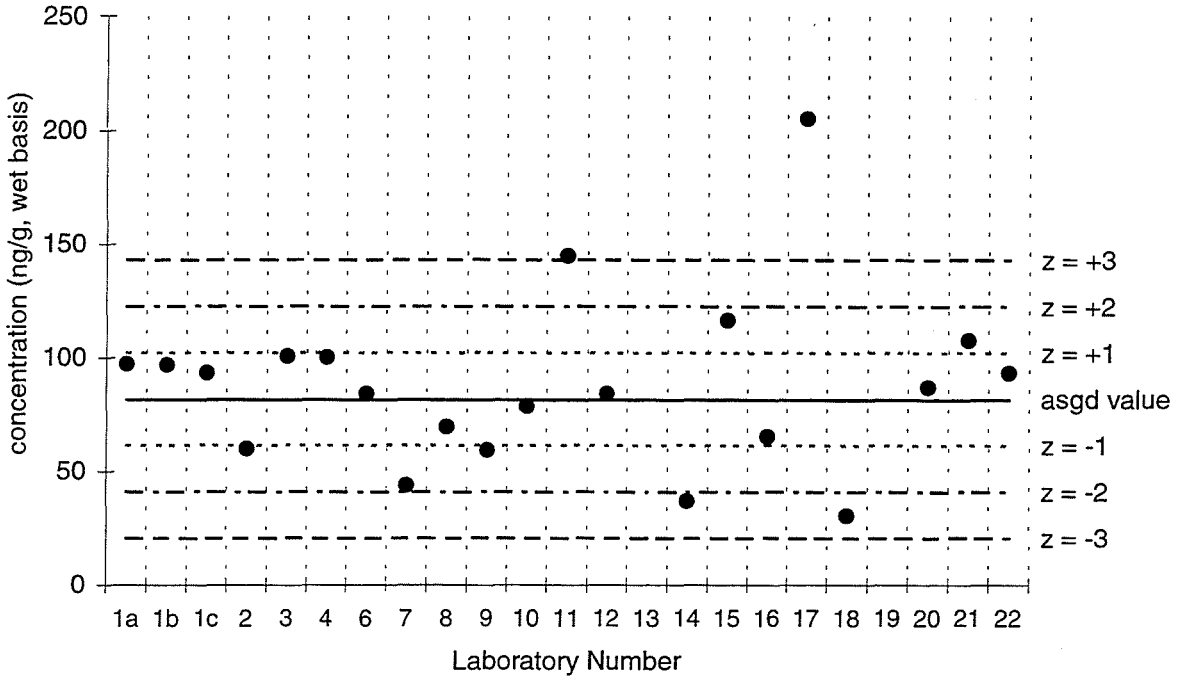
Reported Results: 16 Quantitative Results: 14



4,4'-DDD — Fish Homogenate III (QA95FSH3)

Assigned value = 81.6 ng/g s = 20.3 ng/g 95% CL = 10.8 ng/g (wet basis)

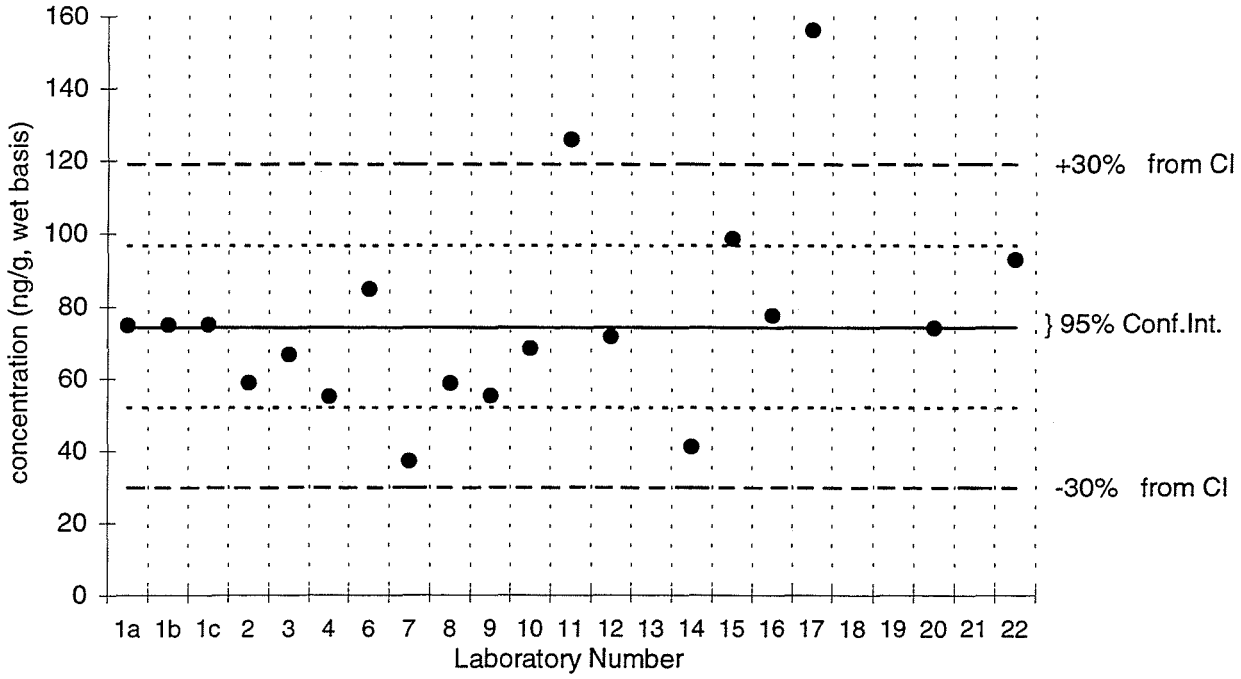
Reported Results: 21 Quantitative results: 21



4,4'-DDD — CRM CARP-1

Target Value = 74.3 ± 22.3 ng/g (wet basis)

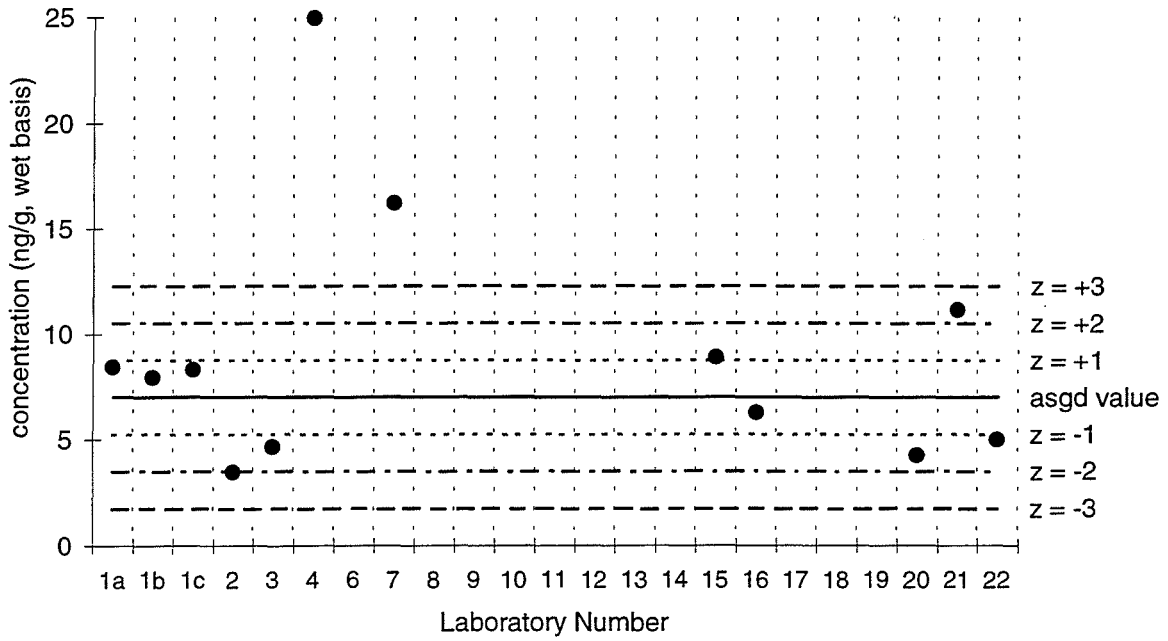
Reported Results: 19 Quantitative Results: 19



2,4'-DDT — Fish Homogenate III (QA95FSH3)

Assigned value = 7.03 ng/g s = 2.37 ng/g 95% CL = 1.98 ng/g (wet basis)

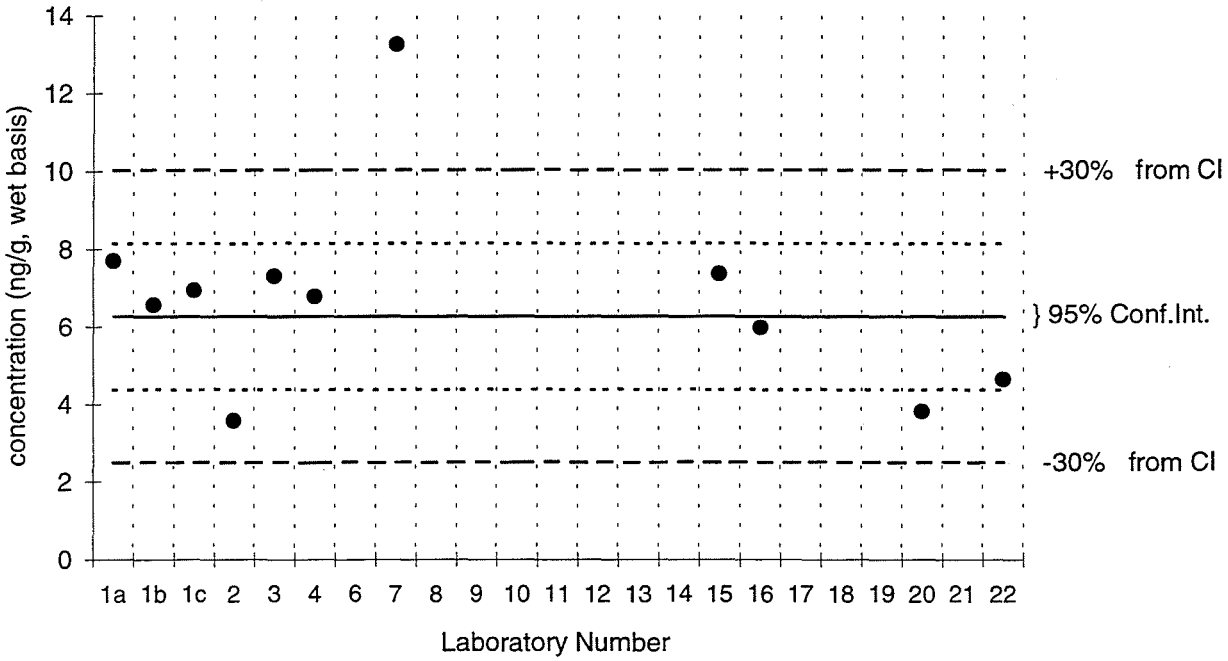
Reported Results: 17 Quantitative results: 12



2,4'-DDT — CRM CARP-1

Target Value = 6.28 ± 1.88 ng/g (wet basis)

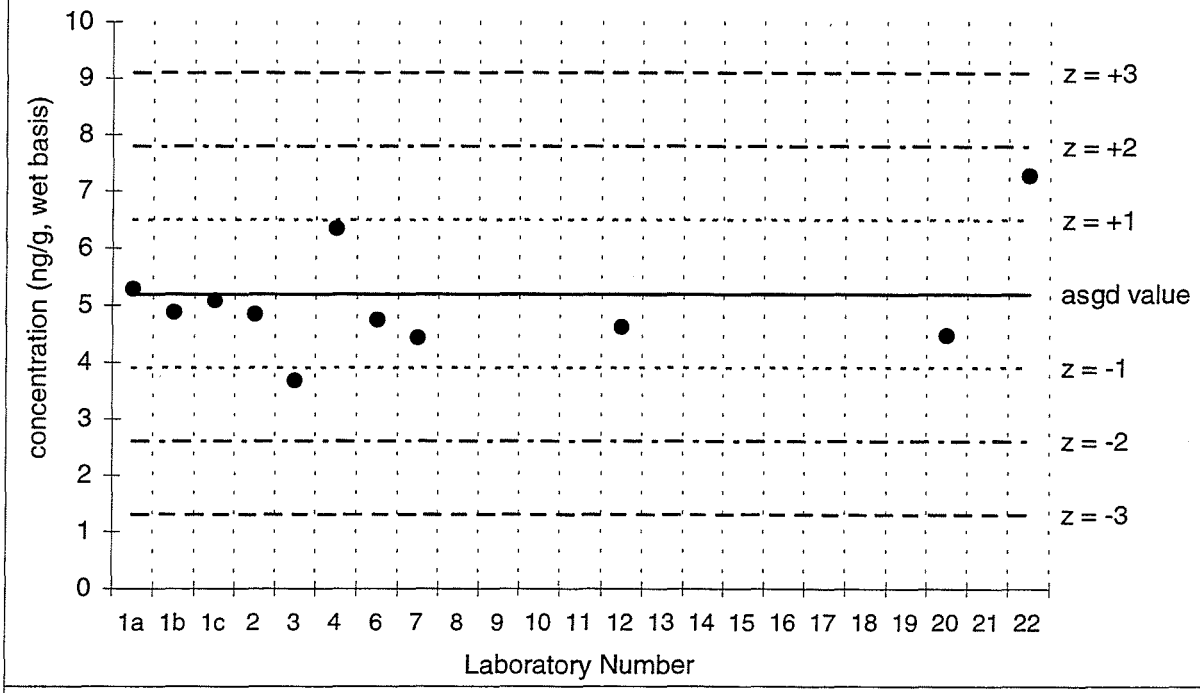
Reported Results: 15 Quantitative Results: 11



cis-nonachlor — Fish Homogenate III (QA95FSH3)

Assigned value = 5.19 ng/g s = 0.92 ng/g 95% CL = 0.66 ng/g (wet basis)

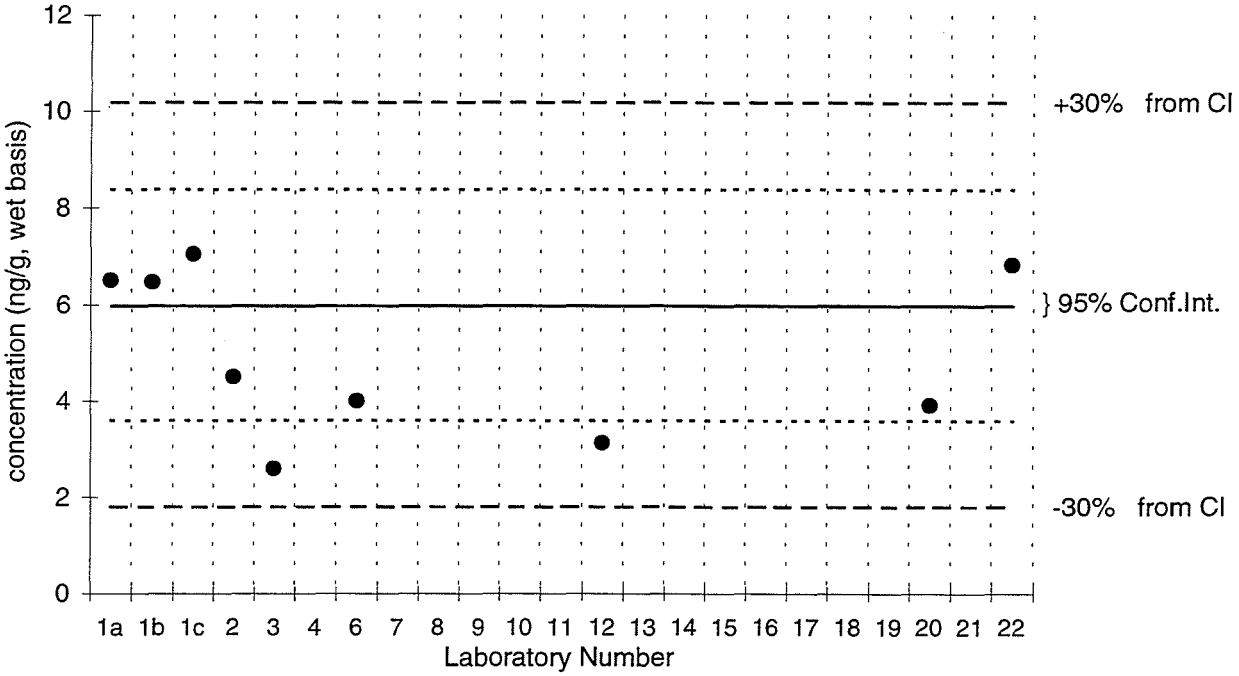
Reported Results: 13 Quantitative results: 11



cis-nonachlor — CRM CARP-1

Target Value = 5.98 ± 2.39 ng/g (wet basis)

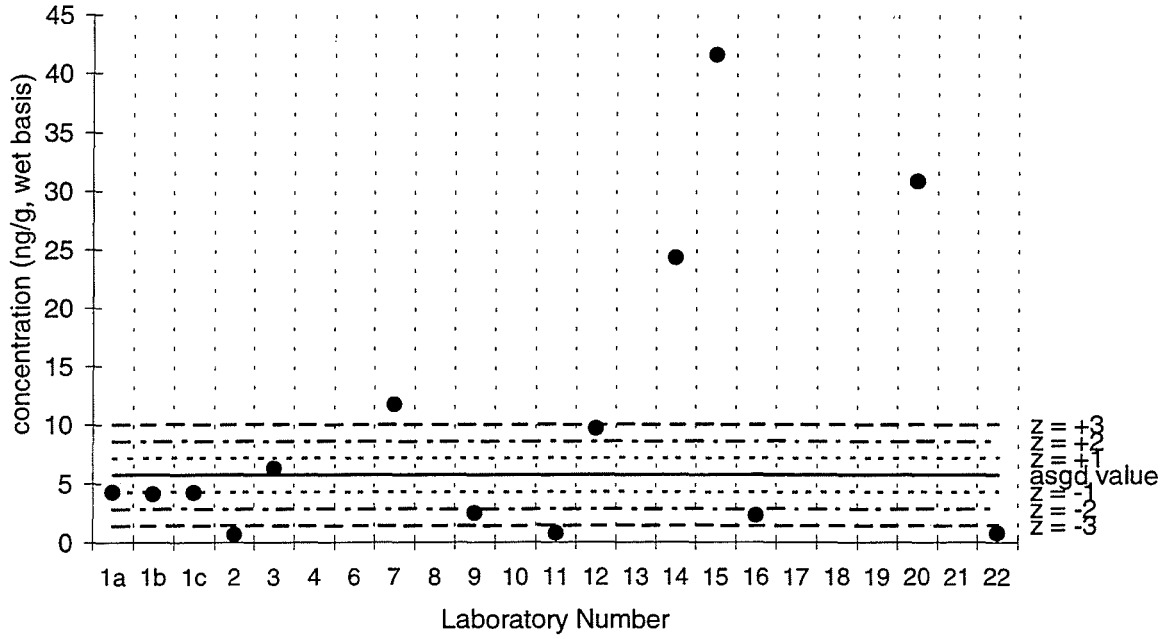
Reported Results: 12 Quantitative Results: 9



4,4'-DDT — Fish Homogenate III (QA95FSH3)

Assigned value = 5.74 ng/g s = 2.39 ng/g 95% CL = 2.97 ng/g (wet basis)

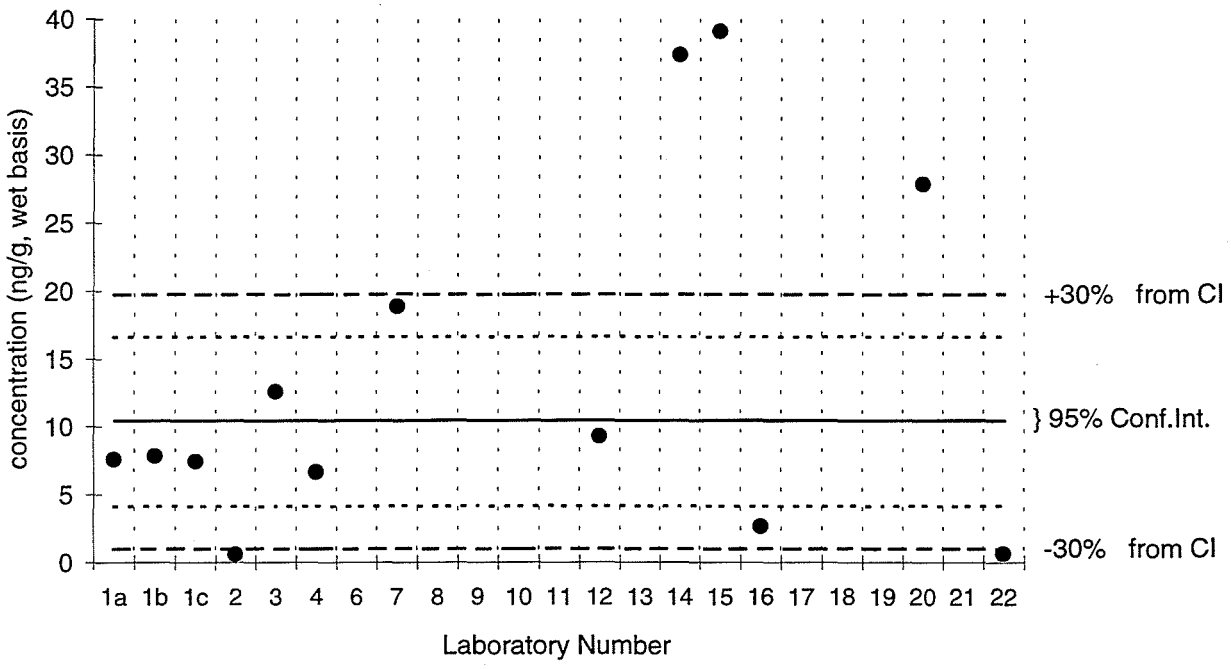
Reported Results: 20 Quantitative results: 14



4,4'-DDT — CRM CARP-1

Target Value = 10.42 ± 6.25 ng/g (wet basis)

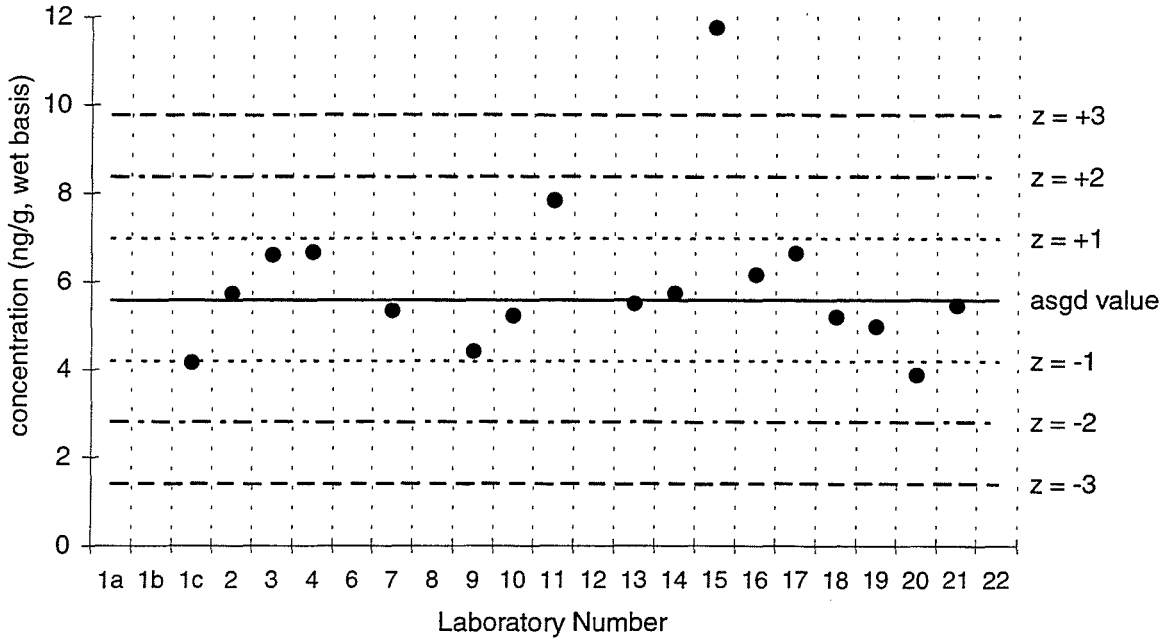
Reported Results: 18 Quantitative Results: 13



PCB 8 **Fish Homogenate III (QA95FSH3)**

Assigned value = 5.57 ng/g s = 1.06 ng/g 95% CL = 0.55 ng/g (wet basis)

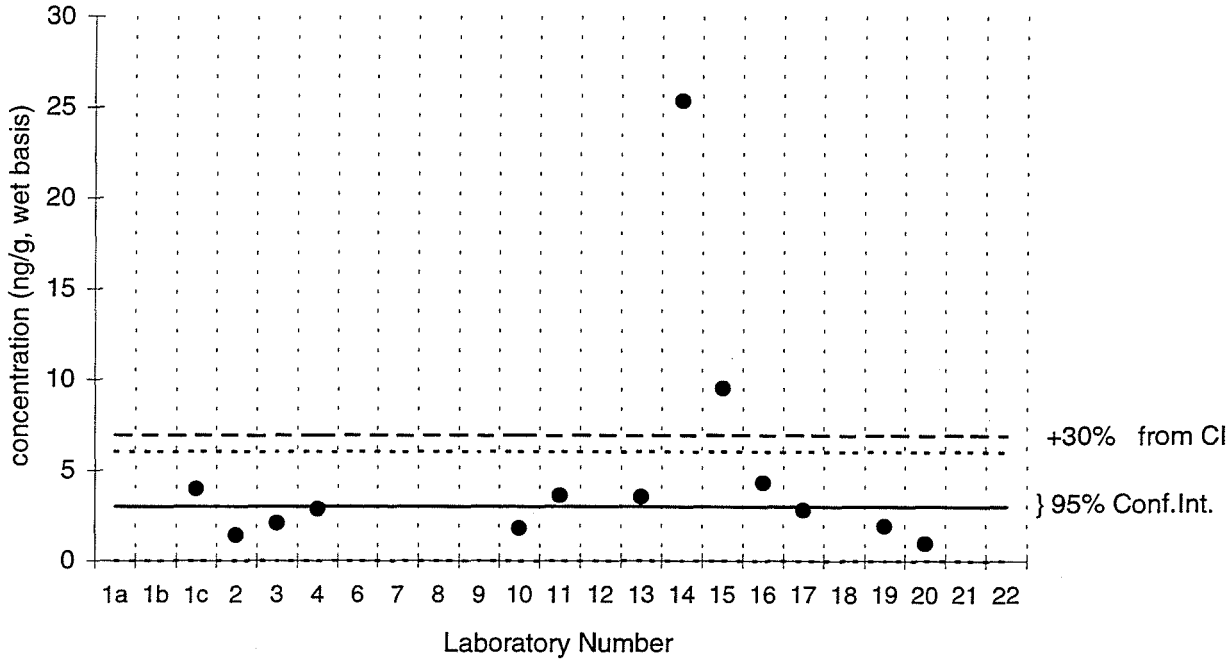
Reported Results: 19 Quantitative results: 17



PCB 8 **CRM CARP-1**

Target Value = 3.00 ± 3.00 ng/g (wet basis)

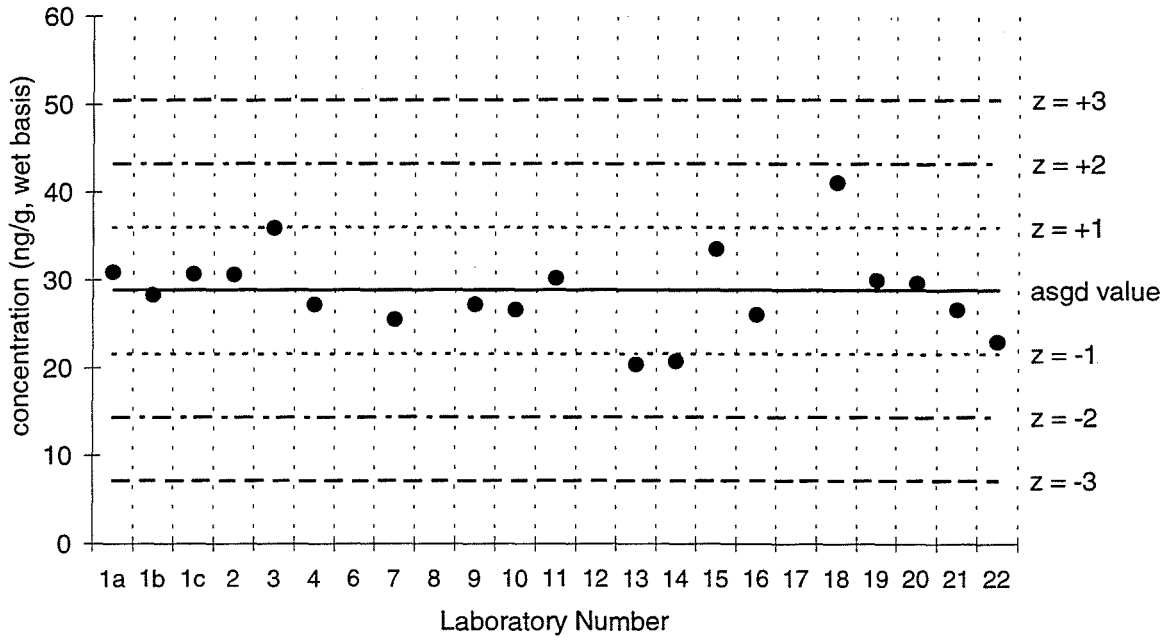
Reported Results: 17 Quantitative Results: 13



PCB 18 **Fish Homogenate III (QA95FSH3)**

Assigned value = 28.9 ng/g s = 4.7 ng/g 95% CL = 2.3 ng/g (wet basis)

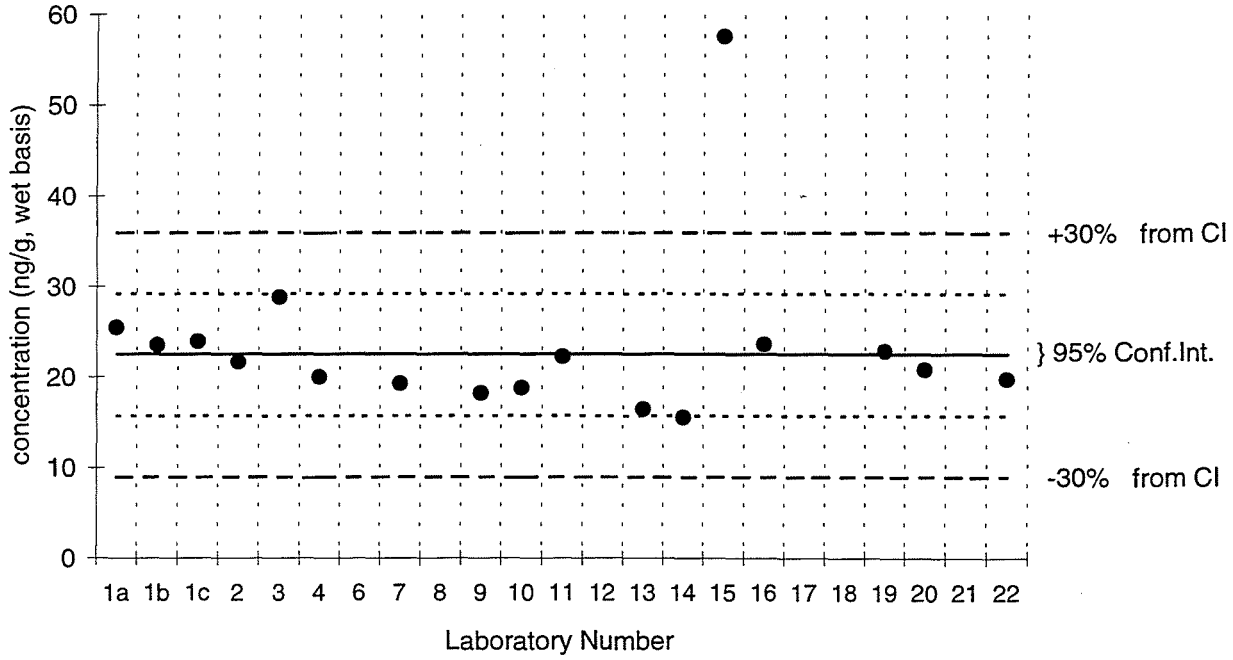
Reported Results: 20 Quantitative results: 19



PCB 18 **CRM CARP-1**

Target Value = 22.5 ± 6.8 ng/g (wet basis)

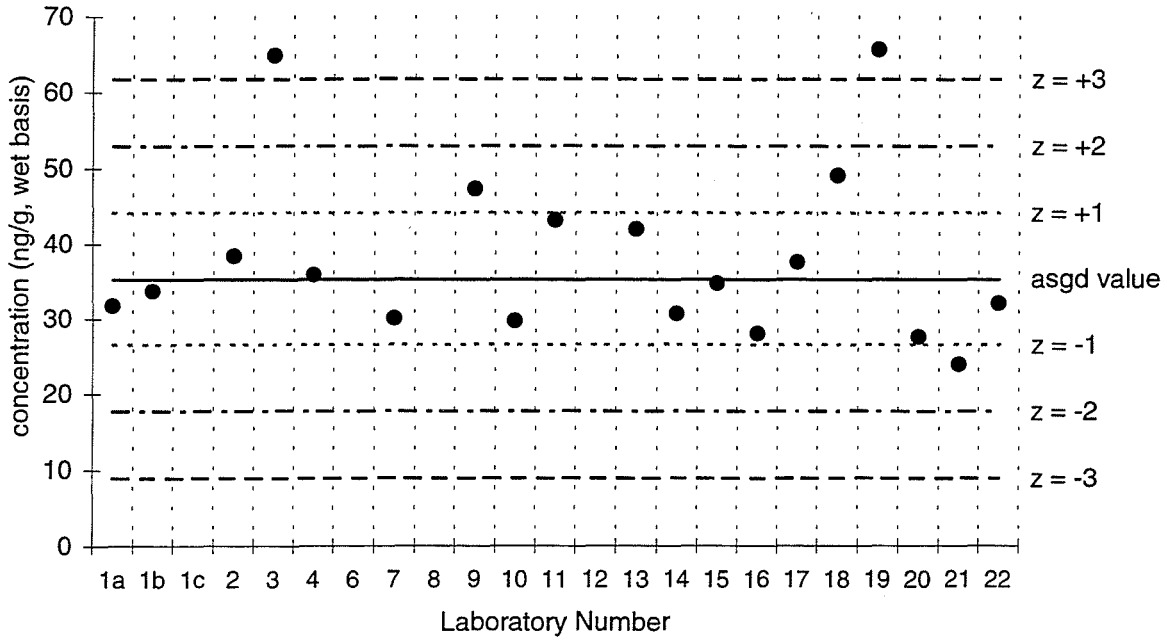
Reported Results: 18 Quantitative Results: 17



PCB 28 **Fish Homogenate III (QA95FSH3)**

Assigned value = 35.2 ng/g s = 7.2 ng/g 95% CL = 3.5 ng/g (wet basis)

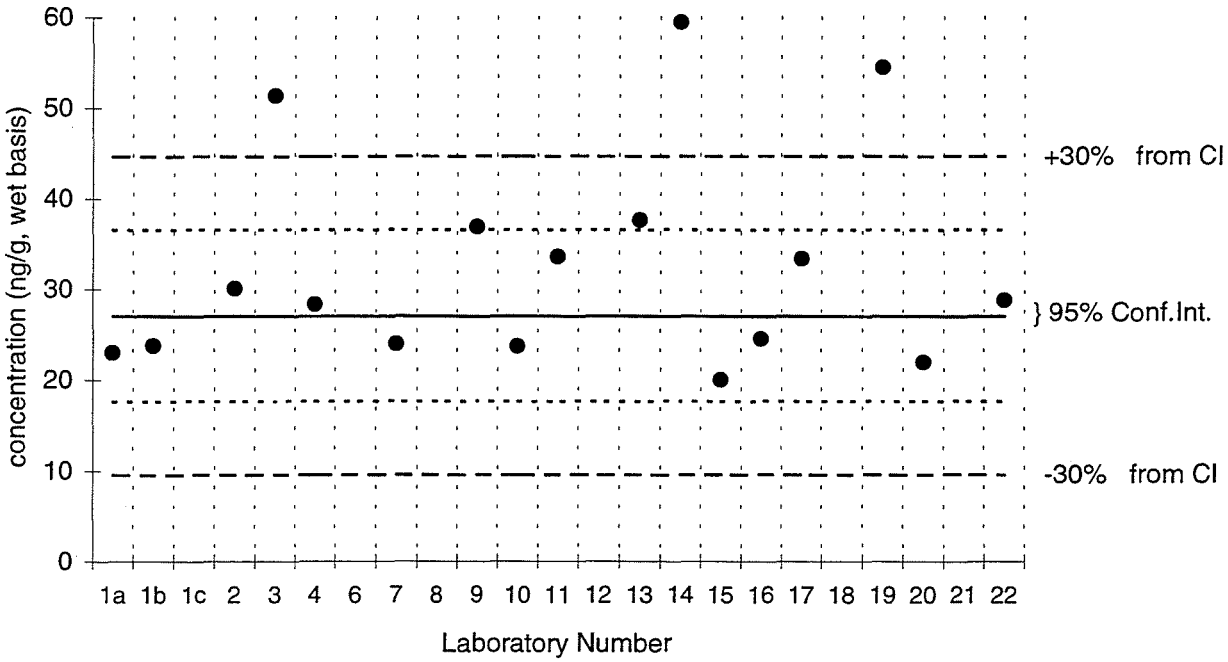
Reported Results: 19 Quantitative results: 19



PCB 28 **CRM CARP-1**

Target Value = 27.0 ± 9.4 ng/g (wet basis)

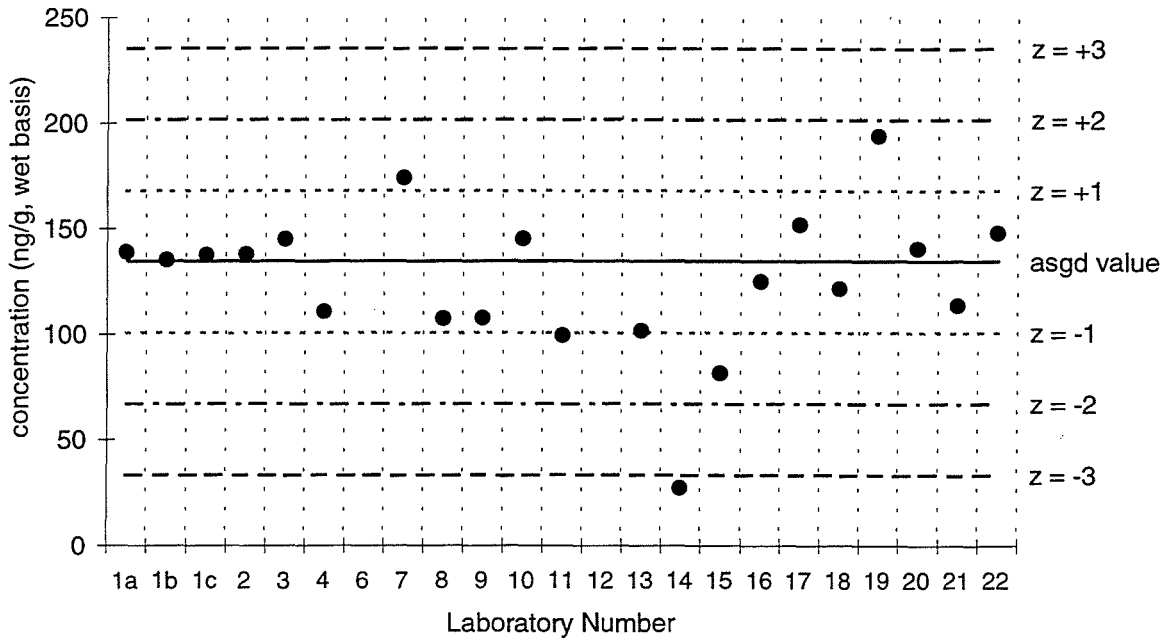
Reported Results: 17 Quantitative Results: 17



PCB 52 **Fish Homogenate III (QA95FSH3)**

Assigned value = 135 ng/g s = 24 ng/g 95% CL = 11 ng/g (wet basis)

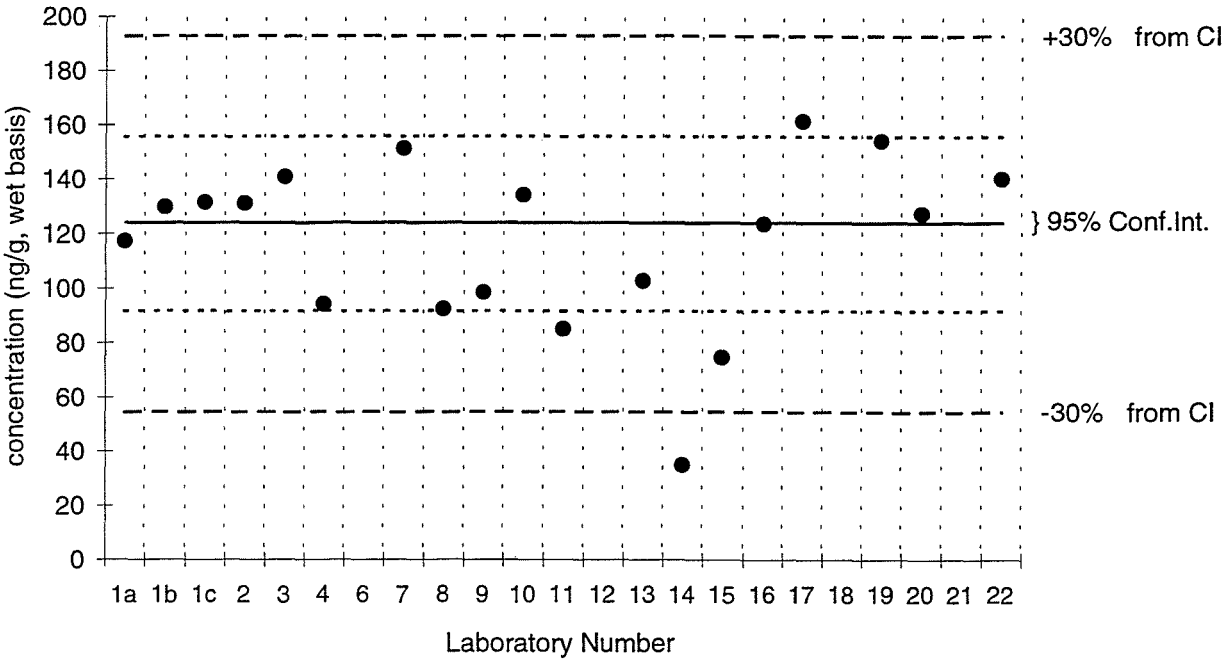
Reported Results: 21 Quantitative results: 21



PCB 52 **CRM CARP-1**

Certified Value = 124 ± 32 ng/g (wet basis)

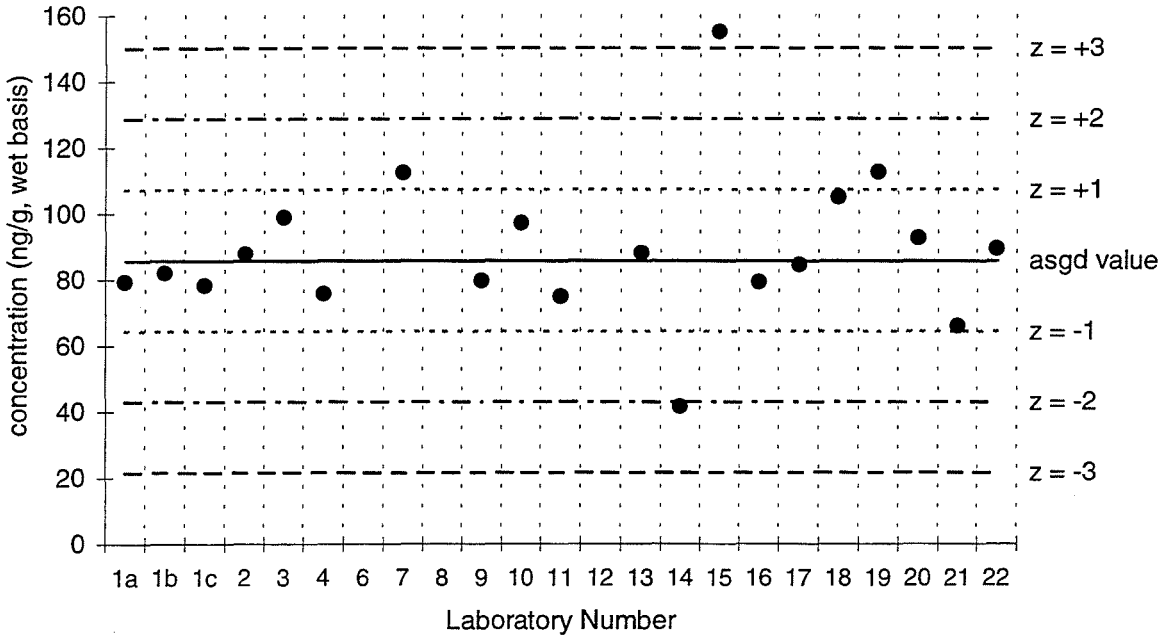
Reported Results: 19 Quantitative Results: 19



PCB 44 **Fish Homogenate III (QA95FSH3)**

Assigned value = 85.6 ng/g s = 11.8 ng/g 95% CL = 5.5 ng/g (wet basis)

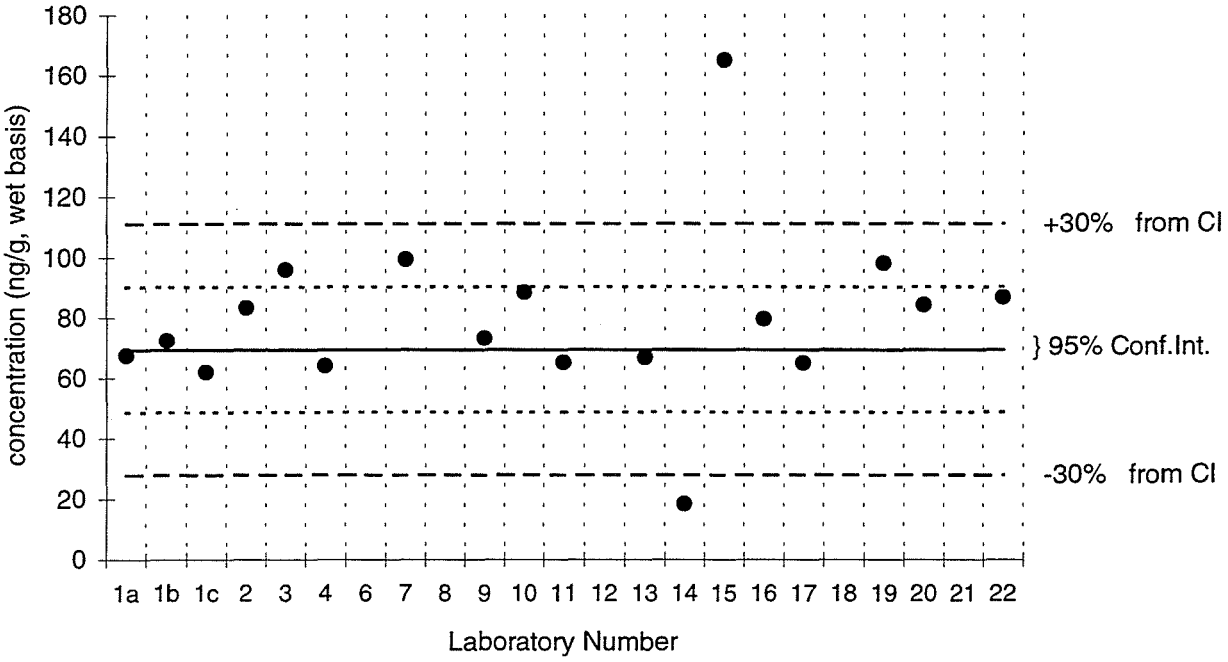
Reported Results: 20 Quantitative results: 20



PCB 44 **CRM CARP-1**

Target Value = 69.3 ± 20.8 ng/g (wet basis)

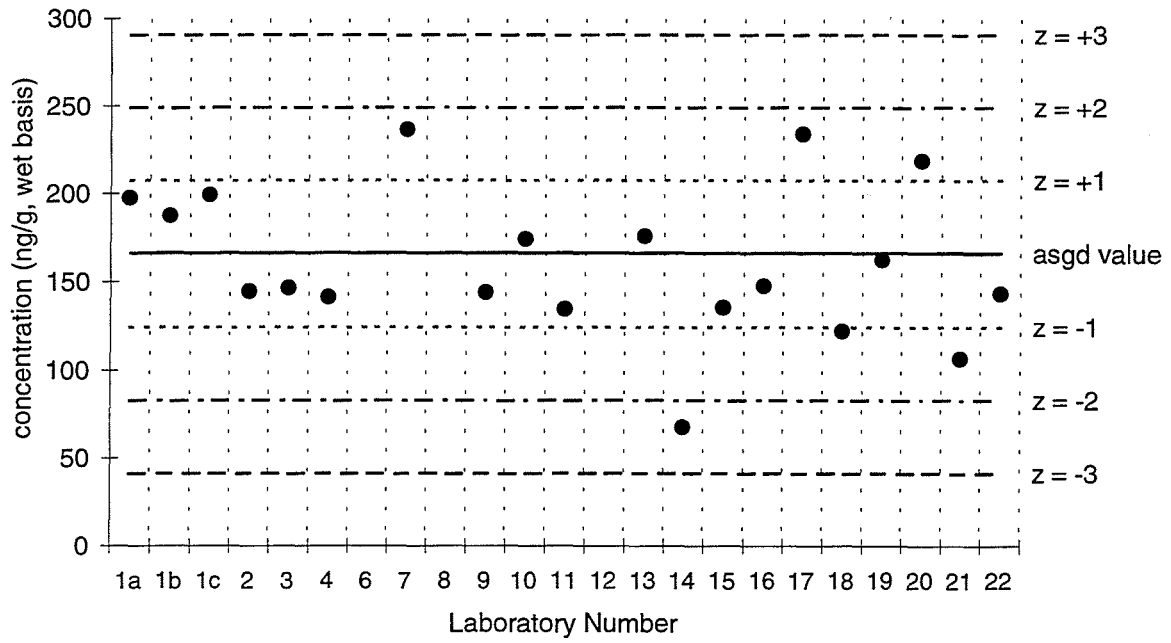
Reported Results: 18 Quantitative Results: 18



