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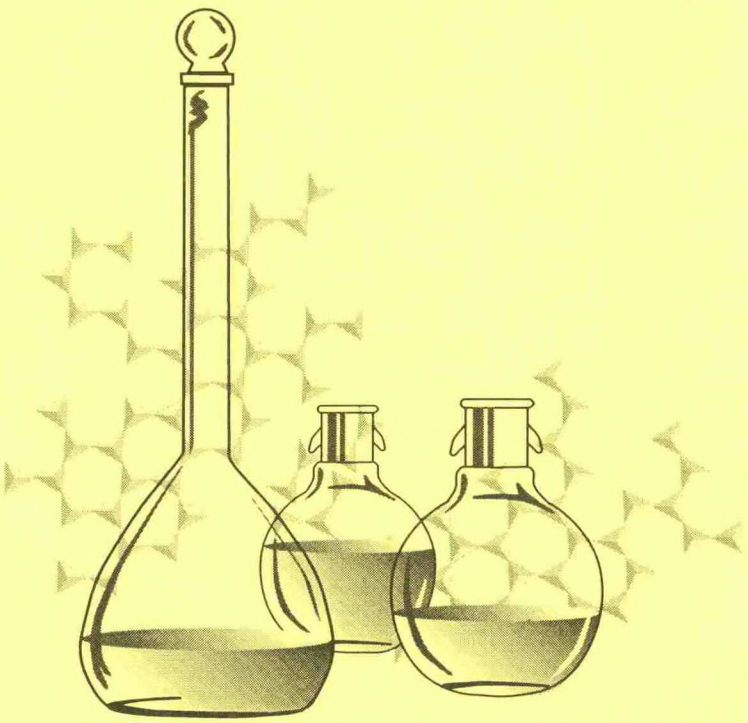
National Status and Trends Program
for Marine Environmental Quality

NIST/NOAA NS&T Intercomparison Exercise Program for Organic Contaminants in the Marine Environment Description and Results of 1998 Organic Intercomparison Exercises



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

Description and Results of 1998 Organic Intercomparison Exercises

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Intercomparison Exercise Program
for Organic Contaminants in the Marine Environment

Description and Results of 1998 Organic Intercomparison Exercises

Exercise Materials: **Mussel Tissue IX (QA98TIS9)**
Marine Sediment VIII (QA98SED8)

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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), 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 1998 exercises of the NIST/NOAA NS&T 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 (PAHs) were determined in Mussel Tissue Homogenate IX and Marine Sediment VIII 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, Mussel Tissue IX (QA98TIS9) and Marine Sediment VIII (QA98SED8), used in interlaboratory comparison exercises of 1998 for the NIST/NOAA NS&T 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 in part for the past twelve years by the NOAA National Status and Trends (NS&T) Marine Monitoring Program [1,2,3]. The EPA Environmental Monitoring and Assessment Program (EMAP) participated in the existing NIST/NOAA NS&T effort for a number of years. 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 (PCB) congeners, 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 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 tissue homogenates or wetted marine sediment, have target contaminant levels in the 1ng/g 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 to provide a mechanism for assessing the comparability of data being produced by the participating laboratories for over 60 target analytes and percent moisture.

Sources and Preparation of Materials used in 1998 Intercomparison Exercises

Marine Sediment VIII. Marine Sediment VIII was prepared from Certified Reference Material (CRM) PACS-2 (Marine Sediment Reference Material for Trace Elements and Other Constituents, National Research Council of Canada), a marine sediment that was collected from Esquimalt harbor in British Columbia and has been freeze-dried, passed through a No. 120 (125 μm) screen, blended, bottled, and radiation sterilized (2.5 Mrad). The sediment material was issued as a wet sediment to more closely match the matrix of wet sediments routinely analyzed by the laboratories.

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 VIII, QA98SED8) 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 toploader balance (resolution of 0.01 g) was used for weighing the PACS-2 sediment and water. For each sample, 11.00 g of PACS-2 sediment (as received) was weighed into a tared bottle. The bottle 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 were 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 sediment.) 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 was not enriched or spiked with any of the analytes of interest in this intercomparison exercise.

Summary statistics of preparation of Marine Sediment VIII:

	PACS-2	HPLC water
mean, g	11.00	9.04
median, g	11.00	9.03
number	168	168
standard deviation, g	0.00	0.06
relative standard deviation (as %)	0.00	0.66
95% confidence level, g	0.00	0.01
minimum, g	11.00	9.00
maximum, g	11.00	9.32

Mussel Tissue IX. Mussel Tissue IX was the same material as Mussel Tissue IV (QA92TIS4) used as the 1992 exercise material [3]. The bottles of Mussel Tissue IV were emptied into new precleaned (same procedure as for the sediment), prelabeled (Mussel Tissue IX, QA98TIS9 with individual bottle numbers), precooled (-80 °C) bottles. This sample is a cryogenically homogenized "fresh" material prepared from mussels collected in Boston Harbor in February 1992.

Each of the three bottles sent to each participant contained approximately 17 g (wet basis) of Mussel Tissue IX. This frozen mussel tissue homogenate material had not been enriched or spiked. Each 2-oz glass bottle had a Teflon-lined screw cap and was labeled with an individual bottle number as well as the material's name and code (Mussel Tissue IX, QA98TIS9).

Percent Moisture Determinations

Marine Sediment VIII. Each bottle of Marine Sediment VIII, as prepared, contained 11.00 g of PACS-2 sediment plus 9.04 g (see preparation statistics above) of HPLC water. For the purposes of this exercise, the calculated value for the percent water in the Marine Sediment VIII samples is based on the mean of 9.04 g of water added to each bottle because the variability of the water mass added (0.66%) is much smaller than the expected analytical variability. For evaluation of exercise results, the NIST assigned value for moisture content in Marine Sediment VIII (with the uncertainty expressed as the 95% confidence interval) is:

$$NIST_{assigned\ value} = 45.08\% \pm 0.02\% \text{ moisture.}$$

Mussel Tissue IX. The assigned value for the moisture content of Mussel Tissue IX based on the results received from the 31 laboratories that participated is (no outliers):

$$Exercise_{assigned\ value} = 91.4\% \pm 0.5\% \text{ moisture.}$$

This compared favorably to the exercise assigned value of $91.8 \pm 0.3\%$ moisture for Mussel Tissue IV reported at the 1993 QA meeting.

Storage and Distribution of Materials

Each bottle of Marine Sediment VIII and Mussel Tissue IX material was stored at -80 °C 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: Mussel Tissue IX (QA98TIS9)
- Three bottles of Mussel Tissue IX 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: Marine Sediment VIII (QA98SED8)
- Three bottles of Marine Sediment VIII material (shipped on dry ice)
- 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, if possible, to concurrently analyze NIST SRM 1974a, Organics in Mussel Tissue, [4] with Mussel Tissue IX and NIST SRM 1941a, Organics in Marine Sediment, [5] with Marine Sediment VIII. Laboratories were requested to submit results for these exercises by November 1, 1998.

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, standard deviations, and 95% confidence limits had been calculated, **all** reported results for the Mussel IX and Sediment VIII 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 (Mussel IX and Sediment VIII) and were requested to report results of concurrent analyses of SRM 1974a, a mussel tissue homogenate reference material, and SRM 1941a, a marine sediment reference material. Laboratories were requested to report these results to three significant figures, and brief descriptions of their extraction, cleanup, and analytical procedures.

Determination of laboratory analyte means: For each laboratory, the laboratory analyte mean of

the three sample results (S1, S2, and S3) was calculated for each analyte. Non-numerical data were treated as follows: A mean "<value" was used when 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 and S2 were numerical values and S3 was reported as "<value", the two similar "types" were used to either determine the mean or to set a non-numerical descriptor.

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 Certificates of Analysis for SRM 1941a and SRM 1974a. 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 in SRM 1941a, results of the 1992 Sediment III exercise in which SRM 1941a was used as the "unknown material," and exercise results when SRM 1941a was used as a control. Similarly, the targets for SRM 1974a were based on noncertified concentrations in SRM 1974a, results of the 1993 Tissue V exercise in which SRM 1974a was used as the "unknown material," and exercise results when SRM 1974a was used as a control. 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. (Note: Because Lab 32 reported results after the meeting, their results were not included in the calculation of the exercise assigned values.)

For the 1998 exercises, NIST-Gaithersburg (Lab 1) used pressurized fluid extraction. (See Appendices G and H for summaries of methods used.) NIST- Gaithersburg used two different columns of different selectivity for the analysis of the PAHs using gas chromatography with mass spectrometric detection for both exercise materials and HPLC with fluorescence detection for the determination of the PAHs in Sediment VIII. NIST-Gaithersburg utilized gas chromatography with electron capture detection and gas chromatography with mass spectrographic detection to determine the PCB congeners and chlorinated pesticides in both exercise materials. Schantz et al. have reported results of the validation of these methods with NIST and European Bureau of Community Reference (BCR) reference materials [6] and a comparison of Soxhlet extraction and pressurized fluid extraction for a number of sediment, tissue, dust, and particulate matter certified reference materials [7].

Reported Results

Laboratories were assigned numerical identification codes in order of receipt of data with the exception of NIST-Gaithersburg, 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 SRMs are shown in Appendix C (Mussel Tissue IX) and Appendix D (Sediment VIII) 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 4 and Tables 5 to 7 for the Mussel Tissue IX and Sediment VIII 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 limit of the assigned value for the percent water, PAHs, chlorinated pesticides, and PCB congeners as applicable. Figures 1 to 6 show charts of the mean concentrations of reported numerical results by laboratory for the PAHs, pesticides, and PCB congeners, respectively, in Tissue IX and Sediment VIII. Notes included by a laboratory with its data are listed in Appendices E (Mussel Tissue IX) and F (Sediment VIII). Summaries of the methods used by each laboratory are in Appendices G (Mussel Tissue IX) and H (Sediment VIII).

In Appendices I (Mussel Tissue IX) and J (Sediment VIII), 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 assessments.

IUPAC guidelines [8] describe the use of z-scores and p-scores for assessment of accuracy and precision in intercomparison exercises such as those described in this report. These indices assess the difference between the result of the laboratory and the exercise assigned value and can be used, with caution, to compare performance on different analytes and on different materials.

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, 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 a 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 (Tissue IX) and D (Sediment VIII) 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 7 to 9 (Tissue IX) and 10 to 12 (Sediment VIII) show the distribution of z-scores (25%) by analyte. Figures 13 to 15 (Tissue IX) and 16 to 18 (Sediment VIII) show the z-scores (25%) by laboratory that are useful for assessing intra- and interlaboratory bias trends and relative performance for the three chemical classes.

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. Since 1994, laboratories have been 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 (Tissue IX) and D (Sediment VIII) show the calculated p-scores for each laboratory for each reported analyte.

Discussion

These results were discussed at the QA workshop that was held February 2, 1999 in Richmond, CA.

The PAH, chlorinated pesticide, and PCB congener concentrations in the 1998 Tissue IX are compared to the exercise assigned concentrations for Mussel Tissue IV (QA92TIS4) since they are the same material just relabeled.

Comparison of Consensus Means and Standard Deviations (ng/g dry basis) for Mussel Tissue Analyzed as QA92TIS4 and QA98TISIX

Compound	QA92TIS4	QA98TISIX
PAHs	*14 labs*	*20 labs*
Naphthalene	25.1 (5.7)	25.7 (6.2)
2-Methylnaphthalene	40.5 (10.3)	33.1 (12.2)
1-Methylnaphthalene	24.3 (4.8)	23.3 (8.5)
Biphenyl	22.9 (14.5)	12.2 (1.0)
2,6-Dimethylnaphthalene	65.8 (31.9)	38.8 (13.3)
Acenaphthylene	8.69 (3.20)	7.87 (3.16)
Acenaphthene	9.07 (1.59)	9.46 (1.42)
1,6,7-Trimethylnaphthalene	41.8 (14.6)	31.3 (13.6)
Fluorene	22.2 (4.6)	21.4 (1.9)
Phenanthrene	144 (25)	126 (22)
Anthracene	17.5 (10.1)	11.3 (4.3)
1-Methylphenanthrene	67.8 (7.4)	60.2 (13.6)
Fluoranthene	395 (80)	322 (56)
Pyrene	282 (48)	224 (63)
Benz[*a*]anthracene	79.4 (16.3)	77.5 (15.3)
Chrysene/Triphenylene	227 (52)	196 (44)
Benzofluoranthenes(*b*+*j*+*k*)	158 (26)	146 (31)
Benzo[*e*]pyrene	114 (22)	99.5 (23.7)
Benzo[*a*]pyrene	29.4 (5.7)	25.9 (3.5)
Perylene	11.3 (3.0)	8.13 (1.58)
Indeno[*1,2,3-cd*]pyrene	20.0 (7.1)	18.0 (4.4)
Dibenz[*a,c*+*a,h*]anthracene	7.56 (6.89)	4.36 (2.53)
Benzo[*ghi*]perylene	26.0 (9.7)	21.2 (5.2)

Comparison of Consensus Means and Standard Deviations (ng/g dry basis) for Mussel Tissue Analyzed as QA92TIS4 and QA98TISIX (cont.)

Compound	QA92TIS4	QA98TISIX
*Pesticides**	*14 labs*	*22 labs*
HCB	0.43 (0.49)	1.08 (0.91)
gamma-HCH	3.53 (4.24)	1.26 (0.86)
Heptachlor	1.33 (1.54)	<5
Aldrin	2.51 (2.30)	<3
Heptachlor epoxide	4.43 (5.10)	2.25 (0.33)
2,4'-DDE	15.8 (12.9)	<5
cis-Chlordane	16.3 (5.5)	14.7 (3.7)
trans-Nonachlor	13.0 (4.2)	13.6 (2.1)
4,4'-DDE	45.2 (4.2)	34.0 (8.0)
Dieldrin	10.3 (7.5)	5.49 (1.27)
2,4'-DDD	11.3 (5.1)	11.5 (4.0)
4,4'-DDD	25.6 (9.7)	29.3 (7.6)
2,4'-DDT	6.31 (4.35)	7.51 (2.53)
4,4'-DDT	10.3 (4.3)	9.30 (1.63)
Mirex	1.32 (1.04)	1.75 (0.25)

*Note: Seven additional pesticides were added to the analyte list in 1994.

PCB Congeners	*14 labs*	*23 labs*
PCB 8	3.32 (2.37)	4.18 (2.32)
PCB 18	11.0 (5.4)	12.9 (4.5)
PCB 28	37.2 (16.8)	41.4 (9.6)
PCB 52	55.9 (11.2)	61.8 (10.8)
PCB 44	31.7 (11.9)	40.3 (8.7)
PCB 66/95	79.3 (22.1)	80.6 (23.5)
PCB 101/90	96.3 (15.)	92.2 (20.1)
PCB 118	92.1 (16.5)	96.1 (20.7)
PCB 153	114 (21)	113 (24)
PCB 105	37.9 (7.0)	36.2 (7.7)
PCB 138/163/164	106 (18)	102 (25)
PCB 187/182	24.3 (5.5)	27.5 (6.1)
PCB 128	12.8 (3.3)	16.1 (4.5)
PCB 180	9.16 (2.32)	15.5 (11.0)
PCB 170/190	1.90 (0.38)	3.01 (1.13)
PCB 195	1.06 (1.03)	1.04 (0.55)
PCB 206	4.23 (7.11)	<2
PCB 209	0.84 (0.86)	<2
% Water	91.8 (0.3)	91.4 (1.04)

The agreement between the consensus means determined in 1992 and this year is good with an overlap of the ranges defined by the mean and one standard deviation for all of the compounds. For the PAHs, the largest differences between the two consensus means are for biphenyl and 2,6-dimethylnaphthalene. For both of these compounds, there were laboratories in the 1992 exercise that reported data close to the means that are being reported in the 1998 exercise. The same is true for 2,4'-DDE, dieldrin, and PCB 206, the two pesticides and one of the PCBs with the largest differences. For the other PCB with a large difference, PCB 180, there is a group of 12 results in the 1998 exercise that centers around the consensus mean determined in 1992 giving a mean of 9.75 ng/g dry basis with a standard deviation of 2.31 ng/g dry basis. Since there are four additional laboratories, however, that are in close agreement with each other and that had results for SRM 1974a that were within the 30% criterion, the 16 results were used for the consensus mean and standard deviation, 15.5 ng/g (11.0 ng/g) dry basis, shown above.

For the analytes of interest, the PAH concentrations in Marine Sediment VIII range from 27 ng/g dry basis to 2100 ng/g dry basis. The pesticide concentrations range from below the detection limits of the methods used to 20 ng/g dry basis while the PCB concentrations range from 2 ng/g dry basis to 50 ng/g dry basis. The concentration range for the PAHs is similar to that found in SRM 1941a, also a harbor sediment; however, the concentrations for the individual PAHs vary between the two sediments with SRM 1941a having higher concentrations for the naphthalenes and Marine Sediment VIII having higher concentrations for phenanthrene, fluoranthene, pyrene, and some of the other higher molecular weight PAHs. The pesticide concentrations in Marine Sediment VIII are generally higher than SRM 1941a except for the hexachlorobenzene concentration, which is 70 ng/g dry basis in SRM 1941a and <3 ng/g dry basis in Marine Sediment VIII. The 4,4'-DDT and 4,4'-DDD concentrations are higher in Marine Sediment VIII, while the 4,4'-DDE concentration is comparable in the two sediments. The PCB concentrations are generally higher in Marine Sediment VIII than in SRM 1941a.

For the 1998 exercises, the data provided in the various figures and tables of this report can be used for assessing the comparability of results of over 60 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 8 and 9 (Tissue VIII z-scores), 10 and 11 (Sediment VII z-scores), 12 (Tissue VIII p-scores), and 13 (Sediment VII p-scores). Summaries of the median of the absolute z- and p-scores by laboratory are shown in Tables 14 and 15. For both the sediment and mussel tissue 1998 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 the concentrations of the PAHs and PCB congeners. In these exercises, interlaboratory variability is a greater contributor to measurement incomparability than is the intralaboratory variability. Laboratories reporting results of concurrent reference material analyses typically showed better performance than those laboratories 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 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 provided 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. For example, one laboratory reported a mean concentration of 16 ng/g of aldrin that has an exercise assigned value of <2 ng/g. Decisions based on false negative or false positive results from a laboratory can lead to significant environmental and/or economic consequences. Some laboratories reported detection limits in these "real" matrix materials that may be too high for the data quality needs of their program(s) and these should be assessed as well.

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 routinely 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.

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Disclaimer

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

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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 (PAHs)

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
benzofluoranthenes [*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[b]
PCB 101 + PCB 90
PCB 138 + PCB 163 + PCB 164
PCB 187 + PCB 182 + PCB 159
PCB 170 + PCB 190

[b] Because PCB 66 and PCB 95 can now be separated by a significant number of participants, we have changed the table for reporting results so that participants may report these as two separate concentrations or as the sum of PCB 66 and PCB 95.

Table 2. Mussel Tissue IX (QA98TIS9): Laboratory means of three replicates and

(values reported as if three figures were significant; bolded values were not used in the calculation of

Laboratory No.	1a	1b	2	4	5	6	7	8	9	11	12	13	14	15
Water (%, mass basis)	91.7	91.7	91.5	NA	91.9	91.9	91.5	92.0	93.3	91.3	90.0	90.9	91.7	91.3

PAHs ng/g (dry basis)

Laboratory No.	1a	1b	2	4	5	6	7	8	9	11	12	13	14	15
naphthalene	23.5	23.0	**DL**	**NA**	**NA**	32.1	**NA**	**NA**	32.6	**NA**	**54.9**	13.5	26.1	**NA**
2-methylnaphthalene	39.0	38.6	**DL**	**NA**	**NA**	17.6	**NA**	**NA**	45.2	**NA**	**37.0**	20.0	45.3	**NA**
1-methylnaphthalene	24.7	25.1	**DL**	**NA**	**NA**	**33.6**	**NA**	**NA**	29.7	**NA**	**21.3**	13.1	26.7	**NA**
biphenyl	12.2	12.1	<324	**NA**	**NA**	**17.1**	NA	**NA**	**61.7**	**NA**	<16.9	<25	12.3	**NA**
2,6-dimethylnaphthalene	37.8	38.0	**DL**	**NA**	**NA**	**299**	**NA**	**NA**	33.4	**NA**	37.5	25.3	53.0	**NA**
acenaphthylene	6.75	6.62	**DL**	**NA**	**NA**	**10.2**	**NA**	**NA**	13.5	**NA**	**<14.7**	<25	6.74	**NA**
acenaphthene	9.21	9.33	**DL**	**NA**	**NA**	**9.40**	**NA**	**NA**	**14.4**	**NA**	<12.0	<25	9.10	**NA**
1,6,7-trimethylnaphthalene	34.9	34.0	**DL**	**NA**	**NA**	32.1	**NA**	**NA**	12.3	**NA**	**NA**	<25	**NA**	**NA**
fluorene	22.1	22.2	**DL**	**NA**	**275**	20.2	**NA**	<10.6	23.7	**NA**	<22.3	<25	22.3	**NA**
phenanthrene	135	131	**DL**	**NA**	**212**	**199**	**NA**	91.7	171	**NA**	131	**105**	144	**NA**
anthracene	17.2	17.4	**DL**	**NA**	**146**	**30.6**	**NA**	<5.71	13.6	**NA**	**18.9**	<25	10.7	**NA**
1-methylphenanthrene	61.4	61.8	**DL**	**NA**	**105**	86.0	**NA**	**NA**	68.6	**NA**	54.2	36.4	74.4	**NA**
fluoranthene	380	376	**<381**	**NA**	**321**	327	**NA**	308	422	**NA**	304	**202**	**479**	**NA**
pyrene	269	262	<381	**NA**	**257**	159	**NA**	248	327	**NA**	228	86.8	**341**	**NA**
benz[*a*]anthracene	64.8	65.9	**DL**	**NA**	**430**	88.1	**NA**	**106**	86.1	**NA**	53.4	<50	79.6	**NA**
chrysene + triphenylene	205	209	<508	**NA**	**245**	166	**NA**	233	258	**NA**	155	74.8	199	**NA**
benzofluoranthenes [*b+j+k*]	184	184	**DL**	**NA**	**NA**	180	**NA**	147	178	**NA**	116	**<50**	130	**NA**
benzo[*e*]pyrene	102	100	**DL**	**NA**	**198**	102	**NA**	101	130	**NA**	85.8	27.6	93.6	**NA**
benzo[*a*]pyrene	23.2	23.0	**DL**	**NA**	**NA**	**26.0**	**NA**	**23.4**	30.1	**NA**	31.5	**<50**	21.7	**NA**
perylene	8.43	8.17	**DL**	**NA**	**NA**	4.97	**NA**	<9.86	**11.1**	**NA**	<152	<50	8.25	**NA**
indeno[*1,2,3-cd*]pyrene	17.6	18.1	**DL**	**NA**	**NA**	23.5	**NA**	<9.03	18.4	**NA**	23.1	<50	13.7	**NA**
dibenz[*a,h*]anthracene + [*a,c*]	2.61	2.62	**DL**	**NA**	**NA**	6.00	**NA**	<12.4	ND	**NA**	< 12.0	<50	2.92	**NA**
benzo[*ghi*]perylene	18.4	18.4	**DL**	**NA**	**124**	31.9	**NA**	**<11.9**	**24.2**	**NA**	29.4	<50	17.3	**NA**

exercise assigned values - Water and PAHs

the exercise assigned values)

16	17	18	19	22	24	25	26	27	28	29	30	31	Exercise Assigned Value			
													Value	s	%RSD	95% CL
91.6	91.7	92.5	91.2	NA	91.9	90.0	92.2	91.1	91.5	87.6	91.9	92.0	91.4	1.0	1.1	0.5

ng/g (dry basis)

16	17	18	19	22	24	25	26	27	28	29	30	31	Exercise Assigned Value			
													Value	s	%RSD	95% CL
22.3	**101**	**14.2**	**28.8**	30.3	**NA**	**NA**	**29.8**	**<35.0**	**NA**	<39.1	24.6	**NA**	25.7	6.2	24	5.2
33.8	17.4	20.7	**39.0**	**28.4**	**NA**	**NA**	50.9	**NA**	**NA**	<7.49	35.2	**NA**	33.1	12.2	37	8.2
25.8	10.9	14.3	**39.4**	**NA**	**NA**	**NA**	39.3	**NA**	**NA**	<7.19	23.0	**NA**	23.3	8.5	37	6.1
10.8	<10	11.8	**12.7**	**NA**	**NA**	**NA**	**23.4**	**NA**	**NA**	<6.10	13.9	**NA**	12.2	1.0	8	1.0
43.3	<10	18.6	**42.6**	**NA**	**NA**	**NA**	65.8	**NA**	**NA**	**<7.76**	35.1	**55**	38.8	13.3	34	9.5
14.2	<10	<5	**43.5**	**< 2.2**	**NA**	**NA**	**18.0**	<54.0	**NA**	<2.56	5.77	**NA**	7.87	3.16	40	3.92
10.6	<10	7.00	**20.3**	< 2.2	**NA**	**NA**	9.30	<28.0	**NA**	<39.1	11.0	11.3	9.46	1.42	15	1.31
45.4	**NA**	16.5	**59.3**	**N/A**	**NA**	**NA**	30.1	**NA**	**NA**	<9.37	21.3	55.2	31.3	13.6	43	10.4
19.4	<10	17.8	**44.3**	**< 2.2**	**NA**	**NA**	21.3	<41.0	**NA**	<39.1	21.1	24.2	21.4	1.9	9	1.4
111	93.7	123	**146**	**80.0**	**NA**	**586**	108	<54.0	**NA**	118	132	146	126	22	17	13
30.0	9.09	6.26	**74.8**	**< 2.2**	**NA**	**NA**	**34.8**	<68.0	**NA**	<38.2	8.88	7.2	11.3	4.3	38	3.6
59.0	**NA**	62.4	**79.8**	**N/A**	**NA**	**312**	36.2	**NA**	**NA**	68.3	58.2	55.4	60.2	13.6	23	8.2
301	285	341	**363**	**183**	**NA**	**361**	356	**<59.0**	**NA**	203	319	260	322	56	18	34
226	**168**	265	**262**	162	**NA**	**345**	267	**<81.0**	**NA**	157	268	211	224	63	28	36
68.4	65.4	73.5	**62.8**	**63.7**	**NA**	**NA**	104	<31.0	**NA**	67.0	97.8	94.0	77.5	15.3	20	9.2
196	198	226	**195**	**116**	**NA**	**205**	**204**	**<49.0**	**NA**	199	195	234	196	44	22	25
131	115	160	**201**	104	**NA**	**NA**	172	<228	**NA**	97.2	126	161	146	30	21	17
98.0	86.6	116	**144**	**< 2.2**	**NA**	**NA**	104	**NA**	**NA**	126	101	119	99.5	23.7	24	13.1
20.7	25.4	25.1	**31.4**	**<2.62**	**NA**	**NA**	28.0	<271	**NA**	<39.1	28.1	27.9	25.9	3.5	14	2.4
8.83	**11.2**	7.56	**40.6**	**NA**	**NA**	**NA**	10.5	**NA**	**NA**	**<38.2**	6.92	9.61	8.13	1.58	19	1.21
12.9	<10	17.3	**18.1**	**< 2.2**	**NA**	**NA**	25.6	<117	**NA**	**<38.2**	12.5	15.5	18.0	4.4	25	3.0
2.40	<10	**<5**	**<6.49**	< 2.2	**NA**	**NA**	9.85	<70.0	**NA**	<38.2	4.27	4.20	4.36	2.53	58	2.12
18.8	18.5	22.7	**25.1**	**< 2.2**	**NA**	**NA**	**29.3**	**<115**	**NA**	**<38.2**	17.4	19.8	21.2	5.2	25	3.7

Table 3. Mussel Tissue IX (QA98TIS9): Laboratory means of three replicates and

(values reported as if three figures were significant; bolded values were not used in the calculation of

ng/g (dry basis)

Laboratory No.	1a	1b	2	4	5	6	7	8	9	11	12	13	14	15
alpha-HCH	<2	<2	<0.50	<5.0	NA	<5	NA	NA	NA	<2.0	NA	<25	NA	**< 0.9**
hexachlorobenzene	<1	<1	NA	<5.0	NA	<5	NA	0.501	**<2.26**	<2.0	NA	<25	<1.14	**Other**
gamma-HCH	<2	<2	<0.50	<5.0	NA	<5	NA	<0.32	**<0.81**	**14.3**	NA	<25	<1.31	**< 0.8**
heptachlor	<1	<1	<7.94	<5.0	NA	<5	NA	NA	**<0.68**	<2.0	NA	<25	<1.97	**< 1.0**
aldrin	<1	<1	<1.00	<5.0	NA	<5	NA	NA	**<0.26**	<2.0	NA	<25	<1.49	**2.14**
heptachlor epoxide	<2	<2	<0.50	<5.0	NA	<5	NA	NA	<2.73	<2.0	NA	<25	<2.88	**2.20**
oxychlordane	<2	<2	<0.30	<5.0	NA	<5	NA	NA	NA	<2.0	NA	<25	3.88	**< 0.8**
trans-chlordane	10.7	10.7	**<14.9**	9.34	NA	8.47	NA	NA	NA	20.0	NA	**24.6**	11.9	**7.65**
2,4'-DDE	<2	<2	**<0.50**	<5.0	NA	<5	NA	NA	**9.22**	5.47	NA	<25	<5.4	**< 1.1**
endosulfan I	<1	<1	<0.50	NA	NA	<5	NA	NA	NA	<2.0	NA	<25	NA	NA
cis-chlordane	15.1	15.2	**<29.6**	11.6	NA	9.53	NA	14.9	19.4	25.7	NA	**17.6**	12.7	**8.43**
trans-nonachlor	13.8	14.0	**<39.9**	8.37	NA	12.1	NA	13.5	18.7	14.4	NA	15.2	12.8	**< 1.3**
dieldrin	5.49	5.44	<0.30	<5.0	NA	<5	NA	NA	**<0.94**	6.60	NA	<25	6.19	**< 1.3**
4,4'-DDE	38.7	37.7	45.1	36.4	NA	26.8	NA	36.8	**43.6**	25.5	NA	**70.8**	28.9	**29.6**
2,4'-DDD	10.2	10.1	**<0.50**	**<5.0**	NA	**<5**	NA	NA	**15.7**	23.1	NA	<25	8.93	**6.05**
endrin	<1	<1	<1.00	<5.0	NA	<5	NA	NA	**<2.37**	<2.0	NA	<25	NA	**< 1.5**
endosulfan II	<1	<1	<0.50	NA	NA	<5	NA	NA	NA	<2.0	NA	<25	NA	**< 1.3**
4,4'-DDD	28.5	28.1	31.6	30.6	NA	21.2	NA	30.1	41.1	45.1	NA	31.4	24.1	**19.4**
2,4'-DDT	6.07	5.83	**<0.50**	<5.0	NA	<5	NA	NA	**10.8**	<2.0	NA	**21.8**	6.22	**4.61**
cis-nonachlor	5.29	5.23	<0.30	<5.0	NA	4.47	NA	NA	NA	5.90	NA	<25	8.41	**4.99**
4,4'-DDT	9.77	9.71	**93.9**	<5.0	NA	12.1	NA	8.08	10.6	7.80	NA	<25	7.05	**5.98**
mirex	<2	<2	<0.50	<5.0	NA	<5	NA	NA	**<1.3**	<2.0	NA	<25	<1.5	**< 1.5**

exercise assigned values - Pesticides

the exercise assigned values)

ng/g (dry basis)

													Exercise Assigned Value			
16	17	18	19	22	24	25	26	27	28	29	30	31	Value	s	%RSD	95% CL
1.44	<10	NA	NA	NA	2.38	NA	NA	<2.50	2.09	NA	0.559	<0.905	1.62	0.81	50	1.28
0.624	<10	<1	NA	NA	<0.6	NA	0.833	NA	1.40	**5.09**	0.359	2.78	1.08	0.91	84	0.95
0.948	<10	<1	NA	NA	0.904	NA	2.53	<2.50	<1	<1.36	0.670	<1.36	1.26	0.86	68	1.36
0.869	<10	<1	NA	NA	6.28	NA	<0.5	<2.50	3.05	<6.81	<2	<0.453	<5			
0.884	<10	4.83	NA	NA	2.06	NA	<0.7	<2.50	<1	<1.56	<2	<1.36	<3			
0.615	<10	1.98	NA	NA	<0.6	NA	<0.5	<2.50	2.61	2.15	<2	**25.2**	2.25	0.33	15	0.81
5.69	<10	NA	NA	NA	**inf**	**908**	NA	NA	<1	1.66	NA	2.70	3.48	1.73	50	2.75
12.5	11.0	NA	NA	**18.7**	13.3	**1720**	NA	13.8	12.6	NA	12.5	**7.32**	12.3	2.9	24	2.0
NA	**14.6**	**<1.2**	NA	NA	**inf**	**858**	**<0.8**	NA	**<1.26**	**<1.56**	3.76	**1.12**	<5			
NA	<10	<1	NA	NA	<0.7	NA	NA	**<2.50**	<1	NA	<2	NA	<2			
16.0	15.4	14.0	NA	14.6	15.5	**2220**	15.5	7.80	13.1	15.9	14.5	12.3	14.7	3.7	25	1.8
14.2	14.5	12.2	NA	NA	13.9	**1465**	14.3	NA	14.7	14.4	14.0	10.5	13.6	2.1	15	1.0
5.36	**31.2**	5.45	NA	NA	6.65	NA	**other**	**25.9**	3.29	6.06	6.87	3.05	5.49	1.27	23	0.85
47.2	31.2	39.5	NA	22.0	38.4	**598**	45.4	19.8	38.9	27.5	34.0	27.0	34.0	8.0	23	3.8
11.6	15.5	9.83	NA	NA	9.55	**1410**	**other**	NA	9.13	10.5	10.3	9.48	11.5	4.0	35	2.6
NA	<10	NA	NA	NA	<1.2	NA	NA	<5.00	<1	NA	<2	<2.72	<2			
3.28	<10	2.21	NA	NA	<0.8	NA	NA	<5.00	<1	NA	2.69	<3.62	2.73	0.54	20	1.34
35.6	44.1	25.4	NA	21.3	29.5	**1280**	**41.5**	19.6	18.3	22.3	29.0	29.7	29.3	7.6	26	3.6
5.77	**30.4**	9.66	NA	NA	**inf**	NA	11.1	NA	**3.94**	11.4	4.61	6.89	7.51	2.53	34	1.94
9.85	**13.9**	NA	NA	NA	5.08	**773**	NA	NA	5.37	NA	4.48	8.59	6.27	1.93	31	1.38
9.69	**34.6**	10.7	NA	**<1**	**inf**	NA	11.4	**19.3**	8.49	8.56	**8.40**	6.97	9.30	1.63	18	0.99
1.92	<10	<1.5	NA	NA	**inf**	NA	1.47	NA	<1	1.88	<2	<0.905	1.75	0.25	14	0.62

Table 4. Mussel Tissue IX (QA98TIS9): Laboratory means of three replicates and

(values reported as if three figures were significant; bolded values were not used in the calculation of

ng/g (dry basis)

Laboratory No.	1a	1b	2	4	5	6	7	8	9	11	12	13	14	15
PCB 8	3.29	3.20	**NA**	**NA**	**NA**	2.60	3.26	2.44	**<16.2**	<2.0	9.21	<25	**NA**	**NA**
PCB 18	10.2	10.4	14.8	**NA**	**NA**	18.9	11.1	7.79	**14.8**	**35.9**	9.88	<25	17.3	**8.78**
PCB 28	37.5	36.4	55.3	**NA**	**NA**	**24.8**	39.9	24.8	**46.1**	63.8	45.5	**<25**	39.5	**68.6**
PCB 52	57.4	57.1	70.9	**NA**	**NA**	47.9	63.8	44.0	80.4	**128**	42.3	52.3	81.2	**58.1**
PCB 44	40.5	40.3	43.9	**NA**	**NA**	23.9	42.4	29.8	54.3	**97.8**	31.7	**<25**	47.3	**33.7**
PCB 66/95	82.5	**NA**	**NA**	**NA**	**NA**	**<5**	73.3	54.5	76.4	**213**	**NA**	54.9	**NA**	**57.1**
PCB 101/90	102	101	91.2	**NA**	**NA**	57.8	116	73.5	119	102	59.4	91.8	105	**83.6**
PCB 118	101	100	97.4	**NA**	**NA**	57.7	94.9	84.0	114	92.3	55.8	79.0	102	**93.2**
PCB 153	126	125	**67.7**	**NA**	**NA**	65.8	113	99.9	153	97.7	72.5	**55.1**	128	**101**
PCB 105	40.3	39.1	30.5	**NA**	**NA**	23.5	38.0	38.1	44.7	43.7	22.7	37.5	32.7	**56.1**
PCB 138/163/164	108	106	107	**NA**	**NA**	56.7	115	91.6	120	82.0	62.1	70.1	120	**92.5**
PCB 187/182	27.3	27.2	18.1	**NA**	**NA**	13.1	35.3	28.6	34.2	27.0	16.0	29.3	35.0	**33.7**
PCB 128	17.5	17.5	17.3	**NA**	**NA**	6.08	20.7	15.5	20.4	14.7	8.85	<25	16.5	**15.6**
PCB 180	10.2	9.97	<0.15	**NA**	**NA**	6.84	8.38	10.1	**<12.8**	10.0	6.67	<25	42.7	**31.3**
PCB 170/190	1.88	1.78	**<0.34**	**NA**	**NA**	2.49	**1.40**	1.80	<2.5	2.84	<5.24	<25	3.76	**1.83**
PCB 195	1.05	1.04	**NA**	**NA**	**NA**	<5	<1	<0.12	**<0.92**	<2.0	<3.5	<25	<0.979	**3.32**
PCB 206	<1	<1	<0.39	**NA**	**NA**	<5	<1	<0.16	**<1.4**	<2.0	<3.5	<25	<1.02	**1.71**
PCB 209	<1	<1	<0.39	**NA**	**NA**	<5	<1	<0.17	<0.71	<2.0	<3.5	<25	1.37	**1.49**
PCB 66	**NA**	47.1	**84.0**	**NA**	**NA**	41.9	**NA**	**NA**	**NA**	**NA**	40.1	**NA**	70.8	**NA**
PCB 95	**NA**	34.5	**NA**	**NA**	**NA**	31.2	**NA**	**NA**	**NA**	**NA**	37.5	**NA**	**NA**	**NA**

exercise assigned values - PCBs

the exercise assigned values)

ng/g (dry basis)

													Exercise Assigned Value			
16	17	18	19	22	24	25	26	27	28	29	30	31	Value	s	%RSD	95% CL
4.94	3.27	<2	NA	**57.8**	7.47	NA	4.90	**<0.50**	**<5.40**	**<1.95**	1.42	**<2.26**	4.18	2.32	55	1.56
11.1	25.6	7.78	NA	12.9	11.7	NA	11.0	<0.50	11.0	**<1.95**	11.8	15.6	12.9	4.5	35	2.3
45.1	44.6	34.6	NA	33.0	40.9	**1132**	56.7	NA	42.9	32.9	37.9	33.5	41.4	9.6	23	4.8
67.6	54.0	57.9	NA	69.5	68.9	**1345**	63.4	**28.8**	65.5	**34.4**	66.4	62.9	61.8	10.8	17	5.2
46.4	30.2	42.7	NA	46.1	44.0	**821**	38.7	29.1	44.9	28.2	47.5	53.9	40.3	8.7	22	4.1
82.6	**62.4**	82.8	NA	NA	NA	**1703**	112	NA	NA	60.1	127	**111**	80.6	23.5	29	16.8
107	72.5	98.8	NA	96.4	106	**1860**	88.1	66.6	113	50.0	112	101	92.2	20.1	22	8.9
106	**31.3**	99.3	NA	101	102	**2690**	142	69.3	122	**52.3**	117	85.5	96.1	20.7	22	9.7
137	105	115	NA	107	119	**2957**	124	**60.9**	110	71.9	131	142	113	24	21	11
39.6	25.4	47.9	NA	41.6	41.5	NA	39.9	26.2	**33.3**	24.7	45.0	37.4	36.2	7.7	21	3.5
115	168	105	NA	102	117	**2637**	102	**<0.50**	104	62.9	121	102	102	25	25	11
28.0	26.4	31.4	NA	32.1	27.4	NA	29.5	**18.2**	28.2	20.0	34.6	29.4	27.5	6.1	22	2.8
18.1	26.5	19.9	NA	NA	15.4	NA	16.5	13.5	16.0	10.8	18.1	12.4	16.1	4.5	28	2.1
32.6	23.9	10.5	NA	15.8	inf	NA	**34.2**	9.26	9.04	**32.5**	10.3	31.7	15.5	11.0	71	5.9
3.46	<5	**<1.5**	NA	**<1.45**	4.19	**1397**	**<0.5**	2.26	**1.23**	4.13	2.26	5.24	3.01	1.13	38	0.72
0.365	<5	<1.5	NA	NA	<0.7	NA	<0.6	<0.50	<1	<1.95	<2	1.72	1.04	0.55	53	0.69
0.332	<5	<1.5	NA	NA	<0.7	NA	<0.5	NA	<1	<1.95	<2	2.59	<2			
1.05	<5	<1.5	NA	NA	<0.7	NA	0.800	NA	<1	<1.95	<2	**9.71**	<2			
NA	**62.4**	NA	NA	55.7	71.7	NA	NA	46.7	71.8	NA	NA	NA	55.7	13.8	25	11.5
NA	**<5**	NA	NA	NA	56.3	NA	NA	35.9	NA	NA	NA	NA	39.1	9.9	25	12.3

Table 5. Marine Sediment VIII (QA98SED8): Laboratory means of three replicates and

(values reported as if three figures were significant; bolded values were not used in the calculation of

Laboratory No.	1a	1b	1c	2	3	4	5	6	7	8	9	10	11	12	14	15
Water (%, mass basis)	45.1	45.1	NA	43.6	40.3	50.2	45.4	43.8	42.7	43.7	45.8	44.6	44.2	44.4	45.5	45.7

PAHs ng/g dry basis

Laboratory No.	1a	1b	1c	2	3	4	5	6	7	8	9	10	11	12	14	15
naphthalene	143	129	128	130	82.8	58.6	NA	**21.1**	NA	NA	113	125	NA	93.9	120	NA
2-methylnaphthalene	79.4	79.0	NA	60.0	55.5	NA	NA	**12.6**	NA	NA	89.4	85.6	NA	88.8	82.1	NA
1-methylnaphthalene	57.2	57.1	NA	30.0	39.3	NA	NA	**17.0**	NA	NA	61.0	45.1	NA	51.9	55.4	NA
biphenyl	32.1	32.3	NA	**70.0**	**16.5**	NA	NA	**11.4**	NA	NA	57.5	**35.7**	NA	**29.8**	**31.4**	NA
2,6-dimethylnaphthalene	29.9	32.0	NA	66.7	37.8	53.2	NA	**42.8**	NA	NA	**36.3**	45.2	NA	58.4	61.2	NA
acenaphthylene	29.4	30.2	NA	**80.0**	**41.7**	**116**	NA	87.6	NA	NA	**29.5**	**68.5**	NA	45.4	29.7	NA
acenaphthene	34.7	35.0	NA	35.0	37.1	**<50**	NA	**19.1**	NA	NA	**81.7**	42.4	NA	39.1	48.1	NA
1,6,7-trimethylnaphthalene	25.6	25.2	NA	**<22**	NA	NA	NA	**8.20**	NA	NA	46.1	30.5	NA	NA	NA	NA
fluorene	64.4	64.9	**66.8**	70.0	57.3	**61.6**	20.2	**42.4**	NA	**36.2**	73.3	77.3	NA	75.2	84.8	NA
phenanthrene	654	640	690	637	436	398	**57.8**	**433**	NA	**480**	686	779	NA	672	791	NA
anthracene	173	171	139	267	110	167	**25.5**	**176**	NA	137	195	188	NA	166	176	NA
1-methylphenanthrene	92.6	91.8	NA	**140**	74.0	**<50**	**12.3**	51.0	NA	NA	103	109	NA	103	117	NA
fluoranthene	1412	1410	1440	1170	1030	853	**89.5**	**1019**	NA	1103	1368	2005	NA	2001	1817	NA
pyrene	1550	1562	1585	1417	1071	902	**89.0**	**987**	NA	1243	1446	2020	NA	2055	1860	NA
benz[a]anthracene	570	581	605	623	497	355	**37.7**	**411**	NA	557	534	621	NA	571	662	NA
chrysene + triphenylene	1141	1160	1217	1020	652	NA	**62.2**	**571**	NA	1024	1021	993	NA	1505	1110	NA
benzofluoranthenes [b+j+k]	2240	2282	NA	1710	1537	NA	**59.1**	**1148**	NA	2857	2089	3124	NA	2761	2493	NA
benzo[e]pyrene	922	923	NA	693	525	NA	**38.2**	**515**	NA	971	912	864	NA	**1413**	1023	NA
benzo[a]pyrene	950	961	1025	**663**	674	584	**61.4**	**610**	NA	793	824	1104	NA	1179	931	NA
perylene	274	272	304	217	204	NA	**58.1**	**181**	NA	249	260	309	NA	257	285	NA
indeno[1,2,3-cd]pyrene	871	882	900	510	341	485	**23.0**	**563**	NA	**321**	891	965	NA	1066	923	NA
dibenz[a,h]anthracene + [a,c]	200	204	NA	135	94.2	125	**42.1**	**95.3**	NA	**121**	233	176	NA	187	194	NA
benzo[ghi]perylene	903	907	926	423	389	471	**17.5**	**517**	NA	**294**	783	962	NA	1072	895	NA

exercise assigned values - Water and PAHs

the exercise assigned values)

Exercise Assigned Value

16	17	19	20	21	22	23	24	25	26	27	28	29	30	31	Value	s	%RSD	95% CL
44.2	43.0	44.2	45.3	44.0	45.0	40.5	43.9	43.3	45.0	59.8	44.7	43.7	45.5	44.4	44.9	3.3	7.5	1.3

ng/g dry basis

Exercise Assigned Value

16	17	19	20	21	22	23	24	25	26	27	28	29	30	31	Value	s	%RSD	95% CL
91.9	NA	136	NA	71.3	**70.3**	**20.4**	NA	NA	69.5	63.9	NA	146	**83.6**	120	107	29	27	15
69.7	NA	111	NA	52.7	66.3	NA	NA	NA	63.0	NA	NA	113	50.4	93.0	77.4	19.1	25	10.2
49.6	NA	77.6	NA	33.1	NA	NA	NA	NA	40.2	NA	NA	67.1	37.8	57.4	50.7	13.2	26	7.3
17.6	NA	35.2	NA	19.0	NA	NA	NA	NA	**27.7**	NA	NA	43.2	**24.2**	**27.6**	36.6	12.9	35	13.5
35.0	NA	52.0	NA	39.8	NA	NA	NA	NA	53.2	NA	NA	76.3	**27.6**	75.9	51.2	15.4	30	8.9
72.5	NA	**247**	NA	**75.7**	**81.0**	53.8	NA	NA	**96.0**	**63.9**	NA	30.5	95.4	**126**	50.2	27.0	54	22.6
33.5	NA	**63.3**	NA	31.9	41.0	26.5	NA	NA	35.4	31.9	NA	57.4	43.8	38.8	38.2	7.3	19	3.9
28.6	NA	**56.2**	NA	22.2	NA	NA	NA	NA	**9.20**	NA	NA	24.4	15.1	**54.2**	27.2	8.9	33	7.4
54.1	NA	**145**	NA	**32.8**	78.7	**43.1**	NA	NA	**66.6**	**47.9**	NA	97.6	**75.6**	65.2	67.9	18.4	27	11.1
394	352	618	NA	570	617	**577**	NA	**1913**	**526**	**391**	NA	635	643	667	604	127	21	63
196	77.0	295	NA	147	195	**122**	NA	**323**	242	200	NA	126	**315**	290	183	57	31	27
74.1	NA	91.2	NA	32.3	NA	NA	NA	**195**	**65.4**	NA	NA	104	98	81	87.3	23.3	27	13.4
846	760	1287	NA	777	1548	1333	NA	**2100**	1353	693	NA	1595	1403	1250	1293	374	29	166
882	790	1290	NA	837	1526	**970**	NA	**1927**	1410	750	NA	1636	1473	1407	1367	383	28	175
478	422	489	NA	417	625	523	NA	**1897**	634	321	NA	795	663	574	551	109	20	48
582	746	789	NA	457	933	**599**	NA	**1933**	977	619	NA	997	939	990	944	246	26	115
1405	1152	**2228**	NA	1133	2365	**4293**	NA	**839**	2323	1045	NA	2710	2537	2217	2110	635	30	316
544	568	**906**	NA	490	NA	NA	NA	NA	831	NA	NA	928	968	917	805	186	23	103
690	592	964	NA	450	1064	**670**	NA	**1060**	816	454	NA	813	1017	762	832	210	25	98
152	172	293	NA	133	NA	NA	NA	**597**	266	NA	NA	252	293	276	248	52	21	26
772	526	**929**	NA	453	714	546	NA	**368**	593	340	NA	882	786	763	710	219	31	102
163	**138**	**282**	NA	77.1	156	97.8	NA	**279**	206	**<70.0**	NA	168	164	157	161	43	27	23
628	520	**900**	NA	390	624	**440**	NA	**305**	549	291	NA	799	735	709	683	229	34	104

Table 6. Marine Sediment VIII (QA98SED8): Laboratory means of three replicates and

(reported as if three figures were significant; bold values were not used in the assignment of the

ng/g dry basis

Laboratory No.	1a	1b	1c	2	3	4	5	6	7	8	9	10	11	12	14	15
alpha-HCH	<1	<1	NA	<0.5	1.75	<3.0	NA	<1	<2	NA	NA	<0.63	<2.0	NA	NA	**0.900**
hexachlorobenzene	0.325	<1	NA	NA	40.6	**<3.0**	NA	0.277	<2	1.71	<3.22	<0.63	<2.0	NA	0.289	NA
gamma-HCH	<1	<1	NA	<0.5	0.577	<3.0	NA	<1	<2	<0.42	**<0.09**	<0.63	<2.0	NA	0.884	**0.920**
heptachlor	<1	<1	NA	<0.5	5.35	<3.0	NA	<1	<2	NA	**<0.47**	<0.67	<2.0	NA	0.762	**1.19**
aldrin	<1	<1	NA	<1.0	<1.24	<3.0	NA	<1	<2	NA	**<0.08**	<5	<2.0	NA	<0.154	**<0.4**
heptachlor epoxide	<1	<1	NA	<0.5	<2.72	<3.0	NA	<1	<2	NA	**<0.09**	<13	<2.0	NA	<0.261	**0.525**
oxychlordane	<1	<1	NA	<0.3	<2.11	<3.0	NA	<1	<2	NA	NA	<0.63	<2.0	NA	<0.172	**<0.8**
trans-chlordane	<1	<1	NA	1.97	<0.40	<3.0	NA	<1	<2	NA	NA	<6	<2.0	NA	2.14	**0.300**
2,4'-DDE	<1	<1	NA	<0.5	**<1.37**	<3.0	NA	<1	1.29	NA	**<2.34**	<11	<2.0	NA	2.37	**5.13**
endosulfan I	<1	<1	NA	<0.5	NA	<3.0	NA	<1	<2	NA	NA	<0.63	<2.0	NA	NA	**0.300**
cis-chlordane	<1	<1	NA	2.99	**5.59**	**<3.0**	NA	<1	<2	<0.23	<0.97	**<0.63**	<2.0	NA	1.65	**2.59**
trans-nonachlor	<1	<1	NA	**<0.3**	**2.60**	<3.0	NA	0.723	<2	0.293	<0.40	**<1.8**	<2.0	NA	0.582	**0.230**
dieldrin	0.668	<1	NA	**<0.5**	**8.24**	**<3.0**	NA	**<1**	<2	NA	<0.80	**5.15**	<2.0	NA	**0.673**	**<1.3**
4,4'-DDE	6.55	6.57	NA	6.20	3.95	**7.60**	NA	6.57	7.84	9.42	7.38	10.2	7.21	NA	4.26	**7.80**
2,4'-DDD	9.93	10.1	NA	<0.5	4.16	<3.0	NA	<1	6.55	NA	**11.9**	<16	8.60	NA	**9.46**	**3.68**
endrin	<1	<1	NA	<1.0	<2.11	<6.0	NA	<1	<2	NA	**<0.11**	<0.63	<2.0	NA	NA	**7.74**
endosulfan II	<1	<1	NA	<0.5	NA	NA	NA	<1	<2	NA	NA	<0.63	<2.0	NA	NA	**1.80**
4,4'-DDD	14.7	14.4	NA	14.0	10.9	17.0	NA	16.8	21.3	27.0	20.9	**14.0**	20.7	NA	18.6	**11.4**
2,4'-DDT	4.75	4.65	NA	4.15	2.73	<6.0	NA	5.21	NA	NA	**2.84**	<6.3	<3.78	NA	4.92	**3.65**
cis-nonachlor	0.448	<1	NA	<0.3	3.18	<3.0	NA	0.773	<2	NA	NA	<0.63	<2.0	NA	<0.119	**<0.3**
4,4'-DDT	21.7	21.7	NA	**40.7**	**29.9**	12.7	NA	24.2	18.5	**16.7**	**22.6**	<8.1	14.5	NA	18.7	**11.0**
mirex	<1	<1	NA	<0.5	7.29	<3.0	NA	<1	<2	NA	**<0.06**	<0.63	<2.0	NA	0.712	**1.04**

exercise assigned values - Pesticides

exercise assigned values)

Study Statistics

ng/g dry basis															Exercise Assigned Value			
16	17	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean	s	%RSD	95% CL
0.496	<5	NA	NA	NA	NA	84.4	<0.1	NA	NA	<2.50	<1.0	NA	0.799	<0.972	<2			
0.114	<5	NA	NA	NA	NA	NA	0.388	NA	0.400	NA	<1.0	0.284	2.64	<0.632	<3			
<	<5	NA	NA	NA	NA	11.9	<0.1	NA	<0.6	<2.50	<1.0	<0.24	0.751	4.30	<2			
<	<5	NA	NA	NA	NA	<3	<0.1	NA	<0.5	<2.50	<1.0	0.644	1.80	<0.624	<2			
<	<5	NA	NA	NA	NA	15.5	<0.1	NA	<0.7	<2.50	<1.0	<0.24	<2	<0.672	<2			
<	<5	NA	NA	NA	NA	<7.03	<0.1	NA	<0.5	<2.50	3.73	<0.31	0.965	0.633	<2			
1.80	<5	NA	NA	NA	NA	NA	other	NA	N.A.	NA	<1.0	1.23	NA	<0.728	<2			
<	1.37	NA	NA	NA	<1	<3	<0.1	NA	N.A.	1.63	<1.0	NA	1.15	<0.564	1.65	0.409	24.8	0.508
0.402	1.55	NA	NA	NA	NA	NA	other	1280	<0.8	NA	<1.06	<0.24	<2	0.880	<2			
NA	<10	NA	NA	NA	NA	<3	<0.1	NA	N.A.	<2.50	4.59	NA	<2	NA	<2			
<	<5	NA	NA	NA	<1	NA	<0.1	NA	<0.8	<2.50	<1.0	3.30	1.26	1.24	1.78	0.828	46.4	1.32
<0.03	<5	NA	NA	NA	NA	NA	<0.1	NA	0.267	NA	<1.0	0.813	<2	<0.40	0.489	0.259	53.0	0.412
1.90	1.44	NA	NA	NA	NA	16.8	<0.1	NA	other	<5.00	5.14	2.15	1.61	1.50	<2			
7.11	2.53	NA	NA	NA	3.29	5.65	3.56	329	8.37	4.02	9.64	8.38	14.8	7.51	6.88	2.00	29.1	0.963
14.0	2.23	NA	NA	NA	NA	NA	5.98	1029	other	NA	6.10	3.82	7.89	8.38	7.15	2.19	30.7	1.57
0.459	<10	NA	NA	NA	NA	<3	<0.1	NA	N.A.	<5.00	<1.0	NA	<2	<1.212	<2			
5.59	<10	NA	NA	NA	NA	<88.8	<0.1	NA	N.A.	<5.00	14.2	NA	8.65	10.7	<2			
13.8	6.06	NA	NA	NA	4.57	52.2	11.9	729	31.0	12.2	19.9	15.4	32.9	22.3	17.3	6.28	36.3	3.03
6.42	4.81	NA	NA	NA	NA	NA	other	NA	11.1	NA	6.61	3.44	5.66	7.98	5.14	1.49	29.1	1.00
1.57	1.49	NA	NA	NA	NA	NA	<0.1	NA	N.A.	NA	<1.0	NA	2.24	2.17	1.73	1.01	58.6	1.07
17.8	11.2	NA	NA	NA	4.95	85.2	other	466	28.4	18.3	22.4	19.3	14.5	18.7	19.4	4.30	22.2	2.60
<0.21	<10	NA	NA	NA	NA	NA	other	NA	0.150	NA	<1.0	<0.24	1.53	<0.330	<2			

Table 7. Marine Sediment VIII (QA98SED8): Laboratory means of three replicates and

(values reported as if three figures were significant; bolded values were not used in the calculation of

ng/g dry basis

Laboratory No.	1a	1b	1c	2	3	4	5	6	7	8	9	10	11	12	14	15
PCB 8	0.868	<1	**NA**	**NA**	**20.3**	**NA**	**NA**	<1	1.58	2.85	**<21.1**	<1	<2.0	**1.97**	**NA**	**NA**
PCB 18	3.14	3.25	**NA**	2.19	**12.4**	**NA**	**NA**	2.08	3.70	3.11	4.87	2.15	<2.66	3.75	3.49	3.36
PCB 28	4.91	4.97	**NA**	5.62	4.01	**NA**	**NA**	3.98	5.61	4.93	**15.7**	2.70	4.54	8.50	4.36	**10.6**
PCB 52	13.6	13.7	**NA**	13.2	**12.4**	**NA**	**NA**	16.9	22.6	17.1	20.1	**33.0**	**<2.0**	22.0	**19.7**	**16.5**
PCB 44	4.87	4.92	**NA**	6.59	6.84	**NA**	**NA**	8.11	12.9	9.49	11.5	**10.5**	7.92	11.2	4.87	**7.50**
PCB 66/95	25.1	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	14.4	**25.8**	10.5	**NA**	12.9	**NA**	**NA**	**15.3**
PCB 101/90	32.1	31.8	**NA**	17.0	26.7	**NA**	**NA**	28.4	61.0	36.9	41.0	**112**	12.0	40.0	**38.7**	**33.9**
PCB 118	24.0	23.9	**NA**	**13.3**	21.4	**NA**	**NA**	**25.7**	41.8	35.5	**36.3**	**73.5**	29.0	29.5	27.6	**24.8**
PCB 153	42.7	42.1	**NA**	**21.0**	17.7	**NA**	**NA**	**27.7**	53.7	48.1	44.0	119	38.1	46.3	52.1	**34.4**
PCB 105	8.57	8.64	**NA**	6.97	6.53	**NA**	**NA**	11.1	18.0	14.9	14.2	**16.0**	9.50	12.4	13.0	**22.4**
PCB 138/163/164	41.1	42.0	**NA**	43.1	21.6	**NA**	**NA**	**9.50**	76.3	54.7	61.5	**<25**	47.5	45.9	45.8	**46.2**
PCB 187/182	9.36	9.38	**NA**	5.10	5.53	**NA**	**NA**	7.11	20.1	14.2	**11.7**	20.0	14.1	10.1	11.9	**10.6**
PCB 128	4.33	4.37	**NA**	3.93	6.22	**NA**	**NA**	5.64	15.1	10.0	11.3	8.55	8.85	7.15	4.41	**7.22**
PCB 180	15.4	15.6	**NA**	**<0.3**	**16.3**	**NA**	**NA**	18.0	**28.7**	**27.3**	**20.6**	48.0	22.5	18.8	17.2	**18.2**
PCB 170/190	9.36	9.21	**NA**	**5.39**	8.37	**NA**	**NA**	9.79	**19.1**	**13.6**	**14.5**	23.5	14.7	13.3	9.48	**10.5**
PCB 195	1.73	1.76	**NA**	**NA**	4.97	**NA**	**NA**	1.79	3.69	3.48	**3.25**	1.45	3.66	1.89	1.57	**2.61**
PCB 206	2.47	2.35	**NA**	**0.678**	**NA**	**NA**	**NA**	3.26	4.71	5.03	3.54	2.80	**<2.0**	2.47	2.57	**1.98**
PCB 209	1.06	1.08	**NA**	**<0.4**	**NA**	**NA**	**NA**	3.18	2.54	2.72	**2.76**	1.50	3.33	1.71	3.40	**2.03**
PCB 66	**NA**	5.48	**NA**	16.3	6.45	**NA**	**NA**	9.28	NA	**NA**	**NA**	9.80	**NA**	10.5	5.89	**NA**
PCB 95	**NA**	17.9	**NA**	**NA**	22.4	**NA**	**NA**	16.7	NA	**NA**	**NA**	**NA**	**NA**	34.0	**NA**	**NA**

exercise assigned values - PCBs

the exercise assigned values)

ng/g dry basis															Exercise Assigned Value			
16	17	19	20	21	22	23	24	25	26	27	28	29	30	31	Value	s	%RSD	95% CL
1.12	**0.460**	**NA**	**11.9**	0.570	4.92	**NA**	1.13	**NA**	**1.53**	**<0.50**	**4.18**	2.34	**7.05**	**1.94**	2.04	1.51	74	1.39
4.45	1.31	**NA**	**9.97**	3.50	**<2.67**	**NA**	3.02	**NA**	5.50	**<0.50**	4.99	5.84	6.80	2.61	3.61	1.42	39	0.68
3.06	2.31	**NA**	**NA**	2.93	NA	**NA**	3.69	**NA**	8.27	**NA**	5.96	6.43	5.91	6.22	4.95	1.68	34	0.79
12.4	4.62	**NA**	**29.8**	6.70	9.64	**NA**	**13.1**	**NA**	**21.4**	5.57	22.6	22.7	20.6	18.4	15.6	6.3	40	3.4
6.21	5.14	**NA**	**16.9**	5.03	3.44	**NA**	7.27	**425**	11.8	5.62	12.3	**12.7**	11.9	**11.9**	7.90	3.04	39	1.42
7.11	11.1	**NA**	**NA**	4.07	**NA**	**NA**	**NA**	**639**	37.1	**NA**	**NA**	29.6	15.4	**42.8**	16.7	10.5	63	7.5
29.9	**7.40**	**NA**	**NA**	16.3	21.3	**NA**	23.9	**315**	38.7	17.8	54.7	36.0	52.9	47.1	33.3	13.6	41	6.4
19.8	8.33	**NA**	49.5	18.3	18.1	**NA**	19.3	**1035**	36.6	25.2	49.9	23.9	49.1	43.2	29.7	11.9	40	5.6
42.2	16.5	**NA**	94.4	**12.7**	22.4	**NA**	24.6	**549**	64.7	**14.7**	51.6	64.8	47.8	79.3	50.6	25.1	50	11.8
8.15	**1.83**	**NA**	**35.6**	**8.33**	8.56	**NA**	8.62	**1892**	12.3	7.22	15.6	17.8	19.0	12.7	11.9	3.9	33	1.9
33.9	16.4	**NA**	**NA**	28.3	21.8	**NA**	31.0	**NA**	**47.0**	**<0.50**	63.2	64.0	69.8	**87.5**	44.9	17.5	39	8.7
7.83	**11.2**	**NA**	**NA**	6.73	6.42	**NA**	8.41	**617**	14.4	5.43	17.7	16.6	14.9	15.7	11.5	4.9	43	2.2
6.92	**3.02**	**NA**	10.5	4.63	**NA**	**NA**	8.02	**1930**	10.6	**7.60**	11.6	12.0	16.2	8.97	8.22	3.20	39	1.54
15.5	**12.1**	**NA**	**29.9**	**11.5**	**10.6**	**NA**	**13.7**	**1036**	**24.7**	10.7	**32.0**	**29.1**	29.5	**25.5**	21.7	11.1	51	8.6
129	12.1	**NA**	**NA**	**9.17**	<5.3	**NA**	9.52	**823**	**13.8**	4.38	16.8	15.6	20.7	**NA**	12.6	5.2	41	3.0
1.95	**9.78**	**NA**	**NA**	1.53	**NA**	**NA**	1.32	**NA**	3.53	<0.50	3.16	5.19	2.11	2.28	2.61	1.22	47	0.61
1.49	**<5**	**NA**	**NA**	1.60	**NA**	**NA**	**1.27**	**584**	3.47	**NA**	4.15	**6.20**	5.40	4.20	3.30	1.20	36	0.67
2.10	0.847	**NA**	4.73	1.35	**NA**	**NA**	0.682	**475**	**2.00**	NA	2.80	4.23	**2.03**	**2.24**	2.33	1.23	53	0.66
NA	**11.1**	**NA**	**NA**	**NA**	6.62	**NA**	5.89	**NA**	**NA**	<0.50	12.4	**NA**	**NA**	**NA**	8.85	3.51	40	2.51
NA	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	19.1	**NA**	**NA**	11.1	**NA**	**NA**	**NA**	**NA**	20.2	7.7	38	8.1

Table 8. Mussel Tissue IX: 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	22	1	0
1b	100	0	22	1	0
2	0	100	0	0	0
4	0	0	0	0	0
5	44	0	**3**	**2**	**5**
6	100	0	19	2	2
7	0	0	0	0	0
8	35	26	8	0	0
9	96	4	18	3	1
11	0	0	0	0	0
12	70	26	14	1	1
13	44	57	7	3	0
14	96	0	21	1	0
15	0	0	0	0	0
16	100	0	21	0	2
17	61	30	12	1	1
18	91	9	20	1	0
19	96	4	**15**	**1**	**6**
22	35	48	8	0	0
24	0	0	0	0	0
25	22	0	**2**	**1**	**2**
26	100	0	*16*	*3*	*4*
27	0	65	0	0	0
28	0	0	0	0	0
29	35	65	8	0	0
30	100	0	23	0	0
31	78	0	17	0	1

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

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

Table 9. Mussel Tissue IX: Summary of number of z-scores (25%) by laboratory by category - pesticides and PCBs

	Pesticides					PCBs				
			Number of z (25%) by category					Number of z (25%) by category		
Laboratory	Results, % Quantitativ	Results, % Qualitative	S	Q	U	Results, % Quantitativ	Results, % Qualitative	S	Q	U
1a	46	55	10	0	0	89	11	16	0	0
1b	46	55	10	0	0	83	11	15	0	0
2	14	82	**2**	**0**	**1**	61	22	11	0	0
4	23	68	5	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	32	68	7	0	0	78	22	11	3	0
7	0	0	0	0	0	83	17	14	1	0
8	27	5	5	1	0	83	17	15	0	0
9	36	36	7	0	0	67	33	12	0	0
11	50	50	**5**	**2**	**3**	78	22	**9**	**1**	**4**
12	0	0	0	0	0	72	22	11	1	1
13	27	73	**3**	**0**	**3**	44	56	7	1	0
14	50	32	11	0	0	78	11	12	0	1
15	46	50	9	0	0	94	0	*11*	2	2
16	86	0	14	3	0	100	0	14	1	1
17	50	50	**5**	**1**	**4**	78	22	9	4	1
18	50	27	10	0	0	72	28	13	0	0
19	0	0	0	0	0	0	0	0	0	0
22	18	5	3	1	0	67	6	11	0	1
24	55	45	10	0	0	72	22	12	0	1
25	41	0	**0**	**0**	**8**	50	0	**0**	**0**	**9**
26	41	27	*8*	*0*	*1*	83	17	13	0	1
27	27	36	**4**	**0**	**2**	56	22	9	1	0
28	64	36	13	0	0	72	22	12	1	0
29	55	18	9	2	1	72	28	12	0	1
30	68	27	12	2	0	83	17	13	2	0
31	64	32	*11*	*0*	*2*	94	6	12	2	1

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

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

z category:		
	< or = 2	Satisfactory
	2 to 3	Questionable
	> or = 3	Unsatisfactory

S
Q
U

Table 10. Sediment VIII: 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	23	0	0
1b	100	0	23	0	0
1c	52	0	12	0	0
2	96	4	19	2	5
3	96	0	20	2	0
4	57	9	12	0	1
5	65	0	**0**	**1**	**14**
6	100	0	17	4	2
7	0	0	0	0	0
8	61	0	12	2	0
9	100	0	20	2	1
10	100	0	22	1	0
11	0	0	0	0	0
12	96	0	16	5	1
14	96	0	22	0	0
15	0	0	0	0	0
16	100	0	22	1	0
17	57	0	12	1	0
19	100	0	*16*	*3*	*4*
20	0	0	0	0	0
21	100	0	18	5	0
22	70	0	15	1	0
23	65	0	*13*	*0*	*2*
24	0	0	0	0	0
25	57	0	**3**	**4**	**6**
26	100	0	21	1	1
27	61	4	11	3	0
28	0	0	0	0	0
29	100	0	22	1	0
30	100	0	21	1	1
31	100	0	20	1	2

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

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

Table 11. Sediment VIII: Summary of number of z-scores (25%) by laboratory by category - pesticides and PCBs

	Pesticides					PCBs				
			Number of z (25%) by category					Number of z (25%) by category		
Laboratory	Results, % Quantitativ	Results, % Qualitative	S	Q	U	Results, % Quantitativ	Results, % Qualitative	S	Q	U
1a	36	64	5	1	0	100	0	15	3	0
1b	23	77	5	0	0	86	6	15	1	0
1c	0	0	0	0	0	0	0	0	0	0
2	27	68	*4*	*1*	*1*	72	11	*7*	*5*	*2*
3	64	27	**4**	**1**	**3**	83	0	**9**	**3**	**3**
4	14	82	3	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	32	68	5	1	0	89	6	15	0	1
7	23	73	4	0	0	100	0	*11*	*4*	*3*
8	23	9	3	1	0	100	0	16	2	0
9	23	50	4	1	0	94	6	16	0	1
10	14	86	2	0	0	83	11	**8**	**1**	**6**
11	18	82	4	0	0	78	22	13	1	0
12	0	0	0	0	0	94	0	16	1	0
14	64	18	8	0	0	89	0	16	0	0
15	77	18	*6*	*1*	*1*	94	0	*15*	*0*	*2*
16	59	36	*5*	*0*	*1*	100	0	15	2	1
17	41	59	4	3	0	94	6	**5**	**8**	**4**
19	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	56	0	**2**	**1**	**6**
21	0	0	0	0	0	100	0	12	5	1
22	14	9	0	3	0	56	11	5	4	1
23	32	27	**1**	**0**	**2**	0	0	0	0	0
24	18	82	3	0	0	94	0	14	3	0
25	23	0	**0**	**0**	**4**	67	0	**0**	**0**	**12**
26	32	64	**3**	**0**	**2**	100	0	15	2	1
27	18	45	4	0	0	56	22	5	5	0
28	41	59	5	0	0	94	0	12	4	1
29	50	23	*5*	*1*	*1*	100	0	**12**	**2**	**4**
30	73	23	**6**	**0**	**2**	100	0	*8*	*7*	*3*
31	55	41	6	1	0	94	0	*13*	*2*	*2*

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

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

z category:		
	< or = 2	Satisfactory	S
	2 to 3	Questionable	Q
	> or = 3	Unsatisfactory	U

Table 12. Mussel Tissue IX: Summary of number of p-scores (15%) by laboratory by category

Laboratory	PAHs			Pesticides			PCBs		
	Number of p-scores by category			Number of p-scores by category			Number of p-scores by category		
	S	Q	U	S	Q	U	S	Q	U
1a	23	0	0	10	0	0	16	0	0
1b	23	0	0	10	0	0	15	0	0
2	0	0	0	3	0	0	11	0	0
4	0	0	0	5	0	0	0	0	0
5	9	1	0	0	0	0	0	0	0
6	19	3	1	4	3	0	14	0	0
7	0	0	0	0	0	0	15	0	0
8	8	0	0	5	1	0	15	0	0
9	**0**	**4**	**18**	*6*	*1*	*1*	12	0	0
11	0	0	0	9	1	1	14	0	0
12	*12*	*2*	*2*	0	0	0	12	1	0
13	10	0	0	6	0	0	8	0	0
14	22	0	0	11	0	0	13	0	0
15	0	0	0	*7*	*1*	*2*	4	13	0
16	23	0	0	18	1	0	17	0	1
17	13	1	0	9	2	0	12	1	1
18	19	2	0	10	1	0	13	0	0
19	19	2	1	0	0	0	0	0	0
22	8	0	0	4	0	0	12	0	0
24	0	0	0	12	0	0	13	0	0
25	**1**	**1**	**1**	5	0	0	6	3	0
26	23	0	0	*6*	*2*	*1*	15	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	14	0	0	13	0	0
29	8	0	0	12	0	0	13	0	0
30	23	0	0	15	0	0	15	0	0
31	17	1	0	14	0	0	15	1	1

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

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

Table 13. Sediment VIII: Summary of number of p-scores (15%) by laboratory by category

Laboratory	PAHs			Pesticides			PCBs		
	Number of p-scores by category			Number of p-scores by category			Number of p-scores by category		
	S	Q	U	S	Q	U	S	Q	U
1a	23	0	0	8	0	0	18	0	0
1b	23	0	0	5	0	0	16	0	0
1c	12	0	0	0	0	0	0	0	0
2	17	3	2	*5*	*0*	*1*	14	0	0
3	22	0	0	**10**	**1**	**3**	*12*	*1*	*2*
4	**8**	**2**	**3**	2	1	0	0	0	0
5	15	0	0	0	0	0	0	0	0
6	20	3	0	6	1	0	15	0	1
7	0	0	0	5	0	0	18	0	0
8	14	0	0	**3**	**0**	**2**	17	1	0
9	23	0	0	**4**	**0**	**1**	*13*	*2*	*2*
10	23	0	0	2	1	0	14	1	0
11	0	0	0	**2**	**1**	**1**	13	0	1
12	20	2	0	0	0	0	16	1	0
14	22	0	0	14	0	0	16	0	0
15	0	0	0	*6*	*7*	*3*	*14*	*1*	*2*
16	23	0	0	*9*	*2*	*2*	17	0	1
17	13	0	0	*5*	*3*	*1*	15	2	0
19	23	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	7	2	0
21	22	1	0	0	0	0	17	1	0
22	16	0	0	2	1	0	6	3	1
23	15	0	0	**2**	**1**	**4**	0	0	0
24	0	0	0	**2**	**1**	**1**	14	3	0
25	**3**	**1**	**9**	**0**	**0**	**3**	**0**	**1**	**7**
26	23	0	0	*4*	*2*	*1*	15	2	1
27	**6**	**0**	**2**	0	0	0	0	0	0
28	0	0	0	9	0	0	16	1	0
29	23	0	0	9	2	0	18	0	0
30	23	0	0	16	0	0	18	0	0
31	23	0	0	12	0	0	16	0	1

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

Table 14. Mussel Tissue IX: Summary of median lz-scoresl and lp-scoresl by laboratory

Laboratory	median lzl (25%) PAH	Pesticides	PCB	median lpl (15%) PAH	Pesticides	PCB
1a	0.3	0.3	0.4	0.2	0.2	0.2
1b	0.3	0.3	0.3	0.2	0.2	0.2
2		1.3	0.6		0.3	0.8
4		**8**			1.2	
5	**3.5**			0.5		
6	1.2	1.1	1.6	1.2	1.9	1.1
7			0.5			0.2
8	0.4	0.2	1	0.4	1	0.3
9	1.2	1.5	1	**3.2**	0.9	1.2
11		1.6	0.8		1.1	0.7
12	0.7		1.5	1.7		1.1
13	1.7	*2.4*	0.7	0.7	0.9	0.5
14	0.6	0.6	0.7	0.3	0.2	0.1
15		1.4	0.9		1.9	*2.4*
16	0.5	0.8	0.5	0.8	1.2	1.2
17	0.8	1.7	1	0.7	1.2	1.2
18	0.6	0.6	0.3	0.7	0.6	0.4
19	0.8			0.4		
22	1.1	1.3	0.4	0.1	0.1	0.1
24		0.6	0.4		0.8	0.6
25	*2.2*	**488**	**100**	**23**	1.2	1.9
26	1.1	0.9	0.4	0.6	0.6	0.3
27		1.8	1.1			
28		0.7	0.3		0.6	0.5
29	0.8	0.4	0.9	0.8	0.2	0.2
30	0.4	0.4	0.9	0.8	0.2	0.2
31	0.7	0.9	0.8	0.4	0.8	0.9

2 to 3 Italics
> or = 3 Bold

Table 15. Sediment VIII: Summary of median |z-scores| and |p-scores| by laboratory

Laboratory	median |z| (25%) PAH	Pesticides	PCB	median |p| (15%) PAH	Pesticides	PCB
1a	0.5	0.5	1	0.2	0.1	0.2
1b	0.5	0.5	0.9	0.2	0.2	0.2
1c	0.8			0.1		
2	0.8	0.8	2.0	1.1	1.2	1.3
3	1.0	2.0	1.3	0.8	0.7	0.6
4	1.3	0.4		1.9	1.2	
5	**3.7**			0.9		
6	1.5	0.6	0.8	0.6	0.7	0.4
7		0.5	1.7		0.3	0.3
8	0.8	1.5	0.8	0.5	0.3	1.4
9	0.5	0.8	0.9	0.6	0.7	0.7
10	0.6	1.3	1.8	0.3	1.6	0.9
11		0.8	0.7		2.1	1.0
12	0.6		0.5	0.8		0.8
14	0.8	0.5	0.7	0.2	0.4	0.3
15		1.8	0.5		*2.5*	1.2
16	0.7	0.6	1.1	0.4	1.2	0.7
17	1.2	1.7	*2.5*	0.8	1.8	0.6
19	0.7			0.2		
20			**4.1**			0.5
21	1.6		1.7	0.8		1.3
22	0.5	*2.9*	1.9	0.4	1.5	1.3
23	1.2	**8.0**		0.4	**3.4**	
24		1.2	1.1		2.1	1.3
25	*2.9*	**176**	**211**	**3.7**	**4.2**	**4.0**
26	0.6	1.9	1.0	0.7	1.7	1.0
27	1.6	0.7	1.9	1.0		
28		0.6	1.6		0.4	0.5
29	0.9	1.3	1.8	0.4	0.6	0.6
30	0.8	1.2	*2.1*	0.1	0.4	0.2
31	0.3	1.1	1.1	0.3	0.5	0.3

2 to 3 Italics
> or = 3 Bold

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Figure 17. Marine Sediment VIII: Pesticide z-scores (25%) by laboratory.