PCB 66/95 **Fish Homogenate III (QA95FSH3)**

Assigned value = 166 ng/g s = 37 ng/g 95% CL = 18 ng/g (wet basis)

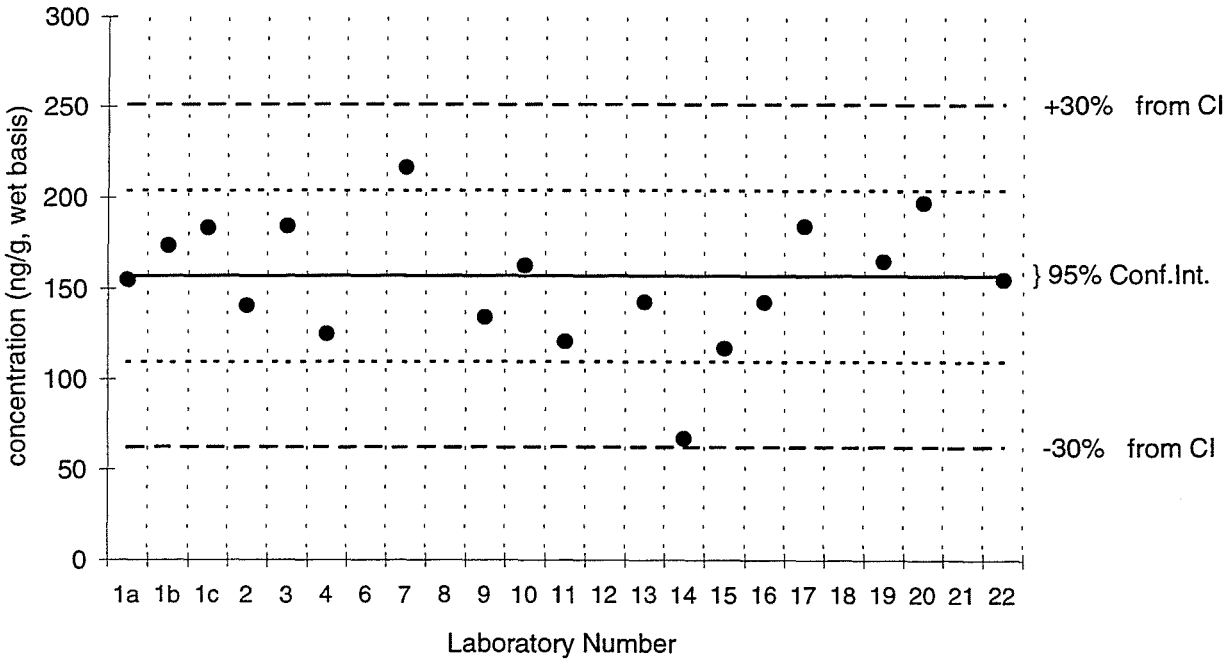
Reported Results: 20 Quantitative results: 20



PCB 66/95 **CRM CARP-1**

Target Value = 157 ± 47 ng/g (wet basis)

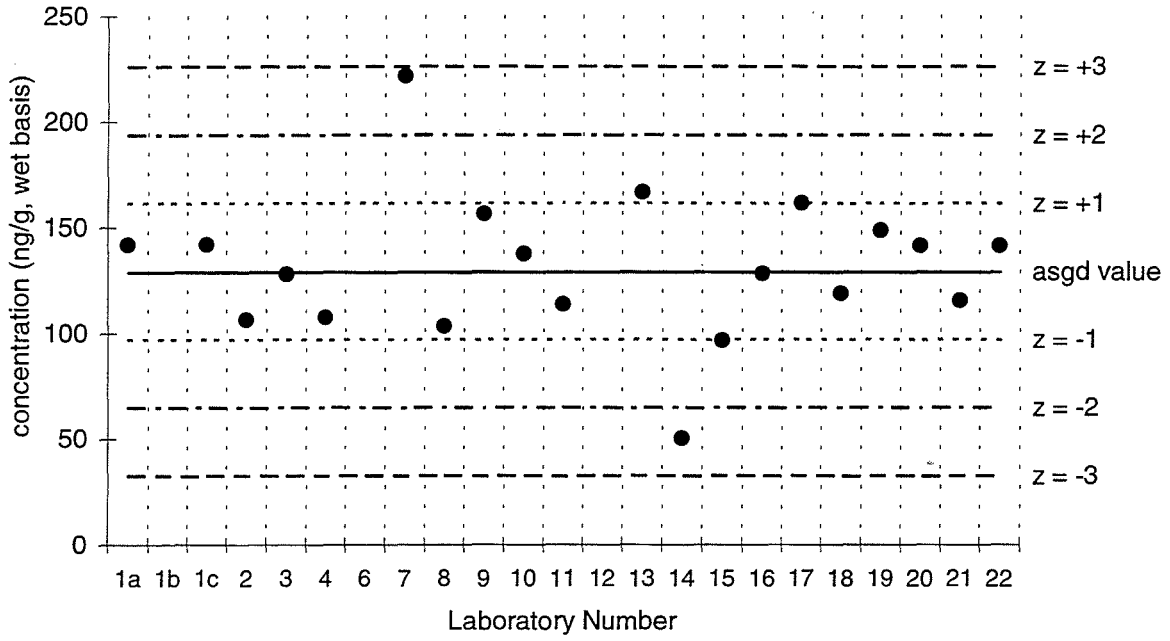
Reported Results: 18 Quantitative Results: 18



PCB 101/90 — Fish Homogenate III (QA95FSH3)

Assigned value = 129 ng/g s = 20 ng/g 95% CL = 9 ng/g (wet basis)

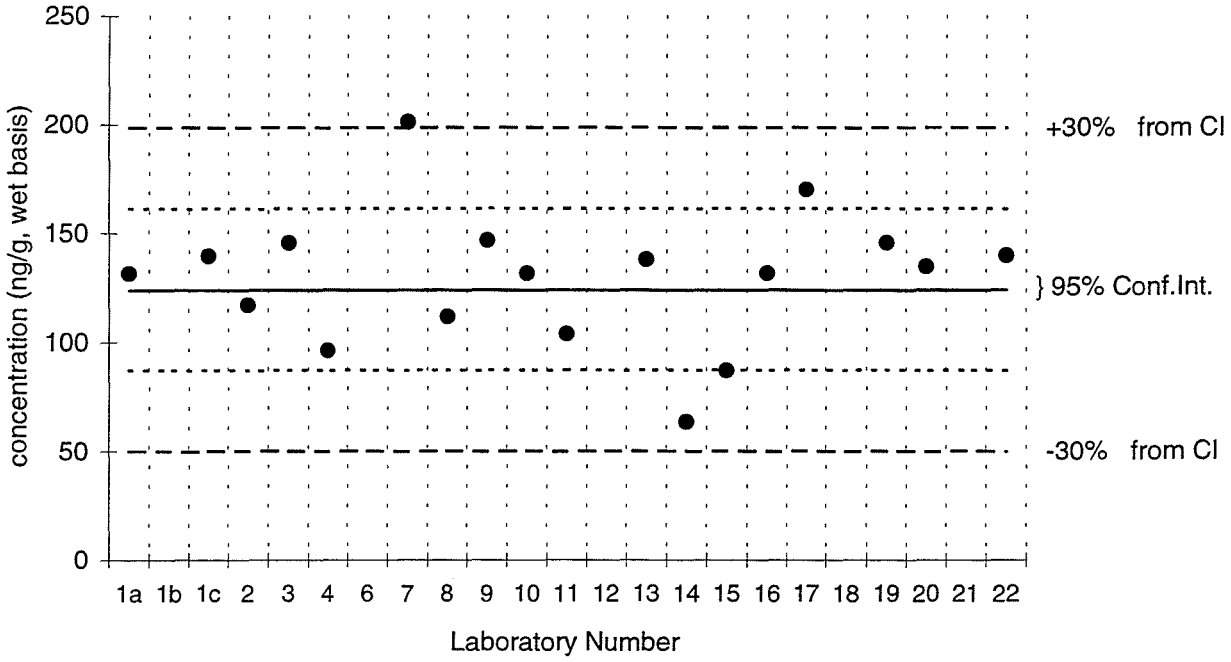
Reported Results: 20 Quantitative results: 20



PCB 101/90 — CRM CARP-1

Certified Value = 124 ± 37 ng/g (wet basis)

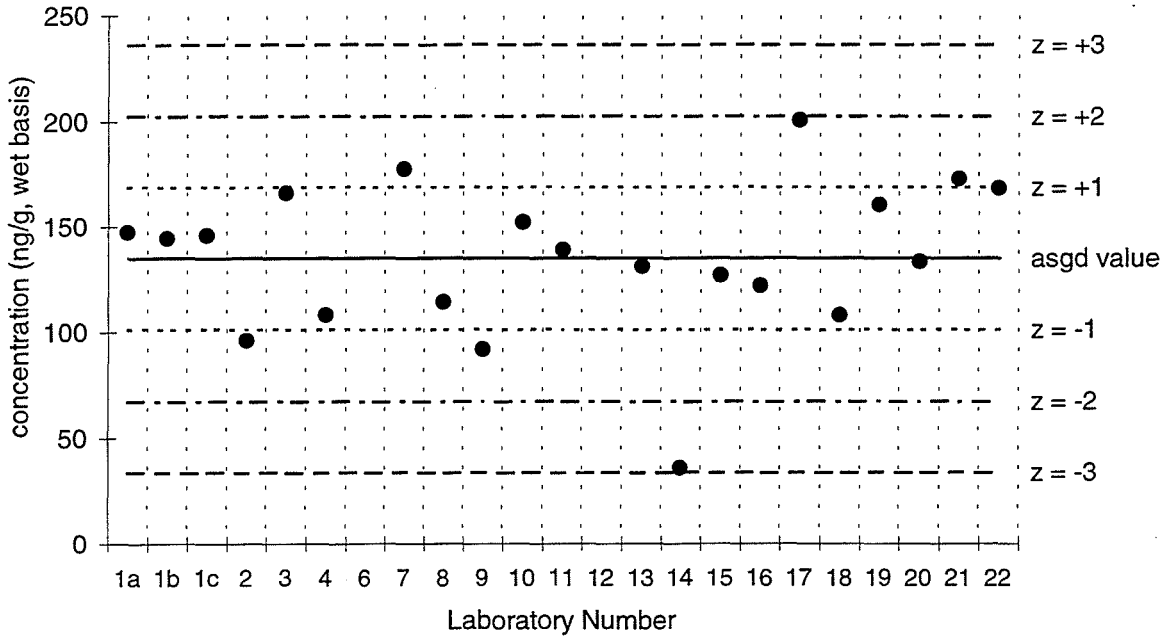
Reported Results: 18 Quantitative Results: 18



PCB 118 **Fish Homogenate III (QA95FSH3)**

Assigned value = 135 ng/g s = 25 ng/g 95% CL = 11 ng/g (wet basis)

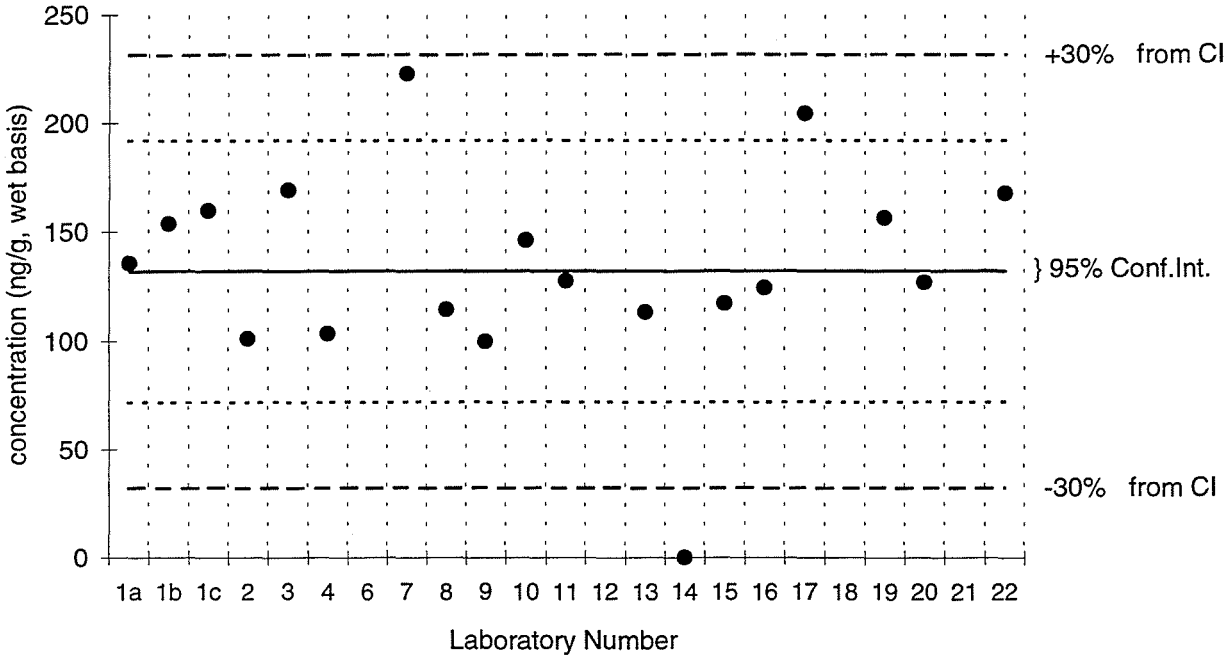
Reported Results: 21 Quantitative results: 21



PCB 118 **CRM CARP-1**

Certified Value = 132 ± 60 ng/g (wet basis)

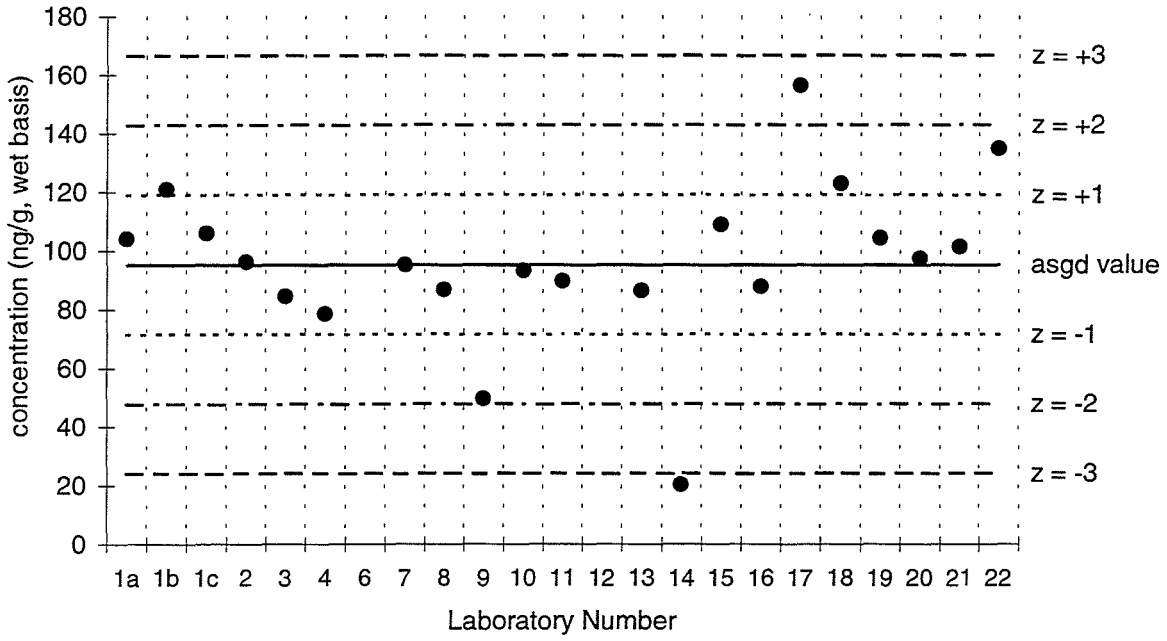
Reported Results: 19 Quantitative Results: 19



PCB 153 **Fish Homogenate III (QA95FSH3)**

Assigned value = 95.1 ng/g s = 16.5 ng/g 95% CL = 7.5 ng/g (wet basis)

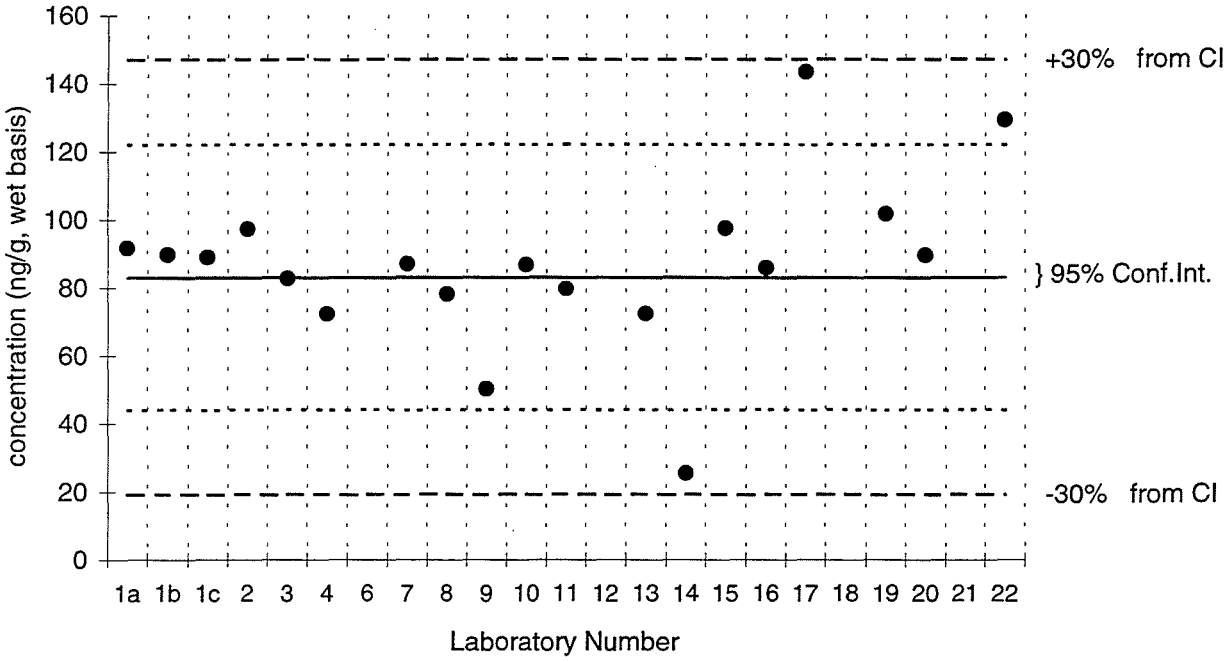
Reported Results: 21 Quantitative results: 21



PCB 153 **CRM CARP-1**

Certified Value = 83 ± 39 ng/g (wet basis)

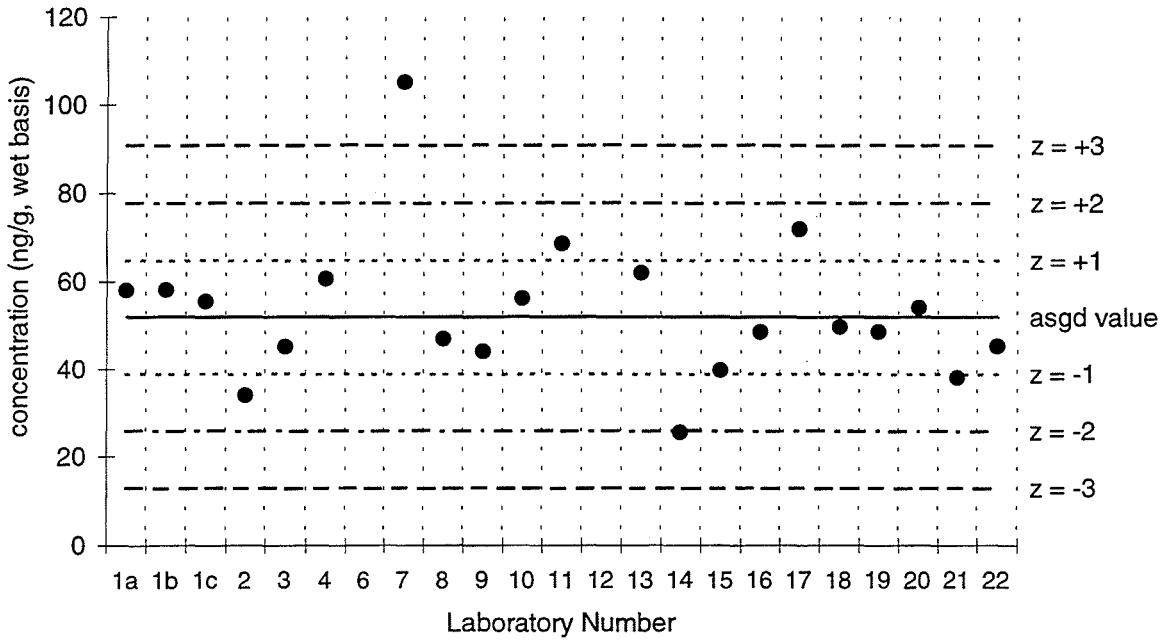
Reported Results: 19 Quantitative Results: 19



PCB 105 **Fish Homogenate III (QA95FSH3)**

Assigned value = 51.9 ng/g s = 10.1 ng/g 95% CL = 4.6 ng/g (wet basis)

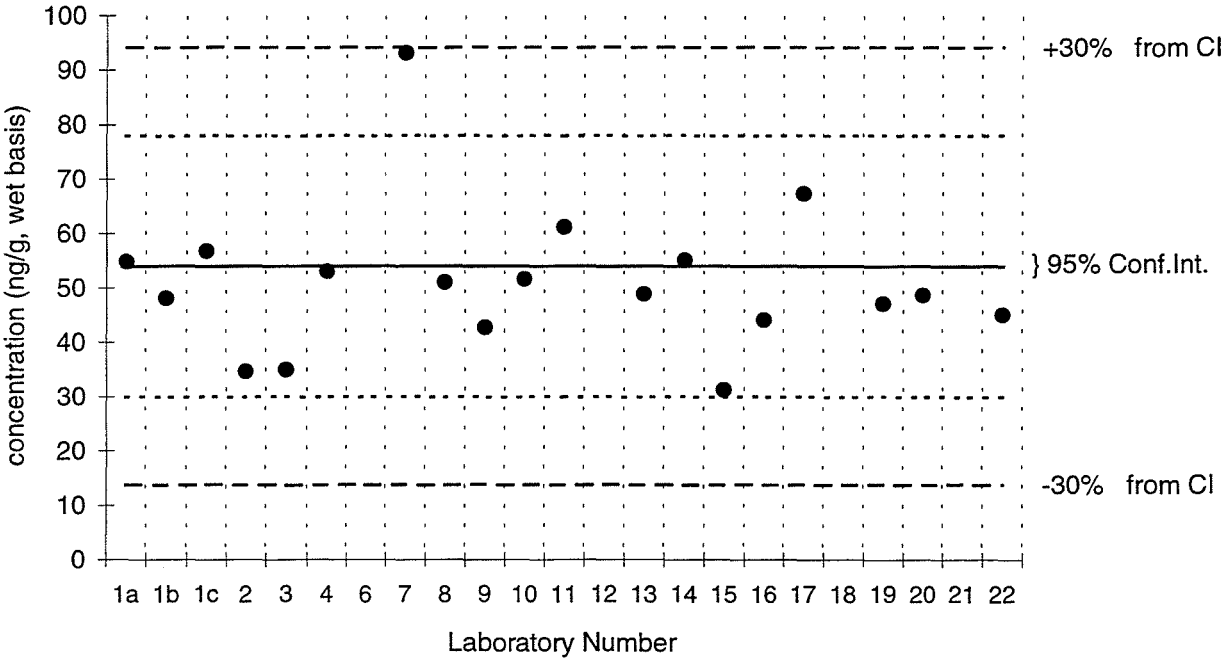
Reported Results: 21 Quantitative results: 21



PCB 105 **CRM CARP-1**

Certified Value = 54.0 ± 24.0 ng/g (wet basis)

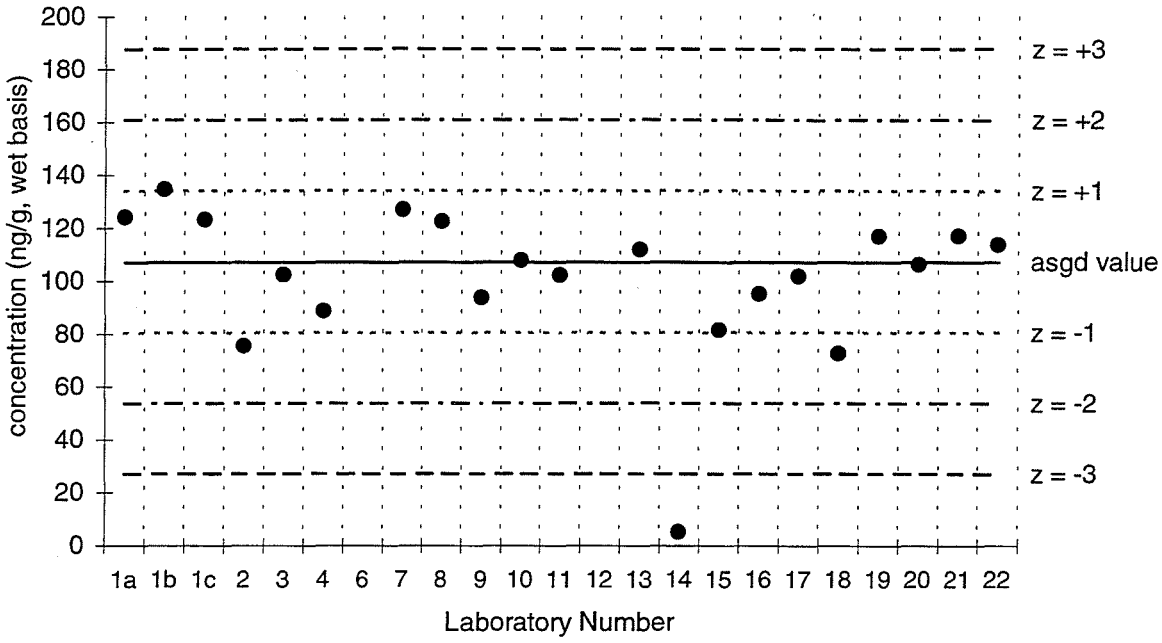
Reported Results: 19 Quantitative Results: 19



PCB 138/163/164 — Fish Homogenate III (QA95FSH3)

Assigned value = 107 ng/g s = 17 ng/g 95% CL = 8 ng/g (wet basis)

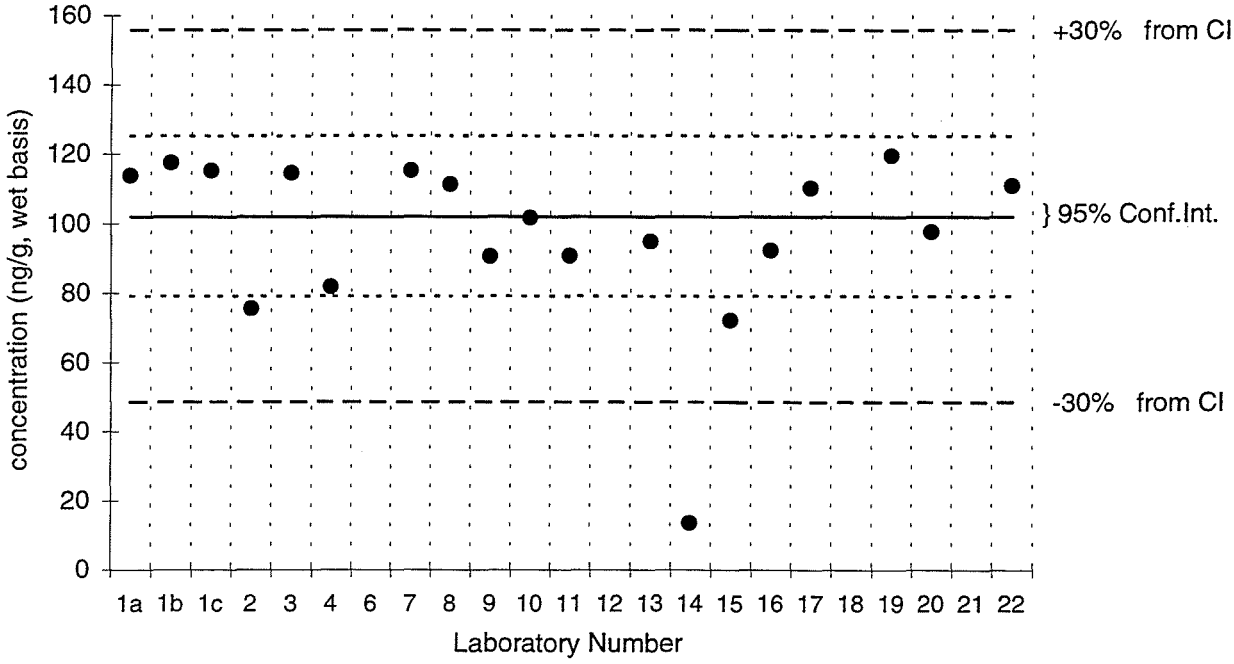
Reported Results: 21 Quantitative results: 21



PCB 138/163/164 — CRM CARP-1

Certified Value = 102 ± 23 ng/g (wet basis)

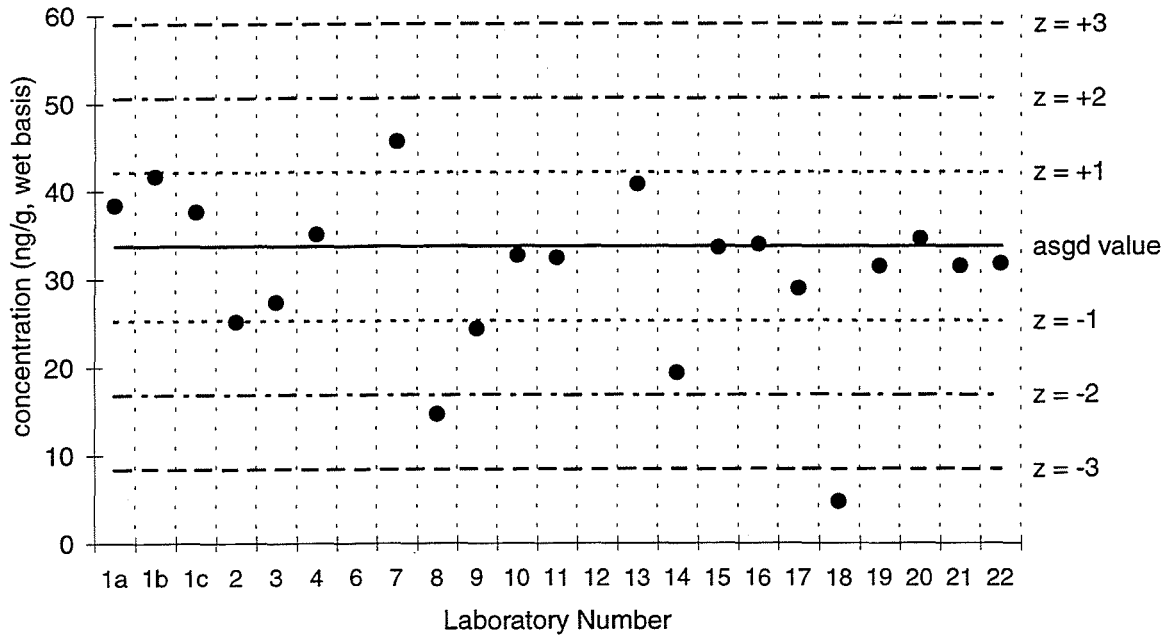
Reported Results: 19 Quantitative Results: 19



PCB 187/182 — Fish Homogenate III (QA95FSH3)

Assigned value = 33.8 ng/g s = 5.6 ng/g 95% CL = 2.6 ng/g (wet basis)

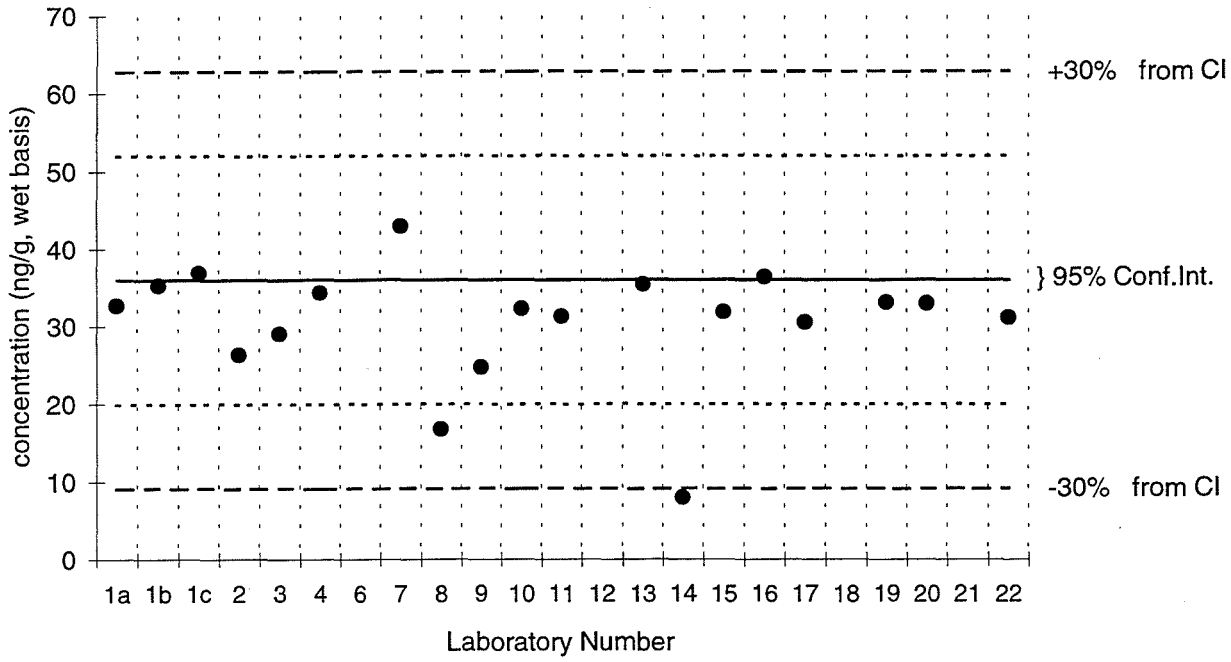
Reported Results: 21 Quantitative results: 21



PCB 187/182 — CRM CARP-1

Certified Value = 36 ± 16 ng/g (wet basis)

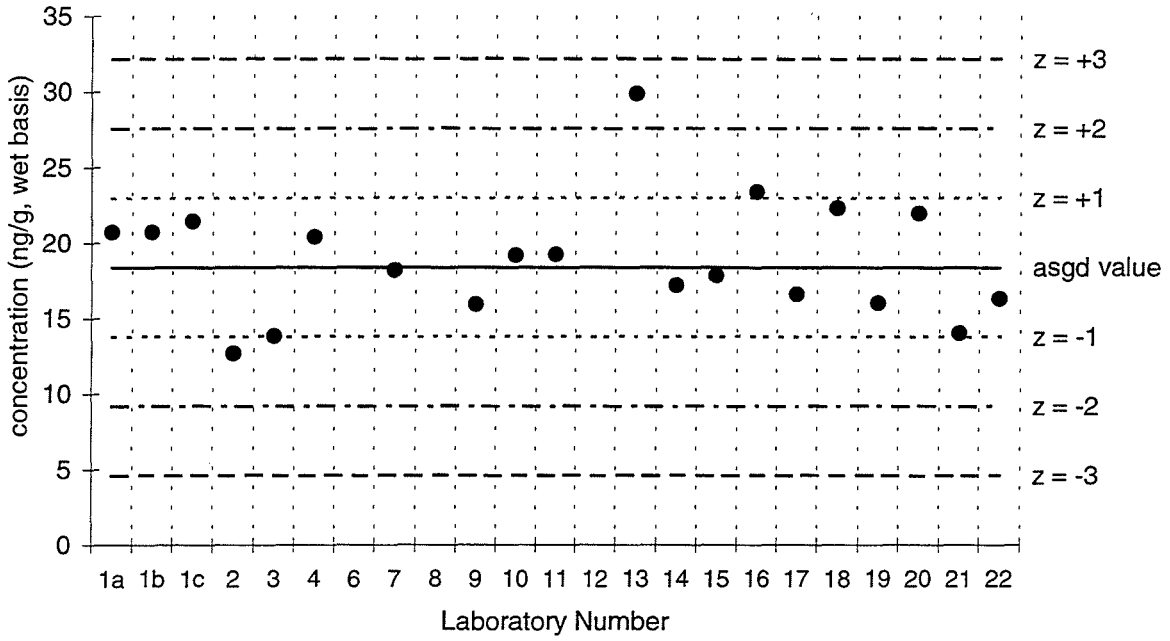
Reported Results: 19 Quantitative Results: 19



PCB 128 **Fish Homogenate III (QA95FSH3)**

Assigned value = 18.4 ng/g s = 3.2 ng/g 95% CL = 1.5 ng/g (wet basis)

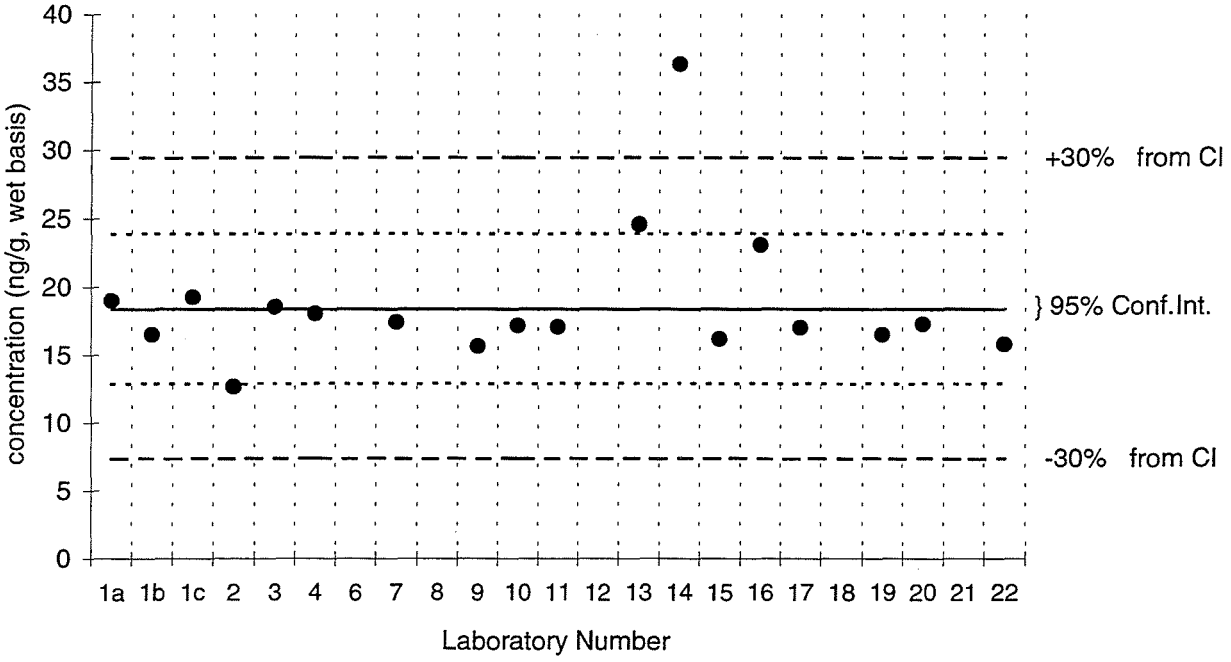
Reported Results: 20 Quantitative results: 20



PCB 128 **CRM CARP-1**

Target Value = 18.4 ± 5.5 ng/g (wet basis)

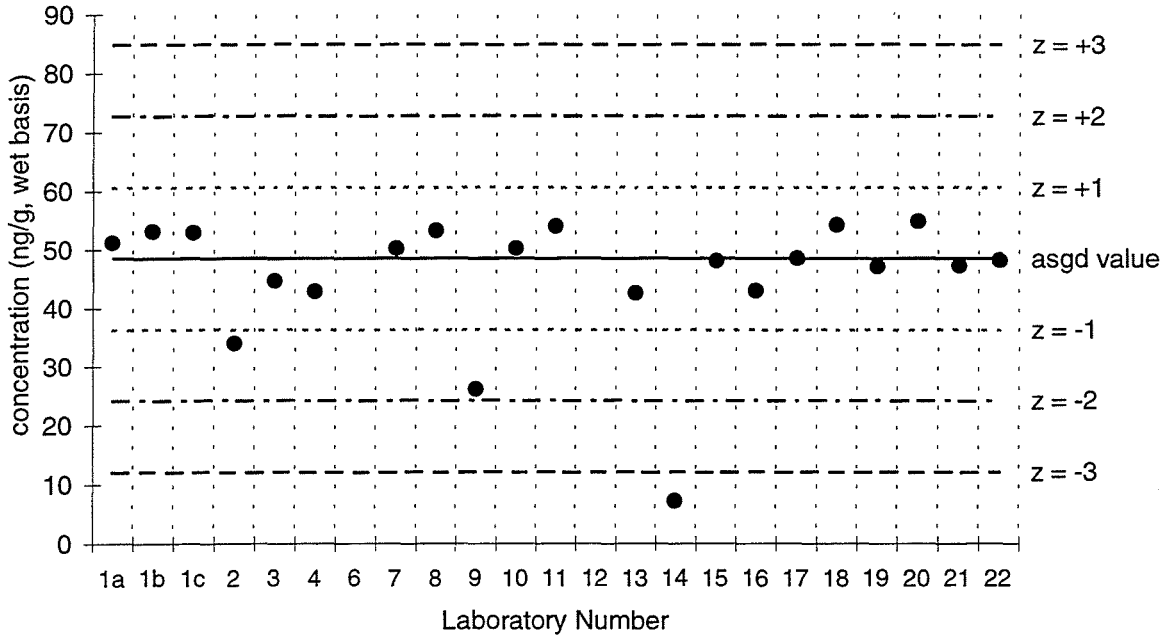
Reported Results: 18 Quantitative Results: 18



PCB 180 — Fish Homogenate III (QA95FSH3)

Assigned value = 48.5 ng/g s = 5.3 ng/g 95% CL = 2.4 ng/g (wet basis)

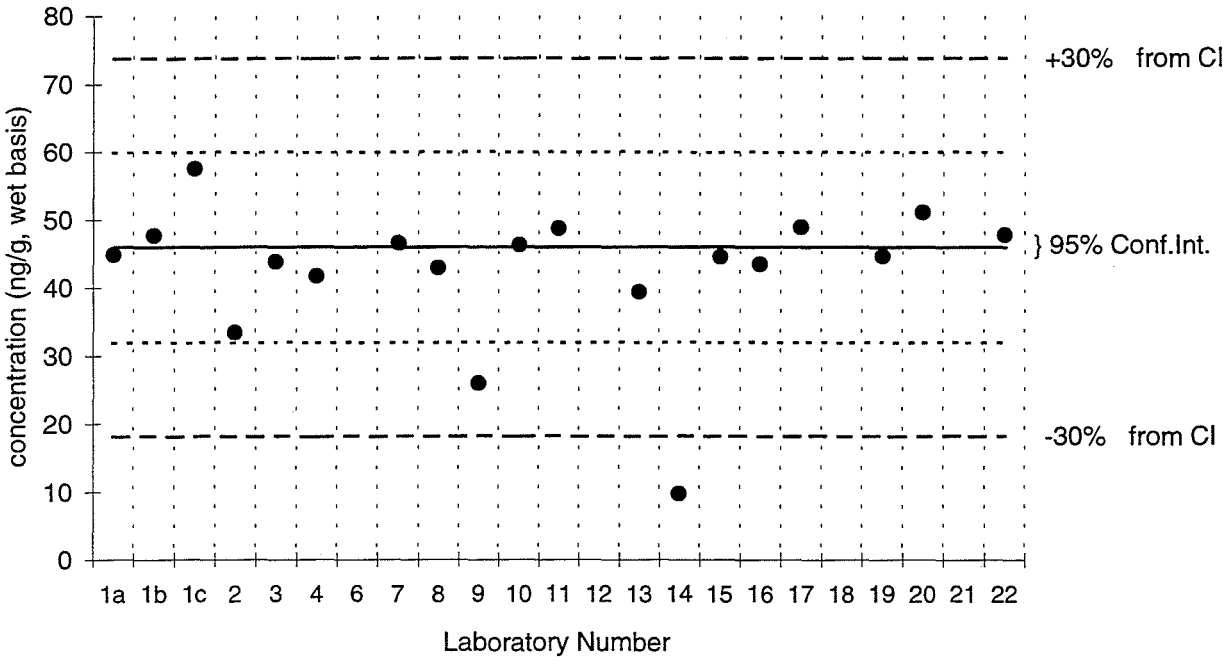
Reported Results: 21 Quantitative results: 21



PCB 180 — CRM CARP-1

Certified Value = 46 ± 14 ng/g (wet basis)

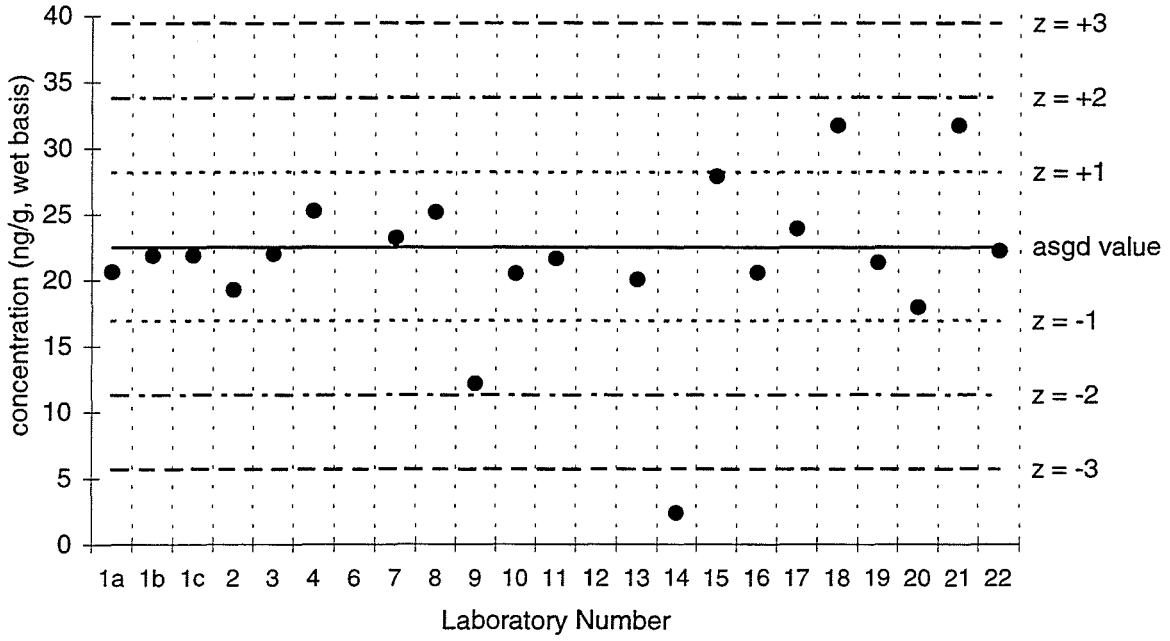
Reported Results: 19 Quantitative Results: 19



PCB 170/190 — Fish Homogenate III (QA95FSH3)

Assigned value = 22.5 ng/g s = 4.4 ng/g 95% CL = 2.0 ng/g (wet basis)

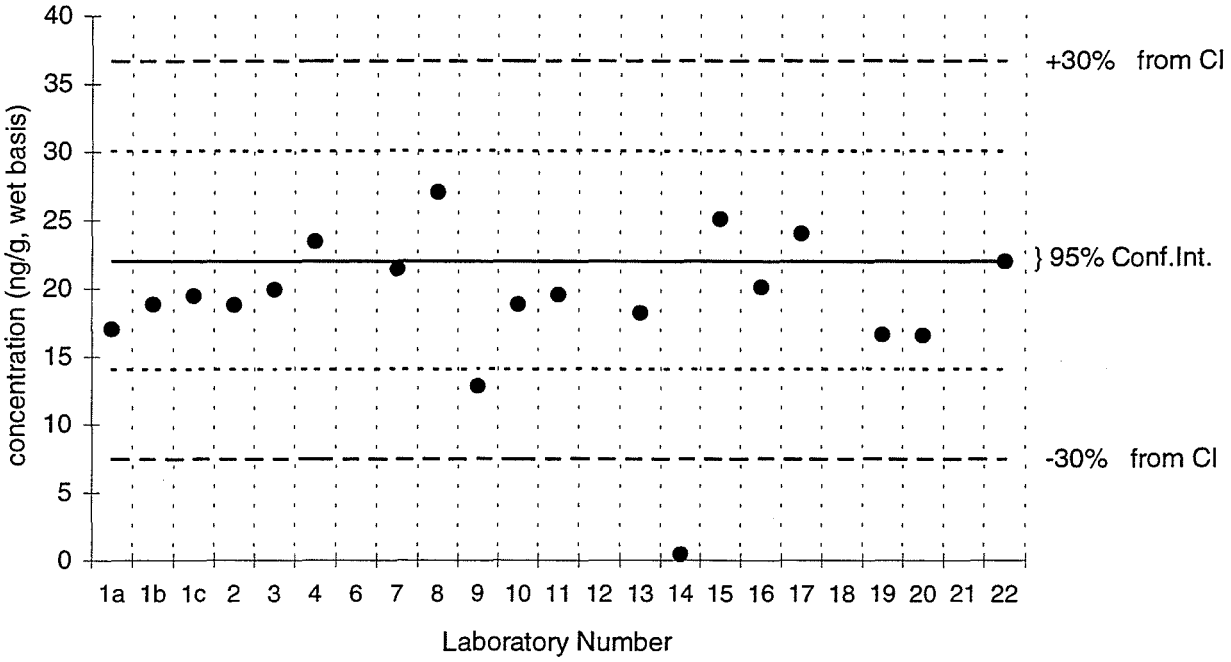
Reported Results: 21 Quantitative results: 21



PCB 170/190 — CRM CARP-1

Certified Value = 22 ± 8 ng/g (wet basis)

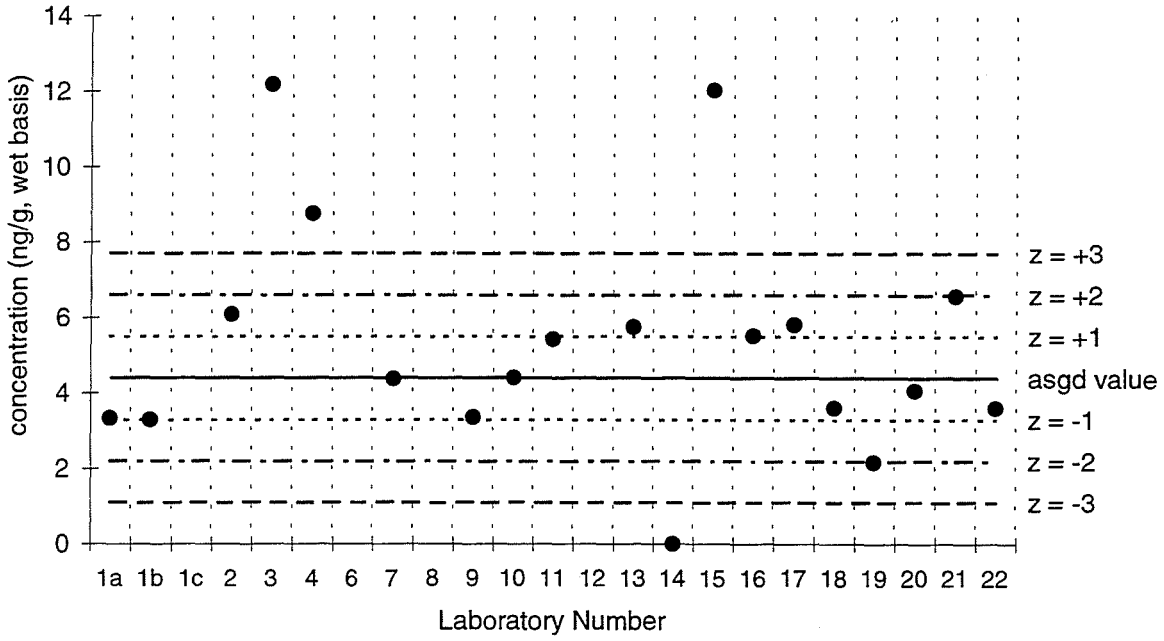
Reported Results: 19 Quantitative Results: 19



PCB 195 — Fish Homogenate III (QA95FSH3)

Assigned value = 4.41 ng/g s = 1.29 ng/g 95% CL = 0.62 ng/g (wet basis)

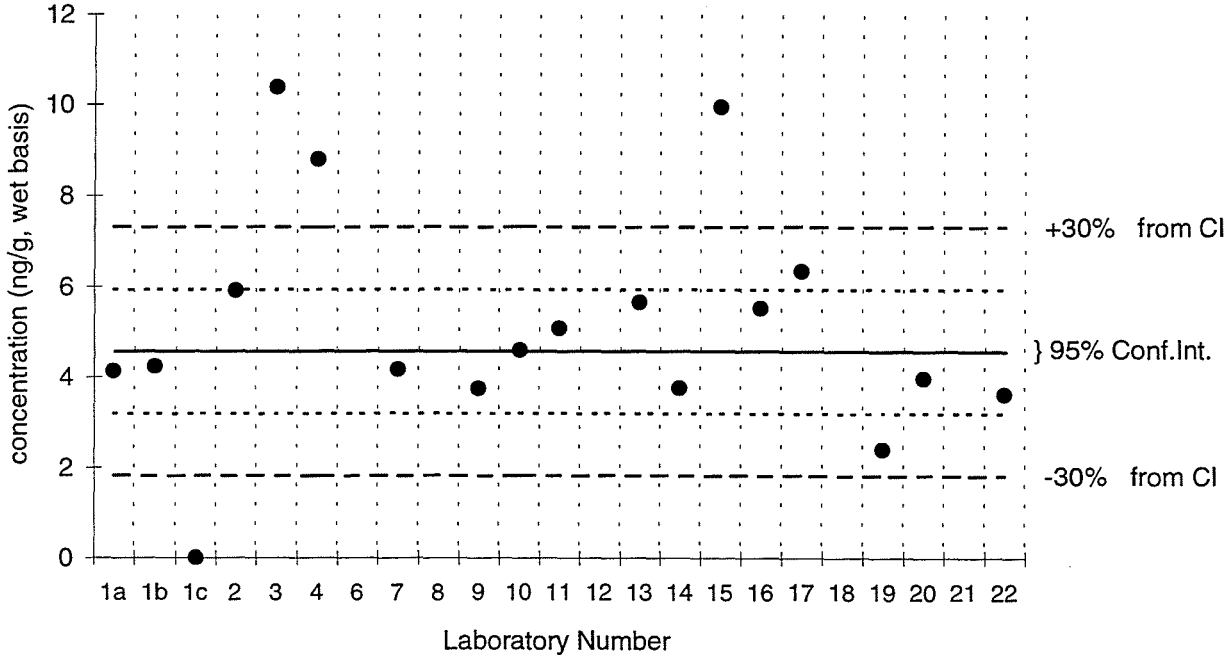
Reported Results: 20 Quantitative results: 19



PCB 195 — CRM CARP-1

Target Value = 4.58 ± 1.37 ng/g (wet basis)

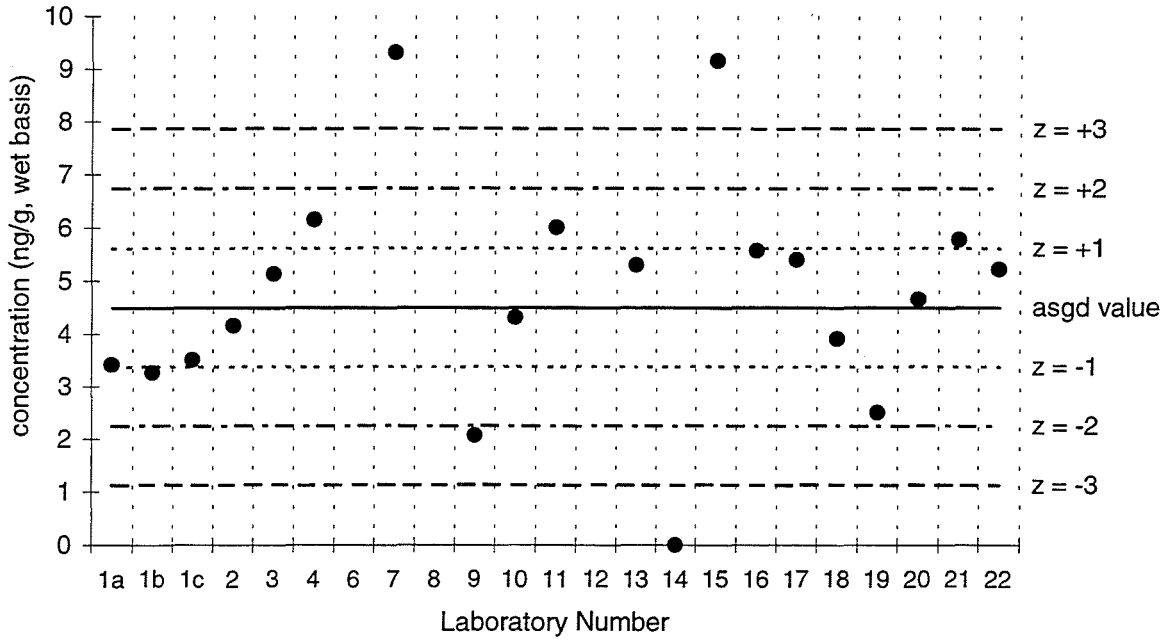
Reported Results: 18 Quantitative Results: 17



PCB 206 **Fish Homogenate III (QA95FSH3)**

Assigned value = 4.49 ng/g s = 1.23 ng/g 95% CL = 0.58 ng/g (wet basis)

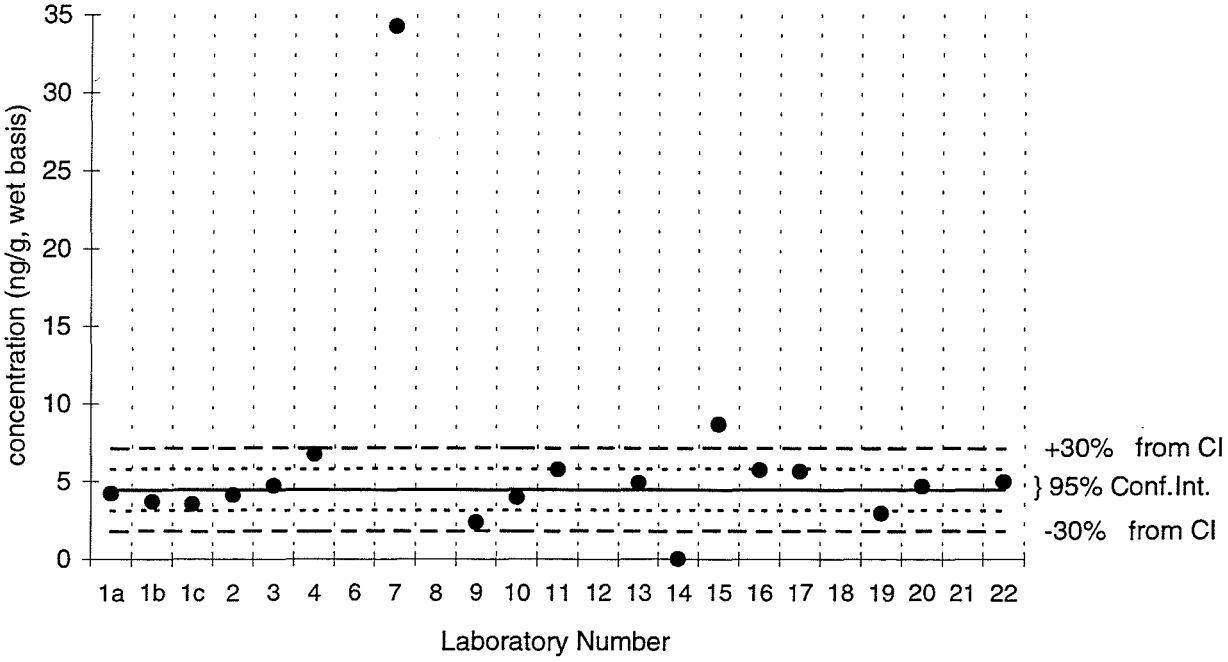
Reported Results: 20 Quantitative results: 20



PCB 206 **CRM CARP-1**

Target Value = 4.47 ± 1.34 ng/g (wet basis)

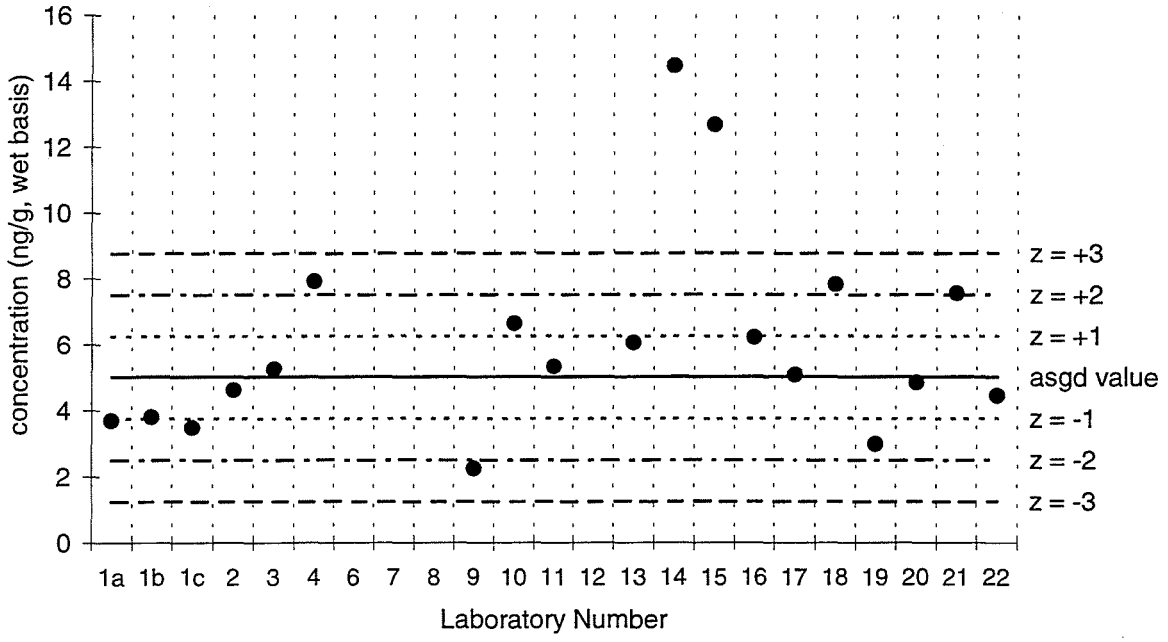
Reported Results: 18 Quantitative Results: 18



PCB 209 **Fish Homogenate III (QA95FSH3)**

Assigned value = 5.01 ng/g s = 1.58 ng/g 95% CL = 0.76 ng/g (wet basis)

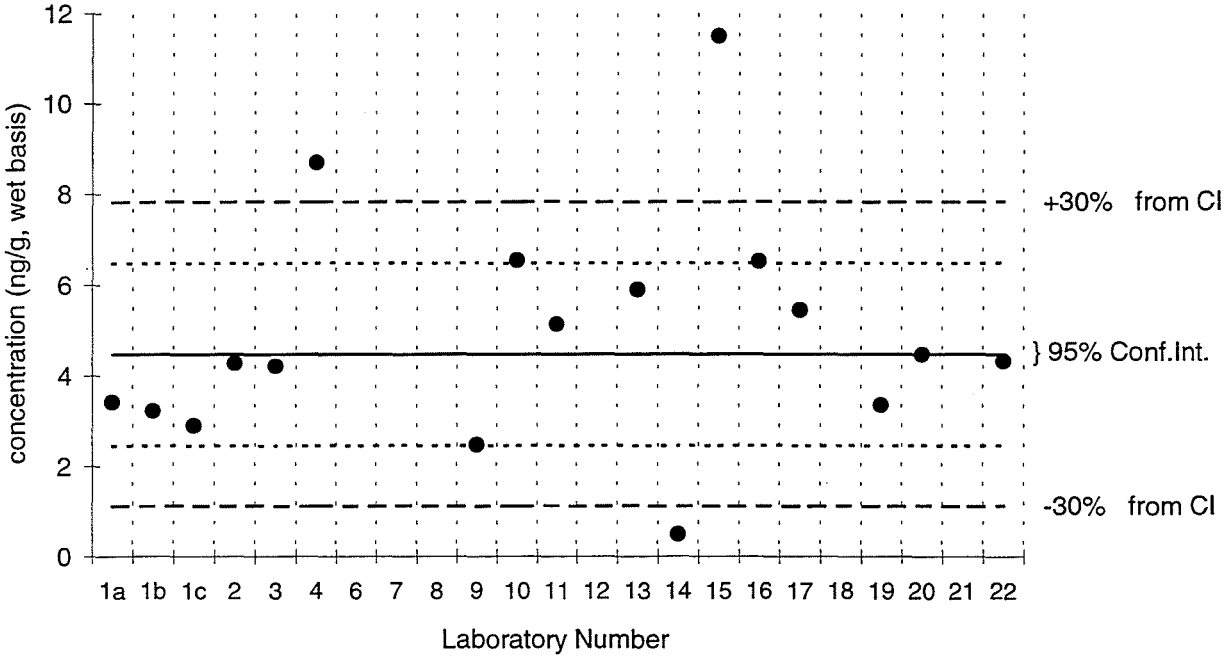
Reported Results: 19 Quantitative results: 19



PCB 209 **CRM CARP-1**

Target Value = 4.48 ± 2.01 ng/g (wet basis)

Reported Results: 17 Quantitative Results: 17



Appendix J: Charts of Sediment V and SRM 1941a Results by Analyte

See Tables 4, 5, and 6 and Appendix D for results reported as <*number*, DL, etc.
Charts for analytes with few reported numerical results are not included in this appendix.

For Sediment V plots:

Solid line:	exercise assigned value
Dotted line:	$z = \pm 1$, i. e., 25% from assigned value
Dotted/dashed line:	$z = \pm 2$, i. e., 50% from assigned value
Dashed line:	$z = \pm 3$, i. e., 75% from assigned value

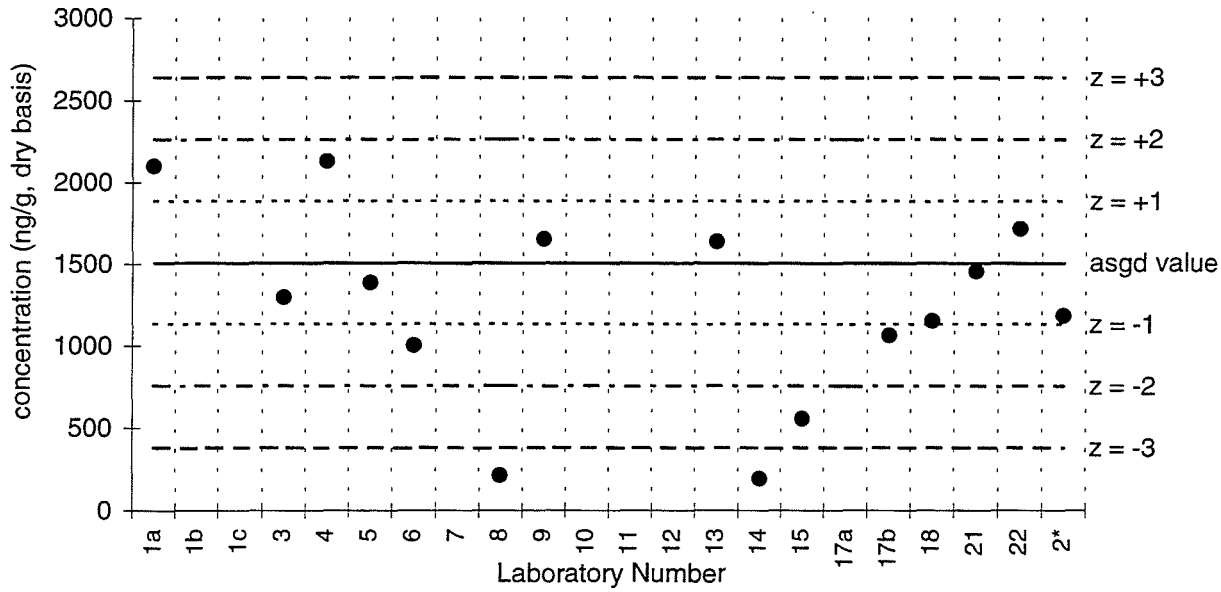
For SRM 1941a plots:

Solid line:	material certified concentration, certificate information concentration or target value (see caption of each plot)
Dotted line:	95% confidence limits
Dashed line:	30% from 95% confidence limits

naphthalene — Sediment V (QA95SED5)

Assigned value = 1506 ng/g s = 382 ng/g 95% CL = 257 ng/g (dry basis)

Reported Results: 15 Quantitative results: 15

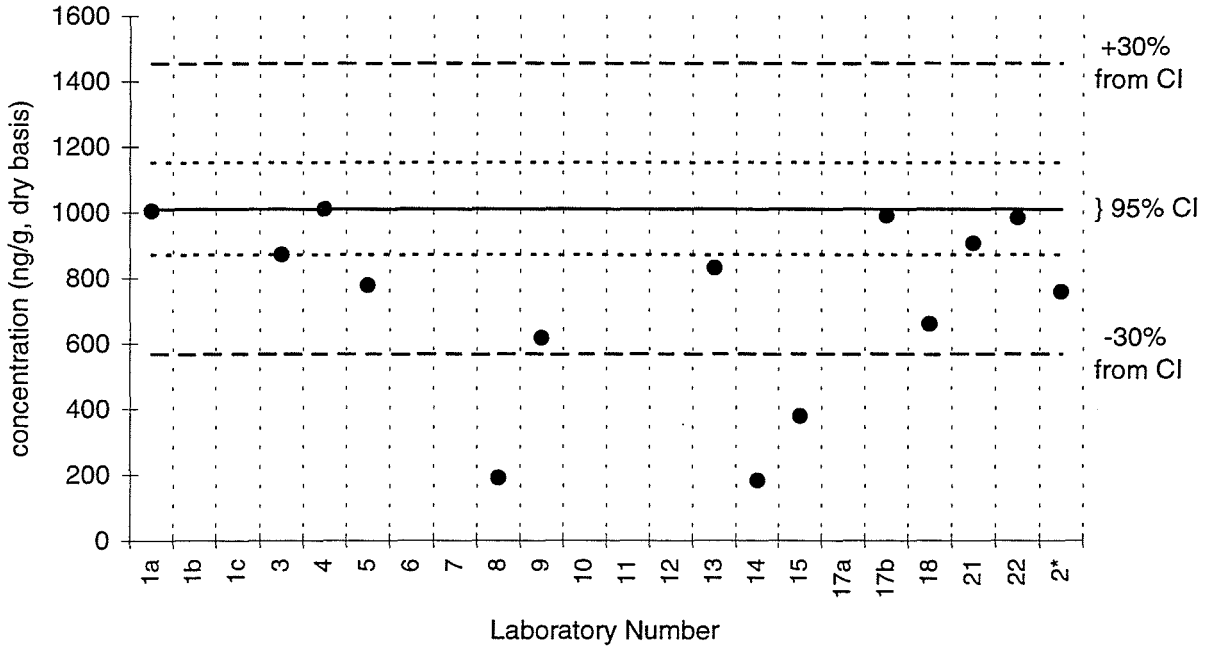


**Laboratory 2 results were received after exercise results made public*

naphthalene — SRM 1941a

Certified Value = 1010 ± 140 ng/g (dry basis)

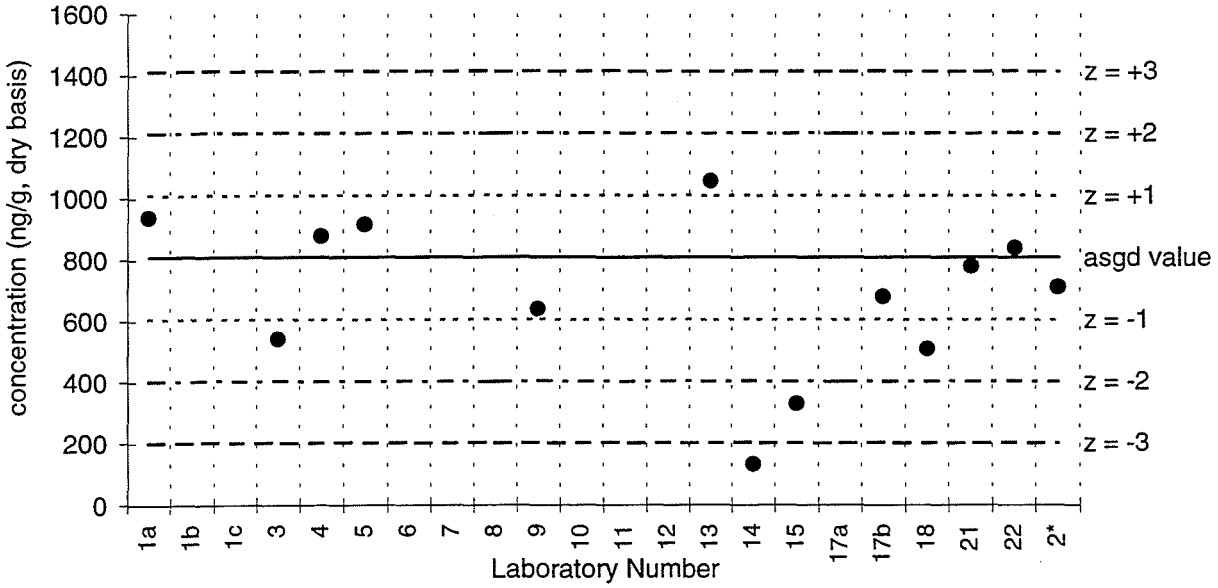
Reported Results: 14 Quantitative Results: 14



2-methylnaphthalene — Sediment V (QA95SED5)

Assigned value = 808 ng/g s = 164 ng/g 95% CL = 126 ng/g (dry basis)

Reported Results: 13 Quantitative results: 13

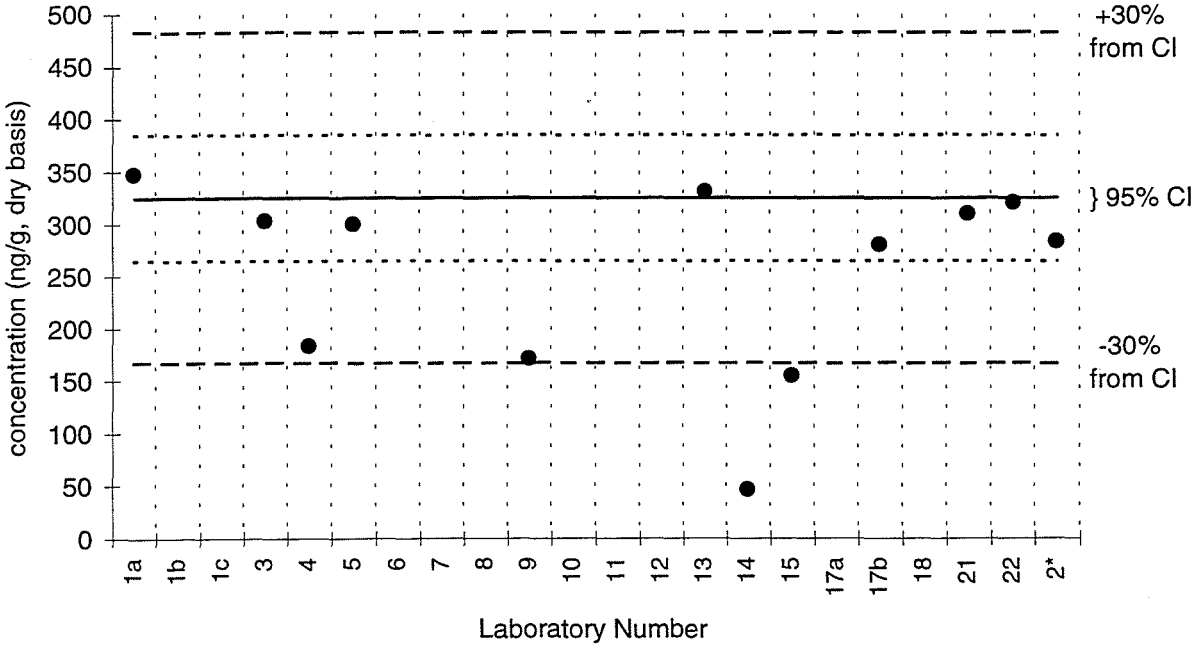


**Laboratory 2 results were received after exercise results made public*

2-methylnaphthalene — SRM 1941a

Target Value = 325 ± 60 ng/g (dry basis)

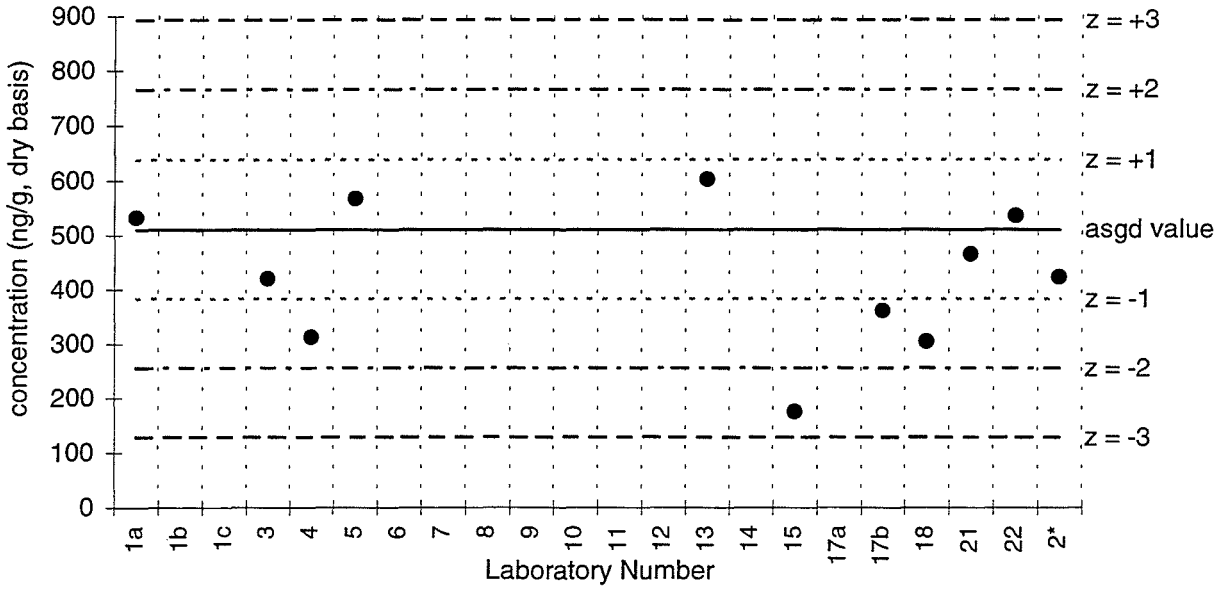
Reported Results: 12 Quantitative Results: 12



1-methylnaphthalene — Sediment V (QA95SED5)

Assigned value = 510 ng/g s = 86 ng/g 95% CL = 90 ng/g (dry basis)

Reported Results: 11 Quantitative results: 11

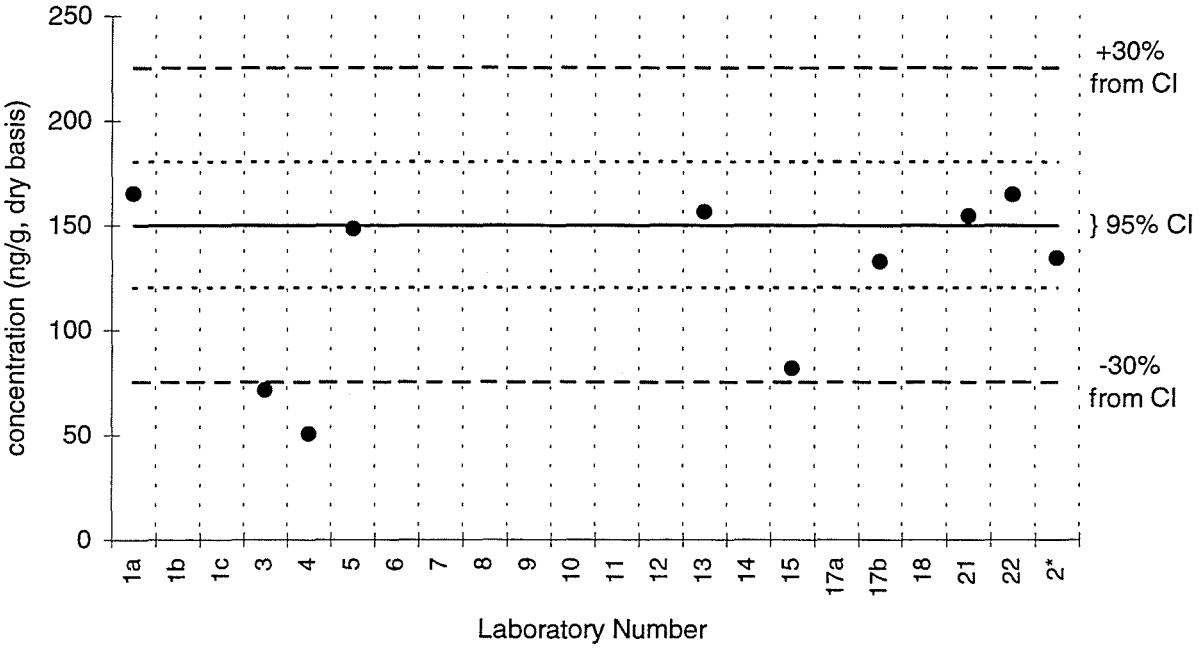


**Laboratory 2 results were received after exercise results made public*

1-methylnaphthalene — SRM 1941a

Target Value = 150 ± 30 ng/g (dry basis)

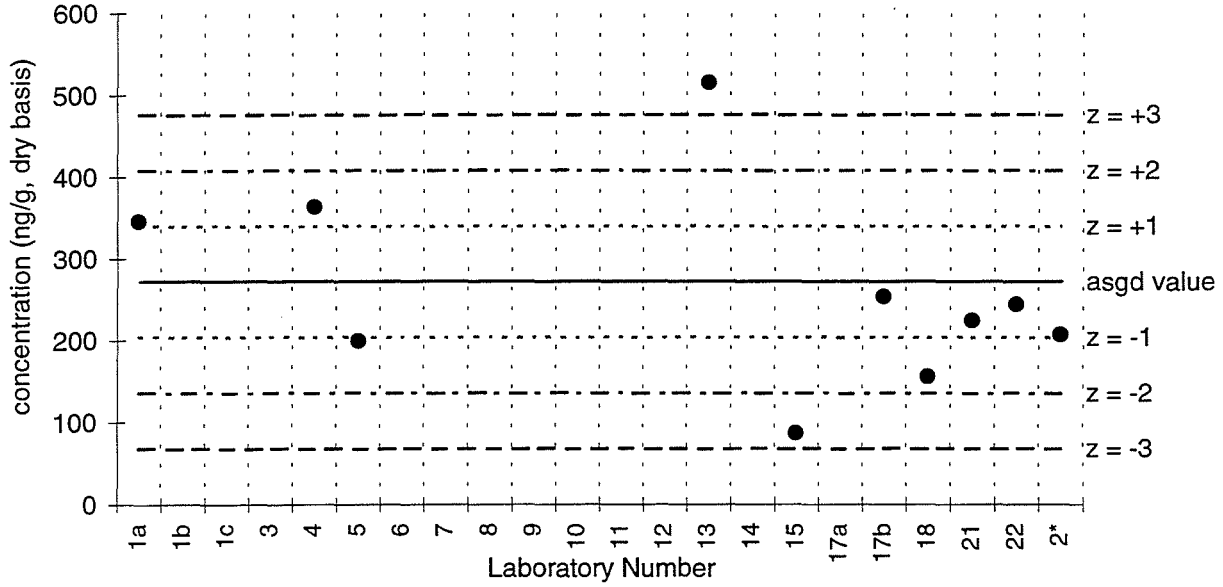
Reported Results: 10 Quantitative Results: 10



biphenyl — Sediment V (QA95SED5)

Assigned value = 272 ng/g s = 67 ng/g 95% CL = 70 ng/g (dry basis)

Reported Results: 10 Quantitative results: 10

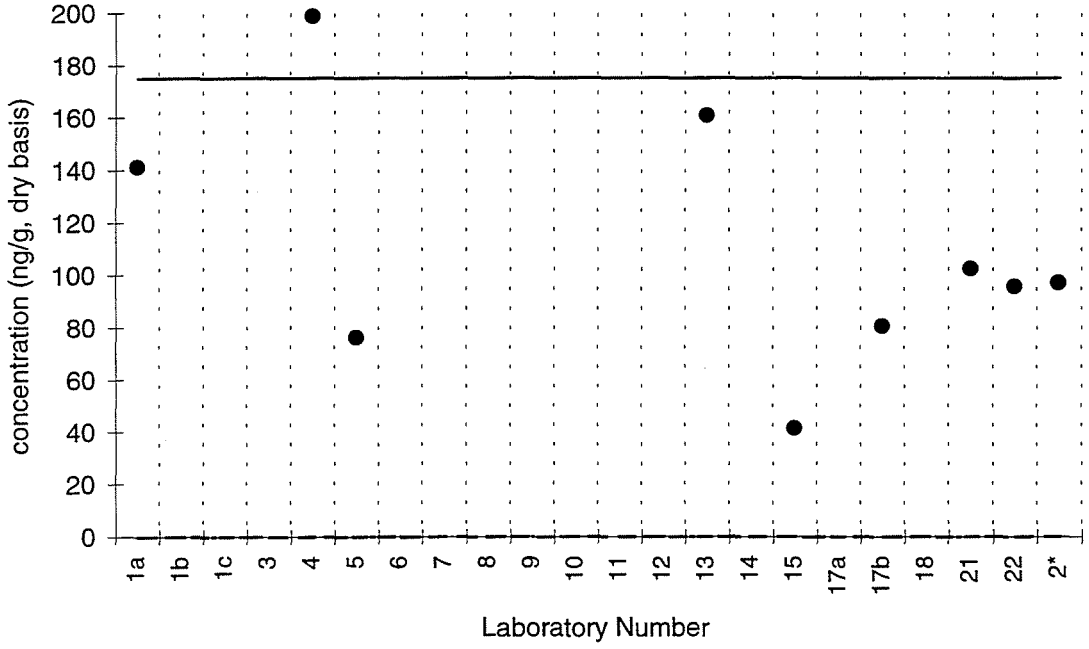


Laboratory 2 results were received after exercise results made public

biphenyl — SRM 1941a

Information (?) Value = 175 ± 18 ng/g (dry basis)

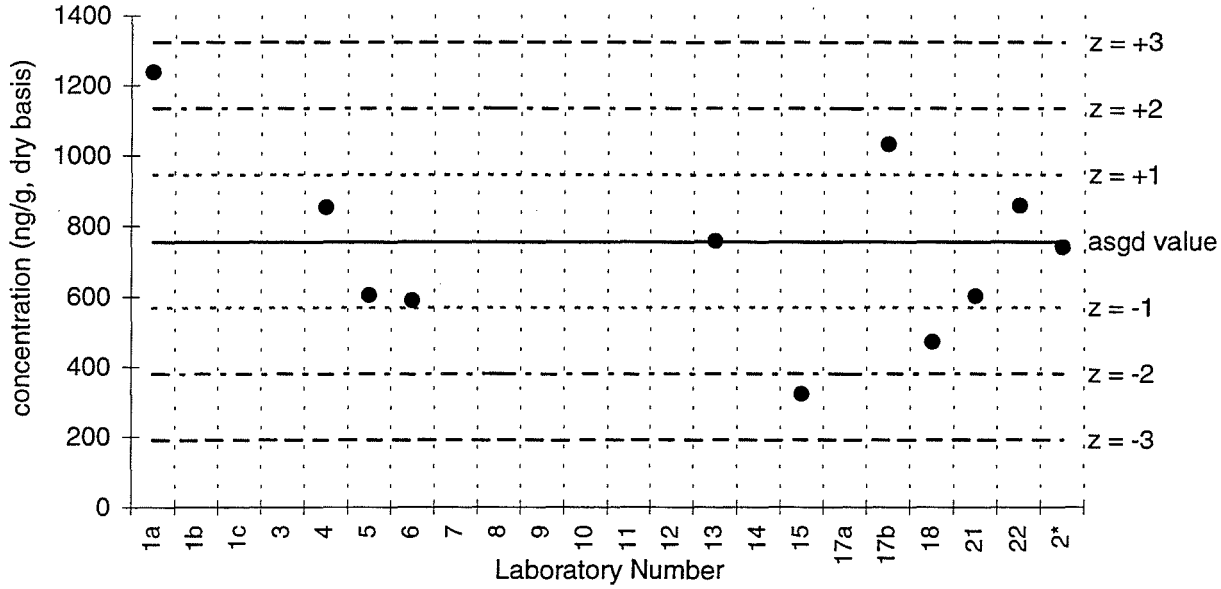
Reported Results: 9 Quantitative Results: 9



2,6-dimethylnaphthalene — Sediment V (QA95SED5)

Assigned value = 755 ng/g s = 169 ng/g 95% CL = 156 ng/g (dry basis)

Reported Results: 11 Quantitative results: 11

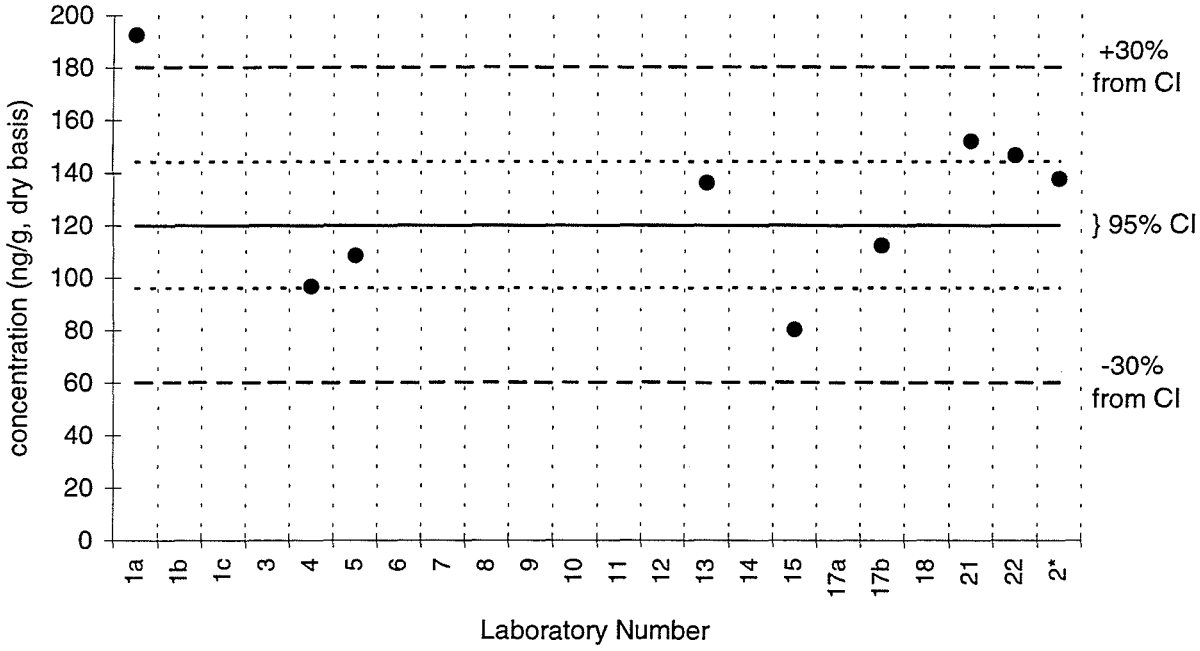


Laboratory 2 results were received after exercise results made public

2,6-dimethylnaphthalene — SRM 1941a

Target Value = 120 ± 24 ng/g (dry basis)

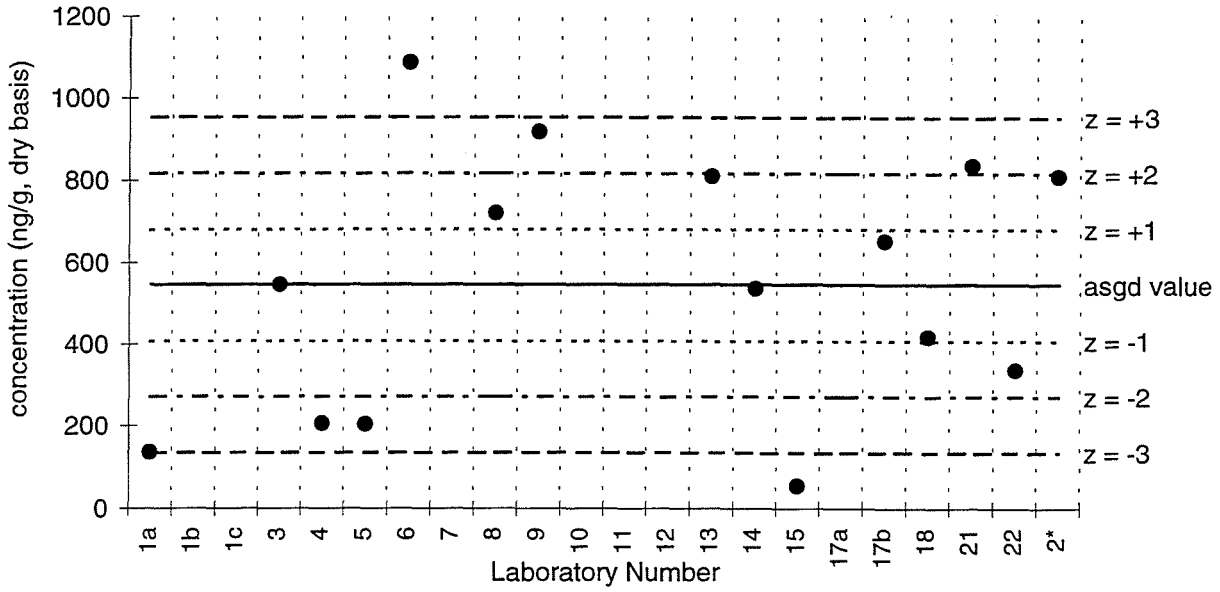
Reported Results: 9 Quantitative Results: 9



acenaphthylene — Sediment V (QA95SED5)

Assigned value = 546 ng/g s = 346 ng/g 95% CL = 266 ng/g (dry basis)

Reported Results: 15 Quantitative results: 15

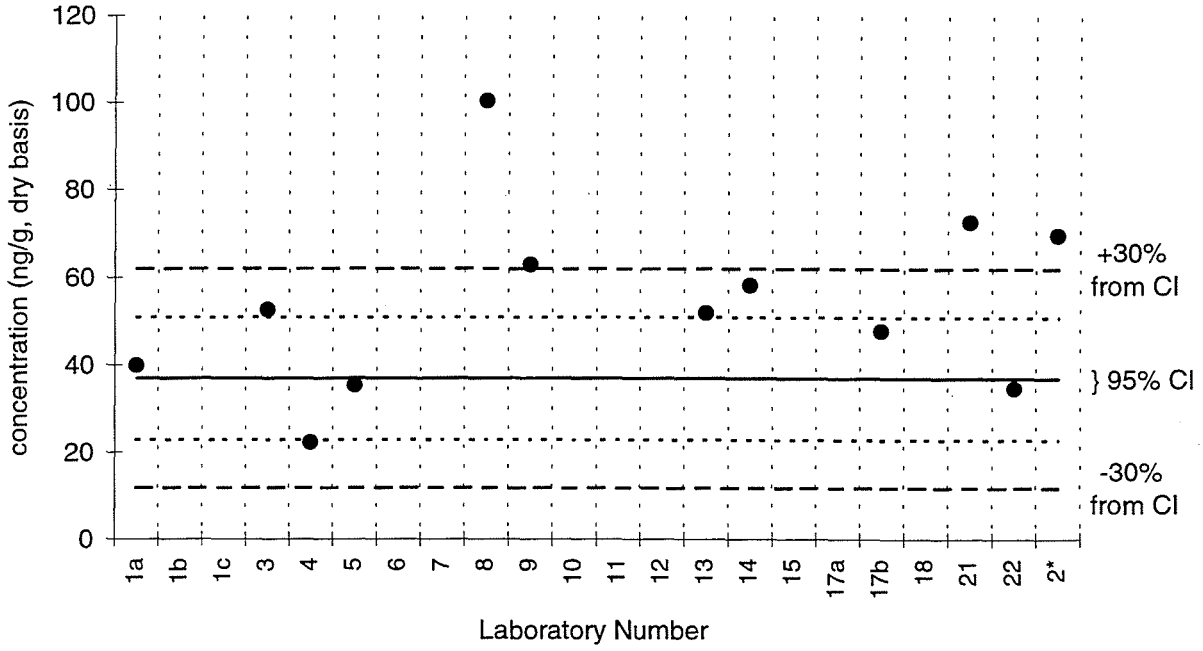


Laboratory 2 results were received after exercise results made public

acenaphthylene — SRM 1941a

Information Value = 37 ± 14 ng/g (dry basis)

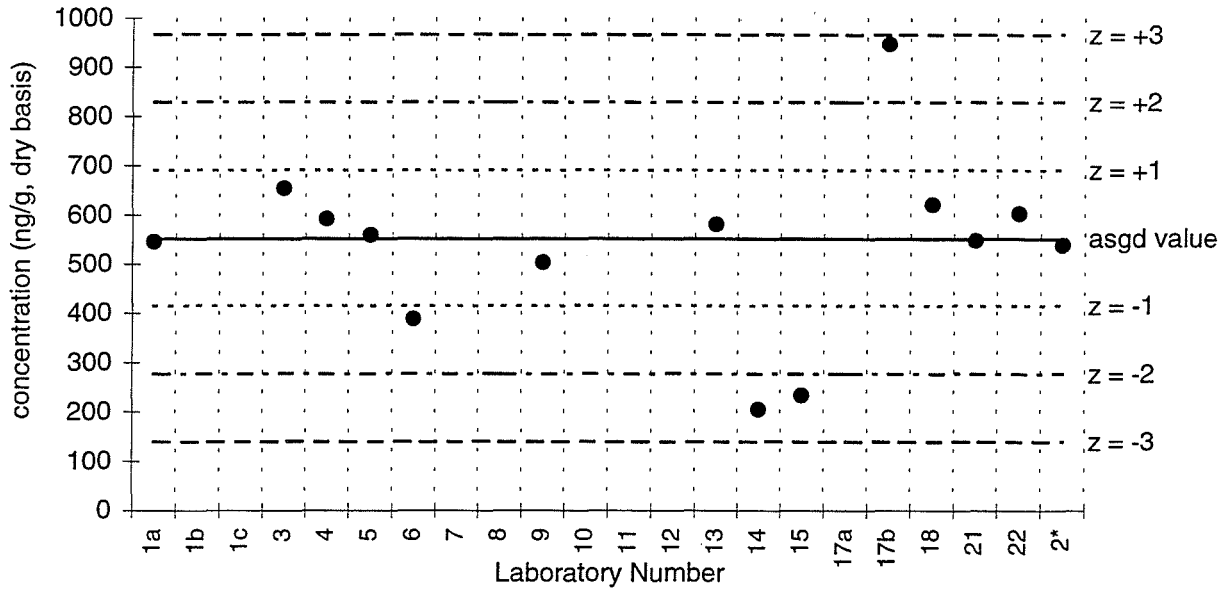
Reported Results: 13 Quantitative Results: 12



acenaphthene — Sediment V (QA95SED5)