Figure 18. Marine Sediment VIII: PCB z-scores (25%) by laboratory.

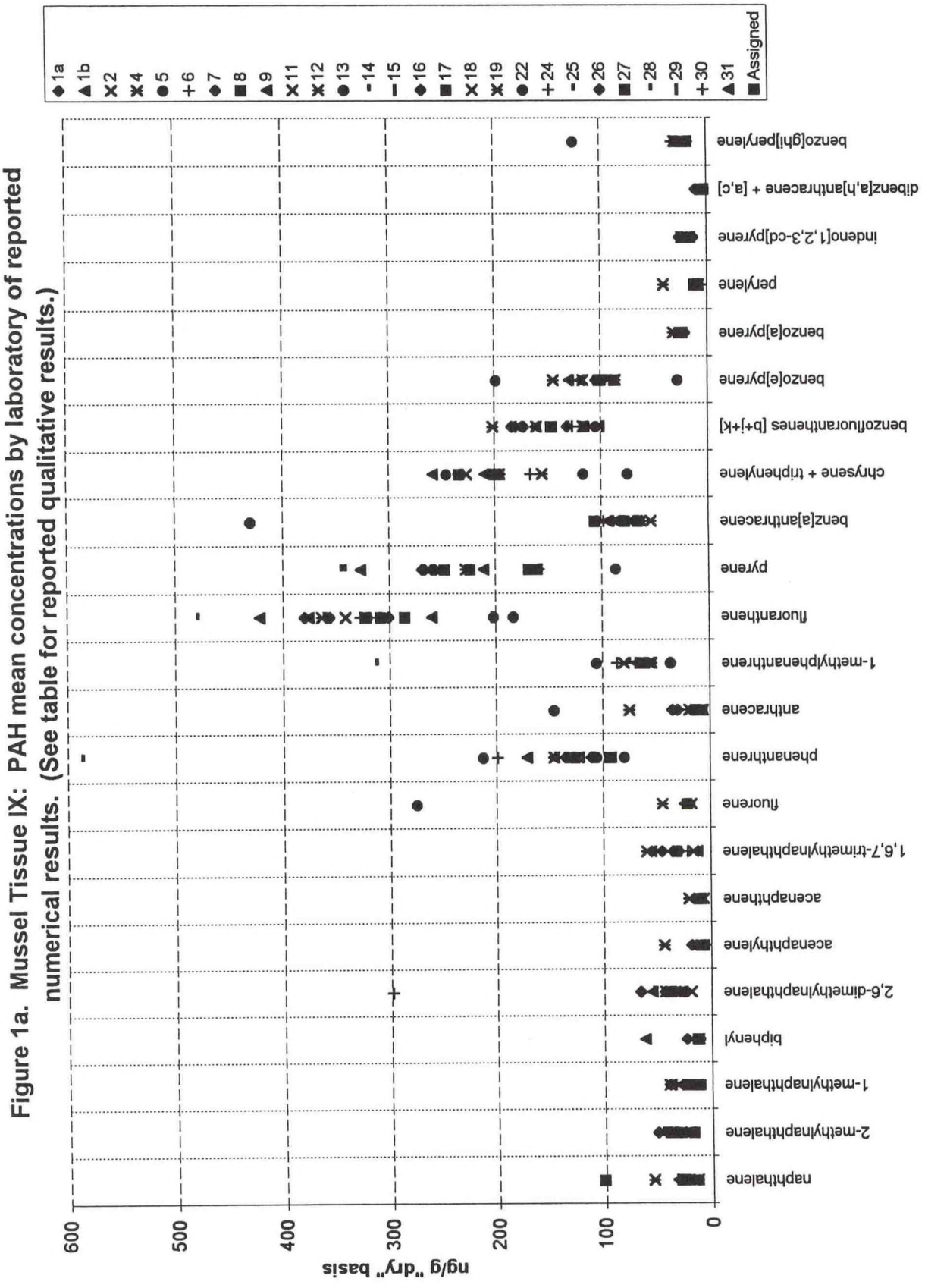


Figure 1a. Mussel Tissue IX: PAH mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)
ng/g "dry" basis
0
100
200
300
400
500
600
naphthalene
2-methylnaphthalene
1-methylnaphthalene
biphenyl
2,6-dimethylnaphthalene
acenaphthylene
acenaphthene
1,6,7-trimethylnaphthalene
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
1a
1b
2
4
5
6
7
8
9
11
12
13
14
15
16
17
18
19
22
24
25
26
27
28
29
30
31
Assigned

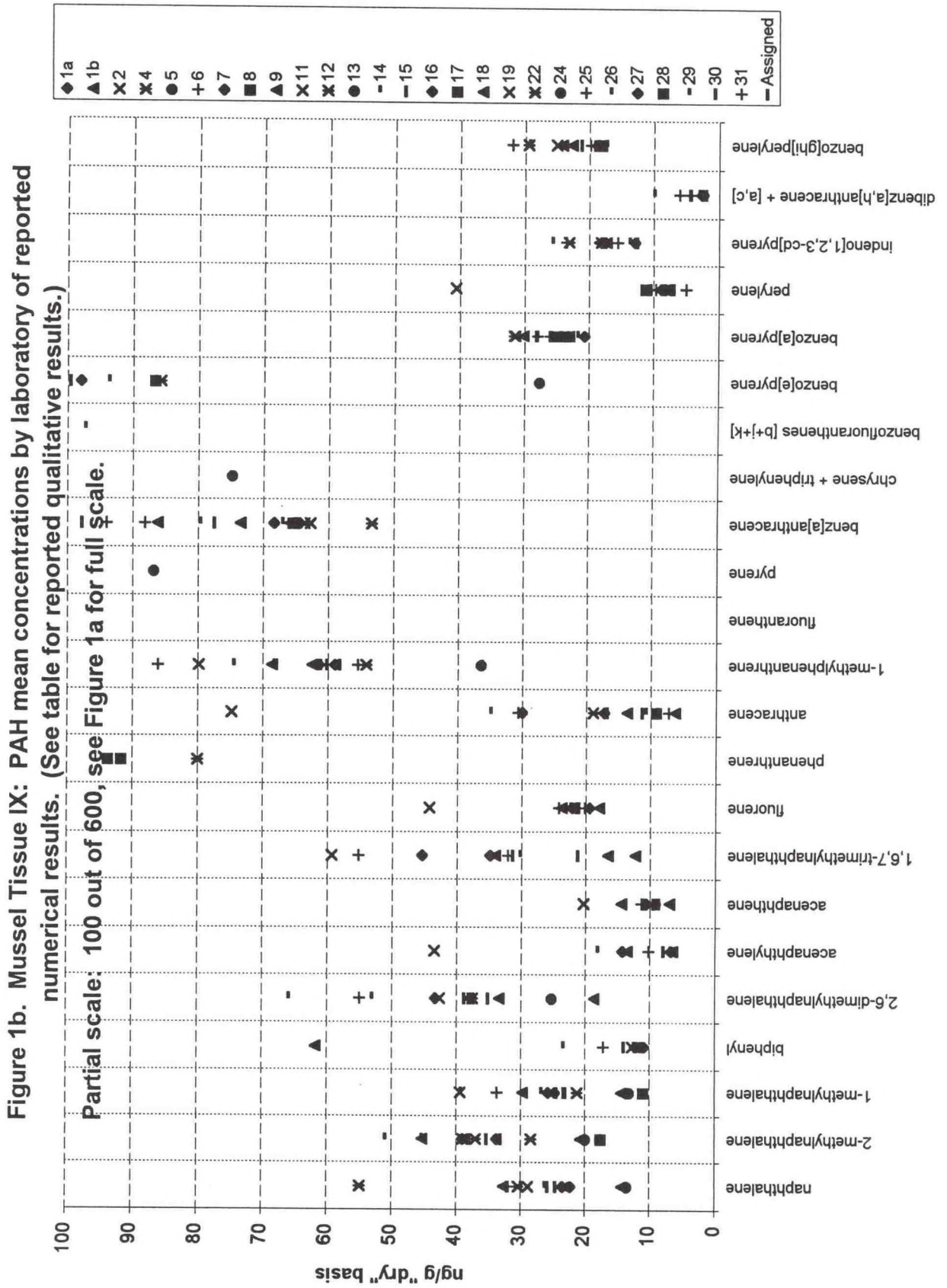


Figure 1b. Mussel Tissue IX: PAH mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)
Partial scale: 100 out of 600, see Figure 1a for full scale.
ng/g "dry" basis
0
10
20
30
40
50
60
70
80
90
100
naphthalene
2-methylnaphthalene
1-methylnaphthalene
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
1a
1b
2
4
5
6
7
8
9
11
12
13
14
15
16
17
18
19
22
24
25
26
27
28
29
30
31
Assigned

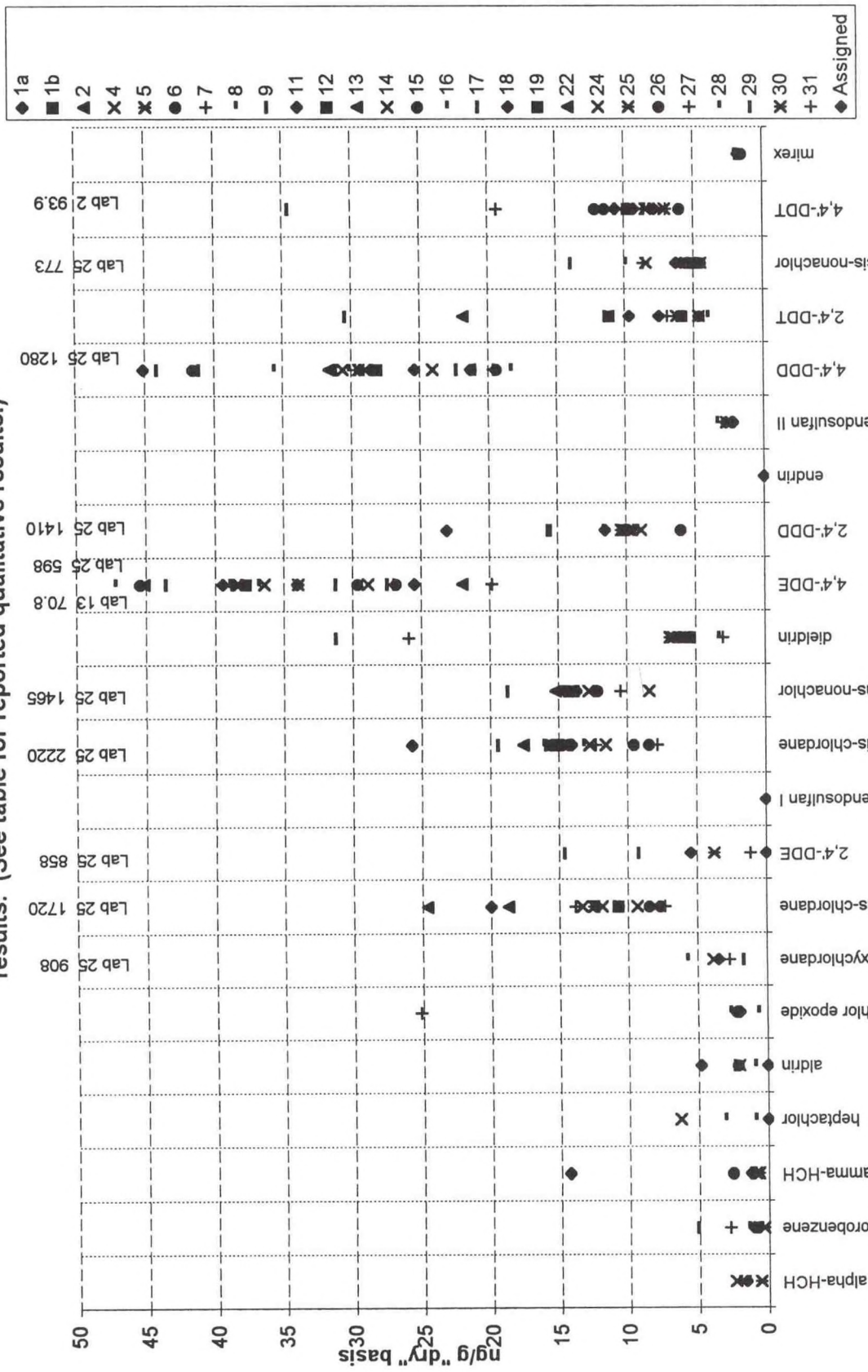


Figure 2. Mussel Tissue IX: Pesticide mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)

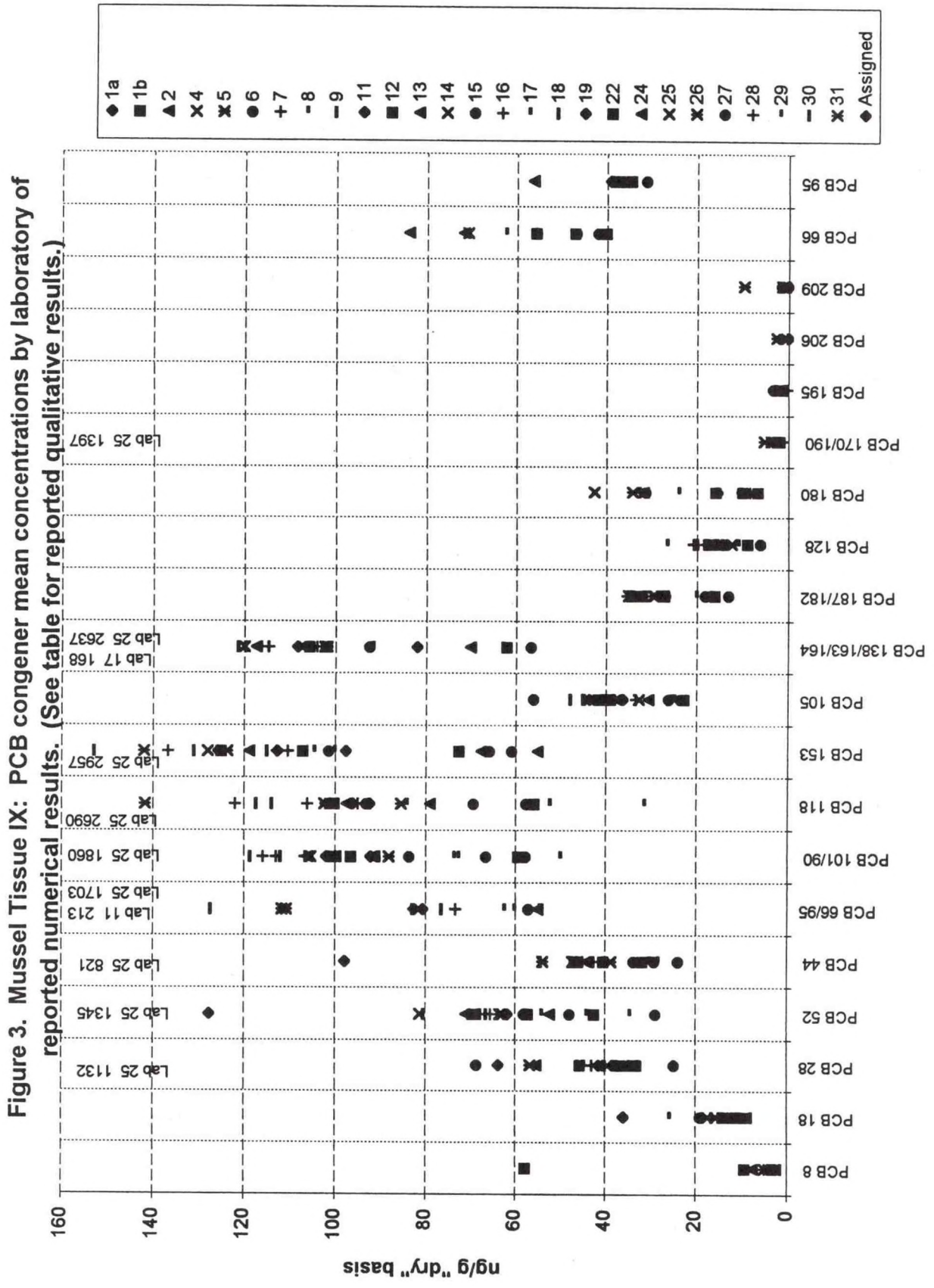


Figure 3. Mussel Tissue IX: PCB congener mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)

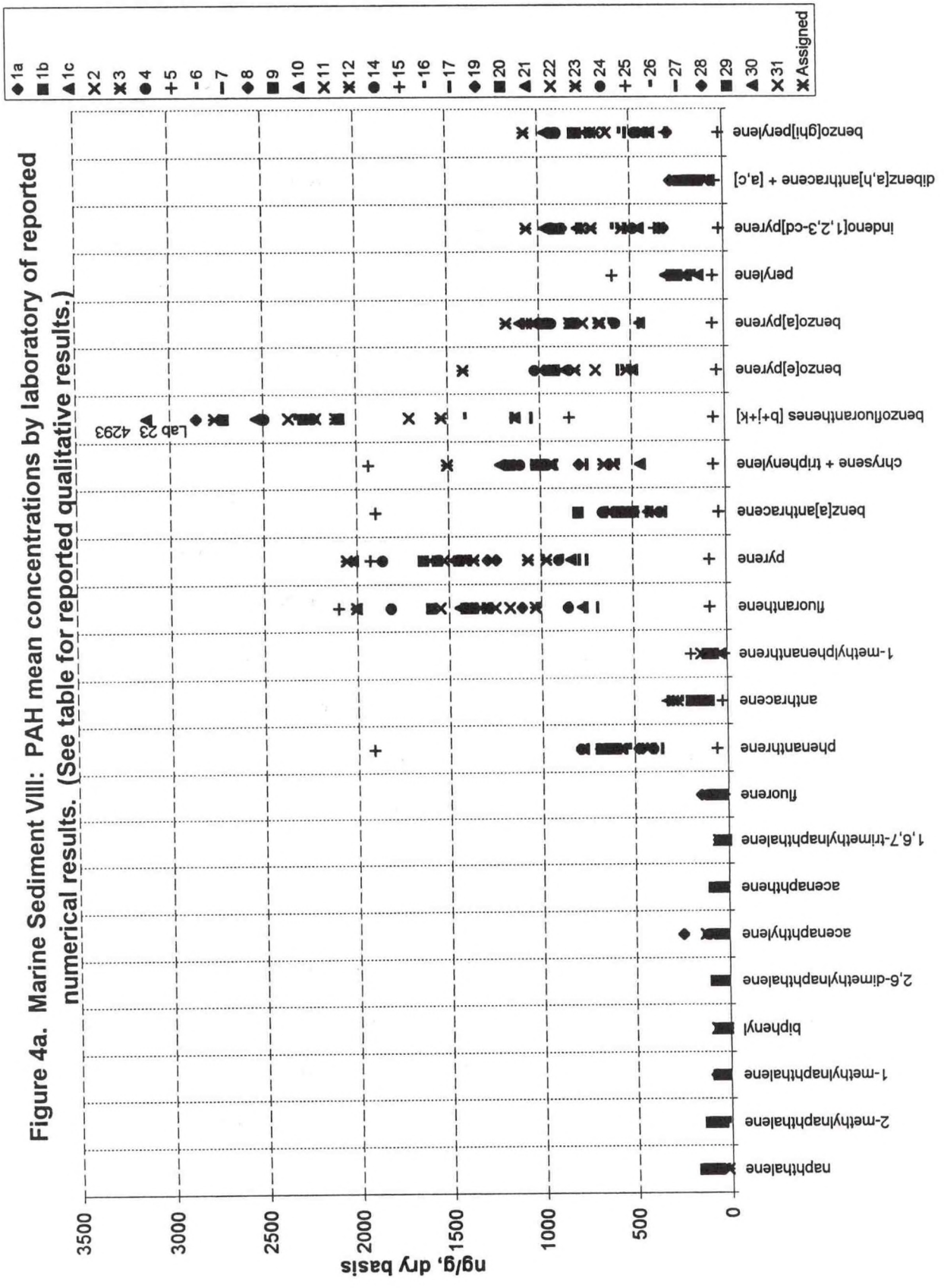


Figure 4a. Marine Sediment VIII: PAH mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)
ng/g, dry basis
0
500
1000
1500
2000
2500
3000
3500
naphthalene
2-methylnaphthalene
1-methylnaphthalene
biphenyl
2,6-dimethylnaphthalene
acenaphthylene
acenaphthene
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
Lab 23 4293
1a
1b
1c
2
3
4
5
6
7
8
9
10
11
12
14
15
16
17
19
20
21
22
23
24
25
26
27
28
29
30
31
Assigned

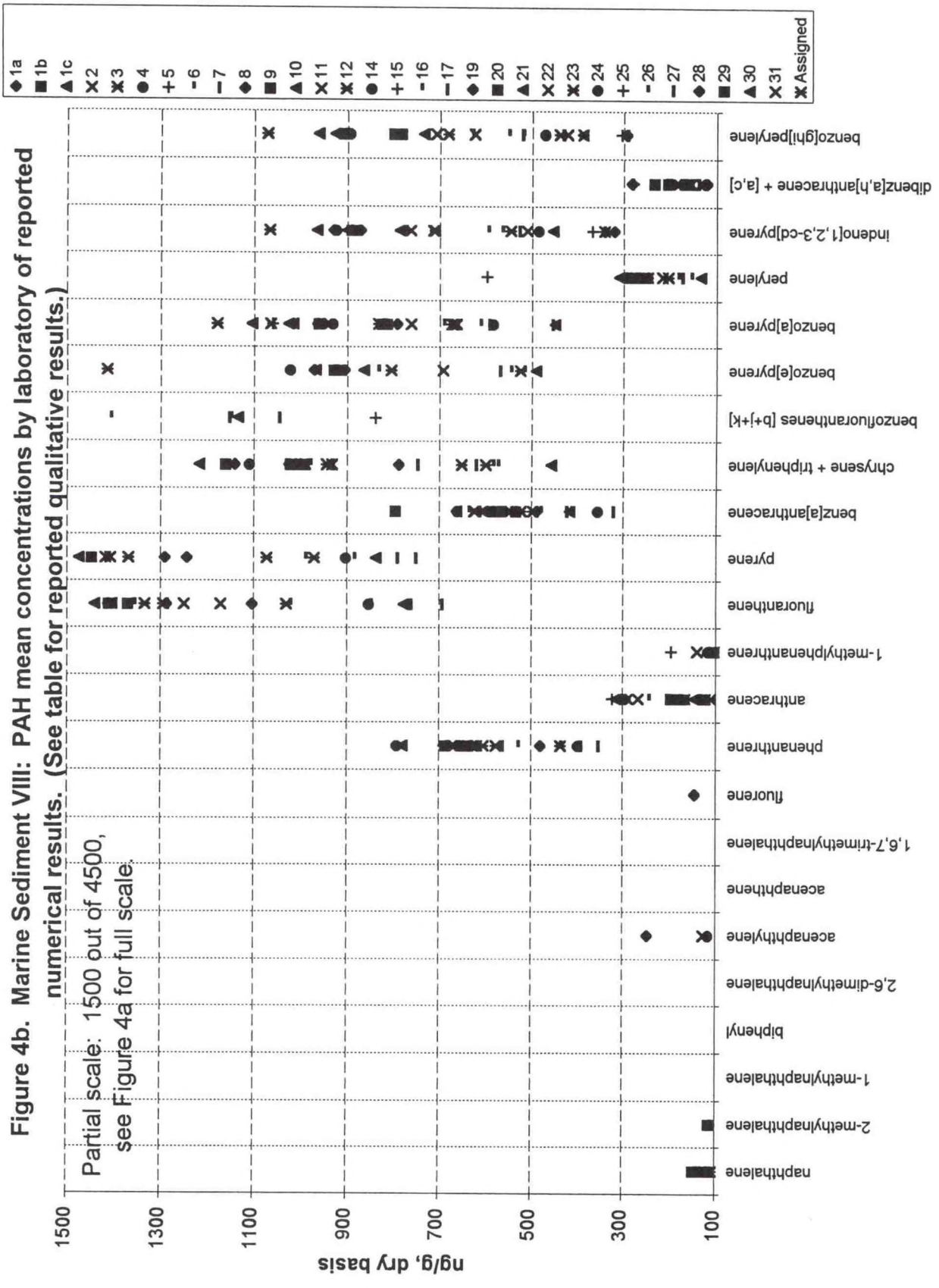


Figure 4b. Marine Sediment VIII: PAH mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)
Partial scale: 1500 out of 4500, see Figure 4a for full scale.
ng/g, dry basis
1500
1300
1100
900
700
500
300
100
naphthalene
2-methylnaphthalene
1-methylnaphthalene
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
1a
1b
1c
2
3
4
5
6
7
8
9
10
11
12
14
15
16
17
19
20
21
22
23
24
25
26
27
28
29
30
31
Assigned

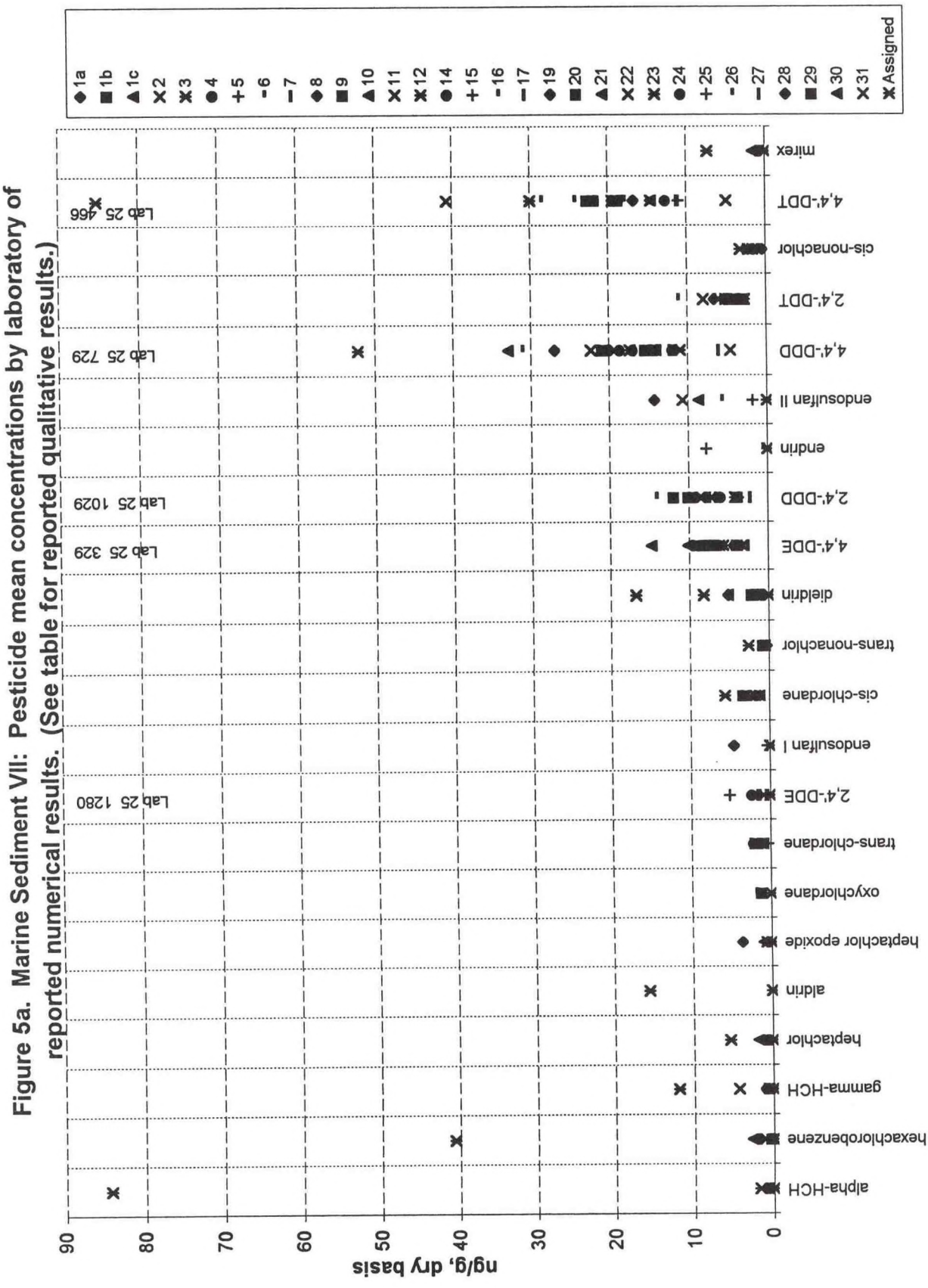


Figure 5a. Marine Sediment VII: Pesticide mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)

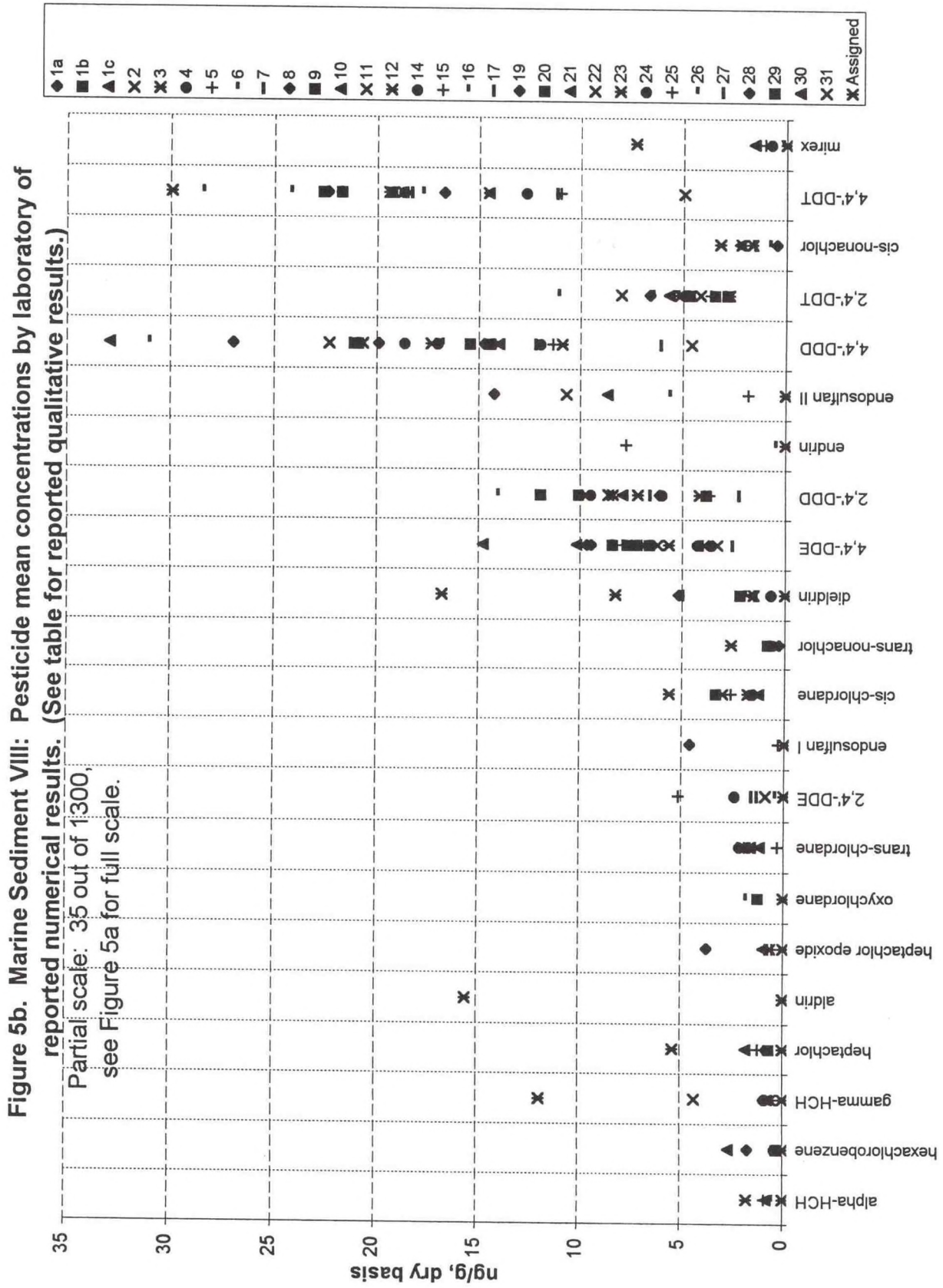


Figure 5b. Marine Sediment VIII: Pesticide mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)
Partial scale: 35 out of 1300, see Figure 5a for full scale.
ng/g, dry basis
0
5
10
15
20
25
30
35
alpha-HCH
hexachlorobenzene
gamma-HCH
heptachlor
aldrin
heptachlor epoxide
oxychlordane
trans-chlordane
2,4'-DDE
endosulfan I
cis-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
1a
1b
1c
2
3
4
5
6
7
8
9
10
11
12
14
15
16
17
19
20
21
22
23
24
25
26
27
28
29
30
31
Assigned

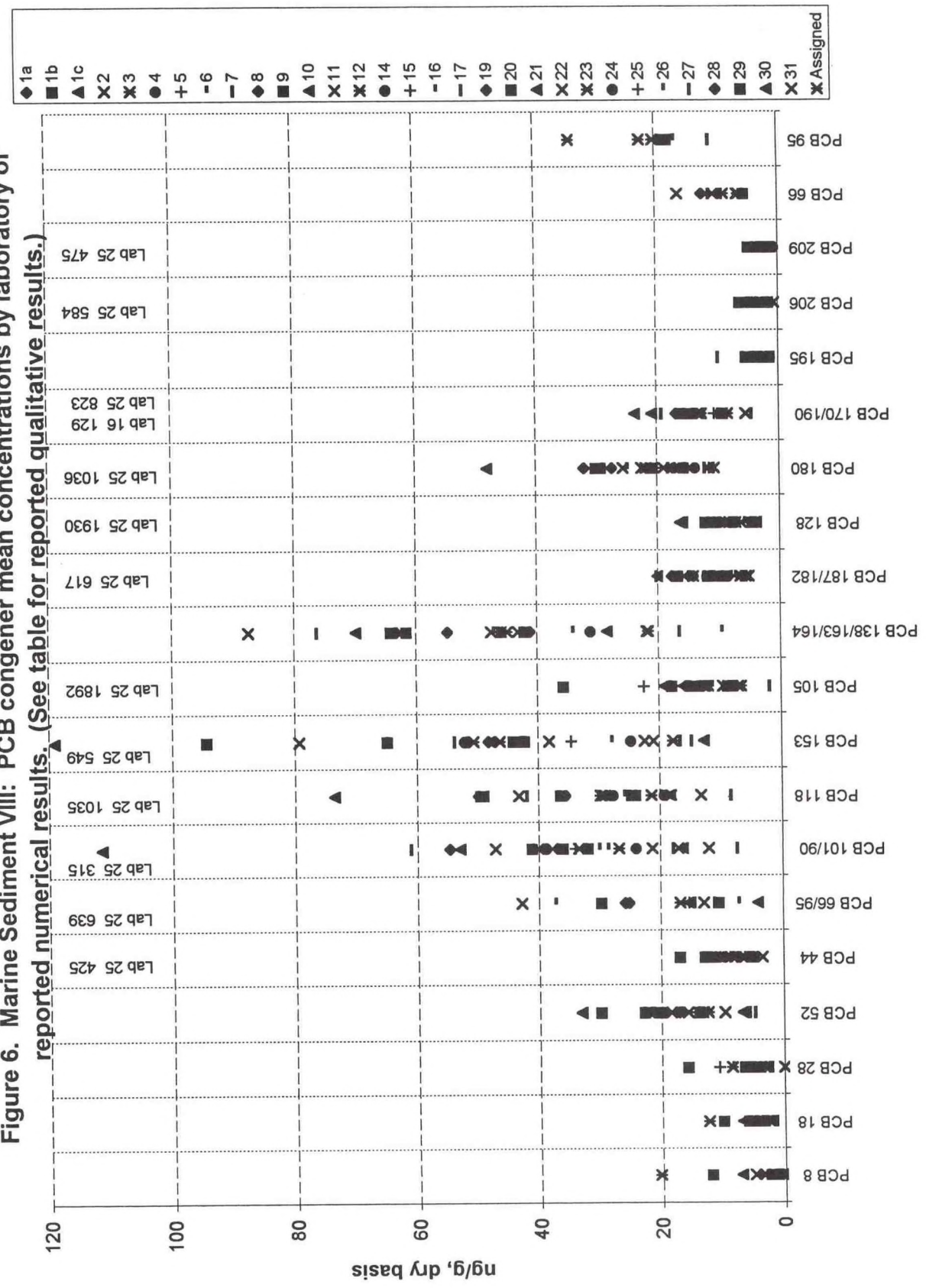


Figure 6. Marine Sediment VIII: PCB congener mean concentrations by laboratory of reported numerical results. (See table for reported qualitative results.)

Figure 7. Mussel Tissue IX: PAH z-scores (25%) by analyte

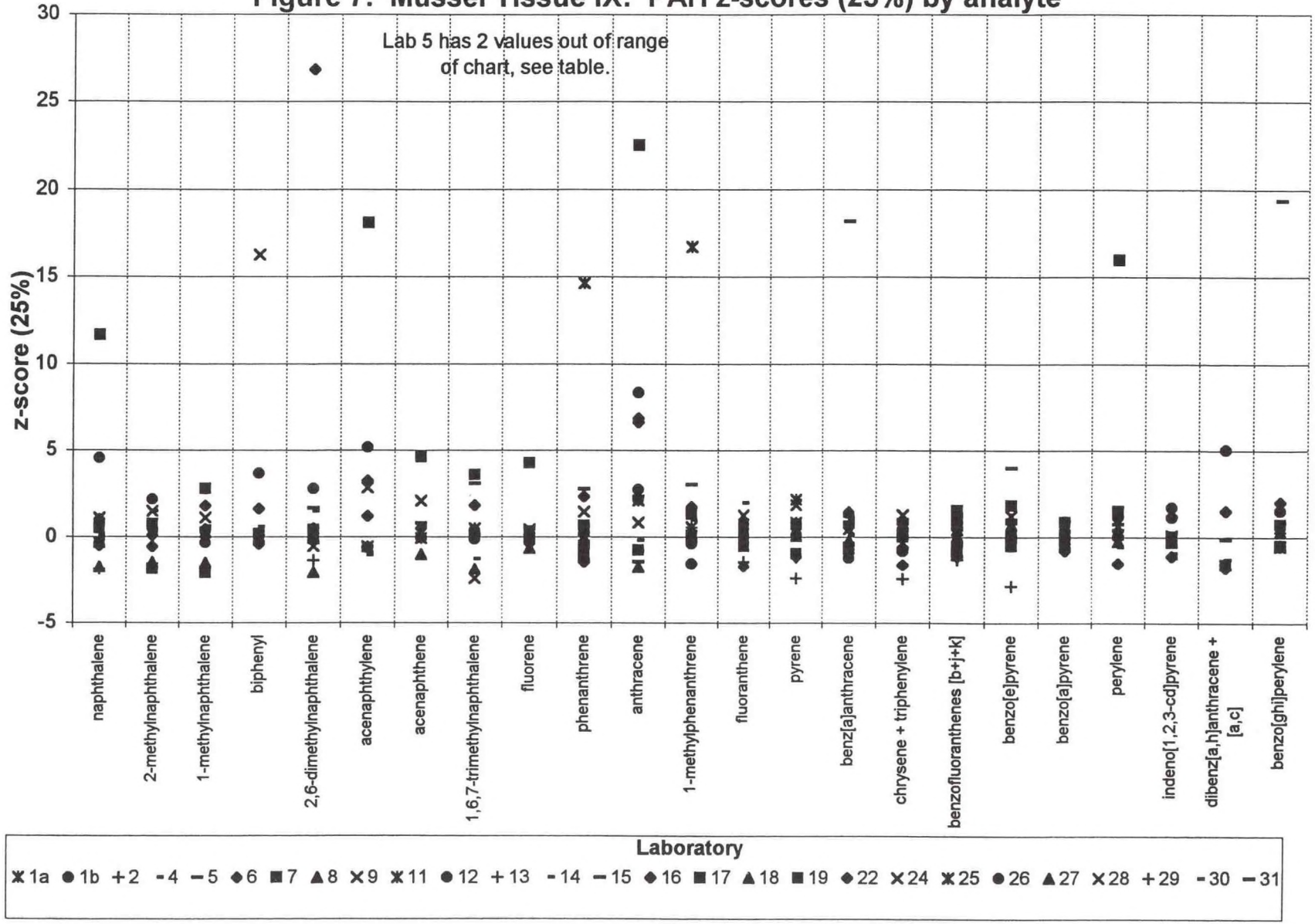


Figure 8. Mussel Tissue IX: Pesticide z-scores (25%) by analyte

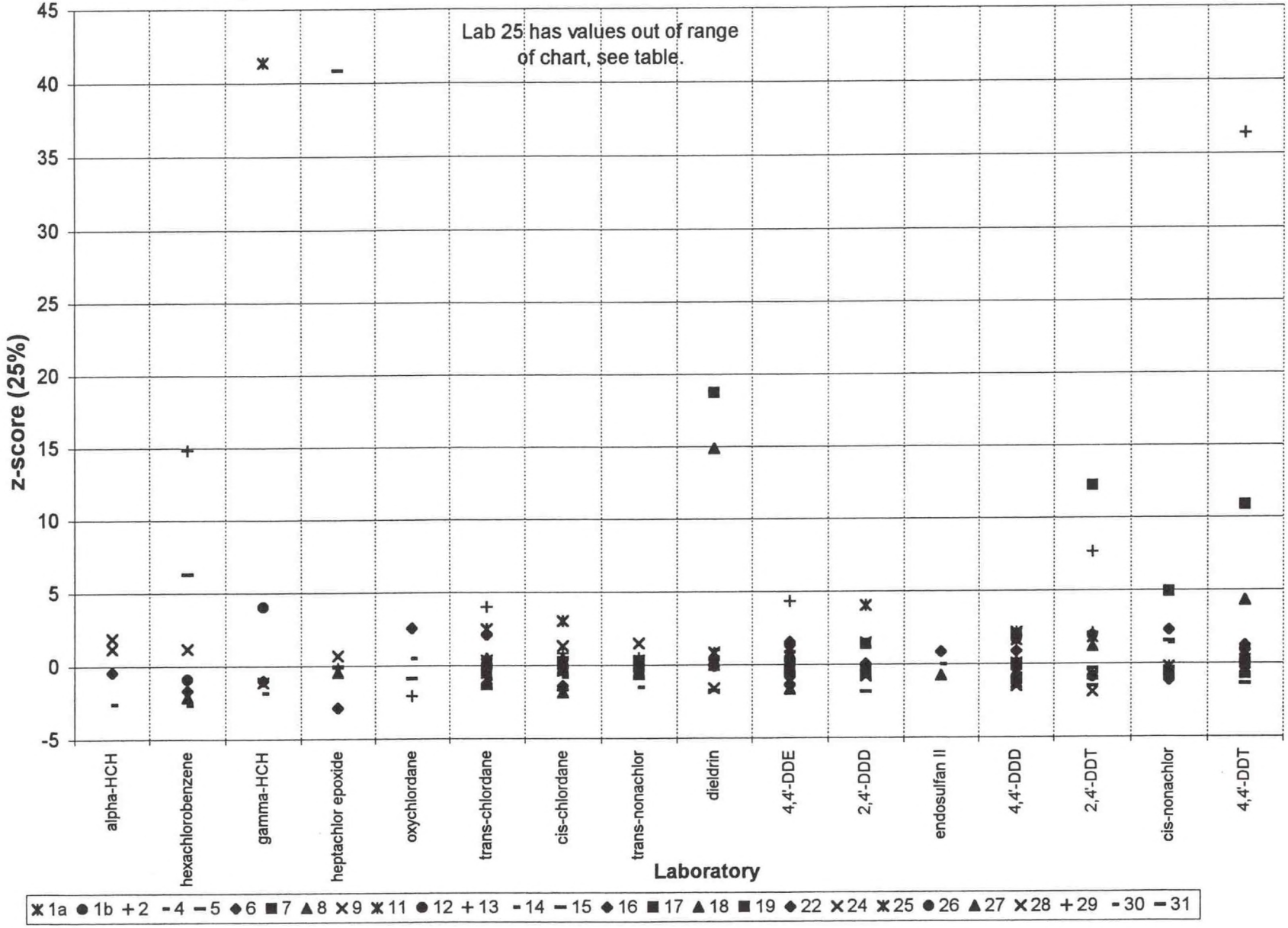


Figure 9. Mussel Tissue IX: PCB congener z-scores (25%) by analyte

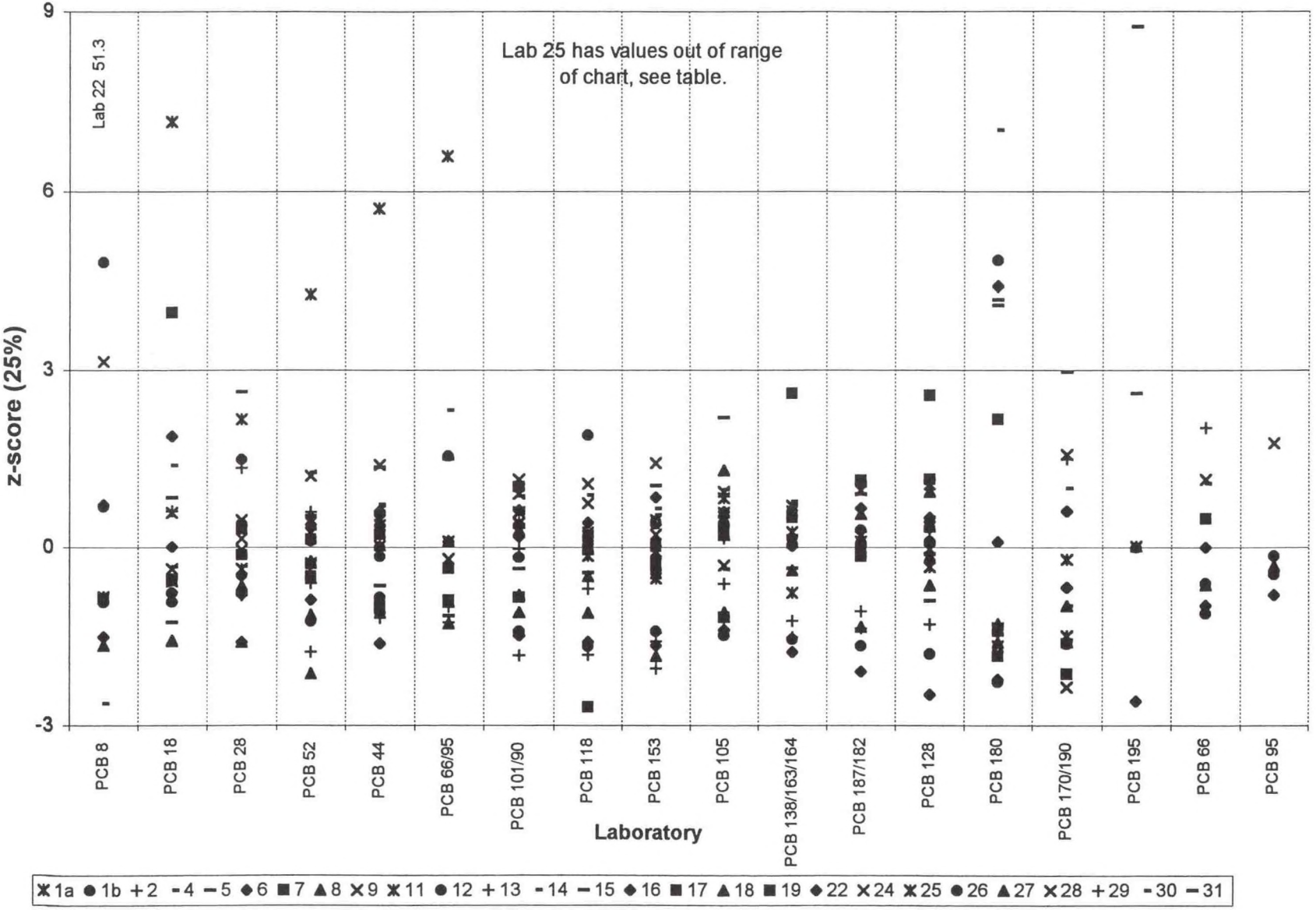


Figure 10. Marine Sediment VIII: PAH z-scores (25%) by analyte

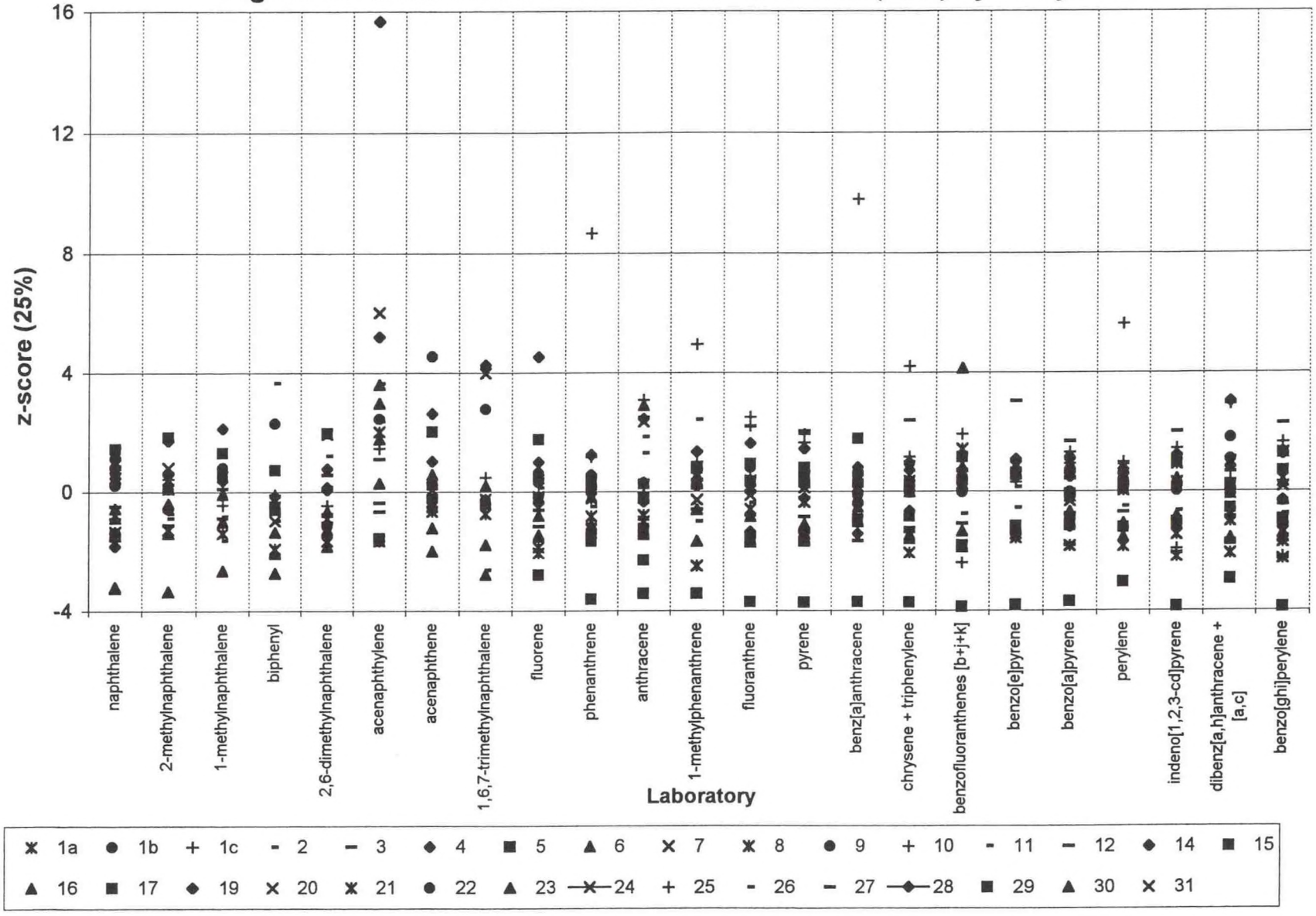
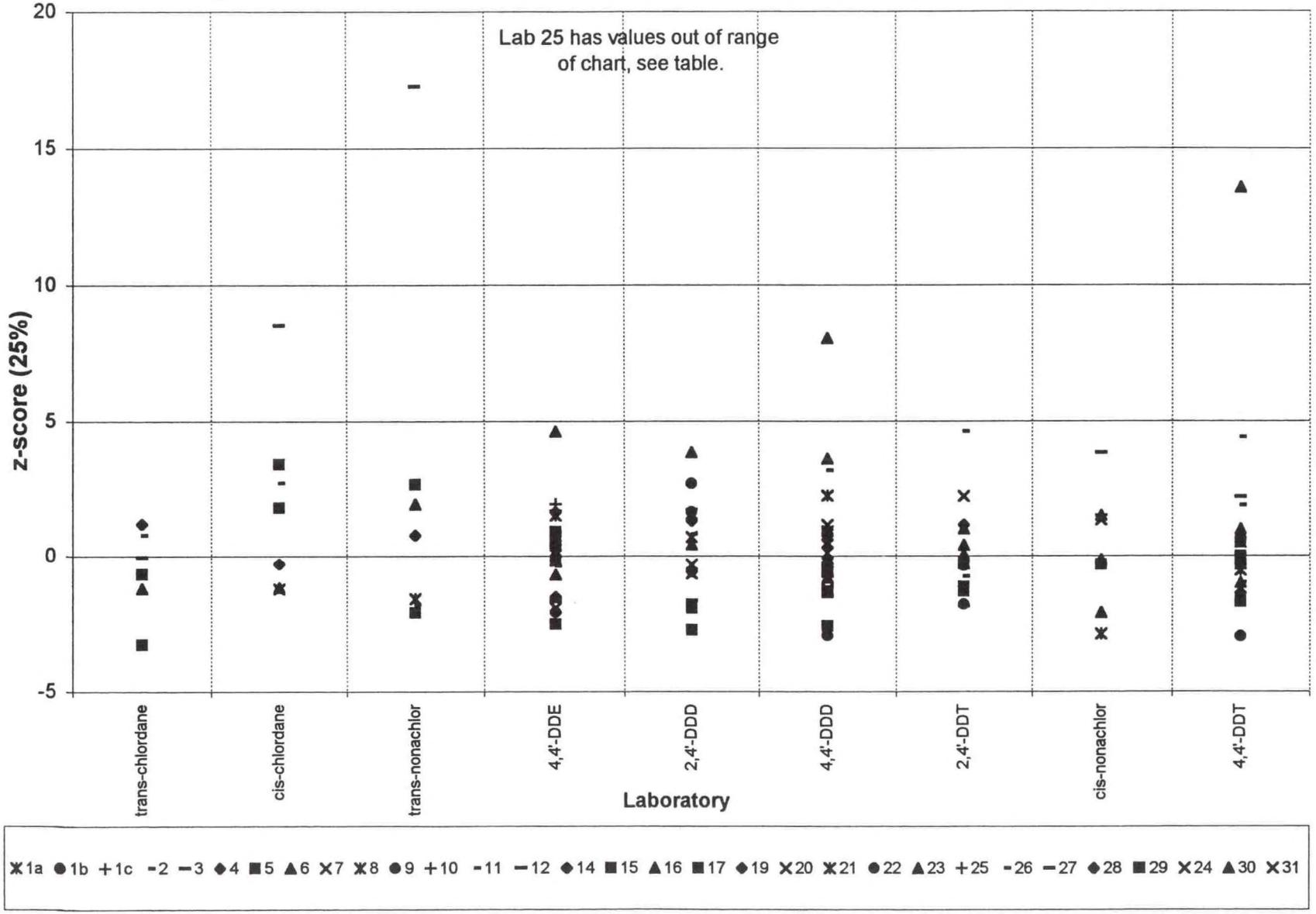


Figure 11. Marine Sediment VIII: Pesticide z-scores (25%) by analyte



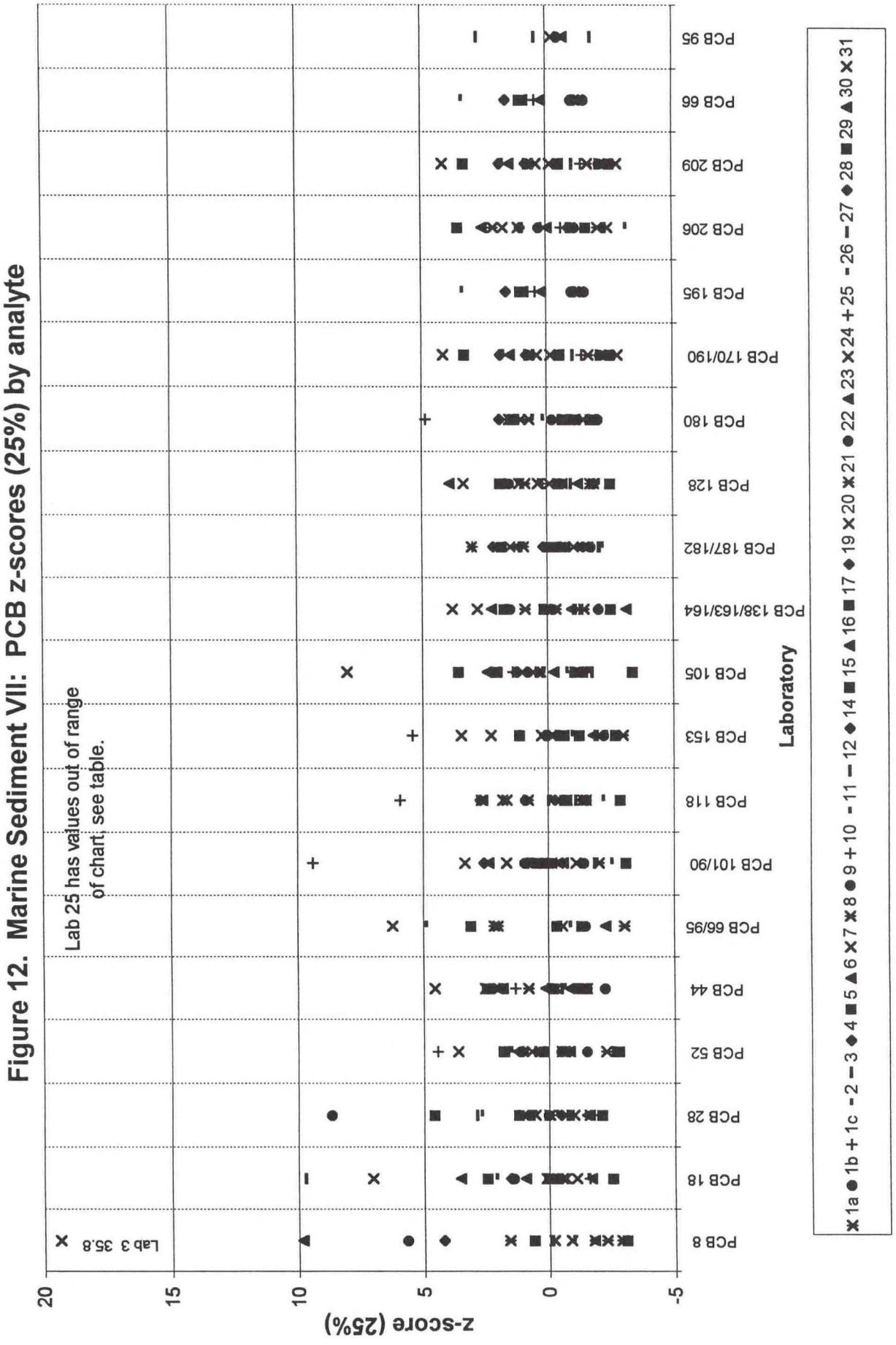


Figure 12. Marine Sediment VII: PCB z-scores (25%) by analyte
z-score (25%)
20
15
10
5
0
-5
Lab 3 35.8
Lab 25 has values out of range of chart; see table.
PCB 8
PCB 18
PCB 28
PCB 52
PCB 44
PCB 66/95
PCB 101/90
PCB 118
PCB 153
PCB 105
PCB 138/163/164
PCB 187/182
PCB 128
PCB 180
PCB 170/190
PCB 195
PCB 206
PCB 209
PCB 66
PCB 95
Laboratory
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31

Figure 13. Mussel Tissue IX: PAH z-scores (25%) by laboratory

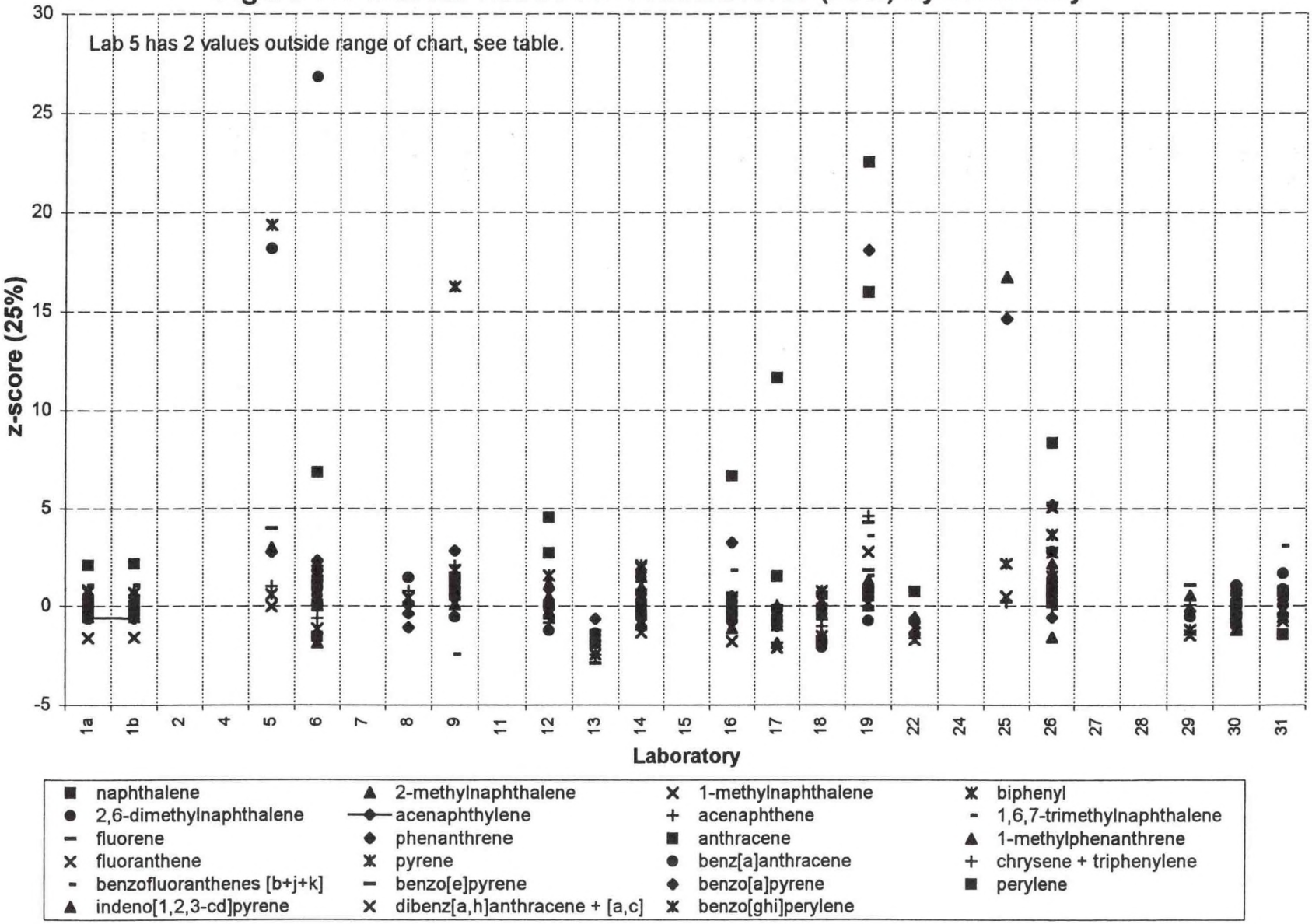
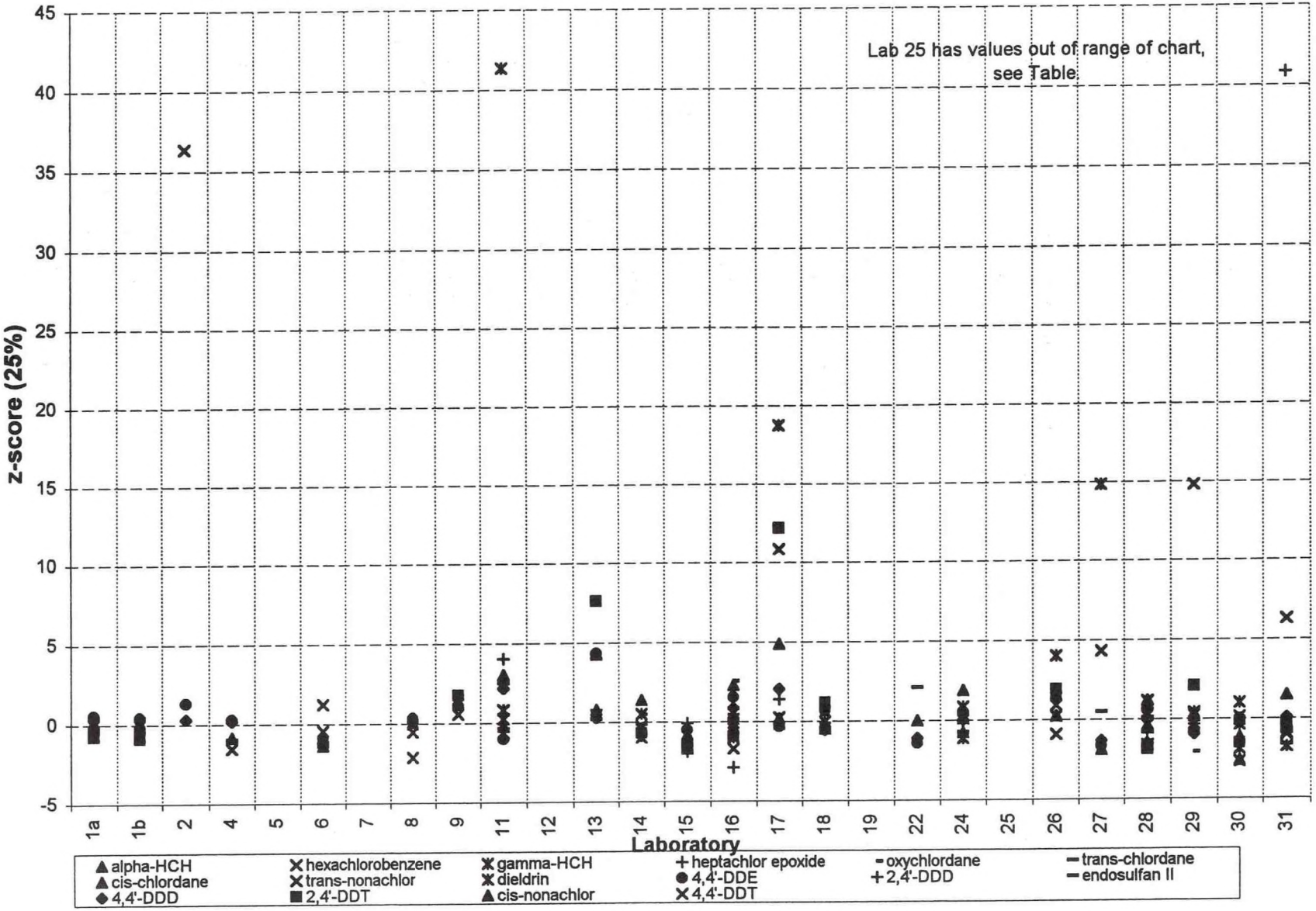


Figure 14. Mussel Tissue IX: Pesticide z-scores (25%) by laboratory



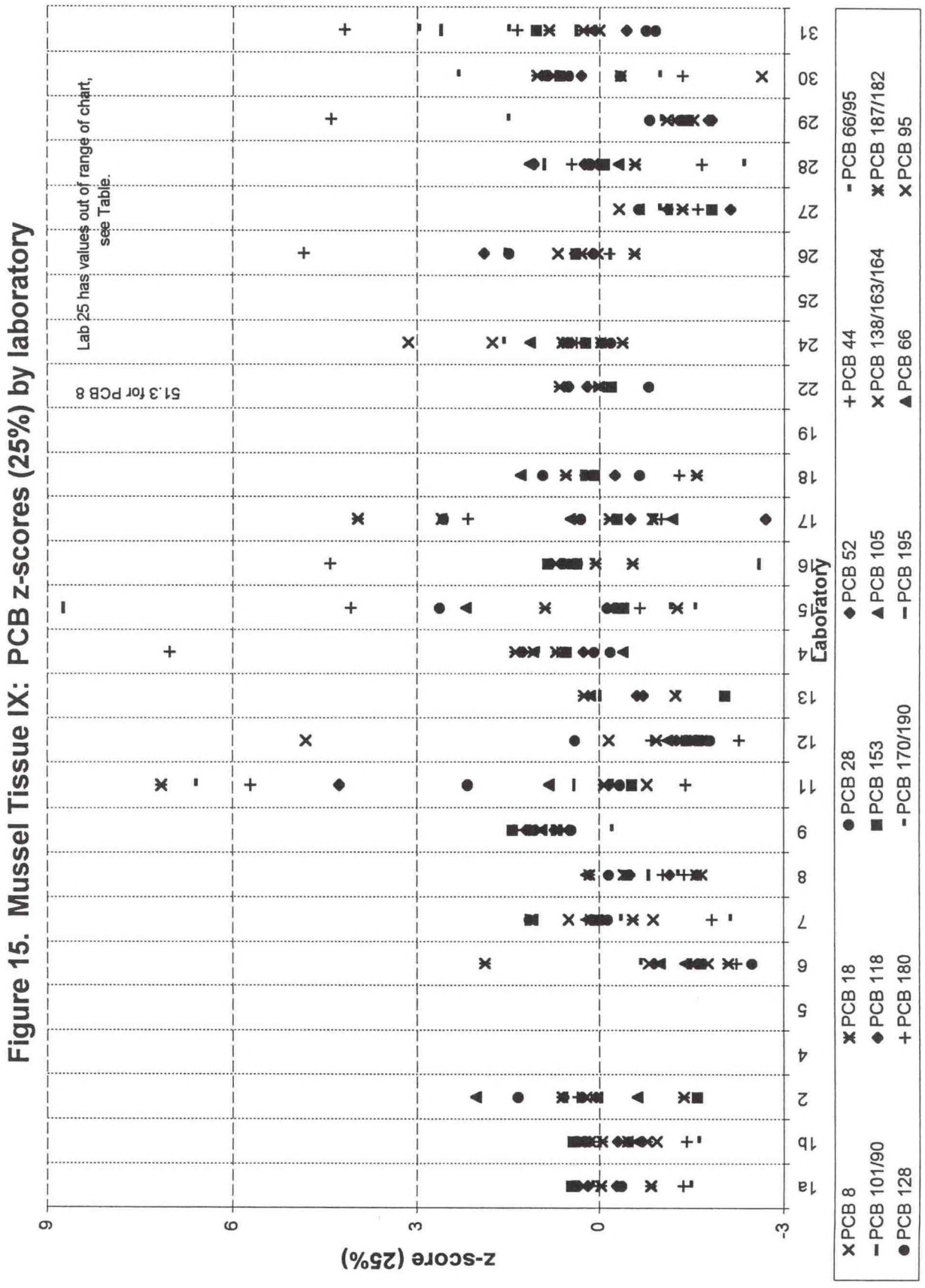


Figure 15. Mussel Tissue IX: PCB z-scores (25%) by laboratory
z-score (25%)
9
6
3
0
-3
Laboratory
1a
1b
2
4
5
6
7
8
9
11
12
13
4
5
6
17
18
19
22
24
25
26
27
28
29
30
31
Lab 25 has values out of range of chart, see Table.
51.3 for PCB 8
PCB 8
PCB 18
PCB 28
PCB 52
PCB 44
PCB 66/95
PCB 101/90
PCB 118
PCB 153
PCB 105
PCB 138/163/164
PCB 187/182
PCB 128
PCB 180
PCB 170/190
PCB 195
PCB 66
PCB 95

Figure 16. Marine Sediment VIII: PAH z-scores (25%) by laboratory

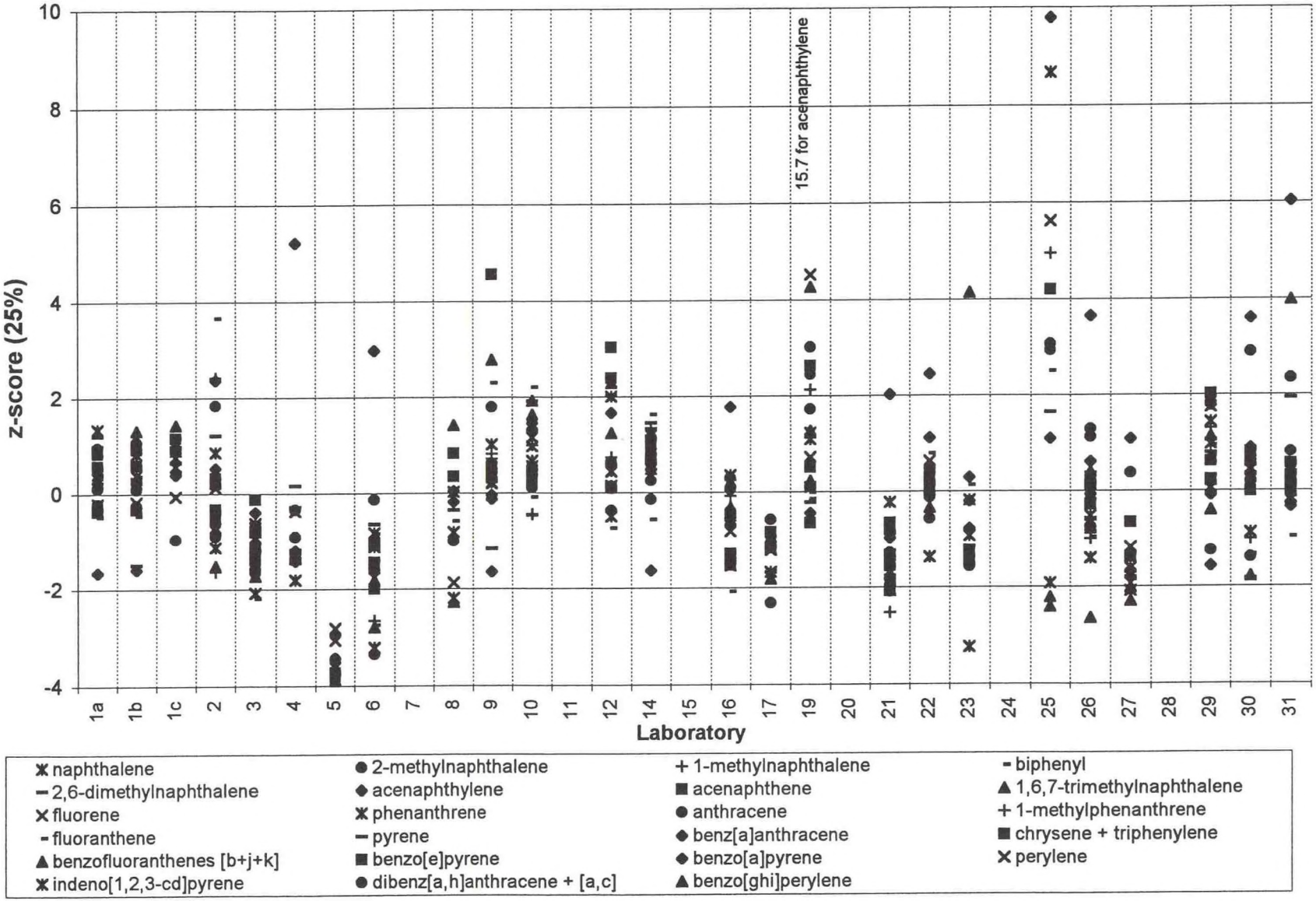


Figure 17. Marine Sediment VIII: Pesticide z-scores (25 %) by laboratory

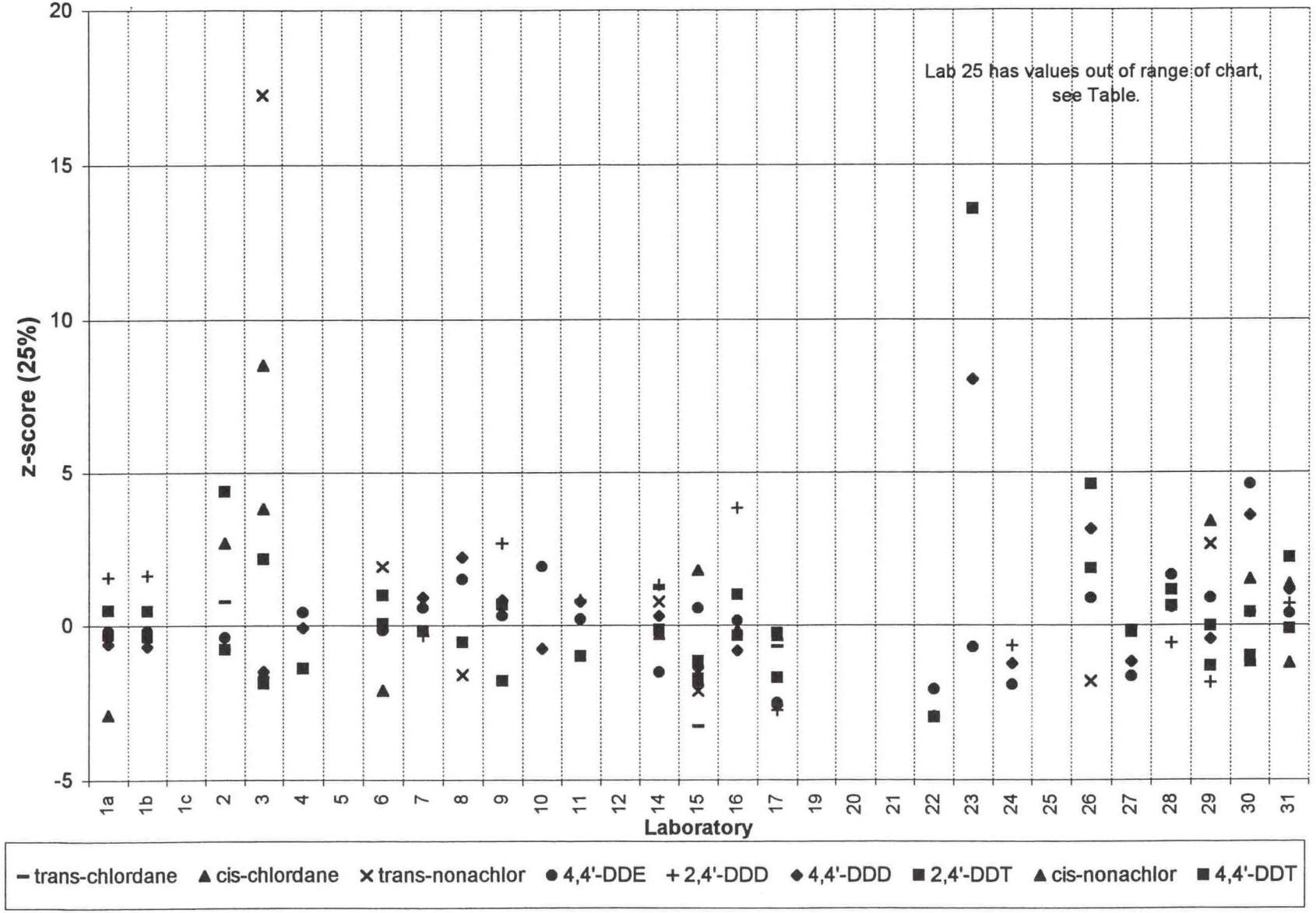
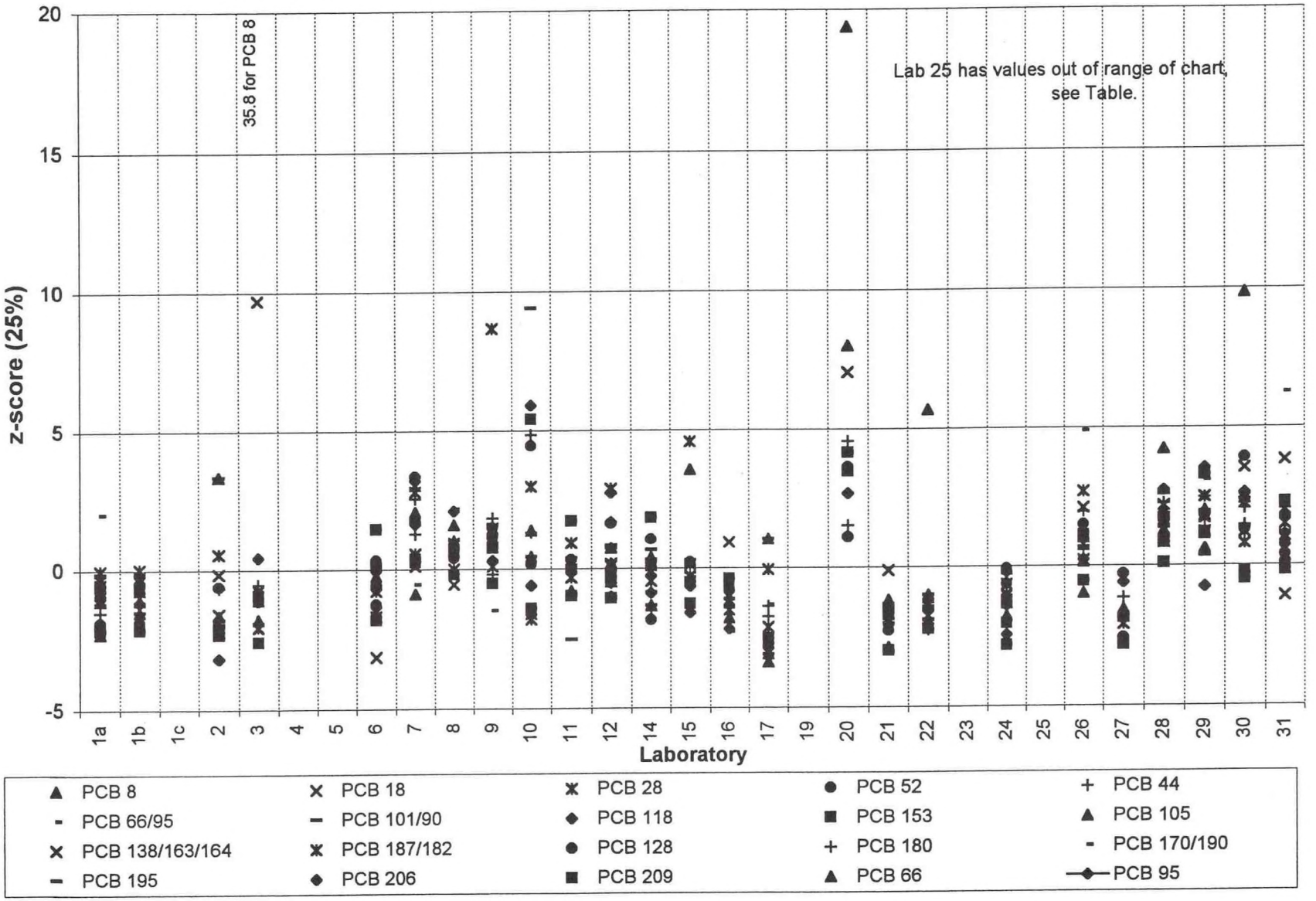


Figure 18. Marine Sediment VIII: PCB z-scores (25%) by laboratory



Appendix A: Description, Storage, Use, and Reporting Instructions for Mussel Tissue IX

NIST Intercomparison Exercise Program for
Organic Contaminants in the Marine Environment

NIST/NOAA-NS&T/EPA-EMAP QA Program

Intercomparison Exercise: Mussel Tissue IX Description of Materials and Instructions

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Intercomparison Exercise Materials:

QA98TIS9 (Mussel Tissue IX)

Each of the three bottles contains approximately 17 g (wet basis) of Mussel Tissue IX, a frozen mussel tissue homogenate material. The tissue is a cryogenically homogenized "fresh" material still containing its endogenous water. (It has not been freeze-dried.) The 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 bottle number as well as the above name.