Assigned value = 552 ng/g s = 75 ng/g 95% CL = 58 ng/g (dry basis)

Reported Results: 15 Quantitative results: 14

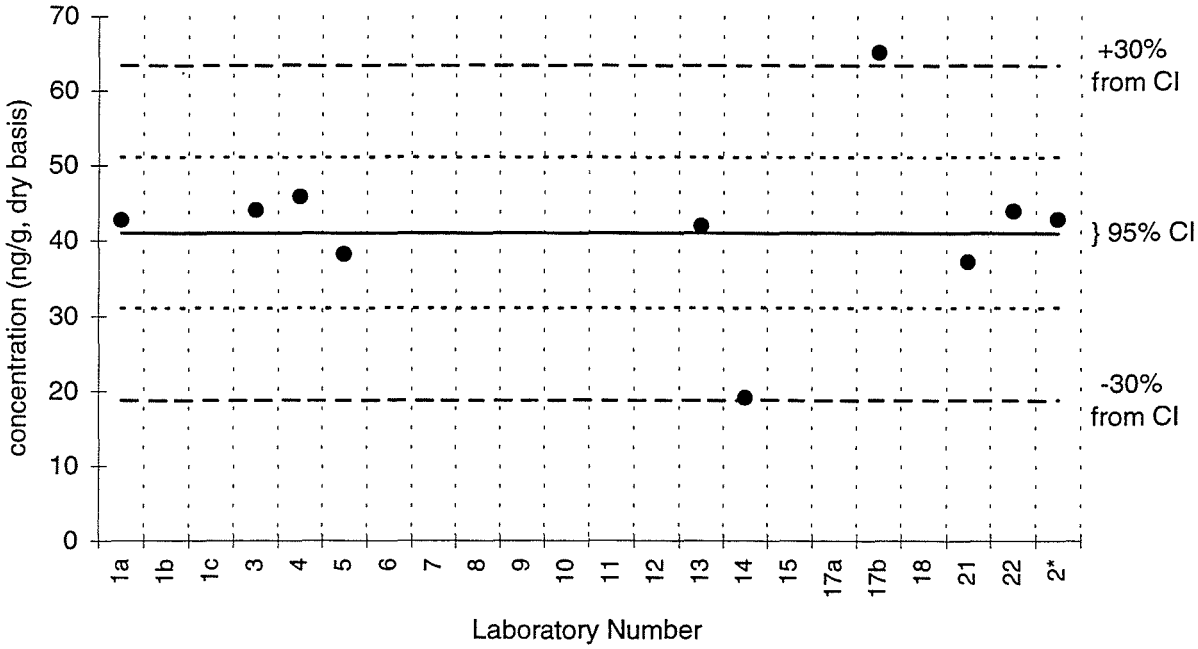


Laboratory 2 results were received after exercise results made public

acenaphthene — SRM 1941a

Information Value = 41 ± 10 ng/g (dry basis)

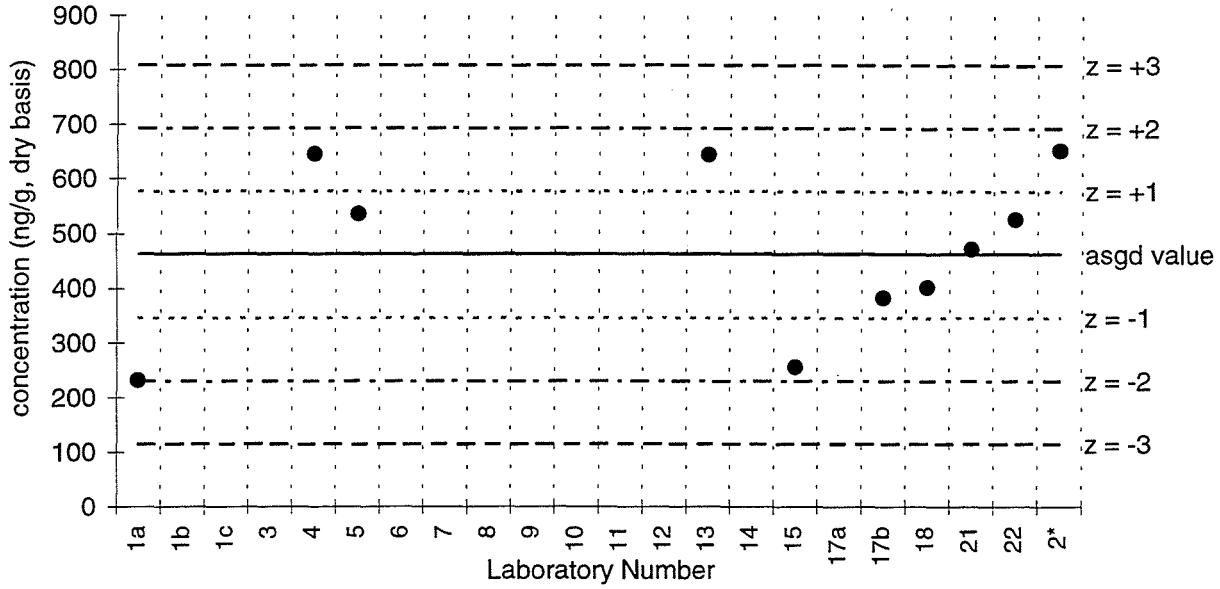
Reported Results: 13 Quantitative Results: 10



1,6,7-trimethylnaphthalene — Sediment V (QA95SED5)

Assigned value = 462 ng/g s = 159 ng/g 95% CL = 133 ng/g (dry basis)

Reported Results: 10 Quantitative results: 10

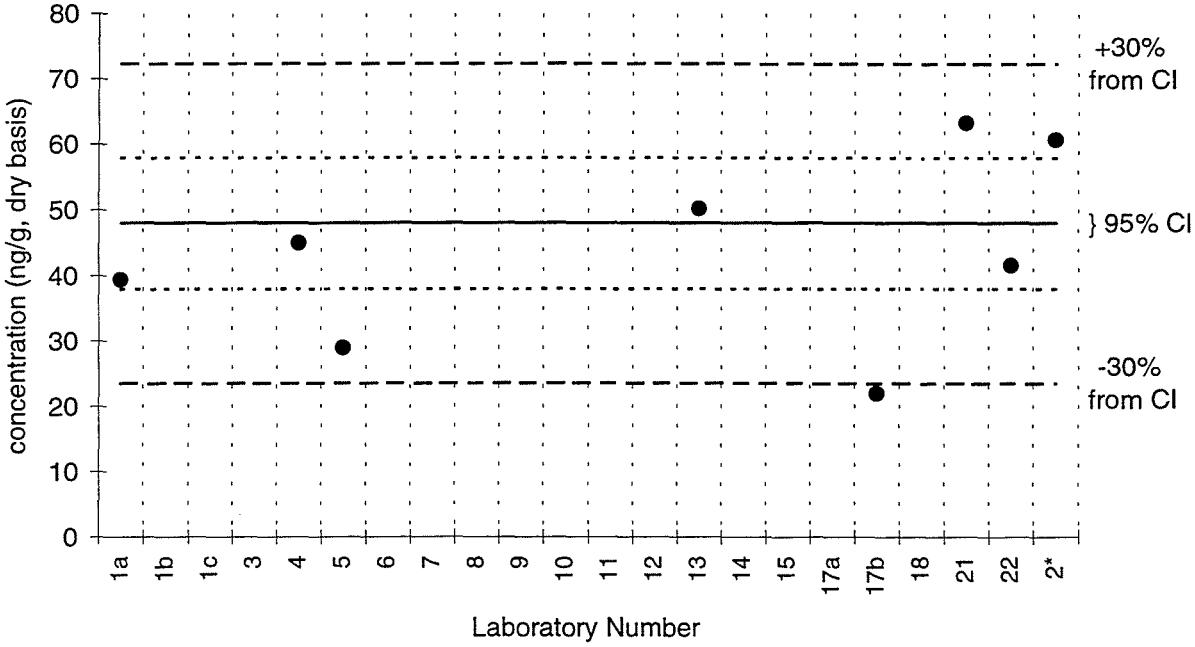


Laboratory 2 results were received after exercise results made public

1,6,7-trimethylnaphthalene — SRM 1941a

Target Value = 48 ± 10 ng/g (dry basis)

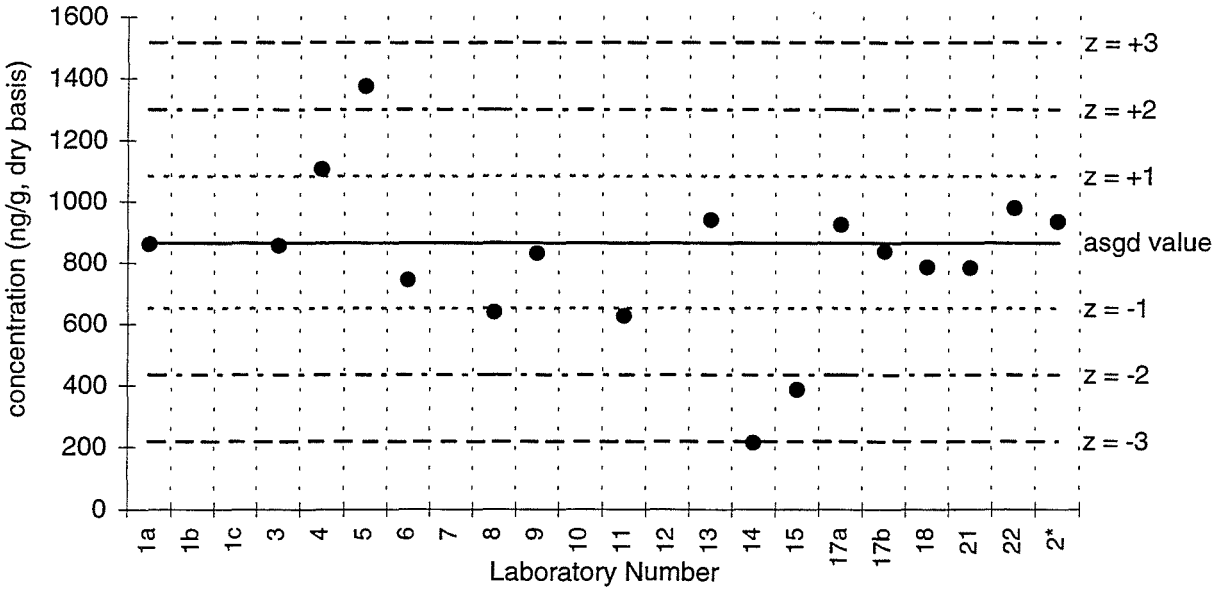
Reported Results: 9 Quantitative Results: 8



fluorene — Sediment V (QA95SED5)

Assigned value = 865 ng/g s = 231 ng/g 95% CL = 140 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

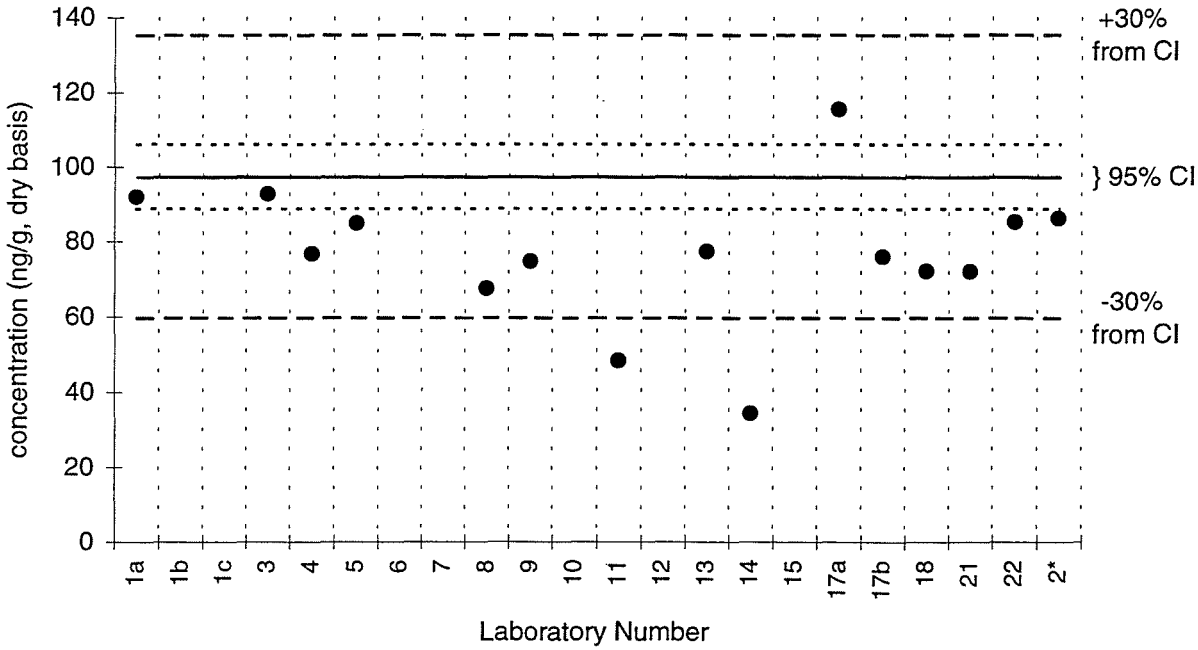


Laboratory 2 results were received after exercise results made public

fluorene — SRM 1941a

Certified Value = 97.3 ± 8.6 ng/g (dry basis)

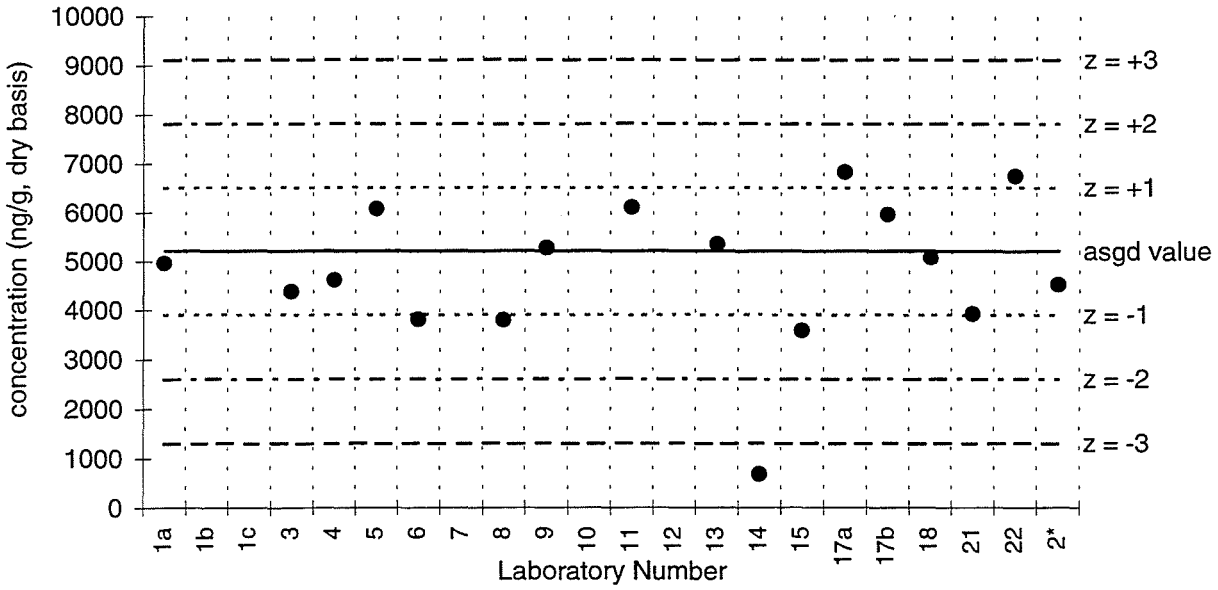
Reported Results: 16 Quantitative Results: 15



phenanthrene — Sediment V (QA95SED5)

Assigned value = 5212 ng/g s = 1033 ng/g 95% CL = 596 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

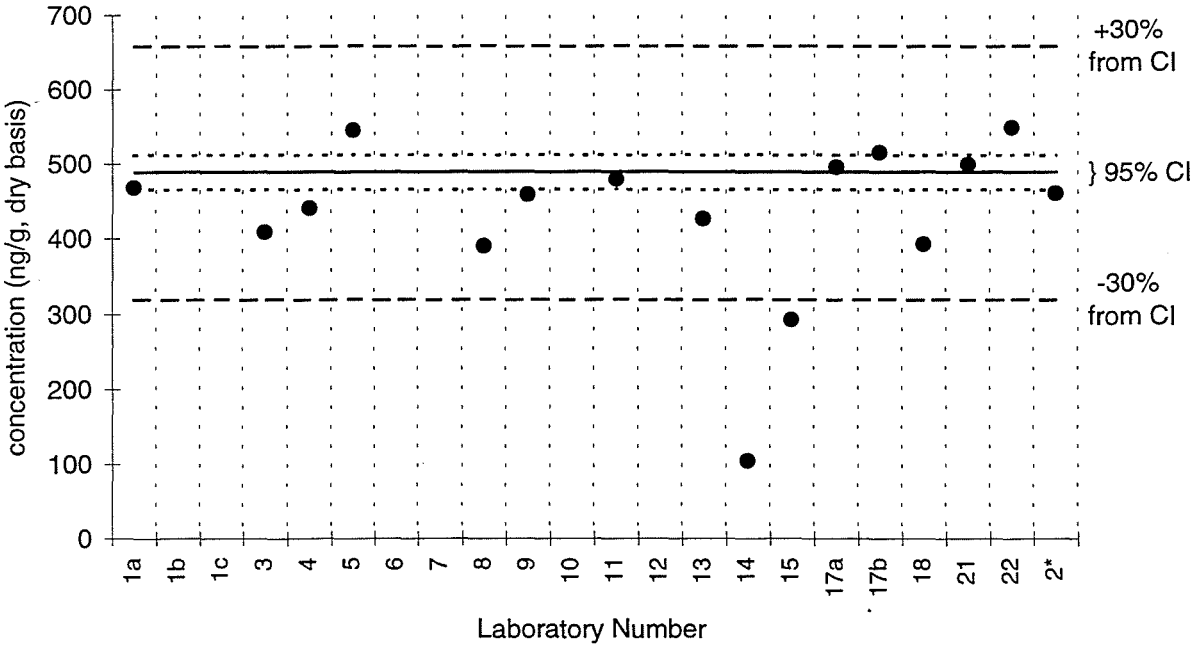


Laboratory 2 results were received after exercise results made public

phenanthrene — SRM 1941a

Certified Value = 489 ± 23 ng/g (dry basis)

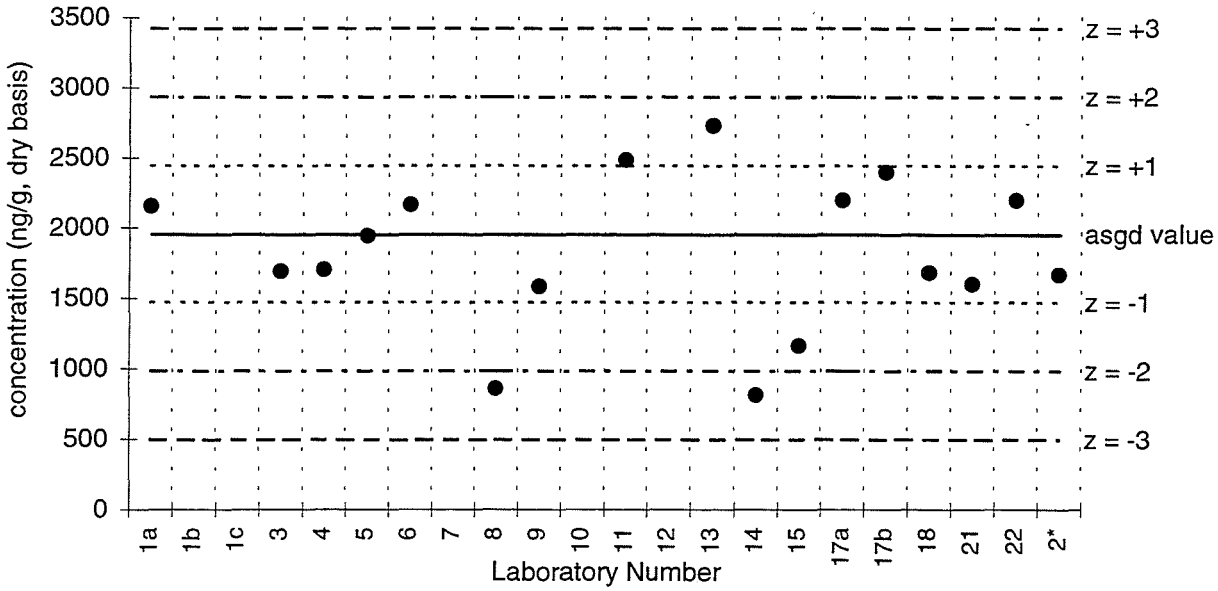
Reported Results: 16 Quantitative Results: 16



anthracene — Sediment V (QA95SED5)

Assigned value = 1952 ng/g s = 477 ng/g 95% CL = 275 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

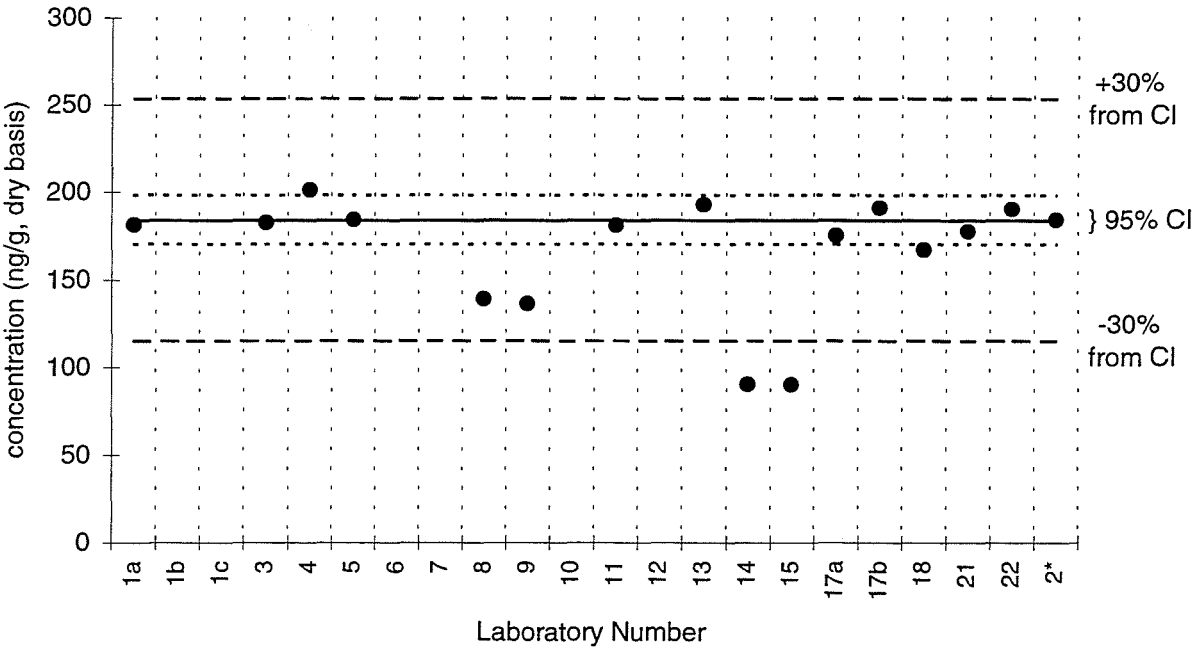


Laboratory 2 results were received after exercise results made public

anthracene — SRM 1941a

Certified Value = 184 ± 14 ng/g (dry basis)

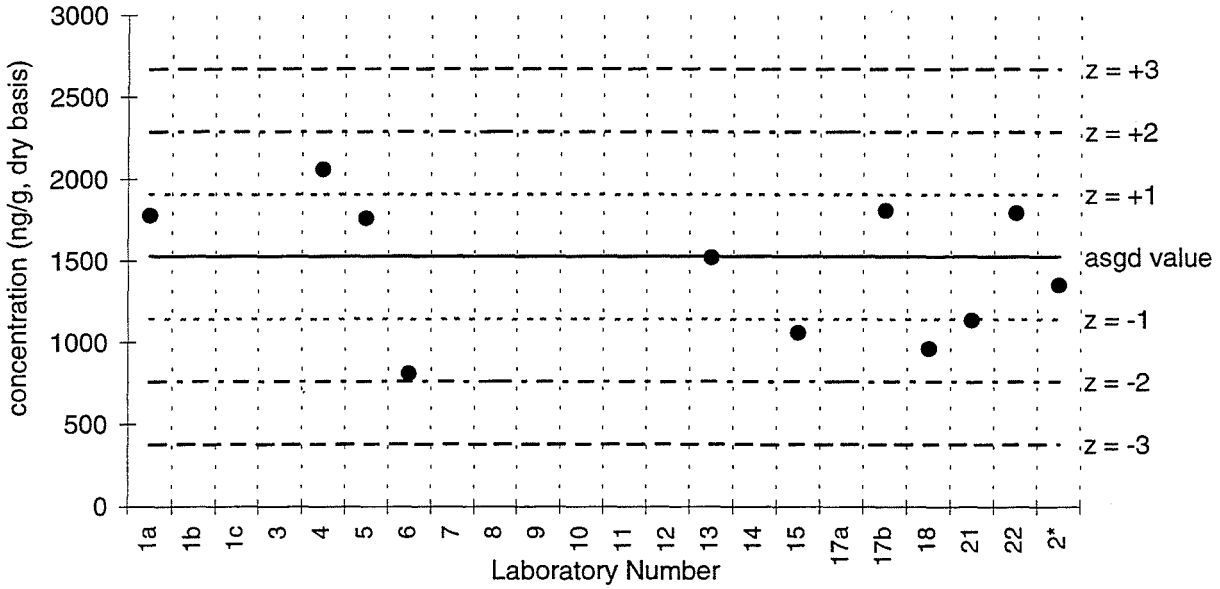
Reported Results: 16 Quantitative Results: 16



1-methylphenanthrene — Sediment V (QA95SED5)

Assigned value = 1528 ng/g s = 425 ng/g 95% CL = 326 ng/g (dry basis)

Reported Results: 11 Quantitative results: 11

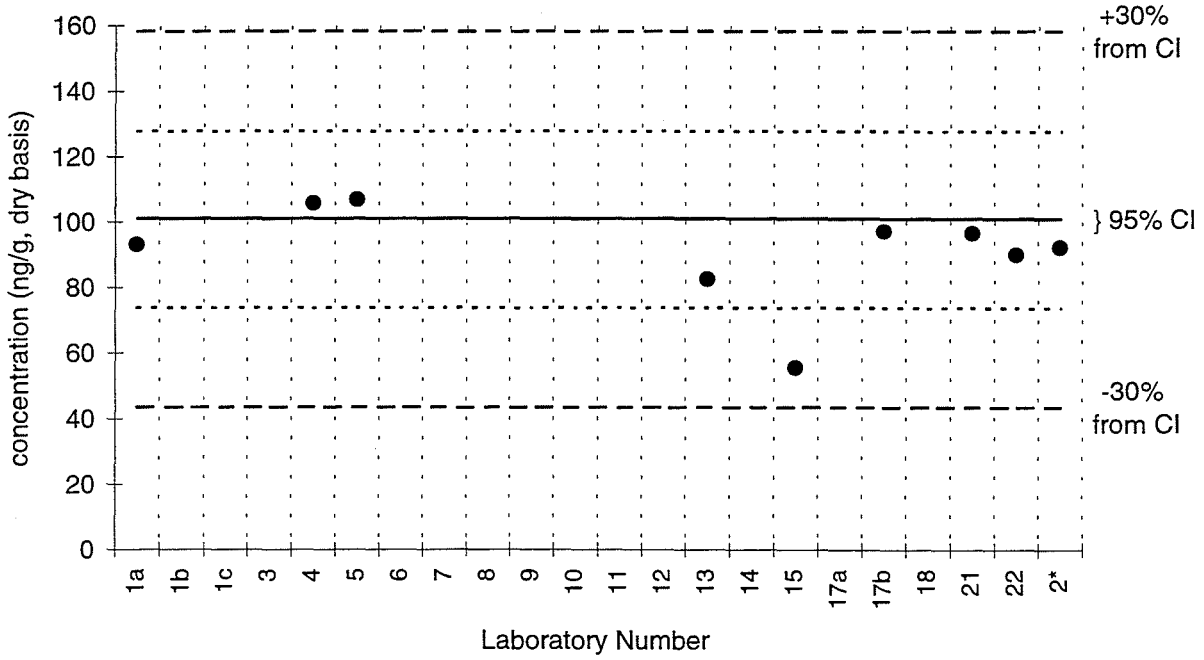


Laboratory 2 results were received after exercise results made public

1-methylphenanthrene — SRM 1941a

Information Value = 101 ± 27 ng/g (dry basis)

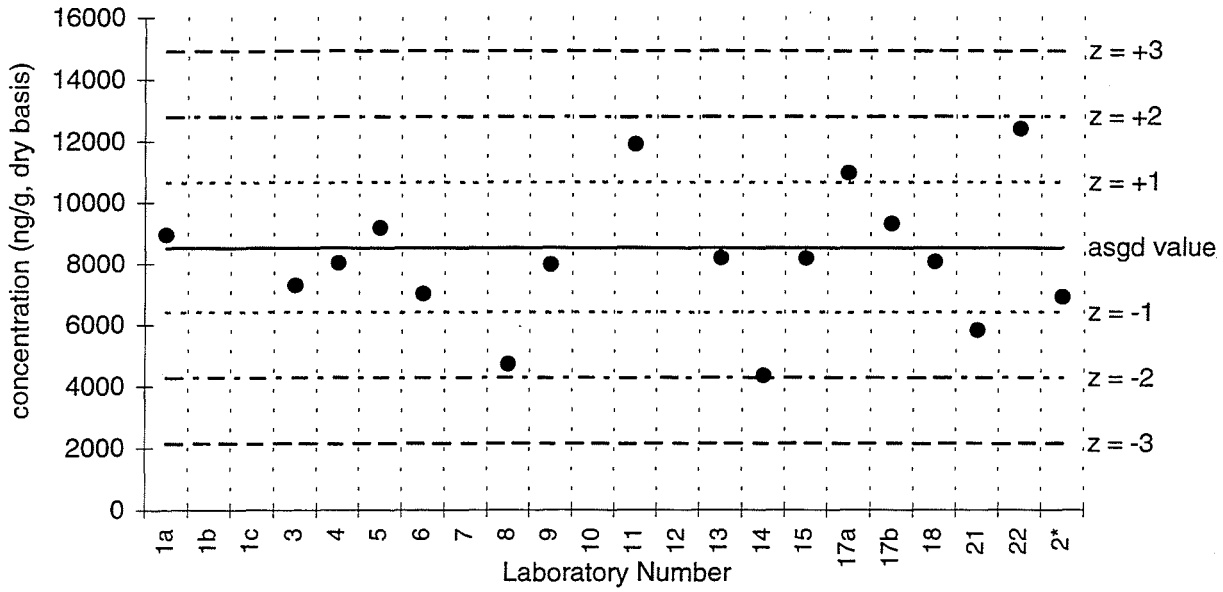
Reported Results: 9 Quantitative Results: 9



fluoranthene — Sediment V (QA95SED5)

Assigned value = 8511 ng/g s = 2071 ng/g 95% CL = 1147 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

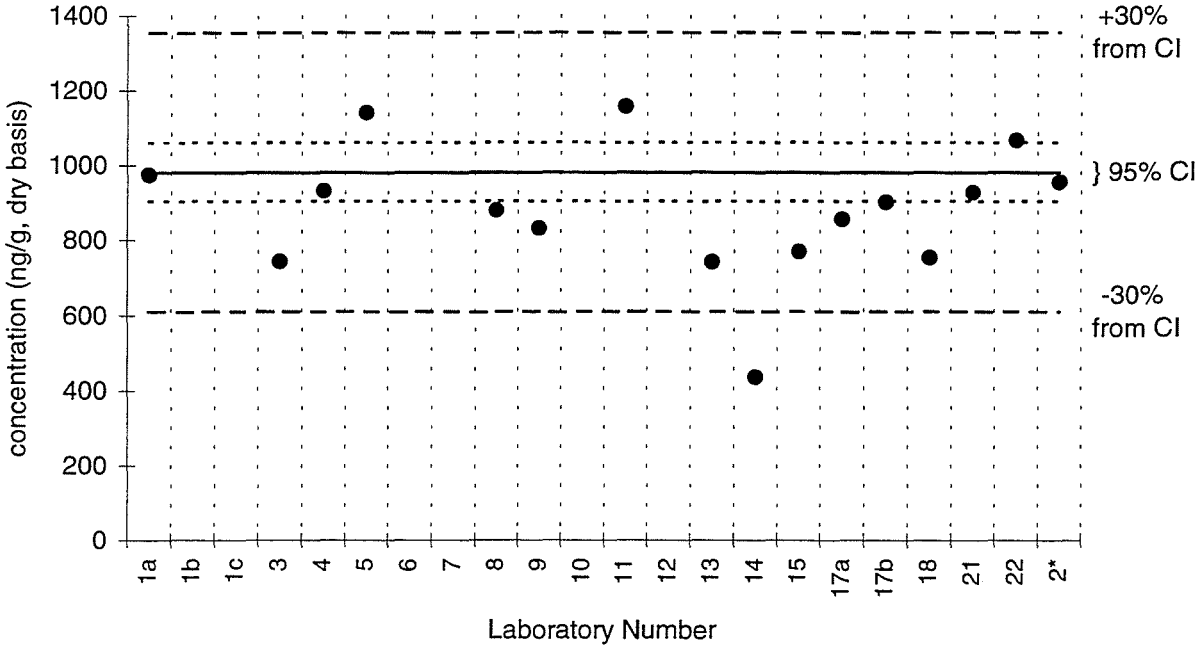


Laboratory 2 results were received after exercise results made public

fluoranthene — SRM 1941a

Certified Value = 981 ± 78 ng/g (dry basis)

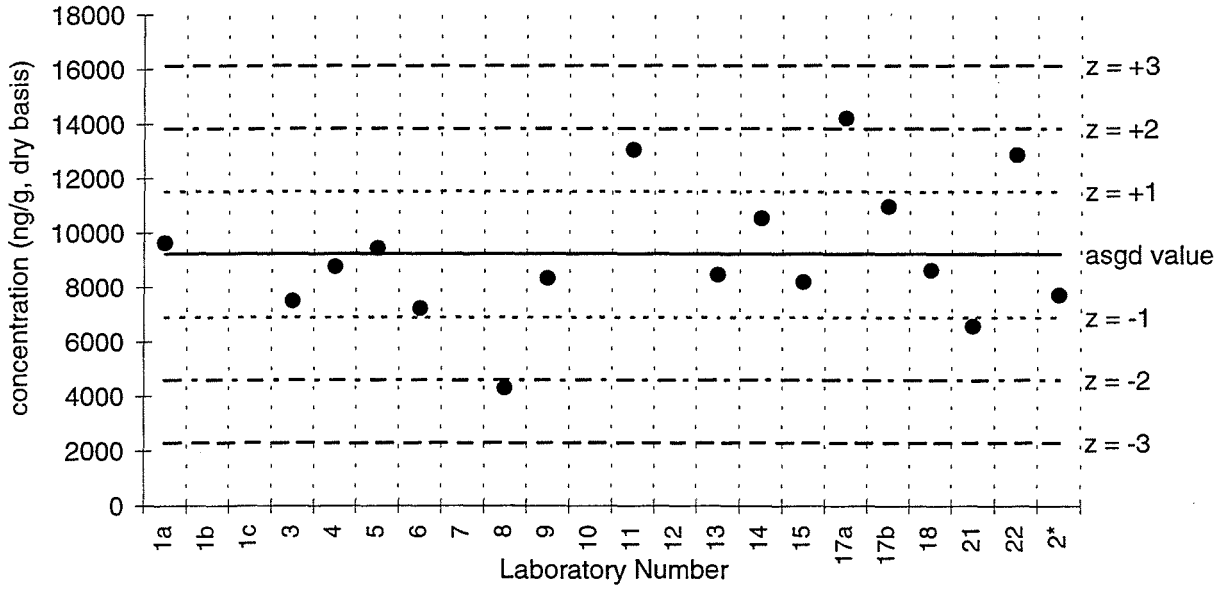
Reported Results: 16 Quantitative Results: 16



pyrene — Sediment V (QA95SED5)

Assigned value = 9235 ng/g s = 2636 ng/g 95% CL = 1460 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

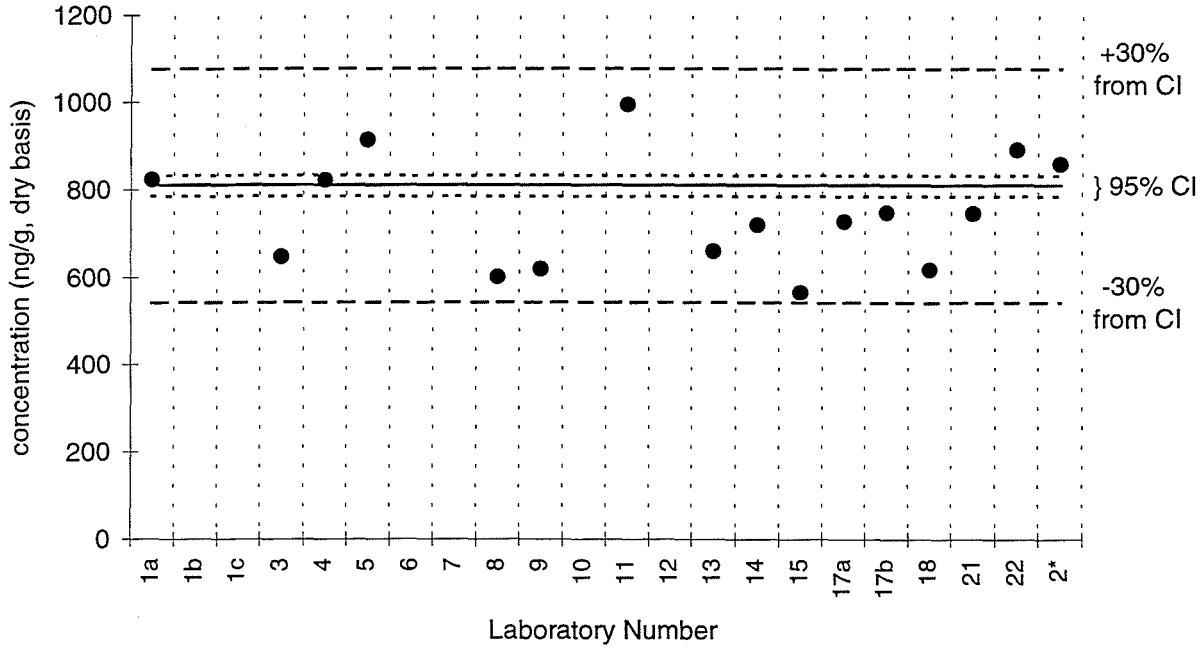


Laboratory 2 results were received after exercise results made public

pyrene — SRM 1941a

Certified Value = 811 ± 24 ng/g (dry basis)

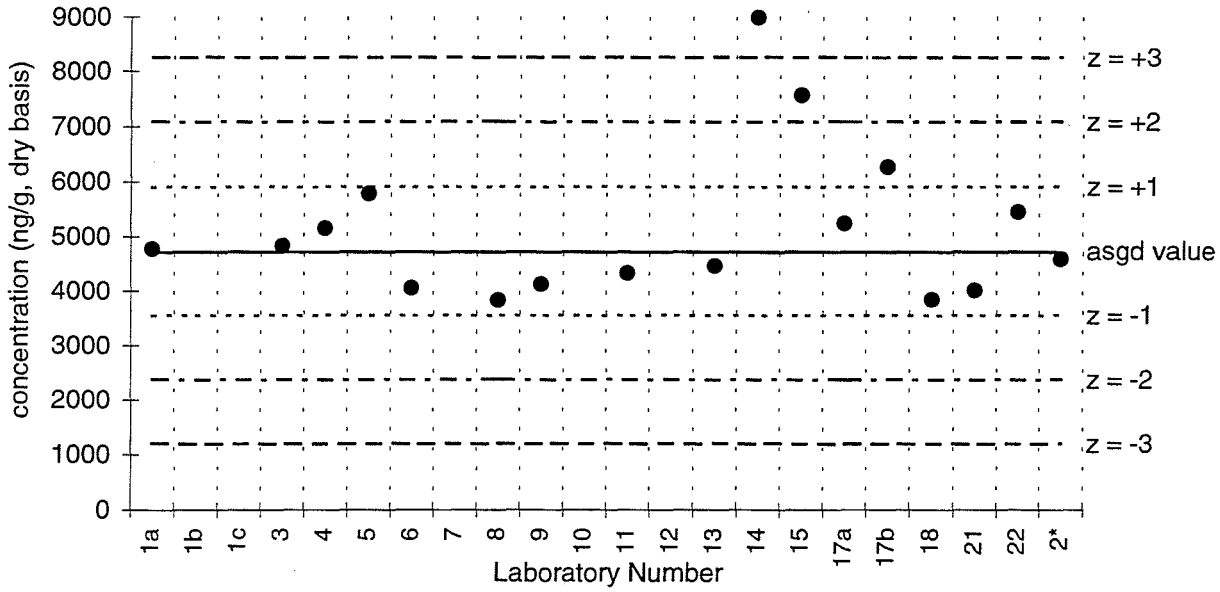
Reported Results: 16 Quantitative Results: 16



benz[a]anthracene — Sediment V (QA95SED5)

Assigned value = 4715 ng/g s = 765 ng/g 95% CL = 441 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

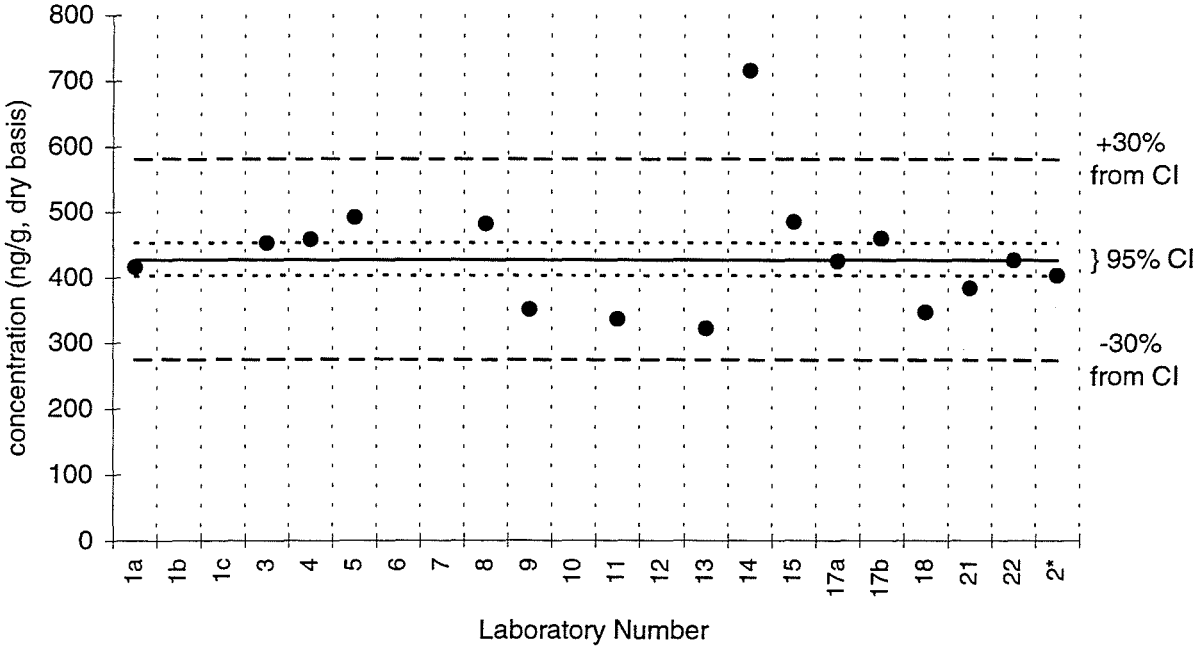


**Laboratory 2 results were received after exercise results made public*

benz[a]anthracene — SRM 1941a

Certified Value = 427 ± 25 ng/g (dry basis)

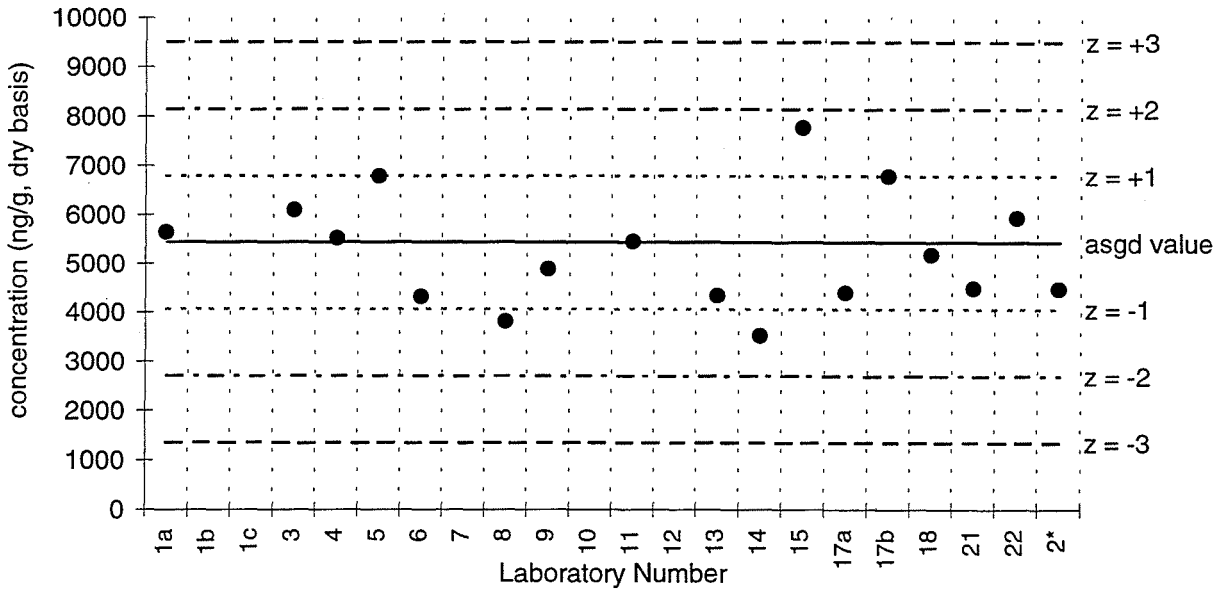
Reported Results: 16 Quantitative Results: 16



chrysene + triphenylene — Sediment V (QA95SED5)

Assigned value = 5439 ng/g s = 1106 ng/g 95% CL = 613 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

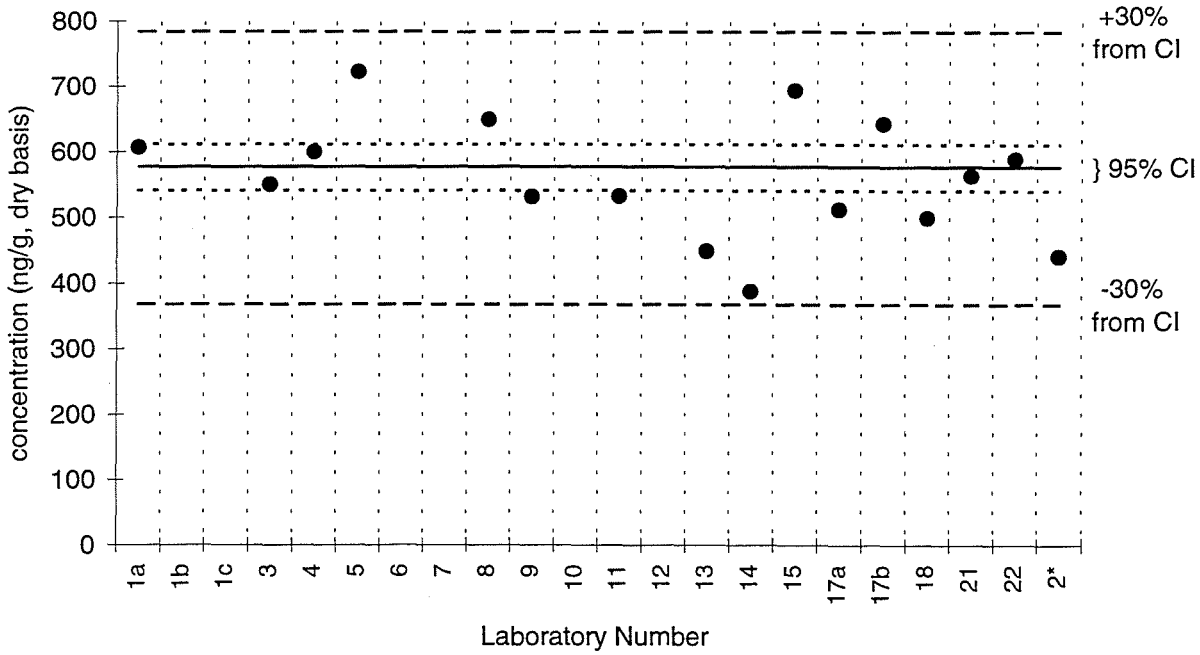


Laboratory 2 results were received after exercise results made public

chrysene + triphenylene — SRM 1941a

Information Value = 577 ± 35 ng/g (dry basis)

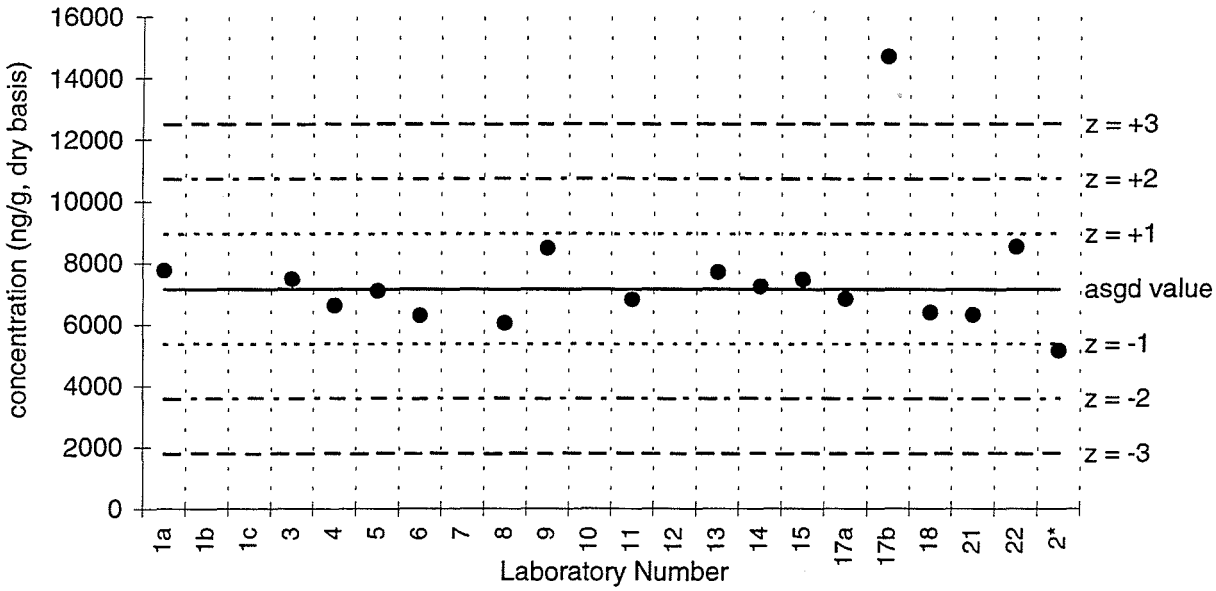
Reported Results: 16 Quantitative Results: 16



benzofluoranthenes [b+j+k] — Sediment V (QA95SED5)

Assigned value = 7148 ng/g s = 829 ng/g 95% CL = 501 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

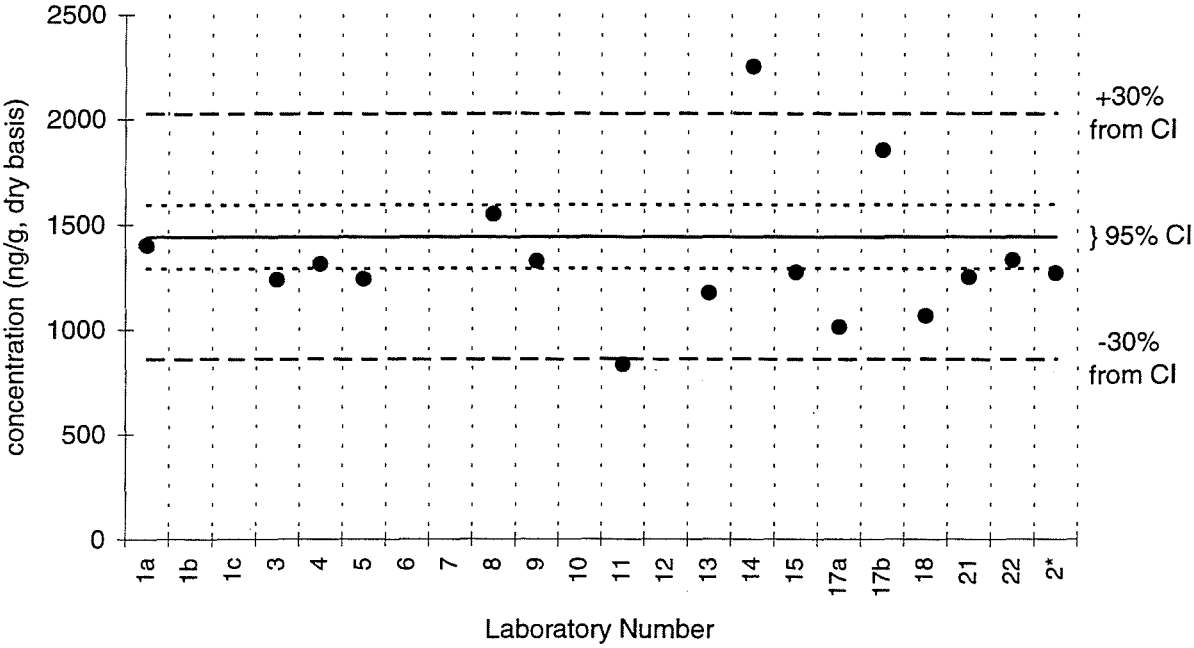


Laboratory 2 results were received after exercise results made public

benzofluoranthenes [b+j+k] — SRM 1941a

Information Value = 1441 ± 150 ng/g (dry basis)

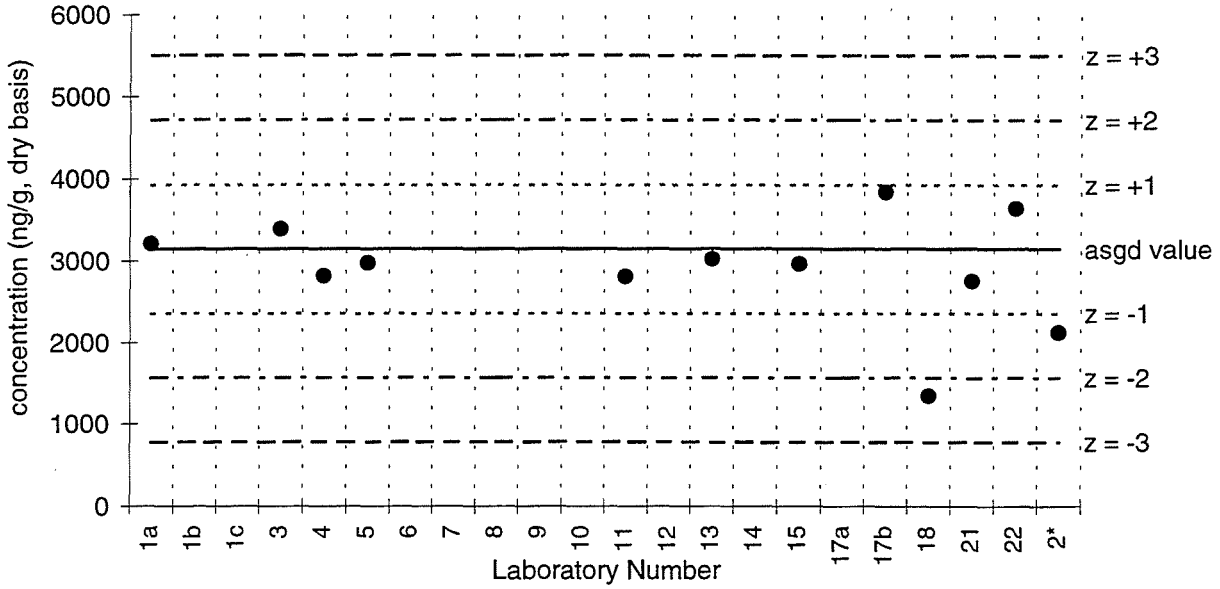
Reported Results: 16 Quantitative Results: 16



benzo[e]pyrene — Sediment V (QA95SED5)

Assigned value = 3149 ng/g s = 373 ng/g 95% CL = 267 ng/g (dry basis)

Reported Results: 12 Quantitative results: 12

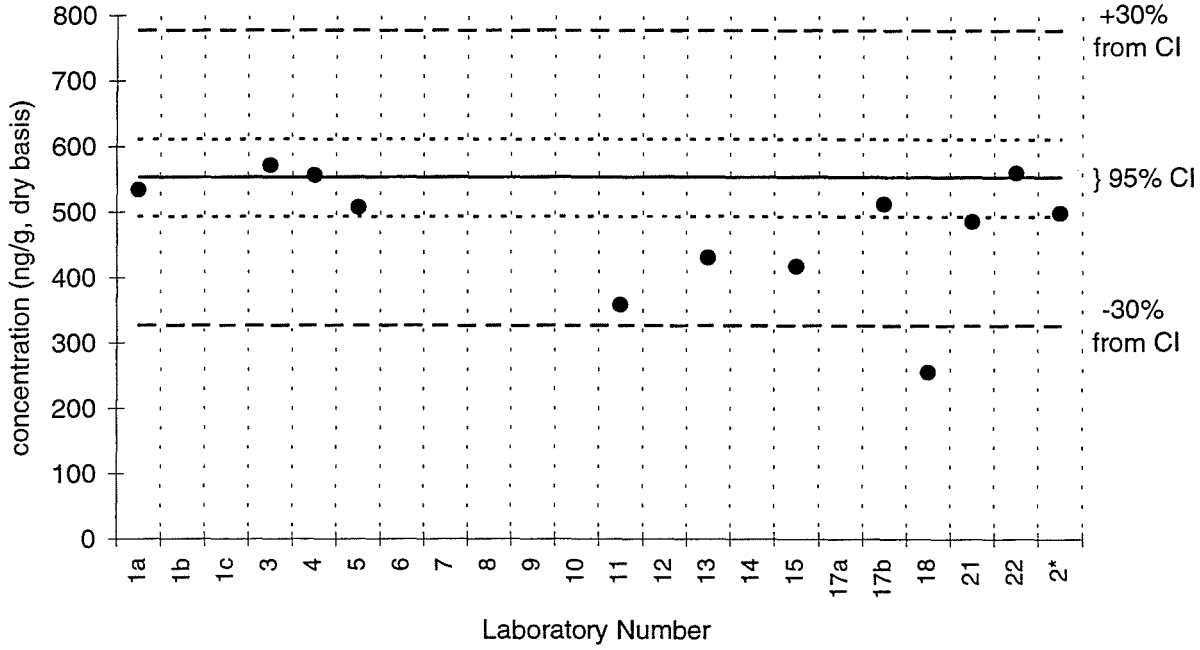


Laboratory 2 results were received after exercise results made public

benzo[e]pyrene — SRM 1941a

Certified Value = 553 ± 59 ng/g (dry basis)

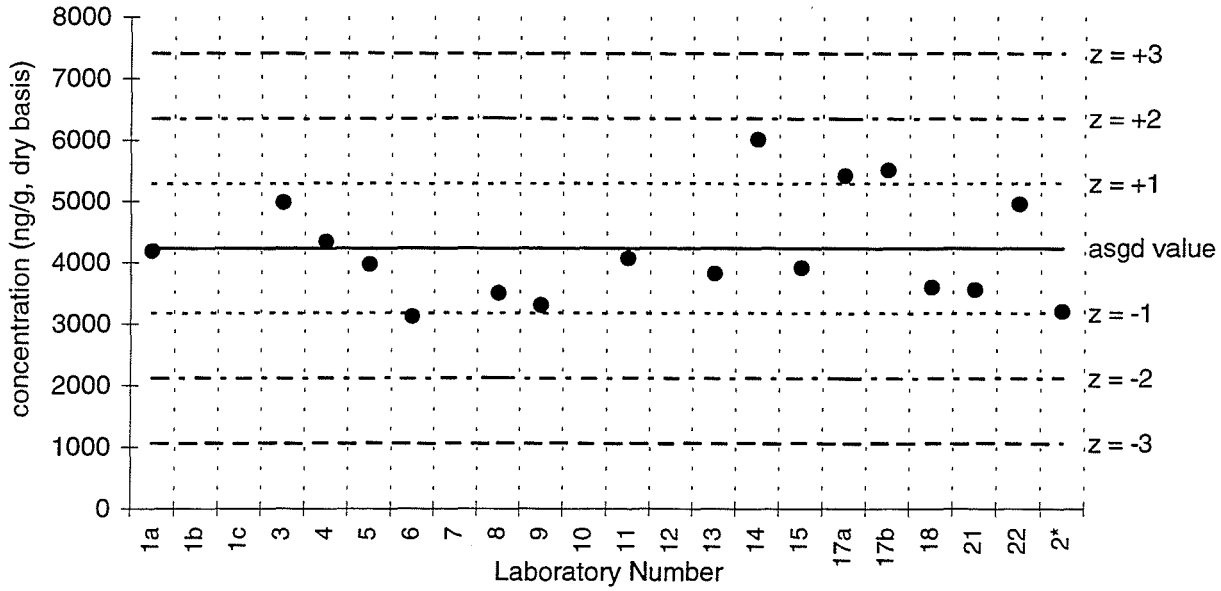
Reported Results: 12 Quantitative Results: 12



benzo[a]pyrene — Sediment V (QA95SED5)

Assigned value = 4228 ng/g s = 765 ng/g 95% CL = 462 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

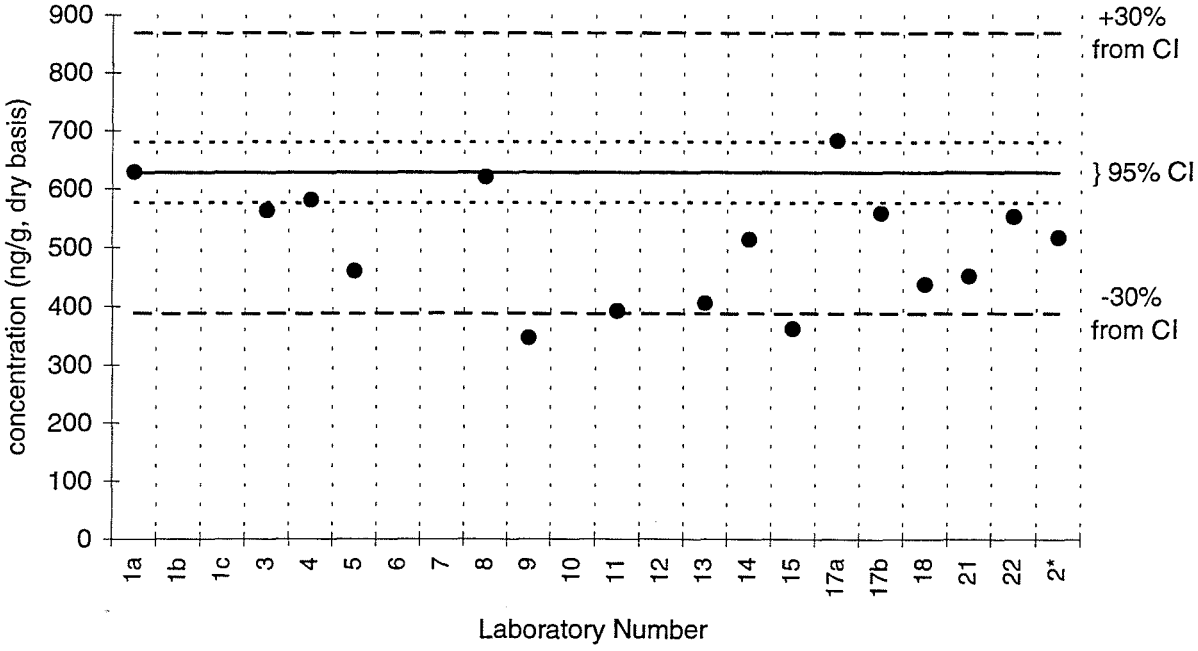


**Laboratory 2 results were received after exercise results made public*

benzo[a]pyrene — SRM 1941a

Certified Value = 628 ± 52 ng/g (dry basis)

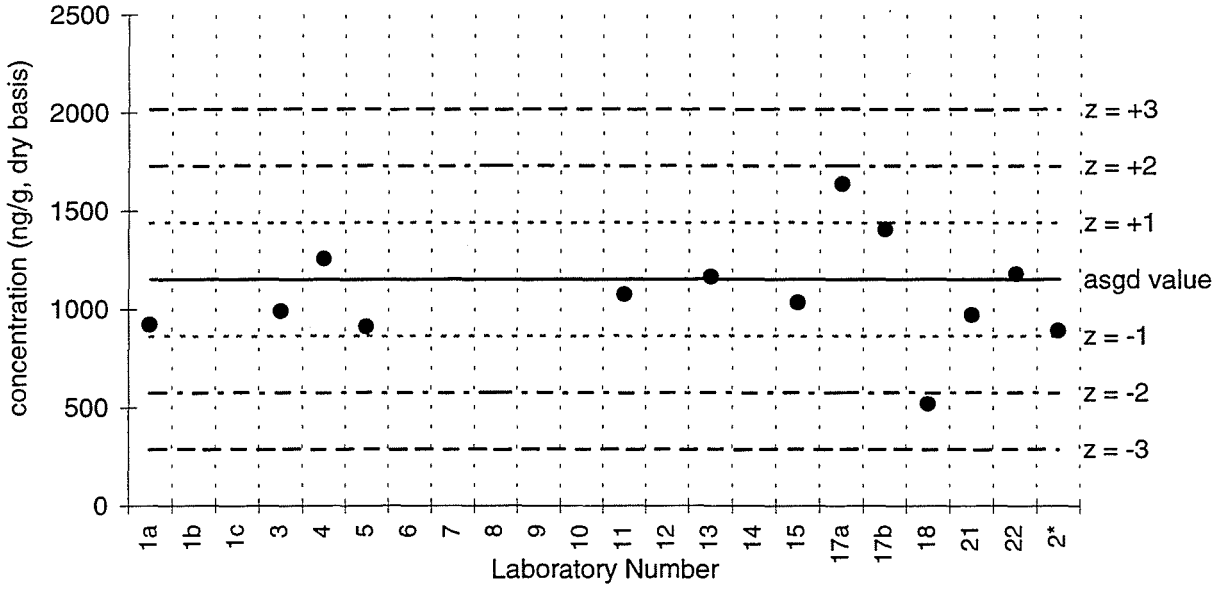
Reported Results: 16 Quantitative Results: 16



perylene — Sediment V (QA95SED5)

Assigned value = 1153 ng/g s = 232 ng/g 95% CL = 166 ng/g (dry basis)

Reported Results: 13 Quantitative results: 13

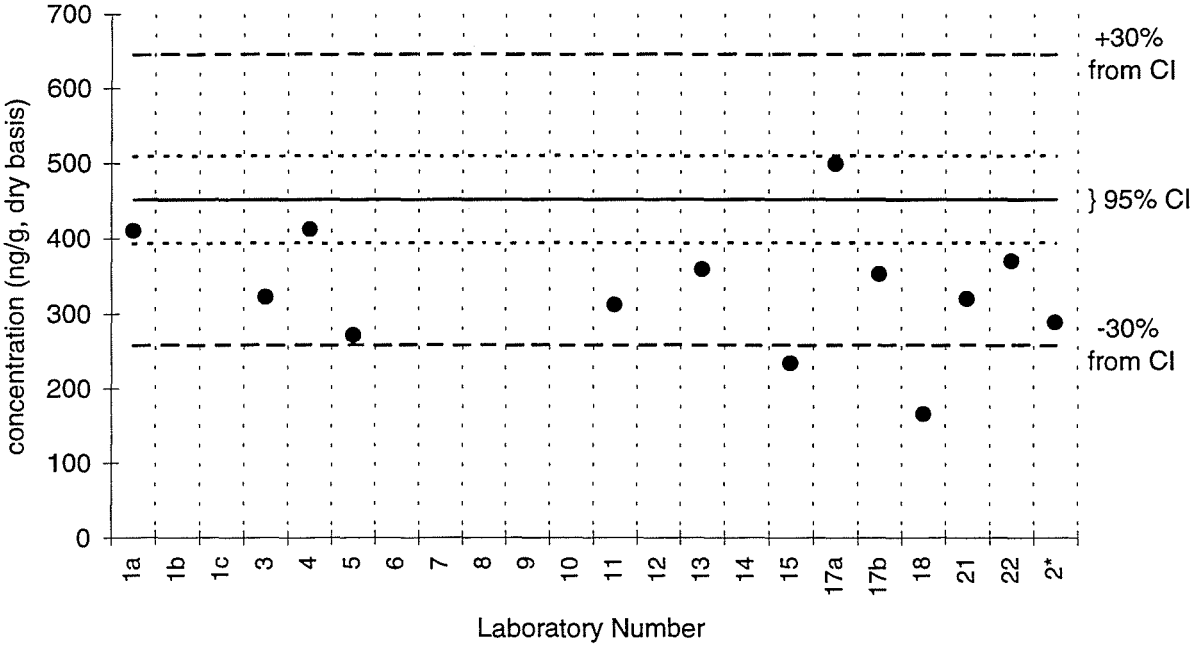


Laboratory 2 results were received after exercise results made public

perylene — SRM 1941a

Certified Value = 452 ± 58 ng/g (dry basis)

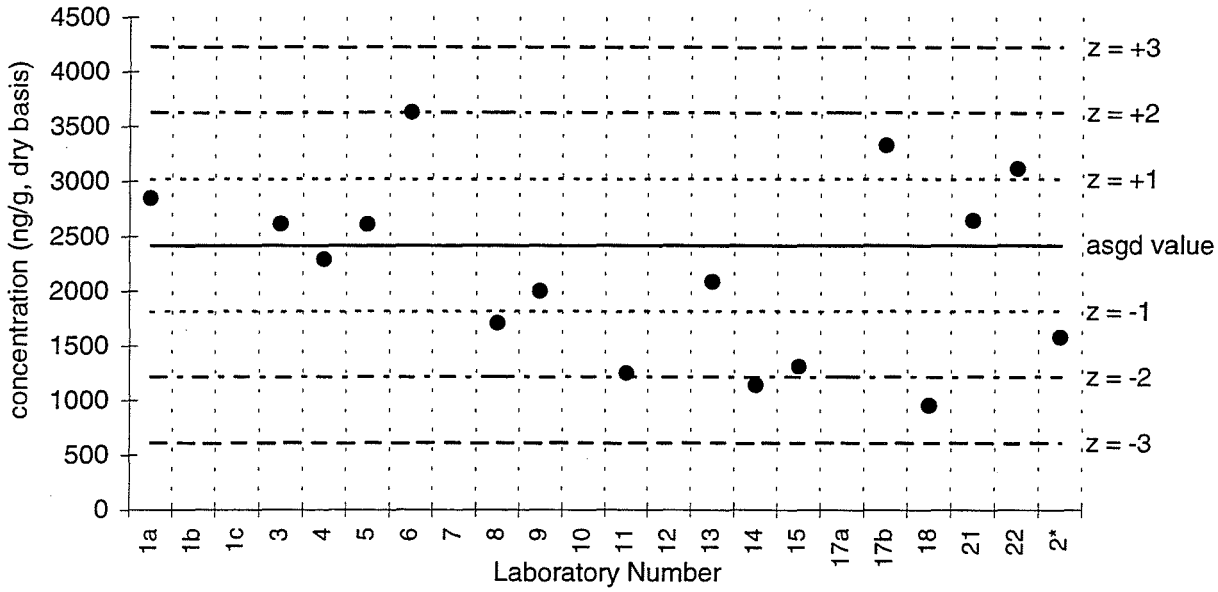
Reported Results: 13 Quantitative Results: 13



indeno[1,2,3-cd]pyrene — Sediment V (QA95SED5)

Assigned value = 2415 ng/g s = 738 ng/g 95% CL = 446 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

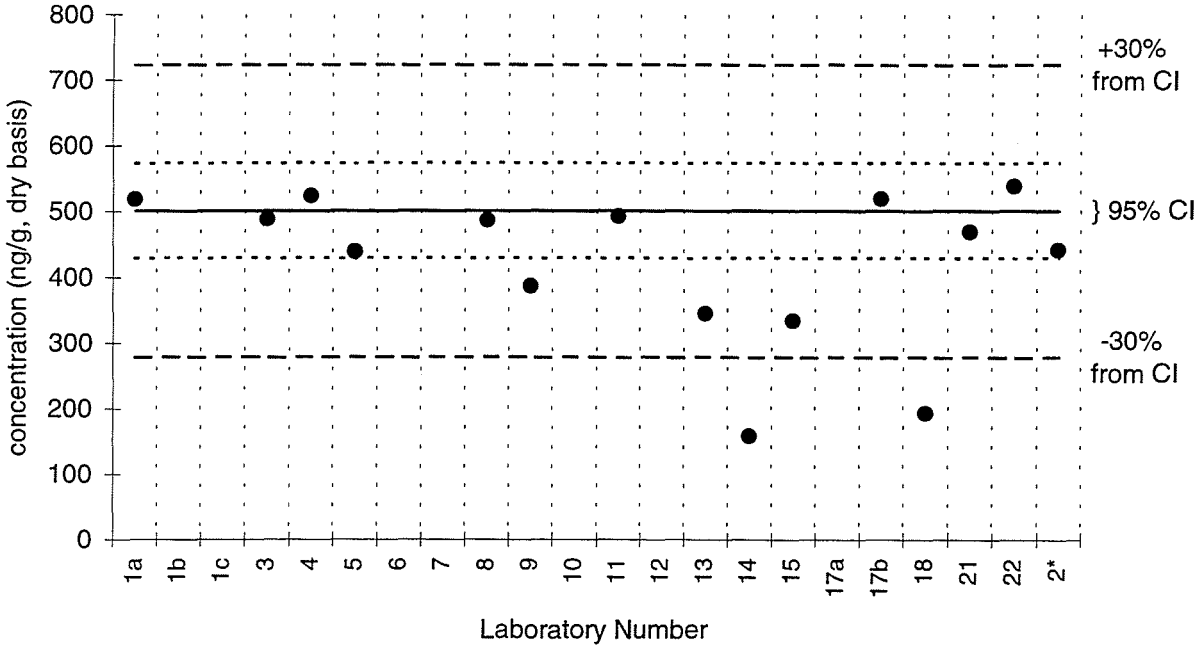


Laboratory 2 results were received after exercise results made public

indeno[1,2,3-cd]pyrene — SRM 1941a

Certified Value = 501 ± 72 ng/g (dry basis)

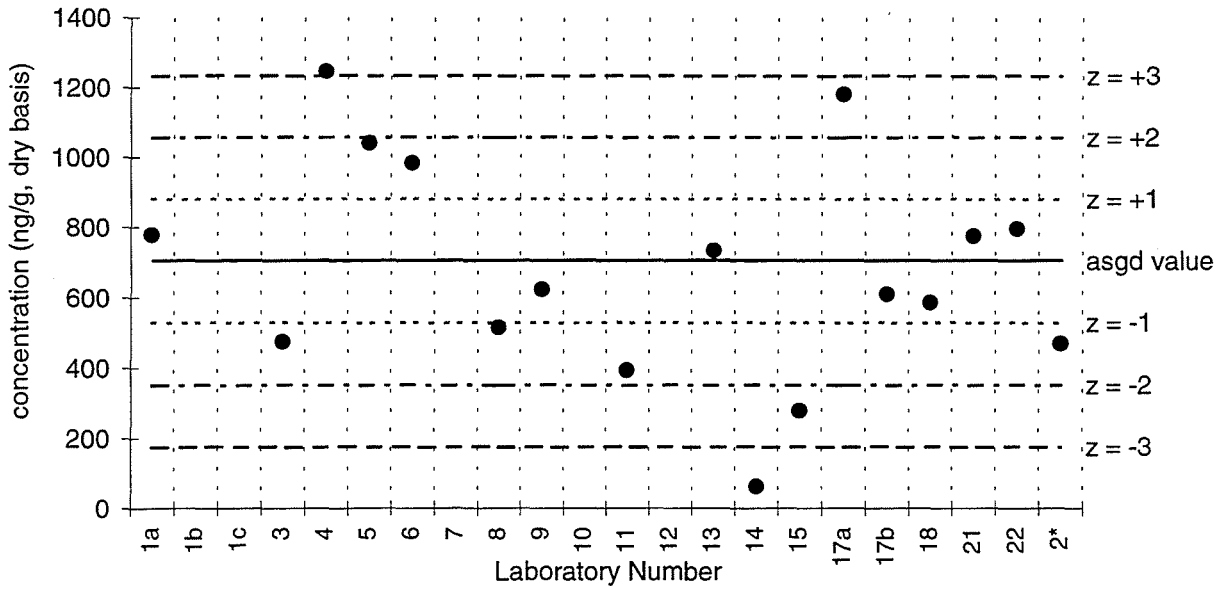
Reported Results: 15 Quantitative Results: 15



dibenz[a,h]anthracene + [a,c] — Sediment V (QA95SED5)

Assigned value = 705 ng/g s = 262 ng/g 95% CL = 158 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

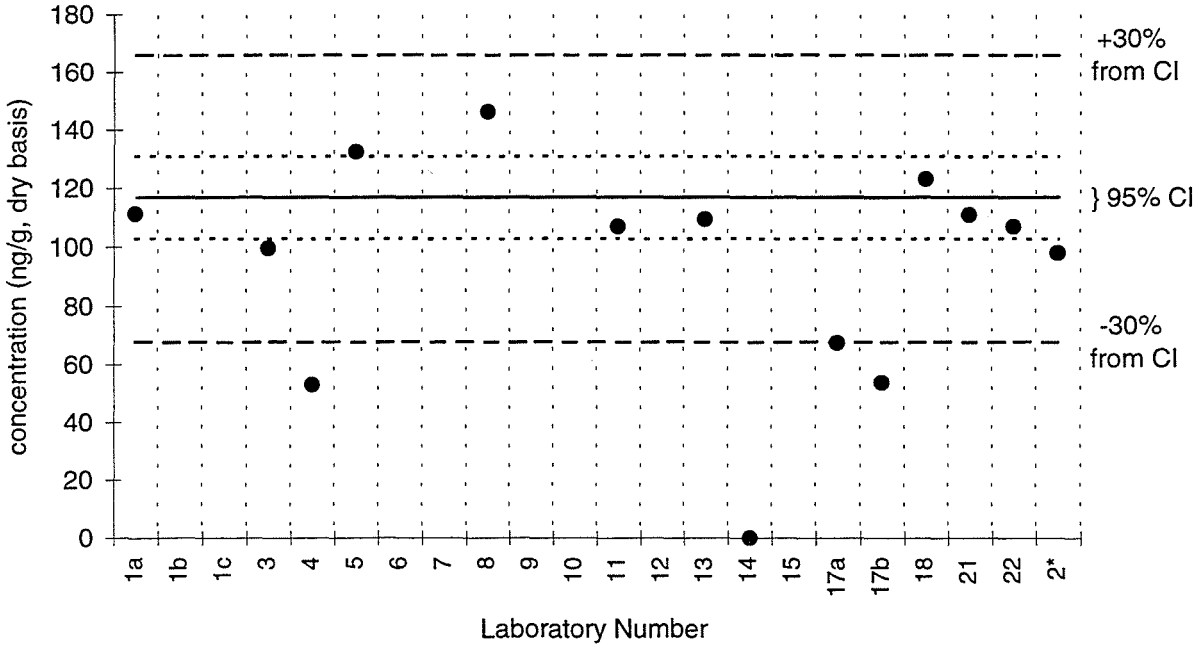


Laboratory 2 results were received after exercise results made public

dibenz[a,h]anthracene + [a,c] — SRM 1941a

Certified Value = 117 ± 14 ng/g (dry basis)

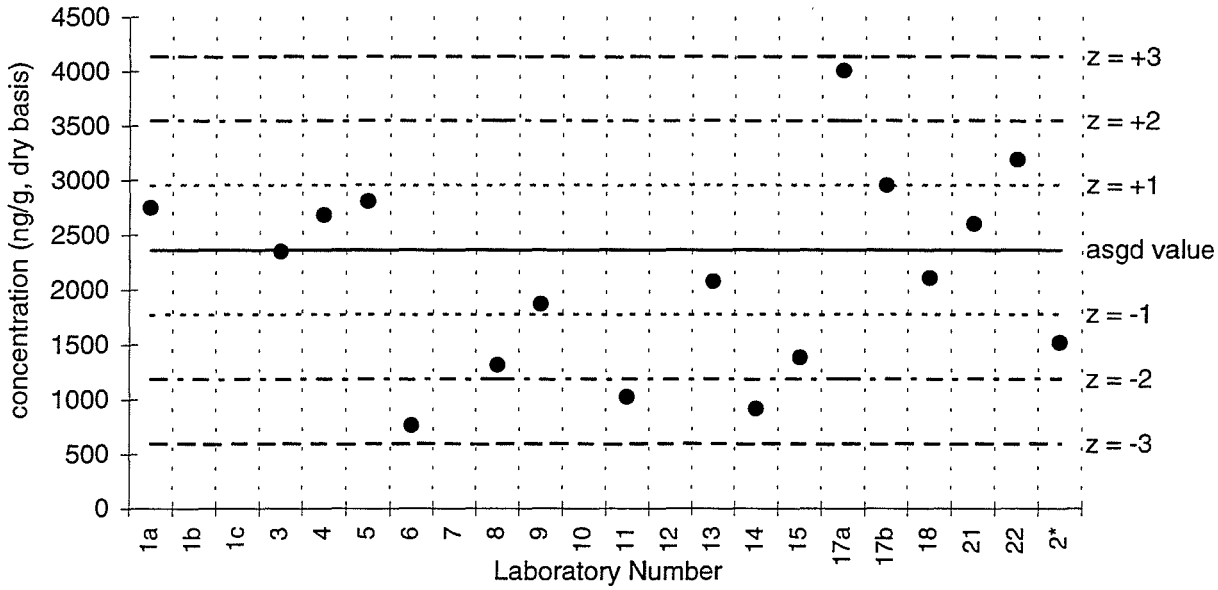
Reported Results: 15 Quantitative Results: 14



benzo[ghi]perylene — Sediment V (QA95SED5)

Assigned value = 2362 ng/g s = 809 ng/g 95% CL = 467 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

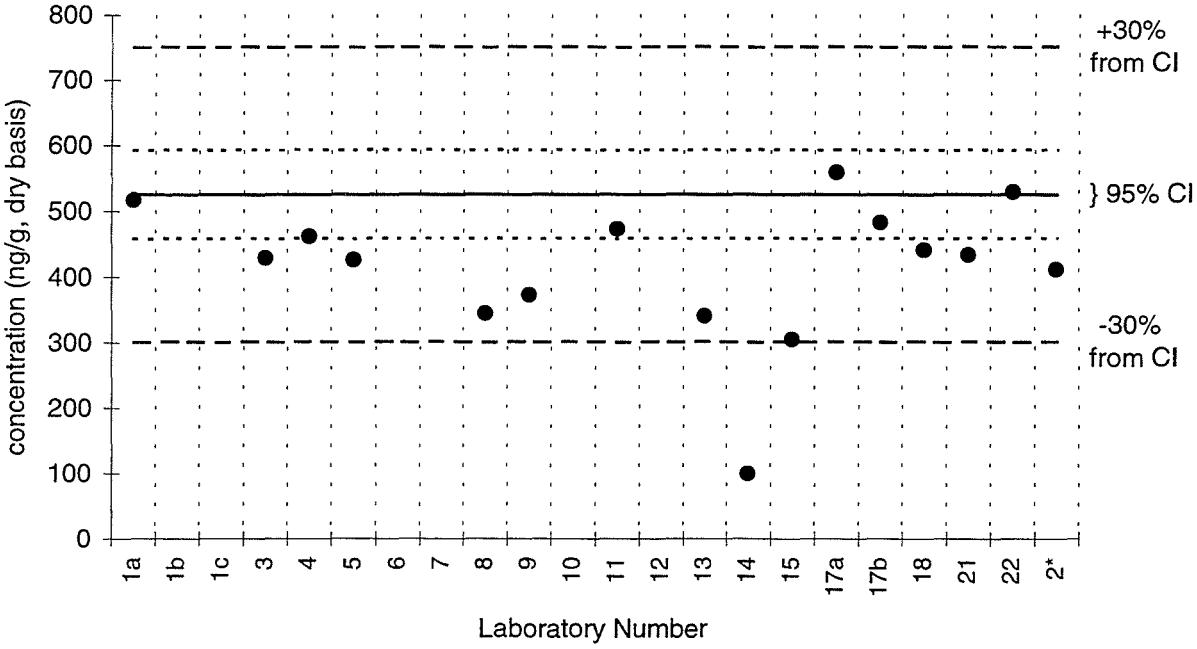


**Laboratory 2 results were received after exercise results made public*

benzo[ghi]perylene — SRM 1941a

Certified Value = 525 ± 67 ng/g (dry basis)

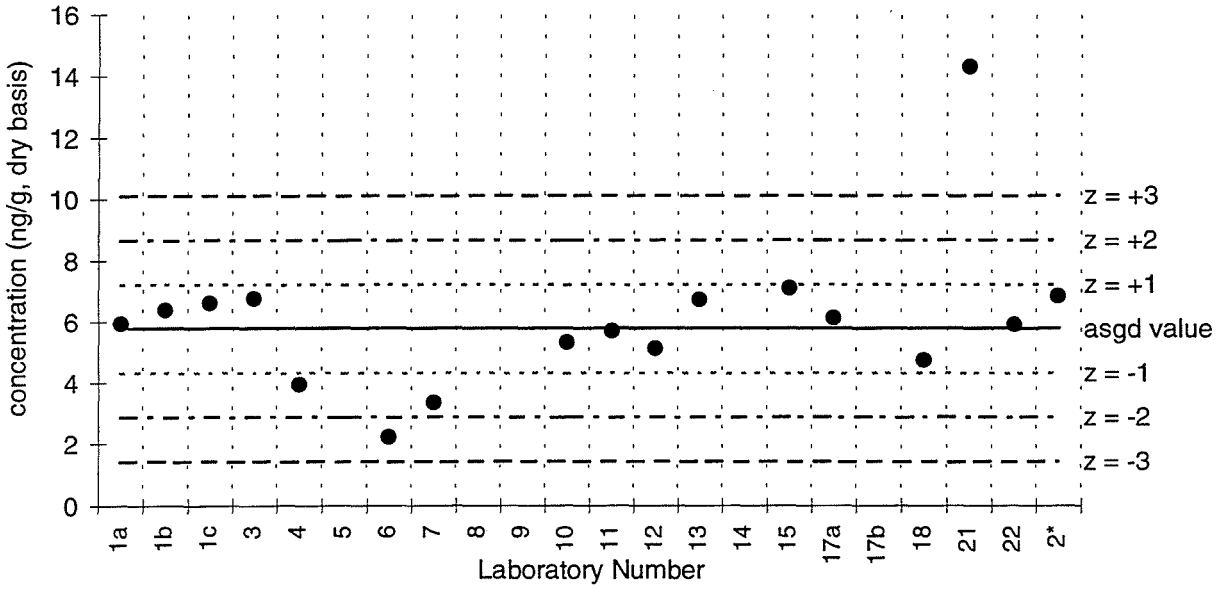
Reported Results: 16 Quantitative Results: 16



hexachlorobenzene — Sediment V (QA95SED5)

Assigned value = 5.79 ng/g s = 0.86 ng/g 95% CL = 0.55 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

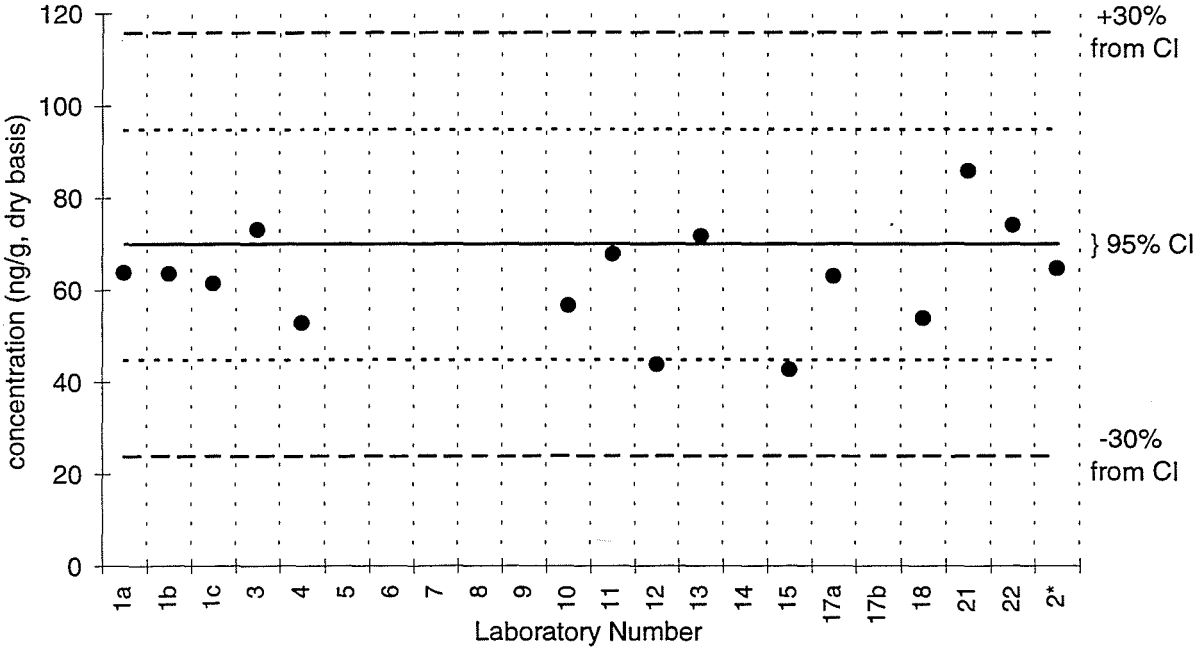


Laboratory 2 results were received after exercise results made public

hexachlorobenzene — SRM 1941a

Certified Value = 70 ± 25 ng/g (dry basis)

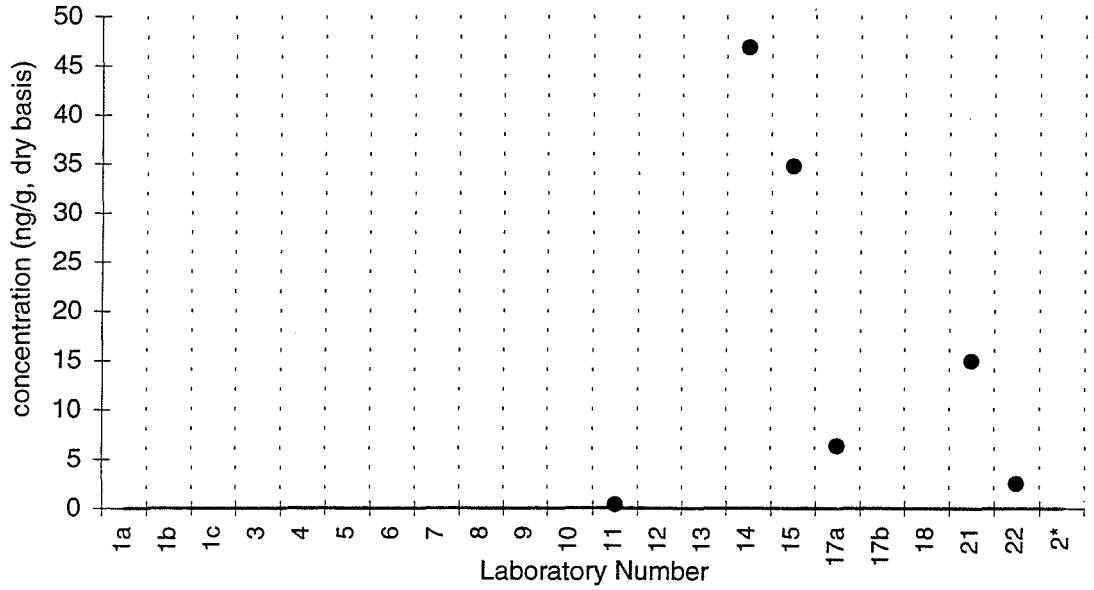
Reported Results: 15 Quantitative Results: 15



gamma-HCH — Sediment V (QA95SED5)

Assigned value = <3 ng/g (dry basis)

Reported Results: 17 Quantitative results: 6

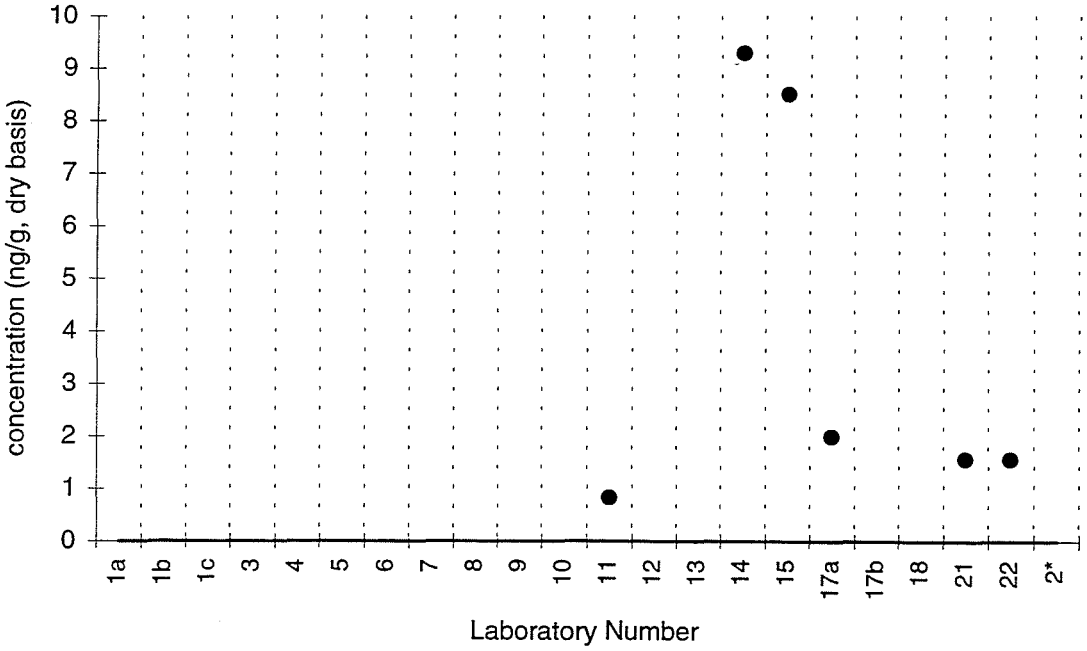


**Laboratory 2 results were received after exercise results made public*

gamma-HCH — SRM 1941a

Target Value = <2 ng/g (dry basis)

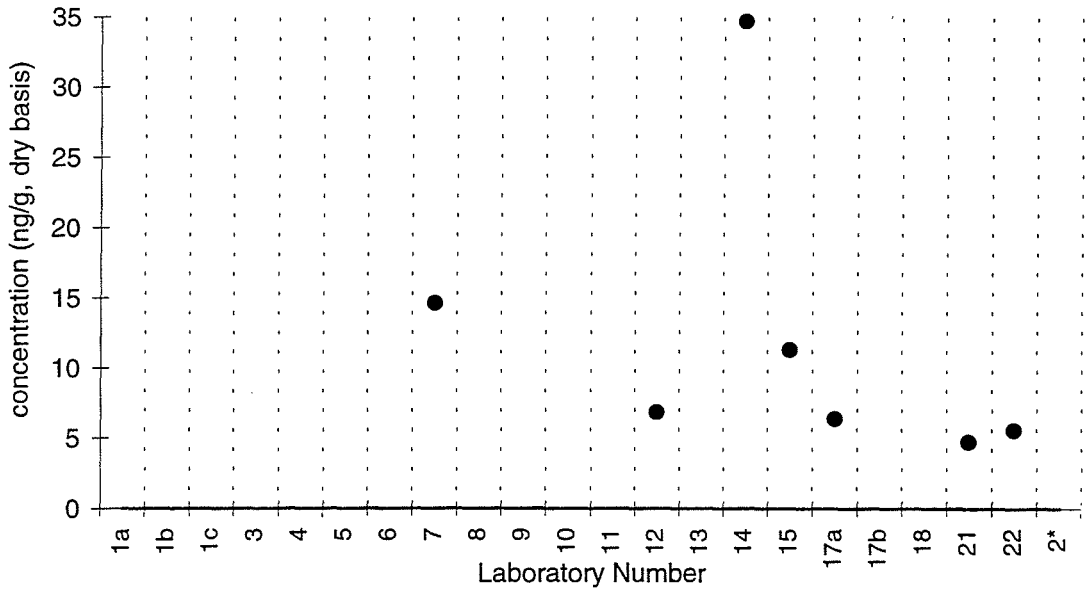
Reported Results: 15 Quantitative Results: 6



heptachlor **Sediment V (QA95SED5)**

Assigned value = <4 ng/g (dry basis)