In addition, three concurrent analyses of SRM 1974a, Organics in Mussel Tissue, are recommended. This frozen mussel tissue is also a cryogenically homogenized "fresh" material still containing its endogenous water. This material can be obtained from the NIST Standard Reference Materials Program ($417 for 3 bottles each containing approximately 15 g to 20 g [wet basis] of frozen tissue homogenate plus shipping) (phone: 301/975-6776; fax: 301-975-948-3730).

Storage of Materials:

Mussel Tissue IX and SRM 1974a. The tissue material should be stored in the dark at temperatures of -20 °C or lower. If allowed to thaw or if stored for extended periods at temperatures higher than -40°C, it will lose its powder-like form. This material has been stored at NIST at -80 °C and was shipped to you on dry ice. If only a portion of the contents of a jar is used, the 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 Mussel Tissue IX and SRM 1974a, using **your** laboratory's and/or program's analytical protocols, for the concentrations (wt/dry wt) of the 22 chlorinated pesticides, 18 polychlorinated biphenyl (PCB) congeners, and 23 polycyclic aromatic hydrocarbon (PAH)

compounds[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 in samples collected near the site of this collection were in the 1 to 500 ng/g dry weight range.

It is best if the Mussel Tissue IX samples and the SRM 1974a material are not allowed to thaw prior to the taking of samples for analysis; however, if the material has been even partially thawed, you should use the contents of the entire jar as a single sample as it is difficult to take representative samples from a jar once the material has thawed. After removing the material for analysis from the jars, the samples should be used without delay.

The percentage of water in the mussel materials should be determined so the results can be reported on a dry 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 tissue samples prior to analysis.

The amount of material used for each analysis should correspond to the amount of marine bivalve tissue (wet basis) you would typically analyze as prescribed in your protocols. You should analyze three replicate samples of Mussel Tissue IX and at least one, and more if possible, of SRM 1974a 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 Tissue IX and one sample of SRM 1974a 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 obtained when a laboratory places all three samples in the same extraction and cleanup batch and the resulting extracts are 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 Mussel Tissue IX and of the SRM 1974a. Report results in units of ng/g **dry** basis. 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 Mussel Tissue IX and SRM 1974a.

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 shown in Table 2. Please note at the bottom of your table of reported results if any of these listed coelutions are not applicable

---

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

to the data being reported by your laboratory and/or if other coelution qualifiers not listed are applicable to your data. Please note that any changes you make to the column or row headings **within** the tables will **not** be seen by the coordinators because only the table entries and comments at the bottom of the tables are automatically transferred to the exercise database.

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".

Since a number of participants expressed an interest in "total extractable organics" (TEO), this has been added to the reporting sheet for the tissues. The organizers realize that the method used to determine TEO will effect the value; therefore, please be specific in describing the method used.

The enclosed floppy diskette (DOS format) contains files, any of which you may utilize to report your data. The files TIS9.WK3 is in a LOTUS format, TIS9.XLS is in an EXCEL format, and TIS9.WQ1 is in a QuatroPro format. A text file TIS9.TXT is also provided. If you have any software/hardware conversion problems, please contact Michele Schantz. 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 either via diskette file or as an attached file via e-mail to Michele M. Schantz.

U. S. Postal Service:
Bldg. 222, Room B-208
National Inst. of Standards & Technol. (NIST)
Gaithersburg, MD 20899

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

Gaithersburg, MD 20899

E-mail:
michele.schantz@nist.gov

Further Information:

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

Phone: 301-975-3106
FAX: 301-977-0685

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
benzofluoranthenes [*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[b]
PCB 101 + PCB 90
PCB 138 + PCB 163 + PCB 164
PCB 187 + PCB 182 + PCB 159
PCB 170 + PCB 190

[b] Because PCB 66 and PCB 95 can now be separated by a significant number of participants, participants may report these as two separate concentrations or as the sum of PCBs 66 and 95.

Table 2. Diskette Data File Format (File: TIS9.*)

NIST Intercomparison Exercise Program for Organics in the Marine Environment
NIST/NOAA-NS&T/EPA-EMAP QA Program
Sample: QA98TIS9 - Mussel Tissue IX

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. DO NOT MOVE CELLS.

- 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: Tissue IX _____ g, WET basis SRM 1974a _____ g, WET basis

Method used for determining percentage water: _____

Were "wet" or "dry" samples extracted? Tissue IX _____ SRM 1974a _____

Extraction method: _____
Extraction solvent: _____
Extraction time: _____
Extraction - other: _____

Sample extract cleanup method: _____

nalytical 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					

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

PAH _____
Pesticides _____
PCB Congeners _____

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? _____

Percent recovery range:

PAH _____
Pesticides _____
PCB Congeners _____

A-9

Calibration Curve

	Points	Conc. Range	Analytes outside of calibration curve calibration 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 1974a analyses from those for Mussel Tissue IX 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 to percent.)

	Tissue IX (percent)	Tissue IX (percent)	Tissue IX (percent)	SRM 1974a (percent)	SRM 1974a (percent)	SRM 1974a (percent)
Water						

PAH ANALYSES	Tissue IX Batch A Sample 1	Tissue IX Batch B Sample 2	Tissue IX Batch C Sample 3	SRM 1974a Batch A Sample 1	SRM 1974a Batch B Sample 2	SRM 1974a Batch C Sample 3
Analyst (Initials)						
Date(s) of measurements (m/d/y)						
Sample Jar number						

	Tissue IX Sample 1 (ng/g dry wt)	Tissue IX Sample 2 (ng/g dry wt)	Tissue IX Sample 3 (ng/g dry wt)	SRM 1974a Sample 1 (ng/g dry wt)	SRM 1974a Sample 2 (ng/g dry wt)	SRM 1974a 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

	Tissue IX Batch A Sample 1	Tissue IX Batch B Sample 2	Tissue IX Batch C Sample 3	SRM 1974a Batch A Sample 1	SRM 1974a Batch B Sample 2	SRM 1974a Batch C Sample 3
Analyst (Initials)						
Date(s) of measurements (m/d/y)						
Sample Jar number						

	Tissue IX Sample 1 (ng/g dry wt)	Tissue IX Sample 2 (ng/g dry wt)	Tissue IX Sample 3 (ng/g dry wt)	SRM 1974a Sample 1 (ng/g dry wt)	SRM 1974a Sample 2 (ng/g dry wt)	SRM 1974a 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	Tissue IX Batch A Sample 1	Tissue IX Batch B Sample 2	Tissue IX Batch C Sample 3	SRM 1974a Batch A Sample 1	SRM 1974a Batch B Sample 2	SRM 1974a Batch C Sample 3
Analyst (Initials)						
Date(s) of measurements (m/d/y)						
Sample Jar number						

	Tissue IX Sample 1 (ng/g dry wt)	Tissue IX Sample 2 (ng/g dry wt)	Tissue IX Sample 3 (ng/g dry wt)	SRM 1974a Sample 1 (ng/g dry wt)	SRM 1974a Sample 2 (ng/g dry wt)	SRM 1974a 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						
***PCB 66**						
***PCB 95**						

*** You may report PCB 66/PCB 95 as a sum and/or as individual congeners.**

(Any additional data/information should be added here, including method used for and the values of total extractable organics if done.)

Appendix B: Description, Storage, Use, and Reporting Instructions for Marine Sediment VIII

Intercomparison Exercise: Marine Sediment VIII Description of Materials and Instructions

Intercomparison Exercise Materials:

QA98SED8 (Marine Sediment VIII)

Each of the three jars contains 21 g (wet basis) of Marine Sediment VIII. This wetted sediment was prepared from material that was collected from a site on Vancouver Island and then freeze-dried, ground sieved, 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. This material can be obtained from the NIST Standard Reference Materials Program ($402/50 g (dry basis) (phone: 301/975-6776; fax: 301-975-948-3730).

Storage of Materials:

Marine Sediment Material. This Marine Sediment VIII 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 VIII and SRM 1941a, using **your** laboratory's and/or program's analytical protocols, for the concentrations (mass/mass [dry basis]) 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.

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

[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.

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

You should analyze three samples of Marine Sediment VIII 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 VIII 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 obtained when a laboratory places all three samples in the same extraction and cleanup batch and the resulting extracts are 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 VIII and of SRM 1941a. Report results in units of ng/g **dry** basis. 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 VIII.

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. Please note that any changes you make to the column or row headings **within** the tables will **not** be seen by the coordinators because only the table entries and comments at the bottom of the tables are automatically transferred to the exercise database.

We prefer that concentration values 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 file SED8.WK3 is in a LOTUS format, SED8.XLS is in an EXCEL format, and SED8.WQ1 is in a QuatroPro format. A text file SED8.TXT is also provided. If you have any software/hardware conversion problems, please contact Michele Schantz. 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 and enter them as "numbers" not as "labels". 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 either via diskette file or as an attached file via e-mail to Michele M. Schantz.

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Bldg. 222, Room B-208
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Gaithersburg, MD 20899

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

E-mail:
michele.schantz@nist.gov

Further Information:

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

Phone: (301)975-3106
FAX: (301)977-0685

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
benzofluoranthenes [*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[b]
PCB 101 + PCB 90
PCB 138 + PCB 163 + PCB 164
PCB 187 + PCB 182 + PCB 159
PCB 170 + PCB 190

[b] Because PCB 66 and PCB 95 can now be separated by a significant number of participants, participants may report these as two separate concentrations or as the sum of PCBs 66 and 95.

Table 2. Diskette Data File Format (File: SED8.*)

NIST Intercomparison Exercise Program for Organics in the Marine Environment
NIST/NOAA-NS&T/EPA-EMAP QA Program
Sample: QA98SED8 - Marine Sediment VIII

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. DO NOT MOVE CELLS.

- 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 VII _____ g, wet basis; SRM 1941a _____ g, dry basis

Method used for determining percentage water: _____

Were "wet" or "dry" samples extracted? Sediment VII _____ 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? _____

Percent recovery range:

PAH _____
Pesticides _____
PCB Congeners _____

Calibration Curve

	Points	Conc. Range	Analytes outside of calibration curve calibration 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 VIII 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 to percent.)

	Sediment VIII (percent)	Sediment VIII (percent)	Sediment VIII (percent)
Water			

PAH ANALYSES	Sediment VIII Batch A Sample 1	Sediment VIII Batch B Sample 2	Sediment VIII 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 VIII Sample 1 (ng/g dry wt)	Sediment VIII Sample 2 (ng/g dry wt)	Sediment VIII 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 VIII Batch A Sample 1	Sediment VIII Batch B Sample 2	Sediment VIII 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 VIII Sample 1 (ng/g dry wt)	Sediment VIII Sample 2 (ng/g dry wt)	Sediment VIII 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 VIII Batch A Sample 1	Sediment VIII Batch B Sample 2	Sediment VIII 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 VIII Sample 1 (ng/g dry wt)	Sediment VIII Sample 2 (ng/g dry wt)	Sediment VIII 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						
***PCB 66**						
***PCB 95**						

*** You may report PCB 66/PCB 95 as a sum and/or as individual congeners.**

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

Appendix C: Results by Laboratory, Mussel Tissue IX

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 1a
Reporting Date: 10/30/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 8/25/98 S 1	Mussel IX 8/25/98 S 2	Mussel IX 8/25/98 S 3	SRM 1974a, ng/g dry 8/25/98 S 1	SRM 1974a 8/25/98 S 2	SRM 1974a 8/25/98 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	Mussel IX z-score (s)	Mussel IX p-score (15%)
naphthalene	22.3	22.8	25.4	21.5	22.4	22.4	23.5	7.1	22.1	2.4	25.7	5.2	**23.5**	**4.4**	-0.3	-0.4	0.5
2-methylnaphthalene	38.9	39.4	38.8	10.0	8.81	9.86	39.0	0.8	9.55	6.77	33.1	8.2	10.2	1.5	0.7	0.5	0.1
1-methylnaphthalene	25.1	24.8	24.3	5.22	5.18	5.07	24.7	1.6	5.16	1.51	23.3	6.1	5.3	1.8	0.3	0.2	0.1
biphenyl	12.2	12.6	11.8	5.21	4.99	4.92	12.2	3.3	5.04	3.00	12.2	1.0	5.11	0.33	0.0	0.0	0.2
2,6-dimethylnaphthalene	38.9	37.4	37.1	3.45	3.33	3.47	37.8	2.6	3.42	2.22	38.8	9.5	5.30	1.80	-0.1	-0.1	0.2
acenaphthylene	6.66	6.87	6.71	5.55	5.67	5.24	6.75	1.63	5.49	4.04	7.87	3.92	5.25	0.38	-0.6	-0.4	0.1
acenaphthene	9.12	9.07	9.45	2.96	3.11	3.14	9.21	2.24	3.07	3.14	9.46	1.31	3.15	0.26	-0.1	-0.2	0.1
1,6,7-trimethylnaphthalene	38.6	33.4	32.7	5.11	4.98	4.67	34.9	9.2	4.92	4.59	31.3	10.4	6.60	2.00	0.5	0.3	0.6
fluorene	22.1	21.7	22.6	5.92	5.67	5.77	22.1	2.0	5.79	2.17	21.4	1.4	5.72	0.91	0.1	0.4	0.1
phenanthrene	133	136	137	21.7	20.8	21.3	135	2	21.3	2.1	126	13	**22.2**	**2.4**	0.3	0.4	0.1
anthracene	16.5	16.6	18.4	6.66	6.87	6.94	17.2	6.2	6.82	2.14	11.3	3.6	**6.1**	**1.7**	2.1	1.4	0.4
1-methylphenanthrene	60.5	61.7	62.1	10.6	11.0	10.1	61.4	1.4	10.6	4.3	60.2	8.2	10.5	4.8	0.1	0.1	0.1
fluoranthene	388	381	371	161	154	152	380	2	156	3	322	34	**163.7**	**9.1**	0.7	1.0	0.1
pyrene	274	268	266	144	151	150	269	2	148	3	224	36	**151.6**	**6.6**	0.8	0.7	0.1
benz[a]anthracene	63.5	63.6	67.4	31.4	33.4	32.1	64.8	3.4	32.3	3.1	77.5	9.2	**32.5**	**4.7**	-0.7	-0.8	0.2
chrysene + triphenylene	206	198	211	92.4	95.7	89.7	205	3	92.6	3.2	196	26	**94.9**	**8.2**	0.2	0.2	0.2
benzofluoranthenes [b+j+k]	178	186	188	85.6	86.1	82.1	184	3	84.6	2.6	146	17	87.1	6.2	1.1	1.3	0.2
benzo[e]pyrene	101	99.8	105	82.6	83.6	84.7	102	3	83.6	1.3	99.5	13.1	**84.0**	**1.9**	0.1	0.1	0.2
benzo[a]pyrene	23.5	22.8	23.4	16.4	15.1	15.5	23.2	1.6	15.7	4.2	25.9	2.4	**15.63**	**0.65**	-0.4	-0.8	0.1
perylene	8.84	7.98	8.48	7.44	6.98	7.24	8.43	5.12	7.22	3.19	8.13	1.21	**7.68**	**0.27**	0.1	0.2	0.3
indeno[1,2,3-cd]pyrene	18.2	17.5	17.2	13.6	13.3	14.1	17.6	2.9	13.7	3.0	18.0	3.0	**14.2**	**2.8**	-0.1	-0.1	0.2
dibenz[a,h]anthracene + [a,c]	2.55	2.68	2.61	3.11	2.98	3.04	2.61	2.49	3.04	2.14	4.36	2.12	3.00	0.20	-1.6	-0.7	0.2
benzo[ghi]perylene	18.1	18.4	18.6	21.1	22.2	22.1	18.4	1.4	21.8	2.8	21.2	3.7	**22.0**	**2.2**	-0.5	-0.6	0.1

Laboratory: 1a
PAH in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 1a
Reporting Date: 10/30/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	9/25/98 S 1	9/2/98 S 2	9/11/98 S 3	9/25/98 S 1	9/2/98 S 2	9/11/98 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	1.21	1.22	1.09	<2	NA	1.17	6.17	1.62	1.28	no target				
hexachlorobenzene	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	1.08	0.95	no target				
gamma-HCH	<2	<2	<2	<1	<1	<1	<2	NA	<1	NA	1.26	1.36	no target				
heptachlor	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<5		no target				
aldrin	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<3		no target				
heptachlor epoxide	<2	<2	<2	<1	<1	<1	<2	NA	<1	NA	2.25	0.81	no target				
oxychlordane	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	3.48	2.75	no target				
trans-chlordane	10.1	11.4	10.6	15.5	15.4	16.4	10.7	6.1	15.8	3.5	12.3	2.0	**16.6**	**1.7**	-0.5	-0.6	0.4
2,4'-DDE	<2	<2	<2	4.98	4.44	4.47	<2	NA	4.63	6.55	<5		5.26	0.27			
endosulfan I	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		no target				
cis-chlordane	15.4	14.6	15.4	16.5	16.1	15.7	15.1	3.1	16.1	2.5	14.7	1.8	**17.2**	**2.8**	0.1	0.1	0.2
trans-nonachlor	14.1	13.8	13.5	18.1	17.7	17.2	13.8	2.2	17.7	2.6	13.6	1.0	**18.0**	**3.6**	0.0	0.1	0.1
dieldrin	5.55	5.45	5.46	6.12	6.42	6.27	5.49	1.00	6.27	2.39	5.49	0.85	6.2	1.3	0.0	0.0	0.1
4,4'-DDE	38.9	38.4	38.7	52.1	50.4	51.9	38.7	0.7	51.5	1.8	34.0	3.8	**51.2**	**5.5**	0.5	0.6	0.0
2,4'-DDD	9.98	10.4	10.1	13.3	14.1	13.7	10.2	2.1	13.7	2.9	11.5	2.6	13.7	2.8	-0.5	-0.3	0.1
endrin	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		no target				
endosulfan II	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	2.73	1.34	no target				
4,4'-DDD	27.8	29.4	28.4	42.2	41.7	42.8	28.5	2.8	42.2	1.3	29.3	3.6	**43.0**	**6.3**	-0.1	-0.1	0.2
2,4'-DDT	6.06	5.97	6.17	7.77	7.84	7.24	6.07	1.65	7.62	4.31	7.51	1.94	8.5	1.9	-0.8	-0.6	0.1
cis-nonachlor	5.33	5.41	5.14	6.66	6.81	6.74	5.29	2.62	6.74	1.11	6.27	1.38	**6.84**	**0.90**	-0.6	-0.5	0.2
4,4'-DDT	9.88	9.99	9.45	3.77	3.61	3.81	9.77	2.92	3.73	2.84	9.30	0.99	**3.91**	**0.59**	0.2	0.3	0.2
mirex	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	1.75	0.62	no target				

Laboratory: 1a
Pesticides in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98TIS9 - Mussel Tissue IX (data reported as if three figures were significant)

Laboratory No.: 1a

Reporting Date: 10/30/98

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 8/25/98 S 1	S 2	S 3	SRM 1974a, ng/g dry 8/25/98 S 1	S 2	S 3	Mussel IX lab mean ng/g dry	lab %RSD	SRM 1974a lab mean ng/g dry	lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
PCB 8	3.33	3.14	3.41	3.45	3.26	3.33	3.29	4.21	3.35	2.87	4.18	1.56	5.8	1.2	-0.8	-0.4	0.3
PCB 18	9.99	10.4	10.1	29.9	30.4	31.4	10.2	2.1	30.6	2.5	12.9	2.3	33	11	-0.8	-0.6	0.1
PCB 28	39.8	35.7	37.1	82.4	81.7	81.6	37.5	5.6	81.9	0.5	41.4	4.8	79	15	-0.4	-0.4	0.4
PCB 52	59.1	58.1	54.9	122	116	114	57.4	3.8	117	4	61.8	5.2	**115**	**11**	-0.3	-0.4	0.3
PCB 44	40.5	39.7	41.4	72.2	71.6	71.0	40.5	2.1	71.6	0.8	40.3	4.1	**72.7**	**7.4**	0.0	0.0	0.1
PCB 66/95	81.8	83.4	82.4	177	169	171	82.5	1.0	172	2	80.6	16.8	**184**	**21**	0.1	0.1	0.1
PCB 101/90	101	105	99.7	122	119	127	102	3	123	3	92.2	8.9	**128.3**	**9.7**	0.4	0.5	0.2
PCB 118	100	103	99.1	129	133	131	101	2	131	2	96.1	9.7	**130.8**	**3.6**	0.2	0.2	0.1
PCB 153	129	123	125	149	139	145	126	2	144	3	113	11	**145.2**	**7.6**	0.5	0.5	0.2
PCB 105	39.6	39.8	41.4	52.2	49.8	51.7	40.3	2.5	51.2	2.5	36.2	3.5	**53.0**	**3.4**	0.5	0.5	0.2
PCB 138/163/164	106	108	111	129	137	134	108	2	133	3	102	11	**133.5**	**9.5**	0.3	0.3	0.2
PCB 187/182	28.1	26.7	27.1	33.7	32.7	34.7	27.3	2.6	33.7	3.0	27.5	2.8	**34.0**	**2.3**	0.0	0.0	0.2
PCB 128	17.6	16.9	18.1	22.1	21.7	22.7	17.5	3.4	22.2	2.3	16.1	2.1	**22.0**	**3.4**	0.4	0.3	0.2
PCB 180	10.1	10.6	9.87	17.7	16.9	16.7	10.2	3.7	17.1	3.1	15.5	5.9	**17.1**	**3.8**	-1.4	-0.5	0.2
PCB 170/190	1.88	1.97	1.78	4.46	4.67	4.71	1.88	5.06	4.61	2.91	3.01	0.72	**5.5**	**1.1**	-1.5	-1.0	0.3
PCB 195	1.11	0.987	1.04	<1	<1	<1	1.05	5.90	<1	NA	1.04	0.69	No Target		0.0	0.0	0.4
PCB 206	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		No Target				
PCB 209	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		No Target				
PCB 66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95	* NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 1a
PCBs in Mussel IX

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

Water in Mussel IX

	Mussel IX, % S 1	S 2	S 3	SRM 1974a, % S 1	S 2	S 3	Mussel IX, % mean, %	%RSD	SRM 1974a, % mean, %	%RSD	Mussel IX, % assigned	95% CL	SRM 1974a, % target	95% CL	Mussel IX, % z (25%)	z (s)	p (15%)
water	91.5	91.7	91.8	88.6	88.7	88.6	91.7	0.2	88.6	0.1	91.4	0.0	**88.6**	**0.1**	0.0	0.2	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 1b
Reporting Date: 10/30/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Material reference values: Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Performance scores[a]: Mussel IX		
	8/25/98 S 1	8/25/98 S 2	8/25/98 S 3	8/25/98 S 1	8/25/98 S 2	8/25/98 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	23.2	23.4	22.4	20.6	22.4	21.7	23.0	2.3	21.6	4.2	25.7	5.2	**23.5**	**4.4**	-0.4	-0.4	0.2
2-methylnaphthalene	37.9	38.9	39.1	8.78	9.00	9.45	38.6	1.7	9.08	3.76	33.1	8.2	10.2	1.5	0.7	0.5	0.1
1-methylnaphthalene	24.4	26.1	24.7	5.35	5.22	5.07	25.1	3.6	5.21	2.69	23.3	6.1	5.3	1.8	0.3	0.2	0.2
biphenyl	12.1	12.6	11.7	5.33	4.82	4.87	12.1	3.7	5.01	5.62	12.2	1.0	5.11	0.33	0.0	-0.1	0.2
2,6-dimethylnaphthalene	36.9	38.4	38.7	3.64	3.42	3.57	38.0	2.5	3.54	3.17	38.8	9.5	5.30	1.80	-0.1	-0.1	0.2
acenaphthylene	6.54	6.67	6.66	5.68	5.77	5.14	6.62	1.09	5.53	6.16	7.87	3.92	5.25	0.38	-0.6	-0.4	0.1
acenaphthene	9.07	9.44	9.47	2.99	3.04	3.24	9.33	2.39	3.09	4.28	9.46	1.31	3.15	0.26	-0.1	-0.1	0.2
1,6,7-trimethylnaphthalene	35.4	33.6	33.0	5.06	4.98	4.77	34.0	3.7	4.94	3.03	31.3	10.4	6.6	2.0	0.3	0.2	0.2
fluorene	21.9	22.6	22.1	5.69	5.87	6.11	22.2	1.6	5.89	3.58	21.4	1.4	5.72	0.91	0.1	0.4	0.1
phenanthrene	129	137	127	20.9	21.7	21.2	131	4	21.3	1.9	126	13	**22.2**	**2.4**	0.2	0.2	0.3
anthracene	17.2	16.9	18.1	6.68	6.91	6.87	17.4	3.6	6.82	1.80	11.3	3.6	**6.1**	**1.7**	2.2	1.4	0.2
1-methylphenanthrene	62.2	61.8	61.4	11.4	10.8	10.4	61.8	0.6	10.9	4.6	60.2	8.2	10.5	4.8	0.1	0.1	0.0
fluoranthene	378	364	386	155	164	162	376	3	160	3	322	34	**163.7**	**9.1**	0.7	1.0	0.2
pyrene	264	267	254	135	152	147	262	3	145	6	224	36	**151.6**	**6.6**	0.7	0.6	0.2
benz[a]anthracene	66.2	64.7	66.7	32.2	34.4	33.4	65.9	1.6	33.3	3.3	77.5	9.2	**32.5**	**4.7**	-0.6	-0.8	0.1
chrysene + triphenylene	199	217	212	89.2	92.4	91.1	209	4	90.9	1.8	196	26	**94.9**	**8.2**	0.3	0.3	0.3
benzofluoranthenes [b+j+k]	181	187	183	84.6	86.4	83.3	184	2	84.8	1.8	146	17	87.1	6.2	1.0	1.2	0.1
benzo[e]pyrene	98.2	98.1	104	81.6	82.6	85.7	100	3	83.3	2.6	99.5	13.1	**84.0**	**1.9**	0.0	0.0	0.2
benzo[a]pyrene	22.3	23.4	23.4	15.7	16.9	15.7	23.0	2.8	16.1	4.3	25.9	2.4	**15.63**	**0.65**	-0.4	-0.8	0.2
perylene	8.66	7.85	7.99	7.32	6.87	7.15	8.17	5.30	7.11	3.19	8.13	1.21	**7.68**	**0.27**	0.0	0.0	0.4
indeno[1,2,3-cd]pyrene	17.9	18.4	18.1	13.2	13.1	14.6	18.1	1.4	13.6	6.2	18.0	3.0	**14.2**	**2.8**	0.0	0.0	0.1
dibenz[a,h]anthracene + [a,c]	2.62	2.58	2.67	3.01	3.17	3.14	2.62	1.72	3.11	2.74	4.36	2.12	3.00	0.20	-1.6	-0.7	0.1
benzo[ghi]perylene	17.9	18.3	18.9	20.3	22.6	22.0	18.4	2.7	21.6	5.5	21.2	3.7	**22.0**	**2.2**	-0.5	-0.6	0.2

Laboratory: 1b
PAH in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX (data reported as if three figures were significant)

Laboratory No.: 1b
Reporting Date: 10/30/98

PESTICIDES	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	8/25/98 S 1	8/2/98 S 2	8/11/98 S 3	8/25/98 S 1	8/2/98 S 2	8/11/98 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	1.11	1.30	1.12	<2	NA	1.18	9.1	1.62	1.28	no target				
hexachlorobenzene	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	1.08	0.95	no target				
gamma-HCH	<2	<2	<2	<1	<1	<1	<2	NA	<1	NA	1.26	1.36	no target				
heptachlor	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<5		no target				
aldrin	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<3		no target				
heptachlor epoxide	<2	<2	<2	<1	<1	<1	<2	NA	<1	NA	2.25	0.81	no target				
oxychlordane	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	3.48	2.75	no target				
trans-chlordane	9.99	11.2	10.9	14.4	15.4	16.1	10.7	5.9	15.3	5.6	12.3	2.0	**16.6**	**1.7**	-0.5	-0.6	0.4
2,4'-DDE	<2	<2	<2	5.01	4.68	4.62	<2	NA	4.77	4.4	<5		5.26	0.27			
endosulfan I	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		no target				
cis-chlordane	15.5	14.9	15.2	16.6	15.9	15.5	15.2	2.0	16.0	3.5	14.7	1.8	**17.2**	**2.8**	0.1	0.1	0.1
trans-nonachlor	13.9	14.8	13.3	17.9	16.9	17.4	14.0	5.4	17.4	2.9	13.6	1.0	**18.0**	**3.6**	0.1	0.2	0.4
dieldrin	5.37	5.54	5.41	6.33	6.49	6.10	5.44	1.6	6.31	3.1	5.49	0.85	6.2	1.3	0.0	0.0	0.1
4,4'-DDE	37.7	38.1	37.4	50.3	51.9	52.4	37.7	0.9	51.5	2.1	34.0	3.8	**51.2**	**5.5**	0.4	0.5	0.1
2,4'-DDD	10.2	9.78	10.3	12.9	13.8	13.3	10.1	2.7	13.3	3.4	11.5	2.6	13.7	2.8	-0.5	-0.4	0.2
endrin	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		no target				
endosulfan II	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	2.73	1.34	no target				
4,4'-DDD	26.8	28.7	28.8	42.1	40.7	41.3	28.1	4.0	41.4	1.7	29.3	3.6	**43.0**	**6.3**	-0.2	-0.2	0.3
2,4'-DDT	5.66	5.81	6.01	7.81	7.71	7.34	5.83	3.0	7.62	3.2	7.51	1.94	8.5	1.9	-0.9	-0.7	0.2
cis-nonachlor	5.23	5.44	5.01	6.28	6.71	6.66	5.23	4.1	6.55	3.6	6.27	1.38	**6.84**	**0.90**	-0.7	-0.5	0.3
4,4'-DDT	10.0	9.48	9.64	3.22	3.83	3.61	9.71	2.7	3.55	8.7	9.30	0.99	**3.91**	**0.59**	0.2	0.2	0.2
mirex	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	1.75	0.62	no target				

Laboratory: 1b
Pesticides in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 1b
Reporting Date: 10/30/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	8/25/98 S 1	8/25/98 S 2	8/25/98 S 3	8/25/98 S 1	8/25/98 S 2	8/25/98 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	3.23	3.04	3.33	3.03	3.24	3.27	3.20	4.60	3.18	4.11	4.18	1.56	5.8	1.2	-0.9	-0.4	0.3
PCB 18	10.2	10.8	10.1	28.4	30.1	30.1	10.4	3.7	29.5	3.3	12.9	2.3	33	11	-0.8	-0.6	0.2
PCB 28	36.5	35.9	36.7	81.4	82.0	82.5	36.4	1.1	82.0	0.7	41.4	4.8	79	15	-0.5	-0.5	0.1
PCB 52	57.4	58.3	55.7	129	119	116	57.1	2.3	121	6	61.8	5.2	**115**	11	-0.3	-0.4	0.2
PCB 44	39.7	40.2	40.9	71.8	72.6	72.1	40.3	1.5	72.2	0.6	40.3	4.1	**72.7**	**7.4**	0.0	0.0	0.1
PCB 66/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80.6	16.8	**184**	**21**			
PCB 101/90	100	102	99.7	121	117	125	101	1	121	3	92.2	8.9	**128.3**	**9.7**	0.4	0.4	0.1
PCB 118	99.9	101	99.4	127	132	130	100	1	130	2	96.1	9.7	**130.8**	**3.6**	0.2	0.2	0.1
PCB 153	122	126	127	138	141	144	125	2	141	2	113	11	**145.2**	**7.6**	0.4	0.5	0.1
PCB 105	38.8	38.1	40.5	51.9	48.7	50.4	39.1	3.2	50.3	3.2	36.2	3.5	**53.0**	**3.4**	0.3	0.4	0.2
PCB 138/163/164	104	101	112	129	134	133	106	5	132	2	102	11	**133.5**	**9.5**	0.2	0.2	0.4
PCB 187/182	26.9	27.4	27.2	33.0	31.9	35.0	27.2	0.9	33.3	4.7	27.5	2.8	**34.0**	**2.3**	-0.1	-0.1	0.1
PCB 128	17.7	16.8	17.9	22.5	21.4	22.2	17.5	3.4	22.0	2.6	16.1	2.1	**22.0**	**3.4**	0.3	0.3	0.2
PCB 180	9.98	10.1	9.84	16.4	17.7	16.8	9.97	1.30	17.0	3.9	15.5	5.9	**17.1**	**3.8**	-1.4	-0.5	0.1
PCB 170/190	1.87	1.99	1.48	4.36	4.45	4.81	1.78	14.98	4.54	5.24	3.01	0.72	**5.5**	**1.1**	-1.6	-1.1	1.0
PCB 195	1.01	1.00	1.11	<1	<1	<1	1.04	5.88	<1	NA	1.04	0.69	No Target		0.0	0.0	0.4
PCB 206	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		No Target				
PCB 209	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		No Target				
PCB 66	47.1	46.5	47.6	102	103	99.8	47.1	1.2	102	2	55.7	11.5	**101.4**	**4.4**	-0.6	-0.6	0.1
PCB 95	33.9	34.1	35.5	83.4	84.5	84.6	34.5	2.5	84.2	0.8	39.1	12.3	**83**	**17**	-0.5	-0.5	0.2

Laboratory: 1b
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	15	83
Qualitative	2	11
Not Determined	1	6

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	91.5	91.7	91.8	88.6	88.7	88.6	91.7	0.2	88.6	0.1	91.4	0.0	**88.6**	**0.1**	0.0	0.2	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 2
Reporting Date: 10/15/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/gdry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	8/28/98 S 1	8/28/98 S 2	8/28/98 S 3	8/28/98 S 1	8/28/98 S 2	8/28/98 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	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	23.3	6.1	5.3	1.8			
biphenyl	DL	324	DL	DL	DL	290	<324	NA	<290	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	DL	DL	DL	160	DL	DL	DL	NA	<160	NA	38.8	9.5	5.3	1.8			
acenaphthylene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	7.87	3.92	5.25	0.38			
acenaphthene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	31.3	10.4	6.6	2.0			
fluorene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	21.4	1.4	5.72	0.91			
phenanthrene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	126	13	**22.2**	**2.4**			
anthracene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	60.2	8.2	10.5	4.8			
fluoranthene	DL	216	381	DL	DL	DL	<381	NA	DL	NA	322	34	**163.7**	**9.1**			
pyrene	DL	DL	381	DL	DL	190	<381	NA	<190	NA	224	36	**151.6**	**6.6**			
benz[a]anthracene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene	DL	DL	508	DL	DL	190	<508	NA	<190	NA	196	26	**94.9**	**8.2**			
benzofluoranthenes [b+j+k]	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	146	17	87.1	6.2			
benzo[e]pyrene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	25.9	2.4	**15.63**	**0.65**			
perylene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	DL	DL	DL	DL	DL	DL	DL	NA	DL	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 2
PAH in Mussel IX

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

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 2
Reporting Date: 10/15/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	7/7/98 S 1	7/14/98 S 2	8/18/98 S 3	7/7/98 S 1	7/7/98 S 2	8/18/98 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	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50	NA	<0.50	NA	1.62	1.28	no target				
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.08	0.95	no target				
gamma-HCH	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50	NA	<0.50	NA	1.26	1.36	no target				
heptachlor	<0.500	7.94	<0.500	<0.500	<0.500	<0.500	<7.94	NA	<0.50	NA	<5		no target				
aldrin	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.00	NA	<1.00	NA	<3		no target				
heptachlor epoxide	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50	NA	<0.50	NA	2.25	0.81	no target				
oxychlordane	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.30	NA	<0.30	NA	3.48	2.75	no target				
trans-chlordane	<0.300	14.9	14.1	67.4	29.3	22.2	<14.9	NA	39.6	61.3	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50	NA	<0.50	NA	<5		5.26	0.27			
endosulfan I	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50	NA	<0.50	NA	<2		no target				
cis-chlordane	<0.300	23.2	29.6	38.1	42.2	46.8	<29.6	NA	42.4	10.3	14.7	1.8	**17.2**	**2.8**			
trans-nonachlor	<0.300	39.9	30.6	51.0	58.6	33.0	<39.9	NA	47.5	27.7	13.6	1.0	**18.0**	**3.6**			
dieldrin	<0.300	<0.300	<0.300	6.70	<0.500	5.71	<0.30	NA	<6.70	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	45.6	42.7	47.1	47.1	66.8	68.5	45.1	4.9	60.8	19.5	34.0	3.8	**51.2**	**5.5**	1.3	1.4	0.3
2,4'-DDD	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50	NA	<0.50	NA	11.5	2.6	13.7	2.8			
endrin	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.00	NA	<1.00	NA	<2		no target				
endosulfan II	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50	NA	<0.50	NA	2.73	1.34	no target				
4,4'-DDD	34.1	29.8	30.8	44.0	53.6	59.7	31.6	7.1	52.4	15.1	29.3	3.6	**43.0**	**6.3**	0.3	0.3	0.5
2,4'-DDT	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50	NA	<0.50	NA	7.51	1.94	8.5	1.9			
cis-nonachlor	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.30	NA	<0.30	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	94.1	90.9	96.8	91.8	153	128	93.9	3.2	124	25	9.30	0.99	**3.91**	**0.59**	**36.4**	**51.9**	0.2
mirex	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50	NA	<0.50	NA	1.75	0.62	no target				

Laboratory: 2
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	3	14
Qualitative	18	82
Not Determined	1	5

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 2
Reporting Date: 10/15/98

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 7/7/98 S 1	S 2	S 3	SRM 1974a, ng/g dry 7/7/98 S 1	S 2	S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score ($)	p-score (15%)
PCB 8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.18	1.56	5.8	1.2			
PCB 18	19.5	13.1	12.0	22.5	39.2	29.1	14.8	27.1	30.3	27.8	12.9	2.3	33	11	0.6	0.4	1.8
PCB 28	50.3	62.9	52.5	97.8	138	117	55.3	12.2	117	17	41.4	4.8	79	15	1.3	1.5	0.8
PCB 52	73.6	69.2	70.0	104	143	126	70.9	3.4	124	16	61.8	5.2	**115**	**11**	0.6	0.8	0.2
PCB 44	48.0	42.5	41.0	56.6	86.7	82.8	43.9	8.4	75.4	21.7	40.3	4.1	**72.7**	**7.4**	0.4	0.4	0.6
PCB 66/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80.6	16.8	**184**	**21**			
PCB 101/90	118	76.7	78.9	113	134	121	91.2	25.5	123	9	92.2	8.9	**128.3**	**9.7**	0.0	0.0	1.7
PCB 118	74.4	95.7	122	91.0	131	114	97.4	24.7	112	18	96.1	9.7	**130.8**	**3.6**	0.1	0.1	1.6
PCB 153	59.8	75.8	67.4	73.4	97.7	88.0	67.7	11.8	86.4	14.2	113	11	**145.2**	**7.6**	-1.6	-1.9	0.8
PCB 105	33.3	32.0	26.4	38.6	59.3	49.6	30.5	12.0	49.2	21.0	36.2	3.5	**53.0**	**3.4**	-0.6	-0.7	0.8
PCB 138/163/164	97.7	114	110	99.0	160	145	107	7.9	135	24	102	11	**133.5**	**9.5**	0.2	0.2	0.5
PCB 187/182	16.9	18.9	18.4	18.6	29.4	24.4	18.1	5.7	24.1	22.3	27.5	2.8	**34.0**	**2.3**	-1.4	-1.5	0.4
PCB 128	16.0	16.2	19.6	25.7	22.8	18.7	17.3	11.6	22.4	15.7	16.1	2.1	**22.0**	**3.4**	0.3	0.3	0.8
PCB 180	<0.15	<0.15	<0.15	<0.15	<0.15	3.5	<0.15	NA	<3.52	NA	15.5	5.9	**17.1**	**3.8**			
PCB 170/190	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	NA	<0.34	NA	3.01	0.72	**5.5**	**1.1**			
PCB 195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.04	0.69	No Target				
PCB 206	<0.39	<0.39	<0.39	<0.39	<0.39	10.6	<0.39	NA	<10.6	NA	<2		No Target				
PCB 209	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	NA	<0.39	NA	<2		No Target				
PCB 66	83.9	91.5	76.5	110	164	140	84.0	8.9	138	19	55.7	11.5	**101.4**	**4.4**	2.0	2.0	0.6
PCB 95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 2
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	11	61
Qualitative	4	22
Not Determined	3	17

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

Water in Mussel IX

	Mussel IX, % S 1	S 2	S 3	SRM 1974a, % S 1	S 2	S 3	Mussel IX, % mean, %	%RSD	SRM 1974a, % mean, %	%RSD	Mussel IX, % assigned	95% CL	SRM 1974a, % target	95% CL	Mussel IX, % z (25%)	z ($)	p (15%)
water	91.8	90.7	92.1	87.5	89.5	89.5	91.5	0.8	88.8	1.3	91.4	0.0	**88.6**	**0.1**	0.0	0.1	0.1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 4

Reporting Date: 10/22/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 1/0/00 S 1	Mussel IX 1/0/00 S 2	Mussel IX 1/0/00 S 3	SRM 1974a, ng/g dry 1/0/00 S 1	SRM 1974a 1/0/00 S 2	SRM 1974a 1/0/00 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
naphthalene							NA	NA	NA	NA	25.7	5.2	**23.5**	4.4			
2-methylnaphthalene							NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene							NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl							NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene							NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene							NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene							NA	NA	NA	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene							NA	NA	NA	NA	21.4	1.4	5.72	0.91			
phenanthrene							NA	NA	NA	NA	126	13	**22.2**	**2.4**			
anthracene							NA	NA	NA	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene							NA	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene							NA	NA	NA	NA	322	34	**163.7**	**9.1**			
pyrene							NA	NA	NA	NA	224	36	**151.6**	**6.6**			
benz[a]anthracene							NA	NA	NA	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene							NA	NA	NA	NA	196	26	**94.9**	**8.2**			
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	146	17	87.1	6.2			
benzo[e]pyrene							NA	NA	NA	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene							NA	NA	NA	NA	25.9	2.4	**15.6**	**0.7**			
perylene							NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene							NA	NA	NA	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 4
PAH in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 4
Reporting Date: 10/22/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	7/24/98	8/21/98	8/22/98	7/24/98	8/21/98	8/22/98	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%)
alpha-HCH	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	1.62	1.28	no target				
hexachlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	1.08	0.95	no target				
gamma-HCH	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	1.26	1.36	no target				
heptachlor	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	<5		no target				
aldrin	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	<3		no target				
heptachlor epoxide	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	2.25	0.81	no target				
oxychlordane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	3.48	2.75	no target				
trans-chlordane	9.19	10.2	8.60	7.02	15.8	10.5	9.34	8.83	11.1	39.7	12.3	2.0	**16.6**	**1.7**	-1.0	-1.0	0.6
2,4'-DDE	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	<5		5.26	0.27			
endosulfan I	___	___	___	___	___	___	NA	NA	NA	NA	<2		no target				
cis-chlordane	14.0	10.6	10.2	13.2	12.3	14.9	11.6	17.7	13.5	10.0	14.7	1.8	**17.2**	**2.8**	-0.8	-0.8	1.2
trans-nonachlor	10.2	8.02	6.86	11.4	10.5	10.5	8.37	20.46	10.8	4.7	13.6	1.0	**18.0**	**3.6**	-1.5	-2.5	1.4
dieldrin	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	37.2	34.9	37.2	47.4	43.9	39.5	36.4	3.7	43.6	9.1	34.0	3.8	**51.2**	**5.5**	0.3	0.3	0.2
2,4'-DDD	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	11.5	2.6	13.7	2.8			
endrin	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	<2		no target				
endosulfan II	___	___	___	___	___	___	NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD	26.7	37.2	27.9	34.2	50.9	43.0	30.6	18.7	42.7	19.5	29.3	3.6	**43.0**	**6.3**	0.2	0.2	1.2
2,4'-DDT	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	7.51	1.94	8.5	1.9			
cis-nonachlor	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	9.30	0.99	**3.91**	**0.59**			
mirex	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	<5.0	NA	1.75	0.62	no target				

Laboratory: 4
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	5	23
Qualitative	15	68
Not Determined	2	9

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 4

Reporting Date: 10/22/98

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S 1	S 2	S 3	SRM 1974a, ng/g dry S 1	S 2	S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA	NA	NA	NA	4.18	1.56	5.8	1.2			
PCB 18							NA	NA	NA	NA	12.9	2.3	33	11			
PCB 28							NA	NA	NA	NA	41.4	4.8	79	15			
PCB 52							NA	NA	NA	NA	61.8	5.2	**115**	11			
PCB 44							NA	NA	NA	NA	40.3	4.1	**72.7**	7.4			
PCB 66/95							NA	NA	NA	NA	80.6	16.8	**184**	21			
PCB 101/90							NA	NA	NA	NA	92.2	8.9	**128.3**	9.7			
PCB 118							NA	NA	NA	NA	96.1	9.7	**130.8**	3.6			
PCB 153							NA	NA	NA	NA	113	11	**145.2**	7.6			
PCB 105							NA	NA	NA	NA	36.2	3.5	**53.0**	3.4			
PCB 138/163/164							NA	NA	NA	NA	102	11	**133.5**	9.5			
PCB 187/182							NA	NA	NA	NA	27.5	2.8	**34.0**	2.3			
PCB 128							NA	NA	NA	NA	16.1	2.1	**22.0**	3.4			
PCB 180							NA	NA	NA	NA	15.5	5.9	**17.1**	3.8			
PCB 170/190							NA	NA	NA	NA	3.01	0.72	**5.5**	1.1			
PCB 195							NA	NA	NA	NA	1.04	0.69	No Target				
PCB 206							NA	NA	NA	NA	<2		No Target				
PCB 209							NA	NA	NA	NA	<2		No Target				
PCB 66							NA	NA	NA	NA	55.7	11.5	**101.4**	4.4			
PCB 95							NA	NA	NA	NA	39.1	12.3	**83**	17			

Laboratory: 4
PCBs in Mussel IX

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 Mussel IX

	Mussel IX, % S 1	S 2	S 3	SRM 1974a, % S 1	S 2	S 3	Mussel IX, % mean, %	%RSD	SRM 1974a, % mean, %	%RSD	Mussel IX, % assigned	95% CL	SRM 1974a, % target	95% CL	Mussel IX, % z (25%)	z (s)	p (15%)
water											91.4	0.0	**88.6**	0.1			

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 5
Reporting Date: 10/29/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	08/20/98 S 1	08/20/98 S 2	08/20/98 S 3	08/20/98 S 1	08/20/98 S 2	08/20/98 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	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl	___	___	___	___	___	___	NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene	___	___	___	___	___	___	NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene	___	___	___	___	___	___	NA	NA	NA	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene	263	288	***	___	___	___	275	7	NA	NA	21.4	1.4	5.72	0.91	**47.3**	**132**	0.4
phenanthrene	195	226	217	___	___	___	212	8	NA	NA	126	13	**22.2**	**2.4**	2.8	3.9	0.5
anthracene	**	156	136	___	___	___	146	10	NA	NA	11.3	3.6	**6.1**	**1.7**	**47.6**	**31.1**	0.6
1-methylphenanthrene	**	110	100	___	___	___	105	7	NA	NA	60.2	8.2	10.5	4.8	3.0	**3.3**	0.5
fluoranthene	330	298	335	___	___	___	321	6	NA	NA	322	34	**163.7**	**9.1**	0.0	0.0	0.4
pyrene	273	243	256	___	___	___	257	6	NA	NA	224	36	**151.6**	**6.6**	0.6	0.5	0.4
benz[a]anthracene	510	358	422	___	___	___	430	18	NA	NA	77.5	9.2	**32.5**	**4.7**	**18.2**	**23.1**	1.2
chrysene + triphenylene	250	233	253	___	___	___	245	4	NA	NA	196	26	**94.9**	**8.2**	1.0	1.1	0.3
benzofluoranthenes [b+j+k]	___	___	___	___	___	___	NA	NA	NA	NA	146	17	87.1	6.2			
benzo[e]pyrene	287	135	172	___	___	___	198	40	NA	NA	99.5	13.1	**84.0**	**1.9**	**4.0**	**4.2**	2.7
benzo[a]pyrene	___	___	___	___	___	___	NA	NA	NA	NA	25.9	2.4	**15.63**	**0.65**			
perylene	___	___	___	___	___	___	NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene	___	___	___	___	___	___	NA	NA	NA	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]	___	___	___	___	___	___	NA	NA	NA	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	137	122	114	___	___	___	124	9	NA	NA	21.2	3.7	**22.0**	**2.2**	**19.4**	**19.7**	0.6

Laboratory: 5
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	10	44
Qualitative	0	0
Not Determined	13	57

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	3	3	9
2 to 3	2	0	1
≥ 3	5	7	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 5
Reporting Date: 10/29/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S1	S2	S3	SRM 1974a, ng/g dry S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH							NA	NA	NA	NA	1.62	1.28	no target				
hexachlorobenzene							NA	NA	NA	NA	1.08	0.95	no target				
gamma-HCH							NA	NA	NA	NA	1.26	1.36	no target				
heptachlor							NA	NA	NA	NA	<5		no target				
aldrin							NA	NA	NA	NA	<3		no target				
heptachlor epoxide							NA	NA	NA	NA	2.25	0.81	no target				
oxychlordane							NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane							NA	NA	NA	NA	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE							NA	NA	NA	NA	<5		5.26	0.27			
endosulfan I							NA	NA	NA	NA	<2		no target				
cis-chlordane							NA	NA	NA	NA	14.7	1.8	**17.2**	**2.8**			
trans-nonachlor							NA	NA	NA	NA	13.6	1.0	**18.0**	**3.6**			
dieldrin							NA	NA	NA	NA	5.49	0.85	6.2	1.3			
4,4'-DDE							NA	NA	NA	NA	34.0	3.8	**51.2**	**5.5**			
2,4'-DDD							NA	NA	NA	NA	11.5	2.6	13.7	2.8			
endrin							NA	NA	NA	NA	<2		no target				
endosulfan II							NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD							NA	NA	NA	NA	29.3	3.6	**43.0**	**6.3**			
2,4'-DDT							NA	NA	NA	NA	7.51	1.94	8.5	1.9			
cis-nonachlor							NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT							NA	NA	NA	NA	9.30	0.99	**3.91**	**0.59**			
mirex							NA	NA	NA	NA	1.75	0.62	no target				

Laboratory: 5
Pesticides in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 5
Reporting Date: 10/29/98

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S1	S2	S3	SRM 1974a, ng/g dry S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA	NA	NA	NA	4.18	1.56	5.8	1.2			
PCB 18							NA	NA	NA	NA	12.9	2.3	33	11			
PCB 28							NA	NA	NA	NA	41.4	4.8	79	15			
PCB 52							NA	NA	NA	NA	61.8	5.2	**115**	11			
PCB 44							NA	NA	NA	NA	40.3	4.1	**72.7**	7.4			
PCB 66/95							NA	NA	NA	NA	80.6	16.8	**184**	21			
PCB 101/90							NA	NA	NA	NA	92.2	8.9	**128.3**	9.7			
PCB 118							NA	NA	NA	NA	96.1	9.7	**130.8**	3.6			
PCB 153							NA	NA	NA	NA	113	11	**145.2**	7.6			
PCB 105							NA	NA	NA	NA	36.2	3.5	**53.0**	3.4			
PCB 138/163/164							NA	NA	NA	NA	102	11	**133.5**	9.5			
PCB 187/182							NA	NA	NA	NA	27.5	2.8	**34.0**	2.3			
PCB 128							NA	NA	NA	NA	16.1	2.1	**22.0**	3.4			
PCB 180							NA	NA	NA	NA	15.5	5.9	**17.1**	3.8			
PCB 170/190							NA	NA	NA	NA	3.01	0.72	**5.5**	1.1			
PCB 195							NA	NA	NA	NA	1.04	0.69	No Target				
PCB 206							NA	NA	NA	NA	<2		No Target				
PCB 209							NA	NA	NA	NA	<2		No Target				
PCB 66							NA	NA	NA	NA	55.7	11.5	**101.4**	4.4			
PCB 95							NA	NA	NA	NA	39.1	12.3	**83**	17			

Laboratory: 5
PCBs in Mussel IX

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 Mussel IX

	Mussel IX, % S1	S2	S3	SRM 1974a, % S1	S2	S3	Mussel IX, % mean, %	%RSD	SRM 1974a, % mean, %	%RSD	Mussel IX, % assigned	95% CL	SRM 1974a, % target	95% CL	Mussel IX, % z (25%)	z (s)	p (15%)
water	92.3	91.5	91.8	89.0	88.6	88.7	91.9	0.4	88.8	0.2	91.4	0.0	**88.6**	**0.1**	0.0	0.4	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 6
Reporting Date: 10/21/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/6/98 S 1	10/6/98 S 2	10/5/98 S 3	10/6/98 S 1	10/6/98 S 2	10/5/98 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	40.2	24.9	31.3	23.6	33.2	15.3	32.1	23.9	24.0	37.3	25.7	5.2	**23.5**	**4.4**	1.0	1.0	1.6
2-methylnaphthalene	22.9	12.8	17.0	8.60	7.90	4.60	17.6	28.9	7.03	30.37	33.1	8.2	10.2	1.5	-1.9	-1.3	1.9
1-methylnaphthalene	38.8	27.1	35.0	19.5	15.8	12.1	33.6	17.7	15.8	23.4	23.3	6.1	5.3	1.8	1.8	1.2	1.2
biphenyl	18.0	15.4	17.8	10.7	10.5	5.40	17.1	8.5	8.87	33.88	12.2	1.0	5.11	0.33	1.6	4.9	0.6
2,6-dimethylnaphthalene	325	271	300	<3.20	<3.20	<3.20	299	9	<3.20	NA	38.8	9.5	5.3	1.8	**26.8**	**19.6**	0.6
acenaphthylene	12.5	6.10	12.0	8.70	7.80	7.20	10.2	34.9	7.90	9.56	7.87	3.92	5.25	0.38	1.2	0.7	2.3
acenaphthene	11.9	7.20	9.10	4.60	6.10	4.30	9.40	25.15	5.00	19.29	9.46	1.31	3.15	0.26	0.0	0.0	1.7
1,6,7-trimethylnaphthalene	35.6	30.8	29.9	<3.2	<3.2	<3.2	32.1	9.5	<3.20	NA	31.3	10.4	6.6	2.0	0.1	0.1	0.6
fluorene	20.8	19.8	20.0	8.20	6.70	4.90	20.2	2.6	6.60	25.03	21.4	1.4	5.72	0.91	-0.2	-0.6	0.2
phenanthrene	130	193	274	32.7	39.8	32.5	199	36	35.0	11.9	126	13	**22.2**	**2.4**	2.3	**3.3**	2.4
anthracene	24.8	30.8	36.2	18.3	28.6	14.8	30.6	18.6	20.6	34.9	11.3	3.6	**6.1**	**1.7**	**6.8**	**4.5**	1.2
1-methylphenanthrene	93.0	76.7	88.4	17.9	20.2	14.0	86.0	9.8	17.4	18.0	60.2	8.2	10.5	4.8	1.7	1.9	0.7
fluoranthene	314	318	350	155	198	118	327	6	157	26	322	34	**163.7**	**9.1**	0.1	0.1	0.4
pyrene	165	150	161	120	131	99.4	159	5	117	14	224	36	**151.6**	**6.6**	-1.2	-1.0	0.3
benz[a]anthracene	84.5	88.2	91.5	33.5	49.3	28.1	88.1	4.0	37.0	29.8	77.5	9.2	**32.5**	**4.7**	0.5	0.7	0.3
chrysene + triphenylene	171	144	183	79.8	84.7	57.6	166	12	74.0	19.5	196	26	**94.9**	**8.2**	-0.6	-0.7	0.8
benzofluoranthenes [b+j+k]	171	182	187	95.4	128	77.6	180	5	100	25	146	17	87.1	6.2	0.9	1.1	0.3
benzo[e]pyrene	105	96.1	106	89.1	102	65.0	102	5	85.4	22.0	99.5	13.1	**84.0**	**1.9**	0.1	0.1	0.4
benzo[a]pyrene	14.7	34.2	29.0	16.2	39.7	10.4	26.0	38.9	22.1	70.2	25.9	2.4	**15.63**	**0.65**	0.0	0.0	2.6
perylene	4.10	4.30	6.50	5.40	7.26	6.20	4.97	26.81	6.29	14.84	8.13	1.21	**7.68**	**0.27**	-1.6	-2.0	1.8
indeno[1,2,3-cd]pyrene	21.6	18.0	30.9	18.2	12.2	12.6	23.5	28.3	14.3	23.4	18.0	3.0	**14.2**	**2.8**	1.2	1.2	1.9
dibenz[a,h]anthracene + [a,c]	8.10	8.00	1.90	1.80	4.90	3.90	6.00	59.18	3.53	44.78	4.36	2.12	3.00	0.20	1.5	0.6	**3.9**
benzo[ghi]perylene	28.8	25.7	41.3	27.6	28.5	17.6	31.9	25.9	24.6	24.6	21.2	3.7	**22.0**	**2.2**	2.0	2.0	1.7

Laboratory: 6
PAH in Mussel IX

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	19	17	19
2 to 3	2	2	3
≥ 3	2	4	1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 6
Reporting Date: 10/21/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	09/30/98	10/01/98	10/01/98	09/30/98	10/01/98	10/01/98	lab mean	lab	lab mean	lab	assigned	95% CI.	target	95% CI.	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%)
alpha-HCH	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	1.62	1.28	no target				
hexachlorobenzene	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	1.08	0.95	no target				
gamma-HCH	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	1.26	1.36	no target				
heptachlor	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<5		no target				
aldrin	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<3		no target				
heptachlor epoxide	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	2.25	0.81	no target				
oxychlordane	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	3.48	2.75	no target				
trans-chlordane	10.9	9.31	5.16	18.8	11.2	9.25	8.47	35.18	13.1	38.6	12.3	2.0	**16.6**	**1.7**	-1.3	-1.3	2.3
2,4'-DDE	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<5		5.26	0.27			
endosulfan I	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		no target				
cis-chlordane	12.4	9.31	6.91	17.0	9.32	9.45	9.53	28.76	11.9	36.7	14.7	1.8	**17.2**	**2.8**	-1.4	-1.4	1.9
trans-nonachlor	13.5	10.9	11.9	24.9	20.4	13.7	12.1	10.9	19.7	28.6	13.6	1.0	**18.0**	**3.6**	-0.4	-0.7	0.7
dieldrin	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	27.9	33.1	19.5	50.4	48.1	35.3	26.8	25.5	44.6	18.2	34.0	3.8	**51.2**	**5.5**	-0.8	-0.9	1.7
2,4'-DDD	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	11.5	2.6	13.7	2.8			
endrin	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		no target				
endosulfan II	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	2.73	1.34	no target				
4,4'-DDD	23.4	21.9	18.3	38.8	31.3	26.3	21.2	12.3	32.1	19.6	29.3	3.6	**43.0**	**6.3**	-1.1	-1.1	0.8
2,4'-DDT	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	7.51	1.94	8.5	1.9			
cis-nonachlor	4.68	5.86	2.86	8.34	8.12	7.77	4.47	33.8	8.08	3.56	6.27	1.38	**6.84**	**0.90**	-1.1	-0.9	2.3
4,4'-DDT	9.30	16.5	10.6	<5 *	5.67	1.59	12.1	31.6	<5.67	NA	9.30	0.99	**3.91**	**0.59**	1.2	1.7	2.1
mirex	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	1.75	0.62	no target				

Laboratory: 6
Pesticides in Mussel IX

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

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 6
Reporting Date: 10/21/98

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 09/30/98 S 1	S 2	S 3	SRM 1974a, ng/g dry 09/30/98 S 1	S 2	S 3	Mussel IX lab mean ng/g dry	lab %RSD	SRM 1974a lab mean ng/g dry	lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
PCB 8	2.27	2.92	<5	<5	<5	<5	2.60	17.71	<5	NA	4.18	1.56	5.8	1.2	-1.5	-0.7	1.2
PCB 18	17.9	22.9	16.0	<5	<5	<5	18.9	18.9	<5	NA	12.9	2.3	33	11	1.9	1.4	1.3
PCB 28	25.2	29.1	20.0	<5	<5	<5	24.8	18.5	<5	NA	41.4	4.8	79	15	-1.6	-1.7	1.2
PCB 52	57.8	49.5	36.2	125	78	96	47.9	22.7	100	23	61.8	5.2	**115**	11	-0.9	-1.3	1.5
PCB 44	23.4	27.2	21.1	84.1	53.4	51.4	23.9	13.0	63.0	29.0	40.3	4.1	**72.7**	7.4	-1.6	-1.9	0.9
PCB 66/95	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	80.6	16.8	**184**	21			
PCB 101/90	59.1	61.0	53.3	153	95.2	90.4	57.8	6.9	113	31	92.2	8.9	**128.3**	9.7	-1.5	-1.7	0.5
PCB 118	53.7	68.5	50.8	137	89.9	84.5	57.7	16.5	104	28	96.1	9.7	**130.8**	3.6	-1.6	-1.9	1.1
PCB 153	64.8	71.3	61.4	156	104	86.5	65.8	7.6	115	31	113	11	**145.2**	7.6	-1.7	-2.0	0.5
PCB 105	23.5	25.5	21.6	59.9	43.3	37.5	23.5	8.5	46.9	24.8	36.2	3.5	**53.0**	3.4	-1.4	-1.6	0.6
PCB 138/163/164	54.1	68.8	47.2	138	96.3	75.1	56.7	19.5	103	31	102	11	**133.5**	9.5	-1.8	-1.8	1.3
PCB 187/182	12.9	14.2	12.1	31.2	19.0	14.6	13.1	8.3	21.6	40.0	27.5	2.8	**34.0**	2.3	-2.1	-2.4	0.6
PCB 128	6.32	7.12	4.80	17.0	9.52	11.6	6.08	19.38	12.7	30.2	16.1	2.1	**22.0**	3.4	-2.5	-2.2	1.3
PCB 180	7.57	5.45	7.49	24.1	12.0	12.0	6.84	17.58	16.0	43.8	15.5	5.9	**17.1**	3.8	-2.2	-0.8	1.2
PCB 170/190	2.64	2.34	<5	2.40	<5	<5	2.49	8.52	<5	NA	3.01	0.72	**5.5**	1.1	-0.7	-0.5	0.6
PCB 195	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	1.04	0.69	No Target				
PCB 206	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		No Target				
PCB 209	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		No Target				
PCB 66	45.8	40.0	39.9	143	71.2	83.3	41.9	8.1	99.3	38.9	55.7	11.5	**101.4**	4.4	-1.0	-1.0	0.5
PCB 95	28.1	38.6	26.8	84.1	54.7	46.1	31.2	20.6	61.6	32.3	39.1	12.3	**83**	17	-0.8	-0.8	1.4

Laboratory: 6
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	14	78
Qualitative	4	22
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	11	12	14
2 to 3	3	2	0
≥ 3	0	0	0

Water in Mussel IX

	Mussel IX, % S 1	S 2	S 3	SRM 1974a, % S 1	S 2	S 3	Mussel IX, % mean, %	%RSD	SRM 1974a, % mean, %	%RSD	Mussel IX, % assigned	95% CL	SRM 1974a, % target	95% CL	Mussel IX, % z (25%)	z (s)	p (15%)
water	92.7	91.4	91.6	88.6	88.6	88.6	91.9	0.8	88.6	0.0	91.4	0.0	**88.6**	0.1	0.0	0.5	0.1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 7

Reporting Date: October 30,1998

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
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	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene							NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene							NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl							NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene							NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene							NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene							NA	NA	NA	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene							NA	NA	NA	NA	21.4	1.4	5.72	0.91			
phenanthrene							NA	NA	NA	NA	126	13	**22.2**	**2.4**			
anthracene							NA	NA	NA	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene							NA	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene							NA	NA	NA	NA	322	34	**163.7**	**9.1**			
pyrene							NA	NA	NA	NA	224	36	**151.6**	**6.6**			
benz[a]anthracene							NA	NA	NA	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene							NA	NA	NA	NA	196	26	**94.9**	**8.2**			
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	146	17	87.1	6.2			
benzo[e]pyrene							NA	NA	NA	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene							NA	NA	NA	NA	25.9	2.4	**15.63**	**0.65**			
perylene							NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene							NA	NA	NA	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 7
PAH in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 7

Reporting Date: October 30,1998

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	1/0/00 S 1	1/0/00 S 2	1/0/00 S 3	1/0/00 S 1	1/0/00 S 2	1/0/00 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	1.62	1.28	no target				
hexachlorobenzene							NA	NA	NA	NA	1.08	0.95	no target				
gamma-HCH							NA	NA	NA	NA	1.26	1.36	no target				
heptachlor							NA	NA	NA	NA	<5		no target				
aldrin							NA	NA	NA	NA	<3		no target				
heptachlor epoxide							NA	NA	NA	NA	2.25	0.81	no target				
oxychlordane							NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane							NA	NA	NA	NA	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE							NA	NA	NA	NA	<5		5.26	0.27			
endosulfan I							NA	NA	NA	NA	<2		no target				
cis-chlordane							NA	NA	NA	NA	14.7	1.8	**17.2**	**2.8**			
trans-nonachlor							NA	NA	NA	NA	13.6	1.0	**18.0**	**3.6**			
dieldrin							NA	NA	NA	NA	5.49	0.85	6.2	1.3			
4,4'-DDE							NA	NA	NA	NA	34.0	3.8	**51.2**	**5.5**			
2,4'-DDD							NA	NA	NA	NA	11.5	2.6	13.7	2.8			
endrin							NA	NA	NA	NA	<2		no target				
endosulfan II							NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD							NA	NA	NA	NA	29.3	3.6	**43.0**	**6.3**			
2,4'-DDT							NA	NA	NA	NA	7.51	1.94	8.5	1.9			
cis-nonachlor							NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT							NA	NA	NA	NA	9.30	0.99	**3.91**	**0.59**			
mirex							NA	NA	NA	NA	1.75	0.62	no target				

Laboratory: 7
Pesticides in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 7

Reporting Date: October 30,1998

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	'06/12/98 S 1	'06/12/98 S 2	'06/12/98 S 3	'06/12/98 S 1	'06/12/98 S 2	'06/12/98 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	3.39	3.18	3.20	3.38	3.45	3.88	3.26	3.56	3.57	7.58	4.18	1.56	5.8	1.2	-0.9	-0.4	0.2
PCB 18	11.0	11.0	11.3	23.8	28.8	29.1	11.1	1.3	27.2	10.9	12.9	2.3	33	11	-0.6	-0.4	0.1
PCB 28	40.7	39.2	39.8	81.4	88.8	88.3	39.9	1.9	86.2	4.8	41.4	4.8	79	15	-0.1	-0.2	0.1
PCB 52	63.0	63.0	65.4	102	117	118	63.8	2.2	112	8	61.8	5.2	**115**	**11**	0.1	0.2	0.1
PCB 44	43.2	40.4	43.7	74.4	74.0	77.3	42.4	4.2	75.2	2.4	40.3	4.1	**72.7**	**7.4**	0.2	0.2	0.3
PCB 66/95	77.8	68.7	73.5	105	108	116	73.3	6.2	110	5	80.6	16.8	**184**	**21**	-0.4	-0.3	0.4
PCB 101/90	115	115	117	148	168	164	116	1	160	6	92.2	8.9	**128.3**	**9.7**	1.0	1.2	0.0
PCB 118	93.2	93.6	97.9	117	130	129	94.9	2.7	125	6	96.1	9.7	**130.8**	**3.6**	-0.1	-0.1	0.2
PCB 153	111	114	114	126	141	137	113	2	135	6	113	11	**145.2**	**7.6**	0.0	0.0	0.1
PCB 105	37.7	37.3	38.9	48.6	55.3	52.7	38.0	2.3	52.2	6.5	36.2	3.5	**53.0**	**3.4**	0.2	0.2	0.2
PCB 138/163/164	110	115	119	129	147	144	115	4	140	7	102	11	**133.5**	**9.5**	0.5	0.5	0.3
PCB 187/182	35.5	35.7	34.7	29.6	40.5	36.2	35.3	1.5	35.5	15.5	27.5	2.8	**34.0**	**2.3**	1.1	1.3	0.1
PCB 128	20.0	20.9	21.3	24.8	27.6	27.7	20.7	3.2	26.7	6.0	16.1	2.1	**22.0**	**3.4**	1.2	1.0	0.2
PCB 180	8.56	8.08	8.50	11.4	12.9	12.6	8.38	3.12	12.3	6.6	15.5	5.9	**17.1**	**3.8**	-1.8	-0.6	0.2
PCB 170/190	1.44	1.25	1.51	1.99	2.12	2.35	1.40	9.61	2.15	8.47	3.01	0.72	**5.5**	**1.1**	-2.1	-1.4	0.6
PCB 195	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	1.04	0.69	No Target				
PCB 206	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		No Target				
PCB 209	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		No Target				
PCB 66	____	____	____	____	____	____	NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95	____	____	____	____	____	____	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 7

PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	15	83
Qualitative	3	17
Not Determined	0	0

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	91.7	91.3	91.5	88.4	89.1	88.8	91.5	0.2	88.8	0.4	91.4	0.0	**88.6**	**0.1**	0.0	0.1	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 8
Reporting Date: 10/26/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/14/98 S 1	10/14/98 S 2	10/14/98 S 3	10/14/98 S 1	10/14/98 S 2	10/14/98 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	NA	NA	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene	<10.6	<10.6	<10.6	<10.6	<10.6	<10.6	<10.6	NA	<10.6	NA	21.4	1.4	5.72	0.91			
phenanthrene	98.0	88.4	88.6	18.4	16.3	16.2	91.7	6.0	17.0	7.3	126	13	**22.2**	**2.4**	-1.1	-1.6	0.4
anthracene	<5.71	<5.71	<5.71	<5.71	<5.71	<5.71	<5.71	NA	<5.71	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene	355	273	297	173	152	159	308	14	161	7	322	34	**163.7**	**9.1**	-0.2	-0.2	0.9
pyrene	290	219	235	177	153	163	248	15	164	7	224	36	**151.6**	**6.6**	0.4	0.4	1.0
benz[a]anthracene	110	99.6	107	54.3	59.9	58.7	106	5	57.6	5.1	77.5	9.2	**32.5**	**4.7**	1.4	1.8	0.3
chrysene + triphenylene	244	219	237	110	109	111	233	6	110	1	196	26	**94.9**	**8.2**	0.8	0.8	0.4
benzofluoranthenes [b+j+k]	148	138	154	94.6	93.1	93.3	147	6	93.7	0.9	146	17	87.1	6.2	0.0	0.0	0.4
benzo[e]pyrene	106	95.2	103	88.8	86.7	90.0	101	5	88.5	1.9	99.5	13.1	**84.0**	**1.9**	0.1	0.1	0.4
benzo[a]pyrene	25.1	21.6	23.6	DL	DL	DL	23.4	7.5	DL	NA	25.9	2.4	**15.63**	**0.65**	-0.4	-0.7	0.5
perylene	<9.86	<9.86	<9.86	<9.86	<9.86	<9.86	<9.86	NA	<9.86	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene	<9.03	<9.03	<9.03	<9.03	<9.03	<9.03	<9.03	NA	<9.03	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]	<12.4	<12.4	<12.4	<12.4	<12.4	<12.4	<12.4	NA	<12.4	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	<11.9	<11.9	<11.9	<11.9	<11.9	<11.9	<11.9	NA	<11.9	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 8
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	8	35
Qualitative	6	26
Not Determined	9	39

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 8
Reporting Date: 10/26/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	9/30/98 S 1	9/30/98 S 2	10/1/98 S 3	9/30/98 S 1	9/30/98 S 2	10/1/98 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	NA	NA	1.62	1.28	no target				
hexachlorobenzene	0.313	0.511	0.679	<0.11	<0.11	<0.11	0.501	36.568	<0.11	NA	1.08	0.95	no target		-2.1	-0.6	2.4
gamma-HCH	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	NA	<0.32	NA	1.26	1.36	no target				
heptachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5		no target				
aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3		no target				
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.25	0.81	no target				
oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5		5.26	0.27			
endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		no target				
cis-chlordane	16.2	13.4	15.0	17.2	16.8	17.0	14.9	9.4	17.0	1.2	14.7	1.8	**17.2**	**2.8**	0.0	0.0	0.6
trans-nonachlor	14.6	12.2	13.8	17.1	17.0	16.7	13.5	9.0	16.9	1.2	13.6	1.0	**18.0**	**3.6**	0.0	-0.1	0.6
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	31.7	38.1	40.6	47.4	56.8	63.4	36.8	12.5	55.9	14.4	34.0	3.8	**51.2**	**5.5**	0.3	0.3	0.8
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.5	2.6	13.7	2.8			
endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		no target				
endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD	36.3	25.6	28.5	54.1	42.6	42.7	30.1	18.4	46.5	14.2	29.3	3.6	**43.0**	**6.3**	0.1	0.1	1.2
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.51	1.94	8.5	1.9			
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	9.28	6.63	8.34	2.29	1.42	2.49	8.08	16.6	2.07	27.53	9.30	0.99	**3.91**	**0.59**	-0.5	-0.7	1.1
mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.75	0.62	no target				

Laboratory: 8
Pesticides in Mussel IX

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

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 8

Reporting Date: 10/26/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	9/3/98 S 1	9/3/98 S 2	9/3/98 S 3	9/3/98 S 1	9/3/98 S 2	9/3/98 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	2.15	2.23	2.94	3.50	3.54	3.41	2.44	17.82	3.48	1.91	4.18	1.56	5.8	1.2	-1.7	-0.8	1.2
PCB 18	7.79	7.31	8.26	21.2	19.6	21.2	7.79	6.10	20.7	4.5	12.9	2.3	33	11	-1.6	-1.1	0.4
PCB 28	25.0	23.6	25.8	61.5	53.5	60.4	24.8	4.5	58.5	7.4	41.4	4.8	79	15	-1.6	-1.7	0.3
PCB 52	44.9	41.6	45.4	84.8	76.3	85.4	44.0	4.7	82.2	6.2	61.8	5.2	**115**	11	-1.2	-1.7	0.3
PCB 44	28.5	29.5	31.5	59.8	56.0	63.9	29.8	5.1	59.9	6.6	40.3	4.1	**72.7**	**7.4**	-1.0	-1.2	0.3
PCB 66/95	52.7	54.4	56.5	95.4	93.1	104	54.5	3.5	97.5	5.9	80.6	16.8	**184**	**21**	-1.3	-1.1	0.2
PCB 101/90	74.0	71.9	74.5	119	116	129	73.5	1.9	121	6	92.2	8.9	**128.3**	**9.7**	-0.8	-0.9	0.1
PCB 118	81.4	83.2	87.5	121	123	139	84.0	3.7	128	8	96.1	9.7	**130.8**	**3.6**	-0.5	-0.6	0.2
PCB 153	98.3	98.5	103	133	133	148	99.9	2.7	138	6	113	11	**145.2**	**7.6**	-0.5	-0.5	0.2
PCB 105	35.2	38.9	40.2	57.1	60.7	67.1	38.1	6.8	61.6	8.2	36.2	3.5	**53.0**	**3.4**	0.2	0.2	0.5
PCB 138/163/164	89.4	91.5	93.9	122	128	142	91.6	2.5	131	8	102	11	**133.5**	**9.5**	-0.4	-0.4	0.2
PCB 187/182	25.8	29.4	30.6	34.1	37.4	42.6	28.6	8.7	38.0	11.3	27.5	2.8	**34.0**	**2.3**	0.2	0.2	0.6
PCB 128	13.8	15.6	17.0	20.9	23.8	27.0	15.5	10.4	23.9	12.8	16.1	2.1	**22.0**	**3.4**	-0.2	-0.1	0.7
PCB 180	8.56	10.7	11.1	15.4	18.0	19.2	10.1	13.5	17.5	11.1	15.5	5.9	**17.1**	**3.8**	-1.4	-0.5	0.9
PCB 170/190	1.57	1.84	2.00	2.75	3.39	3.81	1.80	12.05	3.32	16.09	3.01	0.72	**5.5**	**1.1**	-1.6	-1.1	0.8
PCB 195	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	NA	<0.12	NA	1.04	0.69	No Target				
PCB 206	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	NA	<0.16	NA	<2		No Target				
PCB 209	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	NA	<0.17	NA	<2		No Target				
PCB 66	____	____	____	____	____	____	NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95	____	____	____	____	____	____	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 8

PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	15	83
Qualitative	3	17
Not Determined	0	0

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	92.4	91.5	92.2	90.5	90.5	90.5	92.0	0.5	90.5	0.0	91.4	0.0	**88.6**	**0.1**	0.0	0.6	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise **Laboratory No.: 9**

Sample: QA98TIS9 - Mussel Tissue IX (data reported as if three figures were significant) Reporting Date: 10/29/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
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	38.6	18.6	40.6	18.1	23.5	25.0	32.6	37.3	22.2	16.5	25.7	5.2	**23.5**	**4.4**	1.1	1.1	2.5
2-methylnaphthalene	57.9	23.6	54.2	13.8	13.1	13.8	45.2	41.6	13.6	2.9	33.1	8.2	10.2	1.5	1.5	1.0	2.8
1-methylnaphthalene	36.2	14.1	38.8	6.58	6.34	7.85	29.7	45.7	6.92	11.74	23.3	6.1	5.3	1.8	1.1	0.8	3.0
biphenyl	56.8	34.8	93.7	6.16	ND	7.22	61.7	48.2	<7.2	ND	12.2	1.0	5.11	0.33	**16.3**	**49.6**	**3.2**
2,6-dimethylnaphthalene	46.8	14.2	39.1	ND	ND	4.94	33.4	51.1	<4.94	ND	38.8	9.5	5.3	1.8	-0.6	-0.4	**3.4**
acenaphthylene	11.1	8.91	20.4	ND	4.22	4.04	13.5	45.1	<4.22	ND	7.87	3.92	5.25	0.38	2.8	1.8	3.0
acenaphthene	22.3	6.30	14.4	9.08	6.57	9.46	14.4	55.8	8.37	18.74	9.46	1.31	3.15	0.26	2.1	**3.5**	**3.7**
1,6,7-trimethylnaphthalene	12.0	6.78	18.0	ND	7.61	10.9	12.3	45.9	<10.9	ND	31.3	10.4	6.6	2.0	-2.4	-1.4	**3.1**
fluorene	21.1	14.1	36.0	10.5	5.00	9.15	23.7	47.0	8.21	34.75	21.4	1.4	5.72	0.91	0.4	1.2	**3.1**
phenanthrene	173	94.9	246	25.3	19.9	27.6	171	44	24.3	16.3	126	13	**22.2**	**2.4**	1.4	2.1	2.9
anthracene	13.6	6.92	20.2	9.43	6.54	10.3	13.6	48.9	8.77	22.66	11.3	3.6	**6.1**	**1.7**	0.8	0.5	**3.3**
1-methylphenanthrene	67.0	41.6	97.2	9.68	8.13	13.7	68.6	40.6	10.5	27.2	60.2	8.2	10.5	4.8	0.6	0.6	2.7
fluoranthene	402	238	625	167	146	201	422	46	171	16	322	34	**163.7**	**9.1**	1.2	1.8	**3.1**
pyrene	300	189	491	159	148	147	327	47	151	4	224	36	**151.6**	**6.6**	1.8	1.6	**3.1**
benz[a]anthracene	81.5	40.1	137	23.1	19.4	38.4	86.1	56.3	27.0	37.3	77.5	9.2	**32.5**	**4.7**	0.4	0.6	**3.8**
chrysene + triphenylene	219	129	427	68.5	72.2	107	258	59	82.6	25.8	196	26	**94.9**	**8.2**	1.3	1.3	**3.9**
benzofluoranthenes [b+j+k]	162	85.4	285	72.2	56.7	96.6	178	57	75.2	26.8	146	17	87.1	6.2	0.9	1.0	**3.8**
benzo[e]pyrene	127	60.6	201	81.3	55.2	96.9	130	54	77.8	27.0	99.5	13.1	**84.0**	**1.9**	1.2	1.3	**3.6**
benzo[a]pyrene	27.0	16.7	46.7	16.5	12.5	19.8	30.1	50.7	16.2	22.6	25.9	2.4	**15.63**	**0.65**	0.7	1.2	**3.4**
perylene	10.1	5.15	18.0	10.3	8.42	20.7	11.1	58.5	13.1	50.3	8.13	1.21	**7.68**	**0.27**	1.5	1.9	**3.9**
indeno[1,2,3-cd]pyrene	18.8	9.77	26.5	16.3	12.2	18.0	18.4	45.7	15.5	19.2	18.0	3.0	**14.2**	**2.8**	0.1	0.1	3.0
dibenz[a,h]anthracene + [a,c]	ND	ND	ND	ND	4.72	ND	ND	ND	<4.7	ND	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	30.3	10.4	31.8	28.0	32.8	42.1	24.2	49.4	34.3	20.9	21.2	3.7	**22.0**	**2.2**	0.6	0.6	**3.3**

Laboratory: 9
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	22	96
Qualitative	1	4
Not Determined	0	0

Category	Number by Category		
	z (25%)	z (s)	p (15%)
≤ 2	18	19	0
2 to 3	3	1	4
≥ 3	1	2	18

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 9
Reporting Date: 10/29/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 9/26/98 S 1	9/26/98 S 2	9/30/98 S 3	SRM 1974a, ng/g dry 9/26/98 S 1	9/26/98 S 2	9/30/98 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CI	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CI	Performance scores[a] Mussel IX 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	NA	NA	1.62	1.28	no target				
hexachlorobenzene	2.26	<0.20	<0.14	0.00	0.00	0.00	<2.26	NA	NA	NA	1.08	0.95	no target				
gamma-HCH	0.810	<0.13	<0.09	0.00	0.00	0.00	<0.81	NA	NA	NA	1.26	1.36	no target				
heptachlor	0.680	<0.52	<0.35	0.00	0.00	0.00	<0.68	NA	NA	NA	<5		no target				
aldrin	<0.26	<0.13	<0.09	0.00	0.00	0.00	<0.26	NA	NA	NA	<3		no target				
heptachlor epoxide	2.73	<0.21	<0.14	0.00	0.00	0.00	<2.73	NA	NA	NA	2.25	0.81	no target				
oxychlordane	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane	0.00	0.00	0.00	0.0	0.0	0.0	NA	NA	NA	NA	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE	4.93	13.5	<0.70	0.00	0.00	0.00	9.22	65.79	NA	NA	<5		5.26	0.27			4.4
endosulfan I	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	<2		no target				
cis-chlordane	21.2	19.7	17.3	16.8	23.1	15.7	19.4	10.3	18.5	21.4	14.7	1.8	**17.2**	**2.8**	1.3	1.3	0.7
trans-nonachlor	20.6	18.6	16.9	15.4	24.0	15.9	18.7	9.8	18.4	26.2	13.6	1.0	**18.0**	**3.6**	1.5	2.4	0.7
dieldrin	<0.68	<0.94	<0.63	0.00	0.00	0.00	<0.94	NA	NA	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	51.3	43.4	36.0	0.0	0.0	0.0	43.6	17.6	NA	NA	34.0	3.8	**51.2**	**5.5**	1.1	1.2	1.2
2,4'-DDD	16.8	16.8	13.6	43.7	51.3	36.9	15.7	11.7	44.0	16.5	11.5	2.6	13.7	2.8	1.5	1.0	0.8
endrin	<0.49	<0.57	2.37	0.00	0.00	0.00	<2.37	NA	NA	NA	<2		no target				
endosulfan II	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD	38.2	48.0	37.1	36.2	63.8	48.7	41.1	14.6	49.6	27.8	29.3	3.6	**43.0**	**6.3**	1.6	1.5	1.0
2,4'-DDT	16.0	6.46	9.97	0.00	0.00	0.00	10.8	44.6	NA	NA	7.51	1.94	8.5	1.9	1.8	1.3	3.0
cis-nonachlor	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	12.0	10.4	9.49	2.48	3.66	2.43	10.6	11.8	2.86	24.4	9.30	0.99	**3.91**	**0.59**	0.6	0.8	0.8
mirex	1.30	<0.25	<0.17	0.00	0.00	0.00	<1.3	NA	NA	NA	1.75	0.62	no target				

Laboratory: 9
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	8	36
Qualitative	8	36
Not Determined	6	27

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98TIS9 - Mussel Tissue IX (data reported as if three figures were significant)

Laboratory No.: 9

Reporting Date: 10/29/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	9/29/98 S 1	9/29/98 S 2	9/29/98 S 3	9/29/98 S 1	9/29/98 S 2	9/29/98 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	16.2	<1.05	<0.71	0.00	0.00	0.00	<16.2	NA	NA	NA	4.18	1.56	5.8	1.2			
PCB 18	17.2	14.4	12.7	0.0	0.0	0.0	14.8	15.5	NA	NA	12.9	2.3	33	11	0.6	0.4	1.0
PCB 28	56.7	44.7	36.9	0.0	0.0	0.0	46.1	21.7	NA	NA	41.4	4.8	79	15	0.5	0.5	1.4
PCB 52	102	75.3	64.0	118	133	96.3	80.4	24.1	115	16	61.8	5.2	**115**	**11**	1.2	1.7	1.6
PCB 44	68.4	50.6	43.9	79.6	89.0	65.4	54.3	23.3	78.0	15.2	40.3	4.1	**72.7**	**7.4**	1.4	1.6	1.6
PCB 66/95	92.3	71.6	65.3	104	124	89.6	76.4	18.5	106	16	80.6	16.8	**184**	**21**	-0.2	-0.2	1.2
PCB 101/90	143	114	99.4	140	161	115	119	19	139	17	92.2	8.9	**128.3**	**9.7**	1.1	1.3	1.2
PCB 118	133	114	95.6	123	145	109	114	16	126	15	96.1	9.7	**130.8**	**3.6**	0.7	0.9	1.1
PCB 153	178	149	131	162	178	131	153	15	157	15	113	11	**145.2**	**7.6**	1.4	1.7	1.0
PCB 105	49.7	45.5	38.9	50.1	61.0	46.5	44.7	12.1	52.5	14.3	36.2	3.5	**53.0**	**3.4**	0.9	1.1	0.8
PCB 138/163/164	139	118	102	125	142	107	120	16	125	14	102	11	**133.5**	**9.5**	0.7	0.7	1.0
PCB 187/182	40.9	33.8	27.9	33.8	36.4	27.1	34.2	19.0	32.4	14.8	27.5	2.8	**34.0**	**2.3**	1.0	1.1	1.3
PCB 128	27.2	18.0	16.1	20.1	23.2	16.9	20.4	29.1	20.1	15.7	16.1	2.1	**22.0**	**3.4**	1.1	1.0	1.9
PCB 180	12.8	<1.59	<1.07	21.7	34.4	26.1	<12.8	NA	27.4	23.6	15.5	5.9	**17.1**	**3.8**			
PCB 170/190	2.50	<0.55	2.07	3.85	3.45	3.65	<2.5	NA	3.65	5.47	3.01	0.72	**5.5**	**1.1**			
PCB 195	0.920	<0.39	<0.26	0.00	0.00	0.00	<0.92	NA	NA	NA	1.04	0.69	No Target				
PCB 206	1.40	<0.37	<0.25	0.00	0.00	0.00	<1.4	NA	NA	NA	<2		No Target				
PCB 209	0.710	<0.54	<0.36	0.0	0.0	0.0	<0.71	NA	NA	NA	<2		No Target				
PCB 66							NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95							NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 9
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	12	67
Qualitative	6	33
Not Determined	0	0

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	93.3	92.3	94.2	88.6	88.6	88.6	93.3	1.0	88.6	0.0	91.4	0.0	**88.6**	**0.1**	0.1	1.8	0.1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 11
Reporting Date: 11/1/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S1	S2	S3	SRM 1974a, ng/g dry S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
naphthalene							NA	NA	NA	NA	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene							NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene							NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl							NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene							NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene							NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene							NA	NA	NA	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene							NA	NA	NA	NA	21.4	1.4	5.72	0.91			
phenanthrene							NA	NA	NA	NA	126	13	**22.2**	**2.4**			
anthracene							NA	NA	NA	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene							NA	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene							NA	NA	NA	NA	322	34	**163.7**	**9.1**			
pyrene							NA	NA	NA	NA	224	36	**151.6**	**6.6**			
benz[a]anthracene							NA	NA	NA	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene							NA	NA	NA	NA	196	26	**94.9**	**8.2**			
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	146	17	87.1	6.2			
benzo[e]pyrene							NA	NA	NA	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene							NA	NA	NA	NA	25.9	2.4	**15.63**	**0.65**			
perylene							NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene							NA	NA	NA	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 11
PAH in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 11
Reporting Date: 11/1/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	[illegible]	[illegible]	10/23/98	10/11/98			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	NA	<2.0	NA	1.62	1.28	no target				
hexachlorobenzene	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	1.08	0.95	no target				
gamma-HCH	12.5	14.0	16.5	9.50	____	____	14.3	14.1	9.50	NA	1.26	1.36	no target		**41.4**	**15.3**	0.9
heptachlor	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	<5		no target				
aldrin	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	<3		no target				
heptachlor epoxide	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	2.25	0.81	no target				
oxychlordane	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	3.48	2.75	no target				
trans-chlordane	14.0	20.0	26.0	16.7	____	____	20.0	30.0	16.7	NA	12.3	2.0	**16.6**	**1.7**	2.5	2.6	2.0
2,4'-DDE	6.50	4.90	5.00	5.10	____	____	5.47	16.4	5.10	NA	<5		5.26	0.27			1.1
endosulfan I	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	<2		no target				
cis-chlordane	23.4	21.3	32.5	16.5	____	____	25.7	23.1	16.5	NA	14.7	1.8	**17.2**	**2.8**	3.0	3.0	1.5
trans-nonachlor	8.89	15.0	19.4	18.2	____	____	14.4	36.6	18.2	NA	13.6	1.0	**18.0**	**3.6**	0.2	0.4	2.4
dieldrin	10.5	5.20	4.10	6.00	____	____	6.60	51.8	6.00	NA	5.49	0.85	6.2	1.3	0.8	0.9	3.5
4,4'-DDE	22.5	26.0	28.0	53.2	____	____	25.5	10.9	53.2	NA	34.0	3.8	**51.2**	**5.5**	-1.0	-1.1	0.7
2,4'-DDD	30.1	22.0	17.2	18.1	____	____	23.1	28.2	18.1	NA	11.5	2.6	13.7	2.8	**4.0**	2.9	1.9
endrin	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	<2		no target				
endosulfan II	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	2.73	1.34	no target				
4,4'-DDD	38.7	45.8	50.8	48.8	____	____	45.1	13.5	48.8	NA	29.3	3.6	**43.0**	**6.3**	2.2	2.1	0.9
2,4'-DDT	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	7.51	1.94	8.5	1.9			
cis-nonachlor	6.00	5.10	6.59	6.90	____	____	5.90	12.7	6.90	NA	6.27	1.38	**6.84**	**0.90**	-0.2	-0.2	0.8
4,4'-DDT	8.00	7.50	7.90	3.72	____	____	7.80	3.4	3.72	NA	9.30	0.99	**3.91**	**0.59**	-0.6	-0.9	0.2
mirex	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	1.75	0.62	no target				

Laboratory: 11
Pesticides in Mussel IX

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	5	5	9
2 to 3	2	4	1
≥ 3	3	1	1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 11

Reporting Date: 11/1/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	8/30/98 S 1	8/30/98 S 2	8/30/98 S 3	8/30/98 S 1	8/30/98 S 2	8/30/98 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	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	4.18	1.56	5.8	1.2			
PCB 18	42.5	35.0	30.2	22.7	____	____	35.9	17.3	22.7	NA	12.9	2.3	33	11	**7.2**	**5.1**	1.2
PCB 28	69.6	65.0	56.7	69.7	____	____	63.8	10.3	69.7	NA	41.4	4.8	79	15	2.2	2.3	0.7
PCB 52	150	120	113	112	____	____	128	15	112	NA	61.8	5.2	**115**	**11**	**4.3**	**6.1**	1.0
PCB 44	110	95.0	88.5	80.0	____	____	97.8	11.3	80.0	NA	40.3	4.1	**72.7**	**7.4**	**5.7**	**6.6**	0.8
PCB 66/95	230	210	200	213	____	____	213	7	213	NA	80.6	16.8	**184**	**21**	**6.6**	**5.6**	0.5
PCB 101/90	116	101	88.1	114	____	____	102	14	114	NA	92.2	8.9	**128.3**	**9.7**	0.4	0.5	0.9
PCB 118	98.0	92.0	87.0	141	____	____	92.3	6.0	141	NA	96.1	9.7	**130.8**	**3.6**	-0.2	-0.2	0.4
PCB 153	103	98.0	92.0	145	____	____	97.7	5.6	145	NA	113	11	**145.2**	**7.6**	-0.5	-0.6	0.4
PCB 105	47.0	45.0	39.0	62.3	____	____	43.7	9.5	62.3	NA	36.2	3.5	**53.0**	**3.4**	0.8	1.0	0.6
PCB 138/163/164	91.0	80.0	75.0	121	____	____	82.0	10.0	121	NA	102	11	**133.5**	**9.5**	-0.8	-0.8	0.7
PCB 187/182	29.7	26.2	25.0	37.5	____	____	27.0	9.1	37.5	NA	27.5	2.8	**34.0**	**2.3**	-0.1	-0.1	0.6
PCB 128	16.0	15.0	13.2	22.9	____	____	14.7	9.6	22.9	NA	16.1	2.1	**22.0**	**3.4**	-0.3	-0.3	0.6
PCB 180	10.0	10.2	9.90	17.0	____	____	10.0	1.5	17.0	NA	15.5	5.9	**17.1**	**3.8**	-1.4	-0.5	0.1
PCB 170/190	3.07	3.00	2.46	5.50	____	____	2.84	11.74	5.50	NA	3.01	0.72	**5.5**	**1.1**	-0.2	-0.1	0.8
PCB 195	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	1.04	0.69	No Target				
PCB 206	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	<2		No Target				
PCB 209	<2.0	<2.0	<2.0	<2.0	____	____	<2.0	NA	<2.0	NA	<2		No Target				
PCB 66	____	____	____	____	____	____	NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95	____	____	____	____	____	____	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 11

PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	14	78
Qualitative	4	22
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	9	9	14
2 to 3	1	1	0
≥ 3	4	4	0

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	91.5	91.0	91.5	89.0	____	____	91.3	0.3	89.0	NA	91.4	0.0	**88.6**	**0.1**	0.0	-0.1	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 12

Reporting Date: 10/29/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/7/98 S 1	10/7/98 S 2	10/7/98 S 3	10/7/98 S 1	10/7/98 S 2	10/7/98 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	97.0	52.3	15.4	188.0	11.8	17.9	54.9	74.4	72.6	137.8	25.7	5.2	**23.5**	**4.4**	**4.5**	**4.7**	**5.0**
2-methylnaphthalene	53.9	36.8	20.2	50.7	6.6	13.3	37.0	45.6	23.5	100.9	33.1	8.2	10.2	1.5	0.5	0.3	3.0
1-methylnaphthalene	29.9	21.9	12.0	23.90	3.25	5.80	21.3	42.2	10.98	102.5	23.3	6.1	5.3	1.8	-0.3	-0.2	2.8
biphenyl	16.9	13.2	< 12.0	4.83	3.16	3.59	<16.9	NA	3.86	22.46	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	47.5	42.8	22.1	9.6	3.7	5.4	37.5	36.1	6.23	49.20	38.8	9.5	5.3	1.8	-0.1	-0.1	2.4
acenaphthylene	14.1	14.7	< 12.0	11.80	10.83	10.38	<14.7	NA	11.0	6.6	7.87	3.92	5.25	0.38			
acenaphthene	< 12.0	< 12.0	< 12.0	2.65	2.24	2.04	<12.0	NA	2.31	13.5	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene	22.3	21.0	< 12.0	6.17	4.68	6.66	<22.3	NA	5.84	17.67	21.4	1.4	5.72	0.91			
phenanthrene	144	149	98.8	32.9	22.6	27.2	131	21	27.6	18.7	126	13	**22.2**	**2.4**	0.2	0.2	1.4
anthracene	18.7	20.4	17.7	19.10	19.10	17.20	18.9	7.2	18.5	5.9	11.3	3.6	**6.1**	**1.7**	2.7	1.8	0.5
1-methylphenanthrene	60.6	66.0	35.9	13.1	11.8	15.2	54.2	29.6	13.4	12.8	60.2	8.2	10.5	4.8	-0.4	-0.4	2.0
fluoranthene	321	358	234	216	212	198	304	21	209	5	322	34	**163.7**	**9.1**	-0.2	-0.3	1.4
pyrene	230	266	187	194	194	184	228	17	191	3	224	36	**151.6**	**6.6**	0.1	0.1	1.2
benz[a]anthracene	62.0	60.7	37.5	34.6	27.0	32.5	53.4	25.8	31.4	12.5	77.5	9.2	**32.5**	**4.7**	-1.2	-1.6	1.7
chrysene + triphenylene	162	175	128	72.0	92.2	88.7	155	16	84.3	12.8	196	26	**94.9**	**8.2**	-0.8	-0.9	1.0
benzofluoranthenes [b+j+k]	108	142	98.0	83.4	51.1	74.5	116	20	69.7	23.9	146	17	87.1	6.2	-0.8	-1.0	1.3
benzo[e]pyrene	89.4	105.0	62.9	84.7	81.9	85.8	85.8	24.8	84.1	2.4	99.5	13.1	**84.0**	**1.9**	-0.6	-0.6	1.7
benzo[a]pyrene	29.2	37.9	27.5	16.8	13.5	17.2	31.5	17.7	15.8	12.8	25.9	2.4	**15.6**	**0.7**	0.9	1.6	1.2
perylene	11.8	152	< 12.0	7.49	5.77	6.63	<152	ND	6.63	12.97	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene	16.4	26.7	26.2	15.1	7.5	12.2	23.1	25.1	11.6	33.0	18.0	3.0	**14.2**	**2.8**	1.1	1.1	1.7
dibenz[a,h]anthracene + [a,c]	< 12.0	< 12.0	< 12.0	3.56	3.32	4.56	< 12.0	ND	3.81	17.25	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	22.4	38.6	27.3	25.7	21.1	23.0	29.4	28.2	23.3	9.9	21.2	3.7	**22.0**	**2.2**	1.5	1.6	1.9

Laboratory: 12

PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	16	70
Qualitative	6	26
Not Determined	1	4

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 12
Reporting Date: 10/29/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Material reference values: Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Performance scores[a]: Mussel IX		
	NA S 1	NA S 2	NA 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%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.62	1.28	no target				
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.08	0.95	no target				
gamma-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.26	1.36	no target				
heptachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5		no target				
aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3		no target				
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.25	0.81	no target				
oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5		5.26	0.27			
endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		no target				
cis-chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.7	1.8	**17.2**	**2.8**			
trans-nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.6	1.0	**18.0**	**3.6**			
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	34.0	3.8	**51.2**	**5.5**			
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.5	2.6	13.7	2.8			
endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		no target				
endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	29.3	3.6	**43.0**	**6.3**			
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.51	1.94	8.5	1.9			
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.30	0.99	**3.91**	**0.59**			
mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.75	0.62	no target				

Laboratory: 12
Pesticides in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 12
Reporting Date: 10/29/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/11/98 S 1	10/11/98 S 2	10/11/98 S 3	10/11/98 S 1	10/11/98 S 2	10/11/98 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	13.3	9.29	5.03	7.06	4.23	5.48	9.21	44.92	5.59	25.37	4.18	1.56	5.8	1.2	**4.8**	2.2	3.0
PCB 18	12.4	10.2	7.03	26.6	19.4	21.2	9.88	27.33	22.4	16.7	12.9	2.3	33	11	-0.9	-0.7	1.8
PCB 28	49.5	49.8	37.2	119	106	106	45.5	15.8	110	7	41.4	4.8	79	15	0.4	0.4	1.1
PCB 52	50.1	39.1	37.7	145	95.5	116	42.3	16.1	119	20.9	61.8	5.2	**115**	**11**	-1.3	-1.8	1.1
PCB 44	34.4	26.4	34.3	128	89.7	72.2	31.7	14.5	96.7	29.6	40.3	4.1	**72.7**	**7.4**	-0.9	-1.0	1.0
PCB 66/95	*	*	*	*	*	*	NA	NA	NA	NA	80.6	16.8	**184**	**21**			
PCB 101/90	70.1	55.8	52.3	149	111	128	59.4	15.9	129	15	92.2	8.9	**128.3**	**9.7**	-1.4	-1.6	1.1
PCB 118	65.7	52.9	48.8	130	103	118	55.8	15.8	117	12	96.1	9.7	**130.8**	**3.6**	-1.7	-1.9	1.1
PCB 153	84.3	71.3	62.0	148	125	132	72.5	15.4	135	9	113	11	**145.2**	**7.6**	-1.4	-1.7	1.0
PCB 105	24.0	23.8	20.3	51.8	43.4	48.1	22.7	9.2	47.8	8.8	36.2	3.5	**53.0**	**3.4**	-1.5	-1.7	0.6
PCB 138/163/164	67.8	53.3	65.1	149	92	108	62.1	12.4	116	25	102	11	**133.5**	**9.5**	-1.6	-1.6	0.8
PCB 187/182	20.2	15.5	12.4	30.2	24.1	27.1	16.0	24.5	27.1	11.2	27.5	2.8	**34.0**	**2.3**	-1.7	-1.9	1.6
PCB 128	10.0	8.79	7.77	18.6	16.0	17.4	8.85	12.61	17.3	7.5	16.1	2.1	**22.0**	**3.4**	-1.8	-1.6	0.8
PCB 180	7.86	5.96	6.18	11.4	10.5	11.7	6.67	15.59	11.2	5.6	15.5	5.9	**17.1**	**3.8**	-2.3	-0.8	1.0
PCB 170/190	5.24	< 2.40	3.56	4.87	2.98	4.01	<5.24	NA	3.95	23.94	3.01	0.72	**5.5**	**1.1**			
PCB 195	< 2.50	< 2.40	< 3.50	< 0.15	< 0.15	< 0.15	<3.5	NA	< 0.15	NA	1.04	0.69	No Target				
PCB 206	< 2.50	< 2.40	< 3.50	< 0.15	< 0.15	< 0.15	<3.5	NA	< 0.15	NA	<2		No Target				
PCB 209	< 2.50	< 2.40	< 3.50	< 0.15	< 0.15	< 0.15	<3.5	NA	< 0.15	NA	<2		No Target				
PCB 66	44.0	39.8	36.5	119	91.9	104	40.1	9.4	105	13	55.7	11.5	**101.4**	**4.4**	-1.1	-1.1	0.6
PCB 95	44.9	34.2	33.5	107	73.2	86.8	37.5	17.0	88.9	18.9	39.1	12.3	**83**	**17**	-0.2	-0.2	1.1

Laboratory: 12
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	13	72
Qualitative	4	22
Not Determined	1	6

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	88.9	88.9	92.2	88.6	88.6	88.6	90.0	2.1	88.6	0.0	91.4	0.0	**88.6**	**0.1**	-0.1	-1.4	0.1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 13

Reporting Date: _ 10/29/1998___

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/12/98 S 1	10/12/98 S 2	10/12/98 S 3	10/12/98 S 1	10/12/98 S 2	10/12/98 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	13.3	12.2	15.0	29.1	16.2	___	13.5	10.8	22.7	40.5	25.7	5.2	**23.5**	**4.4**	-1.9	-2.0	0.7
2-methylnaphthalene	18.2	21.4	20.3	<25	<25	___	20.0	8.2	<25	NA	33.1	8.2	10.2	1.5	-1.6	-1.1	0.5
1-methylnaphthalene	11.8	14.2	13.3	<25	<25	___	13.1	9.2	<25	NA	23.3	6.1	5.3	1.8	-1.7	-1.2	0.6
biphenyl	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	25.4	28.0	22.4	<25	<25	___	25.3	11.2	<25	NA	38.8	9.5	5.3	1.8	-1.4	-1.0	0.7
acenaphthylene	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	7.87	3.92	5.25	0.38			
acenaphthene	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	31.3	10.4	6.6	2.0			
fluorene	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	21.4	1.4	5.72	0.91			
phenanthrene	101	115	99.8	153	107	___	105	8	130	25	126	13	**22.2**	**2.4**	-0.6	-0.9	0.5
anthracene	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene	36.0	38.2	34.9	<25	<25	___	36.4	4.6	<25	NA	60.2	8.2	10.5	4.8	-1.6	-1.7	0.3
fluoranthene	209	218	178	339	301	___	202	10	320	9	322	34	**163.7**	**9.1**	-1.5	-2.1	0.7
pyrene	97.9	91.7	70.8	149	139	___	86.8	16.4	144	5	224	36	**151.6**	**6.6**	-2.4	-2.2	1.1
benz[a]anthracene	<50	<50	<50	<50	<50	___	<50	NA	<50	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene	70.3	82.0	72.1	99.9	80.4	___	74.8	8.4	90.2	15.3	196	26	**94.9**	**8.2**	-2.5	-2.7	0.6
benzofluoranthenes [b+j+k]	<50	<50	<50	<50	<50	___	<50	NA	<50	NA	146	17	87.1	6.2			
benzo[e]pyrene	31.3	29.5	22.0	88.8	34.5	___	27.6	17.8	61.6	62.2	99.5	13.1	**84.0**	**1.9**	-2.9	-3.0	1.2
benzo[a]pyrene	<50	<50	<50	<50	<50	___	<50	NA	<50	NA	25.9	2.4	**15.63**	**0.65**			
perylene	<50	<50	<50	<50	<50	___	<50	NA	<50	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene	<50	<50	<50	<50	<50	___	<50	NA	<50	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]	<50	<50	<50	<50	<50	___	<50	NA	<50	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	<50	<50	<50	<50	<50	___	<50	NA	<50	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 13
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	10	44
Qualitative	13	57
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 13

Reporting Date: 10/29/1998

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 10/12/98 S 1	Mussel IX, ng/g dry 10/28/98 S 2	Mussel IX, ng/g dry 10/29/98 S 3	SRM 1974a, ng/g dry 10/12/98 S 1	SRM 1974a, ng/g dry 10/28/98 S 2	SRM 1974a, ng/g dry ____ S 3	Mussel IX: lab mean ng/g dry	Mussel IX: lab %RSD	SRM 1974a: lab mean ng/g dry	SRM 1974a: lab %RSD	Material reference values: Mussel IX, ng/g dry: assigned value	Mussel IX, ng/g dry: 95% CL	SRM 1974a, ng/g dry: target value[b]	SRM 1974a, ng/g dry: 95% CL	Performance scores[a]: Mussel IX: z-score (25%)	Mussel IX: z-score (s)	Mussel IX: p-score (15%)
alpha-HCH	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	1.62	1.28	no target				
hexachlorobenzene	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	1.08	0.95	no target				
gamma-HCH	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	1.26	1.36	no target				
heptachlor	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	<5		no target				
aldrin	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	<3		no target				
heptachlor epoxide	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	2.25	0.81	no target				
oxychlordane	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	3.48	2.75	no target				
trans-chlordane	23.2	27.6	23.1	33.8	33.3	____	24.6	10.4	33.6	1.0	12.3	2.0	**16.6**	**1.7**	**4.0**	**4.2**	0.7
2,4'-DDE	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	<5		5.26	0.27			
endosulfan I	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	<2		no target				
cis-chlordane	14.8	18.4	19.5	29.6	22.8	____	17.6	14.1	26.2	18.4	14.7	1.8	**17.2**	**2.8**	0.8	0.8	0.9
trans-nonachlor	14.5	15.6	15.4	20.4	21.6	____	15.2	3.8	21.0	4.0	13.6	1.0	**18.0**	**3.6**	0.4	0.7	0.3
dieldrin	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	66.4	86.4	59.5	101	79.6	____	70.8	19.7	90.3	16.8	34.0	3.8	**51.2**	**5.5**	**4.3**	**4.6**	1.3
2,4'-DDD	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	11.5	2.6	13.7	2.8			
endrin	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	<2		no target				
endosulfan II	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	2.73	1.34	no target				
4,4'-DDD	27.7	31.8	34.8	38.3	59.7	____	31.4	11.5	49.0	30.9	29.3	3.6	**43.0**	**6.3**	0.3	0.3	0.8
2,4'-DDT	21.1	16.4	27.9	<25	<25	____	21.8	26.6	<25	NA	7.51	1.94	8.5	1.9	**7.6**	**5.7**	1.8
cis-nonachlor	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	9.30	0.99	**3.91**	**0.59**			
mirex	<25	<25	<25	<25	<25	____	<25	NA	<25	NA	1.75	0.62	no target				

Laboratory: 13
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	6	27
Qualitative	16	73
Not Determined	0	0

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 13

Reporting Date: _ 10/29/1998___

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/12/98 S 1	10/12/98 S 2	10/12/98 S 3	10/12/98 S 1	10/12/98 S 2	10/12/98 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	<25	<25	<25	<25	___	<25	NA	<25	NA	4.18	1.56	5.8	1.2			
PCB 18	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	12.9	2.3	33	11			
PCB 28	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	41.4	4.8	79	15			
PCB 52	51.3	57.9	47.6	119	94.6	___	52.3	10.0	107	16	61.8	5.2	**115**	11	-0.6	-0.9	0.7
PCB 44	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	40.3	4.1	**72.7**	7.4			
PCB 66/95	50.1	55.9	58.8	119	79.3	___	54.9	8.1	99.3	28.6	80.6	16.8	**184**	21	-1.3	-1.1	0.5
PCB 101/90	94.4	95.7	85.1	177	150	___	91.8	6.3	163	11.8	92.2	8.9	**128.3**	9.7	0.0	0.0	0.4
PCB 118	78.1	85.6	73.2	145	114	___	79.0	7.9	129	16.6	96.1	9.7	**130.8**	3.6	-0.7	-0.8	0.5
PCB 153	58.8	56.2	50.2	94.6	75.0	___	55.1	8.0	84.8	16.4	113	11	**145.2**	7.6	-2.0	-2.4	0.5
PCB 105	37.6	39.5	35.4	69.7	56.1	___	37.5	5.5	62.9	15.3	36.2	3.5	**53.0**	3.4	0.1	0.2	0.4
PCB 138/163/164	68.9	73.4	67.9	104	100	___	70.1	4.2	102	3	102	11	**133.5**	9.5	-1.2	-1.3	0.3
PCB 187/182	32.1	29.7	26.0	43.8	36.2	___	29.3	10.6	40.0	13.4	27.5	2.8	**34.0**	2.3	0.3	0.3	0.7
PCB 128	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	16.1	2.1	**22.0**	3.4			
PCB 180	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	15.5	5.9	**17.1**	3.8			
PCB 170/190	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	3.01	0.72	**5.5**	1.1			
PCB 195	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	1.04	0.69	No Target				
PCB 206	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	<2		No Target				
PCB 209	<25	<25	<25	<25	<25	___	<25	NA	<25	NA	<2		No Target				
PCB 66	0.00	___	___	___	___	___	NA	NA	NA	NA	55.7	11.5	**101.4**	4.4			
PCB 95	0.00	___	___	___	___	___	NA	NA	NA	NA	39.1	12.3	**83**	17			

Laboratory: 13
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	8	44
Qualitative	10	56
Not Determined	0	0

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	91.4	90.3	0.3__	89.8	90.2	___	90.9	0.9	90.0	0.3	91.4	0.0	**88.6**	0.1	0.0	-0.6	0.1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 14
Reporting Date: 10/29/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Material reference values: Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Performance scores[a]: Mussel IX		
	6/8/98 S 1	6/8/98 S 2	6/8/98 S 3	6/8/98 S 1	6/8/98 S 2	6/8/98 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	30.6	26.8	20.9	16.4	18.3	17.3	26.1	18.7	17.3	5.5	25.7	5.2	**23.5**	**4.4**	0.1	0.1	1.2
2-methylnaphthalene	48.4	45.5	41.9	14.4	14.2	13.2	45.3	7.2	13.9	4.6	33.1	8.2	10.2	1.5	1.5	1.0	0.5
1-methylnaphthalene	28.4	26.6	25.1	5.28	5.47	5.74	26.7	6.2	5.50	4.21	23.3	6.1	5.3	1.8	0.6	0.4	0.4
biphenyl	12.2	12.4	12.4	4.45	5.20	5.26	12.3	0.9	4.97	9.08	12.2	1.0	5.11	0.33	0.0	0.1	0.1
2,6-dimethylnaphthalene	55.2	52.7	51.1	5.97	6.90	5.66	53.0	3.9	6.18	10.45	38.8	9.5	5.3	1.8	1.5	1.1	0.3
acenaphthylene	6.64	6.54	7.04	3.07	3.80	3.68	6.74	3.93	3.52	11.13	7.87	3.92	5.25	0.38	-0.6	-0.4	0.3
acenaphthene	10.2	8.60	8.50	3.29	<2.98	<2.99	9.10	10.5	<3.29	NA	9.46	1.31	3.15	0.26	-0.2	-0.3	0.7
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene	23.4	22.4	21.0	6.51	5.34	5.83	22.3	5.4	5.89	9.97	21.4	1.4	5.72	0.91	0.2	0.4	0.4
phenanthrene	144	145	143	17.6	19.3	20.4	144	1	19.1	7.4	126	13	**22.2**	**2.4**	0.6	0.8	0.0
anthracene	11.7	10.2	10.2	6.79	5.98	6.79	10.7	8.1	6.52	7.17	11.3	3.6	**6.1**	**1.7**	-0.2	-0.1	0.5
1-methylphenanthrene	72.0	75.2	75.9	12.0	10.6	12.1	74.4	2.8	11.6	7.3	60.2	8.2	10.5	4.8	0.9	1.0	0.2
fluoranthene	471	490	475	238	220	214	479	2	224	6	322	34	**163.7**	**9.1**	2.0	2.8	0.1
pyrene	339	343	340	214	207	197	341	1	206	4	224	36	**151.6**	**6.6**	2.1	1.9	0.0
benz[a]anthracene	81.1	79.3	78.3	28.8	27.5	25.4	79.6	1.8	27.2	6.3	77.5	9.2	**32.5**	**4.7**	0.1	0.1	0.1
chrysene + triphenylene	202	197	198	84.7	79.7	78.7	199	1	81.0	4.0	196	26	**94.9**	**8.2**	0.1	0.1	0.1
benzofluoranthenes [b+j+k]	126	131	132	61.6	61.4	58.7	130	2	60.6	2.7	146	17	87.1	6.2	-0.4	-0.5	0.2
benzo[e]pyrene	94.5	94.7	91.7	74.2	70.3	70.1	93.6	1.8	71.5	3.2	99.5	13.1	**84.0**	**1.9**	-0.2	-0.2	0.1
benzo[a]pyrene	21.1	22.0	22.0	12.8	12.4	11.7	21.7	2.4	12.3	4.5	25.9	2.4	**15.6**	**0.7**	-0.6	-1.2	0.2
perylene	6.91	10.1	7.73	6.85	6.19	5.50	8.25	20.09	6.18	10.92	8.13	1.21	**7.68**	**0.27**	0.1	0.1	1.3
indeno[1,2,3-cd]pyrene	15.3	13.6	12.1	10.3	10.4	9.0	13.7	11.7	9.89	8.07	18.0	3.0	**14.2**	**2.8**	-1.0	-1.0	0.8
dibenz[a,h]anthracene + [a,c]	3.29	2.91	2.56	1.92	2.28	1.36	2.92	12.50	1.85	25.01	4.36	2.12	3.00	0.20	-1.3	-0.6	0.8
benzo[ghi]perylene	19.0	16.8	16.0	18.4	19.5	16.9	17.3	9.0	18.3	7.1	21.2	3.7	**22.0**	**2.2**	-0.7	-0.8	0.6

Laboratory: 14
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	22	96
Qualitative	0	0
Not Determined	1	4

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 14
Reporting Date: 10/29/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	s/s/ss S 1	s/s/ss S 2	s/s/ss S 3	s/s/ss S 1	s/s/ss S 2	s/s/ss 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	NA	NA	1.62	1.28	no target				
hexachlorobenzene	<1.14	<1.06	<1.11	<1.27	<1.24	<1.14	<1.14	NA	<1.27	NA	1.08	0.95	no target				
gamma-HCH	<1.31	<1.22	<1.28	<1.46	<1.42	<1.31	<1.31	NA	<1.46	NA	1.26	1.36	no target				
heptachlor	<1.97	<1.84	<1.92	<2.2	<2.14	<1.97	<1.97	NA	<2.2	NA	<5		no target				
aldrin	<1.49	<1.39	<1.44	<1.66	<1.61	<1.48	<1.49	NA	<1.66	NA	<3		no target				
heptachlor epoxide	<2.88	<2.69	<2.8	<3.22	<3.12	<2.87	<2.88	NA	<3.22	NA	2.25	0.81	no target				
oxychlordane	4.03	3.83	3.79	6.75	6.67	6.64	3.88	3.31	6.69	0.85	3.48	2.75	no target		0.5	0.2	0.2
trans-chlordane	12.2	11.7	11.7	15.1	15.0	14.7	11.87	2.43	14.9	1.4	12.3	2.0	**16.6**	**1.7**	-0.2	-0.2	0.2
2,4'-DDE	<5.4	<5.04	<5.25	<6.03	<5.86	<5.39	<5.4	NA	<6.03	NA	<5		5.26	0.27			
endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		no target				
cis-chlordane	13.1	12.6	12.5	18.7	18.8	18.2	12.7	2.5	18.6	1.7	14.7	1.8	**17.2**	**2.8**	-0.5	-0.5	0.2
trans-nonachlor	13.1	12.6	12.6	17.8	17.7	17.4	12.8	2.3	17.6	1.2	13.6	1.0	**18.0**	**3.6**	-0.3	-0.4	0.2
dieldrin	6.49	5.97	6.11	8.47	8.88	9.46	6.19	4.35	8.94	5.57	5.49	0.85	6.2	1.3	0.5	0.5	0.3
4,4'-DDE	30.1	28.6	27.9	38.9	36.8	34.2	28.9	3.9	36.6	6.4	34.0	3.8	**51.2**	**5.5**	-0.6	-0.6	0.3
2,4'-DDD	8.94	9.82	8.02	13.6	13.4	13.2	8.93	10.08	13.4	1.5	11.5	2.6	13.7	2.8	-0.9	-0.6	0.7
endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		no target				
endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD	24.5	24.2	23.5	39.0	38.4	38.5	24.1	2.1	38.6	0.8	29.3	3.6	**43.0**	**6.3**	-0.7	-0.7	0.1
2,4'-DDT	6.37	6.21	6.07	6.37	6.50	6.73	6.22	2.41	6.53	2.79	7.51	1.94	8.5	1.9	-0.7	-0.5	0.2
cis-nonachlor	8.68	8.35	8.19	5.69	5.51	5.53	8.41	2.97	5.58	1.77	6.27	1.38	**6.84**	**0.90**	1.4	1.1	0.2
4,4'-DDT	7.12	6.87	7.15	<2.54	<2.47	<2.27	7.05	2.18	<2.54	NA	9.30	0.99	**3.91**	**0.59**	-1.0	-1.4	0.1
mirex	<1.5	<1.4	<1.46	<1.68	<1.63	<1.5	<1.5	NA	<1.68	NA	1.75	0.62	no target				

Laboratory: 14
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	11	50
Qualitative	7	32
Not Determined	4	18

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 14
Reporting Date: 10/29/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	s/s/ss S 1	s/s/ss S 2	s/s/ss S 3	s/s/ss S 1	s/s/ss S 2	s/s/ss 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	NA	NA	4.18	1.56	5.8	1.2			
PCB 18	18.1	16.8	17.1	40.3	39.7	39.6	17.3	3.9	39.9	0.9	12.9	2.3	33	11	1.4	1.0	0.3
PCB 28	39.8	39.2	39.4	92.8	89.1	83.2	39.5	0.8	88.4	5.5	41.4	4.8	79	15	-0.2	-0.2	0.1
PCB 52	83.5	80.0	80.1	147	144	145	81.2	2.5	145	1	61.8	5.2	**115**	**11**	1.3	1.8	0.2
PCB 44	48.4	47.2	46.2	88.2	87.2	86.4	47.3	2.3	87.3	1.0	40.3	4.1	**72.7**	**7.4**	0.7	0.8	0.2
PCB 66/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80.6	16.8	**184**	**21**			
PCB 101/90	108	104	104	168	165	161	105	2	165	2	92.2	8.9	**128.3**	**9.7**	0.6	0.7	0.1
PCB 118	104	102	101	152	151	148	102	1	150	1	96.1	9.7	**130.8**	**3.6**	0.3	0.3	0.1
PCB 153	133	126	125	190	184	180	128	3	185	3	113	11	**145.2**	**7.6**	0.5	0.6	0.2
PCB 105	32.5	33.2	32.5	51.0	51.1	54.0	32.7	1.2	52.0	3.3	36.2	3.5	**53.0**	**3.4**	-0.4	-0.4	0.1
PCB 138/163/164	124	119	117	165	163	160	120	3	163	2	102	11	**133.5**	**9.5**	0.7	0.7	0.2
PCB 187/182	36.0	34.7	34.3	44.3	43.3	42.8	35.0	2.5	43.5	1.8	27.5	2.8	**34.0**	**2.3**	1.1	1.2	0.2
PCB 128	16.8	16.5	16.1	24.2	23.8	23.6	16.5	2.1	23.9	1.3	16.1	2.1	**22.0**	**3.4**	0.1	0.1	0.1
PCB 180	43.1	43.1	41.8	11.6	11.4	11.4	42.7	1.8	11.5	1.0	15.5	5.9	**17.1**	**3.8**	**7.0**	2.5	0.1
PCB 170/190	3.73	3.85	3.69	6.18	6.24	5.87	3.76	2.22	6.10	3.26	3.01	0.72	**5.5**	**1.1**	1.0	0.7	0.1
PCB 195	<0.979	<0.913	<0.952	1.18	<1.06	<0.975	<0.979	NA	<1.18	NA	1.04	0.69	No Target				
PCB 206	<1.02	<0.947	<0.987	<1.13	<1.1	<1.01	<1.02	NA	<1.13	NA	<2		No Target				
PCB 209	1.35	1.47	1.30	<1.31	<1.27	<1.17	1.37	6.36	<1.31	NA	<2		No Target				
PCB 66	73.0	70.1	69.3	122	126	120	70.8	2.7	123	2	55.7	11.5	**101.4**	**4.4**	1.1	1.1	0.2
PCB 95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 14
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	14	78
Qualitative	2	11
Not Determined	2	11

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	91.7	91.8	91.6	89.2	88.8	88.9	91.7	0.1	89.0	0.2	91.4	0.0	**88.6**	**0.1**	0.0	0.3	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 15
Reporting Date: 10/30/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	NA S 1	NA S 2	NA 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%)
naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.4	1.4	5.72	0.91			
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	126	13	**22.2**	**2.4**			
anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	322	34	**163.7**	**9.1**			
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	224	36	**151.6**	**6.6**			
benz[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	196	26	**94.9**	**8.2**			
benzofluoranthenes [b+j+k]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	146	17	87.1	6.2			
benzo[e]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.9	2.4	**15.63**	**0.65**			
perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 15
PAH in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 15
Reporting Date: 10/30/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/05/98	10/13/98	10/16/98	NA	NA	NA	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%)
alpha-HCH	< 0.9	< 0.9	< 0.9	NA	NA	NA	< 0.9	NA	NA	NA	1.62	1.28	no target				
hexachlorobenzene	Other	Other	Other	NA	NA	NA	Other	NA	NA	NA	1.08	0.95	no target				
gamma-HCH	< 0.8	< 0.8	< 0.8	NA	NA	NA	< 0.8	NA	NA	NA	1.26	1.36	no target				
heptachlor	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 1.0	NA	NA	NA	<5		no target				
aldrin	3.46	1.52	1.45	NA	NA	NA	2.14	53.23	NA	NA	<3		no target				**3.5**
heptachlor epoxide	2.41	2.14	2.04	NA	NA	NA	2.20	8.71	NA	NA	2.25	0.81	no target		-0.1	-0.1	0.6
oxychlordane	< 0.8	< 0.8	< 0.8	NA	NA	NA	< 0.8	NA	NA	NA	3.48	2.75	no target				
trans-chlordane	8.01	9.14	5.81	NA	NA	NA	7.65	22.13	NA	NA	12.3	2.0	**16.6**	**1.7**	-1.5	-1.6	1.5
2,4'-DDE	< 1.1	< 1.1	< 1.1	NA	NA	NA	< 1.1	NA	NA	NA	<5		5.26	0.27			
endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		no target				
cis-chlordane	8.12	11.1	6.08	NA	NA	NA	8.43	29.94	NA	NA	14.7	1.8	**17.2**	**2.8**	-1.7	-1.7	2.0
trans-nonachlor	< 1.3	< 1.3	< 1.3	NA	NA	NA	< 1.3	NA	NA	NA	13.6	1.0	**18.0**	**3.6**			
dieldrin	< 1.3	< 1.3	< 1.3	NA	NA	NA	< 1.3	NA	NA	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	35.5	33.9	19.5	NA	NA	NA	29.6	29.7	NA	NA	34.0	3.8	**51.2**	**5.5**	-0.5	-0.6	2.0
2,4'-DDD	5.94	6.95	5.26	NA	NA	NA	6.05	14.06	NA	NA	11.5	2.6	13.7	2.8	-1.9	-1.4	0.9
endrin	< 1.5	< 1.5	< 1.5	NA	NA	NA	< 1.5	NA	NA	NA	<2		no target				
endosulfan II	< 1.3	< 1.3	< 1.3	NA	NA	NA	< 1.3	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD	19.7	22.8	15.6	NA	NA	NA	19.4	18.6	NA	NA	29.3	3.6	**43.0**	**6.3**	-1.4	-1.3	1.2
2,4'-DDT	6.21	4.04	3.57	NA	NA	NA	4.61	30.57	NA	NA	7.51	1.94	8.5	1.9	-1.5	-1.1	2.0
cis-nonachlor	7.79	3.37	3.80	NA	NA	NA	4.99	48.88	NA	NA	6.27	1.38	**6.84**	**0.90**	-0.8	-0.7	**3.3**
4,4'-DDT	7.76	5.39	4.80	NA	NA	NA	5.98	26.18	NA	NA	9.30	0.99	**3.91**	**0.59**	-1.4	-2.0	1.7
mirex	< 1.5	< 1.5	< 1.5	NA	NA	NA	< 1.5	NA	NA	NA	1.75	0.62	no target				

Laboratory: 15
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	10	46
Qualitative	11	50
Not Determined	1	5

Category	Number by Category		
	z (25%)	z (s)	p (15%)
≤ 2	9	8	7
2 to 3	0	1	1
≥ 3	0	0	2

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 15

Reporting Date: 10/30/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	L.J.J. S 1	L.J.J. S 2	L.J.J. S 3	L.J.J. S 1	L.J.J. S 2	L.J.J. 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	NA	NA	4.18	1.56	5.8	1.2			
PCB 18	8.65	9.62	8.08	NA	NA	NA	8.78	8.86	NA	NA	12.9	2.3	33	11	-1.3	-0.9	0.6
PCB 28	63.5	71.0	71.3	NA	NA	NA	68.6	6.4	NA	NA	41.4	4.8	79	15	2.6	2.8	0.4
PCB 52	80.1	62.1	32.0	NA	NA	NA	58.1	41.9	NA	NA	61.8	5.2	**115**	11	-0.2	-0.3	2.8
PCB 44	41.5	39.7	19.8	NA	NA	NA	33.7	35.8	NA	NA	40.3	4.1	**72.7**	**7.4**	-0.7	-0.8	2.4
PCB 66/95	59.6	74.0	37.7	NA	NA	NA	57.1	32.0	NA	NA	80.6	16.8	**184**	**21**	-1.2	-1.0	2.1
PCB 101/90	94.9	105.9	50.1	NA	NA	NA	83.6	35.3	NA	NA	92.2	8.9	**128.3**	**9.7**	-0.4	-0.4	2.4
PCB 118	120	105	54.9	NA	NA	NA	93.2	36.5	NA	NA	96.1	9.7	**130.8**	**3.6**	-0.1	-0.1	2.4
PCB 153	135	115	53.8	NA	NA	NA	101	42	NA	NA	113	11	**145.2**	**7.6**	-0.4	-0.5	2.8
PCB 105	67.6	65.5	35.1	NA	NA	NA	56.1	32.4	NA	NA	36.2	3.5	**53.0**	**3.4**	2.2	2.6	2.2
PCB 138/163/164	117	111	50.2	NA	NA	NA	92.5	39.7	NA	NA	102	11	**133.5**	**9.5**	-0.4	-0.4	2.6
PCB 187/182	44.8	30.2	26.0	NA	NA	NA	33.7	29.3	NA	NA	27.5	2.8	**34.0**	**2.3**	0.9	1.0	2.0
PCB 128	21.5	16.3	9.00	NA	NA	NA	15.6	40.3	NA	NA	16.1	2.1	**22.0**	**3.4**	-0.1	-0.1	2.7
PCB 180	32.4	38.5	23.0	NA	NA	NA	31.3	24.9	NA	NA	15.5	5.9	**17.1**	**3.8**	**4.1**	1.4	1.7
PCB 170/190	2.77	1.44	1.28	NA	NA	NA	1.83	44.70	NA	NA	3.01	0.72	**5.5**	**1.1**	-1.6	-1.0	3.0
PCB 195	4.90	2.06	3.01	NA	NA	NA	3.32	43.50	NA	NA	1.04	0.69	No Target		**8.7**	**4.1**	2.9
PCB 206	2.04	2.09	1.00	NA	NA	NA	1.71	35.99	NA	NA	<2		No Target				2.4
PCB 209	1.20	1.04	2.22	NA	NA	NA	1.49	43.06	NA	NA	<2		No Target				2.9
PCB 66				NA	NA	NA	NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95				NA	NA	NA	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 15
PCBs in Mussel IX

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	11	12	4
2 to 3	2	2	13
≥ 3	2	1	0

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	91.7	91.4	90.9	*	*	*	91.3	0.4	#DIV/0!	#DIV/0!	91.4	0.0	88.6	0.1	0.0	-0.1	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 16

Reporting Date: 10/29/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	7/8/98 S 1	7/8/98 S 2	7/8/98 S 3	7/8/98 S 1	7/8/98 S 2	7/8/98 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	23.9	17.9	25.1	8.13	8.51	12.4	22.3	17.1	9.69	24.51	25.7	5.2	**23.5**	**4.4**	-0.5	-0.5	1.1
2-methylnaphthalene	37.4	29.0	34.9	6.02	5.55	7.59	33.8	12.7	6.39	16.72	33.1	8.2	10.2	1.5	0.1	0.1	0.8
1-methylnaphthalene	27.5	22.4	27.4	5.01	3.23	4.33	25.8	11.4	4.19	21.40	23.3	6.1	5.30	1.80	0.4	0.3	0.8
biphenyl	10.7	11.5	10.2	3.01	2.37	2.74	10.8	6.2	2.71	11.74	12.2	1.0	5.11	0.33	-0.4	-1.4	0.4
2,6-dimethylnaphthalene	43.7	44.0	42.0	3.7	3.4	4.0	43.3	2.5	3.69	6.93	38.8	9.5	5.3	1.8	0.5	0.3	0.2
acenaphthylene	17.3	11.3	14.1	16.9	14.3	16.8	14.2	21.3	16.0	9.1	7.87	3.92	5.25	0.38	**3.2**	2.0	1.4
acenaphthene	10.6	10.7	10.6	4.40	4.63	4.59	10.6	0.6	4.54	2.7	9.46	1.31	3.15	0.26	0.5	0.8	0.0
1,6,7-trimethylnaphthalene	47.4	45.3	43.4	4.84	5.16	5.43	45.4	4.4	5.14	5.71	31.3	10.4	6.6	2.0	1.8	1.0	0.3
fluorene	21.2	18.8	18.3	4.70	4.60	5.11	19.4	7.9	4.80	5.62	21.4	1.4	5.72	0.91	-0.4	-1.0	0.5
phenanthrene	103	113	116	14.6	16.7	15.9	111	6	15.7	6.7	126	13	**22.2**	**2.4**	-0.5	-0.7	0.4
anthracene	26.2	31.6	32.2	18.2	22.1	22.8	30.0	11.0	21.0	11.9	11.3	3.6	**6.1**	**1.7**	**6.6**	**4.3**	0.7
1-methylphenanthrene	53.0	70.4	53.6	9.25	7.56	8.74	59.0	16.7	8.52	10.20	60.2	8.2	10.5	4.8	-0.1	-0.1	1.1
fluoranthene	281	292	330	159	149	160	301	9	156	4	322	34	**163.7**	**9.1**	-0.3	-0.4	0.6
pyrene	211	220	246	155	144	148	226	8	149	4	224	36	**151.6**	**6.6**	0.0	0.0	0.5
benz[a]anthracene	64.6	56.4	84.1	25.4	28.4	36.8	68.4	20.8	30.2	19.6	77.5	9.2	**32.5**	**4.7**	-0.5	-0.6	1.4
chrysene + triphenylene	161	177	249	96.5	78.7	116	196	24	97.1	19.3	196	26	**94.9**	**8.2**	0.0	0.0	1.6
benzofluoranthenes [b+j+k]	114	119	161	79.5	73.1	99.8	131	20	84.1	16.6	146	17	87.1	6.2	-0.4	-0.5	1.3
benzo[e]pyrene	81.4	87.9	125	84.3	79.7	105	98.0	23.8	89.5	14.7	99.5	13.1	**84.0**	**1.9**	-0.1	-0.1	1.6
benzo[a]pyrene	17.7	19.6	24.9	18.5	17.3	24.9	20.7	18.1	20.2	20.4	25.9	2.4	**15.6**	**0.7**	-0.8	-1.5	1.2
perylene	9.22	7.00	10.3	5.52	6.77	8.53	8.83	19.01	6.94	21.78	8.13	1.21	**7.68**	**0.27**	0.3	0.4	1.3
indeno[1,2,3-cd]pyrene	12.8	10.2	15.7	12.8	8.75	12.3	12.9	21.5	11.3	19.4	18.0	3.0	**14.2**	**2.8**	-1.1	-1.2	1.4
dibenz[a,h]anthracene + [a,c]	2.37	2.37	2.46	2.47	2.33	2.50	2.40	2.20	2.43	3.63	4.36	2.12	3.00	0.20	-1.8	-0.8	0.1
benzo[ghi]perylene	17.1	15.8	23.4	23.8	23.0	32.7	18.8	21.7	26.5	20.3	21.2	3.7	**22.0**	**2.2**	-0.5	-0.5	1.4

Laboratory: 16
PAH in Mussel IX

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	0	1	0
≥ 3	2	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 16
Reporting Date: 10/29/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/24/98 S 1	8/25/98 S 2	7/4/98 S 3	10/24/98 S 1	5/26/98 S 2	7/4/98 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	1.50	1.64	1.19	1.53	0.86	1.38	1.44	15.96	1.26	27.97	1.62	1.28	no target		-0.4	-0.2	1.1
hexachlorobenzene	0.460	0.680	0.731	0.203	0.180	0.267	0.624	23.077	0.217	20.818	1.08	0.95	no target		-1.7	-0.5	1.5
gamma-HCH	1.02	0.599	1.22	0.780	0.300	0.689	0.948	33.614	0.590	43.241	1.26	1.36	no target		-1.0	-0.4	2.2
heptachlor	0.600	0.898	1.11	0.120	0.000	0.000	0.869	29.485	<0.12	NA	<5		no target				2.0
aldrin	1.01	0.000	0.760	0.000	0.000	0.000	0.884	19.891	NA	NA	<3		no target				1.3
heptachlor epoxide	0.540	0.690	0.000	0.000	0.000	0.000	0.615	17.247	NA	NA	2.25	0.81	no target		-2.9	**-5.0**	1.1
oxychlordane	4.02	6.92	6.13	5.73	5.68	6.44	5.69	26.37	5.95	7.15	3.48	2.75	no target		2.5	1.3	1.8
trans-chlordane	11.1	12.4	14.0	11.3	10.9	11.8	12.5	11.6	11.3	3.9	12.3	2.0	**16.6**	**1.7**	0.1	0.1	0.8
2,4'-DDE	0.000	0.000	0.000	0.000	4.70	0.000	NA	NA	<4.70	NA	<5		5.26	0.27			
endosulfan I	0.000	0.000	0.000	0.000	0.000	0.000	NA	NA	NA	NA	<2		no target				
cis-chlordane	14.2	15.9	18.1	14.1	13.8	15.9	16.0	12.3	14.6	7.7	14.7	1.8	**17.2**	**2.8**	0.4	0.4	0.8
trans-nonachlor	12.3	13.9	16.2	13.6	13.2	14.4	14.2	13.8	13.8	4.5	13.6	1.0	**18.0**	**3.6**	0.2	0.2	0.9
dieldrin	6.25	5.70	4.12	9.62	6.59	5.74	5.36	20.64	7.32	27.9	5.49	0.85	6.2	1.3	-0.1	-0.1	1.4
4,4'-DDE	35.7	48.7	57.1	43.6	41.0	58.5	47.2	22.8	47.7	19.8	34.0	3.8	**51.2**	**5.5**	1.5	1.6	1.5
2,4'-DDD	11.1	11.0	12.7	15.3	13.4	17.0	11.6	8.4	15.3	11.8	11.5	2.6	13.7	2.8	0.0	0.0	0.6
endrin	0.000	0.000	0.000	0.000	0.000	0.000	NA	NA	NA	NA	<2		no target				
endosulfan II	3.04	3.71	3.10	0.000	5.73	0.000	3.28	11.32	<5.73	NA	2.73	1.34	no target		0.8	1.0	0.8
4,4'-DDD	33.8	38.7	34.1	44.9	39.2	40.4	35.6	7.7	41.5	7.3	29.3	3.6	**43.0**	**6.3**	0.9	0.8	0.5
2,4'-DDT	6.93	4.44	5.95	8.47	6.17	4.76	5.77	21.71	6.47	28.9	7.51	1.94	8.5	1.9	-0.9	-0.7	1.4
cis-nonachlor	8.71	9.99	10.8	10.1	8.66	9.72	9.85	10.92	9.49	7.8	6.27	1.38	**6.84**	**0.90**	2.3	1.9	0.7
4,4'-DDT	11.2	10.1	7.80	2.85	1.38	2.08	9.69	17.80	2.10	34.9	9.30	0.99	**3.91**	**0.59**	0.2	0.2	1.2
mirex	1.56	2.34	1.85	0.00	1.00	0.89	1.92	20.67	0.95	8.2	1.75	0.62	no target		0.4	0.7	1.4

Laboratory: 16
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	19	86
Qualitative	0	0
Not Determined	3	14

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 16
Reporting Date: 10/29/98

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 10/24/98 S1	S2	S3	SRM 1974a, ng/g dry 10/24/98 S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a]: Mussel IX z-score (25%)	z-score (s)	p-score (15%)
PCB 8	4.32	6.22	4.27	4.90	6.16	10.2	4.94	22.55	7.09	39.03	4.18	1.56	5.8	1.2	0.7	0.3	1.5
PCB 18	10.9	12.4	10.1	27.3	22.3	26.7	11.1	10.6	25.4	10.8	12.9	2.3	33	11	-0.5	-0.4	0.7
PCB 28	43.8	48.2	43.2	76.1	78.2	92.0	45.1	6.0	82.1	10.5	41.4	4.8	79	15	0.4	0.4	0.4
PCB 52	63.7	80.0	59.2	115	108	118	67.6	16.2	114	4	61.8	5.2	**115**	11	0.4	0.5	1.1
PCB 44	42.8	56.1	40.5	70.4	68.5	74.5	46.4	18.2	71.1	4.3	40.3	4.1	**72.7**	7.4	0.6	0.7	1.2
PCB 66/95	66.0	72.9	109	99.0	91.2	127	82.6	27.9	106	18	80.6	16.8	**184**	21	0.1	0.1	1.9
PCB 101/90	94.6	124	101	132	142	156	107	14	143	9	92.2	8.9	**128.3**	9.7	0.6	0.7	1.0
PCB 118	98.4	129	91.1	132	126	138	106	19	132	4	96.1	9.7	**130.8**	3.6	0.4	0.5	1.3
PCB 153	118	168	124	160	153	168	137	20	160	5	113	11	**145.2**	7.6	0.8	1.0	1.3
PCB 105	43.9	42.2	32.6	52.8	50.3	51.4	39.6	15.4	51.5	2.5	36.2	3.5	**53.0**	3.4	0.4	0.4	1.0
PCB 138/163/164	105	138	102	130	133	143	115	17	135	5	102	11	**133.5**	9.5	0.5	0.5	1.2
PCB 187/182	27.3	32.4	24.2	31.7	28.2	32.9	28.0	14.7	30.9	8.0	27.5	2.8	**34.0**	2.3	0.1	0.1	1.0
PCB 128	18.3	19.8	16.4	22.8	19.5	23.5	18.1	9.3	21.9	9.6	16.1	2.1	**22.0**	3.4	0.5	0.5	0.6
PCB 180	30.4	39.9	27.5	27.2	24.0	27.1	32.6	19.8	26.1	6.9	15.5	5.9	**17.1**	3.8	4.4	1.6	1.3
PCB 170/190	4.29	3.53	2.57	4.00	5.04	2.21	3.46	24.8	3.75	38.13	3.01	0.72	**5.5**	1.1	0.6	0.4	1.7
PCB 195	0.300	0.430	0.00	0.174	0.280	0.00	0.365	25.237	0.227	32.907	1.04	0.69	No Target		-2.6	-1.2	1.7
PCB 206	0.00	0.330	0.335	0.00	0.140	0.320	0.332	0.971	0.153	104.661	<2		No Target				0.1
PCB 209	0.430	1.67	0.00	0.820	0.0	0.0	1.05	83.51	<0.82	NA	<2		No Target				**5.6**
PCB 66							NA	NA	NA	NA	55.7	11.5	**101.4**	4.4			
PCB 95							NA	NA	NA	NA	39.1	12.3	**83**	17			

Laboratory: 16
PCBs in Mussel IX

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	14	16	17
2 to 3	1	0	0
≥ 3	1	0	1