Reported Results: 16 Quantitative results: 7

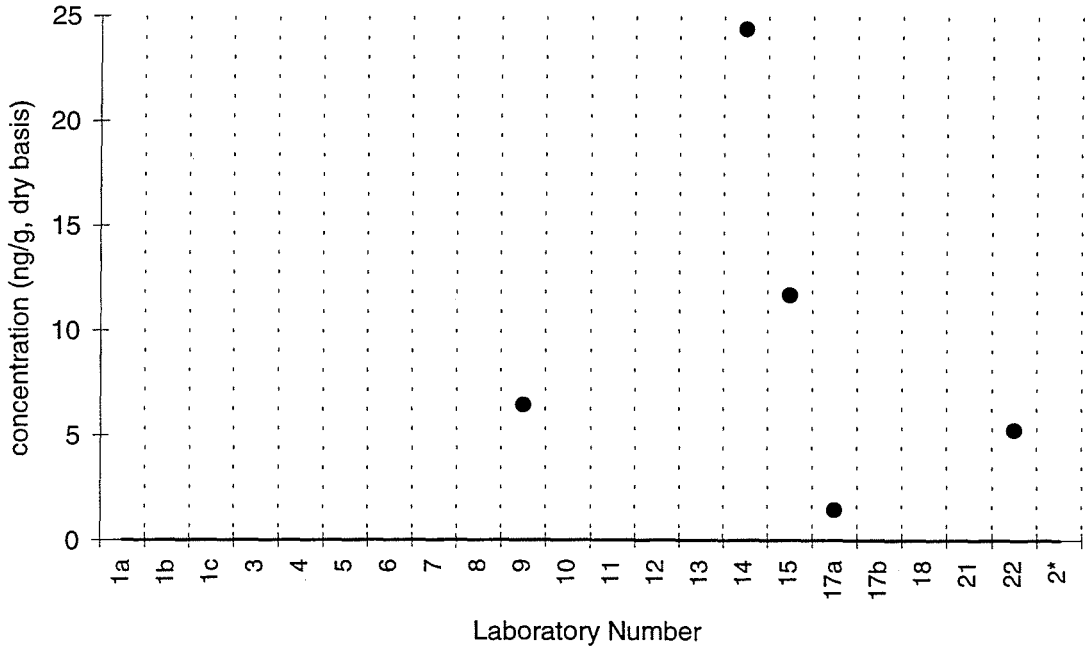


**Laboratory 2 results were received after exercise results made public*

heptachlor **SRM 1941a**

Target Value = <2 ng/g (dry basis)

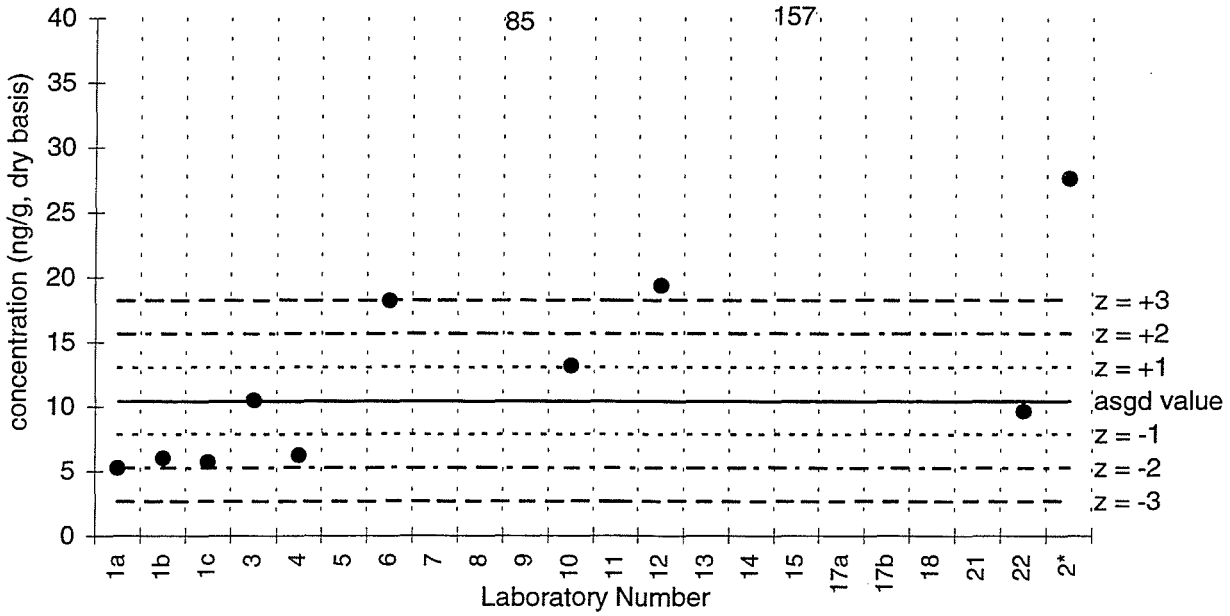
Reported Results: 15 Quantitative Results: 5



trans-chlordane — Sediment V (QA95SED5)

Assigned value = 10.4 ng/g s = 5.4 ng/g 95% CL = 4.2 ng/g (dry basis)

Reported Results: 13 Quantitative results: 12

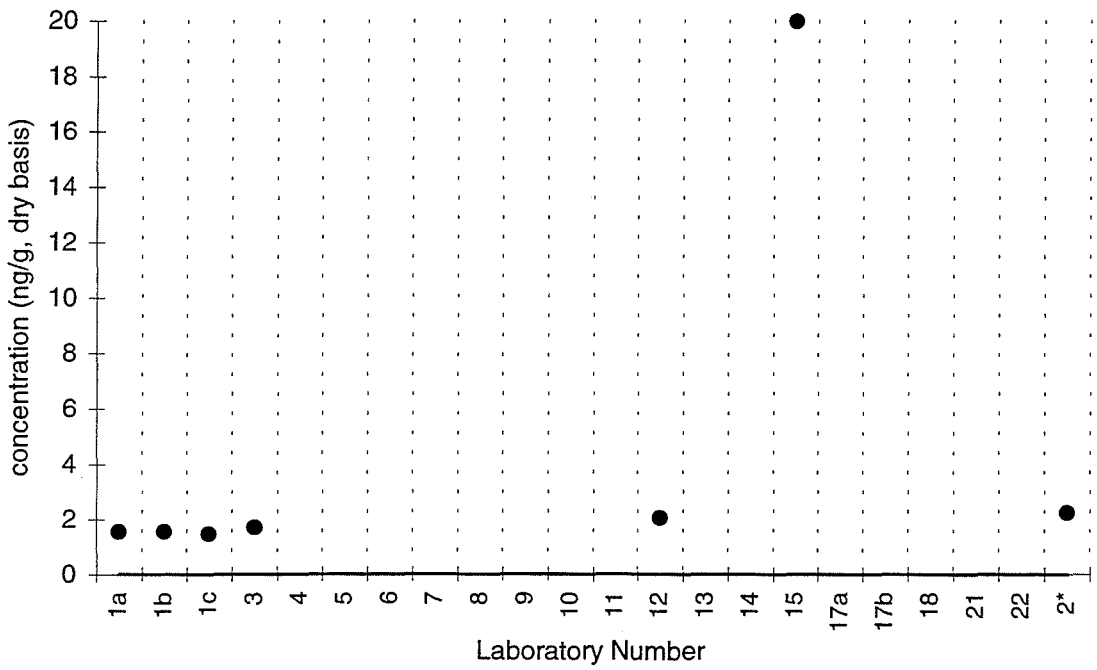


Laboratory 2 results were received after exercise results made public

trans-chlordane — SRM 1941a

Target Value = <2 ng/g (dry basis)

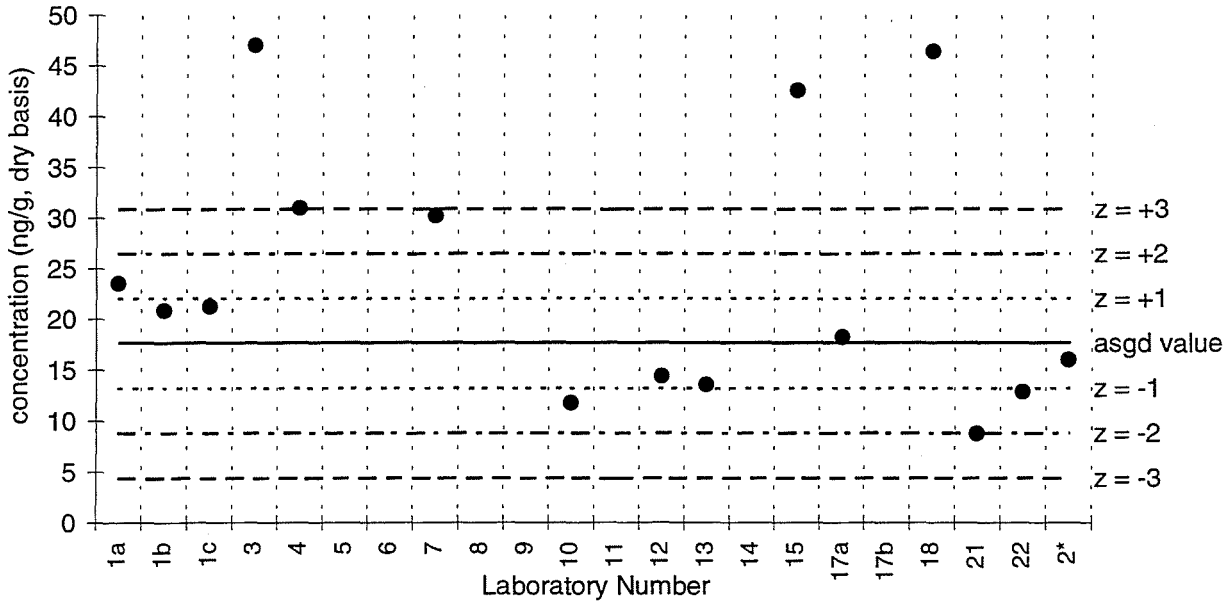
Reported Results: 11 Quantitative Results: 7



2,4'-DDE — Sediment V (QA95SED5)

Assigned value = 17.7 ng/g s = 6.7 ng/g 95% CL = 4.8 ng/g (dry basis)

Reported Results: 17 Quantitative results: 15

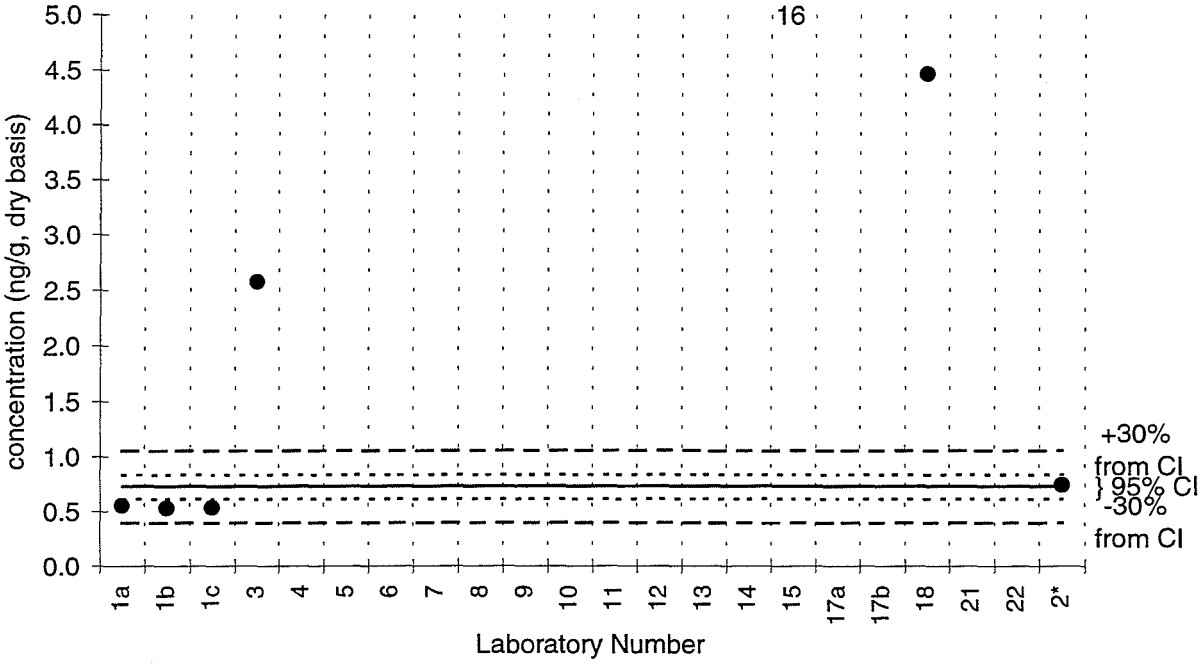


Laboratory 2 results were received after exercise results made public

2,4'-DDE — SRM 1941a

Certified Value = 0.73 ± 0.11 ng/g (dry basis)

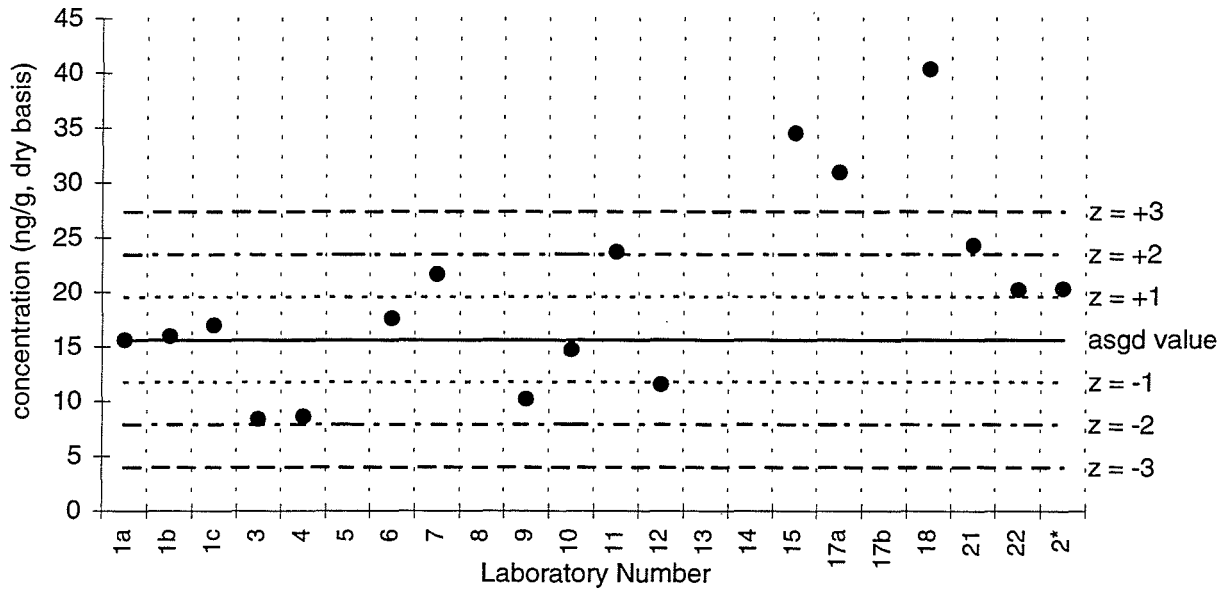
Reported Results: 15 Quantitative Results: 7



cis-chlordane — Sediment V (QA95SED5)

Assigned value = 15.6 ng/g s = 5.4 ng/g 95% CL = 3.4 ng/g (dry basis)

Reported Results: 17 Quantitative results: 17

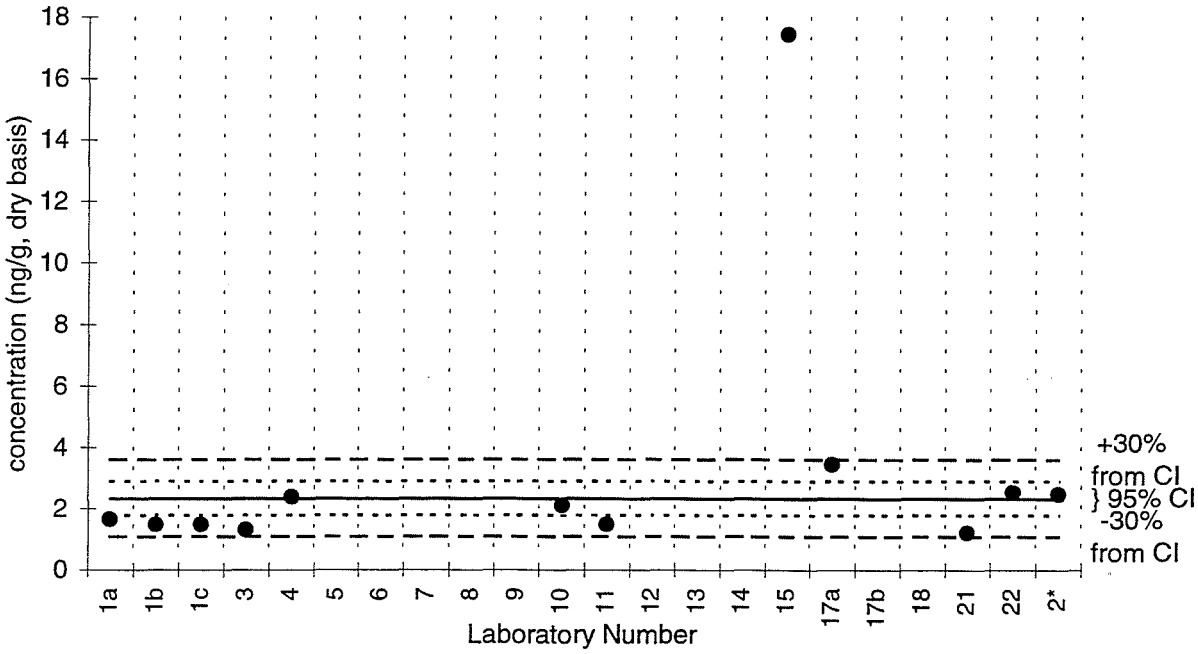


**Laboratory 2 results were received after exercise results made public*

cis-chlordane (alpha-chlordane) — SRM 1941a

Certified Value = 2.33 ± 0.56 ng/g (dry basis)

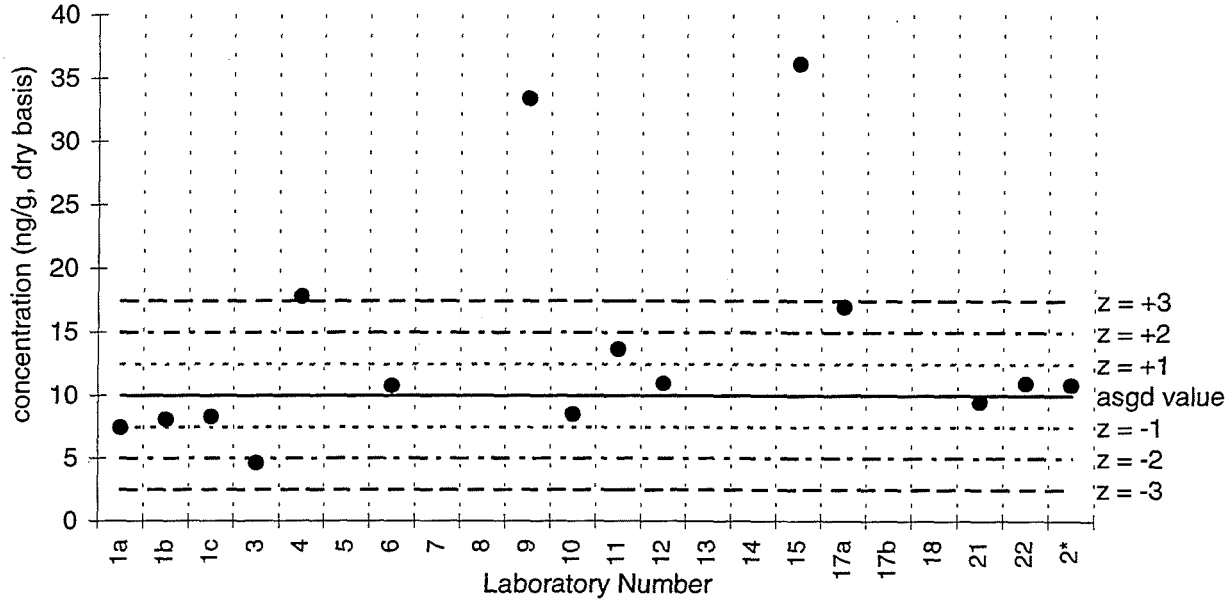
Reported Results: 20 Quantitative Results: 12



trans-nonachlor — Sediment V (QA95SED5)

Assigned value = 10.0 ng/g s = 3.3 ng/g 95% CL = 2.2 ng/g (dry basis)

Reported Results: 17 Quantitative results: 15

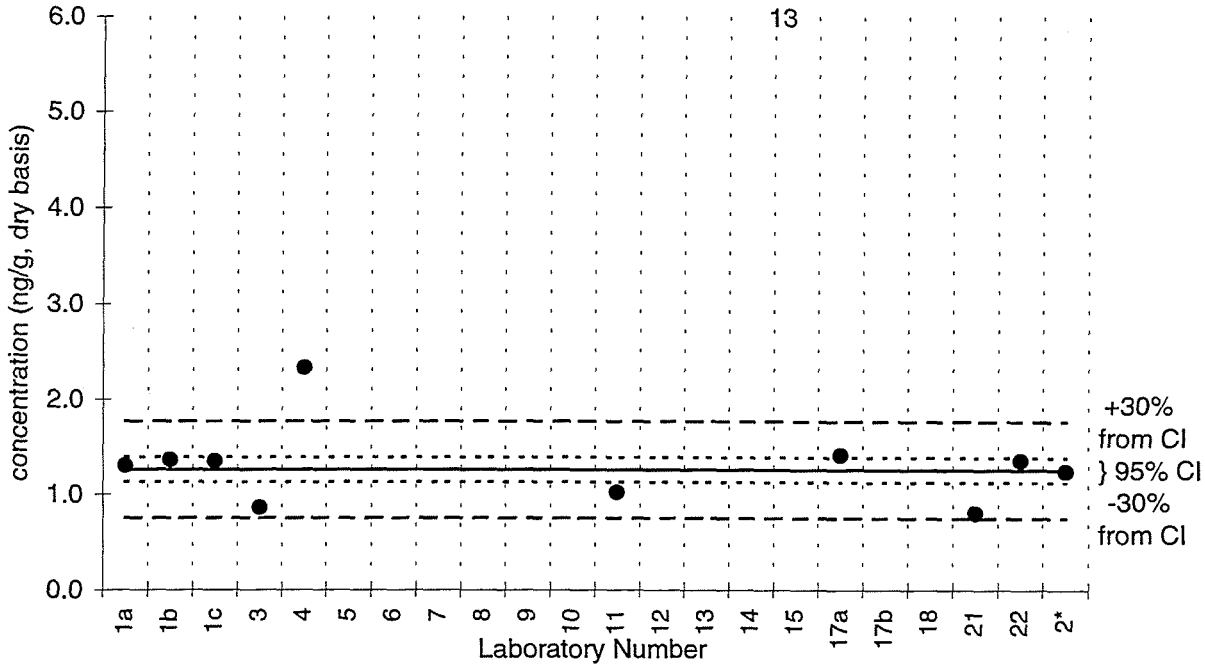


Laboratory 2 results were received after exercise results made public

trans-nonachlor — SRM 1941a

Certified Value = 1.26 ± 0.13 ng/g (dry basis)

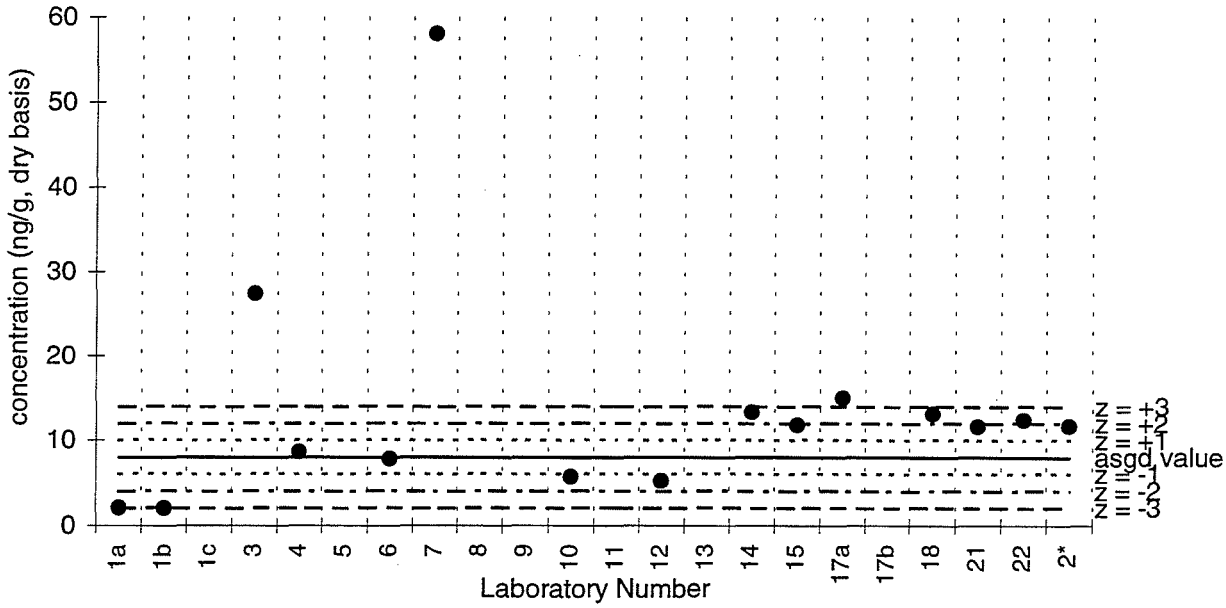
Reported Results: 15 Quantitative Results: 11



dieldrin **Sediment V (QA95SED5)**

Assigned value = 8.0 ng/g s = 4.7 ng/g 95% CL = 3.6 ng/g (dry basis)

Reported Results: 16 Quantitative results: 15

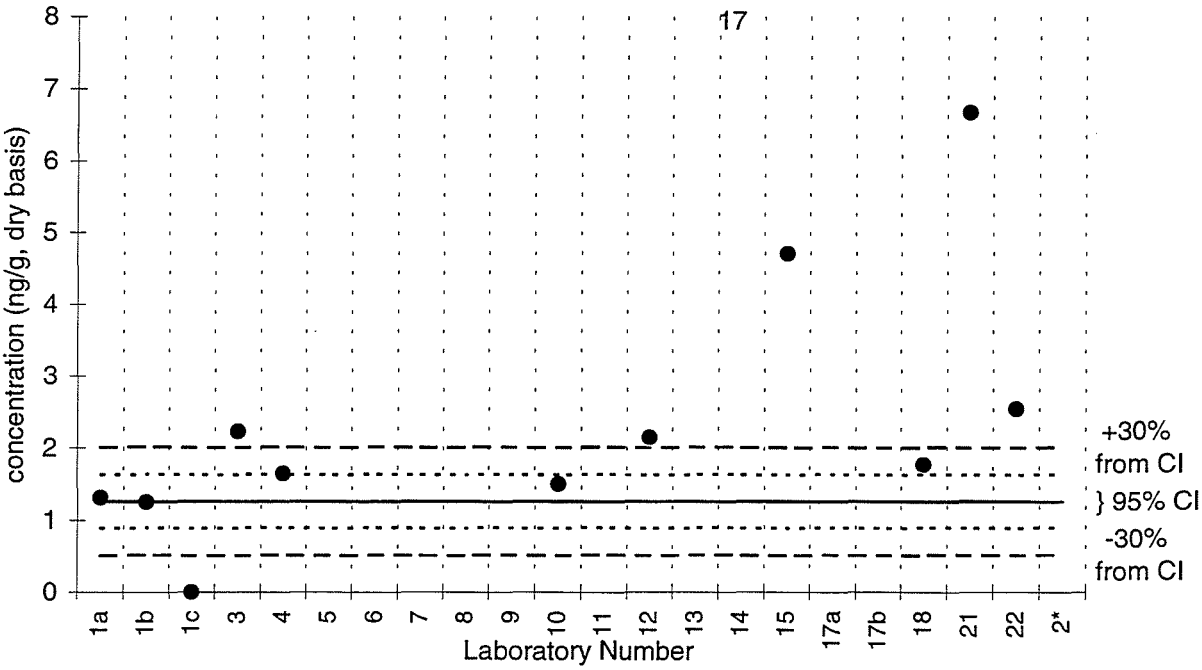


**Laboratory 2 results were received after exercise results made public*

dieldrin **SRM 1941a**

Information Value = 1.26 ± 0.37 ng/g (dry basis)

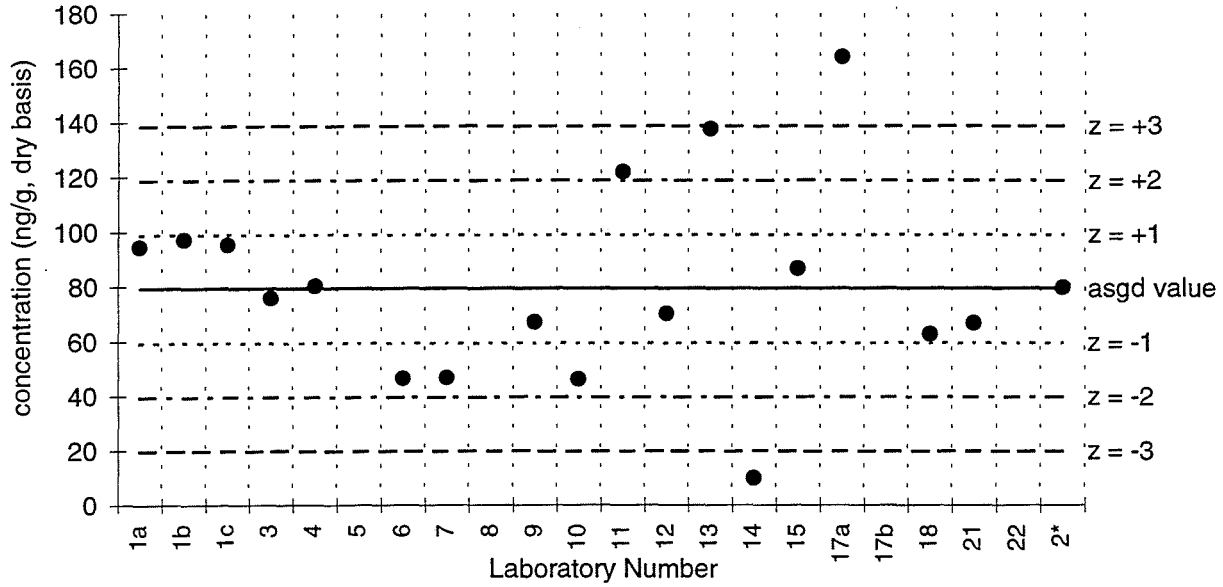
Reported Results: 14 Quantitative Results: 11



4,4'-DDE — Sediment V (QA95SED5)

Assigned value = 79.3 ng/g s = 27.6 ng/g 95% CL = 15.9 ng/g (dry basis)

Reported Results: 18 Quantitative results: 18

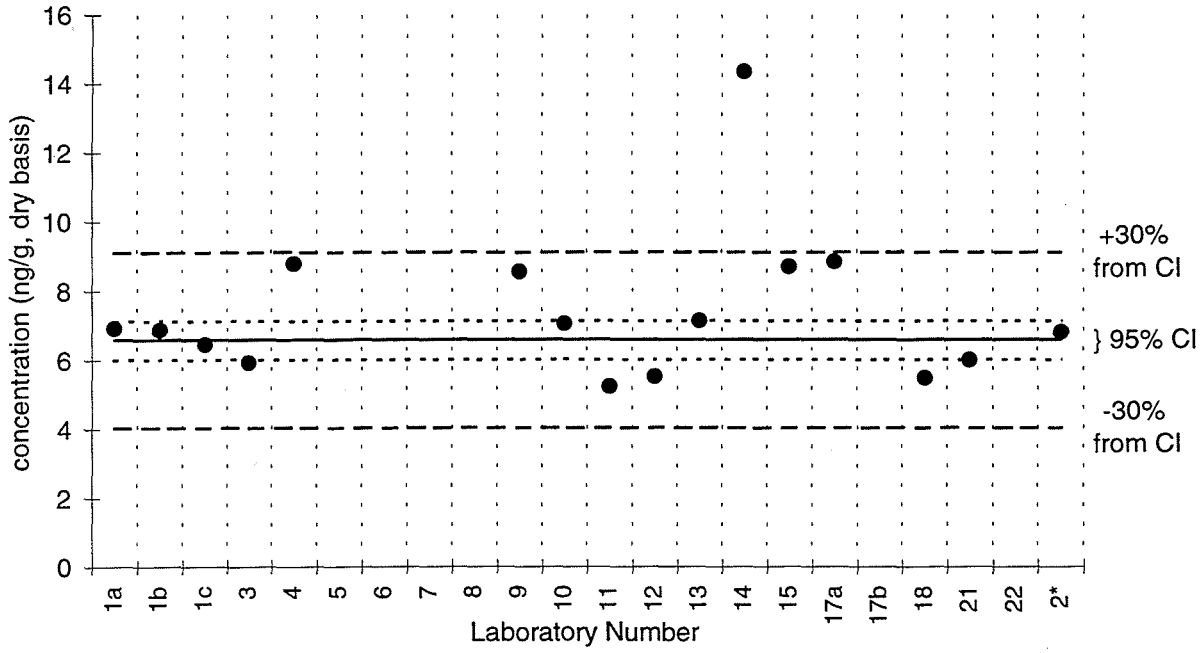


Laboratory 2 results were received after exercise results made public

4,4'-DDE — SRM 1941a

Certified Value = 6.59 ± 0.56 ng/g (dry basis)

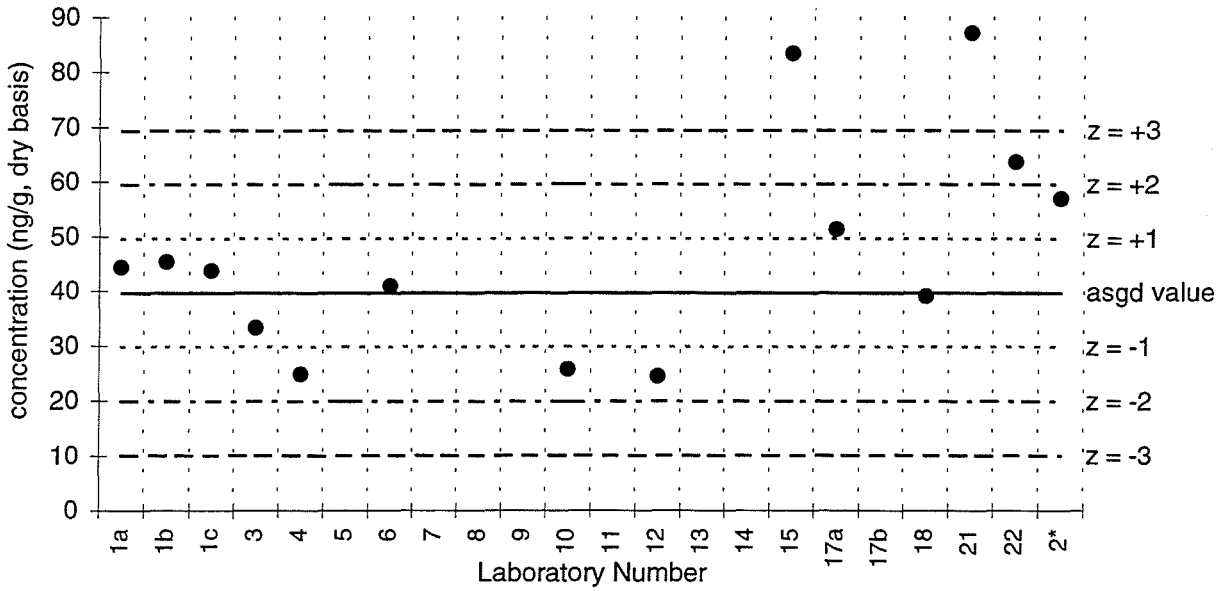
Reported Results: 22 Quantitative Results: 16



2,4'-DDD — Sediment V (QA95SED5)

Assigned value = 39.6 ng/g s = 12.1 ng/g 95% CL = 8.1 ng/g (dry basis)

Reported Results: 16 Quantitative results: 14

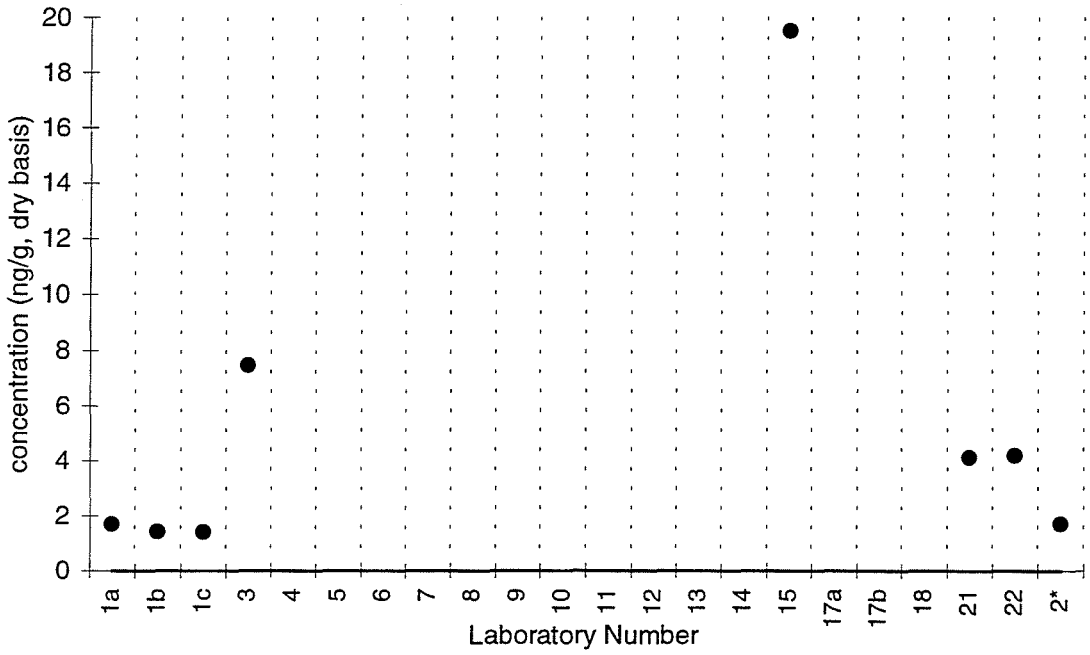


Laboratory 2 results were received after exercise results made public

2,4'-DDD — SRM 1941a

Target Value = <2 ng/g (dry basis)

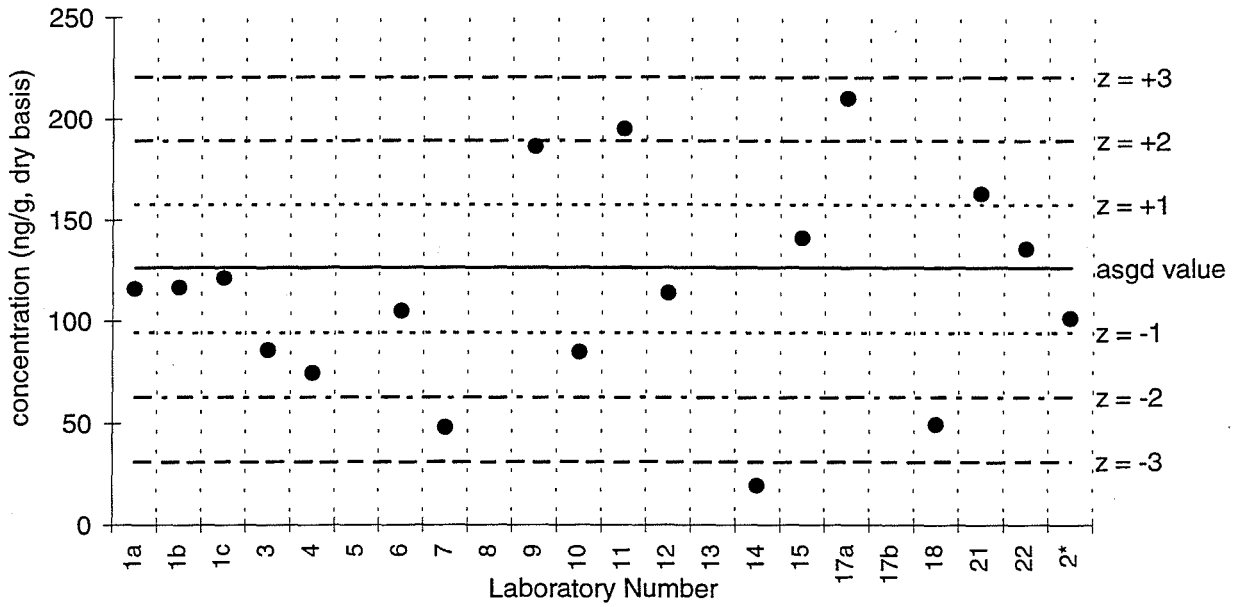
Reported Results: 14 Quantitative Results: 8



4,4'-DDD — Sediment V (QA95SED5)

Assigned value = 126 ng/g s = 45 ng/g 95% CL = 30 ng/g (dry basis)

Reported Results: 18 Quantitative results: 18

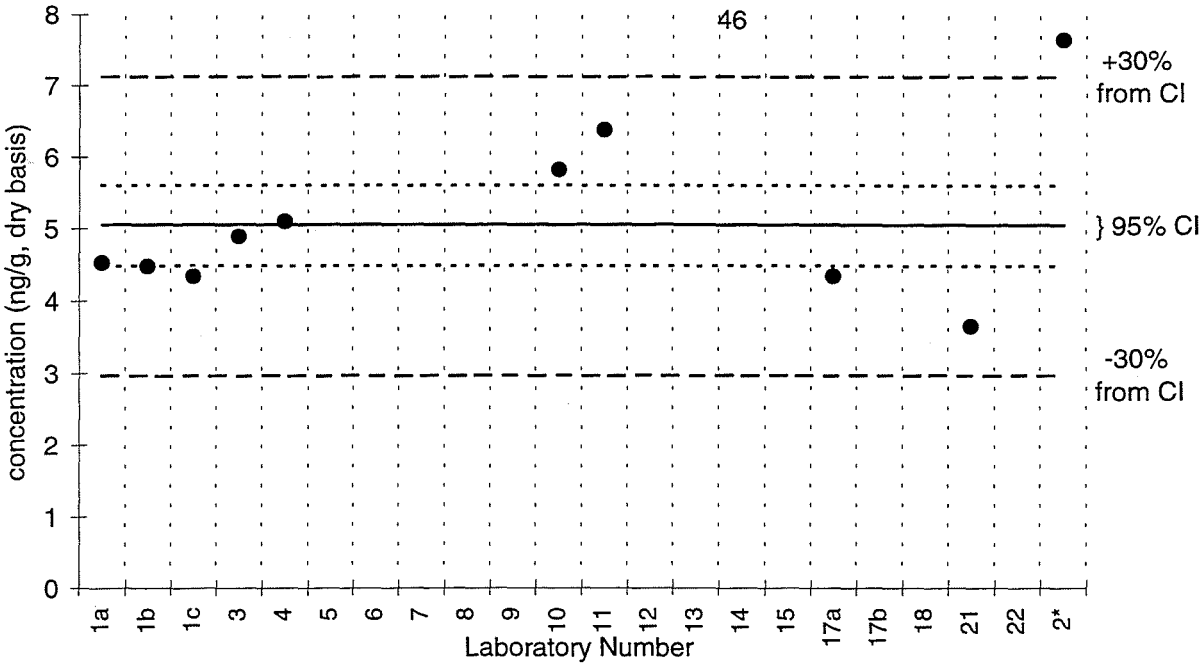


*Laboratory 2 results were received after exercise results made public

4,4'-DDD — SRM 1941a

Certified Value = 5.06 ± 0.56 ng/g (dry basis)

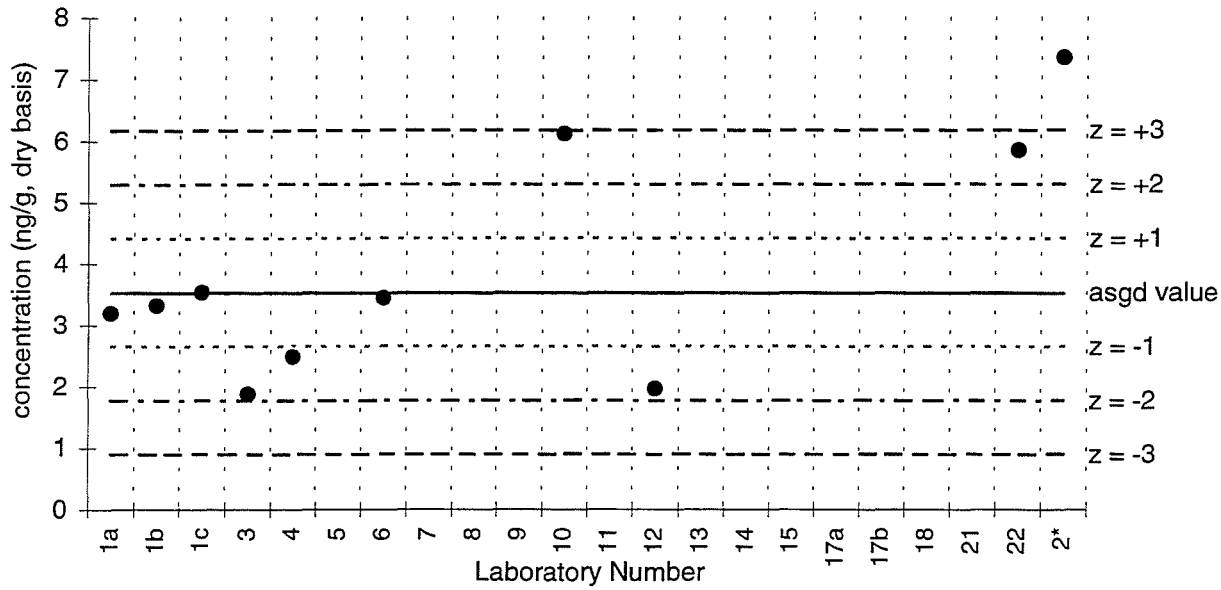
Reported Results: 16 Quantitative Results: 14



cis-nonachlor — Sediment V (QA95SED5)

Assigned value = 3.52 ng/g s = 1.52 ng/g 95% CL = 1.17 ng/g (dry basis)

Reported Results: 13 Quantitative results: 10

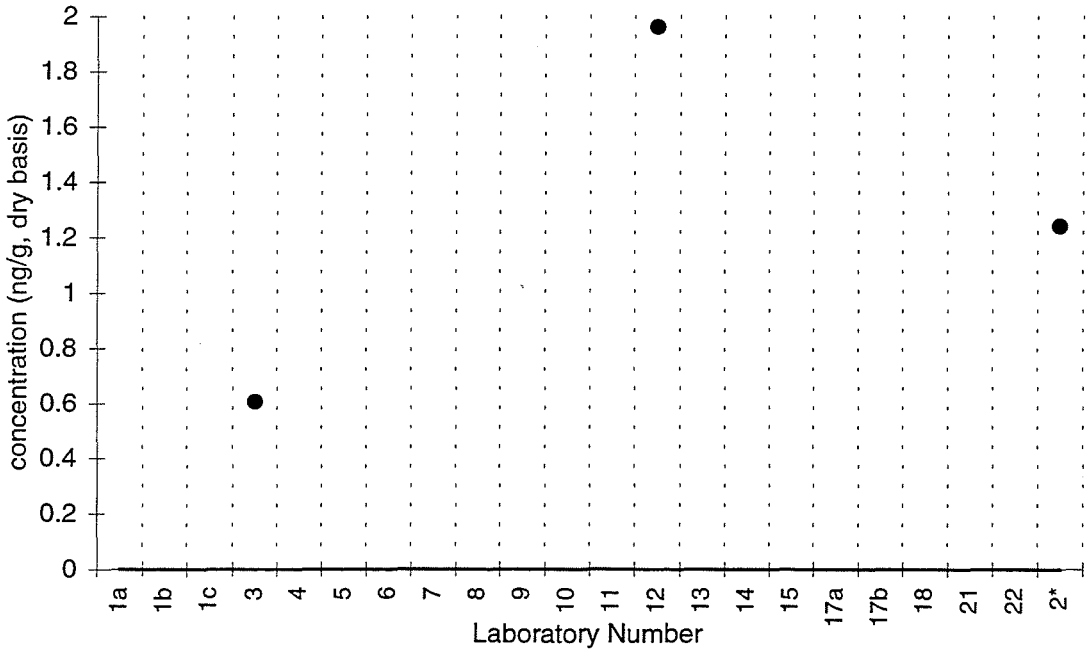


Laboratory 2 results were received after exercise results made public

cis-nonachlor — SRM 1941a

Target Value = <2 ng/g (dry basis)

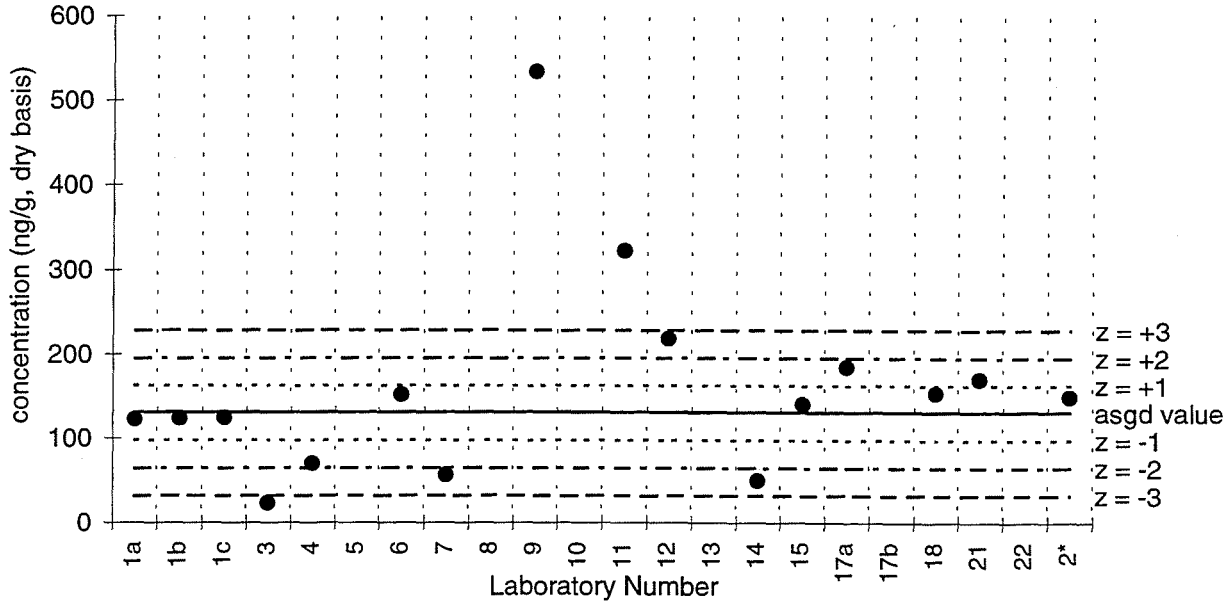
Reported Results: 11 Quantitative Results: 3