Water in Mussel IX

	Mussel IX, %: S1	S2	S3	SRM 1974a, %: S1	S2	S3	Mussel IX, %: mean, %	%RSD	SRM 1974a, %: mean, %	%RSD	Mussel IX, %: assigned	95% CL	SRM 1974a, %: target	95% CL	Mussel IX, %: z (25%)	z (s)	p (15%)
water	91.8	91.3	91.7	88.2	89.0	89.6	91.6	0.3	88.9	0.8	91.4	0.0	88.6	0.1	0.0	0.2	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 17
Reporting Date: 11/4/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 11/2/98 S 1	11/2/98 S 2	11/2/98 S 3	SRM 1974a, ng/g dry 11/2/98 S 1	11/2/98 S 2	11/2/98 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
naphthalene	78.5	97.3	126	79.9	79.5	____	101	24	79.7	0.4	25.7	5.2	**23.5**	**4.4**	**11.6**	**12.0**	1.6
2-methylnaphthalene	14.6	18.2	19.5	14.2	14.2	____	17.4	14.6	14.2	0.0	33.1	8.2	10.2	1.5	-1.9	-1.3	1.0
1-methylnaphthalene	8.68	10.1	13.9	6.70	7.30	____	10.9	24.8	7.00	6.06	23.3	6.1	5.3	1.8	-2.1	-1.4	1.7
biphenyl	<10	<10	<10	<10	<10	____	<10	NA	<10	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	<10	<10	<10	<10	<10	____	<10	NA	<10	NA	38.8	9.5	5.3	1.8			
acenaphthylene	<10	<10	<10	<10	<10	____	<10	NA	<10	NA	7.87	3.92	5.25	0.38			
acenaphthene	<10	<10	<10	<10	<10	____	<10	NA	<10	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	____	NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene	<10	<10	<10	<10	<10	____	<10	NA	<10	NA	21.4	1.4	5.72	0.91			
phenanthrene	96.4	98.6	86.1	21.5	19.9	____	93.7	7.1	20.7	5.5	126	13	**22.2**	**2.4**	-1.0	-1.5	0.5
anthracene	9.29	9.10	8.87	8.53	8.95	____	9.09	2.31	8.74	3.40	11.3	3.6	**6.1**	**1.7**	-0.8	-0.5	0.2
1-methylphenanthrene	NA	NA	NA	NA	NA	____	NA	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene	220	263	373	118	97.7	____	285	28	108	13	322	34	**163.7**	**9.1**	-0.5	-0.6	1.8
pyrene	149.0	144.0	212.0	103	89.5	____	168	23	96.3	9.9	224	36	**151.6**	**6.6**	-1.0	-0.9	1.5
benz[a]anthracene	67.2	69.0	60.0	28.7	34.6	____	65.4	7.3	31.7	13.2	77.5	9.2	**32.5**	**4.7**	-0.6	-0.8	0.5
chrysene + triphenylene	213	193	188	82.5	82.7	____	198	7	82.6	0.2	196	26	**94.9**	**8.2**	0.0	0.0	0.4
benzofluoranthenes [b+j+k]	117	110	117	62.9	62.6	____	115	4	62.8	0.3	146	17	87.1	6.2	-0.9	-1.0	0.2
benzo[e]pyrene	86.4	89.8	83.5	70.8	72.5	____	86.6	3.6	71.7	1.7	99.5	13.1	**84.0**	**1.9**	-0.5	-0.5	0.2
benzo[a]pyrene	26.2	23.8	26.1	12.2	15.2	____	25.4	5.4	13.7	15.5	25.9	2.4	**15.63**	**0.65**	-0.1	-0.1	0.4
perylene	14.2	6.30	13.0	10.8	13.1	____	11.2	38.2	12.0	13.6	8.13	1.21	**7.68**	**0.27**	1.5	1.9	2.5
indeno[1,2,3-cd]pyrene	<10	<10	<10	<10	<10	____	<10	NA	<10	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]	<10	<10	<10	<10	<10	____	<10	NA	<10	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	12.6	19.3	23.5	24.5	29.9	____	18.5	29.8	27.2	14.0	21.2	3.7	**22.0**	**2.2**	-0.5	-0.5	2.0

Laboratory: 17
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	14	61
Qualitative	7	30
Not Determined	2	9

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 17
Reporting Date: 11/4/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 11/2/98 S 1	S 2	S 3	SRM 1974a, ng/g dry 11/2/98 S 1	S 2	S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<10	<10	<10	<10	<10		<10	NA	<10	NA	1.62	1.28	no target				
hexachlorobenzene	<10	<10	<10	<10	<10		<10	NA	<10	NA	1.08	0.95	no target				
gamma-HCH	<10	<10	<10	<10	<10		<10	NA	<10	NA	1.26	1.36	no target				
heptachlor	<10	<10	<10	<10	<10		<10	NA	<10	NA	<5		no target				
aldrin	<10	<10	<10	<10	<10		<10	NA	<10	NA	<3		no target				
heptachlor epoxide	<10	<10	<10	<10	<10		<10	NA	<10	NA	2.25	0.81	no target				
oxychlordane	<10	<10	<10	<10	<10		<10	NA	<10	NA	3.48	2.75	no target				
trans-chlordane	9.60	13.9	9.40	11.4	11.4		11.0	23.2	11.4	0.0	12.3	2.0	**16.6**	**1.7**	-0.4	-0.5	1.5
2,4'-DDE	12.7	15.9	15.1	11.9	12.6		14.6	11.4	12.3	4.0	<5		5.26	0.27			0.8
endosulfan I	<10	<10	<10	<10	<10		<10	NA	<10	NA	<2		no target				
cis-chlordane	12.9	13.9	19.3	12.4	13.5		15.4	22.4	13.0	6.0	14.7	1.8	**17.2**	**2.8**	0.2	0.2	1.5
trans-nonachlor	8.50	15.7	19.3	15.4	14.9		14.5	37.9	15.2	2.3	13.6	1.0	**18.0**	**3.6**	0.3	0.4	2.5
dieldrin	24.9	30.0	38.8	9.80	7.50		31.2	22.5	8.65	18.8	5.49	0.85	6.2	1.3	**18.7**	**20.3**	1.5
4,4'-DDE	31.2	34.3	28.2	35.8	35.4		31.2	9.8	35.6	0.8	34.0	3.8	**51.2**	**5.5**	-0.3	-0.4	0.7
2,4'-DDD	12.9	15.7	17.8	15.6	14.9		15.5	15.9	15.3	3.2	11.5	2.6	13.7	2.8	1.4	1.0	1.1
endrin	<10	<10	<10	<10	<10		<10	NA	<10	NA	<2		no target				
endosulfan II	<10	<10	<10	<10	<10		<10	NA	<10	NA	2.73	1.34	no target				
4,4'-DDD	42.3	40.0	50.1	39.9	39.1		44.1	12.0	39.5	1.4	29.3	3.6	**43.0**	**6.3**	2.0	1.9	0.8
2,4'-DDT	29.0	25.8	36.5	35.3	20.1		30.4	18.0	27.7	38.8	7.51	1.94	8.5	1.9	**12.2**	**9.1**	1.2
cis-nonachlor	13.1	12.9	15.7	12.6	12.4		13.9	11.2	12.5	1.1	6.27	1.38	**6.84**	**0.90**	4.9	3.9	0.7
4,4'-DDT	37.9	45.5	20.3	<10	<10		34.6	37.4	<10	NA	9.30	0.99	**3.91**	**0.59**	**10.9**	**15.5**	2.5
mirex	<10	<10	<10	<10	<10		<10	NA	<10	NA	1.75	0.62	no target				

Laboratory: 17
Pesticides in Mussel IX

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	5	6	9
2 to 3	1	0	2
≥ 3	4	4	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 17
Reporting Date: 11/4/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	11/2/98 S 1	11/2/98 S 2	11/2/98 S 3	11/2/98 S 1	11/2/98 S 2	11/2/98 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	3.28	3.41	3.13	3.50	3.30	____	3.27	4.28	3.40	4.16	4.18	1.56	5.8	1.2	-0.9	-0.4	0.3
PCB 18	22.8	28.0	26.1	32.3	34.3	____	25.6	10.3	33.3	4.2	12.9	2.3	33	11	4.0	2.9	0.7
PCB 28	41.5	38.5	53.7	72.9	32.0	____	44.6	18.1	52.5	55.1	41.4	4.8	79	15	0.3	0.3	1.2
PCB 52	56.4	58.2	47.5	98.9	76.4	____	54.0	10.6	87.7	18.2	61.8	5.2	**115**	**11**	-0.5	-0.7	0.7
PCB 44	23.6	21.5	45.4	33.0	105	____	30.2	43.9	69.0	73.8	40.3	4.1	**72.7**	**7.4**	-1.0	-1.2	2.9
PCB 66/95	57.9	71.4	57.9	78.8	45.3	____	62.4	12.5	62.1	38.2	80.6	16.8	**184**	**21**	-0.9	-0.8	0.8
PCB 101/90	67.9	77.7	72.0	104	7.50	____	72.5	6.8	55.8	122.4	92.2	8.9	**128.3**	**9.7**	-0.9	-1.0	0.5
PCB 118	22.2	35.6	36.0	36.9	39.3	____	31.3	25.1	38.1	4.5	96.1	9.7	**130.8**	**3.6**	-2.7	**-3.1**	1.7
PCB 153	102	117	94.5	122	121	____	105	11	122	1	113	11	**145.2**	**7.6**	-0.3	-0.3	0.7
PCB 105	27.9	20.2	28.2	47.4	46.7	____	25.4	17.8	47.1	1.1	36.2	3.5	**53.0**	**3.4**	-1.2	-1.4	1.2
PCB 138/163/164	146	156	202	143	147	____	168	18	145	2	102	11	**133.5**	**9.5**	2.6	2.6	1.2
PCB 187/182	24.2	33.1	21.9	31.6	34.8	____	26.4	22.4	33.2	6.8	27.5	2.8	**34.0**	**2.3**	-0.2	-0.2	1.5
PCB 128	21.5	27.1	30.8	13.8	19.6	____	26.5	17.7	16.7	24.6	16.1	2.1	**22.0**	**3.4**	2.6	2.3	1.2
PCB 180	11.3	14.4	45.9	26.2	14.7	____	23.9	80.2	20.5	39.8	15.5	5.9	**17.1**	**3.8**	2.2	0.8	5.3
PCB 170/190	<5	<5	<5	<5	<5	____	<5	NA	<5	NA	3.01	0.72	**5.5**	**1.1**			
PCB 195	<5	<5	<5	<5	<5	____	<5	NA	<5	NA	1.04	0.69	No Target				
PCB 206	<5	<5	<5	<5	<5	____	<5	NA	<5	NA	<2		No Target				
PCB 209	<5	<5	<5	<5	<5	____	<5	NA	<5	NA	<2		No Target				
PCB 66	57.9	71.4	57.9	<5	<5	____	62.4	12.5	<5	NA	55.7	11.5	**101.4**	**4.4**	0.5	0.5	0.8
PCB 95	<5	<5	<5	<5	<5	____	<5	NA	<5	NA	39.1	12.3	**83**	**17**			

Laboratory: 17
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	14	78
Qualitative	4	22
Not Determined	0	0

Category	Number by Category		
	z (25%)	z (s)	p (15%)
≤ 2	9	10	12
2 to 3	4	3	1
≥ 3	1	1	1

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	91.4	91.7	92.0	89.0		____	91.7	0.3	89.0	#DIV/0!	91.4	0.0	**88.6**	**0.1**	0.0	0.3	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 18

Reporting Date: 11/2/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/gdry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/22/98 S 1	10/22/98 S 2	10/22/98 S 3	10/22/98 S 1	10/22/98 S 2	10/22/98 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	14.5	13.5	14.6	8.50	___	___	14.2	4.3	8.50	NA	25.7	5.2	**23.5**	**4.4**	-1.8	-1.8	0.3
2-methylnaphthalene	20.3	18.5	23.4	<7	___	___	20.7	12.0	<7	NA	33.1	8.2	10.2	1.5	-1.5	-1.0	0.8
1-methylnaphthalene	13.6	12.6	16.8	<7	___	___	14.3	15.3	<7	NA	23.3	6.1	5.3	1.8	-1.5	-1.0	1.0
biphenyl	8.30	10.0	17.0	<7	___	___	11.8	39.2	<7	NA	12.2	1.0	5.11	0.33	-0.1	-0.4	2.6
2,6-dimethylnaphthalene	16.9	16.2	22.6	<7	___	___	18.6	18.9	<7	NA	38.8	9.5	5.3	1.8	-2.1	-1.5	1.3
acenaphthylene	<5	<5	<5	<7	___	___	<5	NA	<7	NA	7.87	3.92	5.25	0.38			
acenaphthene	4.60	6.10	10.3	<7	___	___	7.00	42.21	<7	NA	9.46	1.31	3.15	0.26	-1.0	-1.7	2.8
1,6,7-trimethylnaphthalene	14.4	18.1	16.9	<7	___	___	16.5	11.5	<7	NA	31.3	10.4	6.6	2.0	-1.9	-1.1	0.8
fluorene	17.4	16.6	19.5	<6	___	___	17.8	8.4	<6	NA	21.4	1.4	5.72	0.91	-0.7	-1.9	0.6
phenanthrene	117	115	137	16.8	___	___	123	10	16.8	NA	126	13	**22.2**	**2.4**	-0.1	-0.1	0.7
anthracene	6.70	4.60	7.48	<6	___	___	6.26	23.79	<6	NA	11.3	3.6	**6.1**	**1.7**	-1.8	-1.2	1.6
1-methylphenanthrene	55.1	65.4	66.8	13.0	___	___	62.4	10.2	13.0	NA	60.2	8.2	10.5	4.8	0.2	0.2	0.7
fluoranthene	334	320	370	159	___	___	341	8	159	NA	322	34	**163.7**	**9.1**	0.2	0.3	0.5
pyrene	256	249	289	150	___	___	265	8	150	NA	224	36	**151.6**	**6.6**	0.7	0.6	0.5
benz[a]anthracene	71.4	73.5	75.6	26.0	___	___	73.5	2.9	26.0	NA	77.5	9.2	**32.5**	**4.7**	-0.2	-0.3	0.2
chrysene + triphenylene	220	216	243	81.5	___	___	226	6	81.5	NA	196	26	**94.9**	**8.2**	0.6	0.7	0.4
benzofluoranthenes [b+j+k]	151	149	180	76.9	___	___	160	11	76.9	NA	146	17	87.1	6.2	0.4	0.5	0.7
benzo[e]pyrene	111	110	127	80.8	___	___	116	8	80.8	NA	99.5	13.1	**84.0**	**1.9**	0.7	0.7	0.5
benzo[a]pyrene	23.9	23.8	27.6	14.7	___	___	25.1	8.6	14.7	NA	25.9	2.4	**15.63**	**0.65**	-0.1	-0.2	0.6
perylene	7.00	7.00	8.69	6.70	___	___	7.56	12.90	6.70	NA	8.13	1.21	**7.68**	**0.27**	-0.3	-0.4	0.9
indeno[1,2,3-cd]pyrene	17.7	16.7	17.4	12.6	___	___	17.3	3.0	12.6	NA	18.0	3.0	**14.2**	**2.8**	-0.2	-0.2	0.2
dibenz[a,h]anthracene + [a,c]	<5	<5	<5	7.80	___	___	<5	NA	7.80	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	22.8	22.0	23.3	20.0	___	___	22.7	2.9	20.0	NA	21.2	3.7	**22.0**	**2.2**	0.3	0.3	0.2

Laboratory: 18
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	21	91
Qualitative	2	9
Not Determined	0	0

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 18
Reporting Date: 11/2/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/30/98 S 1	10/30/98 S 2	9/3/98 S 3	7/7/98 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	NA	NA	____	____	NA	NA	NA	NA	1.62	1.28	no target				
hexachlorobenzene	<1	<1	<1	<1	____	____	<1	NA	<1	NA	1.08	0.95	no target				
gamma-HCH	<1	<1	<1	<1	____	____	<1	NA	<1	NA	1.26	1.36	no target				
heptachlor	<1	<1	<1	<1	____	____	<1	NA	<1	NA	<5		no target				
aldrin	4.42	4.86	5.22	2.65	____	____	4.83	8.29	2.65	NA	<3		no target				0.6
heptachlor epoxide	2.22	2.50	1.22	<1.2	____	____	1.98	33.99	<1.2	NA	2.25	0.81	no target		-0.5	-0.8	2.3
oxychlordane	NA	NA	NA	NA	____	____	NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane	NA	NA	NA	NA	____	____	NA	NA	NA	NA	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE	<1.2	<1.2	<1.2	<1.2	____	____	<1.2	NA	<1.2	NA	<5		5.26	0.27			
endosulfan I	<1	<1	<1	<1	____	____	<1	NA	<1	NA	<2		no target				
cis-chlordane	13.0	13.9	15.2	13.3	____	____	14.0	7.9	13.3	NA	14.7	1.8	**17.2**	**2.8**	-0.2	-0.2	0.5
trans-nonachlor	11.5	12.2	13.0	12.4	____	____	12.2	6.1	12.4	NA	13.6	1.0	**18.0**	**3.6**	-0.4	-0.7	0.4
dieldrin	5.88	5.90	4.56	5.26	____	____	5.45	14.1	5.26	NA	5.49	0.85	6.2	1.3	0.0	0.0	0.9
4,4'-DDE	36.4	37.7	44.3	53.6	____	____	39.5	10.7	53.6	NA	34.0	3.8	**51.2**	**5.5**	0.6	0.7	0.7
2,4'-DDD	10.5	10.3	8.70	12.3	____	____	9.83	10.0	12.3	NA	11.5	2.6	13.7	2.8	-0.6	-0.4	0.7
endrin	NA	NA	NA	NA	____	____	NA	NA	NA	NA	<2		no target				
endosulfan II	2.22	2.19	<2	<2	____	____	2.21	1.0	<2	NA	2.73	1.34	no target		-0.8	-1.0	0.1
4,4'-DDD	22.9	23.8	29.4	40.1	____	____	25.4	13.9	40.1	NA	29.3	3.6	**43.0**	**6.3**	-0.5	-0.5	0.9
2,4'-DDT	9.32	9.57	10.1	8.50	____	____	9.66	4.1	8.50	NA	7.51	1.94	8.5	1.9	1.1	0.9	0.3
cis-nonachlor	NA	NA	NA	NA	____	____	NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	10.0	10.4	11.6	2.84	____	____	10.7	7.8	2.84	NA	9.30	0.99	**3.91**	**0.59**	0.6	0.8	0.5
mirex	<1.5	<1.5	<1.5	<1.5	____	____	<1.5	NA	<1.5	NA	1.75	0.62	no target				

Laboratory: 18
Pesticides in Mussel IX

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

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 18
Reporting Date: 11/2/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/30/98 S 1	10/30/98 S 2	10/30/98 S 3	10/30/98 S 1	10/30/98 S 2	10/30/98 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	<2	<2	<2	4.66	____	____	<2	NA	4.66	NA	4.18	1.56	5.8	1.2			
PCB 18	7.12	7.67	8.54	21.4	____	____	7.78	9.21	21.4	NA	12.9	2.3	33	11	-1.6	-1.1	0.6
PCB 28	33.4	31.8	38.6	82.2	____	____	34.6	10.3	82.2	NA	41.4	4.8	79	15	-0.7	-0.7	0.7
PCB 52	59.9	56.1	57.7	82.3	____	____	57.9	3.3	82.3	NA	61.8	5.2	**115**	**11**	-0.2	-0.4	0.2
PCB 44	38.8	40.3	49.0	62.2	____	____	42.7	12.9	62.2	NA	40.3	4.1	**72.7**	**7.4**	0.2	0.3	0.9
PCB 66/95	84.6	80.3	83.5	135	____	____	82.8	2.7	135	NA	80.6	16.8	**184**	**21**	0.1	0.1	0.2
PCB 101/90	105	97.0	94.3	112	____	____	98.8	5.6	112	NA	92.2	8.9	**128.3**	**9.7**	0.3	0.3	0.4
PCB 118	105	97.6	95.3	136	____	____	99.3	5.1	136	NA	96.1	9.7	**130.8**	**3.6**	0.1	0.2	0.3
PCB 153	124	114	107	125	____	____	115	7	125	NA	113	11	**145.2**	**7.6**	0.1	0.1	0.5
PCB 105	47.6	50.4	45.8	73.1	____	____	47.9	4.8	73.1	NA	36.2	3.5	**53.0**	**3.4**	1.3	1.5	0.3
PCB 138/163/164	109	103	104	133	____	____	105	3	133	NA	102	11	**133.5**	**9.5**	0.1	0.1	0.2
PCB 187/182	29.4	30.1	34.6	32.7	____	____	31.4	9.0	32.7	NA	27.5	2.8	**34.0**	**2.3**	0.6	0.6	0.6
PCB 128	18.9	19.7	21.1	25.3	____	____	19.9	5.6	25.3	NA	16.1	2.1	**22.0**	**3.4**	0.9	0.8	0.4
PCB 180	9.54	9.86	12.0	15.4	____	____	10.5	12.8	15.4	NA	15.5	5.9	**17.1**	**3.8**	-1.3	-0.5	0.9
PCB 170/190	<1.5	<1.5	<1.5	2.64	____	____	<1.5	NA	2.64	NA	3.01	0.72	**5.5**	**1.1**			
PCB 195	<1.5	<1.5	<1.5	<1.5	____	____	<1.5	NA	<1.5	NA	1.04	0.69	No Target				
PCB 206	<1.5	<1.5	<1.5	<1.5	____	____	<1.5	NA	<1.5	NA	<2		No Target				
PCB 209	<1.5	<1.5	<1.5	<1.5	____	____	<1.5	NA	<1.5	NA	<2		No Target				
PCB 66	____	____	____	____	____	____	NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95	____	____	____	____	____	____	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 18
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	13	72
Qualitative	5	28
Not Determined	0	0

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	92.2	92.6	92.6	87.5	____	____	92.5	0.2	87.5	#DIV/0!	91.4	0.0	**88.6**	**0.1**	0.0	1.0	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 19
Reporting Date: 11/3/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 9/26/98 S 1	Mussel IX, ng/g dry 9/26/98 S 2	Mussel IX, ng/g dry 9/25/98 S 3	SRM 1974a, ng/g dry 9/26/98 S 1	SRM 1974a, ng/g dry 9/26/98 S 2	SRM 1974a, ng/g dry 9/25/98 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/gdry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	Mussel IX z-score (s)	Mussel IX p-score (15%)
naphthalene	31.9	28.3	26.3	___	___	___	28.8	9.8	NA	NA	25.7	5.2	**23.5**	**4.4**	0.5	0.5	0.7
2-methylnaphthalene	34.3	37.5	45.3	___	___	___	39.0	14.5	NA	NA	33.1	8.2	10.2	1.5	0.7	0.5	1.0
1-methylnaphthalene	36.1	41.1	40.9	___	___	___	39.4	7.2	NA	NA	23.3	6.1	5.3	1.8	2.8	1.9	0.5
biphenyl	9.11	19.4	9.53	___	___	___	12.7	45.9	NA	NA	12.2	1.0	5.11	0.33	0.2	0.5	3.1
2,6-dimethylnaphthalene	42.8	44.6	40.5	___	___	___	42.6	4.8	NA	NA	38.8	9.5	5.3	1.8	0.4	0.3	0.3
acenaphthylene	42.8	46.1	41.5	___	___	___	43.5	5.5	NA	NA	7.87	3.92	5.25	0.38	**18.1**	**11.3**	0.4
acenaphthene	20.6	21.8	18.6	___	___	___	20.3	8.0	NA	NA	9.46	1.31	3.15	0.26	**4.6**	**7.7**	0.5
1,6,7-trimethylnaphthalene	57.7	59.4	60.9	___	___	___	59.3	2.7	NA	NA	31.3	10.4	6.6	2.0	**3.6**	2.1	0.2
fluorene	46.2	46.9	39.7	___	___	___	44.3	9.0	NA	NA	21.4	1.4	5.72	0.91	**4.3**	**11.8**	0.6
phenanthrene	145	135	157	___	___	___	146	7.6	NA	NA	126	13	**22.2**	**2.4**	0.6	0.9	0.5
anthracene	75.2	70.2	78.9	___	___	___	74.8	5.8	NA	NA	11.3	3.6	**6.1**	**1.7**	**22.5**	**14.7**	0.4
1-methylphenanthrene	80.7	77.9	80.8	___	___	___	79.8	2.1	NA	NA	60.2	8.2	10.5	4.8	1.3	1.4	0.1
fluoranthene	378	358	354	___	___	___	363	3.5	NA	NA	322	34	**163.7**	**9.1**	0.5	0.7	0.2
pyrene	271	256	260	___	___	___	262	3.0	NA	NA	224	36	**151.6**	**6.6**	0.7	0.6	0.2
benz[a]anthracene	62.5	59.4	66.5	___	___	___	62.8	5.7	NA	NA	77.5	9.2	**32.5**	**4.7**	-0.8	-1.0	0.4
chrysene + triphenylene	202	186	198	___	___	___	195	4.3	NA	NA	196	26	**94.9**	**8.2**	0.0	0.0	0.3
benzofluoranthenes [b+j+k]	207	190	207	___	___	___	201	4.9	NA	NA	146	17	87.1	6.2	1.5	1.8	0.3
benzo[e]pyrene	149	136	148	___	___	___	144	5.0	NA	NA	99.5	13.1	**84.0**	**1.9**	1.8	1.9	0.3
benzo[a]pyrene	33.2	29.4	31.5	___	___	___	31.4	6.1	NA	NA	25.9	2.4	**15.6**	**0.7**	0.8	1.6	0.4
perylene	40.1	37.1	44.6	___	___	___	40.6	9.3	NA	NA	8.13	1.21	**7.68**	**0.27**	**16.0**	**20.5**	0.6
indeno[1,2,3-cd]pyrene	21.3	10.2	22.8	___	___	___	18.1	38.0	NA	NA	18.0	3.0	**14.2**	**2.8**	0.0	0.0	2.5
dibenz[a,h]anthracene + [a,c]	<3.8	<3.8	6.49	___	___	___	<6.49	NA	NA	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	15.3	29.9	30.1	___	___	___	25.1	33.8	NA	NA	21.2	3.7	**22.0**	**2.2**	0.7	0.7	2.3

Laboratory: 19
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	22	96
Qualitative	1	4
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	15	16	19
2 to 3	1	1	2
≥ 3	6	5	1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 19
Reporting Date: 11/3/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S1	S2	S3	SRM 1974a, ng/g dry S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH							NA	NA	NA	NA	1.62	1.28	no target				
hexachlorobenzene							NA	NA	NA	NA	1.08	0.95	no target				
gamma-HCH							NA	NA	NA	NA	1.26	1.36	no target				
heptachlor							NA	NA	NA	NA	<5		no target				
aldrin							NA	NA	NA	NA	<3		no target				
heptachlor epoxide							NA	NA	NA	NA	2.25	0.81	no target				
oxychlordane							NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane							NA	NA	NA	NA	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE							NA	NA	NA	NA	<5		5.26	0.27			
endosulfan I							NA	NA	NA	NA	<2		no target				
cis-chlordane							NA	NA	NA	NA	14.7	1.8	**17.2**	**2.8**			
trans-nonachlor							NA	NA	NA	NA	13.6	1.0	**18.0**	**3.6**			
dieldrin							NA	NA	NA	NA	5.49	0.85	6.2	1.3			
4,4'-DDE							NA	NA	NA	NA	34.0	3.8	**51.2**	**5.5**			
2,4'-DDD							NA	NA	NA	NA	11.5	2.6	13.7	2.8			
endrin							NA	NA	NA	NA	<2		no target				
endosulfan II							NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD							NA	NA	NA	NA	29.3	3.6	**43.0**	**6.3**			
2,4'-DDT							NA	NA	NA	NA	7.51	1.94	8.5	1.9			
cis-nonachlor							NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT							NA	NA	NA	NA	9.30	0.99	**3.91**	**0.59**			
mirex							NA	NA	NA	NA	1.75	0.62	no target				

Laboratory: 19
Pesticides in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 19
Reporting Date: 11/3/98

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S1	S2	S3	SRM 1974a, ng/g dry S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA	NA	NA	NA	4.18	1.56	5.8	1.2			
PCB 18							NA	NA	NA	NA	12.9	2.3	33	11			
PCB 28							NA	NA	NA	NA	41.4	4.8	79	15			
PCB 52							NA	NA	NA	NA	61.8	5.2	**115**	**11**			
PCB 44							NA	NA	NA	NA	40.3	4.1	**72.7**	**7.4**			
PCB 66/95							NA	NA	NA	NA	80.6	16.8	**184**	**21**			
PCB 101/90							NA	NA	NA	NA	92.2	8.9	**128.3**	**9.7**			
PCB 118							NA	NA	NA	NA	96.1	9.7	**130.8**	**3.6**			
PCB 153							NA	NA	NA	NA	113	11	**145.2**	**7.6**			
PCB 105							NA	NA	NA	NA	36.2	3.5	**53.0**	**3.4**			
PCB 138/163/164							NA	NA	NA	NA	102	11	**133.5**	**9.5**			
PCB 187/182							NA	NA	NA	NA	27.5	2.8	**34.0**	**2.3**			
PCB 128							NA	NA	NA	NA	16.1	2.1	**22.0**	**3.4**			
PCB 180							NA	NA	NA	NA	15.5	5.9	**17.1**	**3.8**			
PCB 170/190							NA	NA	NA	NA	3.01	0.72	**5.5**	**1.1**			
PCB 195							NA	NA	NA	NA	1.04	0.69	No Target				
PCB 206							NA	NA	NA	NA	<2		No Target				
PCB 209							NA	NA	NA	NA	<2		No Target				
PCB 66							NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95							NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 19
PCBs in Mussel IX

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 Mussel IX

	Mussel IX, % S1	S2	S3	SRM 1974a, % S1	S2	S3	Mussel IX, % mean, %	%RSD	SRM 1974a, % mean, %	%RSD	Mussel IX, % assigned	95% CL	SRM 1974a, % target	95% CL	Mussel IX, % z (25%)	z (s)	p (15%)
water	91.4	91.0	91.2				91.2	0.2	NA	NA	91.4	0.0	**88.6**	**0.1**	0.0	-0.2	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 22

Reporting Date: 11/7/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 10/25/98 S1	S2	S3	SRM 1974a, ng/g dry 10/25/98 S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
naphthalene	3.34	2.79	2.06	< 2.2	2.7	3.3	30.3	2.1	27.4	1.7	25.7	5.2	**23.5**	**4.4**	0.7	0.7	0.1
2-methylnaphthalene	3.08	2.64	1.94	< 2.2	2.2	2.7	28.4	2.0	22.0	1.5	33.1	8.2	10.2	1.5	-0.6	-0.4	0.1
1-methylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	NA	< 2.2	NA	7.87	3.92	5.25	0.38			
acenaphthene	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	NA	< 2.2	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	NA	< 2.2	NA	21.4	1.4	5.72	0.91			
phenanthrene	8.70	7.16	5.73	3.18	4.00	3.96	80.0	1.9	33.8	1.4	126	13	**22.2**	**2.4**	-1.5	-2.1	0.1
anthracene	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	NA	< 2.2	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene	18.3	17.0	14.3	10.8	11.2	11.3	183	1	101	1	322	34	**163.7**	**9.1**	-1.7	-2.5	0.1
pyrene	16.4	14.8	12.6	12.9	27.1	11.8	162	1	157	5	224	36	**151.6**	**6.6**	-1.1	-1.0	0.1
benz[a]anthracene	6.13	6.25	4.82	< 2.2	< 2.2	< 2.2	63.7	1.2	< 2.2	NA	77.5	9.2	**32.5**	**4.7**	-0.7	-0.9	0.1
chrysene + triphenylene	11.2	11.1	9.05	< 2.2	< 2.2	< 2.2	116	1.0	< 2.2	NA	196	26	**94.9**	**8.2**	-1.6	-1.8	0.1
benzofluoranthenes [b+j+k]	9.73	11.3	7.14	5.59	10.5	9.53	104	2.0	77.6	3.3	146	17	87.1	6.2	-1.1	-1.4	0.1
benzo[e]pyrene	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	NA	< 2.2	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene	< 2.3	2.62	< 2.2	< 2.2	< 2.2	< 2.2	<2.62	NA	< 2.2	NA	25.9	2.4	**15.63**	**0.65**			
perylene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	NA	< 2.2	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	NA	< 2.2	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	NA	< 2.2	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 22
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	8	35
Qualitative	11	48
Not Determined	4	17

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 22
Reporting Date: 11/7/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	11/2/98 S 1	11/4/98 S 2	11/5/98 S 3	11/2/98 S 1	11/4/98 S 2	11/5/98 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	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	1.62	1.28	no target				
hexachlorobenzene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	1.08	0.95	no target				
gamma-HCH	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	1.26	1.36	no target				
heptachlor	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<5		no target				
aldrin	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<3		no target				
heptachlor epoxide	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	2.25	0.81	no target				
oxychlordane	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane	1.33	1.62	2.10	2.72	2.85	2.62	18.7	2.1	24.8	0.5	12.3	2.0	**16.6**	**1.7**	2.1	2.2	0.1
2,4'-DDE	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<5		5.26	0.27			
endosulfan I	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		no target				
cis-chlordane	1.42	1.51	1.02	1.75	2.09	1.59	14.6	1.8	16.5	1.6	14.7	1.8	**17.2**	**2.8**	0.0	0.0	0.1
trans-nonachlor	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	13.6	1.0	**18.0**	**3.6**			
dieldrin	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	1.75	2.17	2.01	3.69	3.79	3.24	22.0	1.0	32.5	0.9	34.0	3.8	**51.2**	**5.5**	-1.4	-1.5	0.1
2,4'-DDD	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	11.5	2.6	13.7	2.8			
endrin	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		no target				
endosulfan II	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD	1.77	2.14	1.84	3.90	3.55	3.14	21.3	0.9	32.1	1.2	29.3	3.6	**43.0**	**6.3**	-1.1	-1.1	0.1
2,4'-DDT	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	7.51	1.94	8.5	1.9			
cis-nonachlor	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	< 1	< 1	< 1	< 1	< 1	< 1	<1	NA	<1	NA	9.30	0.99	**3.91**	**0.59**			
mirex	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	1.75	0.62	no target				

Laboratory: 22
Pesticides in Mussel IX

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	3	3	4
2 to 3	1	1	0
≥ 3	0	0	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 22
Reporting Date: 11/7/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	11/2/98 S 1	11/2/98 S 2	11/2/98 S 3	11/2/98 S 1	11/2/98 S 2	11/2/98 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	5.00	3.82	6.78	6.96	6.82	7.38	57.8	2.6	64.1	0.5	4.18	1.56	5.8	1.2	**51.3**	**23.1**	0.2
PCB 18	1.09	1.15	1.24	3.56	3.64	3.47	12.9	0.6	32.3	0.3	12.9	2.3	33	11	0.0	0.0	0.0
PCB 28	2.83	3.29	2.80	9.77	9.40	7.93	33.0	0.8	82.1	1.2	41.4	4.8	79	15	-0.8	-0.9	0.1
PCB 52	5.66	6.62	6.48	15.6	16.7	14.4	69.5	0.7	141	1	61.8	5.2	**115**	11	0.5	0.7	0.0
PCB 44	4.43	4.02	4.01	10.0	10.1	8.61	46.1	0.5	87.0	1.0	40.3	4.1	**72.7**	**7.4**	0.6	0.7	0.0
PCB 66/95	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	80.6	16.8	**184**	21			
PCB 101/90	8.19	9.09	8.76	17.7	16.1	15.6	96.4	0.5	150	1	92.2	8.9	**128.3**	**9.7**	0.2	0.2	0.0
PCB 118	8.40	9.33	9.56	16.4	16.2	15.2	101	1	145	1	96.1	9.7	**130.8**	**3.6**	0.2	0.2	0.0
PCB 153	9.09	9.47	10.4	15.2	17.3	13.7	107	1	140	1	113	11	**145.2**	**7.6**	-0.2	-0.2	0.0
PCB 105	4.06	3.52	3.66	7.40	6.15	5.92	41.6	0.7	59.0	1.3	36.2	3.5	**53.0**	**3.4**	0.6	0.7	0.0
PCB 138/163/164	10.5	8.03	9.05	13.1	15.7	12.8	102	1	126	1	102	11	**133.5**	**9.5**	0.0	0.0	0.1
PCB 187/182	2.65	3.07	2.94	4.60	4.43	3.28	32.1	0.7	37.3	1.9	27.5	2.8	**34.0**	**2.3**	0.7	0.7	0.0
PCB 128	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	16.1	2.1	**22.0**	**3.4**			
PCB 180	< 1	1.25	1.60	2.02	1.69	1.61	15.8	1.6	16.1	1.3	15.5	5.9	**17.1**	**3.8**	0.1	0.0	0.1
PCB 170/190	< 1	1.45	< 1	< 1	< 1	< 1	<1.45	NA	<1	NA	3.01	0.72	**5.5**	**1.1**			
PCB 195	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	1.04	0.69	No Target				
PCB 206	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		No Target				
PCB 209	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		No Target				
PCB 66	5.46	4.99	4.59	11.1	11.9	9.86	55.7	0.8	99.4	1.0	55.7	11.5	**101.4**	**4.4**	0.0	0.0	0.1
PCB 95	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 22
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	12	67
Qualitative	1	6
Not Determined	5	28

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	91.4	0.0	**88.6**	**0.1**			

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX (data reported as if three figures were significant)

Laboratory No.: 24
Reporting Date: 11/13/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S1	S2	S3	SRM 1974a, ng/g dry S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
naphthalene							NA	NA	NA	NA	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene							NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene							NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl							NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene							NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene							NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene							NA	NA	NA	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene							NA	NA	NA	NA	21.4	1.4	5.72	0.91			
phenanthrene							NA	NA	NA	NA	126	13	**22.2**	**2.4**			
anthracene							NA	NA	NA	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene							NA	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene							NA	NA	NA	NA	322	34	**163.7**	**9.1**			
pyrene							NA	NA	NA	NA	224	36	**151.6**	**6.6**			
benz[a]anthracene							NA	NA	NA	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene							NA	NA	NA	NA	196	26	**94.9**	**8.2**			
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	146	17	87.1	6.2			
benzo[e]pyrene							NA	NA	NA	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene							NA	NA	NA	NA	25.9	2.4	**15.63**	**0.65**			
perylene							NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene							NA	NA	NA	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 24
PAH in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 24
Reporting Date: 11/13/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 9/30/98 S 1	Mussel IX 10/13/98 S 2	Mussel IX 10/26/98 S 3	SRM 1974a, ng/g dry 9/30/98 S 1	SRM 1974a 10/13/98 S 2	SRM 1974a 10/26/98 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a]: Mussel IX z-score (25%)	Mussel IX z-score (s)	Mussel IX p-score (15%)
alpha-HCH	2.56	2.51	2.06	2.13	2.70	2.29	2.38	11.47	2.37	12.45	1.62	1.28	no target		1.9	0.9	0.8
hexachlorobenzene	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	NA	<0.6	NA	1.08	0.95	no target				
gamma-HCH	0.952	0.903	0.858	0.776	0.879	0.662	0.904	5.160	0.772	14.012	1.26	1.36	no target		-1.1	-0.4	0.3
heptachlor	5.09	6.96	6.80	6.86	10.3	11.5	6.28	16.45	9.55	25.11	<5		no target				1.1
aldrin	2.08	2.15	1.94	<0.5	<0.5	<0.5	2.06	5.11	<0.5	NA	<3		no target				0.3
heptachlor epoxide	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	NA	<0.6	NA	2.25	0.81	no target				
oxychlordane	inf	inf	inf	inf	inf	inf	inf	NA	inf	NA	3.48	2.75	no target				
trans-chlordane	16.5	12.5	11.0	13.8	13.0	11.6	13.3	21.3	12.8	8.7	12.3	2.0	**16.6**	**1.7**	0.3	0.3	1.4
2,4'-DDE	inf	inf	inf	inf	inf	inf	inf	NA	inf	NA	<5		5.26	0.27			
endosulfan I	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	NA	<0.7	NA	<2		no target				
cis-chlordane	17.3	15.8	13.5	19.1	20.4	14.1	15.5	12.4	17.9	18.5	14.7	1.8	**17.2**	**2.8**	0.2	0.2	0.8
trans-nonachlor	16.0	13.5	12.2	17.3	17.0	17.2	13.9	14.0	17.2	1.1	13.6	1.0	**18.0**	**3.6**	0.1	0.1	0.9
dieldrin	6.91	7.87	5.16	7.11	6.97	9.38	6.65	20.66	7.82	17.30	5.49	0.85	6.2	1.3	0.8	0.9	1.4
4,4'-DDE	40.2	40.8	34.3	47.9	46.3	49.0	38.4	9.4	47.7	2.8	34.0	3.8	**51.2**	**5.5**	0.5	0.6	0.6
2,4'-DDD	11.0	8.54	9.08	15.1	13.5	13.4	9.55	13.62	14.0	6.8	11.5	2.6	13.7	2.8	-0.7	-0.5	0.9
endrin	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	NA	<1.2	NA	<2		no target				
endosulfan II	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	NA	<0.8	NA	2.73	1.34	no target				
4,4'-DDD	30.9	27.4	30.0	49.2	46.2	50.9	29.5	6.1	48.8	4.9	29.3	3.6	**43.0**	**6.3**	0.0	0.0	0.4
2,4'-DDT	inf	inf	inf	inf	inf	inf	inf	NA	inf	NA	7.51	1.94	8.5	1.9			
cis-nonachlor	5.73	5.09	4.44	7.79	6.27	5.78	5.08	12.68	6.61	15.84	6.27	1.38	**6.84**	**0.90**	-0.8	-0.6	0.8
4,4'-DDT	inf	inf	inf	inf	inf	inf	inf	NA	inf	NA	9.30	0.99	**3.91**	**0.59**			
mirex	inf	inf	inf	inf	inf	inf	inf	NA	inf	NA	1.75	0.62	no target				

Laboratory: 24
Pesticides in Mussel IX

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	10	12
2 to 3	0	0	0
≥ 3	0	0	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 24
Reporting Date: 11/13/98

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 9/30/98 S 1	Mussel IX, ng/g dry 9/30/98 S 2	Mussel IX, ng/g dry 9/30/98 S 3	SRM 1974a, ng/g dry 9/30/98 S 1	SRM 1974a, ng/g dry 9/30/98 S 2	SRM 1974a, ng/g dry 9/30/98 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
PCB 8	8.34	6.71	7.35	8.69	8.20	8.43	7.47	10.97	8.44	2.89	4.18	1.56	5.8	1.2	**3.1**	1.4	0.7
PCB 18	13.3	10.9	10.8	31.4	33.3	28.1	11.7	12.2	30.9	8.5	12.9	2.3	33	11	-0.4	-0.3	0.8
PCB 28	42.3	43.9	36.6	83.9	96.7	86.2	40.9	9.4	88.9	7.7	41.4	4.8	79	15	0.0	0.0	0.6
PCB 52	72.4	72.2	62.1	116	128	123	68.9	8.5	122	5	61.8	5.2	**115**	**11**	0.5	0.7	0.6
PCB 44	46.3	46.3	39.5	80.5	86.4	81.7	44.0	8.9	82.9	3.8	40.3	4.1	**72.7**	**7.4**	0.4	0.4	0.6
PCB 66/95	0.0	0.0	0.0	0	0	0	NA	NA	NA	NA	80.6	16.8	**184**	**21**			
PCB 101/90	116	108	93.9	144	152	149	106	11	148	3	92.2	8.9	**128.3**	**9.7**	0.6	0.7	0.7
PCB 118	109	104	93.7	128	122	123	102	8	124	3	96.1	9.7	**130.8**	**3.6**	0.3	0.3	0.5
PCB 153	126	119	111	136	146	149	119	6	144	5	113	11	**145.2**	**7.6**	0.2	0.3	0.4
PCB 105	44.2	42.3	38.0	57.6	60.5	60.7	41.5	7.6	59.6	2.9	36.2	3.5	**53.0**	**3.4**	0.6	0.7	0.5
PCB 138/163/164	126	117	109	136	133	137	117	7	135	2	102	11	**133.5**	**9.5**	0.6	0.6	0.5
PCB 187/182	28.9	29.1	24.1	34.2	33.2	33.9	27.4	10.4	33.8	1.6	27.5	2.8	**34.0**	**2.3**	0.0	0.0	0.7
PCB 128	16.7	14.0	inf	inf	16.6	21.3	15.4	12.0	19.0	17.7	16.1	2.1	**22.0**	**3.4**	-0.2	-0.2	0.8
PCB 180	inf	inf	inf	13.2	13.0	14.3	inf	NA	13.5	4.9	15.5	5.9	**17.1**	**3.8**			
PCB 170/190	5.23	4.23	3.10	5.14	5.26	6.04	4.19	25.51	5.48	8.96	3.01	0.72	**5.5**	**1.1**	1.6	1.0	1.7
PCB 195	<0.7	<0.7	<0.7	<0.5	<0.5	<0.5	<0.7	NA	<0.5	NA	1.04	0.69	No Target				
PCB 206	<0.7	<0.7	<0.7	<0.5	<0.5	<0.5	<0.7	NA	<0.5	NA	<2		No Target				
PCB 209	<0.7	<0.7	<0.7	<0.5	<0.5	<0.5	<0.7	NA	<0.5	NA	<2		No Target				
PCB 66	77.9	71.0	66.2	97.5	121	121	71.7	8.2	113	12	55.7	11.5	**101.4**	**4.4**	1.1	1.2	0.5
PCB 95	58.7	60.4	49.7	88.4	94.0	83.2	56.3	10.3	88.5	6.1	39.1	12.3	**83**	**17**	1.8	1.7	0.7

Laboratory: 24
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	13	72
Qualitative	4	22
Not Determined	1	6

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

Water in Mussel IX

	Mussel IX, % S 1	S 2	S 3	SRM 1974a, % S 1	S 2	S 3	Mussel IX, % mean, %	%RSD	SRM 1974a, % mean, %	%RSD	Mussel IX, % assigned	95% CL	SRM 1974a, % target	95% CL	Mussel IX, % z (25%)	z (s)	p (15%)
water	92.3	92.0	91.3	88.9	89.4	89.0	91.9	0.6	89.1	0.3	91.4	0.0	**88.6**	**0.1**	0.0	0.4	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 25
Reporting Date: 11/10/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 11/3/98 S 1	Mussel IX 11/3/98 S 2	Mussel IX 11/3/98 S 3	SRM 1974a, ng/g dry 11/3/98 S 1	SRM 1974a 11/3/98 S 2	SRM 1974a 11/3/98 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	Mussel IX z-score (s)	Mussel IX p-score (15%)
naphthalene							NA	NA	NA	NA	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene							NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene							NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl							NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene							NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene							NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene							NA	NA	NA	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene							NA	NA	NA	NA	21.4	1.4	5.72	0.91			
phenanthrene			586				586	NA	NA	NA	126	13	**22.2**	**2.4**	**14.6**	**20.9**	
anthracene							NA	NA	NA	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene	499	265	171				312	54	NA	NA	60.2	8.2	10.5	4.8	**16.7**	**18.5**	**3.6**
fluoranthene	505	310	267				361	35	NA	NA	322	34	**163.7**	**9.1**	0.5	0.7	2.3
pyrene	345	365	324				345	6	NA	NA	224	36	**151.6**	**6.6**	2.2	1.9	0.4
benz[a]anthracene							NA	NA	NA	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene		205					205	NA	NA	NA	196	26	**94.9**	**8.2**	0.2	0.2	
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	146	17	87.1	6.2			
benzo[e]pyrene							NA	NA	NA	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene							NA	NA	NA	NA	25.9	2.4	**15.63**	**0.65**			
perylene							NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene							NA	NA	NA	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 25
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	5	22
Qualitative	0	0
Not Determined	18	78

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 25
Reporting Date: 11/10/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	11/4/98	11/4/98	11/4/98				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							NA	NA	NA	NA	1.62	1.28	no target				
hexachlorobenzene							NA	NA	NA	NA	1.08	0.95	no target				
gamma-HCH							NA	NA	NA	NA	1.26	1.36	no target				
heptachlor							NA	NA	NA	NA	<5		no target				
aldrin							NA	NA	NA	NA	<3		no target				
heptachlor epoxide							NA	NA	NA	NA	2.25	0.81	no target				
oxychlordane		984	832				908	12	NA	NA	3.48	2.75	no target		1039	523	0.8
trans-chlordane			1720				1720	NA	NA	NA	12.3	2.0	**16.6**	**1.7**	**553**	**587**	
2,4'-DDE		942	773				858	14	NA	NA	<5		5.26	0.27			0.9
endosulfan I							NA	NA	NA	NA	<2		no target				
cis-chlordane		2220					2220	NA	NA	NA	14.7	1.8	**17.2**	**2.8**	**601**	**597**	
trans-nonachlor	1220	1710					1465	24	NA	NA	13.6	1.0	**18.0**	**3.6**	**425**	**691**	1.6
dieldrin							NA	NA	NA	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	522	674					598	18	NA	NA	34.0	3.8	**51.2**	**5.5**	**66**	**71**	1.2
2,4'-DDD		1150	1670				1410	26	NA	NA	11.5	2.6	13.7	2.8	**486**	**346**	1.7
endrin							NA	NA	NA	NA	<2		no target				
endosulfan II							NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD		1280					1280	NA	NA	NA	29.3	3.6	**43.0**	**6.3**	**171**	**164**	
2,4'-DDT							NA	NA	NA	NA	7.51	1.94	8.5	1.9			
cis-nonachlor		773					773	NA	NA	NA	6.27	1.38	**6.84**	**0.90**	**489**	**397**	
4,4'-DDT							NA	NA	NA	NA	9.30	0.99	**3.91**	**0.59**			
mirex							NA	NA	NA	NA	1.75	0.62	no target				

Laboratory: 25
Pesticides in Mussel IX

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

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise **Laboratory No.: 25**

Sample: QA98TIS9 - Mussel Tissue IX (data reported as if three figures were significant) Reporting Date: 11/10/98

PCBs	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	11/4/98 S 1	11/4/98 S 2	11/4/98 S 3	11/4/98 S 1	11/4/98 S 2	11/4/98 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	4.18	1.56	5.8	1.2			
PCB 18	____	____	____	____	____	____	NA	NA	NA	NA	12.9	2.3	33	11			
PCB 28	____	1310	954	____	____	____	1132	22	NA	NA	41.4	4.8	79	15	**105**	**114**	1.5
PCB 52	____	1070	1620	____	____	____	1345	29	NA	NA	61.8	5.2	**115**	**11**	**83**	**119**	1.9
PCB 44	____	701	941	____	____	____	821	21	NA	NA	40.3	4.1	**72.7**	**7.4**	**77**	**90**	1.4
PCB 66/95	1120	1880	2110	____	____	____	1703	30	NA	NA	80.6	16.8	**184**	**21**	**81**	**69**	2.0
PCB 101/90	1410	1950	2220	____	____	____	1860	22	NA	NA	92.2	8.9	**128.3**	**9.7**	**77**	**88**	1.5
PCB 118	1320	3450	3300	____	____	____	2690	44	NA	NA	96.1	9.7	**130.8**	**3.6**	**108**	**125**	2.9
PCB 153	2450	3450	2970	____	____	____	2957	17	NA	NA	113	11	**145.2**	**7.6**	**101**	**120**	1.1
PCB 105	____	____	____	____	____	____	NA	NA	NA	NA	36.2	3.5	**53.0**	**3.4**			
PCB 138/163/164	1800	2810	3300	____	____	____	2637	29	NA	NA	102	11	**133.5**	**9.5**	**100**	**101**	1.9
PCB 187/182	____	____	____	____	____	____	NA	NA	NA	NA	27.5	2.8	**34.0**	**2.3**			
PCB 128	____	____	____	____	____	____	NA	NA	NA	NA	16.1	2.1	**22.0**	**3.4**			
PCB 180	____	____	____	____	____	____	NA	NA	NA	NA	15.5	5.9	**17.1**	**3.8**			
PCB 170/190	801	1390	2000	____	____	____	1397	43	NA	NA	3.01	0.72	**5.5**	**1.1**	**1854**	**1234**	2.9
PCB 195	____	____	____	____	____	____	NA	NA	NA	NA	1.04	0.69	No Target				
PCB 206	____	____	____	____	____	____	NA	NA	NA	NA	<2		No Target				
PCB 209	____	____	____	____	____	____	NA	NA	NA	NA	<2		No Target				
PCB 66	____	____	____	____	____	____	NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95	____	____	____	____	____	____	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 25
PCBs in Mussel IX

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	0	0	6
2 to 3	0	0	3
≥ 3	9	9	0

Water in Mussel IX	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	90.0	90.0	90.0	____	____	____	90.0	0.0			91.4	0.0	**88.6**	**0.1**	-0.1	-1.4	0.0

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

FY98 NIST Intercomparison Exercise

Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 26

Reporting Date: November 18,1998

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 10/13/98 S 1	S 2	S 3	SRM 1974a, ng/g dry 10/13/98 S 1	S 2	S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
naphthalene	33.7	31.8	23.9	8.20	____	____	29.8	17.4	8.20	NA	25.7	5.2	**23.5**	**4.4**	0.6	0.7	1.2
2-methylnaphthalene	N.A.	48.7	53.1	9.10	____	____	50.9	6.1	9.10	NA	33.1	8.2	10.2	1.5	2.2	1.5	0.4
1-methylnaphthalene	N.A.	43.4	35.1	7.00	____	____	39.3	15.0	7.00	NA	23.3	6.1	5.3	1.8	2.7	1.9	1.0
biphenyl	N.A.	19.0	27.7	62.3	____	____	23.4	26.3	62.3	NA	12.2	1.0	5.11	0.33	**3.7**	**11.2**	1.8
2,6-dimethylnaphthalene	N.A.	61.9	69.7	3.80	____	____	65.8	8.4	3.80	NA	38.8	9.5	5.3	1.8	2.8	2.0	0.6
acenaphthylene	19.9	19.5	14.7	18.6	____	____	18.0	16.0	18.6	NA	7.87	3.92	5.25	0.38	**5.2**	**3.2**	1.1
acenaphthene	N.A.	9.80	8.80	<4.7	____	____	9.30	7.60	<4.7	NA	9.46	1.31	3.15	0.26	-0.1	-0.1	0.5
1,6,7-trimethylnaphthalene	N.A.	30.9	29.3	<5.7	____	____	30.1	3.8	<5.7	NA	31.3	10.4	6.6	2.0	-0.2	-0.1	0.3
fluorene	18.5	24.0	21.5	7.00	____	____	21.3	12.9	7.00	NA	21.4	1.4	5.72	0.91	0.0	-0.1	0.9
phenanthrene	116	109	99.2	17.1	____	____	108	8	17.1	NA	126	13	**22.2**	**2.4**	-0.6	-0.8	0.5
anthracene	37.3	36.7	30.4	26.0	____	____	34.8	11.0	26.0	NA	11.3	3.6	**6.1**	**1.7**	**8.3**	**5.4**	0.7
1-methylphenanthrene	N.A.	36.6	35.8	12.1	____	____	36.2	1.6	12.1	NA	60.2	8.2	10.5	4.8	-1.6	-1.8	0.1
fluoranthene	327	388	354	153	____	____	356	9	153	NA	322	34	**163.7**	**9.1**	0.4	0.6	0.6
pyrene	247	290	263	148	____	____	267	8	148	NA	224	36	**151.6**	**6.6**	0.8	0.7	0.5
benz[a]anthracene	77.1	130	104	26.9	____	____	104	26	26.9	NA	77.5	9.2	**32.5**	**4.7**	1.4	1.7	1.7
chrysene + triphenylene	204	201	206	27.7	____	____	204	1	27.7	NA	196	26	**94.9**	**8.2**	0.1	0.2	0.1
benzofluoranthenes [b+j+k]	197	157	163	97.4	____	____	172	13	97.4	NA	146	17	87.1	6.2	0.7	0.9	0.8
benzo[e]pyrene	111	103	99.0	84.3	____	____	104	6	84.3	NA	99.5	13.1	**84.0**	**1.9**	0.2	0.2	0.4
benzo[a]pyrene	37.5	22.7	23.7	12.5	____	____	28.0	29.6	12.5	NA	25.9	2.4	**15.63**	**0.65**	0.3	0.6	2.0
perylene	N.A.	9.80	11.1	8.40	____	____	10.5	8.8	8.40	NA	8.13	1.21	**7.68**	**0.27**	1.1	1.5	0.6
indeno[1,2,3-cd]pyrene	N.A.	26.3	24.9	15.6	____	____	25.6	3.9	15.6	NA	18.0	3.0	**14.2**	**2.8**	1.7	1.7	0.3
dibenz[a,h]anthracene + [a,c]	N.A.	7.90	11.8	3.80	____	____	9.85	28.00	3.80	NA	4.36	2.12	3.00	0.20	**5.0**	2.2	1.9
benzo[ghi]perylene	N.A.	27.1	31.4	32.7	____	____	29.3	10.4	32.7	NA	21.2	3.7	**22.0**	**2.2**	1.5	1.5	0.7

Laboratory: 26
PAH in Mussel IX

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	16	18	23
2 to 3	3	2	0
≥ 3	4	3	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 26
Reporting Date: November 18,1998

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 10/13/98 S 1	11/2/98 S 2	11/2/98 S 3	SRM 1974a, ng/g dry 10/13/98 S 1	S 2	S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	N.A.	N.A.	N.A.	N.A.	____	____	NA	NA	NA	NA	1.62	1.28	no target				
hexachlorobenzene	1.00	0.700	0.800	1.00	____	____	0.833	18.330	1.00	NA	1.08	0.95	no target		-0.9	-0.3	1.2
gamma-HCH	0.90	3.10	3.60	3.80	____	____	2.53	56.70	3.80	NA	1.26	1.36	no target		**4.0**	1.5	**3.8**
heptachlor	<0.5	<0.5	<0.5	<0.5	____	____	<0.5	NA	<0.5	NA	<5		no target				
aldrin	<0.7	<0.7	<0.7	<0.7	____	____	<0.7	NA	<0.7	NA	<3		no target				
heptachlor epoxide	<0.5	<0.5	<0.5	<0.5	____	____	<0.5	NA	<0.5	NA	2.25	0.81	no target				
oxychlordane	N.A.	N.A.	N.A.	N.A.	____	____	NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane	N.A.	N.A.	N.A.	N.A.	____	____	NA	NA	NA	NA	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE	<0.8	<0.8	<0.8	<0.8	____	____	<0.8	NA	<0.8	NA	<5		5.26	0.27			
endosulfan I	N.A.	N.A.	N.A.	N.A.	____	____	NA	NA	NA	NA	<2		no target				
cis-chlordane	14.1	16.4	16.1	18.6	____	____	15.5	8.0	18.6	NA	14.7	1.8	**17.2**	**2.8**	0.2	0.2	0.5
trans-nonachlor	14.5	14.3	14.2	18.7	____	____	14.3	1.1	18.7	NA	13.6	1.0	**18.0**	**3.6**	0.2	0.3	0.1
dieldrin	other	other	other	other	____	____	other	NA	other	NA	5.49	0.85	6.2	1.3			
4,4'-DDE	40.5	48.8	46.9	64.9	____	____	45.4	9.6	64.9	NA	34.0	3.8	**51.2**	**5.5**	1.3	1.4	0.6
2,4'-DDD	other	other	other	other	____	____	other	NA	other	NA	11.5	2.6	13.7	2.8			
endrin	N.A.	N.A.	N.A.	N.A.	____	____	NA	NA	NA	NA	<2		no target				
endosulfan II	N.A.	N.A.	N.A.	N.A.	____	____	NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD	40.9	41.3	42.3	68.3	____	____	41.5	1.7	68.3	NA	29.3	3.6	**43.0**	**6.3**	1.7	1.6	0.1
2,4'-DDT	12.0	10.6	10.7	10.1	____	____	11.1	7.0	10.1	NA	7.51	1.94	8.5	1.9	1.9	1.4	0.5
cis-nonachlor	N.A.	N.A.	N.A.	N.A.	____	____	NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	16.3	9.20	8.70	4.90	____	____	11.4	37.3	4.90	NA	9.30	0.99	**3.91**	**0.59**	0.9	1.3	2.5
mirex	2.10	1.00	1.30	1.00	____	____	1.47	38.77	1.00	NA	1.75	0.62	no target		-0.7	-1.2	2.6

Laboratory: 26
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	9	41
Qualitative	6	27
Not Determined	7	32

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	8	9	6
2 to 3	0	0	2
≥ 3	1	0	1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 26

Reporting Date: November 18,1998

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/13/98 S 1	10/13/98 S 2	10/13/98 S 3	10/13/98 S 1	10/13/98 S 2	10/13/98 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	4.60	4.10	6.00	5.60	___	___	4.90	20.10	5.60	NA	4.18	1.56	5.8	1.2	0.7	0.3	1.3
PCB 18	10.0	11.1	12.0	26.3	___	___	11.0	9.1	26.3	NA	12.9	2.3	33	11	-0.6	-0.4	0.6
PCB 28	57.7	56.3	56.2	99.3	___	___	56.7	1.5	99.3	NA	41.4	4.8	79	15	1.5	1.6	0.1
PCB 52	64.7	62.7	62.9	104	___	___	63.4	1.7	104	NA	61.8	5.2	**115**	11	0.1	0.2	0.1
PCB 44	37.6	38.8	39.6	70.1	___	___	38.7	2.6	70.1	NA	40.3	4.1	**72.7**	7.4	-0.2	-0.2	0.2
PCB 66/95	111	111	113	179	___	___	112	1	179	NA	80.6	16.8	**184**	21	1.5	1.3	0.1
PCB 101/90	82.8	89.9	91.6	121	___	___	88.1	5.3	121	NA	92.2	8.9	**128.3**	9.7	-0.2	-0.2	0.4
PCB 118	116	136	173	141	___	___	142	20	141	NA	96.1	9.7	**130.8**	3.6	1.9	2.2	1.4
PCB 153	106	127	138	133	___	___	124	13	133	NA	113	11	**145.2**	7.6	0.4	0.5	0.9
PCB 105	38.6	41.2	39.8	62.4	___	___	39.9	3.3	62.4	NA	36.2	3.5	**53.0**	3.4	0.4	0.5	0.2
PCB 138/163/164	98.1	102	107	123	___	___	102	4	123	NA	102	11	**133.5**	9.5	0.0	0.0	0.3
PCB 187/182	28.1	30.1	30.4	34.6	___	___	29.5	4.2	34.6	NA	27.5	2.8	**34.0**	2.3	0.3	0.3	0.3
PCB 128	16.6	16.5	16.4	21.9	___	___	16.5	0.6	21.9	NA	16.1	2.1	**22.0**	3.4	0.1	0.1	0.0
PCB 180	33.5	34.3	34.9	32.9	___	___	34.2	2.1	32.9	NA	15.5	5.9	**17.1**	3.8	**4.8**	1.7	0.1
PCB 170/190	<0.5	<0.5	<0.5	<0.5	___	___	<0.5	NA	<0.5	NA	3.01	0.72	**5.5**	1.1			
PCB 195	<0.6	<0.6	<0.6	<0.6	___	___	<0.6	NA	<0.6	NA	1.04	0.69	No Target				
PCB 206	<0.5	<0.5	<0.5	<0.5	___	___	<0.5	NA	<0.5	NA	<2		No Target				
PCB 209	0.900	0.600	0.900	0.800	___	___	0.800	21.651	0.800	NA	<2		No Target				1.4
PCB 66	___	___	___	___	___	___	NA	NA	NA	NA	55.7	11.5	**101.4**	4.4			
PCB 95	___	___	___	___	___	___	NA	NA	NA	NA	39.1	12.3	**83**	17			

Laboratory: 26

PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	15	83
Qualitative	3	17
Not Determined	0	0

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	92.2	92.1	92.4	89.7	___	___	92.2	0.2	89.7	NA	91.4	0.0	**88.6**	0.1	0.0	0.8	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98TIS9 - Mussel Tissue IX (data reported as if three figures were significant)

Laboratory No.: 27

Reporting Date: 11/17/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Material reference values: Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Performance scores[a]: Mussel IX		
	s/za/ve S 1	s/za/ve S 2	s/za/ve S 3	s/za/ve S 1	s/za/ve S 2	s/za/ve 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	<35.0			<35.0			<35.0	NA	<35.0	NA	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene	N.A.			N.A.			NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene	N.A.			N.A.			NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl	N.A.			N.A.			NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	N.A.			N.A.			NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene	<54.0			<54.0			<54.0	NA	<54.0	NA	7.87	3.92	5.25	0.38			
acenaphthene	<28.0			<28.0			<28.0	NA	<28.0	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	N.A.			N.A.			NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene	<41.0			<41.0			<41.0	NA	<41.0	NA	21.4	1.4	5.72	0.91			
phenanthrene	<54.0			<54.0			<54.0	NA	<54.0	NA	126	13	**22.2**	**2.4**			
anthracene	<68.0			<68.0			<68.0	NA	<68.0	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene	N.A.			N.A.			NA	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene	<59.0			<59.0			<59.0	NA	<59.0	NA	322	34	**163.7**	**9.1**			
pyrene	<81.0			<81.0			<81.0	NA	<81.0	NA	224	36	**151.6**	**6.6**			
benz[a]anthracene	<31.0			<31.0			<31.0	NA	<31.0	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene	<49.0			<49.0			<49.0	NA	<49.0	NA	196	26	**94.9**	**8.2**			
benzofluoranthenes [b+j+k]	<228			<228			<228	NA	<228	NA	146	17	87.1	6.2			
benzo[e]pyrene	N.A.			N.A.			NA	NA	NA	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene	<271			<271			<271	NA	<271	NA	25.9	2.4	**15.63**	**0.65**			
perylene	N.A.			N.A.			NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene	<117			<117			<117	NA	<117	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]	<70.0			<70.0			<70.0	NA	<70.0	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	<115			<115			<115	NA	<115	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 27
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	0	0
Qualitative	15	65
Not Determined	8	35

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 27
Reporting Date: 11/17/98

PESTICIDES

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a	Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	9/25/98			9/25/98												
	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	<2.50			<2.50			<2.50	NA	<2.50	NA	1.62	1.28	no target				
hexachlorobenzene	N.A.			N.A.			NA	NA	NA	NA	1.08	0.95	no target				
gamma-HCH	<2.50			<2.50			<2.50	NA	<2.50	NA	1.26	1.36	no target				
heptachlor	<2.50			<2.50			<2.50	NA	<2.50	NA	<5		no target				
aldrin	<2.50			<2.50			<2.50	NA	<2.50	NA	<3		no target				
heptachlor epoxide	<2.50			<2.50			<2.50	NA	<2.50	NA	2.25	0.81	no target				
oxychlordane	N.A.			N.A.			NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane	13.8			17.8			13.8	NA	17.8	NA	12.3	2.0	**16.6**	**1.7**	0.5	0.5	
2,4'-DDE	N.A.			N.A.			NA	NA	NA	NA	<5		5.26	0.27			
endosulfan I	<2.50			53.0			<2.50	NA	53.0	NA	<2		no target				
cis-chlordane	7.80			12.0			7.80	NA	12.0	NA	14.7	1.8	**17.2**	**2.8**	-1.9	-1.9	
trans-nonachlor	N.A.			N.A.			NA	NA	NA	NA	13.6	1.0	**18.0**	**3.6**			
dieldrin	25.9			33.5			25.9	NA	33.5	NA	5.49	0.85	6.2	1.3	**14.9**	**16.1**	
4,4'-DDE	19.8			33.2			19.8	NA	33.2	NA	34.0	3.8	**51.2**	**5.5**	-1.7	-1.8	
2,4'-DDD	N.A.			N.A.			NA	NA	NA	NA	11.5	2.6	13.7	2.8			
endrin	<5.00			<5.00			<5.00	NA	<5.00	NA	<2		no target				
endosulfan II	<5.00			<5.00			<5.00	NA	<5.00	NA	2.73	1.34	no target				
4,4'-DDD	19.6			40.0			19.6	NA	40.0	NA	29.3	3.6	**43.0**	**6.3**	-1.3	-1.3	
2,4'-DDT	N.A.			N.A.			NA	NA	NA	NA	7.51	1.94	8.5	1.9			
cis-nonachlor	N.A.			N.A.			NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	19.3			16.9			19.3	NA	16.9	NA	9.30	0.99	**3.91**	**0.59**	**4.3**	**6.1**	
mirex	N.A.			N.A.			NA	NA	NA	NA	1.75	0.62	no target				

Laboratory: 27
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	6	27
Qualitative	8	36
Not Determined	8	36

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 27

Reporting Date: 11/17/98

PCBs

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	9/29/98 S 1	9/29/98 S 2	9/29/98 S 3	9/29/98 S 1	9/29/98 S 2	9/29/98 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	<0.50	____	____	<0.50	____	____	<0.50	NA	<0.50	NA	4.18	1.56	5.8	1.2			
PCB 18	<0.50	____	____	18.5	____	____	<0.50	NA	18.5	NA	12.9	2.3	33	11			
PCB 28	N.A.	____	____	N.A.	____	____	NA	NA	NA	NA	41.4	4.8	79	15			
PCB 52	28.8	____	____	62.7	____	____	28.8	NA	62.7	NA	61.8	5.2	**115**	**11**	-2.1	-3.1	
PCB 44	29.1	____	____	55.1	____	____	29.1	NA	55.1	NA	40.3	4.1	**72.7**	**7.4**	-1.1	-1.3	
PCB 66/95	N.A.	____	____	N.A.	____	____	NA	NA	NA	NA	80.6	16.8	**184**	**21**			
PCB 101/90	66.6	____	____	110	____	____	66.6	NA	110	NA	92.2	8.9	**128.3**	**9.7**	-1.1	-1.3	
PCB 118	69.3	____	____	115	____	____	69.3	NA	115	NA	96.1	9.7	**130.8**	**3.6**	-1.1	-1.3	
PCB 153	60.9	____	____	82.1	____	____	60.9	NA	82.1	NA	113	11	**145.2**	**7.6**	-1.8	-2.2	
PCB 105	26.2	____	____	38.5	____	____	26.2	NA	38.5	NA	36.2	3.5	**53.0**	**3.4**	-1.1	-1.3	
PCB 138/163/164	<0.50	____	____	<0.50	____	____	<0.50	NA	<0.50	NA	102	11	**133.5**	**9.5**			
PCB 187/182	18.2	____	____	21.0	____	____	18.2	NA	21.0	NA	27.5	2.8	**34.0**	**2.3**	-1.4	-1.5	
PCB 128	13.5	____	____	19.5	____	____	13.5	NA	19.5	NA	16.1	2.1	**22.0**	**3.4**	-0.6	-0.6	
PCB 180	9.26	____	____	12.6	____	____	9.26	NA	12.6	NA	15.5	5.9	**17.1**	**3.8**	-1.6	-0.6	
PCB 170/190	2.26	____	____	4.42	____	____	2.26	NA	4.42	NA	3.01	0.72	**5.5**	**1.1**	-1.0	-0.7	
PCB 195	<0.50	____	____	<0.50	____	____	<0.50	NA	<0.50	NA	1.04	0.69	No Target				
PCB 206	N.A.	____	____	N.A.	____	____	NA	NA	NA	NA	<2		No Target				
PCB 209	N.A.	____	____	N.A.	____	____	NA	NA	NA	NA	<2		No Target				
PCB 66	46.7	____	____	86.0	____	____	46.7	NA	86.0	NA	55.7	11.5	**101.4**	**4.4**	-0.6	-0.7	
PCB 95	35.9	____	____	53.8	____	____	35.9	NA	53.8	NA	39.1	12.3	**83**	**17**	-0.3	-0.3	

Laboratory: 27

PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	10	56
Qualitative	4	22
Not Determined	4	22

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %			SRM 1974a, %			Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL		target	95% CL		z (25%)	z (s)	p (15%)
Water	91.1	____	____	88.6	____	____	91.1	NA	88.6	NA	91.4	0.0		**88.6**	**0.1**		0.0	-0.3	

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 28
Reporting Date: 11/20/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S1	S2	S3	SRM 1974a, ng/g dry S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
naphthalene							NA	NA	NA	NA	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene							NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene							NA	NA	NA	NA	23.3	6.1	5.3	1.8			
biphenyl							NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene							NA	NA	NA	NA	38.8	9.5	5.3	1.8			
acenaphthylene							NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene							NA	NA	NA	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	31.3	10.4	6.6	2.0			
fluorene							NA	NA	NA	NA	21.4	1.4	5.72	0.91			
phenanthrene							NA	NA	NA	NA	126	13	**22.2**	**2.4**			
anthracene							NA	NA	NA	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene							NA	NA	NA	NA	60.2	8.2	10.5	4.8			
fluoranthene							NA	NA	NA	NA	322	34	**163.7**	**9.1**			
pyrene							NA	NA	NA	NA	224	36	**151.6**	**6.6**			
benz[a]anthracene							NA	NA	NA	NA	77.5	9.2	**32.5**	**4.7**			
chrysene + triphenylene							NA	NA	NA	NA	196	26	**94.9**	**8.2**			
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	146	17	87.1	6.2			
benzo[e]pyrene							NA	NA	NA	NA	99.5	13.1	**84.0**	**1.9**			
benzo[a]pyrene							NA	NA	NA	NA	25.9	2.4	**15.63**	**0.65**			
perylene							NA	NA	NA	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene							NA	NA	NA	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 28
PAH in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 28
Reporting Date: 11/20/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/22/98 S 1	10/22/98 S 2	10/22/98 S 3	10/22/98 S 1	10/22/98 S 2	10/22/98 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	2.33	2.30	1.65	1.54	1.53	1.55	2.09	18.35	1.54	0.65	1.62	1.28	no target		1.2	0.6	1.2
hexachlorobenzene	1.38	1.39	1.42	1.00	1.13	1.12	1.40	1.49	1.08	6.68	1.08	0.95	no target		1.2	0.3	0.1
gamma-HCH	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	1.26	1.36	no target				
heptachlor	<1	3.33	2.76	1.00	1.36	1.36	3.05	13.24	1.24	16.76	<5		no target				0.9
aldrin	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<3		no target				
heptachlor epoxide	2.55	2.82	2.46	2.65	2.68	2.78	2.61	7.18	2.70	2.52	2.25	0.81	no target		0.7	1.1	0.5
oxychlordane	<1	<1	<1	1.25	1.31	1.23	<1	NA	1.26	3.30	3.48	2.75	no target				
trans-chlordane	12.0	13.8	12.0	13.9	14.1	13.1	12.6	8.2	13.7	3.9	12.3	2.0	**16.6**	**1.7**	0.1	0.1	0.5
2,4'-DDE	<1	<1	1.26	1.21	1.48	1.44	<1.26	NA	1.38	10.58	<5		5.26	0.27			
endosulfan I	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		no target				
cis-chlordane	12.5	14.4	12.5	16.0	15.9	14.8	13.1	8.4	15.6	4.3	14.7	1.8	**17.2**	**2.8**	-0.4	-0.4	0.6
trans-nonachlor	14.5	15.4	14.1	17.6	17.3	18.6	14.7	4.5	17.8	3.8	13.6	1.0	**18.0**	**3.6**	0.3	0.5	0.3
dieldrin	3.69	3.12	3.06	4.88	4.69	5.91	3.29	10.57	5.16	12.72	5.49	0.85	6.2	1.3	-1.6	-1.7	0.7
4,4'-DDE	40.7	40.2	35.7	47.3	50.7	52.4	38.9	7.1	50.1	5.2	34.0	3.8	**51.2**	**5.5**	0.6	0.6	0.5
2,4'-DDD	9.06	9.82	8.52	14.6	13.3	13.7	9.13	7.15	13.9	4.8	11.5	2.6	13.7	2.8	-0.8	-0.6	0.5
endrin	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		no target				
endosulfan II	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	2.73	1.34	no target				
4,4'-DDD	17.4	20.1	17.3	30.8	30.5	28.4	18.3	8.7	29.9	4.4	29.3	3.6	**43.0**	**6.3**	-1.5	-1.5	0.6
2,4'-DDT	3.65	4.42	3.74	2.57	2.68	2.92	3.94	10.69	2.72	6.57	7.51	1.94	8.5	1.9	-1.9	-1.4	0.7
cis-nonachlor	5.05	6.01	5.06	6.59	6.67	5.89	5.37	10.26	6.38	6.72	6.27	1.38	**6.84**	**0.90**	-0.6	-0.5	0.7
4,4'-DDT	8.48	8.92	8.07	2.66	2.58	2.40	8.49	5.01	2.55	5.23	9.30	0.99	**3.91**	**0.59**	-0.3	-0.5	0.3
mirex	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	1.75	0.62	no target				

Laboratory: 28
Pesticides in Mussel IX

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	13	13	14
2 to 3	0	0	0
≥ 3	0	0	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 28
Reporting Date: 11/20/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	10/22/98 S 1	10/22/98 S 2	10/22/98 S 3	10/22/98 S 1	10/22/98 S 2	10/22/98 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	5.40	<1	<1	<1	<1	<1	<5.40	NA	<1	NA	4.18	1.56	5.8	1.2			
PCB 18	10.3	12.1	10.6	24.8	27.2	26.9	11.0	8.8	26.3	5.0	12.9	2.3	33	11	-0.6	-0.4	0.6
PCB 28	40.1	47.2	41.3	86.1	91.3	88.3	42.9	8.9	88.6	2.9	41.4	4.8	79	15	0.1	0.2	0.6
PCB 52	67.5	68.3	60.6	114	119	122	65.5	6.5	118	3	61.8	5.2	**115**	11	0.2	0.3	0.4
PCB 44	44.2	48.2	42.4	75.9	80.6	80.6	44.9	6.6	79.0	3.4	40.3	4.1	**72.7**	**7.4**	0.5	0.5	0.4
PCB 66/95	0.0	0.0	0.0	0	0	0	NA	NA	NA	NA	80.6	16.8	**184**	21			
PCB 101/90	116	115	108	155	163	167	113	4	162	4	92.2	8.9	**128.3**	**9.7**	0.9	1.0	0.3
PCB 118	121	132	113	159	165	169	122	8	164	3	96.1	9.7	**130.8**	**3.6**	1.1	1.2	0.5
PCB 153	110	118	103	132	138	141	110	7	137	3	113	11	**145.2**	**7.6**	-0.1	-0.1	0.5
PCB 105	25.8	40.5	33.7	23.3	28.9	29.6	33.3	22.1	27.3	12.7	36.2	3.5	**53.0**	**3.4**	-0.3	-0.4	1.5
PCB 138/163/164	107	109	96.1	125	128	133	104	7	129	3	102	11	**133.5**	**9.5**	0.1	0.1	0.4
PCB 187/182	28.9	29.6	26.1	32.1	32.9	33.8	28.2	6.6	32.9	2.6	27.5	2.8	**34.0**	**2.3**	0.1	0.1	0.4
PCB 128	15.1	18.0	14.8	14.7	18.3	18.7	16.0	11.1	17.2	12.8	16.1	2.1	**22.0**	**3.4**	0.0	0.0	0.7
PCB 180	8.95	9.67	8.49	13.3	13.4	14.2	9.04	6.58	13.6	3.6	15.5	5.9	**17.1**	**3.8**	-1.7	-0.6	0.4
PCB 170/190	1.05	1.51	1.13	2.26	2.27	2.60	1.23	19.98	2.38	8.14	3.01	0.72	**5.5**	**1.1**	-2.4	-1.6	1.3
PCB 195	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	1.04	0.69	No Target				
PCB 206	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		No Target				
PCB 209	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		No Target				
PCB 66	69.1	77.4	68.8	113	117	116	71.8	6.8	115	2	55.7	11.5	**101.4**	**4.4**	1.2	1.2	0.5
PCB 95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

Laboratory: 28
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	13	72
Qualitative	4	22
Not Determined	1	6

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	91.2	92.0	91.2	88.5	88.6	88.8	91.5	0.5	88.6	0.2	91.4	0.0	**88.6**	**0.1**	0.0	0.0	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 29
Reporting Date: 12/4/98

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 11/21/98 S 1	Mussel IX 11/21/98 S 2	Mussel IX 11/21/98 S 3	SRM 1974a, ng/g dry 11/21/98 S 1	SRM 1974a 11/21/98 S 2	SRM 1974a 11/21/98 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/gdry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
naphthalene	<=2.85	<39.1	<=3.44	12.5			<39.1	NA	12.5	NA	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene	<=3.98	<=7.49	<=5.72	7.74			<7.49	NA	7.74	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene	<=5.73	<=7.19	<=5.74	=<3.54			<7.19	NA	<3.54	NA	23.3	6.1	5.3	1.8			
biphenyl	<=3.42	<=4.67	<=6.10	<5.00			<6.10	NA	<5.00	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	<=6.40	<=7.76	<=4.24	=<1.56			<7.76	NA	<1.56	NA	38.8	9.5	5.3	1.8			
acenaphthylene	<=1.91	<=1.88	<=2.56	<5.00			<2.56	NA	<5.00	NA	7.87	3.92	5.25	0.38			
acenaphthene	<36.5	<39.1	<38.2	<5.00			<39.1	NA	<5.00	NA	9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene	<=4.82	<=7.42	<=9.37	<5.00			<9.37	NA	<5.00	NA	31.3	10.4	6.6	2.0			
fluorene	<36.5	<39.1	<=8.35	<5.00			<39.1	NA	<5.00	NA	21.4	1.4	5.72	0.91			
phenanthrene	110	122	122	27.9			118	6	27.9	NA	126	13	**22.2**	**2.4**	-0.2	-0.4	0.4
anthracene	<=1.18	<=1.21	<38.2	6.20			<38.2	NA	6.20	NA	11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene	63.0	73.8	68.0	<5.00			68.3	8.0	<5.00	NA	60.2	8.2	10.5	4.8	0.5	0.6	0.5
fluoranthene	197	213	199	125			203	4	125	NA	322	34	**163.7**	**9.1**	-1.5	-2.1	0.3
pyrene	149	163	158	129			157	5	129	NA	224	36	**151.6**	**6.6**	-1.2	-1.1	0.3
benz[a]anthracene	66.2	64.4	70.4	30.6			67.0	4.6	30.6	NA	77.5	9.2	**32.5**	**4.7**	-0.5	-0.7	0.3
chrysene + triphenylene	163	219	216	71.2			199	16	71.2	NA	196	26	**94.9**	**8.2**	0.1	0.1	1.0
benzofluoranthenes [b+j+k]	99.1	93.8	98.7	64.7			97.2	3.0	64.7	NA	146	17	87.1	6.2	-1.3	-1.6	0.2
benzo[e]pyrene	119	135	123	84.1			126	7	84.1	NA	99.5	13.1	**84.0**	**1.9**	1.0	1.1	0.4
benzo[a]pyrene	<=10.0	<39.1	<=13.9	19.4			<39.1	NA	19.4	NA	25.9	2.4	**15.63**	**0.65**			
perylene	<36.5	<=5.65	<38.2	=<3.25			<38.2	NA	<3.25	NA	8.13	1.21	**7.68**	**0.27**			
indeno[1,2,3-cd]pyrene	<36.5	<39.1	<38.2	<5.00			<38.2	NA	<5.00	NA	18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]	<36.5	<39.1	<38.2	<5.00			<38.2	NA	<5.00	NA	4.36	2.12	3.00	0.20			
benzo[ghi]perylene	<36.5	<39.1	<38.2	<5.00			<38.2	NA	<5.00	NA	21.2	3.7	**22.0**	**2.2**			

Laboratory: 29
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	8	35
Qualitative	15	65
Not Determined	0	0

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 29
Reporting Date: 12/4/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	11/21/98 S 1	11/21/98 S 2	11/21/98 S 3	11/21/98 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	NA	NA			NA	NA	NA	NA	1.62	1.28	no target				
hexachlorobenzene	5.48	4.97	4.82	<1.51			5.09	6.80	<1.51	NA	1.08	0.95	no target		**14.8**	4.4	0.5
gamma-HCH	=0.86	=0.81	<=1.36	2.20			<1.36	NA	2.20	NA	1.26	1.36	no target				
heptachlor	<1.46	<1.56	<=6.81	<1.51			<6.81	NA	<1.51	NA	<5		no target				
aldrin	<1.46	<1.56	<1.53	<1.51			<1.56	NA	<1.51	NA	<3		no target				
heptachlor epoxide	2.15	2.14	<=1.08	1.37			2.15	0.33	1.37	NA	2.25	0.81	no target		-0.2	-0.3	0.0
oxychlordane	1.65	1.67	<=1.44	1.62			1.66	0.85	1.62	NA	3.48	2.75	no target		-2.1	-1.1	0.1
trans-chlordane	NA	NA	NA	NA			NA	NA	NA	NA	12.3	2.0	**16.6**	**1.7**			
2,4'-DDE	<1.46	<1.56	<1.53	<1.51			<1.56	NA	<1.51	NA	<5		5.26	0.27			
endosulfan I	NA	NA	NA	NA			NA	NA	NA	NA	<2		no target				
cis-chlordane	17.6	15.4	14.8	17.2			15.9	9.3	17.2	NA	14.7	1.8	**17.2**	**2.8**	0.3	0.3	0.6
trans-nonachlor	14.6	13.1	15.6	17.9			14.4	8.7	17.9	NA	13.6	1.0	**18.0**	**3.6**	0.2	0.4	0.6
dieldrin	5.70	5.69	6.79	6.90			6.06	10.4	6.90	NA	5.49	0.85	6.2	1.3	0.4	0.4	0.7
4,4'-DDE	27.8	27.2	27.4	44.0			27.5	1.1	44.0	NA	34.0	3.8	**51.2**	**5.5**	-0.8	-0.8	0.1
2,4'-DDD	8.42	11.0	12.1	8.95			10.5	18.0	8.95	NA	11.5	2.6	13.7	2.8	-0.4	-0.3	1.2
endrin	NA	NA	NA	NA			NA	NA	NA	NA	<2		no target				
endosulfan II	NA	NA	NA	NA			NA	NA	NA	NA	2.73	1.34	no target				
4,4'-DDD	22.1	23.6	21.2	33.0			22.3	5.4	33.0	NA	29.3	3.6	**43.0**	**6.3**	-1.0	-0.9	0.4
2,4'-DDT	11.2	11.3	11.7	7.70			11.4	2.3	7.70	NA	7.51	1.94	8.5	1.9	2.1	1.5	0.2
cis-nonachlor	NA	NA	NA	NA			NA	NA	NA	NA	6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	7.62	8.59	9.48	5.03			8.56	10.86	5.03	NA	9.30	0.99	**3.91**	**0.59**	-0.3	-0.5	0.7
mirex	1.81	1.94	<=1.06	1.67			1.88	4.90	1.67	NA	1.75	0.62	no target		0.3	0.5	0.3

Laboratory: 29
Pesticides in Mussel IX

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	9	11	12
2 to 3	2	0	0
≥ 3	1	1	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 29

Reporting Date: 12/4/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	11/21/98 S 1	11/21/98 S 2	11/21/98 S 3	11/21/98 S 1	11/21/98 S 2	11/21/98 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	<1.82	<1.95	<1.91	<1.89	____	____	<1.95	NA	<1.89	NA	4.18	1.56	5.8	1.2			
PCB 18	<1.82	<1.95	<1.91	<1.89	____	____	<1.95	NA	<1.89	NA	12.9	2.3	33	11			
PCB 28	31.0	34.3	33.3	70.9	____	____	32.9	5.2	70.9	NA	41.4	4.8	79	15	-0.8	-0.9	0.3
PCB 52	33.0	35.9	34.3	64.9	____	____	34.4	4.2	64.9	NA	61.8	5.2	**115**	**11**	-1.8	-2.5	0.3
PCB 44	26.7	29.7	28.2	47.0	____	____	28.2	5.3	47.0	NA	40.3	4.1	**72.7**	**7.4**	-1.2	-1.4	0.4
PCB 66/95	55.7	62.7	62.0	98.4	____	____	60.1	6.4	98.4	NA	80.6	16.8	**184**	**21**	-1.0	-0.9	0.4
PCB 101/90	47.9	51.4	50.6	82.3	____	____	50.0	3.7	82.3	NA	92.2	8.9	**128.3**	**9.7**	-1.8	-2.1	0.2
PCB 118	48.6	53.3	54.8	80.0	____	____	52.3	6.2	80.0	NA	96.1	9.7	**130.8**	**3.6**	-1.8	-2.1	0.4
PCB 153	68.5	73.9	73.3	99.3	____	____	71.9	4.1	99.3	NA	113	11	**145.2**	**7.6**	-1.4	-1.7	0.3
PCB 105	23.6	25.0	25.6	37.4	____	____	24.7	4.2	37.4	NA	36.2	3.5	**53.0**	**3.4**	-1.3	-1.5	0.3
PCB 138/163/164	60.0	65.1	63.7	86.5	____	____	62.9	4.2	86.5	NA	102	11	**133.5**	**9.5**	-1.5	-1.5	0.3
PCB 187/182	18.9	20.6	20.4	27.4	____	____	20.0	4.8	27.4	NA	27.5	2.8	**34.0**	**2.3**	-1.1	-1.2	0.3
PCB 128	10.3	11.3	11.0	16.5	____	____	10.8	4.8	16.5	NA	16.1	2.1	**22.0**	**3.4**	-1.3	-1.2	0.3
PCB 180	30.8	33.8	33.0	33.0	____	____	32.5	4.7	33.0	NA	15.5	5.9	**17.1**	**3.8**	**4.4**	1.5	0.3
PCB 170/190	3.88	4.31	4.21	6.10	____	____	4.13	5.5	6.10	NA	3.01	0.72	**5.5**	**1.1**	1.5	1.0	0.4
PCB 195	<1.82	<1.95	<1.91	=0.49	____	____	<1.95	NA	<0.496	NA	1.04	0.69	No Target				
PCB 206	=0.69	<1.95	<1.91	<1.89	____	____	<1.95	NA	<1.89	NA	<2		No Target				
PCB 209	<1.82	<1.95	<1.91	=0.37	____	____	<1.95	NA	<0.374	NA	<2		No Target				
PCB 66	____	____	____	____	____	____	NA	NA	NA	NA	55.7	11.5	**101.4**	**4.4**			
PCB 95	____	____	____	____	____	____	NA	NA	NA	NA	39.1	12.3	**83**	**17**			

C-76

Laboratory: 29

PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	13	72
Qualitative	5	28
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	12	10	13
2 to 3	0	3	0
≥ 3	1	0	0

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	86.9	87.8	88.1	84.8	____	____	87.6	0.7	84.8	NA	91.4	0.0	**88.6**	**0.1**	-0.2	-3.7	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 30
Reporting Date: 1/7/99

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/gdry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	1/5/99 S 1	1/5/98 S 2	1/5/99 S 3	1/5/99 S 1	1/5/99 S 2	1/5/99 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	28.7	20.9	24.1	13.5	12.8	18.0	24.6	16.0	14.8	19.1	25.7	5.2	**23.5**	**4.4**	-0.2	-0.2	1.1
2-methylnaphthalene	33.9	36.0	35.8	9.80	7.90	11.4	35.2	3.3	9.70	18.06	33.1	8.2	10.2	1.5	0.3	0.2	0.2
1-methylnaphthalene	22.3	20.6	26.2	5.96	4.62	4.79	23.0	12.5	5.12	14.24	23.3	6.1	5.3	1.8	0.0	0.0	0.8
biphenyl	15.8	13.7	12.2	4.31	3.73	5.54	13.9	13.0	4.53	20.42	12.2	1.0	5.11	0.33	0.6	1.7	0.9
2,6-dimethylnaphthalene	35.8	35.4	34.0	4.98	4.76	6.37	35.1	2.7	5.37	16.26	38.8	9.5	5.3	1.8	-0.4	-0.3	0.2
acenaphthylene	4.79	6.96	5.56	9.58	5.44	7.82	5.77	19.07	7.61	27.29	7.87	3.92	5.25	0.38	-1.1	-0.7	1.3
acenaphthene	13.1	10.2	9.73	3.42	3.62	2.16	11.0	16.6	3.07	25.81	9.46	1.31	3.15	0.26	0.7	1.1	1.1
1,6,7-trimethylnaphthalene	22.0	24.2	17.6	4.35	4.17	5.25	21.3	15.8	4.59	12.61	31.3	10.4	6.6	2.0	-1.3	-0.7	1.1
fluorene	22.2	20.7	20.3	6.77	5.42	7.43	21.1	4.8	6.54	15.67	21.4	1.4	5.72	0.91	-0.1	-0.2	0.3
phenanthrene	136	124	137	22.7	27.3	22.1	132	5	24.0	11.8	126	13	**22.2**	**2.4**	0.2	0.3	0.4
anthracene	5.98	9.46	11.2	10.4	9.06	10.8	8.88	29.93	10.1	9.0	11.3	3.6	**6.1**	**1.7**	-0.9	-0.6	2.0
1-methylphenanthrene	66.7	50.4	57.5	9.50	8.70	10.1	58.2	14.0	9.43	7.45	60.2	8.2	10.5	4.8	-0.1	-0.1	0.9
fluoranthene	268	321	368	185	171	193	319	16	183	6	322	34	**164**	**9**	0.0	0.0	1.0
pyrene	269	254	280	170	157	189	268	5	172	9	224	36	**152**	**7**	0.8	0.7	0.3
benz[a]anthracene	106	89.6	97.7	39.1	34.4	36.2	97.8	8.4	36.6	6.5	77.5	9.2	**32.5**	**4.7**	1.0	1.3	0.6
chrysene + triphenylene	202	179	203	81.3	78.6	84.2	195	7	81.4	3.4	196	26	**94.9**	**8.2**	0.0	0.0	0.5
benzofluoranthenes [b+j+k]	127	116	136	71.7	66.3	65.6	126	8	67.9	4.9	146	17	87.1	6.2	-0.5	-0.6	0.5
benzo[e]pyrene	102	92.6	108	82.0	77.7	83.6	101	8	81.1	3.8	99.5	13.1	**84.0**	**1.9**	0.1	0.1	0.5
benzo[a]pyrene	28.0	24.2	32.0	14.4	16.2	15.8	28.1	13.9	15.5	6.1	25.9	2.4	**15.6**	**0.7**	0.3	0.6	0.9
perylene	6.99	6.04	7.74	7.14	6.99	7.19	6.92	12.31	7.11	1.46	8.13	1.21	**7.68**	**0.27**	-0.6	-0.8	0.8
indeno[1,2,3-cd]pyrene	14.7	10.4	12.5	13.0	11.9	10.8	12.5	17.2	11.9	9.2	18.0	3.0	**14.2**	**2.8**	-1.2	-1.2	1.1
dibenz[a,h]anthracene + [a,c]	4.26	3.88	4.66	3.26	3.21	2.72	4.27	9.14	3.06	9.74	4.36	2.12	3.00	0.20	-0.1	0.0	0.6
benzo[ghi]perylene	19.0	15.0	18.1	23.3	20.6	19.0	17.4	12.1	21.0	10.4	21.2	3.7	**22.0**	**2.2**	-0.7	-0.7	0.8

Laboratory: 30
PAH in Mussel IX

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 30
Reporting Date: 1/7/99

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 1/2/99 S 1	1/2/99 S 2	1/2/99 S 3	SRM 1974a, ng/g dry 1/2/99 S 1	1/2/99 S 2	1/2/99 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	0.535	0.538	0.604	0.475	0.416	0.476	0.559	6.977	0.456	7.540	1.62	1.28	no target		-2.6	-1.3	0.5
hexachlorobenzene	0.346	0.351	0.379	0.260	0.252	0.268	0.359	4.959	0.260	3.077	1.08	0.95	no target		-2.7	-0.8	0.3
gamma-HCH	0.656	0.676	0.678	0.952	0.979	0.968	0.670	1.816	0.966	1.405	1.26	1.36	no target		-1.9	-0.7	0.1
heptachlor	<2	<2	<2	0.604	0.578	0.618	<2	NA	0.600	3.383	<5		no target				
aldrin	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<3		no target				
heptachlor epoxide	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	2.25	0.81	no target				
oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.48	2.75	no target				
trans-chlordane	12.9	11.7	12.8	14.1	13.1	13.9	12.5	5.3	13.7	3.9	12.3	2.0	**16.6**	**1.7**	0.0	0.0	0.4
2,4'-DDE	3.77	3.76	3.76	4.88	4.82	4.98	3.76	0.15	4.89	1.65	<5		5.26	0.27			0.0
endosulfan I	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		no target				
cis-chlordane	14.8	14.3	14.4	17.5	16.6	17.2	14.5	1.8	17.1	2.7	14.7	1.8	**17.2**	**2.8**	-0.1	0.0	0.1
trans-nonachlor	14.2	13.7	14.1	17.2	16.4	17.0	14.0	1.9	16.9	2.5	13.6	1.0	**18.0**	**3.6**	0.1	0.2	0.1
dieldrin	6.80	6.86	6.94	6.86	6.85	7.01	6.87	1.0	6.91	1.30	5.49	0.85	6.2	1.3	1.0	1.1	0.1
4,4'-DDE	34.0	33.1	34.8	46.5	46.2	47.1	34.0	2.5	46.6	1.0	34.0	3.8	**51.2**	**5.5**	0.0	0.0	0.2
2,4'-DDD	10.4	9.93	10.7	13.2	12.8	13.3	10.3	3.8	13.1	2.0	11.5	2.6	13.7	2.8	-0.4	-0.3	0.3
endrin	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		no target				
endosulfan II	2.68	2.72	2.67	3.07	3.01	2.99	2.69	1.0	3.02	1.38	2.73	1.34	no target		-0.1	-0.1	0.1
4,4'-DDD	25.6	28.6	32.8	43.5	40.2	40.9	29.0	12.5	41.5	4.2	29.3	3.6	**43.0**	**6.3**	0.0	0.0	0.8
2,4'-DDT	4.70	4.26	4.88	5.45	4.86	4.88	4.61	6.9	5.06	6.62	7.51	1.94	8.5	1.9	-1.5	-1.1	0.5
cis-nonachlor	4.49	4.53	4.41	6.24	5.97	6.30	4.48	1.4	6.17	2.85	6.27	1.38	**6.84**	**0.90**	-1.1	-0.9	0.1
4,4'-DDT	8.72	7.45	9.04	1.82	2.11	1.91	8.40	10.0	1.95	7.63	9.30	0.99	**3.91**	**0.59**	-0.4	-0.6	0.7
mirex	<2	<2	<2	1.40	1.44	1.39	<2	NA	1.41	1.88	1.75	0.62	no target				

Laboratory: 30
Pesticides in Mussel IX

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

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 30
Reporting Date: 1/7/99

PCBs

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	1/2/99 S 1	1/2/99 S 2	1/2/99 S 3	1/2/99 S 1	1/2/99 S 2	1/2/99 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	1.43	1.42	1.42	3.35	3.16	3.39	1.42	0.41	3.30	3.72	4.18	1.56	5.8	1.2	-2.6	-1.2	0.0
PCB 18	11.8	11.7	11.8	28.1	27.3	28.1	11.8	0.5	27.8	1.7	12.9	2.3	33	11	-0.3	-0.2	0.0
PCB 28	38.2	37.7	37.8	78.0	77.5	79.4	37.9	0.7	78.3	1.3	41.4	4.8	79	15	-0.3	-0.4	0.0
PCB 52	65.6	65.8	67.9	105	101	105	66.4	1.9	104	2	61.8	5.2	**115**	11	0.3	0.4	0.1
PCB 44	47.7	48.2	46.7	75.8	74.7	75.7	47.5	1.6	75.4	0.8	40.3	4.1	**72.7**	7.4	0.7	0.8	0.1
PCB 66/95	128	124	130	188	182	188	127	2	186	2	80.6	16.8	**184**	21	2.3	2.0	0.2
PCB 101/90	117	104	115	140	136	142	112	6	139	2	92.2	8.9	**128.3**	9.7	0.9	1.0	0.4
PCB 118	121	110	121	143	140	144	117	5	142	1	96.1	9.7	**130.8**	3.6	0.9	1.0	0.4
PCB 153	136	123	134	146	139	147	131	5	144	3	113	11	**145.2**	7.6	0.6	0.8	0.4
PCB 105	45.2	43.2	46.5	60.5	60.6	61.5	45.0	3.7	60.9	0.9	36.2	3.5	**53.0**	3.4	1.0	1.1	0.2
PCB 138/163/164	126	112	126	144	134	144	121	7	141	4	102	11	**133.5**	9.5	0.8	0.8	0.4
PCB 187/182	35.0	34.0	34.8	34.5	34.5	33.7	34.6	1.5	34.2	1.3	27.5	2.8	**34.0**	2.3	1.0	1.2	0.1
PCB 128	18.8	17.2	18.4	23.6	22.8	23.3	18.1	4.6	23.2	1.7	16.1	2.1	**22.0**	3.4	0.5	0.5	0.3
PCB 180	10.4	9.98	10.4	15.6	15.3	15.5	10.3	2.4	15.5	1.0	15.5	5.9	**17.1**	3.8	-1.4	-0.5	0.2
PCB 170/190	2.27	2.28	2.23	3.63	3.61	3.59	2.26	1.17	3.61	0.55	3.01	0.72	**5.5**	1.1	-1.0	-0.7	0.1
PCB 195	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	1.04	0.69	No Target				
PCB 206	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		No Target				
PCB 209	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		No Target				
PCB 66							NA	NA	NA	NA	55.7	11.5	**101.4**	4.4			
PCB 95							NA	NA	NA	NA	39.1	12.3	**83**	17			

Laboratory: 30
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	15	83
Qualitative	3	17
Not Determined	0	0

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

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %				Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	92.0	91.5	92.1	88.6	88.6	88.6	91.9	0.3	88.6	0.0	91.4	0.0	**88.6**	**0.1**	0.0	0.4	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 31
Reporting Date: 12/22/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	1/4/99 S 1	1/4/99 S 2	1/4/99 S 3	1/4/99 S 1	1/4/99 S 2	1/4/99 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	25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene	NA	NA	NA	NA			NA	NA	NA	NA	33.1	8.2	10.2	1.5			
1-methylnaphthalene	NA	NA	NA	NA			NA	NA	NA	NA	23.3	6.1	5.30	1.80			
biphenyl	NA	NA	NA	NA			NA	NA	NA	NA	12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene	50.8	56.7	56.8	9.79			54.8	6.3	9.79	NA	38.8	9.5	5.3	1.8	1.7	1.2	0.4
acenaphthylene	NA	NA	NA	NA			NA	NA	NA	NA	7.87	3.92	5.25	0.38			
acenaphthene	11.4	11.6	10.9	4.47			11.3	2.8	4.47	NA	9.46	1.31	3.15	0.26	0.8	1.3	0.2
1,6,7-trimethylnaphthalene	52.1	55.9	57.7	6.43			55.2	5.2	6.43	NA	31.3	10.4	6.6	2.0	**3.1**	1.8	0.3
fluorene	24.1	24.5	24.1	7.04			24.2	0.9	7.04	NA	21.4	1.4	5.72	0.91	0.5	1.4	0.1
phenanthrene	144	150	144	25.2			146	2	25.2	NA	126	13	**22.2**	**2.4**	0.6	0.9	0.2
anthracene	4.74	10.3	6.48	6.00			7.18	39.82	6.00	NA	11.3	3.6	**6.1**	**1.7**	-1.5	-1.0	2.7
1-methylphenanthrene	56.8	57.8	51.5	10.2			55.4	6.1	10.2	NA	60.2	8.2	10.5	4.8	-0.3	-0.4	0.4
fluoranthene	256	270	253	137			260	3	137	NA	322	34	**163.7**	**9.1**	-0.8	-1.1	0.2
pyrene	205	219	209	129			211	3	129	NA	224	36	**151.6**	**6.6**	-0.2	-0.2	0.2
benz[a]anthracene	91.4	99.2	91.5	42.3			94.0	4.8	42.3	NA	77.5	9.2	**32.5**	**4.7**	0.9	1.1	0.3
chrysene + triphenylene	222	250	230	97.7			234	6	97.7	NA	196	26	**94.9**	**8.2**	0.8	0.8	0.4
benzofluoranthenes [b+j+k]	147	180	156	87.1			161	11	87.1	NA	146	17	87.1	6.2	0.4	0.5	0.7
benzo[e]pyrene	108	131	118	87.5			119	9	87.5	NA	99.5	13.1	**84.0**	**1.9**	0.8	0.8	0.6
benzo[a]pyrene	23.5	28.3	31.9	17.3			27.9	15.1	17.3	NA	25.9	2.4	**15.63**	**0.65**	0.3	0.6	1.0
perylene	8.44	10.2	10.2	9.09			9.61	10.57	9.09	NA	8.13	1.21	**7.68**	**0.27**	0.7	0.9	0.7
indeno[1,2,3-cd]pyrene	15.6	16.9	14.0	14.1			15.5	9.4	14.1	NA	18.0	3.0	**14.2**	**2.8**	-0.6	-0.6	0.6
dibenz[a,h]anthracene + [a,c]	4.51	4.86	3.23	3.92			4.20	20.43	3.92	NA	4.36	2.12	3.00	0.20	-0.1	-0.1	1.4
benzo[ghi]perylene	19.3	21.7	18.5	22.7			19.8	8.3	22.7	NA	21.2	3.7	**22.0**	**2.2**	-0.3	-0.3	0.6

Laboratory: 31
PAH in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	18	78
Qualitative	0	0
Not Determined	5	22

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 31
Reporting Date: 12/22/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 11/23/98 S 1	S 2	S 3	SRM 1974a, ng/g dry 11/23/98 S 1	S 2	S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<0.905	<0.905	<0.905	3.92			<0.905	NA	3.92	NA	1.62	1.28	no target				
hexachlorobenzene	3.17	2.64	2.52	12.3			2.78	12.46	12.3	NA	1.08	0.95	no target		6.3	1.9	0.8
gamma-HCH	<1.36	<1.36	<1.36	<1.36			<1.36	NA	<1.36	NA	1.26	1.36	no target				
heptachlor	<0.453	<0.453	<0.453	1.43			<0.453	NA	1.43	NA	<5		no target				
aldrin	<1.36	<1.36	<1.36	<1.36			<1.36	NA	<1.36	NA	<3		no target				
heptachlor epoxide	22.2	26.6	26.7	41.0			25.2	10.3	41.0	NA	2.25	0.81	no target		**40.8**	**70.1**	0.7
oxychlordane	2.45	2.84	2.80	4.10			2.70	7.96	4.10	NA	3.48	2.75	no target		-0.9	-0.5	0.5
trans-chlordane	5.67	7.18	9.10	8.56			7.32	23.50	8.56	NA	12.3	2.0	**16.6**	**1.7**	-1.6	-1.7	1.6
2,4'-DDE	0.790	1.23	1.34	2.14			1.12	25.99	2.14	NA	<5		5.26	0.27			1.7
endosulfan I	NA*	NA*	NA*	NA*			NA	NA	NA	NA	<2		no target				
cis-chlordane	10.6	13.2	13.1	11.4			12.3	12.0	11.4	NA	14.7	1.8	**17.2**	**2.8**	-0.6	-0.6	0.8
trans-nonachlor	9.43	9.83	12.2	10.5			10.5	14.0	10.5	NA	13.6	1.0	**18.0**	**3.6**	-0.9	-1.5	0.9
dieldrin	2.36	4.06	2.74	3.03			3.05	29.22	3.03	NA	5.49	0.85	6.2	1.3	-1.8	-1.9	1.9
4,4'-DDE	24.1	27.9	29.1	33.4			27.0	9.6	33.4	NA	34.0	3.8	**51.2**	**5.5**	-0.8	-0.9	0.6
2,4'-DDD	8.71	10.4	9.34	11.6			9.48	8.95	11.6	NA	11.5	2.6	13.7	2.8	-0.7	-0.5	0.6
endrin	<2.72	<2.72	<2.72	<2.72			<2.72	NA	<2.72	NA	<2		no target				
endosulfan II	<3.62	<3.62	<3.62	<3.62			<3.62	NA	<3.62	NA	2.73	1.34	no target				
4,4'-DDD	28.7	30.9	29.4	35.0			29.7	3.6	35.0	NA	29.3	3.6	**43.0**	**6.3**	0.0	0.0	0.2
2,4'-DDT	6.56	7.93	6.19	5.89			6.89	13.30	5.89	NA	7.51	1.94	8.5	1.9	-0.3	-0.2	0.9
cis-nonachlor	7.76	8.68	9.34	7.49			8.59	9.23	7.49	NA	6.27	1.38	**6.84**	**0.90**	1.5	1.2	0.6
4,4'-DDT	6.12	7.09	7.70	2.68			6.97	11.43	2.68	NA	9.30	0.99	**3.91**	**0.59**	-1.0	-1.4	0.8
mirex	<0.905	<0.905	<.0.905	<0.905			<.0.905	NA	<.0.905	NA	1.75	0.62	no target				

Laboratory: 31
Pesticides in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	14	64
Qualitative	7	32
Not Determined	1	5

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	11	12	14
2 to 3	0	0	0
≥ 3	2	1	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 31
Reporting Date: 12/22/98

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 11/23/98 S 1	S 2	S 3	SRM 1974a, ng/g dry 11/23/98 S 1	S 2	S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
PCB 8	<2.26	<2.26	<2.26	1.96	____	____	<2.26	NA	1.96	NA	4.18	1.56	5.8	1.2			
PCB 18	11.5	16.0	19.3	24.4	____	____	15.6	25.1	24.4	NA	12.9	2.3	33	11	0.8	0.6	1.7
PCB 28	27.3	31.3	42.0	65.8	____	____	33.5	22.7	65.8	NA	41.4	4.8	79	15	-0.8	-0.8	1.5
PCB 52	56.4	58.8	73.6	90	____	____	62.9	14.8	89.9	NA	61.8	5.2	115	11	0.1	0.1	1.0
PCB 44	49.4	55.0	57.4	64.0	____	____	53.9	7.6	64.0	NA	40.3	4.1	72.7	7.4	1.4	1.6	0.5
PCB 66/95	96.3	110	126	74	____	____	111	13	74.0	NA	80.6	16.8	184	21	1.5	1.3	0.9
PCB 101/90	91.1	96.5	115	109	____	____	101	12	109	NA	92.2	8.9	128.3	9.7	0.4	0.4	0.8
PCB 118	80.0	81.5	94.8	96	____	____	85.5	9.5	96.5	NA	96.1	9.7	130.8	3.6	-0.4	-0.5	0.6
PCB 153	128	137	161	133	____	____	142	12	133	NA	113	11	145.2	7.6	1.0	1.2	0.8
PCB 105	32.2	36.3	43.7	37.3	____	____	37.4	15.7	37.3	NA	36.2	3.5	53.0	3.4	0.1	0.2	1.0
PCB 138/163/164	94.2	96.5	115	106	____	____	102	11	106	NA	102	11	133.5	9.5	0.0	0.0	0.7
PCB 187/182	26.4	28.4	33.2	26.6	____	____	29.4	11.9	26.6	NA	27.5	2.8	34.0	2.3	0.3	0.3	0.8
PCB 128	11.7	11.2	14.4	13.7	____	____	12.4	13.9	13.7	NA	16.1	2.1	22.0	3.4	-0.9	-0.8	0.9
PCB 180	28.6	31.1	35.3	23.0	____	____	31.7	10.5	23.0	NA	15.5	5.9	17.1	3.8	4.2	1.5	0.7
PCB 170/190	6.87	2.83	6.01	3.21	____	____	5.24	40.64	3.21	NA	3.01	0.72	5.5	1.1	3.0	2.0	2.7
PCB 195	1.82	1.42	1.93	2.68	____	____	1.72	15.57	2.68	NA	1.04	0.69	No Target		2.6	1.2	1.0
PCB 206	2.60	2.64	2.52	3.57	____	____	2.59	2.36	3.57	NA	<2		No Target				0.2
PCB 209	14.4	9.30	5.40	47.4	____	____	9.71	46.60	47.4	NA	<2		No Target				3.1
PCB 66	____	____	____	____	____	____	NA	NA	NA	NA	55.7	11.5	101.4	4.4			
PCB 95	____	____	____	____	____	____	NA	NA	NA	NA	39.1	12.3	83	17			

Laboratory: 31
PCBs in Mussel IX

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	12	15	15
2 to 3	2	0	1
≥ 3	1	0	1

Water in Mussel IX

	Mussel IX, % S 1	S 2	S 3	SRM 1974a, % S 1	S 2	S 3	Mussel IX, % mean, %	%RSD	SRM 1974a, % mean, %	%RSD	Mussel IX, % assigned	95% CL	SRM 1974a, % target	95% CL	Mussel IX, % z (25%)	z (s)	p (15%)
water	92.0	92.0	92.0	89.0	____	____	92.0	0.0	89.0	NA	91.4	0.0	88.6	0.1	0.0	0.5	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 32a
Reporting Date: 1/22/99

PAH

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry 1/12/99 S 1	Mussel IX 1/12/99 S 2	Mussel IX 1/12/99 S 3	SRM 1974a, ng/g dry 1/12/99 S 1	SRM 1974a 1/12/99 S 2	SRM 1974a 1/12/99 S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	Mussel IX 95% CL	SRM 1974a, ng/g dry target value[b]	SRM 1974a 95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
naphthalene											25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene											33.1	8.2	10.2	1.5			
1-methylnaphthalene											23.3	6.1	5.3	1.8			
biphenyl											12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene											38.8	9.5	5.3	1.8			
acenaphthylene											7.87	3.92	5.25	0.38			
acenaphthene											9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene											31.3	10.4	6.6	2.0			
fluorene											21.4	1.4	5.72	0.91			
phenanthrene	150	151	177	32.3	27.8	34.7	159	10	31.6	11.1	126	13	**22.2**	**2.4**	1.1	1.5	0.6
anthracene	7.81	6.89	6.27	5.88	6.76	6.85	6.99	11.09	6.50	8.25	11.3	3.6	**6.10**	**1.70**	-1.5	-1.0	0.7
1-methylphenanthrene											60.2	8.2	10.5	4.8			
fluoranthene	320	308	370	147	154	154	333	10	152	3	322	34	**163.7**	**9.1**	0.1	0.2	0.7
pyrene	267	255	298	156	164	163	273	8	161	3	224	36	**151.6**	**6.6**	0.9	0.8	0.5
benz[a]anthracene	84.7	82.8	96.4	27.7	36.3	34.4	88.0	8.4	32.8	13.8	77.5	9.2	**32.5**	**4.7**	0.5	0.7	0.6
chrysene + triphenylene	139	109	125	32.7	37.0	33.5	124	12	34.4	6.6	196	26	**94.9**	**8.2**	-1.5	-1.6	0.8
benzofluoranthenes [b+j+k]	38.4	33.0	47.3	15.8	20.0	17.6	39.6	18.3	17.8	11.8	146	17	87.1	6.2	-2.9	-3.5	1.2
benzo[e]pyrene	78.1	83.1	96.7	59.7	73.7	68.1	86.0	11.2	67.2	10.5	99.5	13.1	**84.0**	**1.9**	-0.5	-0.6	0.7
benzo[a]pyrene	15.0	28.7	49.7	17.6	18.3	19.0	31.1	56.1	18.3	3.8	25.9	2.4	**15.63**	**0.65**	0.8	1.5	3.7
perylene	11.8	15.0	18.6	10.5	11.1	12.6	15.1	22.5	11.4	9.5	8.13	1.21	**7.68**	**0.27**	3.4	4.4	1.5
indeno[1,2,3-cd]pyrene											18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]											4.36	2.12	3.00	0.20			
benzo[ghi]perylene	26.7	34.2	49.5	26.2	34.6	26.9	36.8	31.6	29.2	15.9	21.2	3.7	**22.0**	**2.2**	2.9	3.0	2.1

Laboratory: 32a
PAH in Mussel IX

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

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 32a
Reporting Date: 1/22/99

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	1/21/99 S 1	1/21/99 S 2	1/21/99 S 3	1/21/99 S 1	1/21/99 S 2	1/21/99 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					1.62	1.28	no target				
hexachlorobenzene	0.390	0.381	0.373	0.272	2.18	0.956	0.382	2.199	1.14	85.19	1.08	0.95	no target		-2.6	-0.8	0.1
gamma-HCH	< 0.07	10.8	15.3	10.3	8.87	10.1	13.0	24.7	9.76	7.97	1.26	1.36	no target				
heptachlor	1.93	2.21	2.78	1.23	1.90	1.37	2.31	18.88	1.50	23.76	<5		no target				
aldrin	1.15	0.619	2.14	13.9	1.92	3.16	1.30	59.45	6.33	104.15	<3		no target				
heptachlor epoxide	< 0.102	< 0.102	< 0.102	< 0.102	< 0.102	< 0.102					2.25	0.81	no target				
oxychlordane	NA	NA	NA	NA	NA	NA					3.48	2.75	no target				
trans-chlordane	NA	NA	NA	NA	NA	NA					12.3	2.0	**16.6**	**1.7**			
2,4'-DDE	12.3	11.5	13.5	24.7	< 0.058	23.3	12.4	8.4	24.0	4.1	<5		5.26	0.27			0.6
endosulfan I	NA	NA	NA	NA	NA	NA					<2		no target				
cis-chlordane	18.7	20.6	23.4	17.8	23.2	20.4	20.9	11.3	20.4	13.2	14.7	1.8	**17.2**	**2.8**	1.7	1.7	0.8
trans-nonachlor	17.6	18.9	21.5	18.1	23.9	20.8	19.3	10.3	20.9	13.9	13.6	1.0	**18.0**	**3.6**	1.7	2.7	0.7
dieldrin	< 0.181	< 0.181	< 0.181	< 0.181	< 0.181	< 0.181					5.49	0.85	6.2	1.3			
4,4'-DDE	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033					34.0	3.8	**51.2**	**5.5**			
2,4'-DDD	9.93	< 0.061	< 0.061	< 0.061	< 0.061	< 0.061	9.93				11.5	2.6	13.7	2.8	-0.6	-0.4	0.0
endrin	NA	NA	NA	NA	NA	NA					<2		no target				
endosulfan II	NA	NA	NA	NA	NA	NA					2.73	1.34	no target				
4,4'-DDD	38.7	62.5	69.9	70.4	95.2	80.0	57.0	28.6	81.9	15.2	29.3	3.6	**43.0**	**6.3**	**3.8**	**3.6**	1.9
2,4'-DDT	< 0.144	< 0.144	< 0.144	< 0.144	< 0.144	< 0.144					7.51	1.94	8.5	1.9			
cis-nonachlor	NA	NA	NA	NA	NA	NA					6.27	1.38	**6.84**	**0.90**			
4,4'-DDT	8.87	9.99	11.98	2.31	3.75	2.90	10.3	15.3	2.99	24.21	9.30	0.99	**3.91**	**0.59**	0.4	0.6	1.0
mirex	< 0.157	< 0.157	< 0.157	< 0.157	< 0.157	< 0.157					1.75	0.62	no target				

Laboratory: 32a
Pesticides in Mussel IX

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	4	4	7
2 to 3	1	1	0
≥ 3	1	1	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 32a
Reporting Date: 1/22/99

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	1/21/99 S 1	1/21/99 S 2	1/21/99 S 3	1/21/99 S 1	1/21/99 S 2	1/21/99 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	10.7	8.90	16.6	6.67	12.8	7.21	12.1	33.5	8.89	38.08	4.18	1.56	5.8	1.2			
PCB 18	1.98	2.24	2.65	< 0.150	< 0.150	< 0.150	2.29	14.87			12.9	2.3	33	11	-3.3	-2.4	1.0
PCB 28	< 0.195	5.38	43.0	44.9	4.57	49.9	24.2	110.0	33.1	75.0	41.4	4.8	79	15	-1.7	-1.8	**7.3**
PCB 52	77.5	82.0	96.7	118	152	133	85.4	11.7	135	13	61.8	5.2	**115**	**11**	1.5	2.2	0.8
PCB 44	51.0	53.2	63.2	79.8	104	91.0	55.8	11.7	91.6	13.3	40.3	4.1	**72.7**	**7.4**	1.5	1.8	0.8
PCB 66/95	NA	NA	NA	NA	NA	NA					80.6	16.8	**184**	**21**			
PCB 101/90	137	147	167	166	208	187	150	10	187	11	92.2	8.9	**128.3**	**9.7**	2.5	2.9	0.7
PCB 118	160	146	160	178	224	196	155	5	200	12	96.1	9.7	**130.8**	**3.6**	2.5	2.8	0.4
PCB 153	168	176	196	192	236	210	180	8	213	10	113	11	**145.2**	**7.6**	2.4	2.9	0.5
PCB 105	49.5	54.5	59.2	68.5	90.5	75.7	54.4	8.9	78.3	14.3	36.2	3.5	**53.0**	**3.4**	2.0	2.4	0.6
PCB 138/163/164	166	173	220	180	272	216	186	16	223	21	102	11	**133.5**	**9.5**	**3.3**	**3.3**	1.1
PCB 187/182	38.0	39.3	48.6	38.1	58.3	46.2	41.9	13.8	47.6	21.4	27.5	2.8	**34.0**	**2.3**	2.1	2.4	0.9
PCB 128	22.0	23.1	28.3	25.2	38.5	30.7	24.4	13.7	31.4	21.3	16.1	2.1	**22.0**	**3.4**	2.1	1.9	0.9
PCB 180	15.0	8.30	20.4	20.6	32.0	26.8	14.6	41.7	26.5	21.7	15.5	5.9	**17.1**	**3.8**	-0.2	-0.1	2.8
PCB 170/190	7.59	7.51	< 0.157	< 0.157	8.09	5.98	7.55	0.69	7.04	21.16	3.01	0.72	**5.5**	**1.1**	**6.0**	**4.0**	0.0
PCB 195	< 0.120	< 0.120	< 0.120	< 0.120	< 0.120	< 0.120					1.04	0.69	No Target				
PCB 206	< 0.098	< 0.098	< 0.098	< 0.098	< 0.098	< 0.098					<2		No Target				
PCB 209	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100					<2		No Target				
PCB 66	89.9	97.2	108	143	185	158	98.4	9.4	162	13	55.7	11.5	**101.4**	**4.4**	**3.1**	**37.8**	0.6
PCB 95											39.1	12.3	**83**	**17**			

Laboratory: 32a
PCBs in Mussel IX

Reported Results	No. of Analytes	%
Quantitative	14	78
Qualitative	4	22
Not Determined	0	0

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	4	4	11
2 to 3	6	7	1
≥ 3	3	2	1

Water in Mussel IX

	Mussel IX, %			SRM 1974a, %			Mussel IX, %		SRM 1974a, %		Mussel IX, %		SRM 1974a, %		Mussel IX, %		
	S 1	S 2	S 3	S 1	S 2	S 3	mean, %	%RSD	mean, %	%RSD	assigned	95% CL	target	95% CL	z (25%)	z (s)	p (15%)
water	91.8	91.6	91.7				91.7	0.1	#DIV/0!	#DIV/0!	91.4	0.0	**88.6**	**0.1**	0.0	0.3	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 32b
Reporting Date: 2/3/99

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Mussel IX, ng/g dry			SRM 1974a, ng/g dry			Mussel IX		SRM 1974a		Mussel IX, ng/g dry		SRM 1974a, ng/g dry		Mussel IX		
Analysis date	1/27/98 S 1	1/27/98 S 2	1/27/98 S 3	1/27/98 S 1	1/27/98 S 2	1/27/98 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											25.7	5.2	**23.5**	**4.4**			
2-methylnaphthalene											33.1	8.2	10.2	1.5			
1-methylnaphthalene											23.3	6.1	5.3	1.8			
biphenyl											12.2	1.0	5.11	0.33			
2,6-dimethylnaphthalene											38.8	9.5	5.3	1.8			
acenaphthylene											7.87	3.92	5.25	0.38			
acenaphthene											9.46	1.31	3.15	0.26			
1,6,7-trimethylnaphthalene											31.3	10.4	6.6	2.0			
fluorene	19.2	19.8	29.5	9.21	8.42	9.62	22.8	25.3	9.08	6.71	21.4	1.4	5.72	0.91	0.3	0.7	1.7
phenanthrene	126	121	155	23.8	21.9	24.1	134	14	23.3	5.1	126	13	**22.2**	**2.4**	0.3	0.4	0.9
anthracene	<2	<2	<2	2.33	3.34	3.40					11.3	3.6	**6.1**	**1.7**			
1-methylphenanthrene	59.0	51.8	62.1	8.43	9.46	9.27	57.6	9.2	9.05	6.05	60.2	8.2	10.5	4.8	-0.2	-0.2	0.6
fluoranthene	347	334	382	158	166	165	354	7	163	3	322	34	**164**	**9**	0.4	0.6	0.5
pyrene	260	256	304	143	161	159	273	10	154	6	224	36	**152**	**7**	0.9	0.8	0.6
benz[a]anthracene	71.2	67.0	77.5	32.1	32.3	31.5	71.9	7.4	32.0	1.3	77.5	9.2	**32.5**	**4.7**	-0.3	-0.4	0.5
chrysene + triphenylene	217	200	232	80.2	82.0	83.1	216	7	81.8	1.8	196	26	**94.9**	**8.2**	0.4	0.4	0.5
benzofluoranthenes [b+j+k]	166	146	180	85.5	80.9	80.6	164	10	82.3	3.3	146	17	87.1	6.2	0.5	0.6	0.7
benzo[e]pyrene	123	106	132	81.1	81.2	78.5	120	11	80.3	1.9	99.5	13.1	**84.0**	**1.9**	0.8	0.9	0.7
benzo[a]pyrene	34.4	28.8	40.9	18.3	15.4	17.7	34.7	17.5	17.1	8.9	25.9	2.4	**15.63**	**0.65**	1.4	2.5	1.2
perylene	18.10	9.99	18.50	7.42	8.92	7.86	15.5	30.9	8.07	9.56	8.13	1.21	**7.68**	**0.27**	**3.6**	**4.7**	2.1
indeno[1,2,3-cd]pyrene											18.0	3.0	**14.2**	**2.8**			
dibenz[a,h]anthracene + [a,c]											4.36	2.12	3.00	0.20			
benzo[ghi]perylene											21.2	3.7	**22.0**	**2.2**			

Laboratory: 32b
PAH in Mussel IX

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

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 32b
Reporting Date: 2/3/99

PESTICIDES

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S1	S2	S3	SRM 1974a, ng/g dry S1	S2	S3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH											1.62	1.28	no target				
hexachlorobenzene											1.08	0.95	no target				
gamma-HCH											1.26	1.36	no target				
heptachlor											<5		no target				
aldrin											<3		no target				
heptachlor epoxide											2.25	0.81	no target				
oxychlordane											3.48	2.75	no target				
trans-chlordane											12.3	2.0	**16.6**	**1.7**			
2,4'-DDE											<5		5.26	0.27			
endosulfan I											<2		no target				
cis-chlordane											14.7	1.8	**17.2**	**2.8**			
trans-nonachlor											13.6	1.0	**18.0**	**3.6**			
dieldrin											5.49	0.85	6.2	1.3			
4,4'-DDE											34.0	3.8	**51.2**	**5.5**			
2,4'-DDD											11.5	2.6	13.7	2.8			
endrin											<2		no target				
endosulfan II											2.73	1.34	no target				
4,4'-DDD											29.3	3.6	**43.0**	**6.3**			
2,4'-DDT											7.51	1.94	8.5	1.9			
cis-nonachlor											6.27	1.38	**6.84**	**0.90**			
4,4'-DDT											9.30	0.99	**3.91**	**0.59**			
mirex											1.75	0.62	no target				

Laboratory: 32b
Pesticides in Mussel IX

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

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98TIS9 - Mussel Tissue IX

(data reported as if three figures were significant)

Laboratory No.: 32b
Reporting Date: 2/3/99

PCBs

Analysis date	Data as submitted by laboratory: Mussel IX, ng/g dry S 1	S 2	S 3	SRM 1974a, ng/g dry S 1	S 2	S 3	Mussel IX lab mean ng/g dry	Mussel IX lab %RSD	SRM 1974a lab mean ng/g dry	SRM 1974a lab %RSD	Material reference values: Mussel IX, ng/g dry assigned value	95% CL	SRM 1974a, ng/g dry target value[b]	95% CL	Performance scores[a] Mussel IX z-score (25%)	z-score (s)	p-score (15%)
PCB 8											4.18	1.56	5.8	1.2			
PCB 18											12.9	2.3	33	11			
PCB 28											41.4	4.8	79	15			
PCB 52											61.8	5.2	**115**	11			
PCB 44											40.3	4.1	**72.7**	7.4			
PCB 66/95											80.6	16.8	**184**	21			
PCB 101/90											92.2	8.9	**128.3**	9.7			
PCB 118											96.1	9.7	**130.8**	3.6			
PCB 153											113	11	**145.2**	7.6			
PCB 105											36.2	3.5	**53.0**	3.4			
PCB 138/163/164											102	11	**133.5**	9.5			
PCB 187/182											27.5	2.8	**34.0**	2.3			
PCB 128											16.1	2.1	**22.0**	3.4			
PCB 180											15.5	5.9	**17.1**	3.8			
PCB 170/190											3.01	0.72	**5.5**	1.1			
PCB 195											1.04	0.69	No Target				
PCB 206											<2		No Target				
PCB 209											<2		No Target				
PCB 66											55.7	11.5	**101.4**	4.4			
PCB 95											39.1	12.3	**83**	17			

Laboratory: 32b
PCBs in Mussel IX

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

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 Mussel IX

	Mussel IX, % S 1	S 2	S 3	SRM 1974a, % S 1	S 2	S 3	Mussel IX, % mean, %	%RSD	SRM 1974a, % mean, %	%RSD	Mussel IX, % assigned	95% CL	SRM 1974a, % target	95% CL	Mussel IX, % z (25%)	z (s)	p (15%)
water	91.8	91.6	91.7	____	____	____	91.7	0.1			91.4	0.0	**88.6**	0.1	0.0	0.3	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

Appendix D: Results by Laboratory, Sediment VIII

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 1a
Reporting Date: 9/11/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry: 8/25/98 S 1	8/25/98 S 2	8/25/98 S 3	Data as submitted by laboratory: SRM 1941a, ng/g dry: 8/25/98 S 1	8/25/98 S 2	8/25/98 S 3	Sediment VIII: lab mean ng/g dry	lab %RSD	SRM 1941a: lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr: assigned value	95% CL	SRM 1941a, ng/g dry: target value[b]	95% CL	Performance scores[a]: Sediment VIII: z-score (25%)	z-score (s)	p-score (15%)
naphthalene	134	151	144	1059	1092	1039	143	6	1063	3	107	15	**1010**	**140**	1.3	1.2	0.4
2-methylnaphthalene	78.0	79.1	81.0	384	339	372	79.4	1.9	365	6	77.4	10.2	325	60	0.1	0.1	0.1
1-methylnaphthalene	58.2	54.4	59.1	169	171	184	57.2	4.4	175	5	50.7	7.3	150	30	0.5	0.5	0.3
biphenyl	31.7	31.4	33.2	186	180	170	32.1	3.0	179	5	36.6	13.5	175	18	-0.5	-0.3	0.2
2,6-dimethylnaphthalene	30.7	27.3	31.8	81.2	84.6	89.4	29.9	7.8	85.1	4.8	51.2	8.9	120	24	-1.7	-1.4	0.5
acenaphthylene	28.5	30.9	28.8	40.9	38.3	38.5	29.4	4.4	39.2	3.7	50.2	22.6	37	14	-1.7	-0.8	0.3
acenaphthene	37.6	33.5	32.9	41.1	42.7	38.1	34.7	7.4	40.6	5.7	38.2	3.9	41	10	-0.4	-0.5	0.5
1,6,7-trimethylnaphthalene	25.4	24.9	26.4	24.5	25.2	24.2	25.6	3.0	24.6	2.1	27.2	7.4	48	10	-0.2	-0.2	0.2
fluorene	58.2	65.9	69.0	89.3	92.2	88.0	64.4	8.6	89.8	2.4	67.9	11.1	**97.3**	**8.6**	-0.2	-0.2	0.6
phenanthrene	688	626	647	477	497	482	654	5	485	2	604	63	**489**	**23**	0.3	0.4	0.3
anthracene	170	175	173	188	190	189	173	1	189	1	183	27	**184**	**14**	-0.2	-0.2	0.1
1-methylphenanthrene	90.9	92.6	94.3	86.3	90.5	91.2	92.6	1.8	89.3	3.0	87.3	13.4	101	27	0.2	0.2	0.1
fluoranthene	1433	1411	1391	976	944	982	1412	1	967	2	1293	166	**981**	**78**	0.4	0.3	0.1
pyrene	1598	1551	1502	809	791	797	1550	3	799	1	1367	175	**811**	**24**	0.5	0.5	0.2
benz[a]anthracene	548	566	595	429	393	428	570	4	417	5	551	48	**427**	**25**	0.1	0.2	0.3
chrysene + triphenylene	1178	1108	1137	551	569	580	1141	3	567	3	944	115	577	35	0.8	0.8	0.2
benzofluoranthenes [b+j+k]	2225	2234	2261	1311	1360	1296	2240	1	1322	3	2110	316	1441	150	0.2	0.2	0.1
benzo[e]pyrene	926	900	940	548	530	549	922	2	542	2	805	103	**553**	**59**	0.6	0.6	0.1
benzo[a]pyrene	926	930	994	604	625	623	950	4	617	2	832	98	**628**	**52**	0.6	0.6	0.3
perylene	284	274	264	425	433	451	274	4	436	3	248	26	**452**	**58**	0.4	0.5	0.2
indeno[1,2,3-cd]pyrene	893	865	855	502	518	493	871	2	504	3	710	102	**501**	**72**	0.9	0.7	0.2
dibenz[a,h]anthracene + [a,c]	205	202	192	105	101	111	200	3	106	5	161	23	**117**	**14**	1.0	0.9	0.2
benzo[ghi]perylene	917	902	891	460	494	497	903	1	484	4	683	104	**525**	**67**	1.3	1.0	0.1

Laboratory: 1a
PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 1a
Reporting Date: 9/11/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	8/25/98 S 1	8/2/98 S 2	8/11/98 S 3	8/25/98 S 1	8/2/98 S 2	8/11/98 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	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
hexachlorobenzene	0.356	0.317	0.302	73.8	73.8	68.3	0.325	8.577	72.0	4.4	<3		**70**	**25**			0.6
gamma-HCH	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
heptachlor	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
aldrin	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
heptachlor epoxide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
oxychlordane	<1	<1	<1	2.55	2.61	2.25	<1	<1	2.47	7.81	<2		2.59	0.20			
trans-chlordane	<1	<1	<1	1.49	1.74	1.65	<1	<1	1.63	7.78	1.65	0.51	<2				
2,4'-DDE	<1	<1	<1	0.718	0.700	0.786	<1	<1	0.735	6.174	<2		**0.73**	**0.11**			
endosulfan I	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
cis-chlordane	<1	<1	<1	2.13	2.65	2.31	<1	<1	2.36	11.17	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	<1	<1	<1	1.26	1.31	1.47	<1	<1	1.35	8.15	0.489	0.412	**1.26**	**0.13**			
dieldrin	0.667	0.687	0.651	1.36	1.32	1.35	0.668	2.699	1.34	1.55	<2		1.26	0.37			0.2
4,4'-DDE	6.66	6.39	6.60	6.43	6.44	6.52	6.55	2.16	6.46	0.76	6.86	0.94	**6.59**	**0.56**	-0.2	-0.2	0.1
2,4'-DDD	10.1	9.98	9.72	<1	<1	<1	9.93	1.96	<1	<1	7.15	1.57	<2		1.6	1.3	0.1
endrin	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
endosulfan II	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
4,4'-DDD	14.6	14.8	14.8	4.46	4.48	4.47	14.7	0.8	4.47	0.22	17.3	3.0	**5.06**	**0.56**	-0.6	-0.4	0.1
2,4'-DDT	4.85	4.47	4.92	<1	<1	<1	4.75	5.10	<1	<1	5.14	1.00	<2		-0.3	-0.3	0.3
cis-nonachlor	0.439	0.459	0.445	0.269	0.283	0.274	0.448	2.293	0.275	2.577	1.63	1.07	<2		-2.9	-1.2	0.2
4,4'-DDT	21.6	21.9	21.7	1.48	1.27	1.48	21.7	0.7	1.41	8.60	19.4	2.6	1.25	0.10	0.5	0.5	0.0
mirex	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				

Laboratory: 1a
Pesticides in Sediment VIII

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

Category	Number by Category: z (25%)	z (s)	p (15%)
≤ 2	5	6	8
2 to 3	1	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 1a

Reporting Date: 9/11/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	8/25/98 S 1	8/25/98 S 2	8/25/98 S 3	8/25/98 S 1	8/25/98 S 2	8/25/98 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	0.858	0.855	0.891	1.31	1.02	1.39	0.868	2.301	1.24	15.70	2.04	1.39	1.39	0.19	-2.3	-0.8	0.2
PCB 18	3.02	3.31	3.09	1.27	1.38	1.27	3.14	4.82	1.31	4.86	3.61	0.68	1.15	0.16	-0.5	-0.3	0.3
PCB 28	4.88	4.99	4.85	9.82	9.92	9.76	4.91	1.50	9.83	0.82	4.95	0.79	9.8	3.7	0.0	0.0	0.1
PCB 52	13.2	13.6	14.1	6.90	7.41	6.51	13.6	3.3	6.94	6.50	15.6	3.4	**6.89**	**0.56**	-0.5	-0.3	0.2
PCB 44	4.80	4.75	5.06	4.61	4.87	4.33	4.87	3.42	4.60	5.87	7.90	1.42	**4.80**	**0.62**	-1.5	-1.0	0.2
PCB 66/95	25.1	23.8	26.5	12.4	12.2	12.4	25.1	5.4	12.3	0.9	16.7	7.5	**14.3**	**2.5**	2.0	0.8	0.4
PCB 101/90	31.7	31.7	32.9	10.0	11.4	11.1	32.1	2.2	10.8	6.8	33.3	6.4	**11.0**	**1.6**	-0.1	-0.1	0.1
PCB 118	25.0	23.3	23.7	9.72	10.6	9.72	24.0	3.7	10.0	5.1	29.7	5.6	**10.0**	**1.1**	-0.8	-0.5	0.2
PCB 153	41.2	43.2	43.6	17.3	17.4	16.7	42.7	3.0	17.1	2.2	50.6	11.8	**17.6**	**1.9**	-0.6	-0.3	0.2
PCB 105	8.50	8.68	8.54	3.70	3.91	3.41	8.57	1.10	3.67	6.83	11.9	1.9	**3.65**	**0.27**	-1.1	-0.8	0.1
PCB 138/163/164	40.1	42.7	40.5	12.7	13.1	12.5	41.1	3.4	12.8	2.4	44.9	8.7	**13.38**	**0.97**	-0.3	-0.2	0.2
PCB 187/182	9.07	9.07	10.0	6.90	7.11	6.89	9.36	5.43	6.97	1.78	11.5	2.2	7.0	2.6	-0.7	-0.4	0.4
PCB 128	4.24	4.31	4.44	1.81	1.80	1.75	4.33	2.34	1.79	1.80	8.22	1.54	**1.87**	**0.32**	-1.9	-1.2	0.2
PCB 180	15.7	15.2	15.2	6.46	5.81	6.07	15.4	1.9	6.11	5.35	21.7	8.6	**5.83**	**0.58**	-1.2	-0.6	0.1
PCB 170/190	9.20	9.44	9.45	3.05	3.00	3.44	9.36	1.51	3.16	7.62	12.6	3.0	**3.00**	**0.46**	-1.0	-0.6	0.1
PCB 195	1.73	1.76	1.70	0.693	0.709	0.744	1.73	1.73	0.715	3.646	2.61	0.61	<3		-1.4	-0.7	0.1
PCB 206	2.23	2.55	2.63	3.84	3.52	3.71	2.47	8.57	3.69	4.36	3.30	0.67	**3.67**	**0.87**	-1.0	-0.7	0.6
PCB 209	1.09	1.09	1.00	8.49	8.72	8.73	1.06	5.07	8.65	1.57	2.33	0.66	**8.34**	**0.49**	-2.2	-1.0	0.3
PCB 66							NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95							NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 1a
PCBs in Sediment VIII

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	15	18	18
2 to 3	3	0	0
≥ 3	0	0	0

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.0	45.1	45.1	45.1	0.1	44.9	1.3	44.9	1.3	0.0	0.0	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 1b

Reporting Date: 10/30/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	8/25/98 S 1	8/25/98 S 2	8/25/98 S 3	8/25/98 S 1	8/25/98 S 2	8/25/98 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	121	134	133	1068	1101	1054	129	6	1074	2	107	15	**1010**	**140**	0.8	0.8	0.4
2-methylnaphthalene	77.9	78.6	80.5	344	381	367	79.0	1.7	364	5	77.4	10.2	325	60	0.1	0.1	0.1
1-methylnaphthalene	56.8	55.9	58.7	162	180	174	57.1	2.5	172	5	50.7	7.3	150	30	0.5	0.5	0.2
biphenyl	30.9	33.7	32.4	181	179	169	32.3	4.3	176	4	36.6	13.5	175	18	-0.5	-0.3	0.3
2,6-dimethylnaphthalene	31.4	33.8	30.8	80.8	83.1	8 8.9	32.0	5.0	82.0	2.0	51.2	8.9	120	24	-1.5	-1.2	0.3
acenaphthylene	29.8	31.0	29.8	39.8	39.1	38.8	30.2	2.3	39.2	1.3	50.2	22.6	37	14	-1.6	-0.7	0.2
acenaphthene	36.9	34.1	34.0	40.6	41.7	39.9	35.0	4.7	40.7	2.2	38.2	3.9	41	10	-0.3	-0.4	0.3
1,6,7-trimethylnaphthalene	26.1	24.7	24.9	25.5	25.4	24.7	25.2	3.0	25.2	1.7	27.2	7.4	48	10	-0.3	-0.2	0.2
fluorene	61.2	64.7	68.7	88.1	90.9	87.4	64.9	5.8	88.8	2.1	67.9	11.1	**97.3**	**8.6**	-0.2	-0.2	0.4
phenanthrene	648	627	644	489	497	480	640	2	489	2	604	63	**489**	**23**	0.2	0.3	0.1
anthracene	171	169	174	191	189	187	171	1	189	1	183	27	**184**	**14**	-0.2	-0.2	0.1
1-methylphenanthrene	89.9	91.5	94.0	88.9	91.3	90.5	91.8	2.3	90.2	1.4	87.3	13.4	101	27	0.2	0.2	0.2
fluoranthene	1431	1399	1399	976	958	989	1410	1	974	2	1293	166	**981**	**78**	0.4	0.3	0.1
pyrene	1601	1545	1539	796	786	802	1562	2	795	1	1367	175	**811**	**24**	0.6	0.5	0.1
benz[a]anthracene	567	578	599	424	399	409	581	3	411	3	551	48	**427**	**25**	0.2	0.3	0.2
chrysene + triphenylene	1189	1111	1181	567	557	584	1160	4	569	2	944	115	577	35	0.9	0.9	0.2
benzofluoranthenes [b+j+k]	2301	2257	2289	1302	1355	1371	2282	1	1343	3	2110	316	1441	150	0.3	0.3	0.1
benzo[e]pyrene	901	922	945	544	534	547	923	2	542	1	805	103	**553**	**59**	0.6	0.6	0.2
benzo[a]pyrene	926	999	957	614	628	637	961	4	626	2	832	98	**628**	**52**	0.6	0.6	0.3
perylene	269	277	269	458	468	441	272	2	456	3	248	26	**452**	**58**	0.4	0.5	0.1
indeno[1,2,3-cd]pyrene	901	858	887	516	548	499	882	2	521	5	710	102	**501**	**72**	1.0	0.8	0.2
dibenz[a,h]anthracene + [a,c]	204	211	197	114	100	105	204	3	106	7	161	23	**117**	**14**	1.1	1.0	0.2
benzo[ghi]perylene	897	912	911	498	458	476	907	1	477	4	683	104	**525**	**67**	1.3	1.0	0.1

Laboratory: 1b

PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 1b
Reporting Date: 10/30/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	8/25/98 S 1	9/2/98 S 2	9/11/98 S 3	1/5/00 S 1	9/2/98 S 2	9/11/98 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	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
hexachloroberuzene	<1	<1	<1	74.5	77.1	69.1	<1	<1	73.6	5.5	<3		**70**	**25**			
gamma-HCH	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
heptachlor	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
aldrin	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
heptachlor epoxide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
oxychlordane	<1	<1	<1	2.64	2.05	2.21	<1	<1	2.30	13.27	<2		2.59	0.20			
trans-chlordane	<1	<1	<1	1.45	1.78	1.69	<1	<1	1.64	10.40	1.65	0.51	<2				
2,4'-DDE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		**0.73**	**0.11**			
endosulfan I	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
cis-chlordane	<1	<1	<1	2.22	2.67	2.41	<1	<1	2.43	9.28	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	<1	<1	<1	1.26	1.37	1.51	<1	<1	1.38	9.08	0.489	0.412	**1.26**	**0.13**			
dieldrin	<1	<1	<1	1.33	1.29	1.41	<1	<1	1.34	4.55	<2		1.26	0.37			
4,4'-DDE	6.58	6.45	6.67	6.41	6.39	6.51	6.57	1.68	6.44	1.00	6.86	0.94	**6.59**	**0.56**	-0.2	-0.2	0.1
2,4'-DDD	9.89	9.91	10.4	<1	<1	<1	10.1	2.9	<1	<1	7.15	1.57	<2		1.6	1.3	0.2
endrin	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
endosulfan II	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				
4,4'-DDD	13.9	14.4	14.9	4.75	4.39	4.41	14.4	3.5	4.52	4.48	17.3	3.0	**5.06**	**0.56**	-0.7	-0.5	0.2
2,4'-DDT	4.51	4.67	4.78	<1	<1	<1	4.65	2.92	<1	<1	5.14	1.00	<2		-0.4	-0.3	0.2
cis-nonachlor	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.63	1.07	<2				
4,4'-DDT	20.9	21.5	22.7	1.39	1.33	1.49	21.7	4.2	1.40	5.76	19.4	2.6	1.25	0.10	0.5	0.5	0.3
mirex	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2		<2				

Laboratory: 1b
Pesticides in Sediment VIII

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

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 1b
Reporting Date: 10/30/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 8/25/98 S 1	S 2	S 3	SRM 1941a, ng/g dry 8/25/98 S 1	S 2	S 3	Sediment VIII lab mean ng/g dry	lab %RSD	SRM 1941a lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
PCB 8	<1	<1	<1	1.41	1.12	1.33	<1	<1	1.29	11.64	2.04	1.39	1.39	0.19			
PCB 18	3.18	3.34	3.24	1.29	1.37	1.33	3.25	2.48	1.33	3.01	3.61	0.68	1.15	0.16	-0.4	-0.3	0.2
PCB 28	4.91	5.04	4.97	9.99	9.72	9.81	4.97	1.31	9.84	1.40	4.95	0.79	9.8	3.7	0.0	0.0	0.1
PCB 52	13.5	13.7	14.0	6.89	7.48	6.69	13.7	1.8	7.02	5.85	15.6	3.4	**6.89**	**0.56**	-0.5	-0.3	0.1
PCB 44	4.78	4.91	5.07	4.77	4.81	4.61	4.92	2.95	4.73	2.24	7.90	1.42	**4.80**	**0.62**	-1.5	-1.0	0.2
PCB 66/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	30.9	31.7	32.7	10.6	11.8	11.7	31.8	2.8	11.4	5.9	33.3	6.4	**11.0**	**1.6**	-0.2	-0.1	0.2
PCB 118	24.4	23.6	23.8	9.99	10.4	9.87	23.9	1.7	10.1	2.8	29.7	5.6	**10.0**	**1.1**	-0.8	-0.5	0.1
PCB 153	40.9	42.8	42.7	17.7	17.6	16.9	42.1	2.5	17.4	2.5	50.6	11.8	**17.6**	**1.9**	-0.7	-0.3	0.2
PCB 105	8.78	8.66	8.47	3.69	3.81	3.33	8.64	1.81	3.61	6.92	11.9	1.9	**3.65**	**0.27**	-1.1	-0.8	0.1
PCB 138/163/164	40.9	42.7	42.4	12.2	13.0	12.7	42.0	2.3	12.6	3.2	44.9	8.7	**13.38**	**0.97**	-0.3	-0.2	0.2
PCB 187/182	9.15	9.11	9.87	6.87	7.07	6.92	9.38	4.56	6.95	1.50	11.5	2.2	7.0	2.6	-0.7	-0.4	0.3
PCB 128	4.22	4.47	4.43	1.87	1.73	1.77	4.37	3.07	1.79	4.03	8.22	1.54	**1.87**	**0.32**	-1.9	-1.2	0.2
PCB 180	15.4	15.4	15.9	6.66	6.04	6.14	15.6	1.9	6.28	5.30	21.7	8.6	**5.83**	**0.58**	-1.1	-0.6	0.1
PCB 170/190	9.33	9.14	9.17	3.15	3.15	3.33	9.21	1.11	3.21	3.24	12.6	3.0	**3.00**	**0.46**	-1.1	-0.7	0.1
PCB 195	1.87	1.71	1.69	<1	<1	<1	1.76	5.62	<1	<1	2.61	0.61	<3		-1.3	-0.7	0.4
PCB 206	2.19	2.41	2.44	3.78	3.45	3.44	2.35	5.82	3.56	5.44	3.30	0.67	**3.67**	**0.87**	-1.2	-0.8	0.4
PCB 209	1.09	1.00	1.14	8.87	8.61	8.45	1.08	6.59	8.64	2.45	2.33	0.66	**8.34**	**0.49**	-2.2	-1.0	0.4
PCB 66	5.22	5.62	5.61	6.89	6.71	6.66	5.48	4.16	6.75	1.79	8.85	2.51	**6.8**	**1.4**	-1.5	-1.0	0.3
PCB 95	18.1	17.7	17.9	7.66	7.51	7.55	17.9	1.1	7.57	1.03	20.2	8.1	**7.5**	**1.1**	-0.5	-0.3	0.1

Laboratory: 1b
PCBs in Sediment VIII

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

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

Water in Sediment VIII

	Sediment VIII, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment VIII, % assigned	95% CL	exercise, % mean	95% CL	Sediment VIII z (25%)	z (s)	p (15%)
water	45.0	45.1	45.1	45.1	0.1	44.9	1.3	44.9	1.3	0.0	0.0	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 1c

Reporting Date: 11/16/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	9/1/98 S 1	9/1/98 S 2	9/1/98 S 3	9/1/98 S 1	9/1/98 S 2	9/1/98 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	131	128	124	862	856	NA	128	3	859	0	107	15	**1010**	**140**	0.8	0.7	0.2
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	65.5	66.3	68.5	49.3	56.3	NA	66.8	2.3	52.8	9.4	67.9	11.1	**97.3**	**8.6**	-0.1	-0.1	0.2
phenanthrene	686	702	681	467	456	NA	690	2	462	2	604	63	**489**	**23**	0.6	0.7	0.1
anthracene	136	143	137	163	161	NA	139	3	162	1	183	27	**184**	**14**	-1.0	-0.8	0.2
1-methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene	1423	1444	1453	921	899	NA	1440	1	910	2	1293	166	**981**	**78**	0.5	0.4	0.1
pyrene	1581	1584	1591	779	763	NA	1585	0	771	1	1367	175	**811**	**24**	0.6	0.6	0.0
benz[a]anthracene	596	605	613	410	399	NA	605	1	405	2	551	48	**427**	**25**	0.4	0.5	0.1
chrysene + triphenylene	NA	NA	NA	NA	NA	NA	1217	1	645	1	944	115	577	35	1.2	1.1	0.1
benzofluoranthenes [b+j+k]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2110	316	1441	150			
benzo[e]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene	1036	1033	1007	603	549	NA	1025	2	576	7	832	98	**628**	**52**	0.9	0.9	0.1
perylene	301	314	296	440	374	NA	304	3	407	11	248	26	**452**	**58**	0.9	1.1	0.2
indeno[1,2,3-cd]pyrene	911	883	907	542	554	NA	900	2	548	2	710	102	**501**	**72**	1.1	0.9	0.1
dibenz[a,h]anthracene + [a,c]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	161	23	**117**	**14**			
benzo[ghi]perylene	937	919	921	551	560	NA	926	1	556	1	683	104	**525**	**67**	1.4	1.1	0.1

Laboratory: 1c

PAH in Sediment VIII

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	12	12	12
2 to 3	0	0	0
≥ 3	0	0	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 1c
Reporting Date: 11/16/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry: 8/25/98 S 1	8/2/98 S 2	8/11/98 S 3	SRM 1941a, ng/g dry: 8/25/98 S 1	8/2/98 S 2	8/11/98 S 3	Sediment VIII: lab mean ng/g dry	lab %RSD	SRM 1941a: lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr: assigned value	95% CL	SRM 1941a, ng/g dry: target value[b]	95% CL	Performance scores[a]: Sediment VIII: z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
heptachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.65	0.51	<2				
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
cis-chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		1.26	0.37			
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.86	0.94	**6.59**	**0.56**			
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.15	1.57	<2				
endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.3	3.0	**5.06**	**0.56**			
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.14	1.00	<2				
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.4	2.6	1.25	0.10			
mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				

Laboratory: 1c
Pesticides in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 1c