4,4'-DDT — Sediment V (QA95SED5)

Assigned value = 131 ng/g s = 58 ng/g 95% CL = 45 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

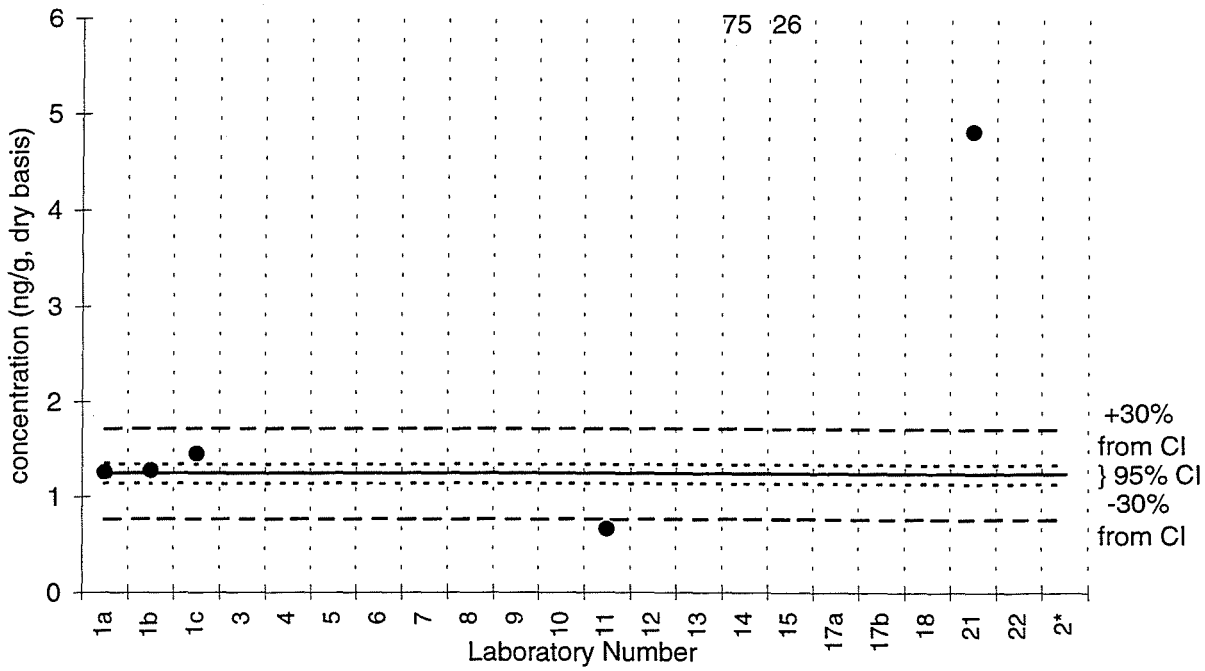


*Laboratory 2 results were received after exercise results made public

4,4'-DDT — SRM 1941a

Information Value = 1.25 ± 0.10 ng/g (dry basis)

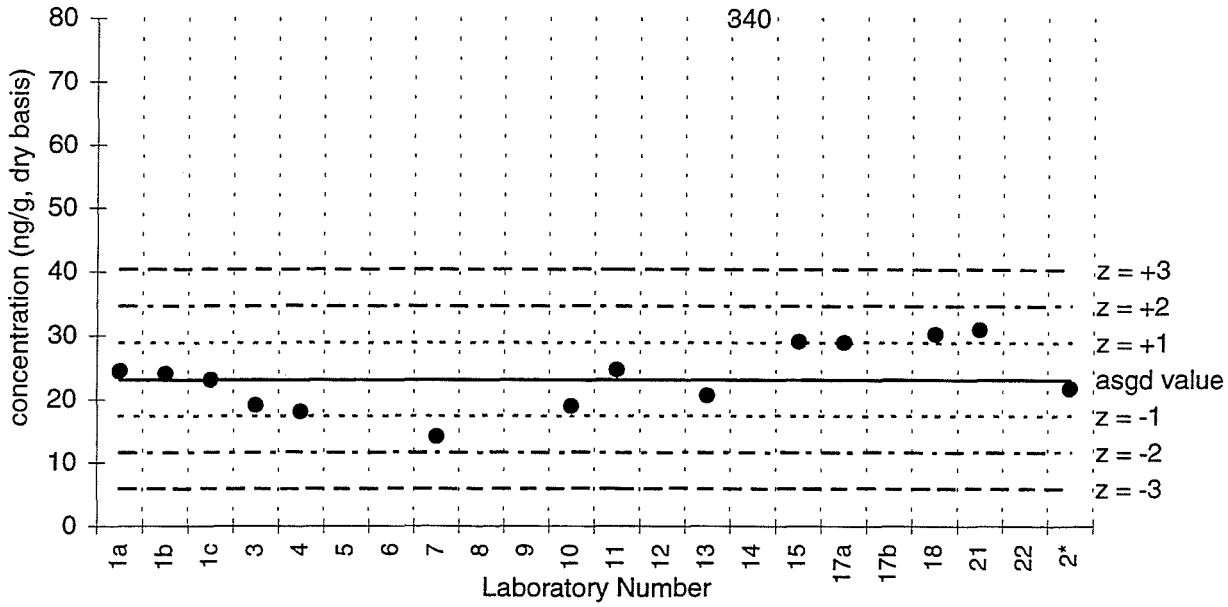
Reported Results: 15 Quantitative Results: 7



PCB 8 — Sediment V (QA95SED5)

Assigned value = 23.0 ng/g s = 5.2 ng/g 95% CL = 3.3 ng/g (dry basis)

Reported Results: 15 Quantitative results: 15

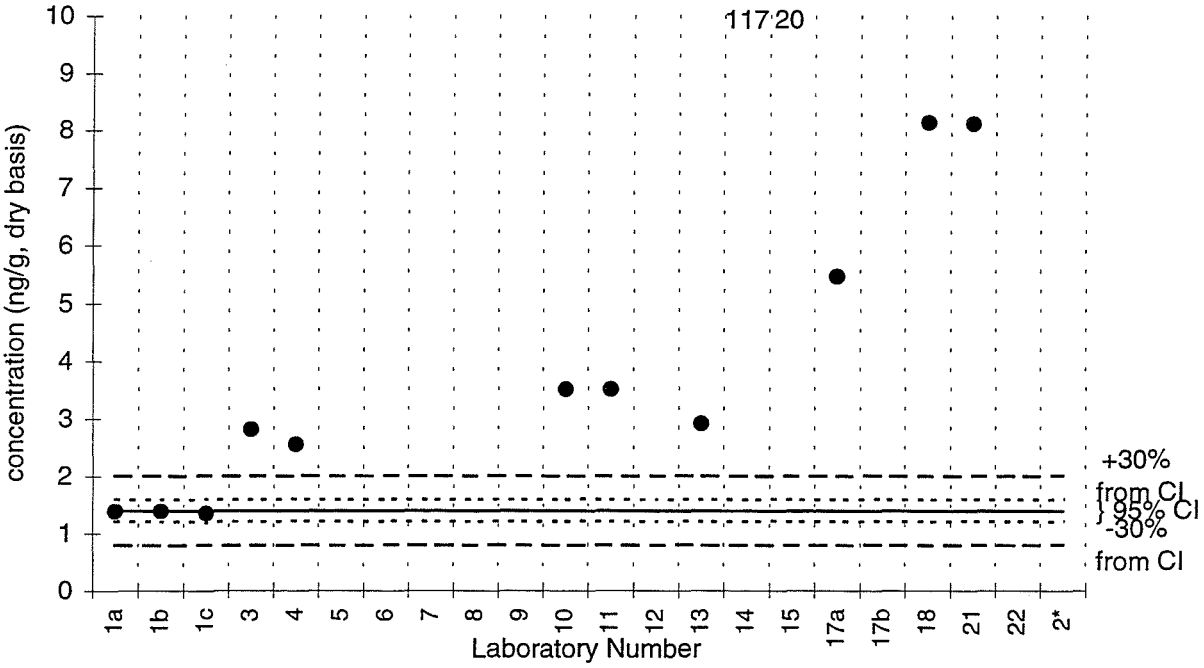


Laboratory 2 results were received after exercise results made public

PCB 8 — SRM 1941a

Information Value = 1.39 ± 0.19 ng/g (dry basis)

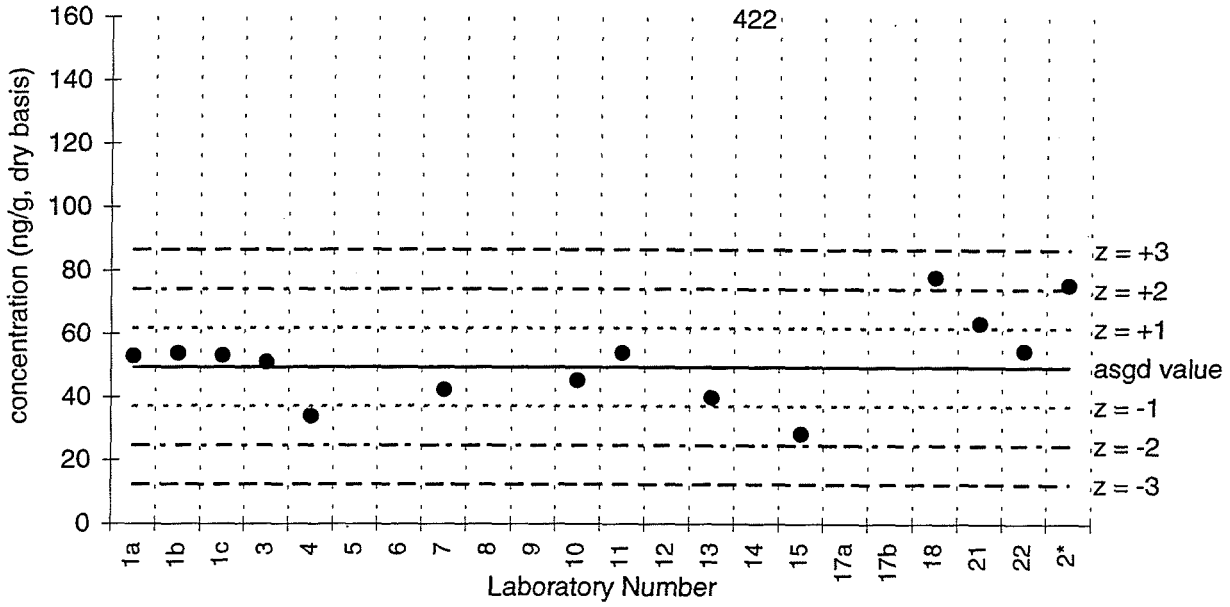
Reported Results: 14 Quantitative Results: 13



PCB 18 — Sediment V (QA95SED5)

Assigned value = 49.5 ng/g s = 8.3 ng/g 95% CL = 5.6 ng/g (dry basis)

Reported Results: 15 Quantitative results: 15

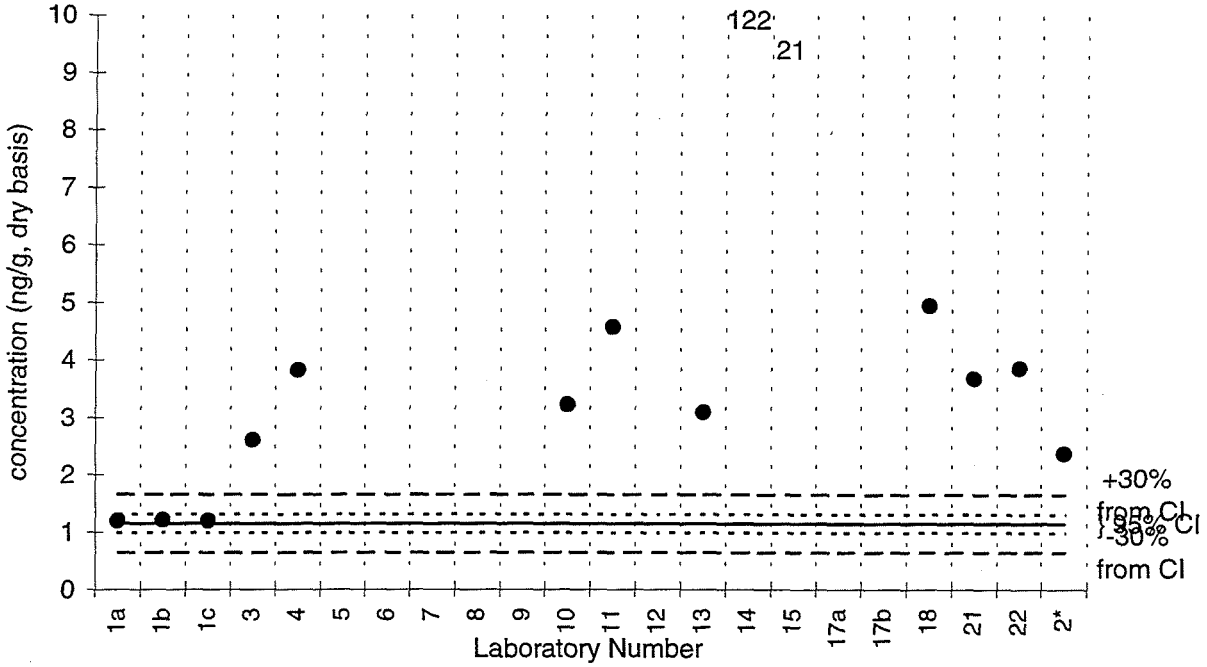


Laboratory 2 results were received after exercise results made public

PCB 18 — SRM 1941a

Information Value = 1.15 ± 0.16 ng/g (dry basis)

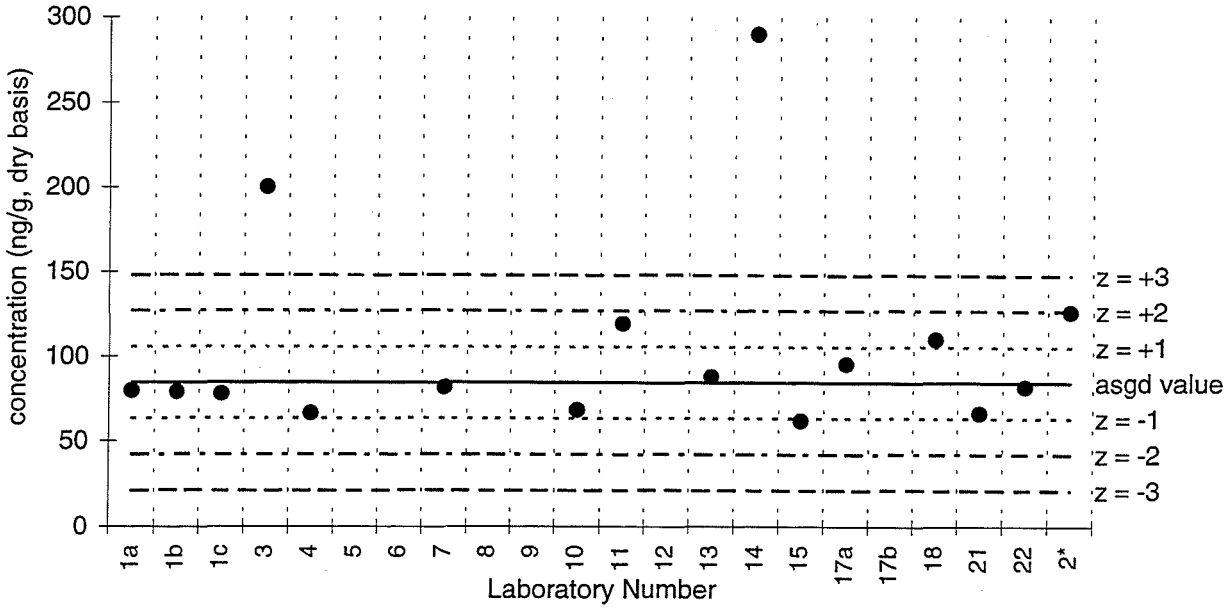
Reported Results: 15 Quantitative Results: 14



PCB 28 — Sediment V (QA95SED5)

Assigned value = 84.6 ng/g s = 16.6 ng/g 95% CL = 10.6 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

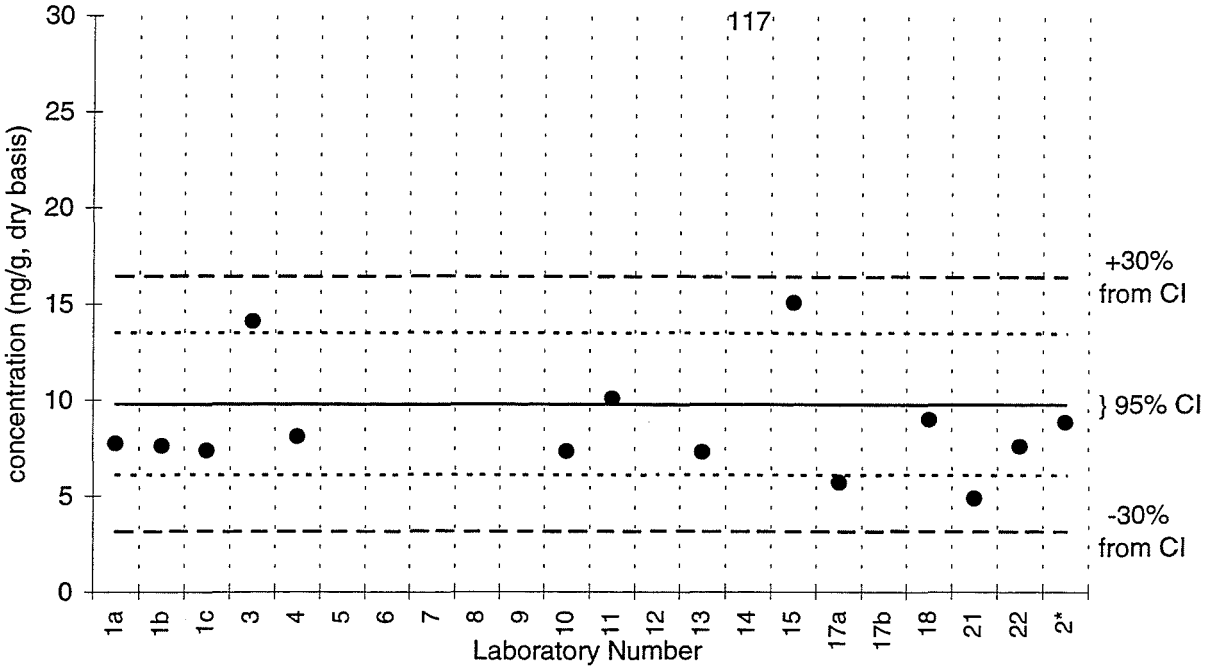


Laboratory 2 results were received after exercise results made public

PCB 28 — SRM 1941a

Information Value = 9.8 ± 3.7 ng/g (dry basis)

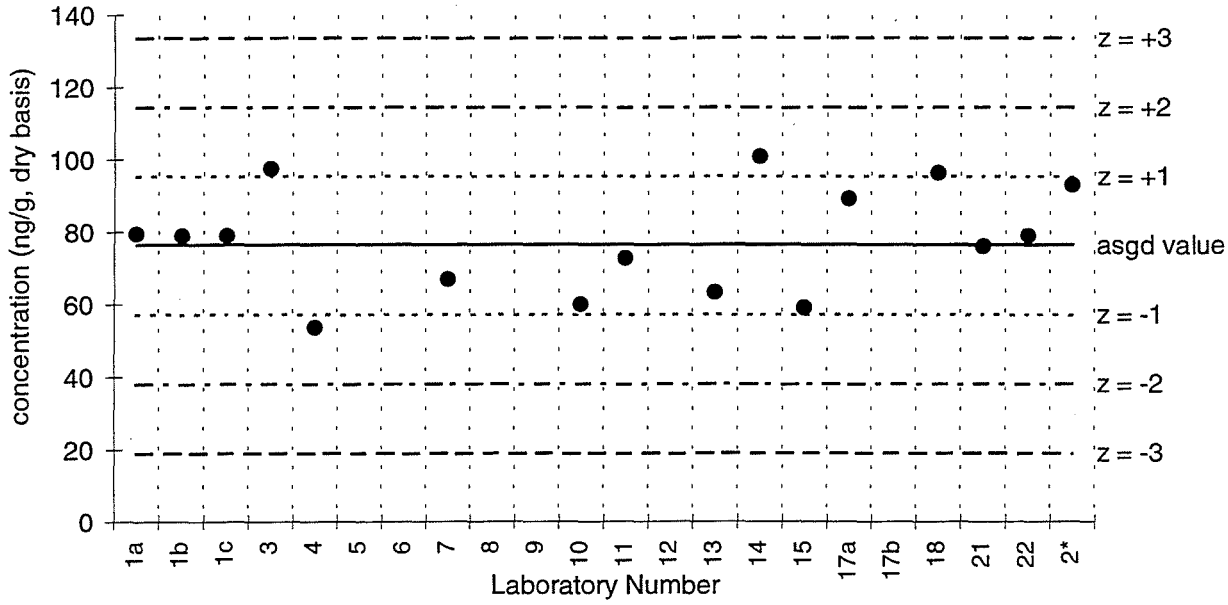
Reported Results: 15 Quantitative Results: 15



PCB 52 — Sediment V (QA95SED5)

Assigned value = 76.4 ng/g s = 13.2 ng/g 95% CL = 8.0 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

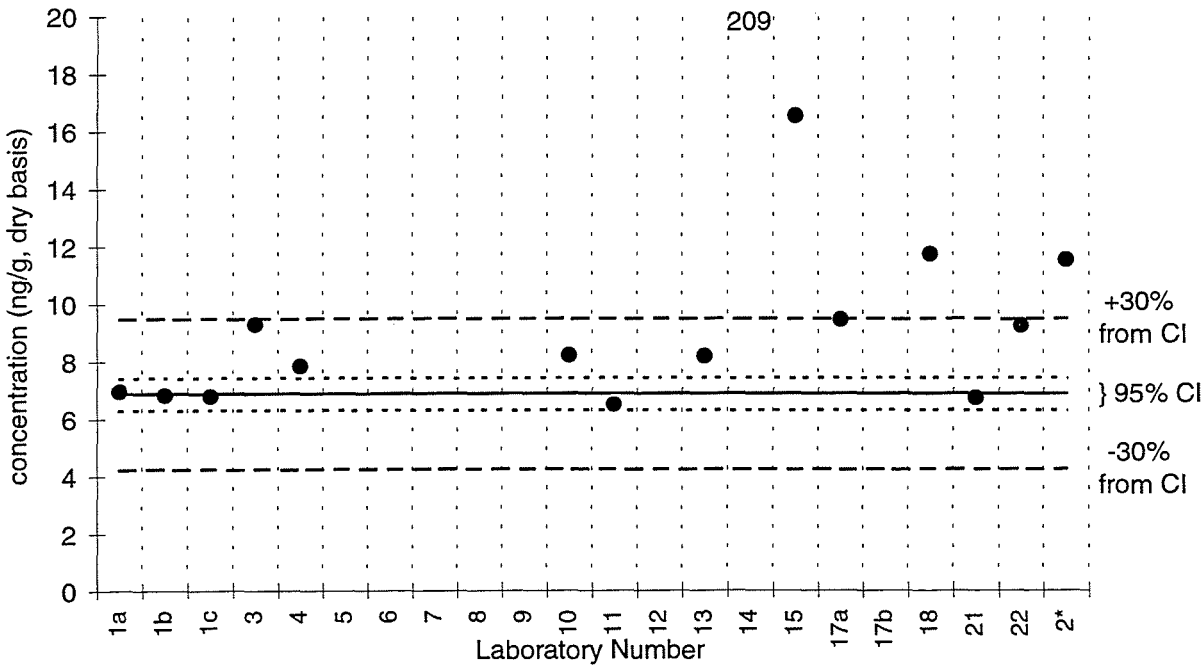


Laboratory 2 results were received after exercise results made public

PCB 52 — SRM 1941a

Certified Value = 6.89 ± 0.56 ng/g (dry basis)

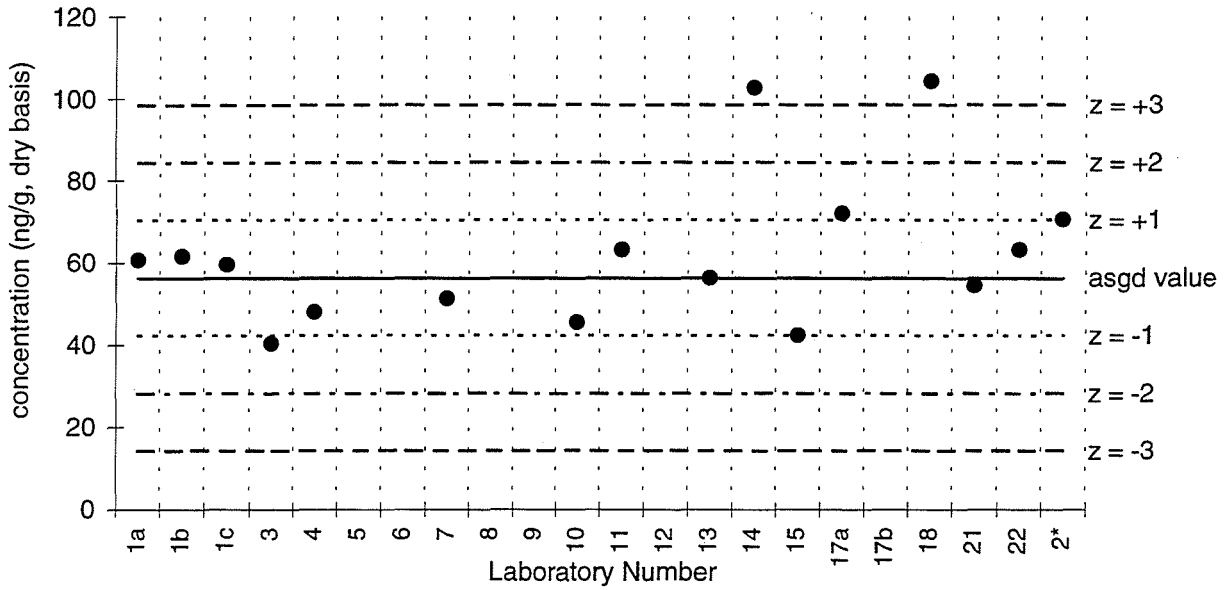
Reported Results: 15 Quantitative Results: 15



PCB 44 — Sediment V (QA95SED5)

Assigned value = 56.2 ng/g s = 8.9 ng/g 95% CL = 5.6 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

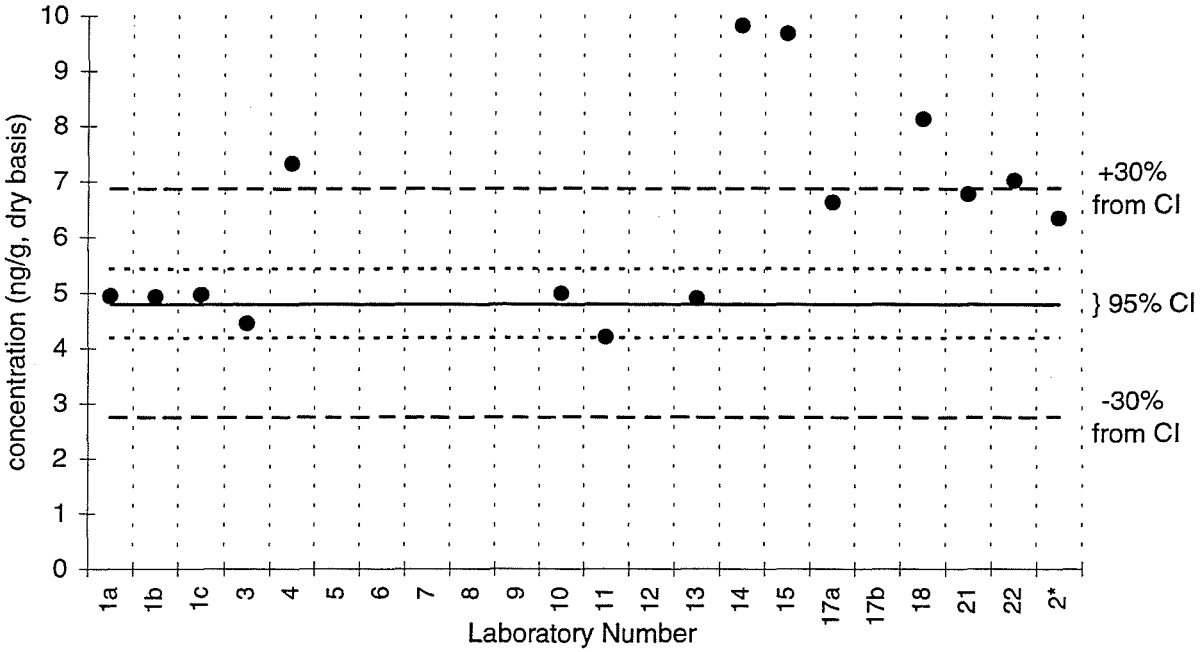


Laboratory 2 results were received after exercise results made public

PCB 44 — SRM 1941a

Certified Value = 4.80 ± 0.62 ng/g (dry basis)

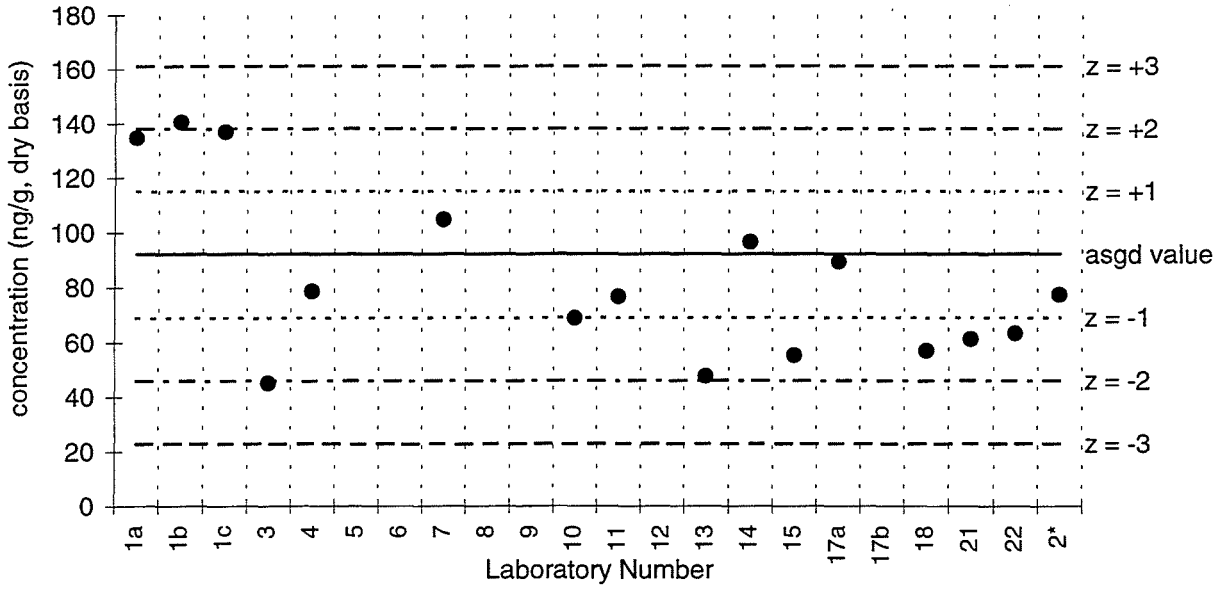
Reported Results: 15 Quantitative Results: 15



PCB 66/95 — Sediment V (QA95SED5)

Assigned value = 92.1 ng/g s = 32.1 ng/g 95% CL = 21.6 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

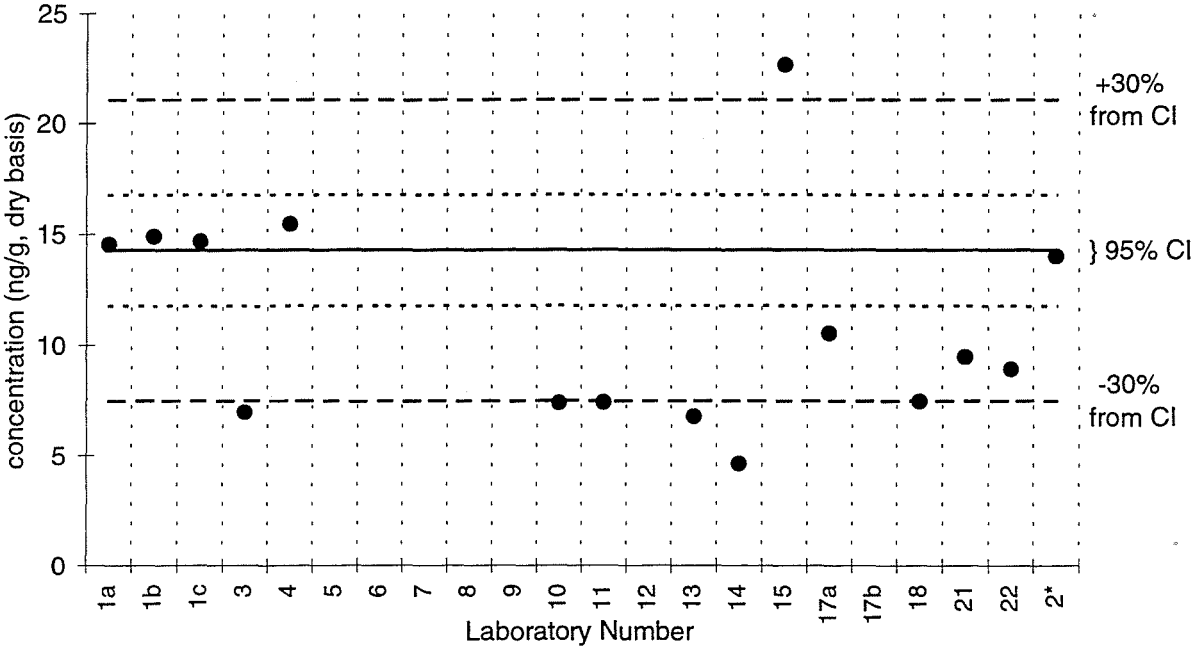


Laboratory 2 results were received after exercise results made public

PCB 66/95 — SRM 1941a

Certified Value = 14.3 ± 2.5 ng/g (dry basis)

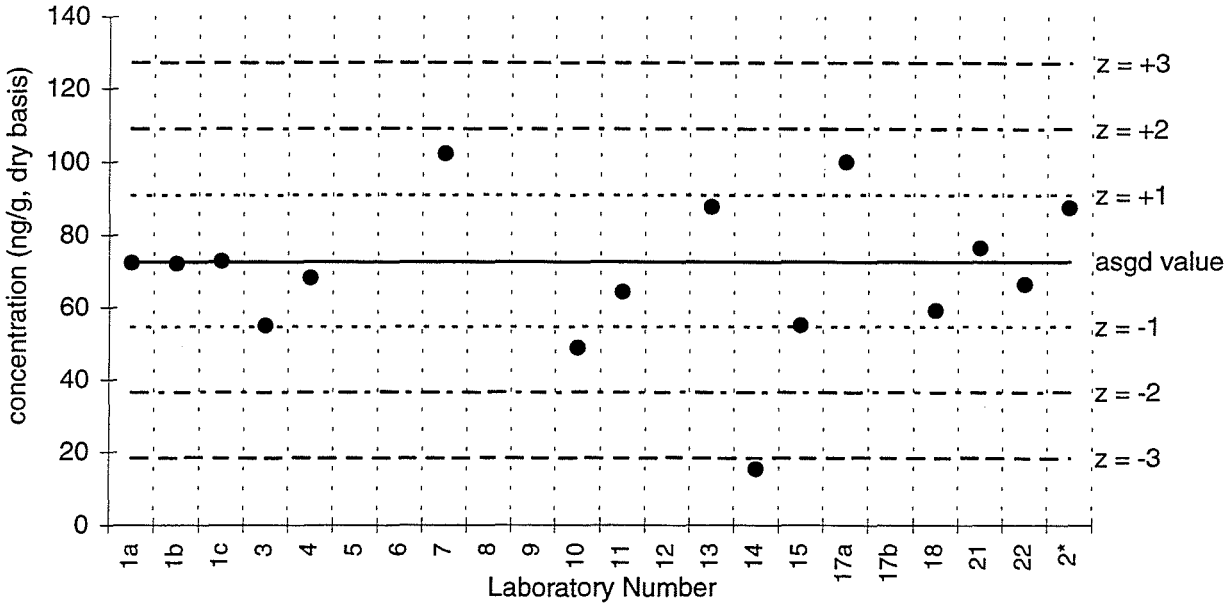
Reported Results: 15 Quantitative Results: 15



PCB 101/90 — Sediment V (QA95SED5)

Assigned value = 72.6 ng/g s = 16.0 ng/g 95% CL = 9.7 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

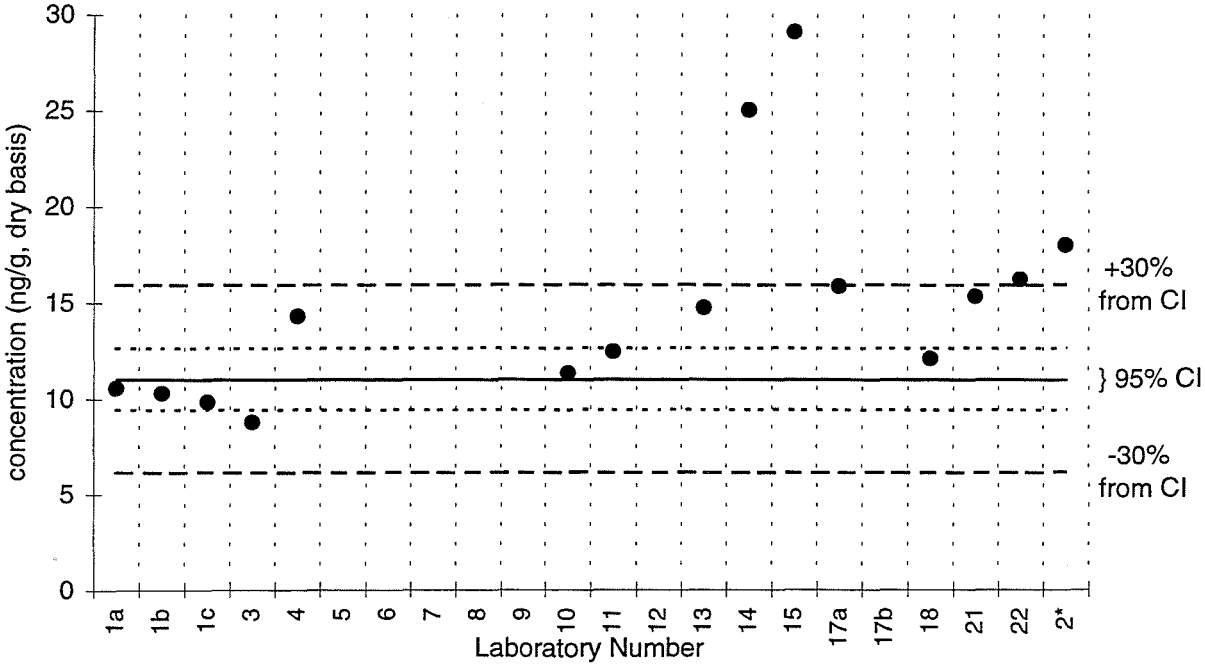


Laboratory 2 results were received after exercise results made public

PCB 101/90 — SRM 1941a

Certified Value = 11.0 ± 1.6 ng/g (dry basis)

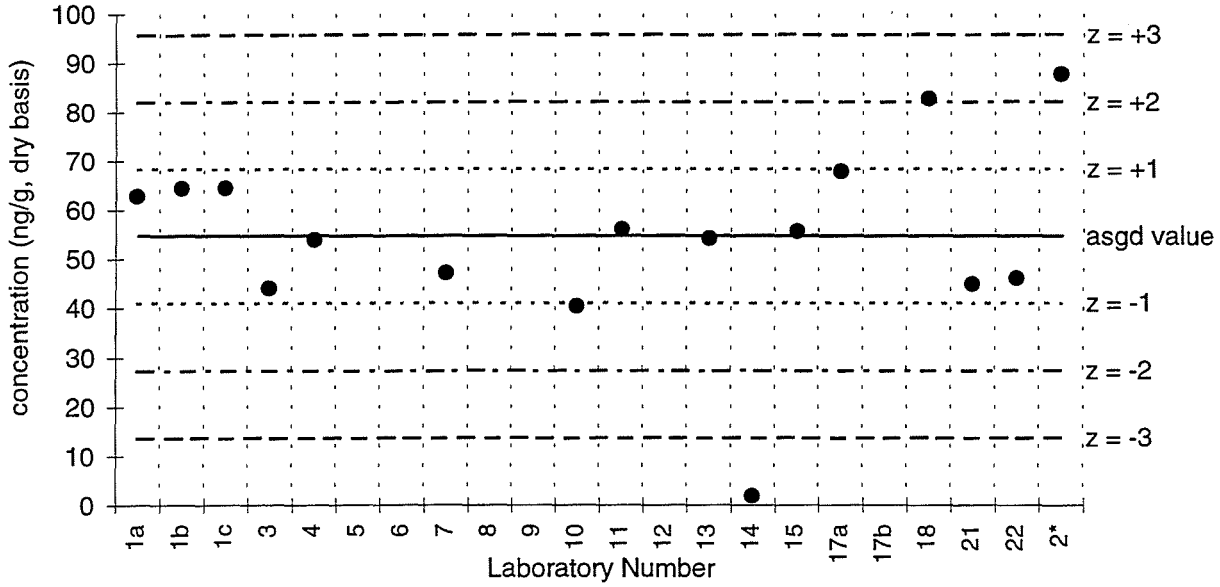
Reported Results: 15 Quantitative Results: 15



PCB 118 — Sediment V (QA95SED5)

Assigned value = 54.7 ng/g s = 9.4 ng/g 95% CL = 6.3 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

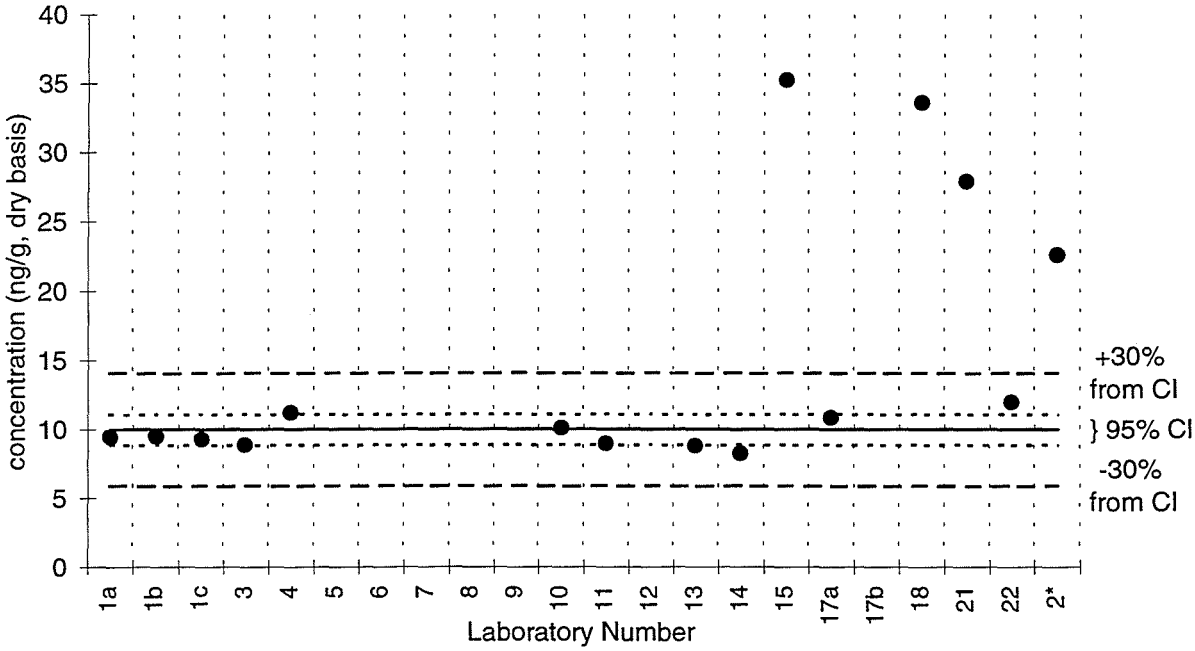


Laboratory 2 results were received after exercise results made public

PCB 118 — SRM 1941a

Certified Value = 10.0 ± 1.1 ng/g (dry basis)

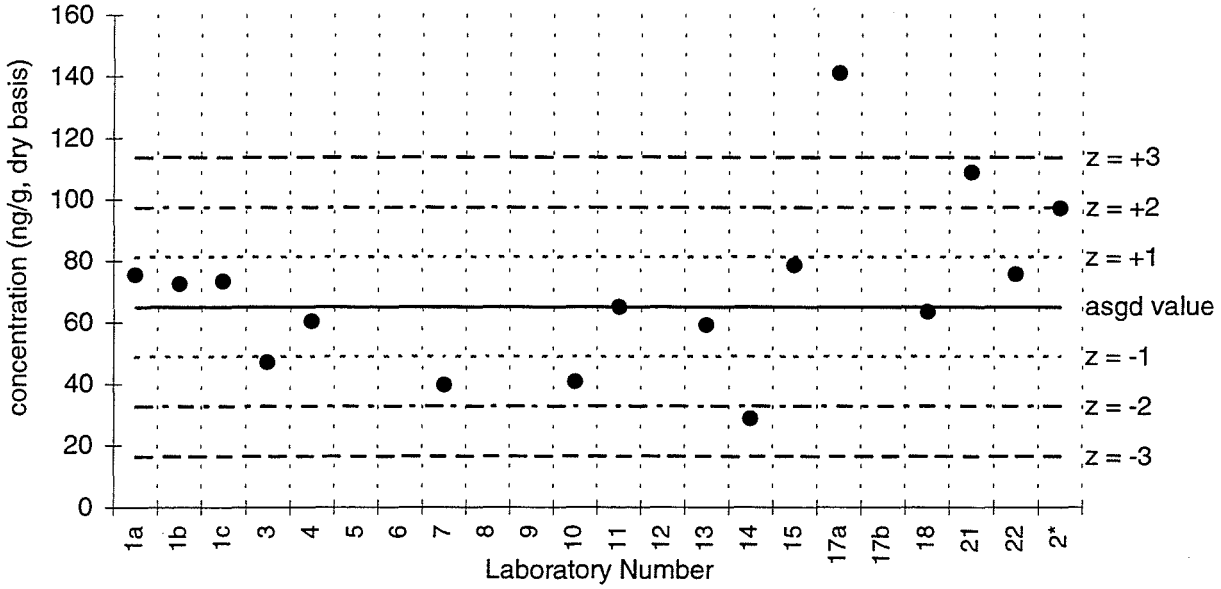
Reported Results: 15 Quantitative Results: 15



PCB 153 — Sediment V (QA95SED5)

Assigned value = 64.8 ng/g s = 18.8 ng/g 95% CL = 12.0 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

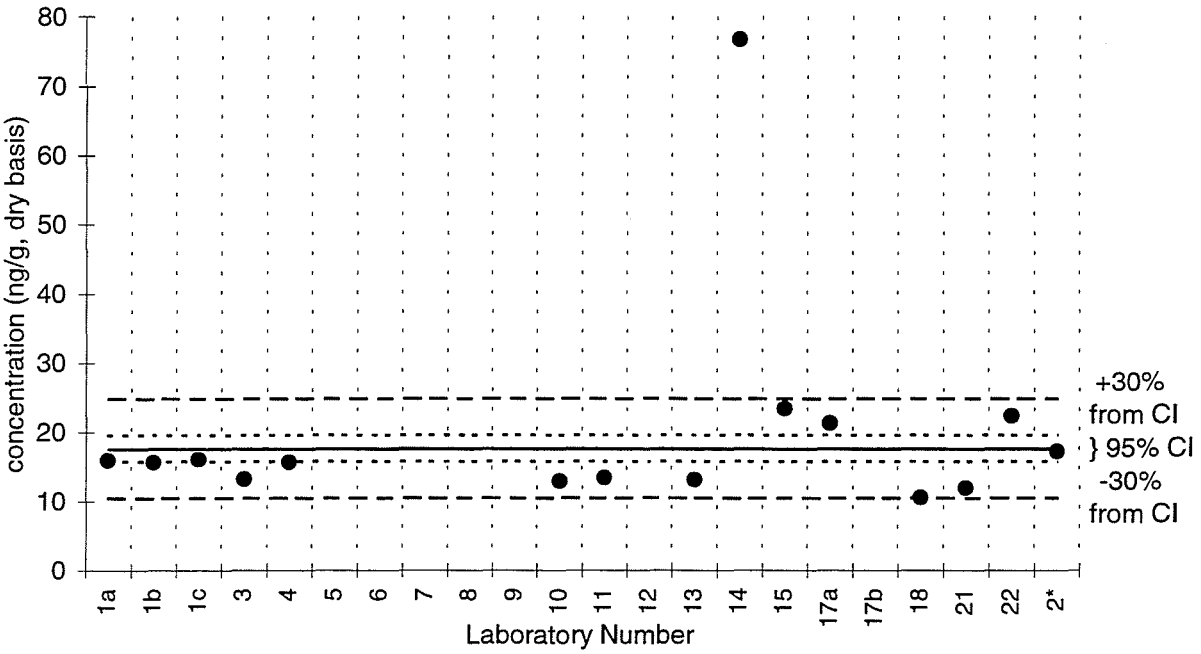


**Laboratory 2 results were received after exercise results made public*

PCB 153 — SRM 1941a

Certified Value = 17.6 ± 1.9 ng/g (dry basis)