Reporting Date: 11/16/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	8/25/98 S 1	8/25/98 S 2	8/25/98 S 3	8/25/98 S 1	8/25/98 S 2	8/25/98 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	NA	NA	2.04	1.39	1.39	0.19			
PCB 18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.61	0.68	1.15	0.16			
PCB 28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.95	0.79	9.8	3.7			
PCB 52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.6	3.4	**6.89**	**0.56**			
PCB 44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.90	1.42	**4.80**	**0.62**			
PCB 66/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33.3	6.4	**11.0**	**1.6**			
PCB 118	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	29.7	5.6	**10.0**	**1.1**			
PCB 153	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.6	11.8	**17.6**	**1.9**			
PCB 105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.9	1.9	**3.65**	**0.27**			
PCB 138/163/164	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	44.9	8.7	**13.38**	**0.97**			
PCB 187/182	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.5	2.2	7.0	2.6			
PCB 128	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.22	1.54	**1.87**	**0.32**			
PCB 180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.7	8.6	**5.83**	**0.58**			
PCB 170/190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.6	3.0	**3.00**	**0.46**			
PCB 195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.61	0.61	<3				
PCB 206	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.30	0.67	**3.67**	**0.87**			
PCB 209	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.33	0.66	**8.34**	**0.49**			
PCB 66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 1c
PCBs in Sediment VIII

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 VIII

	Sediment VIII, %				lab			Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3		mean, %	%RSD		assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	0.0	0.0	0.0					44.9	1.3	44.9	1.3			

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 2
Reporting Date: 10/15/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	5/26/98 S 1	5/25/98 S 2	5/26/98 S 3	5/26/98 S 1	5/25/98 S 2	5/25/98 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	130	<21	130	670	730	720	130	0	707	5	107	15	**1010**	**140**	0.9	0.8	0.0
2-methylnaphthalene	70.0	50.0	60.0	260	300	250	60.0	16.7	270	10	77.4	10.2	325	60	-0.9	-0.9	1.1
1-methylnaphthalene	30.0	40.0	20.0	120	150	120	30.0	33.3	130	13	50.7	7.3	150	30	-1.6	-1.6	2.2
biphenyl	80.0	40.0	90.0	90.0	100	120	70.0	37.8	103	15	36.6	13.5	175	18	**3.7**	2.6	2.5
2,6-dimethylnaphthalene	70.0	70.0	60.0	120	160	140	66.7	8.7	140	14	51.2	8.9	120	24	1.2	1.0	0.6
acenaphthylene	80.0	90.0	70.0	80.0	100	80.0	80.0	12.5	86.7	13.3	50.2	22.6	37	14	2.4	1.1	0.8
acenaphthene	30.0	<19	40.0	30.0	50.0	30.0	35.0	20.2	36.7	31.5	38.2	3.9	41	10	-0.3	-0.4	1.3
1,6,7-trimethylnaphthalene	<22	<22	<22	70.0	100	80.0	<22	NA	83.3	18.3	27.2	7.4	48	10			
fluorene	70.0	70.0	70.0	60.0	100	60.0	70.0	0.0	73.3	31.5	67.9	11.1	**97.3**	**8.6**	0.1	0.1	0.0
phenanthrene	550	690	670	370	450	420	637	12	413	10	604	63	**489**	**23**	0.2	0.3	0.8
anthracene	230	310	260	150	200	180	267	15	177	14	183	27	**184**	**14**	1.8	1.5	1.0
1-methylphenanthrene	<26	150	130	120	320	140	140	10	193	57	87.3	13.4	101	27	2.4	2.3	0.7
fluoranthene	950	1380	1180	620	810	790	1170	18	740	14	1293	166	**981**	**78**	-0.4	-0.3	1.2
pyrene	1050	2180	1020	740	1000	550	1417	47	763	30	1367	175	**811**	**24**	0.1	0.1	3.1
benz[a]anthracene	480	910	480	390	570	330	623	40	430	29	551	48	**427**	**25**	0.5	0.7	2.7
chrysene + triphenylene	720	1560	780	620	860	470	1020	46	650	30	944	115	577	35	0.3	0.3	3.1
benzofluoranthenes [b+j+k]	1640	1880	1610	980	1040	1040	1710	9	1020	3	2110	316	1441	150	-0.8	-0.6	0.6
benzo[e]pyrene	630	800	650	420	470	400	693	13	430	8	805	103	**553**	**59**	-0.6	-0.6	0.9
benzo[a]pyrene	630	730	630	310	430	360	663	9	367	16	832	98	**628**	**52**	-0.8	-0.8	0.6
perylene	180	250	220	220	300	260	217	16	260	15	248	26	**452**	**58**	-0.5	-0.6	1.1
indeno[1,2,3-cd]pyrene	470	620	440	370	370	300	510	19	347	12	710	102	**501**	**72**	-1.1	-0.9	1.3
dibenz[a,h]anthracene + [a,c]	<31	160	110	90.0	100	90.0	135	26	93.3	6.2	161	23	**117**	**14**	-0.6	-0.6	1.7
benzo[ghi]perylene	370	530	370	360	330	250	423	22	313	18	683	104	**525**	**67**	-1.5	-1.1	1.5

Laboratory: 2
PAH in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	22	96
Qualitative	1	4
Not Determined	0	0

Category	Number by Category: z (25%)	z (s)	p (15%)
≤ 2	19	20	17
2 to 3	2	2	3
≥ 3	1	0	2

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 2
Reporting Date: 10/15/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	7/7/98 S 1	7/14/98 S 2	8/15/98 S 3	7/7/98 S 1	7/7/98 S 2	8/15/98 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	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	<2		<2				
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	<2		<2				
heptachlor	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	<2		<2				
aldrin	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.0	NA	<1.0	NA	<2		<2				
heptachlor epoxide	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	<2		<2				
oxychlordane	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.3	NA	<0.3	NA	<2		2.59	0.20			
trans-chlordane	1.63	2.35	1.92	2.78	3.19	4.21	1.97	18.34	3.39	21.64	1.65	0.51	<2		0.8	0.8	1.2
2,4'-DDE	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	<2		**0.73**	**0.11**			
endosulfan I	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	<2		<2				
cis-chlordane	2.52	3.20	3.27	2.28	3.50	3.13	2.99	13.88	2.97	21.15	1.78	1.32	**2.33**	**0.56**	2.7	1.5	0.9
trans-nonachlor	<0.300	<0.300	<0.300	0.311	1.04	0.711	<0.3	NA	0.69	53.0	0.489	0.412	**1.26**	**0.13**			
dieldrin	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	<2		1.26	0.37			
4,4'-DDE	5.89	7.47	5.24	5.96	7.12	6.33	6.20	18.50	6.47	9.17	6.9	0.9	**6.59**	**0.56**	-0.4	-0.3	1.2
2,4'-DDD	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	7.15	1.57	<2				
endrin	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.0	NA	<1.0	NA	<2		<2				
endosulfan II	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	<2		<2				
4,4'-DDD	13.4	16.6	12.2	6.24	7.79	6.63	14.0	16.2	6.88	11.67	17.3	3.0	**5.06**	**0.56**	-0.8	-0.5	1.1
2,4'-DDT	3.42	6.44	2.60	<0.500	<0.500	<0.500	4.2	48.8	<0.5	NA	5.14	1.00	<2		-0.8	-0.7	3.3
cis-nonachlor	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.3	NA	<0.3	NA	1.63	1.07	<2				
4,4'-DDT	34.1	51.5	36.4	10.0	8.73	10.5	40.7	23.2	9.77	9.56	19.4	2.6	1.25	0.10	4.4	4.9	1.5
mirex	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	NA	<0.5	NA	<2		<2				

Laboratory: 2
Pesticides in Sediment VIII

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	4	5	5
2 to 3	1	0	0
≥ 3	1	1	1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 2
Reporting Date: 10/15/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 7/7/98 S 1	S 2	S 3	SRM 1941a, ng/g dry 7/7/98 S 1	S 2	S 3	Sediment VIII lab mean ng/g dry	lab %RSD	SRM 1941a lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
PCB 8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.04	1.39	1.39	0.19			
PCB 18	2.35	1.52	2.70	4.41	2.09	5.01	2.19	27.56	3.84	40.14	3.61	0.68	1.15	0.16	-1.6	-1.0	1.8
PCB 28	4.70	5.92	6.24	6.50	10.5	7.00	5.62	14.46	8.01	27.49	4.95	0.79	9.8	3.7	0.5	0.4	1.0
PCB 52	11.4	15.0	13.3	8.13	9.08	9.10	13.2	13.3	8.77	6.35	15.6	3.4	**6.89**	**0.56**	-0.6	-0.4	0.9
PCB 44	6.39	7.07	6.30	4.89	8.56	5.82	6.6	6.4	6.42	29.71	7.90	1.42	**4.80**	**0.62**	-0.7	-0.4	0.4
PCB 66/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	12.8	18.9	19.3	7.34	8.24	6.64	17.0	21.2	7.41	10.84	33.3	6.4	**11.0**	**1.6**	-2.0	-1.2	1.4
PCB 118	11.6	16.1	12.1	5.31	6.35	5.82	13.3	18.6	5.83	8.90	29.7	5.6	**10.0**	**1.1**	-2.2	-1.4	1.2
PCB 153	15.3	21.8	25.8	5.06	4.58	3.98	21.0	25.3	4.54	11.87	50.6	11.8	**17.6**	**1.9**	-2.3	-1.2	1.7
PCB 105	5.31	7.26	8.34	2.24	2.78	2.58	6.97	22.04	2.54	10.90	11.9	1.9	**3.65**	**0.27**	-1.7	-1.2	1.5
PCB 138/163/164	35.3	52.7	41.3	10.4	10.1	12.0	43.1	20.5	10.8	9.0	44.9	8.7	**13.38**	**0.97**	-0.2	-0.1	1.4
PCB 187/182	4.04	5.86	5.40	3.44	4.36	4.27	5.10	18.57	4.02	12.60	11.5	2.2	7.0	2.6	-2.2	-1.3	1.2
PCB 128	3.87	4.99	2.94	1.32	3.78	0.967	3.93	26.09	2.02	75.65	8.22	1.54	**1.87**	**0.32**	-2.1	-1.3	1.7
PCB 180	0.298	<0.150	<0.150	<0.150	<0.150	0.632	<0.3	NA	<0.63	NA	21.7	8.6	**5.83**	**0.58**			
PCB 170/190	4.63	5.25	6.31	8.79	3.43	<0.34	5.39	15.78	6.11	62.08	12.6	3.0	**3.00**	**0.46**	-2.3	-1.4	1.1
PCB 195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.61	0.61	<3				
PCB 206	0.582	0.773	<0.39	9.75	<0.39	<0.39	0.678	19.935	<9.8	NA	3.30	0.67	**3.67**	**0.87**	**-3.2**	-2.2	1.3
PCB 209	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.4	NA	<0.4	NA	2.33	0.66	**8.34**	**0.49**			
PCB 66	13.8	18.0	17.0	9.44	10.6	8.14	16.3	13.7	9.40	13.22	8.85	2.51	**6.8**	**1.4**	**3.3**	2.1	0.9
PCB 95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 2
PCBs in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	13	72
Qualitative	2	11
Not Determined	3	17

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	7	12	13
2 to 3	5	1	0
≥ 3	1	0	0

Water in Sediment VIII

	Sediment VIII, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment VIII, % assigned	95% CL	exercise, % mean	95% CL	Sediment VIII z (25%)	z (s)	p (15%)
water	40.0	44.9	45.9	43.6	7.2	44.9	1.3	44.9	1.3	-0.1	-0.4	0.5

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 3

Reporting Date: 10/23/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	8/22/98 S 1	8/22/98 S 2	8/22/98 S 3	8/22/98 S 1	8/22/98 S 2	8/22/98 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	80.4	107	61.1	874	776	738	82.8	27.8	796	9	107	15	**1010**	**140**	-0.9	-0.8	1.9
2-methylnaphthalene	57.3	65.5	43.8	362	286	265	55.5	19.7	304	17	77.4	10.2	325	60	-1.1	-1.1	1.3
1-methylnaphthalene	41.5	46.6	29.7	174	138	127	39.3	22.1	146	17	50.7	7.3	150	30	-0.9	-0.9	1.5
biphenyl	16.1	20.8	12.6	71.0	70.1	64.7	16.5	24.9	68.6	5.0	36.6	13.5	175	18	-2.2	-1.6	1.7
2,6-dimethylnaphthalene	39.8	44.8	28.7	151	135	125	37.8	21.8	137	10	51.2	8.9	120	24	-1.0	-0.9	1.5
acenaphthylene	42.0	45.9	37.3	90.5	83.5	72.8	41.7	10.3	82.3	10.8	50.2	22.6	37	14	-0.7	-0.3	0.7
acenaphthene	39.9	39.9	31.4	53.1	44.6	49.4	37.1	13.2	49.0	8.7	38.2	3.9	41	10	-0.1	-0.2	0.9
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	63.5	60.7	47.7	96.7	79.5	81.0	57.3	14.7	85.7	11.1	67.9	11.1	**97.3**	**8.6**	-0.6	-0.6	1.0
phenanthrene	443	485	380	473	446	462	436	12	460	3	604	63	**489**	**23**	-1.1	-1.3	0.8
anthracene	113	120	98.4	199	182	168	110	10	183	8	183	27	**184**	**14**	-1.6	-1.3	0.7
1-methylphenanthrene	87.1	78.7	56.1	167	82.5	73.5	74.0	21.7	108	48	87.3	13.4	101	27	-0.6	-0.6	1.4
fluoranthene	981	1070	1040	1110	1070	971	1030	4	1050	7	1293	166	**981**	**78**	-0.8	-0.7	0.3
pyrene	1060	1180	974	824	813	815	1071	10	817	1	1367	175	**811**	**24**	-0.9	-0.8	0.6
benz[a]anthracene	529	505	457	427	435	493	497	7	452	8	551	48	**427**	**25**	-0.4	-0.5	0.5
chrysene + triphenylene	651	653	653	561	540	548	652	0	550	2	944	115	577	35	-1.2	-1.2	0.0
benzofluoranthenes [b+j+k]	1640	1550	1420	1440	1310	1340	1537	7	1363	5	2110	316	1441	150	-1.1	-0.9	0.5
benzo[e]pyrene	556	541	478	534	455	457	525	8	482	9	805	103	**553**	**59**	-1.4	-1.5	0.5
benzo[a]pyrene	735	646	641	613	518	572	674	8	568	8	832	98	**628**	**52**	-0.8	-0.8	0.5
perylene	227	207	179	427	368	392	204	12	396	7	248	26	**452**	**58**	-0.7	-0.8	0.8
indeno[1,2,3-cd]pyrene	354	384	286	390	325	304	341	15	340	13	710	102	**501**	**72**	-2.1	-1.7	1.0
dibenz[a,h]anthracene + [a,c]	108	94.8	79.9	84.5	81.4	79.2	94.2	14.9	81.7	3.3	161	23	**117**	**14**	-1.7	-1.5	1.0
benzo[ghi]perylene	386	473	307	430	403	318	389	21	384	15	683	104	**525**	**67**	-1.7	-1.3	1.4

Laboratory: 3

PAH in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	22	96
Qualitative	0	0
Not Determined	1	4

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	20	22	22
2 to 3	2	0	0
≥ 3	0	0	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 3
Reporting Date: 10/23/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	9/23/98 S 1	9/24/98 S 2	9/23/98 S 3	9/23/98 S 1	9/24/98 S 2	9/23/98 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	1.35	2.65	1.25	<1	<1	<1	1.75	44.63	<1	NA	<2		<2				3.0
hexachlorobenzene	42.6	42.5	36.8	51.1	67.7	64.7	40.6	8.2	61.2	14.5	<3		**70**	**25**			0.5
gamma-HCH	0.169	0.813	0.750	<0.31	<0.31	<0.31	0.577	61.494	<0.31	NA	<2		<2				**4.1**
heptachlor	0.464	9.17	6.42	<0.13	1.77	<0.13	5.35	83.16	<1.8	NA	<2		<2				**5.5**
aldrin	<1.24	<1.23	<1.23	<0.59	<0.59	<0.59	<1.24	NA	<0.59	NA	<2		<2				
heptachlor epoxide	<2.72	<2.68	<2.68	<1.29	<1.29	<1.29	<2.72	NA	<1.29	NA	<2		<2				
oxychlordane	<2.11	<2.08	<2.08	<1	<1	<1	<2.11	NA	<1	NA	<2		2.59	0.20			
trans-chlordane	<0.401	<0.395	<0.395	<0.19	<0.19	<0.19	<0.401	NA	<0.19	NA	1.65	0.51	<2				
2,4'-DDE	<1.37	<1.35	<1.35	<0.65	1.22	1.37	<1.37	NA	1.30	8.19	<2		**0.73**	**0.11**			
endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
cis-chlordane	5.48	5.56	5.72	2.20	2.21	2.49	5.59	2.19	2.30	7.16	1.78	1.32	**2.33**	**0.56**	**8.5**	**4.6**	0.1
trans-nonachlor	2.72	2.65	2.42	1.73	2.06	2.18	2.60	6.04	1.99	11.71	0.489	0.412	**1.26**	**0.13**	**17.3**	**8.1**	0.4
dieldrin	11.7	2.81	10.2	1.38	2.15	2.63	8.24	57.78	2.05	30.71	<2		1.26	0.37			**3.9**
4,4'-DDE	3.82	3.92	4.10	4.68	4.81	5.33	3.95	3.60	4.94	6.96	6.86	0.94	**6.59**	**0.56**	-1.7	-1.5	0.2
2,4'-DDD	4.10	4.19	4.20	<0.68	<0.68	<0.68	4.16	1.32	<0.68	NA	7.15	1.57	<2		-1.7	-1.4	0.1
endrin	<2.11	<2.08	<2.08	<1	<1	<1	<2.11	NA	<1	NA	<2		<2				
endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
4,4'-DDD	12.1	9.50	11.1	4.49	5.48	5.51	10.9	12.0	5.16	11.25	17.3	3.0	**5.06**	**0.56**	-1.5	-1.0	0.8
2,4'-DDT	<0.422	3.13	2.33	<0.2	<0.2	<0.2	2.73	20.72	<0.2	NA	5.14	1.00	<2		-1.9	-1.6	1.4
cis-nonachlor	3.22	3.04	3.29	<0.3	<0.3	<0.3	3.18	4.05	<0.3	NA	1.63	1.07	<2		**3.8**	1.5	0.3
4,4'-DDT	30.0	32.1	27.7	29.6	24.4	24.8	29.9	7.4	26.3	11.0	19.4	2.6	1.25	0.10	2.2	2.5	0.5
mirex	8.17	4.83	8.88	<0.31	<0.31	<0.31	7.29	29.65	<0.31	NA	<2		<2				2.0

Laboratory: 3
Pesticides in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	14	64
Qualitative	6	27
Not Determined	2	9

Category	Number by Category		
	z (25%)	z (s)	p (15%)
≤ 2	4	5	10
2 to 3	1	1	1
≥ 3	3	2	3

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 3
Reporting Date: 10/23/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 9/23/98 S 1	S 2	S 3	SRM 1941a, ng/g dry 9/23/98 S 1	S 2	S 3	Sediment VIII lab mean ng/g dry	lab %RSD	SRM 1941a lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
PCB 8	8.17	27.7	25.0	4.42	9.43	7.44	20.3	52.2	7.10	35.55	2.04	1.39	1.39	0.19	**35.8**	**12.1**	**3.5**
PCB 18	3.8	19.8	13.5	3.59	5.18	6.00	12.4	65.1	4.92	24.89	3.61	0.68	1.15	0.16	**9.7**	**6.2**	**4.3**
PCB 28	4.37	2.48	5.18	6.55	6.50	7.58	4.01	34.55	6.88	8.87	4.95	0.79	9.80	3.70	-0.8	-0.6	2.3
PCB 52	11.7	12.4	13.1	7.82	8.28	15.3	12.4	5.6	10.5	40.1	15.6	3.4	**6.89**	**0.56**	-0.8	-0.5	0.4
PCB 44	6.25	7.46	6.81	3.83	3.39	3.82	6.84	8.85	3.68	6.83	7.90	1.42	**4.80**	**0.62**	-0.5	-0.3	0.6
PCB 66/95	0.0	____	____	0.0	____	____	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	26.6	29.6	23.9	9.83	10.1	10.8	26.7	10.7	10.2	4.9	33.3	6.4	**11.0**	**1.6**	-0.8	-0.5	0.7
PCB 118	23.4	20.1	20.6	8.98	9.34	9.58	21.4	8.3	9.30	3.25	29.7	5.6	**10.0**	**1.1**	-1.1	-0.7	0.6
PCB 153	17.6	19.3	16.3	15.7	11.8	12.8	17.7	8.5	13.4	15.0	50.6	11.8	**17.6**	**1.9**	-2.6	-1.3	0.6
PCB 105	6.89	7.15	5.56	4.32	3.43	3.33	6.53	13.05	3.69	14.76	11.9	1.9	**3.65**	**0.27**	-1.8	-1.4	0.9
PCB 138/163/164	21.7	23.1	19.9	18.4	14.1	17.8	21.6	7.4	16.8	13.9	44.9	8.7	**13.38**	**0.97**	-2.1	-1.3	0.5
PCB 187/182	5.77	5.58	5.25	6.98	5.17	5.01	5.53	4.76	5.72	19.13	11.5	2.2	7.0	2.6	-2.1	-1.2	0.3
PCB 128	6.90	5.96	5.81	1.73	2.07	2.01	6.22	9.49	1.94	9.37	8.22	1.54	**1.87**	**0.32**	-1.0	-0.6	0.6
PCB 180	17.7	14.9	16.3	7.84	9.33	8.67	16.3	8.6	8.61	8.67	21.7	8.6	**5.83**	**0.58**	-1.0	-0.5	0.6
PCB 170/190	9.31	7.48	8.33	3.43	3.50	4.32	8.37	10.94	3.75	13.20	12.6	3.0	**3.00**	**0.46**	-1.3	-0.8	0.7
PCB 195	5.13	5.25	4.54	<0.34	<0.34	<0.34	4.97	7.64	<0.34	NA	2.61	0.61	<3		**3.6**	1.9	0.5
PCB 206	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.30	0.67	**3.67**	**0.87**			
PCB 209	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.33	0.66	**8.34**	**0.49**			
PCB 66	6.90	5.88	6.56	7.34	6.73	8.39	6.45	8.06	7.49	11.22	8.85	2.51	**6.8**	**1.4**	-1.1	-0.7	0.5
PCB 95	22.6	22.7	21.8	7.14	7.10	8.88	22.4	2.2	7.71	13.19	20.2	8.1	**7.5**	**1.1**	0.4	0.3	0.1

Laboratory: 3
PCBs in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	15	83
Qualitative	0	0
Not Determined	3	17

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	9	13	12
2 to 3	3	0	1
≥ 3	3	2	2

Water in Sediment VIII

	Sediment VIII, % S 1	S 2	S 3	lab mean, %	lab %RSD
water	41.0	40.0	40.0	40.3	1.4

Sediment VIII, % assigned	95% CL	exercise, % mean	95% CL	Sediment VIII z (25%)	z (s)	p (15%)
44.9	1.3	44.9	1.3	-0.4	-1.4	0.1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 4

Reporting Date: 10\15\98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 7/22/98 S 1	S 2	S 3	SRM 1941a, ng/g dry 7/22/98 S 1	S 2	S 3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
naphthalene	36.6	*	80.5	683	500	666	58.6	53.0	616	16	107	15	**1010**	**140**	-1.8	-1.7	**3.5**
2-methylnaphthalene	NA**	*	NA**	NA**	NA**	NA**	NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene	NA**	*	NA**	NA**	NA**	NA**	NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	NA**	*	NA**	NA**	NA**	NA**	NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	53.5	*	52.8	129	108	154	53.2	0.9	130	18	51.2	8.9	120	24	0.2	0.1	0.1
acenaphthylene	50.4	*	181	94.2	88.2	84.6	116	79.8	89.0	5.4	50.2	22.6	37	14	**5.2**	2.4	**5.3**
acenaphthene	13.1	*	<50	30	<50	<50	<50	NA	<50	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene	NA**	*	NA**	NA**	NA**	NA**	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	31.4	*	91.7	54.8	60.0	53.9	61.6	69.3	56.2	5.9	67.9	11.1	**97.3**	**8.6**	-0.4	-0.3	4.6
phenanthrene	323	*	473	422	312	438	398	27	391	18	604	63	**489**	**23**	-1.4	-1.6	1.8
anthracene	148	*	186	206	151	183	167	16	180	15	183	27	**184**	**14**	-0.3	-0.3	1.1
1-methylphenanthrene	<50	*	<50	<50	<50	<50	<50	NA	<50	NA	87.3	13.4	101	27			
fluoranthene	645	*	1060	702	621	630	853	34	651	7	1293	166	**981**	**78**	-1.4	-1.2	2.3
pyrene	684	*	1120	579	519	553	902	34	550	5	1367	175	**811**	**24**	-1.4	-1.2	2.3
benz[a]anthracene	280	*	430	387	294	372	355	30	351	14	551	48	**427**	**25**	-1.4	-1.8	2.0
chrysene + triphenylene	NA**	*	NA**	NA**	NA**	NA**	NA	NA	NA	NA	944	115	577	35			
benzofluoranthenes [b+j+k]	NA**	*	NA**	NA**	NA**	NA**	NA	NA	NA	NA	2110	316	1441	150			
benzo[e]pyrene	NA**	*	NA**	NA**	NA**	NA**	NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene	562	*	605	661	350	487	584	5	499	31	832	98	**628**	**52**	-1.2	-1.2	0.3
perylene	NA**	*	NA**	NA**	NA**	NA**	NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene	386	*	584	435	302	415	485	29	384	19	710	102	**501**	**72**	-1.3	-1.0	1.9
dibenz[a,h]anthracene + [a,c]	118	*	131	138	84	106	125	7	109	25	161	23	**117**	**14**	-0.9	-0.8	0.5
benzo[ghi]perylene	437	*	505	466	298	364	471	10	376	23	683	104	**525**	**67**	-1.2	-0.9	0.7

Laboratory: 4
PAH in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	13	57
Qualitative	2	9
Not Determined	8	35

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	12	12	8
2 to 3	0	1	2
≥ 3	1	0	3

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 4
Reporting Date: 10\15\98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a] Sediment VIII		
	8/30/98 S 1	7/14/98 S 2	8/28/98 S 3	8/30/98 S 1	7/14/98 S 2	8/28/98 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	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		<2				
hexachlorobenzene	<3.0	<3.0	<3.0	51.0	42.0	36.0	<3.0	NA	43.0	17.6	<3		**70**	**25**			
gamma-HCH	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		<2				
heptachlor	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		<2				
aldrin	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		<2				
heptachlor epoxide	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		<2				
oxychlordane	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		<2				
trans-chlordane	<3.0	<3.0	<3.0	1.70	0.890	1.40	<3.0	NA	1.33	30.79	1.65	0.51	2.59	0.20			
2,4'-DDE	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		<2				
endosulfan I	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		**0.73**	**0.11**			
cis-chlordane	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		<2				
trans-nonachlor	<3.0	<3.0	<3.0	1.20	0.780	0.810	<3.0	NA	0.930	25.194	1.78	1.32	**2.33**	**0.56**			
dieldrin	<3.0	<3.0	<3.0	1.20	0.420	1.00	<3.0	NA	0.873	46.389	0.489	0.412	**1.26**	**0.13**			
4,4'-DDE	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		1.26	0.37			
2,4'-DDD	8.50	8.10	6.20	4.20	4.20	2.70	7.60	16.17	3.70	23.41	6.86	0.94	**6.59**	**0.56**	0.4	0.4	1.1
endrin	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	7.15	1.57	<2				
endosulfan II	<6.0	<6.0	<6.0	<2.0	<2.0	<2.0	<6.0	NA	<2.0	NA	<2		<2				
4,4'-DDD	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	<2		<2				
2,4'-DDT	16.0	23.0	12.0	6.90	2.60	2.40	17.0	32.8	3.97	64.09	17.3	3.0	**5.06**	**0.56**	-0.1	-0.1	2.2
cis-nonachlor	<6.0	<6.0	<6.0	<2.0	<2.0	<2.0	<6.0	NA	<2.0	NA	5.14	1.00	<2				
4,4'-DDT	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	1.63	1.07	<2				
mirex	14.0	14.0	10.0	<1.0	<1.0	<1.0	12.7	18.2	<1.0	NA	19.4	2.6	1.25	0.10	-1.4	-1.6	1.2
	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<3.0	NA	<1.0	NA	<2		<2				

Laboratory: 4
Pesticides in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	3	14
Qualitative	18	82
Not Determined	1	5

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 4
Reporting Date: 10\15\98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry S1	S2	S3	SRM 1941a, ng/g dry S1	S2	S3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA	NA	NA	NA	2.04	1.39	1.39	0.19			
PCB 18							NA	NA	NA	NA	3.61	0.68	1.15	0.16			
PCB 28							NA	NA	NA	NA	4.95	0.79	9.8	3.7			
PCB 52							NA	NA	NA	NA	15.6	3.4	**6.89**	**0.56**			
PCB 44							NA	NA	NA	NA	7.90	1.42	**4.80**	**0.62**			
PCB 66/95							NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90							NA	NA	NA	NA	33.3	6.4	**11.0**	**1.6**			
PCB 118							NA	NA	NA	NA	29.7	5.6	**10.0**	**1.1**			
PCB 153							NA	NA	NA	NA	50.6	11.8	**17.6**	**1.9**			
PCB 105							NA	NA	NA	NA	11.9	1.9	**3.65**	**0.27**			
PCB 138/163/164							NA	NA	NA	NA	44.9	8.7	**13.38**	**0.97**			
PCB 187/182							NA	NA	NA	NA	11.5	2.2	7.0	2.6			
PCB 128							NA	NA	NA	NA	8.22	1.54	**1.87**	**0.32**			
PCB 180							NA	NA	NA	NA	21.7	8.6	**5.83**	**0.58**			
PCB 170/190							NA	NA	NA	NA	12.6	3.0	**3.00**	**0.46**			
PCB 195							NA	NA	NA	NA	2.61	0.61	<3				
PCB 206							NA	NA	NA	NA	3.30	0.67	**3.67**	**0.87**			
PCB 209							NA	NA	NA	NA	2.33	0.66	**8.34**	**0.49**			
PCB 66							NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95							NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 4
PCBs in Sediment VIII

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 VIII

	Sediment VIII, % S1	S2	S3	lab mean, %	lab %RSD	Sediment VIII, % assigned	95% CL	exercise, % mean	95% CL	Sediment VIII z (25%)	z (s)	p (15%)
water	47.3	57.1	46.2	50.2	12.0	44.9	1.3	44.9	1.3	0.5	1.6	0.8

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 5
Reporting Date: 10/27/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 08/18/98 S 1	S 2	S 3	SRM 1941a, ng/g dry 08/18/98 S 1	S 2	S 3	Sediment VIII lab mean ng/g dry	lab %RSD	SRM 1941a lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
naphthalene	___	___	___	___	___	___	NA	NA	NA	NA	107	15	**1010**	**140**			
2-methylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	___	___	___	___	___	___	NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene	___	___	___	___	___	___	NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene	___	___	___	___	___	___	NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	19.2	**	21.2	104	119	109	20.2	7.0	111	7	67.9	11.1	**97.3**	**8.6**	-2.8	-2.6	0.5
phenanthrene	51.9	64.0	57.6	496	495	499	57.8	10.5	497	0	604	63	**489**	**23**	**-3.6**	**-4.3**	0.7
anthracene	27.4	27.8	21.4	259	283	256	25.5	14.0	266	5	183	27	**184**	**14**	**-3.4**	-2.8	0.9
1-methylphenanthrene	12.7	11.2	13.1	129	158	122	12.3	8.1	136	14	87.3	13.4	101	27	**-3.4**	**-3.2**	0.5
fluoranthene	91.7	102	74.6	876	815	819	89.5	15.6	837	4	1293	166	**981**	**78**	**-3.7**	**-3.2**	1.0
pyrene	91.3	104	72.0	689	636	647	89.0	18.0	658	4	1367	175	**811**	**24**	**-3.7**	**-3.3**	1.2
benz[a]anthracene	37.6	44.2	31.4	384	361	373	37.7	17.0	373	3	551	48	**427**	**25**	**-3.7**	**-4.7**	1.1
chrysene + triphenylene	65.0	72.7	48.8	598	562	573	62.2	19.6	578	3	944	115	577	35	**-3.7**	**-3.6**	1.3
benzofluoranthenes [b+j+k]	65.0	66.0	46.3	655	665	664	59.1	18.8	662	1	2110	316	1441	150	**-3.9**	**-3.2**	1.3
benzo[e]pyrene	39.1	46.5	29.1	368	350	378	38.2	22.8	365	4	805	103	**553**	**59**	**-3.8**	**-4.1**	1.5
benzo[a]pyrene	58.2	58.5	67.5	598	628	563	61.4	8.6	596	5	832	98	**628**	**52**	**-3.7**	**-3.7**	0.6
perylene	56.8	64.8	52.6	524	504	518	58.1	10.7	515	2	248	26	**452**	**58**	**-3.1**	**-3.7**	0.7
indeno[1,2,3-cd]pyrene	21.9	27.1	20.0	362	377	345	23.0	16.0	362	4	710	102	**501**	**72**	**-3.9**	**-3.1**	1.1
dibenz[a,h]anthracene + [a,c]	43.6	47.0	35.7	487	471	477	42.1	13.8	478	2	161	23	**117**	**14**	-3.0	-2.7	0.9
benzo[ghi]perylene	17.6	18.3	16.7	133	124	132	17.5	4.6	130	4	683	104	**525**	**67**	**-3.9**	-2.9	0.3

Laboratory: 5
PAH in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	15	65
Qualitative	0	0
Not Determined	8	35

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 5
Reporting Date: 10/27/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	____ 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	/g dry	/g dry	/g dry	/g dry	/g dry	/g dry	NA	NA	NA	NA	<2		<2				
hexachlorobenzene							NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH							NA	NA	NA	NA	<2		<2				
heptachlor							NA	NA	NA	NA	<2		<2				
aldrin							NA	NA	NA	NA	<2		<2				
heptachlor epoxide							NA	NA	NA	NA	<2		<2				
oxychlordane							NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane							NA	NA	NA	NA	1.65	0.51	<2				
2,4'-DDE							NA	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I							NA	NA	NA	NA	<2		<2				
cis-chlordane							NA	NA	NA	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor							NA	NA	NA	NA	0.49	0.41	**1.26**	**0.13**			
dieldrin							NA	NA	NA	NA	<2		1.26	0.37			
4,4'-DDE							NA	NA	NA	NA	6.9	0.9	**6.59**	**0.56**			
2,4'-DDD							NA	NA	NA	NA	7.15	1.57	<2				
endrin							NA	NA	NA	NA	<2		<2				
endosulfan II							NA	NA	NA	NA	<2		<2				
4,4'-DDD							NA	NA	NA	NA	17.3	3.0	**5.06**	**0.56**			
2,4'-DDT							NA	NA	NA	NA	5.14	1.0	<2				
cis-nonachlor							NA	NA	NA	NA	1.63	1.1	<2				
4,4'-DDT							NA	NA	NA	NA	19.4	2.6	1.25	0.10			
mirex							NA	NA	NA	NA	<2		<2				

Laboratory: 5
Pesticides in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 5
Reporting Date: 10/27/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
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%)
PCB 8	/g dry	/g dry	/g dry	/g dry	/g dry	/g dry	NA	NA	NA	NA	2.04	1.39	1.39	0.19			
PCB 18							NA	NA	NA	NA	3.61	0.68	1.15	0.16			
PCB 28							NA	NA	NA	NA	4.95	0.79	9.8	3.7			
PCB 52							NA	NA	NA	NA	15.6	3.4	**6.89**	**0.56**			
PCB 44							NA	NA	NA	NA	7.90	1.42	**4.80**	**0.62**			
PCB 66/95							NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90							NA	NA	NA	NA	33.3	6.4	**11.0**	**1.6**			
PCB 118							NA	NA	NA	NA	29.7	5.6	**10.0**	**1.1**			
PCB 153							NA	NA	NA	NA	50.6	11.8	**17.6**	**1.9**			
PCB 105							NA	NA	NA	NA	11.9	1.9	**3.65**	**0.27**			
PCB 138/163/164							NA	NA	NA	NA	44.9	8.7	**13.38**	**0.97**			
PCB 187/182							NA	NA	NA	NA	11.5	2.2	7.0	2.6			
PCB 128							NA	NA	NA	NA	8.22	1.54	**1.87**	**0.32**			
PCB 180							NA	NA	NA	NA	21.7	8.6	**5.83**	**0.58**			
PCB 170/190							NA	NA	NA	NA	12.6	3.0	**3.00**	**0.46**			
PCB 195							NA	NA	NA	NA	2.61	0.61	<3				
PCB 206							NA	NA	NA	NA	3.30	0.67	**3.67**	**0.87**			
PCB 209							NA	NA	NA	NA	2.33	0.66	**8.34**	**0.49**			
PCB 66							NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95							NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 5
PCBs in Sediment VIII

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 VIII

	Sediment VIII, %		
	S 1	S 2	S 3
water	45.4	45.4	45.3

lab	
mean, %	%RSD
45.4	0.1

Sediment VIII, %		exercise, %		Sediment VIII		
assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
44.9	1.3	44.9	1.3	0.0	0.1	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 6

Reporting Date: 10/21/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/8/98 S 1	10/8/98 S 2	10/8/98 S 3	10/8/98 S 1	10/8/98 S 2	10/8/98 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	25.8	18.2	19.2	116	65.9	66.2	21.1	19.6	82.7	34.9	107	15	**1010**	**140**	**-3.2**	-2.9	1.3
2-methylnaphthalene	13.5	13.9	10.3	29.3	16.7	19.2	12.6	15.7	21.7	30.7	77.4	10.2	325	60	**-3.4**	**-3.4**	1.0
1-methylnaphthalene	16.4	13.0	21.6	52.9	29.9	27.5	17.0	25.5	36.8	38.1	50.7	7.3	150	30	-2.7	-2.6	1.7
biphenyl	11.7	10.7	11.9	19.5	17.6	12.1	11.4	5.6	16.4	23.4	36.6	13.5	175	18	-2.7	-1.9	0.4
2,6-dimethylnaphthalene	56.6	38.3	33.4	53.1	29.7	30.8	42.8	28.6	37.9	34.9	51.2	8.9	120	24	-0.7	-0.5	1.9
acenaphthylene	86.1	83.7	92.9	59.2	34.9	43.6	87.6	5.4	45.9	26.8	50.2	22.6	37	14	3.0	1.4	0.4
acenaphthene	20.0	17.9	19.5	14.6	7.60	7.80	19.1	5.7	10.0	39.8	38.2	3.9	41	10	-2.0	-2.6	0.4
1,6,7-trimethylnaphthalene	11.1	6.90	6.60	13.9	8.20	6.80	8.20	30.68	9.6	39.0	27.2	7.4	48	10	-2.8	-2.1	2.0
fluorene	47.1	39.7	40.4	23.0	12.0	12.7	42.4	9.6	15.9	38.7	67.9	11.1	**97.3**	**8.6**	-1.5	-1.4	0.6
phenanthrene	447	399	454	215	108	123	433	7	149	39	604	63	**489**	**23**	-1.1	-1.3	0.5
anthracene	176	162	191	85.9	49.0	54.2	176	8	63.0	31.7	183	27	**184**	**14**	-0.1	-0.1	0.5
1-methylphenanthrene	59.5	52.8	40.8	49.6	27.7	206	51.0	18.6	94.4	103.0	87.3	13.4	101	27	-1.7	-1.6	1.2
fluoranthene	898	1060	1100	529	320	292	1019	10	380	34	1293	166	**981**	**78**	-0.8	-0.7	0.7
pyrene	892	1020	1048	397	248	225	987	8	290	32	1367	175	**811**	**24**	-1.1	-1.0	0.6
benz[a]anthracene	377	416	439	242	144	149	411	8	178	31	551	48	**427**	**25**	-1.0	-1.3	0.5
chrysene + triphenylene	604	730	379	336	200	211	571	31	249	30	944	115	577	35	-1.6	-1.5	2.1
benzofluoranthenes [b+j+k]	1431	1363	649	776	449	511	1148	38	579	30	2110	316	1441	150	-1.8	-1.5	2.5
benzo[e]pyrene	480	514	550	270	156	173	515	7	200	31	805	103	**553**	**59**	-1.4	-1.6	0.5
benzo[a]pyrene	576	603	652	309	172	194	610	6	225	33	832	98	**628**	**52**	-1.1	-1.1	0.4
perylene	170	181	193	177	100	111	181	6	129	32	248	26	**452**	**58**	-1.1	-1.3	0.4
indeno[1,2,3-cd]pyrene	544	552	594	310	169	199	563	5	226	33	710	102	**501**	**72**	-0.8	-0.7	0.3
dibenz[a,h]anthracene + [a,c]	89.9	88.0	108	49.5	27.0	33.2	95.3	11.6	36.6	31.8	161	23	**117**	**14**	-1.6	-1.5	0.8
benzo[ghi]perylene	468	481	603	278	150	179	517	14	202	33	683	104	**525**	**67**	-1.0	-0.7	1.0

Laboratory: 6

PAH in Sediment VIII

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	17	18	20
2 to 3	4	4	3
≥ 3	2	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 6

Reporting Date: 10/21/98

PESTICIDES

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a	Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	09/30/98 S 1	10/01/98 S 2	10/01/98 S 3	09/30/98 S 1	10/01/98 S 2	10/01/98 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	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		<2				
hexachlorobenzene	0.260	0.310	0.260	26.4	24.6	22.2	0.277	10.434	24.4	8.6	<3		**70**	**25**			0.7
gamma-HCH	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		<2				
heptachlor	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		<2				
aldrin	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		<2				
heptachlor epoxide	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		<2				
oxychlordane	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		2.59	0.20			
trans-chlordane	<1	<1	<1	1.75	1.71	1.54	<1	NA	1.67	6.69	1.65	0.51	<2				
2,4'-DDE	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		**0.73**	**0.11**			
endosulfan I	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		<2				
cis-chlordane	<1	<1	<1	2.00	2.21	2.85	<1	NA	2.35	18.81	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	0.510	0.690	0.970	1.49	1.51	1.67	0.723	32.047	1.56	6.34	0.489	0.412	**1.26**	**0.13**	1.9	0.9	2.1
dieldrin	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		1.26	0.37			
4,4'-DDE	6.24	6.21	7.27	5.36	5.03	4.74	6.57	9.18	5.04	6.15	6.86	0.94	**6.59**	**0.56**	-0.2	-0.1	0.6
2,4'-DDD	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	7.15	1.57	<2				
endrin	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		<2				
endosulfan II	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		<2				
4,4'-DDD	17.6	16.5	16.1	3.59	3.19	3.59	16.8	4.6	3.46	6.68	17.3	3.0	**5.06**	**0.56**	-0.1	-0.1	0.3
2,4'-DDT	5.54	5.50	4.59	<1	<1	<1	5.21	10.31	<1	NA	5.14	1.00	<2		0.1	0.0	0.7
cis-nonachlor	0.880	0.720	0.720	0.890	0.850	0.720	0.773	11.945	0.820	10.839	1.63	1.07	<2		-2.1	-0.8	0.8
4,4'-DDT	25.1	25.6	21.8	<1	<1	<1	24.2	8.6	<1	NA	19.4	2.6	1.25	0.10	1.0	1.1	0.6
mirex	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<2		<2				

Laboratory: 6
Pesticides in Sediment VIII

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

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 6
Reporting Date: 10/21/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	09/30/98 S 1	09/30/98 S 2	09/30/98 S 3	09/30/98 S 1	09/30/98 S 2	09/30/98 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	0.410	1.19	<1	2.20	1.39	1.69	<1	NA	1.76	23.27	2.04	1.39	1.39	0.19			
PCB 18	2.22	1.85	2.16	2.21	2.22	2.32	2.08	9.56	2.25	2.70	3.61	0.68	1.15	0.16	-1.7	-1.1	0.6
PCB 28	3.97	3.88	4.08	4.21	4.26	5.22	3.98	2.52	4.56	12.47	4.95	0.79	9.80	3.70	-0.8	-0.6	0.2
PCB 52	13.1	17.6	19.9	5.37	4.41	5.21	16.9	20.6	5.00	10.29	15.6	3.4	**6.89**	**0.56**	0.3	0.2	1.4
PCB 44	7.76	8.10	8.48	4.41	4.36	4.21	8.11	4.44	4.33	2.41	7.90	1.42	**4.80**	**0.62**	0.1	0.1	0.3
PCB 66/95	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	26.9	28.8	29.5	8.28	8.38	8.78	28.4	4.7	8.48	3.12	33.3	6.4	**11.0**	**1.6**	-0.6	-0.4	0.3
PCB 118	24.6	26.4	26.2	5.32	4.59	5.17	25.7	3.9	5.03	7.67	29.7	5.6	**10.0**	**1.1**	-0.5	-0.3	0.3
PCB 153	26.3	28.0	28.7	8.97	6.42	8.27	27.7	4.6	7.89	16.71	50.6	11.8	**17.6**	**1.9**	-1.8	-0.9	0.3
PCB 105	11.1	11.5	10.9	2.85	2.64	2.70	11.1	2.5	2.73	3.96	11.9	1.9	**3.65**	**0.27**	-0.2	-0.2	0.2
PCB 138/163/164	6.60	11.1	10.8	5.80	4.70	5.12	9.50	26.50	5.21	10.66	44.9	8.7	**13.38**	**0.97**	**-3.2**	-2.0	1.8
PCB 187/182	7.06	7.55	6.73	4.02	2.84	3.08	7.11	5.80	3.31	18.82	11.5	2.2	7.0	2.6	-1.5	-0.9	0.4
PCB 128	2.12	6.54	8.25	2.07	1.83	1.77	5.64	56.12	1.89	8.40	8.22	1.54	**1.87**	**0.32**	-1.3	-0.8	3.7
PCB 180	19.0	17.5	17.6	6.44	4.54	5.69	18.0	4.7	5.56	17.22	21.7	8.6	**5.83**	**0.58**	-0.7	-0.3	0.3
PCB 170/190	9.41	9.47	10.5	1.87	1.37	1.99	9.79	6.26	1.74	18.86	12.6	3.0	**3.00**	**0.46**	-0.9	-0.5	0.4
PCB 195	2.07	1.78	1.52	<1	<1	<1	1.79	15.37	<1	NA	2.61	0.61	<3		-1.3	-0.7	1.0
PCB 206	3.05	4.07	2.66	3.61	1.67	1.75	3.26	22.33	2.34	46.84	3.30	0.67	**3.67**	**0.87**	0.0	0.0	1.5
PCB 209	3.47	3.64	2.42	8.47	4.62	4.79	3.18	20.80	5.96	36.50	2.33	0.66	**8.34**	**0.49**	1.5	0.7	1.4
PCB 66	8.88	9.26	9.69	6.01	5.18	5.35	9.28	4.37	5.51	7.95	8.85	2.51	**6.8**	**1.4**	0.2	0.1	0.3
PCB 95	19.0	11.2	19.9	4.91	4.54	4.52	16.7	28.8	4.66	4.72	20.2	8.1	**7.5**	**1.1**	-0.7	-0.5	1.9

Laboratory: 6
PCBs in Sediment VIII

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

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

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	43.6	44.0	43.8	43.8	0.5	44.9	1.3	44.9	1.3	-0.1	-0.3	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 7

Reporting Date: 10/30/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	1/0/00 S 1	1/0/00 S 2	1/0/00 S 3	1/0/00 S 1	1/0/00 S 2	1/0/00 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	0	0	0	0	0	0	NA	NA	NA	NA	107	15	**1010**	**140**			
2-methylnaphthalene	0	0	0	0	0	0	NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene	0	0	0	0	0	0	NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	0	0	0	0	0	0	NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	0	0	0	0	0	0	NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene	0	0	0	0	0	0	NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene	0	0	0	0	0	0	NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene	0	0	0	0	0	0	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	0	0	0	0	0	0	NA	NA	NA	NA	67.9	11.1	**97.3**	**8.6**			
phenanthrene	0	0	0	0	0	0	NA	NA	NA	NA	604	63	**489**	**23**			
anthracene	0	0	0	0	0	0	NA	NA	NA	NA	183	27	**184**	**14**			
1-methylphenanthrene	0	0	0	0	0	0	NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene	0	0	0	0	0	0	NA	NA	NA	NA	1293	166	**981**	**78**			
pyrene	0	0	0	0	0	0	NA	NA	NA	NA	1367	175	**811**	**24**			
benz[a]anthracene	0	0	0	0	0	0	NA	NA	NA	NA	551	48	**427**	**25**			
chrysene + triphenylene	0	0	0	0	0	0	NA	NA	NA	NA	944	115	577	35			
benzofluoranthenes [b+j+k]	0	0	0	0	0	0	NA	NA	NA	NA	2110	316	1441	150			
benzo[e]pyrene	0	0	0	0	0	0	NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene	0	0	0	0	0	0	NA	NA	NA	NA	832	98	**628**	**52**			
perylene	0	0	0	0	0	0	NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene	0	0	0	0	0	0	NA	NA	NA	NA	710	102	**501**	**72**			
dibenz[a,h]anthracene + [a,c]	0	0	0	0	0	0	NA	NA	NA	NA	161	23	**117**	**14**			
benzo[ghi]perylene	0	0	0	0	0	0	NA	NA	NA	NA	683	104	**525**	**67**			

Laboratory: 7
PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 7
Reporting Date: 10/30/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	*ba/26/98 S 1	*ba/26/98 S 2	*10/1/98 S 3	*ba/21/98 S 1	*ba/21/98 S 2	*ba/25/98 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	NA	<2	NA	<2		<2				
hexachlorobenzene	<2	<2	<2	68.2	72.5	67.1	<2	NA	69.8	5.5	<3		**70**	**25**			
gamma-HCH	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
heptachlor	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
aldrin	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
heptachlor epoxide	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
oxychlordane	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		2.59	0.20			
trans-chlordane	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	1.65	0.51	<2				
2,4'-DDE	1.31	1.19	1.37	0.550	0.550	0.590	1.29	7.10	0.570	4.962	<2		**0.73**	**0.11**			0.5
endosulfan I	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
cis-chlordane	<2	<2	<2	2.26	1.98	2.30	<2	NA	2.14	10.57	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	<2	<2	<2	0.990	1.05	1.09	<2	NA	1.07	2.64	0.489	0.412	**1.26**	**0.13**			
dieldrin	<2	<2	<2	1.15	1.16	1.14	<2	NA	1.15	1.23	<2		1.26	0.37			
4,4'-DDE	7.52	8.02	7.98	6.15	5.70	5.93	7.84	3.54	5.82	2.80	6.9	0.9	**6.59**	**0.56**	0.6	0.5	0.2
2,4'-DDD	6.92	6.30	6.44	0.880	1.20	1.10	6.55	4.96	1.15	6.15	7.15	1.57	<2		-0.3	-0.3	0.3
endrin	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
endosulfan II	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
4,4'-DDD	21.2	21.7	20.9	6.55	5.69	5.50	21.3	1.9	5.60	2.40	17.3	3.0	**5.06**	**0.56**	0.9	0.6	0.1
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.14	1.00	<2				
cis-nonachlor	<2	<2	<2	0.420	0.410	0.380	<2	NA	0.395	5.370	1.63	1.07	<2				
4,4'-DDT	19.0	18.9	17.7	0.800	0.980	0.710	18.5	3.9	0.845	22.594	19.4	2.6	1.25	0.10	-0.2	-0.2	0.3
mirex	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				

Laboratory: 7
Pesticides in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	5	23
Qualitative	16	73
Not Determined	1	5

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 7
Reporting Date: 10/30/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry GC/ECF S1	GC/ECF S2	GC/ECF S3	SRM 1941a, ng/g dry GC/ECF S1	GC/ECF S2	GC/ECF S3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
PCB 8	1.54	1.52	1.69	2.53	2.52	2.33	1.58	5.87	2.46	4.58	2.04	1.39	1.39	0.19	-0.9	-0.3	0.4
PCB 18	3.76	3.76	3.58	3.49	3.14	3.29	3.70	2.81	3.31	5.31	3.61	0.68	1.15	0.16	0.1	0.1	0.2
PCB 28	6.21	5.49	5.14	7.10	6.68	7.16	5.61	9.72	6.98	3.75	4.95	0.79	9.8	3.7	0.5	0.4	0.6
PCB 52	23.3	21.6	22.9	8.17	8.54	9.38	22.6	3.9	8.70	7.13	15.6	3.4	**6.89**	**0.56**	1.8	1.1	0.3
PCB 44	13.2	12.4	13.1	5.51	5.78	6.14	12.9	3.4	5.81	5.44	7.90	1.42	**4.80**	**0.62**	2.5	1.6	0.2
PCB 66/95	16.0	13.7	13.5	8.81	9.28	9.80	14.4	9.6	9.30	5.33	16.7	7.5	**14.3**	**2.5**	-0.6	-0.2	0.6
PCB 101/90	60.2	61.0	61.8	13.5	14.8	14.4	61.0	1.3	14.2	4.7	33.3	6.4	**11.0**	**1.6**	**3.3**	2.0	0.1
PCB 118	42.3	41.7	41.4	8.31	9.78	9.33	41.8	1.1	9.14	8.24	29.7	5.6	**10.0**	**1.1**	1.6	1.0	0.1
PCB 153	54.6	54.7	51.9	14.1	14.5	14.2	53.7	3.0	14.3	1.5	50.6	11.8	**17.6**	**1.9**	0.2	0.1	0.2
PCB 105	18.0	17.5	18.5	3.25	3.36	3.78	18.0	2.8	3.46	8.08	11.9	1.9	**3.65**	**0.27**	2.1	1.6	0.2
PCB 138/163/164	77.0	80.0	71.8	14.9	15.6	15.0	76.3	5.4	15.2	2.5	44.9	8.7	**13.38**	**0.97**	2.8	1.8	0.4
PCB 187/182	21.0	21.2	18.2	8.42	6.85	7.59	20.1	8.3	7.62	10.31	11.5	2.2	7.0	2.6	3.0	1.8	0.6
PCB 128	14.8	14.9	15.5	2.40	2.60	2.60	15.1	2.5	2.53	4.56	8.22	1.54	**1.87**	**0.32**	**3.3**	2.1	0.2
PCB 180	29.9	28.9	27.4	10.3	9.62	9.73	28.7	4.4	9.88	3.69	21.7	8.6	**5.83**	**0.58**	1.3	0.6	0.3
PCB 170/190	20.2	17.7	19.3	5.14	4.79	4.74	19.1	6.6	4.89	4.46	12.6	3.0	**3.00**	**0.46**	2.0	1.2	0.4
PCB 195	3.92	3.71	3.43	1.63	1.16	1.41	3.69	6.67	1.40	16.80	2.61	0.61	<3		1.6	0.9	0.4
PCB 206	5.19	4.56	4.38	4.77	4.16	4.40	4.71	9.03	4.44	6.92	3.30	0.67	**3.67**	**0.87**	1.7	1.2	0.6
PCB 209	2.78	2.57	2.28	11.7	10.7	11.4	2.54	9.87	11.3	4.6	2.33	0.66	**8.34**	**0.49**	0.4	0.2	0.7
PCB 66							NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95							NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 7
PCBs in Sediment VIII

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	11	16	18
2 to 3	4	2	0
≥ 3	3	0	0

Water in Sediment VIII

	Sediment VIII, % S1	S2	S3	lab mean, %	lab %RSD	Sediment VIII, % assigned	95% CL	exercise, % mean	95% CL	Sediment VIII z (25%)	z (s)	p (15%)
water	43.9	43.5	40.7	42.7	4.1	44.9	1.3	44.9	1.3	-0.2	-0.7	0.3

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 8

Reporting Date: 10/25/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	5/15/98 S 1	5/15/98 S 2	5/15/98 S 3	5/15/98 S 1	5/15/98 S 2	5/15/98 S 3	lab mean ng/g dry	lab %RSD	lab mean ng/g dry	lab %RSD	assigned value	95% CI.	target value[b]	95% CI.	z-score (25%)	z-score (s)	p-score (15%)
naphthalene	NA	NA	NA	NA	NA		NA	NA	NA	NA	107	15	**1010**	**140**			
2-methylnaphthalene	NA	NA	NA	NA	NA		NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene	NA	NA	NA	NA	NA		NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	NA	NA	NA	NA	NA		NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA		NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene	NA	NA	NA	NA	NA		NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene	NA	NA	NA	NA	NA		NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA		NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	33.6	37.7	37.3	37.3	30.5		36.2	6.2	33.9	14.2	67.9	11.1	**97.3**	**8.6**	-1.9	-1.7	0.4
phenanthrene	433	462	546	304	297		480	12	301	2	604	63	**489**	**23**	-0.8	-1.0	0.8
anthracene	128	128	154	128	125		137	11	127	2	183	27	**184**	**14**	-1.0	-0.8	0.7
1-methylphenanthrene	NA	NA	NA	NA	NA		NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene	1080	1080	1150	736	834		1103	4	785	9	1293	166	**981**	**78**	-0.6	-0.5	0.2
pyrene	1190	1200	1340	637	688		1243	7	663	5	1367	175	**811**	**24**	-0.4	-0.3	0.4
benz[a]anthracene	520	584	566	359	354		557	6	357	1	551	48	**427**	**25**	0.0	0.1	0.4
chrysene + triphenylene	933	1130	1010	507	502		1024	10	505	1	944	115	577	35	0.3	0.3	0.6
benzofluoranthenes [b+j+k]	2590	3060	2920	1320	1350		2857	8	1335	2	2110	316	1441	150	1.4	1.2	0.6
benzo[e]pyrene	944	1010	958	509	483		971	4	496	4	805	103	**553**	**59**	0.8	0.9	0.2
benzo[a]pyrene	760	832	787	411	426		793	5	419	3	832	98	**628**	**52**	-0.2	-0.2	0.3
perylene	239	264	245	323	341		249	5	332	4	248	26	**452**	**58**	0.0	0.0	0.3
indeno[1,2,3-cd]pyrene	258	370	334	153	212		321	18	183	23	710	102	**501**	**72**	-2.2	-1.8	1.2
dibenz[a,h]anthracene + [a,c]	94.6	151	116	50.8	69.2		121	24	60.0	21.7	161	23	**117**	**14**	-1.0	-0.9	1.6
benzo[ghi]perylene	233	336	314	142	207		294	18	175	26	683	104	**525**	**67**	-2.3	-1.7	1.2

Laboratory: 8
PAH in Sediment VIII

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	12	14	14
2 to 3	2	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 8
Reporting Date: 10/25/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	9/26/98 S 1	7/10/98 S 2	9/4/98 S 3	9/26/98 S 1	9/4/98 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	NA	NA	NA	<2		<2				
hexachlorobenzene	4.43	0.333	0.364	41.0	45.2		1.71	137.89	43.1	6.9	<3		**70**	**25**			**9.2**
gamma-HCH	<0.42	<0.42	<0.42	<0.42	<0.42		<0.42	NA	<0.42	NA	<2		<2				
heptachlor	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		<2				
aldrin	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		<2				
heptachlor epoxide	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		<2				
oxychlordane	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane	NA	NA	NA	NA	NA		NA	NA	NA	NA	1.65	0.51	<2				
2,4'-DDE	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		<2				
cis-chlordane	0.180	0.230	<0.16	1.57	1.77		<0.23	NA	1.67	8.47	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	0.310	0.280	0.290	0.879	1.03		0.293	5.207	0.955	11.186	0.489	0.412	**1.26**	**0.13**	-1.6	-0.8	0.3
dieldrin	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		1.26	0.37			
4,4'-DDE	9.35	8.98	9.94	5.22	5.45		9.42	5.14	5.34	3.05	6.86	0.94	**6.59**	**0.56**	1.5	1.3	0.3
2,4'-DDD	NA	NA	NA	NA	NA		NA	NA	NA	NA	7.15	1.57	<2				
endrin	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		<2				
endosulfan II	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		<2				
4,4'-DDD	26.5	27.2	27.2	6.07	6.36		27.0	1.5	6.22	3.30	17.3	3.0	**5.06**	**0.56**	2.2	1.5	0.1
2,4'-DDT	NA	NA	NA	NA	NA		NA	NA	NA	NA	5.14	1.00	<2				
cis-nonachlor	NA	NA	NA	NA	NA		NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	10.0	14.4	25.7	0.397	0.454		16.7	48.5	0.426	9.472	19.4	2.6	1.25	0.10	-0.6	-0.6	**3.2**
mirex	NA	NA	NA	NA	NA		NA	NA	NA	NA	<2		<2				

Laboratory: 8
Pesticides in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	5	23
Qualitative	2	9
Not Determined	15	68

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 8

Reporting Date: 10/25/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	8/25/98 S 1	8/25/98 S 2	8/25/98 S 3	8/25/98 S 1	8/25/98 S 2	8/25/98 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	1.70	3.77	3.07	1.78	1.69	___	2.85	36.99	1.74	3.67	2.04	1.39	1.39	0.19	1.6	0.5	2.5
PCB 18	3.08	3.36	2.89	2.26	3.30	___	3.11	7.60	2.78	26.45	3.61	0.68	1.15	0.16	-0.6	-0.4	0.5
PCB 28	4.87	4.73	5.20	5.51	6.31	___	4.93	4.89	5.91	9.57	4.95	0.79	**9.80**	**3.70**	0.0	0.0	0.3
PCB 52	16.5	16.4	18.5	6.66	8.08	___	17.1	6.9	7.37	13.62	15.6	3.4	**6.89**	**0.56**	0.4	0.2	0.5
PCB 44	8.94	9.44	10.1	3.73	5.13	___	9.49	6.13	4.43	22.35	7.90	1.42	**4.80**	**0.62**	0.8	0.5	0.4
PCB 66/95	24.9	25.3	27.2	6.94	7.92	___	25.8	4.8	7.43	9.33	16.7	7.5	**14.3**	**2.5**	2.2	0.9	0.3
PCB 101/90	36.3	35.6	38.8	11.8	13.7	___	36.9	4.6	12.8	10.5	33.3	6.4	**11.0**	**1.6**	0.4	0.3	0.3
PCB 118	35.1	34.8	36.5	8.28	9.03	___	35.5	2.6	8.66	6.13	29.7	5.6	**10.0**	**1.1**	0.8	0.5	0.2
PCB 153	46.4	49.4	48.6	12.8	13.8	___	48.1	3.2	13.3	5.3	50.6	11.8	**17.6**	**1.9**	-0.2	-0.1	0.2
PCB 105	13.6	13.0	18.0	3.01	3.90	___	14.9	18.4	3.46	18.21	11.9	1.9	**3.65**	**0.27**	1.0	0.8	1.2
PCB 138/163/164	54.3	55.1	54.8	11.5	11.9	___	54.7	0.7	11.7	2.4	44.9	8.7	**13.38**	**0.97**	0.9	0.6	0.0
PCB 187/182	13.0	15.3	14.2	7.62	8.02	___	14.2	8.1	7.82	3.62	11.5	2.2	7.0	2.6	0.9	0.6	0.5
PCB 128	9.95	9.76	10.30	1.25	1.58	___	10.0	2.7	1.42	16.49	8.22	1.54	**1.87**	**0.32**	0.9	0.6	0.2
PCB 180	25.8	29.8	26.4	9.03	9.01	___	27.3	7.9	9.02	0.16	21.7	8.6	**5.83**	**0.58**	1.0	0.5	0.5
PCB 170/190	13.5	14.4	13.0	17.6	15.1	___	13.6	5.2	16.4	10.8	12.6	3.0	**3.00**	**0.46**	0.3	0.2	0.3
PCB 195	3.64	3.32	3.49	2.66	2.83	___	3.48	4.60	2.7	4.4	2.61	0.61	<3		1.3	0.7	0.3
PCB 206	5.33	4.39	5.37	4.42	4.88	___	5.03	11.03	4.7	7.0	3.30	0.67	**3.67**	**0.87**	2.1	1.4	0.7
PCB 209	2.75	2.44	2.97	10.9	11.3	___	2.72	9.79	11.1	2.5	2.33	0.66	**8.34**	**0.49**	0.7	0.3	0.7
PCB 66	___	___	___	___	___	___	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	___	___	___	___	___	___	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 8
PCBs in Sediment VIII

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	18	17
2 to 3	2	0	1
≥ 3	0	0	0

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	42.0	46.0	43.0	43.7	4.8	44.9	1.3	44.9	1.3	-0.1	-0.4	0.3

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 9

Reporting Date: 10/30/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 9/12/98 S 1	9/12/98 S 2	9/12/98 S 3	SRM 1941a, ng/g dry 9/12/98 S 1	9/12/98 S 2	9/12/98 S 3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	Sediment VIII 95% CL	SRM 1941a, ng/g dry target value[b]	SRM 1941a 95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
naphthalene	107	110	122	725	786	835	113	7	782	7	107	15	**1010**	**140**	0.2	0.2	0.5
2-methylnaphthalene	82.6	92.4	93.1	264	310	349	89.4	6.6	308	14	77.4	10.2	325	60	0.6	0.6	0.4
1-methylnaphthalene	54.9	62.2	65.8	134	158	186	61.0	9.1	159	16	50.7	7.3	150	30	0.8	0.8	0.6
biphenyl	56.2	57.9	58.5	124	141	141	57.5	2.1	135	8	36.6	13.5	175	18	2.3	1.6	0.1
2,6-dimethylnaphthalene	32.6	39.9	36.4	36.5	43.4	44.5	36.3	10.1	41.5	10.5	51.2	8.9	120	24	-1.2	-1.0	0.7
acenaphthylene	26.3	30.4	31.9	69.2	88.0	84.4	29.5	9.8	80.5	12.4	50.2	22.6	37	14	-1.6	-0.8	0.7
acenaphthene	90.7	77.7	76.8	68.8	69.7	70.7	81.7	9.5	69.7	1.3	38.2	3.9	41	10	**4.6**	**5.9**	0.6
1,6,7-trimethylnaphthalene	47.5	45.3	45.4	32.0	39.4	40.9	46.1	2.7	37.5	12.7	27.2	7.4	48	10	2.8	2.1	0.2
fluorene	78.9	69.9	71.0	66.6	59.1	66.9	73.3	6.7	64.2	6.9	67.9	11.1	**97.3**	**8.6**	0.3	0.3	0.4
phenanthrene	659	702	696	424	482	516	686	3	474	10	604	63	**489**	**23**	0.5	0.6	0.2
anthracene	211	203	173	169	185	174	195	10	176	5	183	27	**184**	**14**	0.3	0.2	0.7
1-methylphenanthrene	106	102	100	76.1	83.1	90.8	103	3	83.3	8.8	87.3	13.4	101	27	0.7	0.7	0.2
fluoranthene	1313	1315	1477	762	838	879	1368	7	826	7	1293	166	**981**	**78**	0.2	0.2	0.5
pyrene	1377	1300	1662	608	637	663	1446	13	636	4	1367	175	**811**	**24**	0.2	0.2	0.9
benz[a]anthracene	470	620	511	285	406	345	534	15	345	18	551	48	**427**	**25**	-0.1	-0.2	1.0
chrysene + triphenylene	927	1112	1024	512	606	550	1021	9	556	9	944	115	577	35	0.3	0.3	0.6
benzofluoranthenes [b+j+k]	1854	2354	2059	1043	1361	1212	2089	12	1205	13	2110	316	1441	150	0.0	0.0	0.8
benzo[e]pyrene	803	1023	910	456	600	534	912	12	530	14	805	103	**553**	**59**	0.5	0.6	0.8
benzo[a]pyrene	809	956	706	406	518	459	824	15	461	12	832	98	**628**	**52**	0.0	0.0	1.0
perylene	247	293	242	274	332	300	260	11	302	10	248	26	**452**	**58**	0.2	0.2	0.7
indeno[1,2,3-cd]pyrene	861	989	822	488	582	523	891	10	531	9	710	102	**501**	**72**	1.0	0.8	0.7
dibenz[a,h]anthracene + [a,c]	239	251	209	127	136	128	233	9	130	4	161	23	**117**	**14**	1.8	1.7	0.6
benzo[ghi]perylene	736	855	759	422	512	475	783	8	470	10	683	104	**525**	**67**	0.6	0.4	0.5

Laboratory: 9
PAH in Sediment VIII

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	21	23
2 to 3	2	1	0
≥ 3	1	1	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 9
Reporting Date: 10/30/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	9/17/98 S 1	9/20/98 S 2	9/28/98 S 3	9/17/98 S 1	9/18/98 S 2	9/28/98 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	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	<2		<2				
hexachlorobenzene	<0.07	<0.07	3.22	50.2	59.9	76.8	<3.22	NA	62.3	21.6	<3		**70**	**25**			
gamma-HCH	<0.09	<0.09	<0.08	0.00	0.00	0.00	<0.09	NA	NA	NA	<2		<2				
heptachlor	<0.05	0.471	<0.04	0.00	0.00	0.00	<0.47	NA	NA	NA	<2		<2				
aldrin	<0.08	<0.08	<0.07	0.00	0.00	0.00	<0.08	NA	NA	NA	<2		<2				
heptachlor epoxide	<0.09	<0.09	<0.08	0.00	0.00	0.00	<0.09	NA	NA	NA	<2		<2				
oxychlordane	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	1.65	0.51	<2				
2,4'-DDE	<0.10	2.34	1.41	0.00	0.00	0.00	<2.34	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	<2		<2				
cis-chlordane	<0.07	0.974	<0.06	1.44	1.75	1.83	<0.97	NA	1.67	12.5	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	<0.11	0.397	<0.10	1.15	1.28	1.48	<0.40	NA	1.30	12.9	0.489	0.412	**1.26**	**0.13**			
dieldrin	<0.80	<0.79	<0.72	0.730	0.483	3.60	<0.80	NA	1.60	108.0	<2		1.26	0.37			
4,4'-DDE	7.97	6.48	7.69	4.82	5.25	7.40	7.38	10.72	5.82	23.7	6.86	0.94	**6.59**	**0.56**	0.3	0.3	0.7
2,4'-DDD	12.9	11.8	11.2	0.00	0.00	0.00	11.94	7.16	NA	NA	7.15	1.57	<2		2.7	2.2	0.5
endrin	<0.11	<0.11	<0.10	0.00	0.00	0.00	<0.11	NA	NA	NA	<2		<2				
endosulfan II	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	<2		<2				
4,4'-DDD	22.1	22.2	18.4	6.00	6.28	3.58	20.9	10.4	5.29	28.0	17.3	3.0	**5.06**	**0.56**	0.8	0.6	0.7
2,4'-DDT	0.757	1.53	6.21	0.00	0.00	0.00	2.84	104.12	NA	NA	5.14	1.00	<2		-1.8	-1.5	6.9
cis-nonachlor	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	22.0	19.9	25.9	0.00	0.00	0.00	22.6	13.4	NA	NA	19.4	2.6	1.25	0.10	0.7	0.7	0.9
mirex	<0.05	<0.06	<0.05	0.00	0.00	0.00	<0.06	NA	NA	NA	<2		<2				

Laboratory: 9
Pesticides in Sediment VIII

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

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 9
Reporting Date: 10/30/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	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	<0.33	21.1	<0.30	0.00	0.00	0.00	<21.11	NA	NA	NA	2.04	1.39	1.39	0.19			
PCB 18	4.93	4.82	<0.20	0.00	0.00	0.00	4.87	1.61	NA	NA	3.61	0.68	1.15	0.16	1.4	0.9	0.1
PCB 28	5.37	8.92	32.7	0.00	0.00	0.00	15.7	94.9	NA	NA	4.95	0.79	9.8	3.7	**8.7**	**6.4**	**6.3**
PCB 52	21.1	19.2	19.9	7.71	7.68	10.8	20.1	4.8	8.73	20.47	15.6	3.4	**6.89**	**0.56**	1.1	0.7	0.3
PCB 44	11.0	10.0	13.5	5.00	5.33	7.95	11.5	16.0	6.09	26.57	7.90	1.42	**4.80**	**0.62**	1.8	1.2	1.1
PCB 66/95	10.6	10.5	10.3	7.01	7.17	9.14	10.5	1.5	7.78	15.28	16.7	7.5	**14.3**	**2.5**	-1.5	-0.6	0.1
PCB 101/90	39.4	40.4	43.3	9.66	11.6	18.0	41.0	4.9	13.1	33.3	33.3	6.4	**11.0**	**1.6**	0.9	0.6	0.3
PCB 118	40.1	35.7	33.1	11.7	9.77	27.3	36.3	9.8	16.2	59.2	29.7	5.6	**10.0**	**1.1**	0.9	0.6	0.7
PCB 153	37.3	38.3	56.3	12.4	11.4	17.4	44.0	24.3	13.7	23.5	50.6	11.8	**17.6**	**1.9**	-0.5	-0.3	1.6
PCB 105	15.1	14.3	13.2	3.51	2.76	3.12	14.2	6.9	3.13	12.02	11.9	1.9	**3.65**	**0.27**	0.8	0.6	0.5
PCB 138/163/164	65.1	71.5	47.9	13.4	15.6	10.7	61.5	19.8	13.2	18.5	44.9	8.7	**13.38**	**0.97**	1.5	1.0	1.3
PCB 187/182	10.1	12.1	12.9	0.00	0.00	0.00	11.7	12.1	NA	NA	11.5	2.2	7.0	2.6	0.1	0.0	0.8
PCB 128	8.33	9.82	15.7	1.04	0.966	3.50	11.3	34.6	1.84	78.65	8.22	1.54	**1.87**	**0.32**	1.5	1.0	2.3
PCB 180	19.9	22.3	19.7	10.7	11.2	6.94	20.6	7.1	9.62	24.31	21.7	8.6	**5.83**	**0.58**	-0.2	-0.1	0.5
PCB 170/190	13.6	16.1	13.6	5.68	9.36	3.73	14.5	10.1	6.26	45.66	12.6	3.0	**3.00**	**0.46**	0.6	0.4	0.7
PCB 195	3.64	4.21	1.90	0.00	0.00	0.00	3.25	37.10	NA	NA	2.61	0.61	<3		1.0	0.5	2.5
PCB 206	3.43	3.34	3.86	4.59	4.87	4.50	3.54	7.92	4.65	4.16	3.30	0.67	**3.67**	**0.87**	0.3	0.2	0.5
PCB 209	1.35	1.99	4.94	9.50	11.9	12.9	2.76	69.37	11.4	15.2	2.33	0.66	**8.34**	**0.49**	0.7	0.3	4.6
PCB 66							NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95							NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 9
PCBs in Sediment VIII

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	16	13
2 to 3	0	0	2
≥ 3	1	1	2

Water in Sediment VIII

	Sediment VIII, %: S 1	S 2	S 3	lab: mean, %	%RSD
water	45.7	46.0	45.7	45.8	0.4

Sediment VIII, % assigned	95% CL	exercise, % mean	95% CL	Sediment VIII: z (25%)	z (s)	p (15%)
44.9	1.3	44.9	1.3	0.1	0.3	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 10