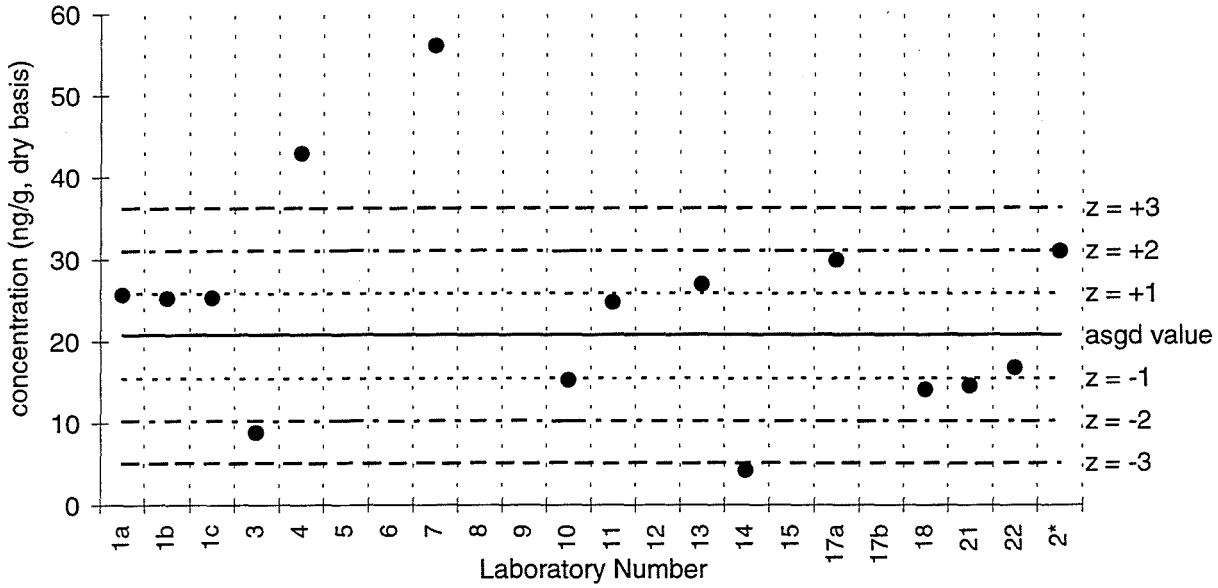
Reported Results: 15 Quantitative Results: 15



PCB 105 — Sediment V (QA95SED5)

Assigned value = 20.8 ng/g s = 6.9 ng/g 95% CL = 4.6 ng/g (dry basis)

Reported Results: 15 Quantitative results: 15

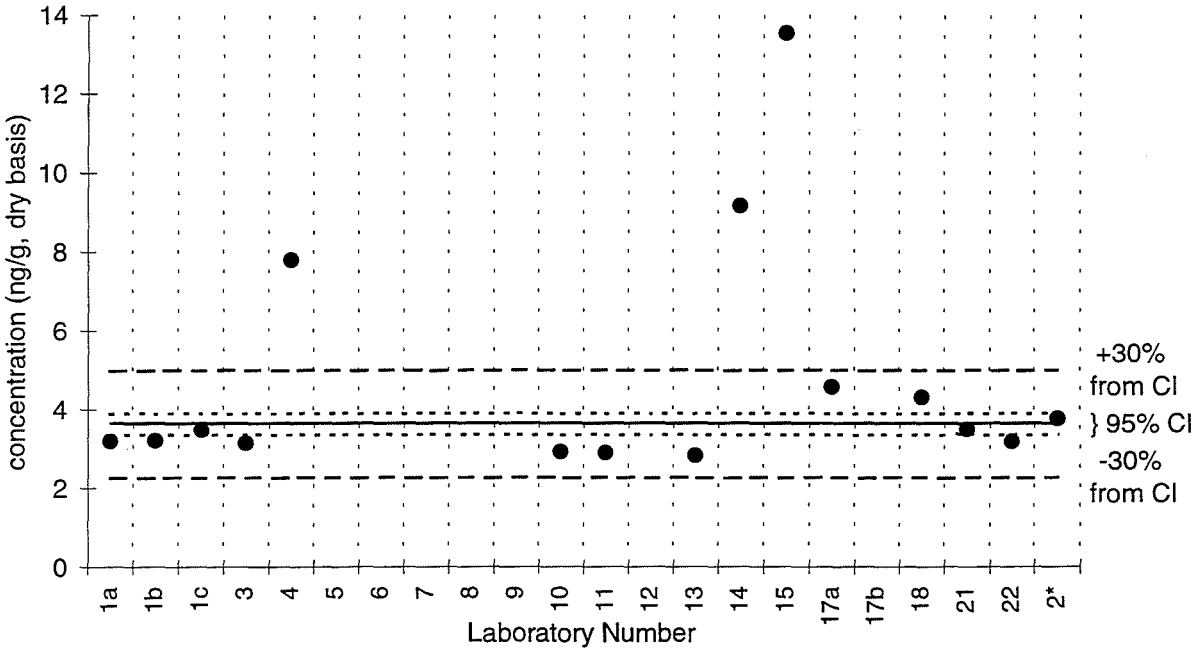


Laboratory 2 results were received after exercise results made public

PCB 105 — SRM 1941a

Certified Value = 3.65 ± 0.27 ng/g (dry basis)

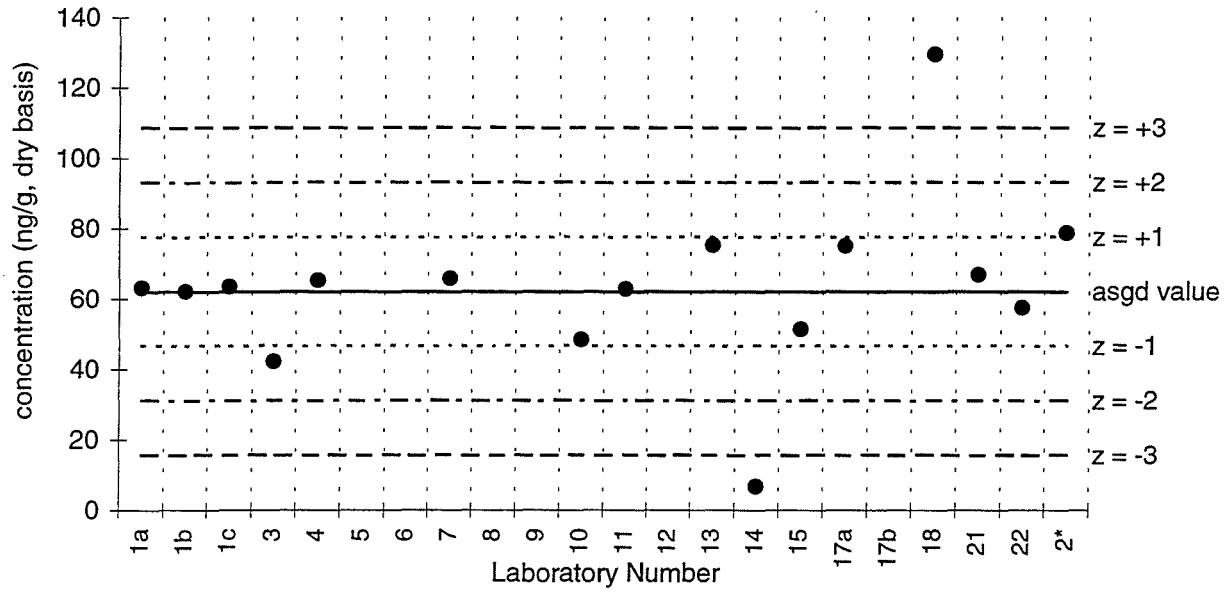
Reported Results: 15 Quantitative Results: 15



PCB 138/163/164 — Sediment V (QA95SED5)

Assigned value = 62.0 ng/g s = 9.9 ng/g 95% CL = 6.7 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

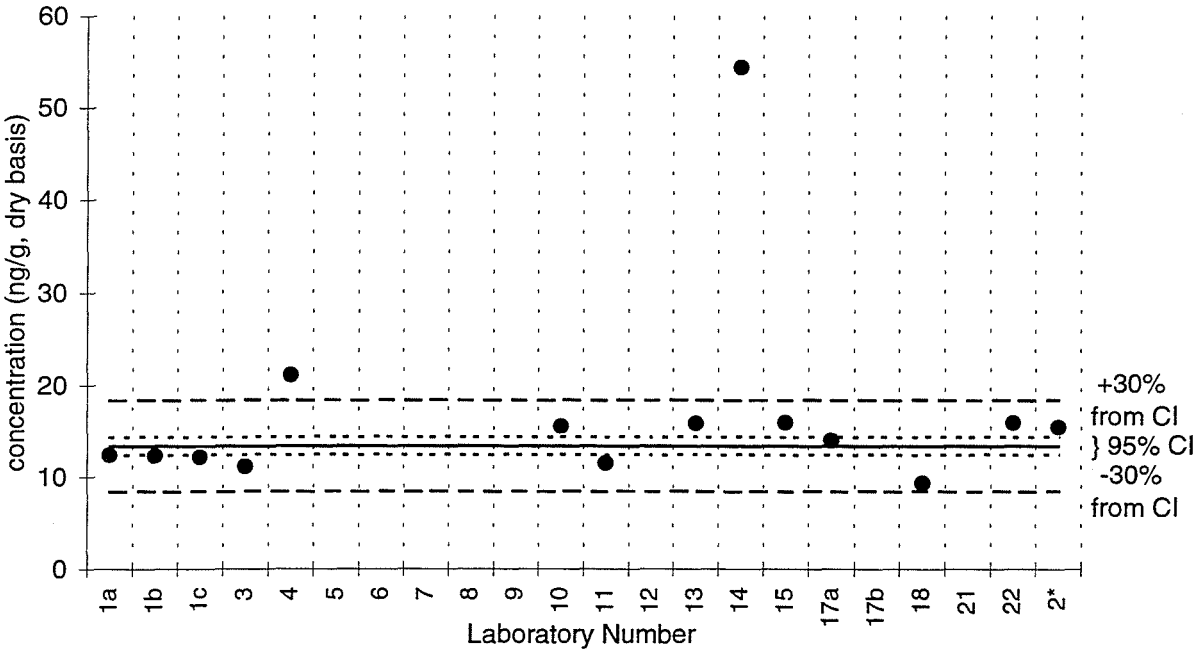


Laboratory 2 results were received after exercise results made public

PCB 138/163/164 — SRM 1941a

Certified Value = 13.38 ± 0.97 ng/g (dry basis)

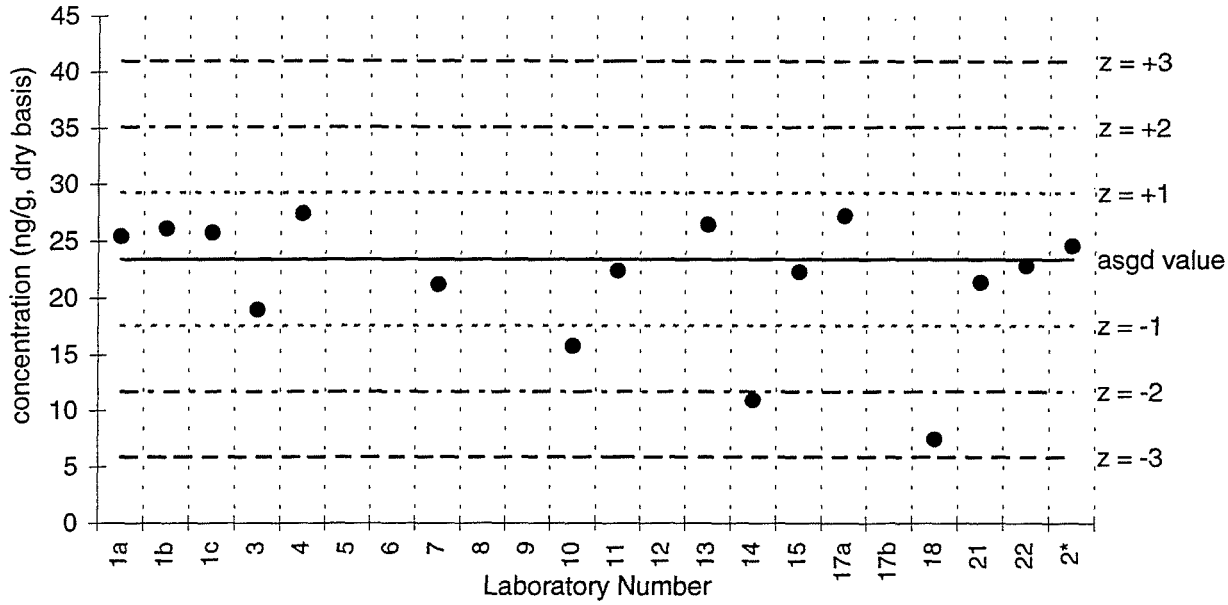
Reported Results: 14 Quantitative Results: 14



PCB 187/182 — Sediment V (QA95SED5)

Assigned value = 23.4 ng/g s = 3.6 ng/g 95% CL = 2.3 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

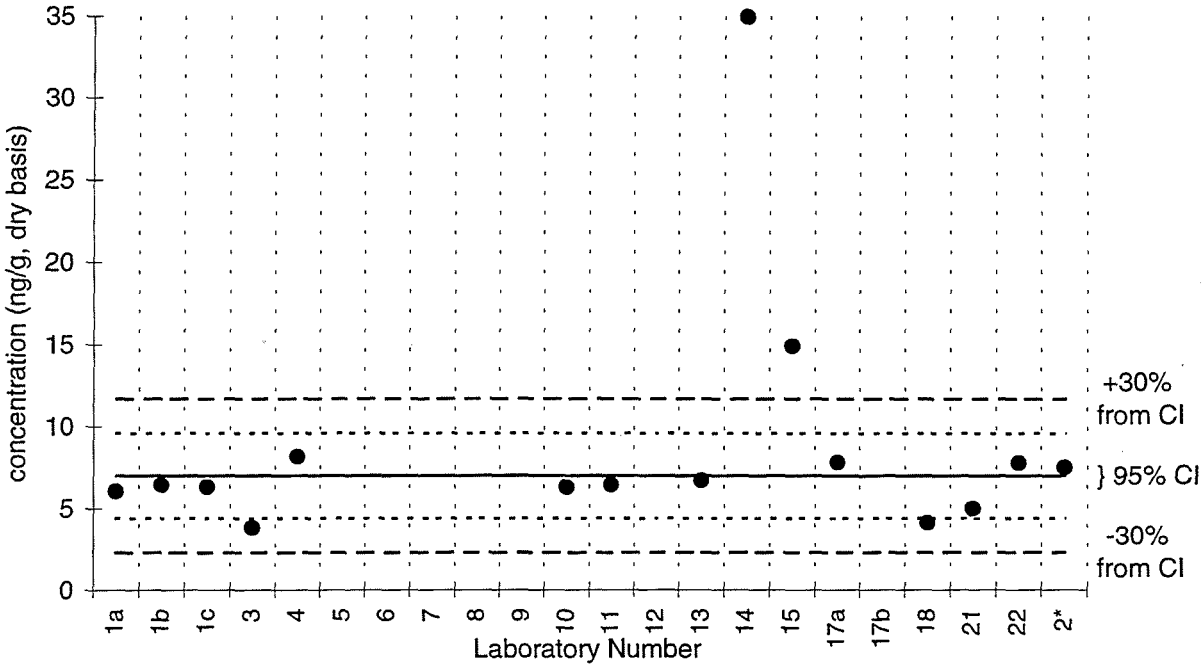


Laboratory 2 results were received after exercise results made public

PCB 187/182 — SRM 1941a

Information Value = 7.0 ± 2.6 ng/g (dry basis)

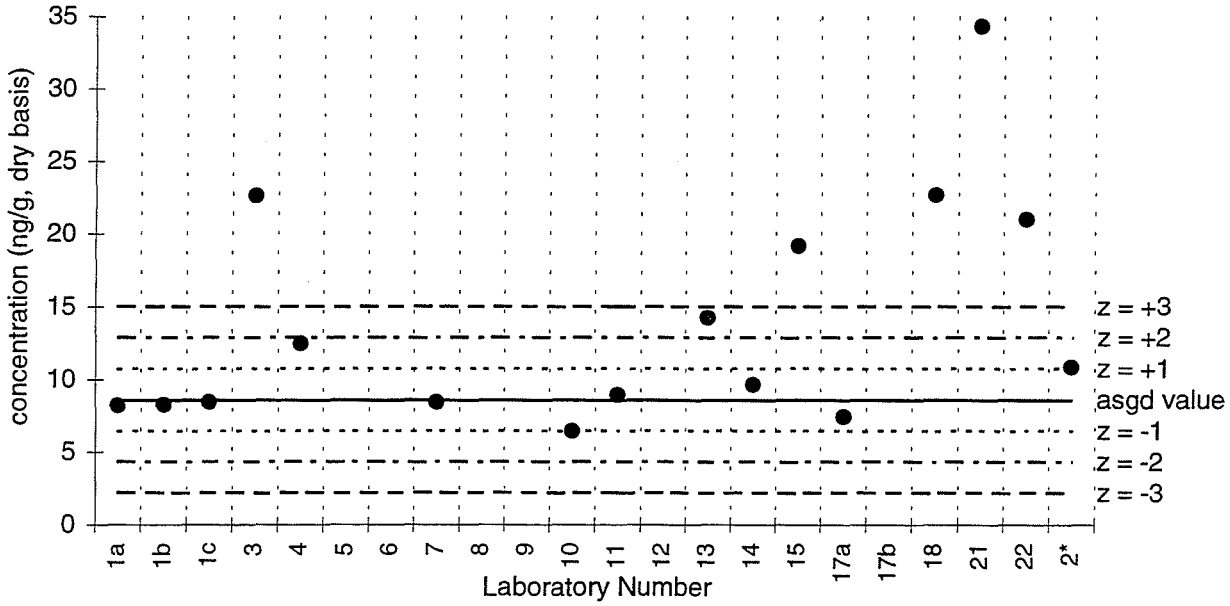
Reported Results: 15 Quantitative Results: 15



PCB 128 — Sediment V (QA95SED5)

Assigned value = 8.56 ng/g s = 1.75 ng/g 95% CL = 1.46 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

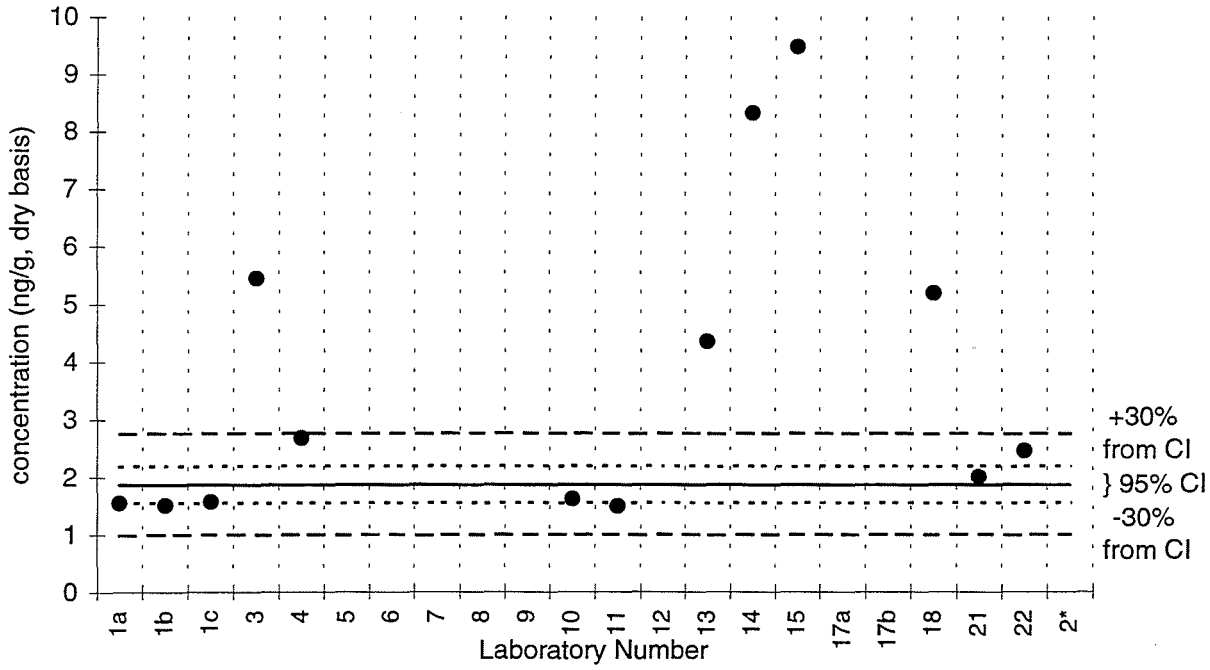


Laboratory 2 results were received after exercise results made public

PCB 128 — SRM 1941a

Certified Value = 1.87 ± 0.32 ng/g (dry basis)

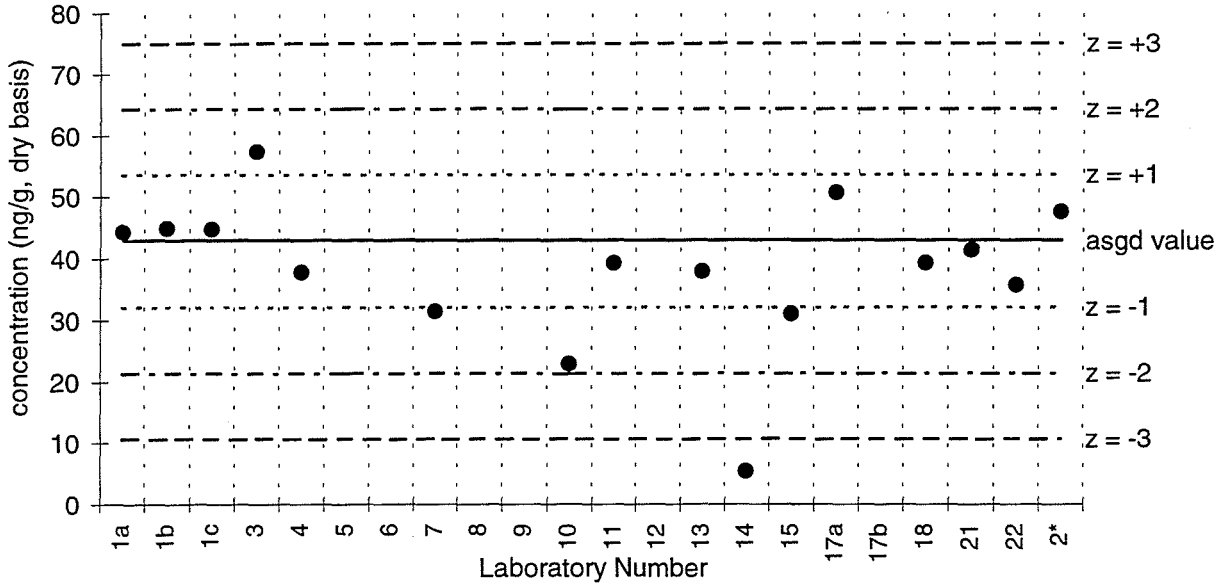
Reported Results: 15 Quantitative Results: 13



PCB 180 — Sediment V (QA95SED5)

Assigned value = 42.9 ng/g s = 8.0 ng/g 95% CL = 7.4 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

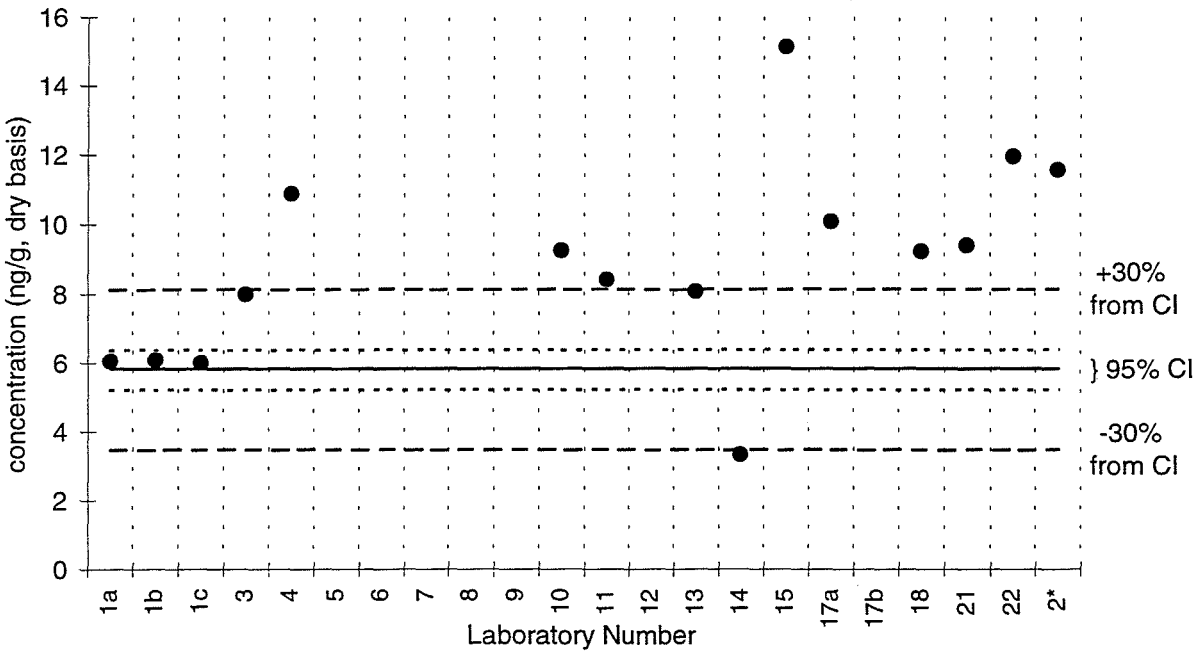


Laboratory 2 results were received after exercise results made public

PCB 180 — SRM 1941a

Certified Value = 5.83 ± 0.58 ng/g (dry basis)

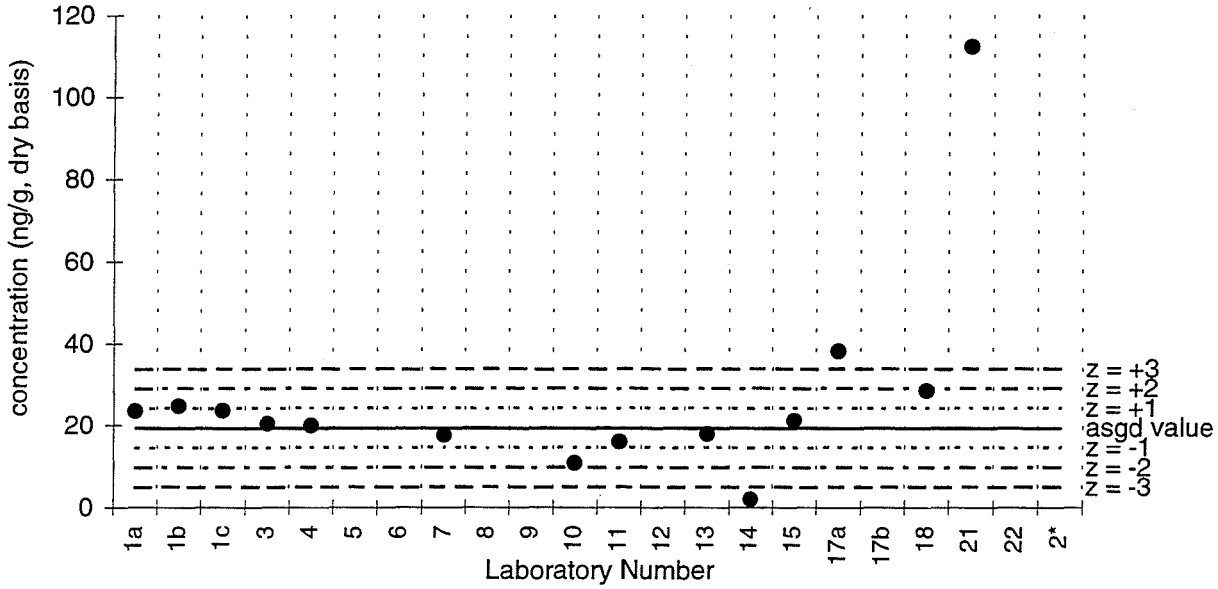
Reported Results: 15 Quantitative Results: 15



PCB 170/190 — Sediment V (QA95SED5)

Assigned value = 19.3 ng/g s = 4.7 ng/g 95% CL = 3.9 ng/g (dry basis)

Reported Results: 14 Quantitative results: 14

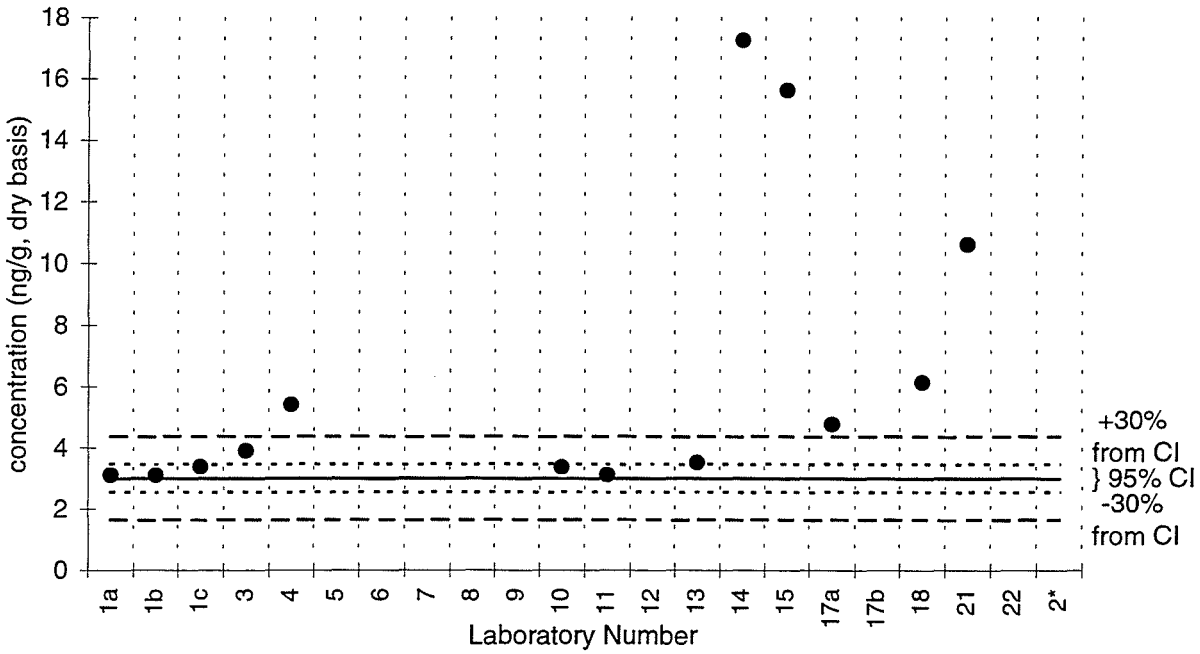


Laboratory 2 results were received after exercise results made public

PCB 170/190 — SRM 1941a

Certified Value = 3.00 ± 0.46 ng/g (dry basis)

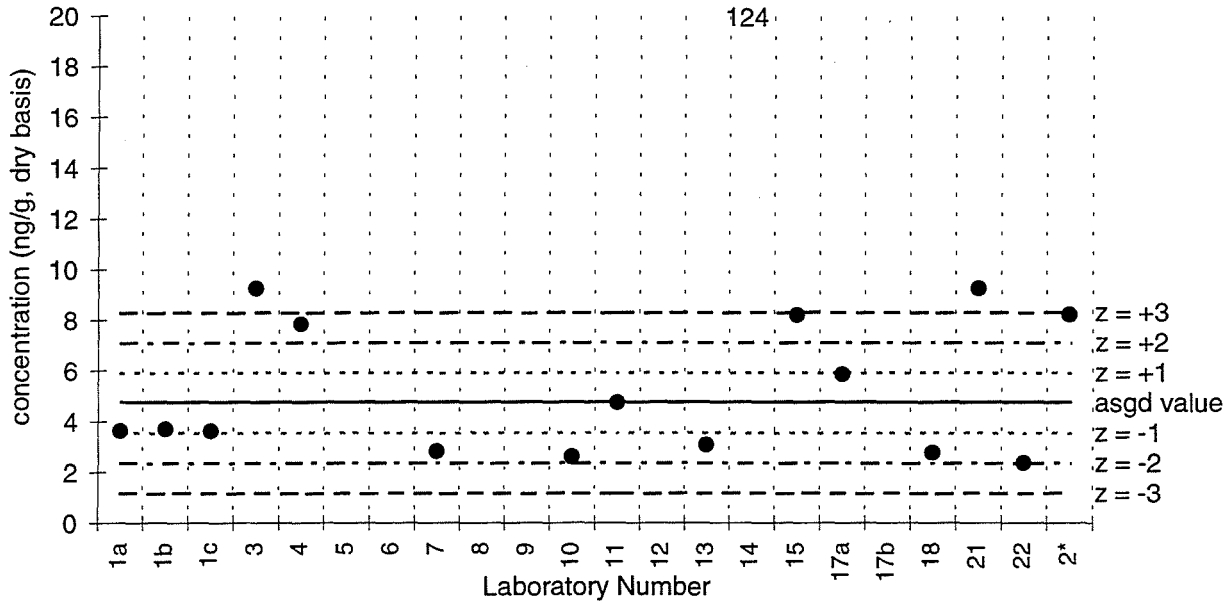
Reported Results: 13 Quantitative Results: 13



PCB 195 — Sediment V (QA95SED5)

Assigned value = 4.76 ng/g s = 2.51 ng/g 95% CL = 1.52 ng/g (dry basis)

Reported Results: 16 Quantitative results: 16

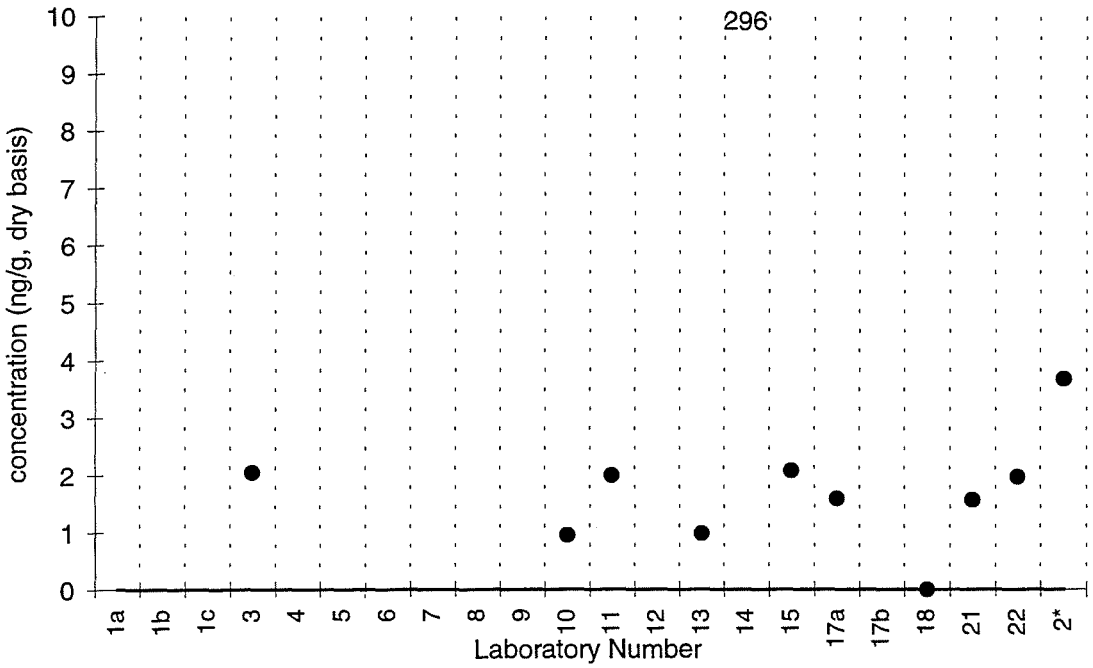


Laboratory 2 results were received after exercise results made public

PCB 195 — SRM 1941a

Target Value = <3 ng/g (dry basis)

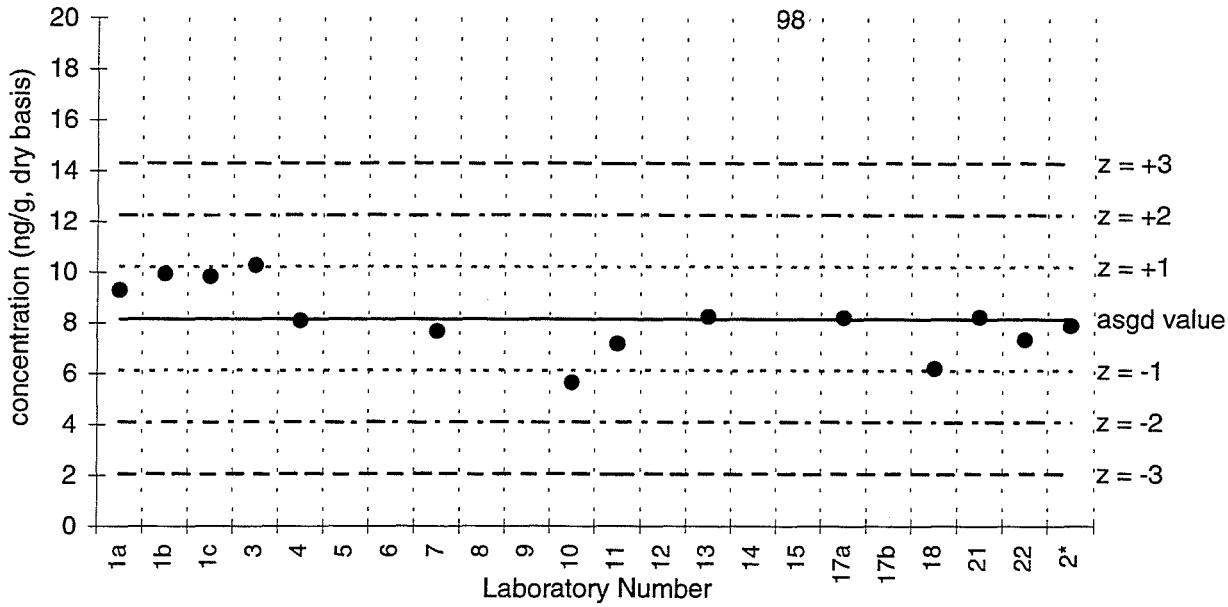
Reported Results: 15 Quantitative Results: 10



PCB 206 — Sediment V (QA95SED5)

Assigned value = 8.16 ng/g s = 1.40 ng/g 95% CL = 0.85 ng/g (dry basis)

Reported Results: 15 Quantitative results: 15

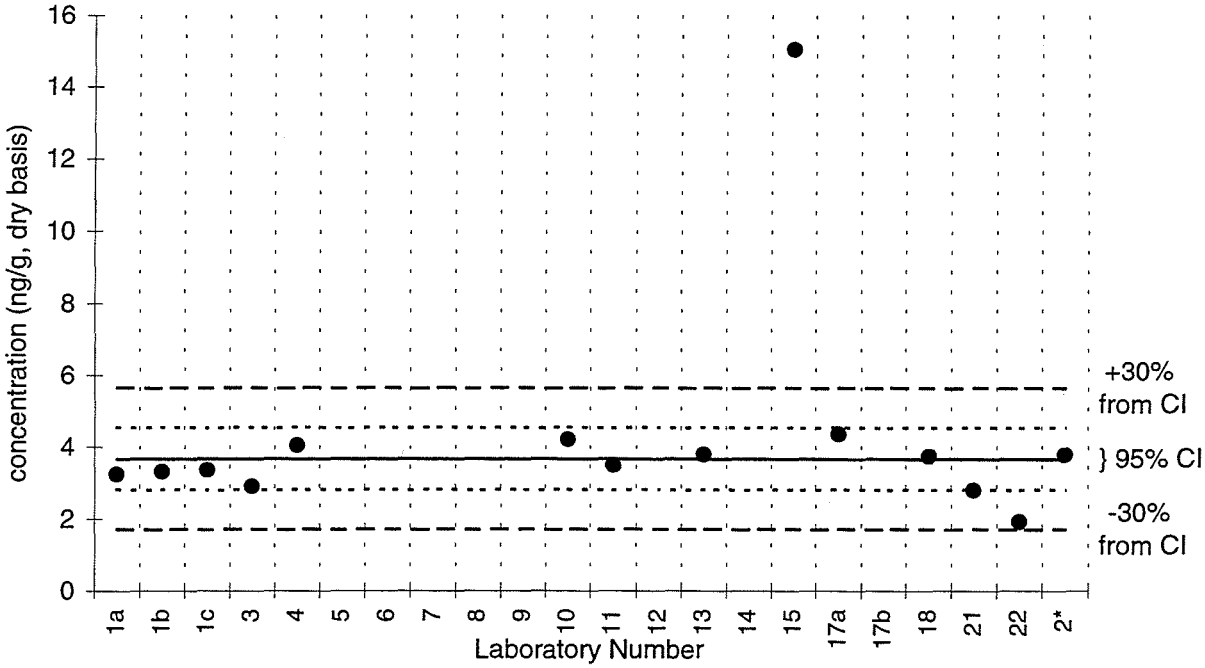


Laboratory 2 results were received after exercise results made public

PCB 206 — SRM 1941a

Certified Value = 3.67 ± 0.87 ng/g (dry basis)

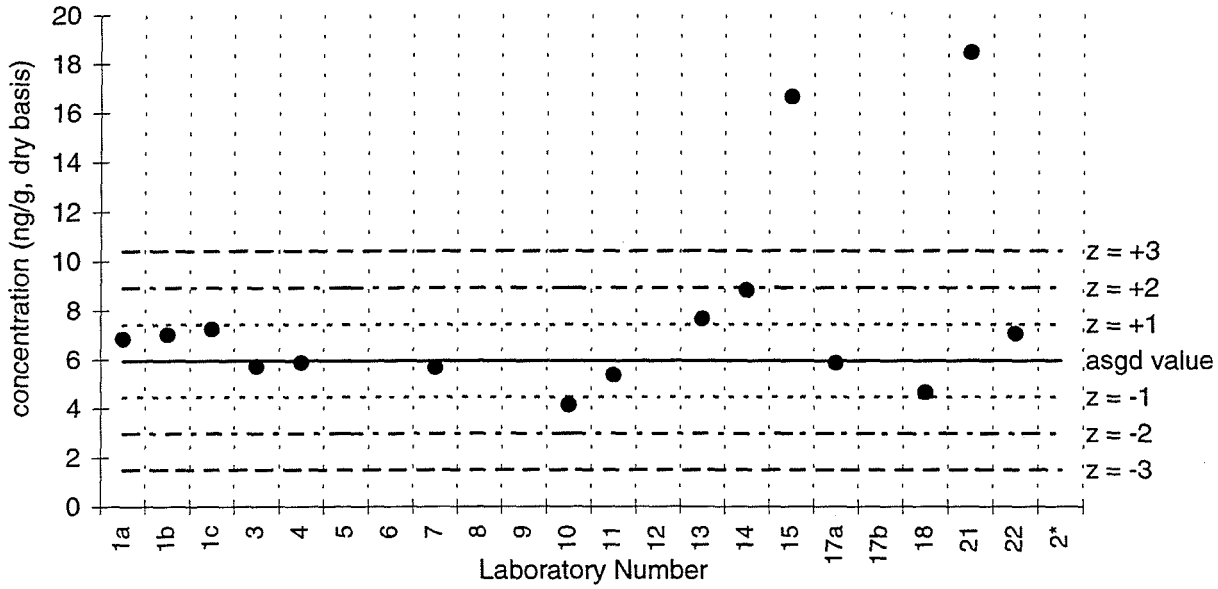
Reported Results: 14 Quantitative Results: 14



PCB 209 — Sediment V (QA95SED5)

Assigned value = 5.94 ng/g s = 1.02 ng/g 95% CL = 0.68 ng/g (dry basis)

Reported Results: 15 Quantitative results: 15

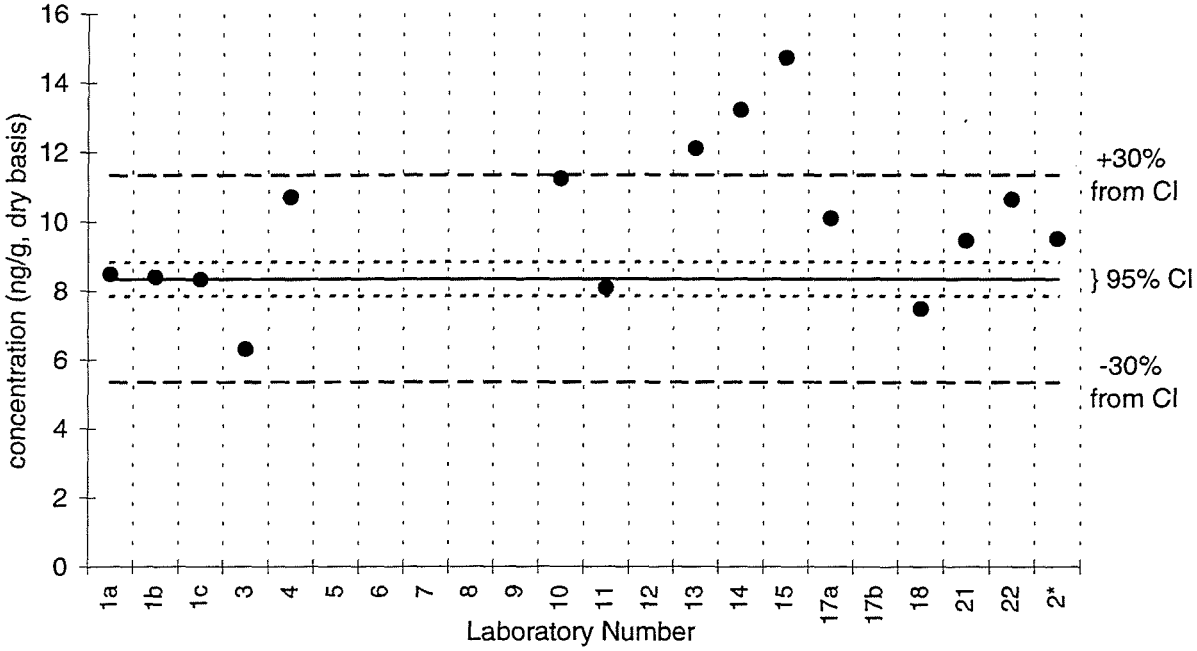


Laboratory 2 results were received after exercise results made public

PCB 209 — SRM 1941a

Certified Value = 8.34 ± 0.49 ng/g (dry basis)

Reported Results: 15 Quantitative Results: 15



Appendix K: List of Laboratories Participating in 1995 Intercomparison Exercises

For this exercise, data was received from the following laboratories within the required timeframe. (This listing does NOT correspond to the laboratory number identification codes used in this report which were assigned in order of receipt of data with the exception of NIST which is Laboratory #1 in this exercise. The same code was used with both exercises.)

Battelle Ocean Sciences
397 Washington Street
Duxbury, MA 02332
Carole Peven

California Dept. of Fish and Game
Water Pollution Control Laboratory
2005 Nimbus Road
Rancho Cordova, CA 95670
David Crane/Kathleen Regalado

Central Contra Costa Sanitary District
5019 Imhoff Pl
Martinez, CA 94553
Bhupinder Dhaliwal

Environmental Protection Agency (EPA)
Office of Research & Dev.
Environmental Research Laboratory
27 Tarzwell Drive
Narragansett, RI 02882
Richard J. Pruell

Environment Canada
5th Floor, Queens Square
45 Alderney Dr.
Dartmouth, NS B27 2N6
Canada
Peter Henniger

Florida Department of Environmental Protection
2600 Blair Stone Rd.
MS6510
Tallahassee, FL 32399
Liang Lin

City of Los Angeles
Dept. of Public Works
Environmental Monitoring Division
222 North Sepulveda, Suite 1600
El Segunda, CA 90245
Aurora S. Elayda

Massachusetts Water Resources Authority
190 Taft Ave.
Winthrop, MA 02152
Steve Rhode

Metro Environmental Laboratory
322 W. Ewing St.
Seattle, WA 98119
Michael Doubrava

National Institute of Standards and Technology (NIST)
B158, Bldg. 222
Gaithersburg, MD 20899
Michele M. Schantz

NOAA National Marine Fisheries Service, F/NWC6
Environmental Conservation Division
2725 Montlake Boulevard, East
Seattle, WA 98112
Donald Brown

NOAA National Marine Fisheries Service
Auke Bay Laboratory
P. O. Box 210155
11305 Glacier Highway
Auke Bay, AK 99821
Marie Larsen

NOAA National Marine Fisheries Service
(Sandy Hook)
James J. Howard Marine Laboratory
Bldg. 74, McGruder Road
Highlands, NJ 07732
Kathleen Corbo/Ashok Deshpande

NOAA National Marine Fisheries Service
Charleston Laboratory
217 Ft. Johnson Road
Charleston, SC 29412
Dan Bearden

Old Dominion University
Applied Marine Research Laboratory
1034 West 45th Street
Norfolk, VA 23529
Rob McDaniel II

PACE, Inc.
4765 Calle Quetzal
Camarillo, CA 93012
Preston Schreve

Skidaway Institute of Technology
10 Ocean Science Circle
Savannah , GA 31411
Bomanna G. Loganathan

Texas A & M University
Geochemical and Environmental
Research Group (GERG)
833 Graham Road
College Station, TX 77845
Laura Chambers, Terry Wade

University of California, Santa Cruz
Long Marine Lab - Trace Organics Facility
100 Shaffer Road
Santa Cruz, CA 95060
John Newman

University of Rhode Island
Horn Bldg., South Ferry Road
Narragansett, RI 02882
James Quinn

U. S. Geological Survey
National Water Quality Laboratory
5293-B Ward Road
Arvada, CO 80002
Jeff Pritt

Virginia Bureau of Chemistry
Div. of Consolidated Laboratories
1 North 14th Street
Div of Water Quality
Richmond, VA 23219
Dave Clark/Gail Johnson

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