Reporting Date: 10/30/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	8/5/98 S 1	8/5/98 S 2	8/5/98 S 3	8/5/98 S 1	8/5/98 S 2	8/5/98 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	124	126	NA	1070	1180	125	1	1125	7	107	15	**1010**	**140**	0.7	0.6	0.1
2-methylnaphthalene	NA	87.0	84.2	NA	292	324	85.6	2.3	308	7	77.4	10.2	325	60	0.4	0.4	0.2
1-methylnaphthalene	NA	41.7	48.4	NA	119	135	45.1	10.5	127	9	50.7	7.3	150	30	-0.4	-0.4	0.7
biphenyl	NA	28.6	42.8	NA	70.8	80.4	35.7	28.1	75.6	9.0	36.6	13.5	175	18	-0.1	-0.1	1.9
2,6-dimethylnaphthalene	NA	42.4	48.0	NA	98.7	106	45.2	8.8	102	5	51.2	8.9	120	24	-0.5	-0.4	0.6
acenaphthylene	NA	67.3	69.7	NA	74.9	75.6	68.5	2.5	75.3	0.7	50.2	22.6	37	14	1.5	0.7	0.2
acenaphthene	NA	41.3	43.4	NA	31.6	34.3	42.4	3.5	33.0	5.8	38.2	3.9	41	10	0.4	0.6	0.2
1,6,7-trimethylnaphthalene	NA	28.5	32.4	NA	37.1	44.1	30.5	9.1	40.6	12.2	27.2	7.4	48	10	0.5	0.4	0.6
fluorene	NA	75.2	79.4	NA	60.1	73.2	77.3	3.8	66.7	13.9	67.9	11.1	**97.3**	**8.6**	0.6	0.5	0.3
phenanthrene	NA	728	830	NA	435	514	779	9	475	12	604	63	**489**	**23**	1.2	1.4	0.6
anthracene	NA	186	189	NA	163	182	188	1	173	8	183	27	**184**	**14**	0.1	0.1	0.1
1-methylphenanthrene	NA	116	102	NA	79.5	66.0	109	9	72.8	13.1	87.3	13.4	101	27	1.0	0.9	0.6
fluoranthene	NA	1910	2100	NA	1000	1260	2005	7	1130	16	1293	166	**981**	**78**	2.2	1.9	0.4
pyrene	NA	1940	2100	NA	672	906	2020	6	789	21	1367	175	**811**	**24**	1.9	1.7	0.4
benz[a]anthracene	NA	611	630	NA	328	408	621	2	368	15	551	48	**427**	**25**	0.5	0.6	0.1
chrysene + triphenylene	NA	1030	956	NA	506	576	993	5	541	9	944	115	577	35	0.2	0.2	0.4
benzofluoranthenes [b+j+k]	NA	3134	3113	NA	1520	1693	3124	0	1607	8	2110	316	1441	150	1.9	1.6	0.0
benzo[e]pyrene	NA	860	867	NA	454	506	864	1	480	8	805	103	**553**	**59**	0.3	0.3	0.0
benzo[a]pyrene	NA	1230	978	NA	557	718	1104	16	638	18	832	98	**628**	**52**	1.3	1.3	1.1
perylene	NA	316	301	NA	371	419	309	3	395	9	248	26	**452**	**58**	1.0	1.2	0.2
indeno[1,2,3-cd]pyrene	NA	1000	929	NA	491	644	965	5	568	19	710	102	**501**	**72**	1.4	1.2	0.3
dibenz[a,h]anthracene + [a,c]	NA	168	184	NA	85.8	99.4	176	6	92.6	10.4	161	23	**117**	**14**	0.4	0.3	0.4
benzo[ghi]perylene	NA	958	965	NA	502	509	962	1	506	1	683	104	**525**	**67**	1.6	1.2	0.0

Laboratory: 10
PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 10
Reporting Date: 10/30/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/20/98	10/5/98	10/20/98	10/20/98	10/5/98	10/20/98											
	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	<0.63	<0.56	<1.2	<1.2	<0.44	<0.63	NA	<1.2	NA	<2		<2				
hexachlorobenzene	NA	<0.63	<0.56	110	51.0	94.0	<0.63	NA	85.0	35.9	<3		**70**	**25**			
gamma-HCH	NA	<0.63	<0.56	<1.2	<1.2	<0.44	<0.63	NA	<1.2	NA	<2		<2				
heptachlor	NA	<0.63	<0.67	<1.2	<1.2	<0.44	<0.67	NA	<1.2	NA	<2		<2				
aldrin	NA	<5	<2.5	<1.2	<1.2	<0.44	<5	NA	<1.2	NA	<2		<2				
heptachlor epoxide	NA	<13	<0.90	<1.2	<1.2	<0.44	<13	NA	<1.2	NA	<2		<2				
oxychlordane	NA	<0.63	<0.56	<21	<1.2	<0.44	<0.63	NA	<21	NA	<2		2.59	0.20			
trans-chlordane	NA	<0.63	<6	1.90	2.20	2.30	<6	NA	2.13	9.76	1.65	0.51	<2				
2,4'-DDE	NA	<9.0	<11	<5.6	<5.1	<2.8	<11	NA	<5.6	NA	<2		**0.73**	**0.11**			
endosulfan I	NA	<0.63	<0.56	<1.2	<1.2	<0.44	<0.63	NA	<1.2	NA	<2		<2				
cis-chlordane	NA	<0.63	<0.56	<1.2	<1.2	<0.44	<0.63	NA	<1.2	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	NA	<1.8	<0.56	<3.3	<1.2	<0.44	<1.8	NA	<3.3	NA	0.49	0.41	**1.26**	**0.13**			
dieldrin	NA	4.30	6.00	1.50	<6.5	2.70	5.15	23.34	<6.5	NA	<2		1.26	0.37			1.6
4,4'-DDE	NA	9.30	11.0	6.60	3.10	5.50	10.2	11.8	5.07	35.32	6.86	0.94	**6.59**	**0.56**	1.9	1.7	0.8
2,4'-DDD	NA	<16	<16	<1.2	<1.2	<0.44	<16	NA	<1.2	NA	7.15	1.57	<2				
endrin	NA	<0.63	<0.56	<1.2	<1.2	<0.44	<0.63	NA	<1.2	NA	<2		<2				
endosulfan II	NA	<0.63	<0.56	<1.2	<1.2	<0.44	<0.63	NA	<1.2	NA	<2		<2				
4,4'-DDD	NA	10.0	18.0	6.60	7.90	8.70	14.0	40.4	7.73	13.71	17.3	3.0	**5.06**	**0.56**	-0.8	-0.5	2.7
2,4'-DDT	NA	<0.63	<6.3	<1.2	<1.2	<0.44	<6.3	NA	<1.2	NA	5.14	1.00	<2				
cis-nonachlor	NA	<0.63	<.56	<1.2	<1.2	<0.44	<0.63	NA	<1.2	NA	1.63	1.07	<2				
4,4'-DDT	NA	<5	<8.1	<8.0	1.40	<4.1	<8.1	NA	<8.0	NA	19.4	2.6	1.25	0.10			
mirex	NA	<0.63	<0.56	<1.2	<1.2	<0.44	<0.63	NA	<1.2	NA	<2		<2				

Laboratory: 10
Pesticides in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	3	14
Qualitative	19	86
Not Determined	0	0

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 10
Reporting Date: 10/30/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	see above S 1	see above S 2	see above S 3	see above S 1	see above S 2	see above 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	<1	<0.56	1.80	1.50	0.820	<1	NA	1.37	36.56	2.04	1.39	1.39	0.19			
PCB 18	NA	2.20	2.10	2.40	1.70	2.00	2.15	3.29	2.03	17.27	3.61	0.68	1.15	0.16	-1.6	-1.0	0.2
PCB 28	NA	2.50	2.90	3.40	2.70	3.90	2.70	10.48	3.33	18.08	4.95	0.79	9.80	3.70	-1.8	-1.3	0.7
PCB 52	NA	30.0	36.0	3.90	3.00	6.60	33.0	12.9	4.50	41.63	15.6	3.4	**6.89**	**0.56**	**4.4**	2.8	0.9
PCB 44	NA	11.0	10.0	3.00	1.90	2.80	10.5	6.7	2.57	22.83	7.90	1.42	**4.80**	**0.62**	1.3	0.9	0.4
PCB 66/95	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	NA	93.0	130	8.00	6.50	11.0	112	23	8.50	26.96	33.3	6.4	**11.0**	**1.6**	**9.4**	**5.7**	1.6
PCB 118	NA	66.0	81.0	4.70	4.30	5.70	73.5	14.4	4.90	14.72	29.7	5.6	**10.0**	**1.1**	**5.9**	**3.7**	1.0
PCB 153	NA	98.0	140	9.9	7.9	15.0	119	25	10.9	33.5	50.6	11.8	**17.6**	**1.9**	**5.4**	2.7	1.7
PCB 105	NA	20.0	12.0	2.20	1.60	1.00	16.0	35.4	1.60	37.50	11.9	1.9	**3.65**	**0.27**	1.4	1.1	2.4
PCB 138/163/164	NA	<25	<6	5.60	4.30	7.80	<25	NA	5.90	29.99	44.9	8.7	**13.38**	**0.97**			
PCB 187/182	NA	18.0	22.0	3.80	3.50	2.30	20.0	14.1	3.20	24.80	11.5	2.2	7.0	2.6	3.0	1.7	0.9
PCB 128	NA	9.30	7.80	1.90	1.60	0.820	8.55	12.41	1.44	38.71	8.22	1.54	**1.87**	**0.32**	0.2	0.1	0.8
PCB 180	NA	38.0	58.0	6.10	5.10	8.50	48.0	29.5	6.57	26.61	21.7	8.6	**5.83**	**0.58**	**4.8**	2.4	2.0
PCB 170/190	NA	22.0	25.0	2.90	4.30	2.70	23.5	9.0	3.30	26.42	12.6	3.0	**3.00**	**0.46**	**3.4**	2.1	0.6
PCB 195	NA	1.40	1.50	1.20	<1.2	<0.44	1.45	4.88	<1.2	NA	2.61	0.61	<3		-1.8	-1.0	0.3
PCB 206	NA	2.50	3.10	3.20	2.80	2.70	2.80	15.15	2.90	9.12	3.30	0.67	**3.67**	**0.87**	-0.6	-0.4	1.0
PCB 209	NA	1.40	1.60	8.00	6.50	12.0	1.50	9.43	8.83	32.19	2.33	0.66	**8.34**	**0.49**	-1.4	-0.7	0.6
PCB 66	NA	9.60	10.0	4.20	3.20	4.10	9.80	2.89	3.83	14.37	8.85	2.51	**6.8**	**1.4**	0.4	0.3	0.2
PCB 95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: **10**
PCBs in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	15	83
Qualitative	2	11
Not Determined	1	6

Category	Number by Category: z (25%)	z (s)	p (15%)
≤ 2	8	9	14
2 to 3	1	4	1
≥ 3	6	2	0

Water in Sediment VIII

	Sediment VIII, %: S 1	S 2	S 3	lab: mean, %	%RSD	Sediment VIII, %: assigned	95% CL	exercise, %: mean	95% CL	Sediment VIII: z (25%)	z (s)	p (15%)
water	NA	44.6	44.6	44.6	0.0	44.9	1.3	44.9	1.3	0.0	-0.1	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 11

Reporting Date: 11/1/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	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	107	15	**1010**	**140**			
2-methylnaphthalene							NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene							NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl							NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene							NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene							NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene							NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	27.2	7.4	48	10			
fluorene							NA	NA	NA	NA	67.9	11.1	**97.3**	**8.6**			
phenanthrene							NA	NA	NA	NA	604	63	**489**	**23**			
anthracene							NA	NA	NA	NA	183	27	**184**	**14**			
1-methylphenanthrene							NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene							NA	NA	NA	NA	1293	166	**981**	**78**			
pyrene							NA	NA	NA	NA	1367	175	**811**	**24**			
benz[a]anthracene							NA	NA	NA	NA	551	48	**427**	**25**			
chrysene + triphenylene							NA	NA	NA	NA	944	115	577	35			
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	2110	316	1441	150			
benzo[e]pyrene							NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene							NA	NA	NA	NA	832	98	**628**	**52**			
perylene							NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	710	102	**501**	**72**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	161	23	**117**	**14**			
benzo[ghi]perylene							NA	NA	NA	NA	683	104	**525**	**67**			

Laboratory: 11
PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 11

Reporting Date: 11/1/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	[illegible] S 1	[illegible] S 2	[illegible] S 3	[illegible] 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	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		<2				
hexachlorobenzene	<2.0	<2.0	<2.0	45.0			<2.0	NA	45.0	ND	<3		**70**	**25**			
gamma-HCH	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		<2				
heptachlor	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		<2				
aldrin	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		<2				
heptachlor epoxide	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		<2				
oxychlordane	<2.0	<2.0	<2.0	1.20			<2.0	NA	1.20	ND	<2		2.59	0.20			
trans-chlordane	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	1.65	0.51	<2				
2,4'-DDE	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		**0.73**	**0.11**			
endosulfan I	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		<2				
cis-chlordane	<2.0	<2.0	<2.0	1.20			<2.0	NA	1.20	ND	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	<2.0	<2.0	<2.0	1.10			<2.0	NA	1.10	ND	0.489	0.412	**1.26**	**0.13**			
dieldrin	<2.0	<2.0	<2.0	1.90			<2.0	NA	1.90	ND	<2		1.26	0.37			
4,4'-DDE	9.19	8.00	4.43	5.00			7.21	34.37	5.00	ND	6.86	0.94	**6.59**	**0.56**	0.2	0.2	2.3
2,4'-DDD	9.13	9.72	6.94	2.00			8.60	17.04	2.00	ND	7.15	1.57	<2		0.8	0.7	1.1
endrin	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		<2				
endosulfan II	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		<2				
4,4'-DDD	29.5	22.5	10.0	6.16			20.7	47.8	6.16	ND	17.3	3.0	**5.06**	**0.56**	0.8	0.5	3.2
2,4'-DDT	<2.0	3.78	2.00	<2.0			<3.78	NA	<2.0	NA	5.14	1.00	<2				
cis-nonachlor	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	1.63	1.07	<2				
4,4'-DDT	15.0	18.6	10.0	<2.0			14.5	29.7	<2.0	NA	19.4	2.6	1.25	0.10	-1.0	-1.1	2.0
mirex	<2.0	<2.0	<2.0	<2.0			<2.0	NA	<2.0	NA	<2		<2				

Laboratory: 11
Pesticides in Sediment VIII

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

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 11
Reporting Date: 11/1/98

PCBs

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	9/20/98 S 1	9/20/98 S 2	9/20/98 S 3	9/20/98 S 1	9/20/98 S 2	9/20/98 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	<2.0	<2.0	<2.0	<2.0	___	___	<2.0	NA	<2.0	NA	2.04	1.39	1.39	0.19			
PCB 18	<2.0	2.7	<2.0	<2.0	___	___	<2.66	NA	<2.0	NA	3.61	0.68	1.15	0.16			
PCB 28	5.57	5.96	2.10	6.50	___	___	4.54	46.77	6.50	ND	4.95	0.79	9.8	3.7	-0.3	-0.2	3.1
PCB 52	<2.0	<2.0	<2.0	9.90	___	___	<2.0	NA	9.90	ND	15.6	3.4	**6.89**	**0.56**			
PCB 44	9.74	7.23	6.78	6.10	___	___	7.92	20.15	6.10	ND	7.90	1.42	**4.80**	**0.62**	0.0	0.0	1.3
PCB 66/95	12.6	14.4	11.8	14.9	___	___	12.9	10.3	14.9	ND	16.7	7.5	**14.3**	**2.5**	-0.9	-0.4	0.7
PCB 101/90	12.0	10.8	13.3	12.6	___	___	12.0	10.4	12.6	ND	33.3	6.4	**11.0**	**1.6**	-2.6	-1.6	0.7
PCB 118	29.2	31.4	26.3	9.49	___	___	29.0	8.8	9.49	ND	29.7	5.6	**10.0**	**1.1**	-0.1	-0.1	0.6
PCB 153	40.5	43.5	30.4	16.0	___	___	38.1	18.0	16.0	ND	50.6	11.8	**17.6**	**1.9**	-1.0	-0.5	1.2
PCB 105	10.1	9.81	8.60	3.17	___	___	9.50	8.37	3.17	ND	11.9	1.9	**3.65**	**0.27**	-0.8	-0.6	0.6
PCB 138/163/164	48.0	54.4	40.2	16.3	___	___	47.5	14.9	16.3	ND	44.9	8.7	**13.38**	**0.97**	0.2	0.2	1.0
PCB 187/182	14.0	15.7	12.6	6.45	___	___	14.1	11.0	6.45	ND	11.5	2.2	7.0	2.6	0.9	0.5	0.7
PCB 128	8.92	10.2	7.44	1.81	___	___	8.85	15.60	1.81	ND	8.22	1.54	**1.87**	**0.32**	0.3	0.2	1.0
PCB 180	22.0	26.1	19.4	8.15	___	___	22.5	15.0	8.15	ND	21.7	8.6	**5.83**	**0.58**	0.1	0.1	1.0
PCB 170/190	14.5	17.0	12.5	3.58	___	___	14.7	15.4	3.58	ND	12.6	3.0	**3.00**	**0.46**	0.6	0.4	1.0
PCB 195	3.68	4.21	3.08	<2.0	___	___	3.66	15.46	<2.0	NA	2.61	0.61	<3		1.6	0.9	1.0
PCB 206	<2.0	<2.0	<2.0	<2.0	___	___	<2.0	NA	<2.0	NA	3.30	0.67	**3.67**	**0.87**			
PCB 209	3.81	3.38	2.80	8.57	___	___	3.33	15.22	8.57	ND	2.33	0.66	**8.34**	**0.49**	1.7	0.8	1.0
PCB 66	___	___	___	___	___	___	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	___	___	___	___	___	___	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 11
PCBs in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	14	78
Qualitative	4	22
Not Determined	0	0

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

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.2	42.2	45.1	44.2	3.9	44.9	1.3	44.9	1.3	-0.1	-0.2	0.3

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 12

Reporting Date: 10/29/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	07&15/199 S 1	07&15/199 S 2	07&15/199 S 3	07&15/199 S 1	07&15/199 S 2	07&15/199 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	103	89.9	88.8	661	666	620	93.9	8.4	649	4	107	15	**1010**	**140**	-0.5	-0.5	0.6
2-methylnaphthalene	93.4	87.3	85.6	285	363	281	88.8	4.6	310	15	77.4	10.2	325	60	0.6	0.6	0.3
1-methylnaphthalene	49.6	53.4	52.6	131	164	127	51.9	3.9	141	14	50.7	7.3	150	30	0.1	0.1	0.3
biphenyl	31.3	30.9	27.2	74.3	104	67.4	29.8	7.6	81.9	23.7	36.6	13.5	175	18	-0.7	-0.5	0.5
2,6-dimethylnaphthalene	61.2	58.0	55.9	126	178	119	58.4	4.6	141	23	51.2	8.9	120	24	0.6	0.5	0.3
acenaphthylene	54.8	40.0	41.3	53.6	77.6	47.5	45.4	18.1	59.6	26.7	50.2	22.6	37	14	-0.4	-0.2	1.2
acenaphthene	36.0	39.8	41.5	24.8	41.9	30.4	39.1	7.2	32.4	26.9	38.2	3.9	41	10	0.1	0.1	0.5
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	77.6	70.0	77.9	67.2	91.4	61.7	75.2	6.0	73.4	21.5	67.9	11.1	**97.3**	**8.6**	0.4	0.4	0.4
phenanthrene	743	624	648	446	626	443	672	9	505	20.8	604	63	**489**	**23**	0.4	0.5	0.6
anthracene	198	154	145	174	263	168	166	17	202	26.4	183	27	**184**	**14**	-0.4	-0.3	1.1
1-methylphenanthrene	114	86.1	110	98.0	126	100	103	15	108	14.5	87.3	13.4	101	27	0.7	0.7	1.0
fluoranthene	2353	1598	2053	786	1117	835	2001	19	913	19.6	1293	166	**981**	**78**	2.2	1.9	1.3
pyrene	2401	1673	2092	618	903	680	2055	18	734	20.4	1367	175	**811**	**24**	2.0	1.8	1.2
benz[a]anthracene	621	583	509	371	392	344	571	10	369	6.5	551	48	**427**	**25**	0.1	0.2	0.7
chrysene + triphenylene	1721	1144	1651	354	320	317	1505	21	330	6.2	944	115	577	35	2.4	2.3	1.4
benzofluoranthenes [b+j+k]	3240	1783	3261	1297	1138	1232	2761	31	1222	6.5	2110	316	1441	150	1.2	1.0	2.0
benzo[e]pyrene	1575	1103	1562	572	591	563	1413	19	575	2.5	805	103	**553**	**59**	3.0	**3.3**	1.3
benzo[a]pyrene	1515	1009	1013	471	513	474	1179	25	486	4.8	832	98	**628**	**52**	1.7	1.7	1.6
perylene	256	271	245	349	401	347	257	5	366	8.4	248	26	**452**	**58**	0.1	0.2	0.3
indeno[1,2,3-cd]pyrene	1309	622	1267	455	426	500	1066	36	460	8.1	710	102	**501**	**72**	2.0	1.6	2.4
dibenz[a,h]anthracene + [a,c]	185	182	193	139	142	157	187	3	146	6.6	161	23	**117**	**14**	0.6	0.6	0.2
benzo[ghi]perylene	1200	838	1178	459	451	457	1072	19	456	0.9	683	104	**525**	**67**	2.3	1.7	1.3

Laboratory: 12
PAH in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	22	96
Qualitative	0	0
Not Determined	1	4

Category	Number by Category: z (25%)	z (s)	p (15%)
≤ 2	16	20	20
2 to 3	5	1	2
≥ 3	1	1	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise **Laboratory No.: 12**

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant) Reporting Date: 10/29/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	NA S 1	NA S 2	NA 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%)
alpha-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
heptachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.65	0.51	<2				
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
cis-chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		1.26	0.37			
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.9	0.9	**6.59**	**0.56**			
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.15	1.57	<2				
endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.3	3.0	**5.06**	**0.56**			
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.14	1.00	<2				
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.4	2.6	1.25	0.10			
mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				

Laboratory: 12
Pesticides in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 12
Reporting Date: 10/29/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/11/98 S 1	10/11/98 S 2	10/11/98 S 3	10/11/98 S 1	10/11/98 S 2	10/11/98 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	2.04	1.89	1.98	3.07	2.89	2.53	1.97	3.83	2.83	9.72	2.04	1.39	1.39	0.19	-0.1	0.0	0.3
PCB 18	5.29	2.99	2.98	3.57	2.65	2.71	3.75	35.46	2.98	17.29	3.61	0.68	1.15	0.16	0.2	0.1	2.4
PCB 28	8.99	7.95	8.55	10.3	8.87	9.72	8.50	6.14	9.64	7.65	4.95	0.79	9.80	3.70	2.9	2.1	0.4
PCB 52	22.9	18.8	24.3	8.47	7.22	9.07	22.0	13.0	8.25	11.44	15.6	3.4	**6.89**	**0.56**	1.6	1.0	0.9
PCB 44	11.9	9.7	11.9	5.39	4.61	5.33	11.2	11.4	5.11	8.49	7.90	1.42	**4.80**	**0.62**	1.7	1.1	0.8
PCB 66/95	*	*	*	*	*	*	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	42.0	34.7	43.3	10.1	8.87	9.52	40.0	11.5	9.49	6.43	33.3	6.4	**11.0**	**1.6**	0.8	0.5	0.8
PCB 118	30.1	26.2	32.2	7.26	6.62	7.70	29.5	10.3	7.19	7.55	29.7	5.6	**10.0**	**1.1**	0.0	0.0	0.7
PCB 153	48.3	42.6	48.0	12.9	12.1	12.2	46.3	7.0	12.4	3.8	50.6	11.8	**17.6**	**1.9**	-0.3	-0.2	0.5
PCB 105	12.0	11.4	13.8	3.18	2.81	3.33	12.4	10.2	3.11	8.62	11.9	1.9	**3.65**	**0.27**	0.2	0.1	0.7
PCB 138/163/164	43.7	35.7	58.3	12.0	11.3	11.6	45.9	25.0	11.6	3.0	44.9	8.7	**13.38**	**0.97**	0.1	0.1	1.7
PCB 187/182	10.0	8.92	11.2	4.66	4.24	4.70	10.1	11.5	4.53	5.62	11.5	2.2	7.0	2.6	-0.5	-0.3	0.8
PCB 128	7.59	6.18	7.69	1.54	1.22	1.42	7.15	11.80	1.39	11.60	8.22	1.54	**1.87**	**0.32**	-0.5	-0.3	0.8
PCB 180	19.8	16.9	19.9	7.65	6.66	7.14	18.8	9.1	7.15	6.92	21.7	8.6	**5.83**	**0.58**	-0.5	-0.3	0.6
PCB 170/190	14.4	10.1	15.3	4.15	3.15	4.09	13.3	20.8	3.80	14.77	12.6	3.0	**3.00**	**0.46**	0.2	0.1	1.4
PCB 195	2.37	1.42	1.87	< 1	< 1	< 1	1.89	25.19	<1	NA	2.61	0.61	<3		-1.1	-0.6	1.7
PCB 206	2.51	2.14	2.75	3.88	2.74	3.33	2.47	12.46	3.32	17.19	3.30	0.67	**3.67**	**0.87**	-1.0	-0.7	0.8
PCB 209	1.85	1.32	1.95	9.46	8.50	8.66	1.71	19.84	8.87	5.80	2.33	0.66	**8.34**	**0.49**	-1.1	-0.5	1.3
PCB 66	9.61	9.97	11.9	6.65	6.33	6.62	10.5	11.5	6.53	2.71	8.85	2.51	**6.8**	**1.4**	0.7	0.5	0.8
PCB 95	36.3	29.7	36.0	8.06	6.72	7.31	34.0	10.9	7.36	9.12	20.2	8.1	**7.5**	**1.1**	2.7	1.8	0.7

Laboratory: 12
PCBs in Sediment VIII

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	16	16	16
2 to 3	1	1	1
≥ 3	0	0	0

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.2	41.2	46.8	44.4	6.5	44.9	1.3	44.9	1.3	0.0	-0.2	0.4

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 14
Reporting Date: 10/27/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	5/16/98 S 1	5/16/98 S 2	5/15/98 S 3	5/16/98 S 1	5/16/98 S 2	5/15/98 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	120	118	122	1020	1010	1010	120	2	1013	1	107	15	**1010**	**140**	0.5	0.4	0.1
2-methylnaphthalene	81.8	81.0	83.6	333	316	311	82.1	1.6	320	4	77.4	10.2	325	60	0.2	0.2	0.1
1-methylnaphthalene	54.6	54.2	57.5	167	152	155	55.4	3.2	158	5	50.7	7.3	150	30	0.4	0.4	0.2
biphenyl	30.6	31.6	31.9	89.6	89.6	85.5	31.4	2.2	88.2	2.7	36.6	13.5	175	18	-0.6	-0.4	0.1
2,6-dimethylnaphthalene	61.3	62.2	60.1	157	154	149	61.2	1.7	153	3	51.2	8.9	120	24	0.8	0.7	0.1
acenaphthylene	28.7	28.6	31.7	51.2	50.1	48.4	29.7	5.9	49.9	2.8	50.2	22.6	37	14	-1.6	-0.8	0.4
acenaphthene	51.6	45.8	46.8	42.2	45.6	39.0	48.1	6.5	42.3	7.8	38.2	3.9	41	10	1.0	1.3	0.4
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	89.6	84.2	80.7	93.4	94.8	89.0	84.8	5.3	92.4	3.3	67.9	11.1	**97.3**	**8.6**	1.0	0.9	0.4
phenanthrene	827	771	776	540	545	535	791	4	540	0.9	604	63	**489**	**23**	1.2	1.5	0.3
anthracene	180	171	177	198	208	199	176	3	202	2.7	183	27	**184**	**14**	-0.1	-0.1	0.2
1-methylphenanthrene	120	112	118	95.7	95.7	93.6	117	4	95.0	1.3	87.3	13.4	101	27	1.3	1.3	0.2
fluoranthene	1890	1770	1790	994	992	1050	1817	4	1012	3.3	1293	166	**981**	**78**	1.6	1.4	0.2
pyrene	1950	1820	1810	803	826	858	1860	4	829	3.3	1367	175	**811**	**24**	1.4	1.3	0.3
benz[a]anthracene	694	661	630	446	400	436	662	5	427	5.7	551	48	**427**	**25**	0.8	1.0	0.3
chrysene + triphenylene	1140	1100	1090	587	563	567	1110	2	572	2.2	944	115	577	35	0.7	0.7	0.2
benzofluoranthenes [b+j+k]	2550	2510	2420	1330	1250	1270	2493	3	1283	3.2	2110	316	1441	150	0.7	0.6	0.2
benzo[e]pyrene	1040	1030	999	543	516	527	1023	2	529	2.6	805	103	**553**	**59**	1.1	1.2	0.1
benzo[a]pyrene	939	941	912	624	589	578	931	2	597	4.0	832	98	**628**	**52**	0.5	0.5	0.1
perylene	287	291	276	465	437	425	285	3	442	4.6	248	26	**452**	**58**	0.6	0.7	0.2
indeno[1,2,3-cd]pyrene	931	934	905	539	513	507	923	2	520	3.3	710	102	**501**	**72**	1.2	1.0	0.1
dibenz[a,h]anthracene + [a,c]	189	203	191	116	105	109	194	4	110	5.1	161	23	**117**	**14**	0.8	0.8	0.3
benzo[ghi]perylene	908	902	874	529	505	506	895	2	513	2.6	683	104	**525**	**67**	1.2	0.9	0.1

Laboratory: 14
PAH in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	22	96
Qualitative	0	0
Not Determined	1	4

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 14
Reporting Date: 10/27/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	8/15/98 S 1	8/15/98 S 2	8/16/98 S 3	8/15/98 S 1	8/15/98 S 2	8/16/98 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	NA	NA	<2		<2				
hexachlorobenzene	0.304	0.303	0.259	78.3	80.3	77.8	0.289	8.902	78.8	1.7	<3		**70**	**25**			0.6
gamma-HCH	0.903	0.849	0.900	0.940	1.10	1.12	0.884	3.433	1.05	9.37	<2		<2				0.2
heptachlor	0.709	0.766	0.812	1.02	1.61	1.34	0.762	6.768	1.32	22.32	<2		<2				0.5
aldrin	<0.154	<0.142	<0.149	<0.424	<0.589	<0.682	<0.154	NA	<0.682	NA	<2		<2				
heptachlor epoxide	<0.261	<0.241	<0.254	<0.72	<1	<1.16	<0.261	NA	<1.16	NA	<2		<2				
oxychlordane	<0.172	<0.159	<0.167	<0.474	<0.66	<0.763	<0.172	NA	<0.763	NA	<2		2.59	0.20			
trans-chlordane	2.16	2.08	2.18	1.38	1.26	1.11	2.14	2.47	1.25	10.82	1.65	0.51	<2		1.2	1.2	0.2
2,4'-DDE	2.51	2.28	2.33	<1.48	<2.06	<2.39	2.37	5.10	<2.39	NA	<2		**0.73**	**0.11**			0.3
endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
cis-chlordane	1.70	1.55	1.71	2.91	2.85	2.79	1.65	5.42	2.85	2.11	1.78	1.32	**2.33**	**0.56**	-0.3	-0.2	0.4
trans-nonachlor	0.647	0.523	0.575	1.93	1.60	1.60	0.582	10.705	1.71	11.14	0.489	0.412	**1.26**	**0.13**	0.8	0.4	0.7
dieldrin	0.606	0.698	0.715	2.29	2.46	1.93	0.673	8.714	2.23	12.15	<2		1.26	0.37			0.6
4,4'-DDE	4.61	4.13	4.03	5.14	5.28	5.17	4.26	7.28	5.20	1.42	6.86	0.94	**6.59**	**0.56**	-1.5	-1.3	0.5
2,4'-DDD	9.25	9.41	9.73	3.91	4.34	3.98	9.46	2.58	4.08	5.66	7.15	1.57	<2		1.3	1.1	0.2
endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				
4,4'-DDD	18.2	19.0	18.7	5.04	5.18	5.05	18.6	2.2	5.09	1.53	17.3	3.0	**5.06**	**0.56**	0.3	0.2	0.1
2,4'-DDT	4.70	4.98	5.07	<0.541	<0.752	<0.87	4.92	3.92	<0.87	NA	5.14	1.00	<2		-0.2	-0.1	0.3
cis-nonachlor	<0.119	<0.11	<0.116	1.34	1.03	1.38	<0.119	NA	1.25	15.33	1.63	1.07	<2				
4,4'-DDT	17.2	19.8	19.0	0.975	1.23	1.89	18.7	7.1	1.37	34.59	19.4	2.6	1.25	0.10	-0.1	-0.2	0.5
mirex	0.713	0.687	0.735	1.15	1.27	1.18	0.712	3.376	1.20	5.20	<2		<2				0.2

Laboratory: 14
Pesticides in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	14	64
Qualitative	4	18
Not Determined	4	18

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 14

Reporting Date: 10/27/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	8/15/98 S 1	8/15/98 S 2	8/15/98 S 3	8/15/98 S 1	8/15/98 S 2	8/16/98 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	NA	NA	2.04	1.39	1.39	0.19			
PCB 18	3.41	3.56	3.50	4.59	5.64	5.74	3.49	2.16	5.32	11.97	3.61	0.68	1.15	0.16	-0.1	-0.1	0.1
PCB 28	4.31	4.32	4.45	6.85	7.50	7.53	4.36	1.79	7.29	5.27	4.95	0.79	9.8	3.7	-0.5	-0.3	0.1
PCB 52	20.8	19.1	19.2	10.8	11.2	10.8	19.7	4.8	10.9	2.1	15.6	3.4	**6.89**	**0.56**	1.0	0.6	0.3
PCB 44	4.96	4.89	4.77	4.52	5.05	4.94	4.87	1.97	4.84	5.78	7.90	1.42	**4.80**	**0.62**	-1.5	-1.0	0.1
PCB 66/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	40.9	37.3	37.8	16.9	17.8	18.0	38.7	5.0	17.6	3.3	33.3	6.4	**11.0**	**1.6**	0.6	0.4	0.3
PCB 118	28.9	26.9	27.1	9.53	10.1	9.91	27.6	4.0	9.85	2.95	29.7	5.6	**10.0**	**1.1**	-0.3	-0.2	0.3
PCB 153	54.9	50.6	50.7	19.0	20.2	21.0	52.1	4.7	20.1	5.0	50.6	11.8	**17.6**	**1.9**	0.1	0.1	0.3
PCB 105	13.4	12.9	12.8	3.15	3.35	3.50	13.0	2.5	3.33	5.27	11.9	1.9	**3.65**	**0.27**	0.4	0.3	0.2
PCB 138/163/164	48.9	45.5	42.9	13.6	16.6	14.4	45.8	6.6	14.9	10.4	44.9	8.7	**13.38**	**0.97**	0.1	0.1	0.4
PCB 187/182	11.9	12.2	11.6	4.65	4.52	4.22	11.9	2.5	4.46	4.94	11.5	2.2	7.0	2.6	0.1	0.1	0.2
PCB 128	4.66	4.19	4.39	1.49	1.09	1.65	4.41	5.34	1.41	20.46	8.22	1.54	**1.87**	**0.32**	-1.9	-1.2	0.4
PCB 180	17.2	17.8	16.6	5.96	6.53	6.27	17.2	3.5	6.25	4.56	21.7	8.6	**5.83**	**0.58**	-0.8	-0.4	0.2
PCB 170/190	10.1	8.90	9.43	3.57	3.90	3.99	9.48	6.35	3.82	5.79	12.6	3.0	**3.00**	**0.46**	-1.0	-0.6	0.4
PCB 195	1.61	1.58	1.53	0.48	0.57	<0.598	1.57	2.57	<0.598	NA	2.61	0.61	<3		-1.6	-0.9	0.2
PCB 206	2.83	2.48	2.40	3.25	3.53	3.37	2.57	8.90	3.38	4.15	3.30	0.67	**3.67**	**0.87**	-0.9	-0.6	0.6
PCB 209	3.26	3.51	3.42	11.1	11.8	10.7	3.40	3.73	11.2	5.0	2.33	0.66	**8.34**	**0.49**	1.8	0.9	0.2
PCB 66	5.28	5.99	6.41	7.81	7.85	7.60	5.89	9.69	7.75	1.73	8.85	2.51	**6.8**	**1.4**	-1.3	-0.8	0.6
PCB 95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 14

PCBs in Sediment VIII

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

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

Water in Sediment VIII

	Sediment VIII, %: S 1	S 2	S 3	lab: mean, %	%RSD	Sediment VIII, %: assigned	95% CL	exercise, %: mean	95% CL	Sediment VIII: z (25%)	z (s)	p (15%)
water	45.8	45.5	45.3	45.5	0.6	44.9	1.3	44.9	1.3	0.1	0.2	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 15
Reporting Date: 10/30/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	NA S 1	NA S 2	NA 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%)
naphthalene	NA	NA	NA	NA			NA	NA	NA	NA	107	15	**1010**	**140**			
2-methylnaphthalene	NA	NA	NA	NA			NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene	NA	NA	NA	NA			NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	NA	NA	NA	NA			NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	NA	NA	NA	NA			NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene	NA	NA	NA	NA			NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene	NA	NA	NA	NA			NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene	NA	NA	NA	NA			NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	NA	NA	NA	NA			NA	NA	NA	NA	67.9	11.1	**97.3**	**8.6**			
phenanthrene	NA	NA	NA	NA			NA	NA	NA	NA	604	63	**489**	**23**			
anthracene	NA	NA	NA	NA			NA	NA	NA	NA	183	27	**184**	**14**			
1-methylphenanthrene	NA	NA	NA	NA			NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene	NA	NA	NA	NA			NA	NA	NA	NA	1293	166	**981**	**78**			
pyrene	NA	NA	NA	NA			NA	NA	NA	NA	1367	175	**811**	**24**			
benz[a]anthracene	NA	NA	NA	NA			NA	NA	NA	NA	551	48	**427**	**25**			
chrysene + triphenylene	NA	NA	NA	NA			NA	NA	NA	NA	944	115	577	35			
benzofluoranthenes [b+j+k]	NA	NA	NA	NA			NA	NA	NA	NA	2110	316	1441	150			
benzo[e]pyrene	NA	NA	NA	NA			NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene	NA	NA	NA	NA			NA	NA	NA	NA	832	98	**628**	**52**			
perylene	NA	NA	NA	NA			NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene	NA	NA	NA	NA			NA	NA	NA	NA	710	102	**501**	**72**			
dibenz[a,h]anthracene + [a,c]	NA	NA	NA	NA			NA	NA	NA	NA	161	23	**117**	**14**			
benzo[ghi]perylene	NA	NA	NA	NA			NA	NA	NA	NA	683	104	**525**	**67**			

Laboratory: 15
PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 15
Reporting Date: 10/30/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 10/05/98 S 1	10/13/98 S 2	10/13/98 S 3	SRM 1941a, ng/g dry ____ S 1	____ S 2	____ S 3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	Sediment VIII 95% CL	SRM 1941a, ng/g dry target value[b]	SRM 1941a 95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	<0.9	<0.9	<0.9	____	____	____	0.9	NA	NA	NA	<2		<2				
hexachlorobenzene	Other	Other	Other	____	____	____	NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH	0.540	1.30	**	____	____	____	0.920	58.413	NA	NA	<2		<2				**3.9**
heptachlor	1.12	1.26	**	____	____	____	1.19	8.32	NA	NA	<2		<2				0.6
aldrin	<0.4	<0.4	**	____	____	____	<0.4	NA	NA	NA	<2		<2				
heptachlor epoxide	0.340	0.710	**	____	____	____	0.525	49.834	NA	NA	<2		<2				**3.3**
oxychlordane	<0.8	<0.8	**	____	____	____	<0.8	NA	NA	NA	<2		2.59	0.20			
trans-chlordane	0.210	0.390	**	____	____	____	0.300	42.426	NA	NA	1.65	0.51	<2		**-3.3**	**-3.3**	2.8
2,4'-DDE	5.45	4.80	**	____	____	____	5.13	8.97	NA	NA	<2		**0.73**	**0.11**			0.6
endosulfan I	0.210	0.390	**	____	____	____	0.300	42.426	NA	NA	<2		<2				2.8
cis-chlordane	3.27	1.90	**	____	____	____	2.59	37.48	NA	NA	1.78	1.32	**2.33**	**0.56**	1.8	1.0	2.5
trans-nonachlor	0.230	0.230	**	____	____	____	0.230	0.000	NA	NA	0.489	0.412	**1.26**	**0.13**	-2.1	-1.0	0.0
dieldrin	<1.3	<1.3	**	____	____	____	<1.3	NA	NA	NA	<2		1.26	0.37			
4,4'-DDE	9.80	5.80	**	____	____	____	7.80	36.26	NA	NA	6.86	0.94	**6.59**	**0.56**	0.5	0.5	2.4
2,4'-DDD	3.66	3.70	**	____	____	____	3.68	0.77	NA	NA	7.15	1.57	<2		-1.9	-1.6	0.1
endrin	10.0	5.48	**	____	____	____	7.74	41.29	NA	NA	<2		<2				2.8
endosulfan II	1.66	1.94	**	____	____	____	1.80	11.00	NA	NA	<2		<2				0.7
4,4'-DDD	10.1	12.6	**	____	____	____	11.4	15.6	NA	NA	17.3	3.0	**5.06**	**0.56**	-1.4	-1.0	1.0
2,4'-DDT	2.70	4.60	**	____	____	____	3.65	36.81	NA	NA	5.14	1.00	<2		-1.2	-1.0	2.5
cis-nonachlor	<0.3	<0.3	**	____	____	____	<0.3	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	7.50	14.5	**	____	____	____	11.0	45.0	NA	NA	19.4	2.6	1.25	0.10	-1.7	-2.0	3.0
mirex	0.490	1.58	**	____	____	____	1.04	74.47	NA	NA	<2		<2				5.0

Laboratory: 15
Pesticides in Sediment VIII

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	6	7	6
2 to 3	1	0	7
≥ 3	1	1	3

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 15
Reporting Date: 10/30/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	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	2.04	1.39	1.39	0.19			
PCB 18	2.31	4.41	**				3.36	44.19	NA	NA	3.61	0.68	1.15	0.16	-0.3	-0.2	2.9
PCB 28	10.1	11.1	**				10.6	6.7	NA	NA	4.95	0.79	**9.80**	**3.70**	**4.6**	**3.4**	0.4
PCB 52	19.3	13.6	**				16.5	24.5	NA	NA	15.6	3.4	**6.89**	**0.56**	0.2	0.1	1.6
PCB 44	7.59	7.40	**				7.50	1.79	NA	NA	7.90	1.42	**4.80**	**0.62**	-0.2	-0.1	0.1
PCB 66/95	3.11	27.5	**				15.3	112.7	NA	NA	16.7	7.5	**14.3**	**2.5**	-0.3	-0.1	7.5
PCB 101/90	39.9	27.9	**				33.9	25.0	NA	NA	33.3	6.4	**11.0**	**1.6**	0.1	0.0	1.7
PCB 118	27.3	22.3	**				24.8	14.3	NA	NA	29.7	5.6	**10.0**	**1.1**	-0.7	-0.4	1.0
PCB 153	41.0	27.8	**				34.4	27.1	NA	NA	50.6	11.8	**17.6**	**1.9**	-1.3	-0.6	1.8
PCB 105	23.8	21.0	**				22.4	8.8	NA	NA	11.9	1.9	**3.65**	**0.27**	**3.5**	2.7	0.6
PCB 138/163/164	55.2	37.1	**				46.2	27.7	NA	NA	44.9	8.7	**13.38**	**0.97**	0.1	0.1	1.8
PCB 187/182	12.0	9.20	**				10.6	18.7	NA	NA	11.5	2.2	7.0	2.6	-0.3	-0.2	1.2
PCB 128	7.94	6.49	**				7.22	14.21	NA	NA	8.22	1.54	**1.87**	**0.32**	-0.5	-0.3	0.9
PCB 180	20.1	16.3	**				18.2	14.6	NA	NA	21.7	8.6	**5.83**	**0.58**	-0.6	-0.3	1.0
PCB 170/190	11.3	9.68	**				10.5	10.9	NA	NA	12.6	3.0	**3.00**	**0.46**	-0.7	-0.4	0.7
PCB 195	2.08	3.13	**				2.61	28.50	NA	NA	2.61	0.61	<3		0.0	0.0	1.9
PCB 206	2.03	1.92	**				1.98	3.94	NA	NA	3.30	0.67	**3.67**	**0.87**	-1.6	-1.1	0.3
PCB 209	1.26	2.80	**				2.03	53.64	NA	NA	2.33	0.66	**8.34**	**0.49**	-0.5	-0.2	3.6
PCB 66			**				NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95			**				NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 15
PCBs in Sediment VIII

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	15	15	14
2 to 3	0	1	1
≥ 3	2	1	2

Water in Sediment VIII

	Sediment VIII, %: S 1	S 2	S 3	lab: mean, %	%RSD	Sediment VIII, %: assigned	95% CL	exercise, %: mean	95% CL	Sediment VIII: z (25%)	z (s)	p (15%)
water	44.6	46.0	46.4	45.7	2.1	44.9	1.3	44.9	1.3	0.1	0.2	0.1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 16

Reporting Date: 10/29/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	7/29/98 S 1	7/29/98 S 2	7/29/98 S 3	7/29/98 S 1	7/29/98 S 2	7/29/98 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	101	88.7	85.8	908	918	806	91.9	9.0	877	7	107	15	**1010**	**140**	-0.6	-0.5	0.6
2-methylnaphthalene	76.4	67.5	65.3	327	338	291	69.7	8.4	319	8	77.4	10.2	325	60	-0.4	-0.4	0.6
1-methylnaphthalene	53.6	49.6	45.7	159	169	144	49.6	8.0	157	8	50.7	7.3	150	30	-0.1	-0.1	0.5
biphenyl	17.2	17.3	18.3	82.9	79.6	86.0	17.6	3.5	82.8	3.8	36.6	13.5	175	18	-2.1	-1.5	0.2
2,6-dimethylnaphthalene	33.9	34.7	36.4	131	127	130	35.0	3.6	130	2	51.2	8.9	120	24	-1.3	-1.1	0.2
acenaphthylene	71.7	73.3	72.7	80.3	77.1	86.6	72.5	1.1	81.3	6.0	50.2	22.6	37	14	1.8	0.8	0.1
acenaphthene	33.0	34.2	33.2	46.3	30.2	36.5	33.5	2.0	37.6	21.6	38.2	3.9	41	10	-0.5	-0.6	0.1
1,6,7-trimethylnaphthalene	26.7	30.9	28.1	55.6	47.4	56.5	28.6	7.6	53.2	9.4	27.2	7.4	48	10	0.2	0.2	0.5
fluorene	51.3	57.0	54.0	78.3	66.7	75.3	54.1	5.3	73.4	8.2	67.9	11.1	**97.3**	**8.6**	-0.8	-0.8	0.4
phenanthrene	393	389	399	455	419	403	394	1	426	6.3	604	63	**489**	**23**	-1.4	-1.7	0.1
anthracene	200	188	200	237	181	218	196	3	212	13.5	183	27	**184**	**14**	0.3	0.2	0.2
1-methylphenanthrene	72.5	73.2	76.6	90.8	83.5	96.4	74.1	3.0	90.2	7.2	87.3	13.4	101	27	-0.6	-0.6	0.2
fluoranthene	823	889	827	922	843	790	846	4	852	7.8	1293	166	**981**	**78**	-1.4	-1.2	0.3
pyrene	857	930	858	743	675	637	882	5	685	7.8	1367	175	**811**	**24**	-1.4	-1.3	0.3
benz[a]anthracene	450	524	461	499	412	379	478	8	430	14.4	551	48	**427**	**25**	-0.5	-0.7	0.6
chrysene + triphenylene	573	650	523	516	575	457	582	11	516	11.4	944	115	577	35	-1.5	-1.5	0.7
benzofluoranthenes [b+j+k]	1444	1432	1338	1530	1497	1204	1405	4	1411	12.7	2110	316	1441	150	-1.3	-1.1	0.3
benzo[e]pyrene	530	575	527	543	559	454	544	5	519	11.0	805	103	**553**	**59**	-1.3	-1.4	0.3
benzo[a]pyrene	668	747	655	561	567	477	690	7	535	9.4	832	98	**628**	**52**	-0.7	-0.7	0.5
perylene	159	163	135	329	320	271	152	10	307	10.3	248	26	**452**	**58**	-1.5	-1.8	0.7
indeno[1,2,3-cd]pyrene	797	716	802	645	627	571	772	6	614	6.3	710	102	**501**	**72**	0.3	0.3	0.4
dibenz[a,h]anthracene + [a,c]	175	149	164	118	101	105	163	8	108	8.2	161	23	**117**	**14**	0.0	0.0	0.5
benzo[ghi]perylene	618	666	600	543	519	441	628	5	501	10.7	683	104	**525**	**67**	-0.3	-0.2	0.4

Laboratory: 16
PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 16
Reporting Date: 10/29/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	7/24/98 S 1	9/11/98 S 2	8/4/98 S 3	7/24/98 S 1	9/11/98 S 2	8/4/98 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	0.340	0.494	0.655	0.00	0.00	2.31	0.496	31.707	<2.31	NA	<2		<2				2.1
hexachlorobenzene	0.168	0.107	0.067	64.7	70.0	59.2	0.114	44.429	64.6	8.4	<3		**70**	**25**			3.0
gamma-HCH	0.00	0.00	0.00	0.00	1.42	0.00	<	NA	<1.42	NA	<2		<2				
heptachlor	0.00	0.00	0.00	0.00	2.78	0.00	<	NA	<2.78	NA	<2		<2				
aldrin	0.00	0.00	0.00	0.00	0.00	0.00	<	NA	<	NA	<2		<2				
heptachlor epoxide	0.00	0.00	0.00	3.77	3.23	2.74	<	NA	3.25	15.79	<2		<2				
oxychlordane	3.03	1.34	1.04	4.59	1.36	1.33	1.80	59.47	2.43	77.17	<2		2.59	0.20			**4.0**
trans-chlordane	0.00	0.00	0.00	1.02	1.54	0.463	<	NA	1.01	53.50	1.65	0.51	<2				
2,4'-DDE	0.460	0.395	0.350	0.00	0.00	0.00	0.402	13.767	<	NA	<2		**0.73**	**0.11**			0.9
endosulfan I	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	NA	<2		<2				
cis-chlordane	0.00	0.00	0.00	1.82	3.50	1.55	<	NA	2.29	46.13	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	0.0216	0.00	0.0303	0.541	0.990	0.438	<0.03	NA	0.656	44.735	0.489	0.412	**1.26**	**0.13**			
dieldrin	1.59	2.16	1.95	3.15	3.32	2.60	1.90	15.08	3.02	12.38	<2		1.26	0.37			1.0
4,4'-DDE	6.84	7.17	7.31	6.08	5.08	5.39	7.11	3.43	5.52	9.33	6.86	0.94	**6.59**	**0.56**	0.1	0.1	0.2
2,4'-DDD	11.6	18.1	12.3	10.1	2.68	10.4	14.0	25.3	7.73	56.58	7.15	1.57	<2		**3.8**	**3.1**	1.7
endrin	0.695	0.210	0.471	0.00	0.00	0.00	0.459	52.954	<	NA	<2		<2				3.5
endosulfan II	4.52	6.14	6.11	5.35	0.911	8.27	5.59	16.57	4.84	76.51	<2		<2				1.1
4,4'-DDD	11.9	15.6	13.7	6.09	5.03	7.29	13.8	13.5	6.14	18.38	17.3	3.0	**5.06**	**0.56**	-0.8	-0.6	0.9
2,4'-DDT	5.07	7.09	7.12	0.00	0.134	0.00	6.42	18.30	<0.13	NA	5.14	1.00	<2		1.0	0.9	1.2
cis-nonachlor	1.39	1.60	1.72	1.04	1.23	1.01	1.57	10.61	1.09	10.96	1.63	1.07	<2		-0.1	-0.1	0.7
4,4'-DDT	13.2	21.0	19.1	0.00	0.500	0.00	17.8	22.9	<0.5	NA	19.4	2.6	1.25	0.10	-0.3	-0.4	1.5
mirex	0.00	0.102	0.210	0.00	0.165	0.00	<0.21	NA	<0.17	NA	<2		<2				

Laboratory: 16
Pesticides in Sediment VIII

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	5	5	9
2 to 3	0	0	2
≥ 3	1	1	2

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 16
Reporting Date: 10/29/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 7/24/98 S 1	7/24/98 S 2	7/24/98 S 3	SRM 1941a, ng/g dry 7/24/98 S 1	7/24/98 S 2	7/24/98 S 3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	Sediment VIII 95% CL	SRM 1941a, ng/g dry target value[b]	SRM 1941a 95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
PCB 8	1.26	0.980	1.13	5.37	6.67	2.87	1.12	12.38	4.97	38.86	2.04	1.39	1.39	0.19	-1.8	-0.6	0.8
PCB 18	4.30	5.85	3.21	16.4	7.98	8.37	4.45	29.77	10.9	43.4	3.61	0.68	1.15	0.16	0.9	0.6	2.0
PCB 28	3.26	3.18	2.76	11.6	11.6	7.38	3.06	8.81	10.2	23.8	4.95	0.79	9.8	3.7	-1.5	-1.1	0.6
PCB 52	11.9	12.8	12.3	10.3	12.6	9.26	12.4	3.8	10.7	16.0	15.6	3.4	**6.89**	**0.56**	-0.8	-0.5	0.3
PCB 44	6.12	6.21	6.31	5.41	4.82	4.74	6.21	1.49	4.99	7.31	7.90	1.42	**4.80**	**0.62**	-0.9	-0.6	0.1
PCB 66/95	6.31	8.16	6.87	15.2	22.6	7.0	7.11	13.35	14.9	52.4	16.7	7.5	**14.3**	**2.5**	-2.3	-0.9	0.9
PCB 101/90	28.7	30.9	30.1	16.0	16.0	11.6	29.9	3.6	14.5	17.6	33.3	6.4	**11.0**	**1.6**	-0.4	-0.2	0.2
PCB 118	19.1	20.7	19.5	7.04	11.9	7.32	19.8	4.0	8.75	31.10	29.7	5.6	**10.0**	**1.1**	-1.3	-0.8	0.3
PCB 153	44.2	39.2	43.2	15.0	19.6	13.5	42.2	6.3	16.0	20.0	50.6	11.8	**17.6**	**1.9**	-0.7	-0.3	0.4
PCB 105	7.04	9.52	7.90	2.07	0.00	3.21	8.15	15.41	1.76	92.46	11.9	1.9	**3.65**	**0.27**	-1.3	-0.9	1.0
PCB 138/163/164	33.5	34.5	33.6	12.2	15.2	14.5	33.9	1.7	13.9	10.9	44.9	8.7	**13.38**	**0.97**	-1.0	-0.6	0.1
PCB 187/182	7.15	9.11	7.22	7.46	8.80	9.26	7.83	14.22	8.50	11.00	11.5	2.2	7.0	2.6	-1.3	-0.7	0.9
PCB 128	6.87	6.41	7.47	2.88	2.05	3.64	6.92	7.72	2.86	27.82	8.22	1.54	**1.87**	**0.32**	-0.6	-0.4	0.5
PCB 180	15.0	18.2	13.3	9.06	11.9	8.28	15.5	15.9	9.73	19.34	21.7	8.6	**5.83**	**0.58**	-1.1	-0.6	1.1
PCB 170/190	93.5	154	140	84.7	24.8	102	129	25	70.4	57.3	12.6	3.0	**3.00**	**0.46**	**36.9**	**22.4**	1.6
PCB 195	1.93	2.00	1.93	2.57	2.40	2.20	1.95	1.89	2.39	7.94	2.61	0.61	<3		-1.0	-0.5	0.1
PCB 206	1.41	1.77	1.28	4.12	6.10	3.03	1.49	17.28	4.42	35.25	3.30	0.67	**3.67**	**0.87**	-2.2	-1.5	1.2
PCB 209	3.98	1.08	1.23	9.54	9.56	9.61	2.10	77.66	9.57	0.36	2.33	0.66	**8.34**	**0.49**	-0.4	-0.2	5.2
PCB 66							NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95							NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 16
PCBs in Sediment VIII

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	15	17	17
2 to 3	2	0	0
≥ 3	1	1	1

Water in Sediment VIII

	Sediment VIII, % S 1	S 2	S 3	lab mean, %	lab %RSD	Sediment VIII, % assigned	Sediment VIII 95% CL	exercise, % mean	exercise 95% CL	Sediment VIII z (25%)	z (s)	p (15%)
water	43.8	44.7	44.0	44.2	1.1	44.9	1.3	44.9	1.3	-0.1	-0.2	0.1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 17

Reporting Date: 10/30/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/29/98 S 1	10/29/98 S 2	10/29/98 S 3	10/29/98 S 1	10/29/98 S 2	10/29/98 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	na	na	107	15	**1010**	**140**			
2-methylnaphthalene	na	na	na	na	na	na	na	na	na	na	77.4	10.2	325	60			
1-methylnaphthalene	na	na	na	na	na	na	na	na	na	na	50.7	7.3	150	30			
biphenyl	na	na	na	na	na	na	na	na	na	na	36.6	13.5	175	18			
2,6-dimethylnaphthalene	na	na	na	na	na	na	na	na	na	na	51.2	8.9	120	24			
acenaphthylene	na	na	na	na	na	na	na	na	na	na	50.2	22.6	37	14			
acenaphthene	na	na	na	na	na	na	na	na	na	na	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene	na	na	na	na	na	na	na	na	na	na	27.2	7.4	48	10			
fluorene	na	na	na	na	na	na	na	na	na	na	67.9	11.1	**97.3**	**8.6**			
phenanthrene	301	381	373	429	417	442	352	13	429	3	604	63	**489**	**23**	-1.7	-2.0	0.8
anthracene	66.0	86.0	79.0	159	159	162	77.0	13.2	160	1	183	27	**184**	**14**	-2.3	-1.9	0.9
1-methylphenanthrene	na	na	na	na	na	na	na	na	na	na	87.3	13.4	101	27			
fluoranthene	680	810	790	846	840	896	760	9	861	4	1293	166	**981**	**78**	-1.6	-1.4	0.6
pyrene	702	862	806	684	706	731	790	10	707	3	1367	175	**811**	**24**	-1.7	-1.5	0.7
benz[a]anthracene	363	453	450	433	472	427	422	12	444	6	551	48	**427**	**25**	-0.9	-1.2	0.8
chrysene + triphenylene	637	843	758	652	753	662	746	14	689	8	944	115	577	35	-0.8	-0.8	0.9
benzofluoranthenes [b+j+k]	1005	1223	1228	1260	1500	1230	1152	11	1330	11	2110	316	1441	150	-1.8	-1.5	0.7
benzo[e]pyrene	482	627	596	584	679	562	568	13	608	10	805	103	**553**	**59**	-1.2	-1.3	0.9
benzo[a]pyrene	515	640	620	544	622	480	592	11	549	13	832	98	**628**	**52**	-1.2	-1.1	0.8
perylene	147	189	181	341	431	321	172	13	364	16	248	26	**452**	**58**	-1.2	-1.5	0.9
indeno[1,2,3-cd]pyrene	451	572	555	557	610	537	526	12	568	7	710	102	**501**	**72**	-1.0	-0.8	0.8
dibenz[a,h]anthracene + [a,c]	113	150	150	159	200	160	138	16	173	14	161	23	**117**	**14**	-0.6	-0.5	1.0
benzo[ghi]perylene	460	540	560	510	611	488	520	10	536	12	683	104	**525**	**67**	-1.0	-0.7	0.7

Laboratory: 17

PAH in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	13	57
Qualitative	0	0
Not Determined	10	43

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 17
Reporting Date: 10/30/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/28/98 S 1	10/28/98 S 2	10/29/98 S 3	10/28/98 S 1	10/28/98 S 2	10/28/98 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	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		<2				
hexachlorobenzene	<5	<5	<5	69.0	56.0	46.0	<5	NA	57.0	20.2	<3		**70**	**25**			
gamma-HCH	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		<2				
heptachlor	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		<2				
aldrin	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		<2				
heptachlor epoxide	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		<2				
oxychlordane	<5	<5	<5	<5	<5	<5	<5	NA	<5	NA	<2		<2				
trans-chlordane	1.01	0.980	2.11	2.21	2.18	1.21	1.37	47.12	1.87	30.48	<2		2.59	0.20			
2,4'-DDE	1.18	1.71	1.77	4.00	3.17	2.58	1.55	20.90	3.25	21.95	1.65	0.51	<2		-0.7	-0.7	3.1
endosulfan I	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	<2		**0.73**	**0.11**			1.4
cis-chlordane	<5	<5	<5	1.31	1.37	1.85	<5	NA	1.51	19.60	<2		<2				
trans-nonachlor	<5	<5	<5	1.36	1.37	0.930	<5	NA	1.22	20.59	1.78	1.32	**2.33**	**0.56**			
dieldrin	0.930	1.51	1.89	1.57	2.21	2.64	1.44	33.50	2.14	25.16	0.489	0.412	**1.26**	**0.13**			
4,4'-DDE	1.98	3.30	2.32	7.45	6.83	6.05	2.53	27.05	6.78	10.35	<2		1.26	0.37			2.2
2,4'-DDD	1.98	2.90	1.81	1.93	4.65	5.11	2.23	26.30	3.90	44.11	6.86	0.94	**6.59**	**0.56**	-2.5	-2.2	1.8
endrin	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	7.15	1.57	<2		-2.8	-2.2	1.8
endosulfan II	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	<2		<2				
4,4'-DDD	5.10	8.65	4.42	8.06	9.30	8.80	6.06	37.50	8.72	7.15	<2		<2				
2,4'-DDT	3.88	6.08	4.46	8.91	9.46	12.0	4.81	23.72	10.1	16.2	17.3	3.0	**5.06**	**0.56**	-2.6	-1.8	2.5
cis-nonachlor	2.19	1.10	1.18	54.0	1.68	0.93	1.49	40.77	18.9	161.2	5.14	1.00	<2		-0.3	-0.2	1.6
4,4'-DDT	9.57	12.6	11.3	9.54	11.7	7.92	11.2	13.6	9.72	19.56	1.63	1.07	<2		-0.3	-0.1	2.7
mirex	<10	<10	<10	<10	<10	<10	<10	NA	<10	NA	19.4	2.6	1.25	0.10	-1.7	-1.9	0.9
											<2		<2				

Laboratory: 17
Pesticides in Sediment VIII

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	4	5	5
2 to 3	3	2	3
≥ 3	0	0	1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 17

Reporting Date: 10/30/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/28/98 S 1	10/28/98 S 2	10/28/98 S 3	10/28/98 S 1	10/28/98 S 2	10/28/98 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	0.360	0.570	0.450	1.76	1.76	1.41	0.460	22.904	1.64	12.30	2.04	1.39	1.39	0.19	**-3.1**	-1.0	1.5
PCB 18	1.17	1.92	0.840	3.17	2.46	2.11	1.31	42.25	2.58	20.93	3.61	0.68	1.15	0.16	-2.5	-1.6	2.8
PCB 28	2.01	3.11	1.82	7.74	6.34	7.04	2.31	30.11	7.04	9.94	4.95	0.79	9.8	3.7	-2.1	-1.6	2.0
PCB 52	4.12	5.53	4.22	8.45	9.86	7.04	4.62	17.02	8.45	16.69	15.6	3.4	**6.89**	**0.56**	-2.8	-1.7	1.1
PCB 44	4.41	6.19	4.83	5.28	4.58	4.22	5.14	18.09	4.69	11.48	7.90	1.42	**4.80**	**0.62**	-1.4	-0.9	1.2
PCB 66/95	10.7	11.1	11.6	12.7	14.8	13.0	11.1	4.1	13.5	8.3	16.7	7.5	**14.3**	**2.5**	-1.3	-0.5	0.3
PCB 101/90	5.97	8.35	7.88	6.34	6.34	6.69	7.40	17.03	6.46	3.13	33.3	6.4	**11.0**	**1.6**	**-3.1**	-1.9	1.1
PCB 118	8.60	8.07	8.33	12.0	12.0	9.86	8.33	3.18	11.3	10.8	29.7	5.6	**10.0**	**1.1**	-2.9	-1.8	0.2
PCB 153	15.3	17.5	16.8	18.7	18.0	16.9	16.5	6.9	17.8	5.0	50.6	11.8	**17.6**	**1.9**	-2.7	-1.4	0.5
PCB 105	1.95	1.82	1.72	6.34	5.98	4.22	1.83	6.30	5.51	20.58	11.9	1.9	**3.65**	**0.27**	**-3.4**	-2.6	0.4
PCB 138/163/164	15.3	18.0	16.0	18.7	15.5	14.8	16.4	8.6	16.3	12.6	44.9	8.7	**13.38**	**0.97**	-2.5	-1.6	0.6
PCB 187/182	10.8	11.6	11.3	12.7	12.7	12.7	11.2	3.6	12.7	0.0	11.5	2.2	7.0	2.6	-0.1	0.0	0.2
PCB 128	3.28	3.23	2.56	5.28	4.93	4.93	3.02	13.30	5.05	4.00	8.22	1.54	**1.87**	**0.32**	-2.5	-1.6	0.9
PCB 180	11.2	12.6	12.6	16.2	13.7	13.7	12.1	6.7	14.6	9.8	21.7	8.6	**5.83**	**0.58**	-1.8	-0.9	0.4
PCB 170/190	12.4	12.7	11.2	<5	<5	<5	12.1	6.5	<5	NA	12.6	3.0	**3.00**	**0.46**	-0.2	-0.1	0.4
PCB 195	9.77	9.83	9.73	<5	<5	<5	9.78	0.51	<5	NA	2.61	0.61	<3		**11.0**	**5.9**	0.0
PCB 206	<5	2.42	1.65	6.34	5.98	4.93	<5	NA	5.75	12.74	3.30	0.67	**3.67**	**0.87**			
PCB 209	0.910	0.690	0.940	8.45	9.15	10.9	0.847	16.123	9.50	13.34	2.33	0.66	**8.34**	**0.49**	-2.5	-1.2	1.1
PCB 66	10.7	11.1	11.6	12.7	14.8	13.0	11.1	4.1	13.5	8.3	8.85	2.51	**6.8**	**1.4**	1.0	0.6	0.3
PCB 95	na	na	na	na	na	na	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 17

PCBs in Sediment VIII

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	5	15	15
2 to 3	8	1	2
≥ 3	4	1	0

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	43.5	42.0	43.5	43.0	2.0	44.9	1.3	44.9	1.3	-0.2	-0.6	0.1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 19
Reporting Date: 11/3/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	8/26/98 S 1	8/26/98 S 2	8/25/98 S 3	8/26/98 S 1	8/26/98 S 2	8/25/98 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	141	136	132	1040	____	____	136	3	1040	ND	107	15	**1010**	**140**	1.1	1.0	0.2
2-methylnaphthalene	119	107	106	420	____	____	111	7	420	ND	77.4	10.2	325	60	1.7	1.7	0.4
1-methylnaphthalene	82.1	76.1	74.6	224	____	____	77.6	5.1	224	ND	50.7	7.3	150	30	2.1	2.0	0.3
biphenyl	36.7	34.3	34.5	120	____	____	35.2	3.8	120	ND	36.6	13.5	175	18	-0.2	-0.1	0.3
2,6-dimethylnaphthalene	55.5	49.4	51.1	150	____	____	52.0	6.1	150	ND	51.2	8.9	120	24	0.1	0.1	0.4
acenaphthylene	271	255	215	164	____	____	247	12	164	ND	50.2	22.6	37	14	**15.7**	**7.3**	0.8
acenaphthene	66.4	61.1	62.3	95.6	____	____	63.3	4.4	95.6	ND	38.2	3.9	41	10	2.6	**3.4**	0.3
1,6,7-trimethylnaphthalene	60.7	53.6	54.2	106	____	____	56.2	7.0	106	ND	27.2	7.4	48	10	**4.3**	**3.3**	0.5
fluorene	156	144	134	197	____	____	145	8	197	ND	67.9	11.1	**97.3**	**8.6**	**4.5**	**4.2**	0.5
phenanthrene	619	614	620	518	____	____	618	1	518	ND	604	63	**489**	**23**	0.1	0.1	0.0
anthracene	297	298	289	222	____	____	295	2	222	ND	183	27	**184**	**14**	2.5	2.0	0.1
1-methylphenanthrene	91.7	90.4	91.5	92.9	____	____	91.2	0.8	92.9	ND	87.3	13.4	101	27	0.2	0.2	0.1
fluoranthene	1310	1290	1260	834	____	____	1287	2.0	834	ND	1293	166	**981**	**78**	0.0	0.0	0.1
pyrene	1310	1290	1270	665	____	____	1290	1.6	665	ND	1367	175	**811**	**24**	-0.2	-0.2	0.1
benz[a]anthracene	495	487	486	336	____	____	489	1.0	336	ND	551	48	**427**	**25**	-0.4	-0.6	0.1
chrysene + triphenylene	802	785	779	480	____	____	789	1.5	480	ND	944	115	577	35	-0.7	-0.6	0.1
benzofluoranthenes [b+j+k]	2280	2143	2260	2050	____	____	2228	3.3	2050	ND	2110	316	1441	150	0.2	0.2	0.2
benzo[e]pyrene	929	877	912	798	____	____	906	2.9	798	ND	805	103	**553**	**59**	0.5	0.5	0.2
benzo[a]pyrene	989	945	957	696	____	____	964	2.4	696	ND	832	98	**628**	**52**	0.6	0.6	0.2
perylene	301	288	290	528	____	____	293	2.4	528	ND	248	26	**452**	**58**	0.7	0.9	0.2
indeno[1,2,3-cd]pyrene	957	929	901	814	____	____	929	3.0	814	ND	710	102	**501**	**72**	1.2	1.0	0.2
dibenz[a,h]anthracene + [a,c]	204	346	297	271	____	____	282	25.5	271	ND	161	23	**117**	**14**	3.0	2.8	1.7
benzo[ghi]perylene	943	903	854	834	____	____	900	5.0	834	ND	683	104	**525**	**67**	1.3	0.9	0.3

Laboratory: 19
PAH in Sediment VIII

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	16	17	23
2 to 3	3	2	0
≥ 3	4	4	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 19
Reporting Date: 11/3/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	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	NA	NA	<2		<2				
hexachlorobenzene							NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH							NA	NA	NA	NA	<2		<2				
heptachlor							NA	NA	NA	NA	<2		<2				
aldrin							NA	NA	NA	NA	<2		<2				
heptachlor epoxide							NA	NA	NA	NA	<2		<2				
oxychlordane							NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane							NA	NA	NA	NA	1.65	0.51	<2				
2,4'-DDE							NA	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I							NA	NA	NA	NA	<2		<2				
cis-chlordane							NA	NA	NA	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor							NA	NA	NA	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin							NA	NA	NA	NA	<2		1.26	0.37			
4,4'-DDE							NA	NA	NA	NA	6.86	0.94	**6.59**	**0.56**			
2,4'-DDD							NA	NA	NA	NA	7.15	1.57	<2				
endrin							NA	NA	NA	NA	<2		<2				
endosulfan II							NA	NA	NA	NA	<2		<2				
4,4'-DDD							NA	NA	NA	NA	17.3	3.0	**5.06**	**0.56**			
2,4'-DDT							NA	NA	NA	NA	5.14	1.0	<2				
cis-nonachlor							NA	NA	NA	NA	1.63	1.1	<2				
4,4'-DDT							NA	NA	NA	NA	19.4	2.6	1.25	0.10			
mirex							NA	NA	NA	NA	<2		<2				

Laboratory: 19
Pesticides in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 19
Reporting Date: 11/3/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry S1	S2	S3	SRM 1941a, ng/g dry S1	S2	S3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	Sediment VIII 95% CL	SRM 1941a, ng/g dry target value[b]	SRM 1941a 95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA	NA	NA	NA	2.04	1.39	1.39	0.19			
PCB 18							NA	NA	NA	NA	3.61	0.68	1.15	0.16			
PCB 28							NA	NA	NA	NA	4.95	0.79	9.8	3.7			
PCB 52							NA	NA	NA	NA	15.6	3.4	**6.89**	**0.56**			
PCB 44							NA	NA	NA	NA	7.90	1.42	**4.80**	**0.62**			
PCB 66/95							NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90							NA	NA	NA	NA	33.3	6.4	**11.0**	**1.6**			
PCB 118							NA	NA	NA	NA	29.7	5.6	**10.0**	**1.1**			
PCB 153							NA	NA	NA	NA	50.6	11.8	**17.6**	**1.9**			
PCB 105							NA	NA	NA	NA	11.9	1.9	**3.65**	**0.27**			
PCB 138/163/164							NA	NA	NA	NA	44.9	8.7	**13.38**	**0.97**			
PCB 187/182							NA	NA	NA	NA	11.5	2.2	7.0	2.6			
PCB 128							NA	NA	NA	NA	8.22	1.54	**1.87**	**0.32**			
PCB 180							NA	NA	NA	NA	21.7	8.6	**5.83**	**0.58**			
PCB 170/190							NA	NA	NA	NA	12.6	3.0	**3.00**	**0.46**			
PCB 195							NA	NA	NA	NA	2.61	0.61	<3				
PCB 206							NA	NA	NA	NA	3.30	0.67	**3.67**	**0.87**			
PCB 209							NA	NA	NA	NA	2.33	0.66	**8.34**	**0.49**			
PCB 66							NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95							NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 19
PCBs in Sediment VIII

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 VIII

	Sediment VIII, % S1	S2	S3	lab mean, %	lab %RSD	Sediment VIII, % assigned	95% CL	exercise, % mean	95% CL	Sediment VIII z (25%)	z (s)	p (15%)
water	44.1	44.3	44.3	44.2	0.3	44.9	1.3	44.9	1.3	-0.1	-0.2	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 20
Reporting Date: 11/4/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	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	107	15	**1010**	**140**			
2-methylnaphthalene							NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene							NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl							NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene							NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene							NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene							NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	27.2	7.4	48	10			
fluorene							NA	NA	NA	NA	67.9	11.1	**97.3**	**8.6**			
phenanthrene							NA	NA	NA	NA	604	63	**489**	**23**			
anthracene							NA	NA	NA	NA	183	27	**184**	**14**			
1-methylphenanthrene							NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene							NA	NA	NA	NA	1293	166	**981**	**78**			
pyrene							NA	NA	NA	NA	1367	175	**811**	**24**			
benz[a]anthracene							NA	NA	NA	NA	551	48	**427**	**25**			
chrysene + triphenylene							NA	NA	NA	NA	944	115	577	35			
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	2110	316	1441	150			
benzo[e]pyrene							NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene							NA	NA	NA	NA	832	98	**628**	**52**			
perylene							NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	710	102	**501**	**72**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	161	23	**117**	**14**			
benzo[ghi]perylene							NA	NA	NA	NA	683	104	**525**	**67**			

Laboratory: 20
PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 20
Reporting Date: 11/4/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	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	NA	NA	<2		<2				
hexachlorobenzene							NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH							NA	NA	NA	NA	<2		<2				
heptachlor							NA	NA	NA	NA	<2		<2				
aldrin							NA	NA	NA	NA	<2		<2				
heptachlor epoxide							NA	NA	NA	NA	<2		<2				
oxychlordane							NA	NA	NA	NA	<2		<2				
trans-chlordane							NA	NA	NA	NA	<2		2.59	0.20			
2,4'-DDE							NA	NA	NA	NA	1.65	0.51	<2				
endosulfan I							NA	NA	NA	NA	<2		**0.73**	**0.11**			
cis-chlordane							NA	NA	NA	NA	<2		<2				
trans-nonachlor							NA	NA	NA	NA	1.78	1.32	**2.33**	**0.56**			
dieldrin							NA	NA	NA	NA	0.489	0.412	**1.26**	**0.13**			
4,4'-DDE							NA	NA	NA	NA	<2		1.26	0.37			
2,4'-DDD							NA	NA	NA	NA	6.86	0.94	**6.59**	**0.56**			
endrin							NA	NA	NA	NA	7.15	1.57	<2				
endosulfan II							NA	NA	NA	NA	<2		<2				
4,4'-DDD							NA	NA	NA	NA	<2		<2				
2,4'-DDT							NA	NA	NA	NA	17.3	3.0	**5.06**	**0.56**			
cis-nonachlor							NA	NA	NA	NA	5.14	1.0	<2				
4,4'-DDT							NA	NA	NA	NA	1.63	1.1	<2				
mirex							NA	NA	NA	NA	19.4	2.6	1.25	0.10			
							NA	NA	NA	NA	<2		<2				

Laboratory: 20
Pesticides in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 20
Reporting Date: 11/4/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 10/14/98 S 1	S 2	S 3	SRM 1941a, ng/g dry 10/14/98 S 1	S 2	S 3	Sediment VIII lab mean ng/g dry	lab %RSD	SRM 1941a lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
PCB 8	10.3	11.8	13.6	8.30	7.40	8.50	11.9	13.9	8.07	7.26	2.04	1.39	1.39	0.19	**19.4**	**6.5**	0.9
PCB 18	6.90	9.10	13.9	6.10	9.50	7.20	10.0	35.9	7.60	22.83	3.61	0.68	1.15	0.16	**7.0**	**4.5**	2.4
PCB 28	0.0	___	___	0.00	0.00	0.00	NA	NA	NA	NA	4.95	0.79	9.8	3.7			
PCB 52	31.5	27.6	30.3	8.70	8.70	7.10	29.8	6.7	8.17	11.31	15.6	3.4	**6.89**	**0.56**			
PCB 44	15.5	17.1	18.0	7.60	11.3	7.20	16.9	7.5	8.70	25.98	7.90	1.42	**4.80**	**0.62**	**4.5**	2.9	0.5
PCB 66/95	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	___	___	___	0.0	0.0	0.0	NA	NA	NA	NA	33.3	6.4	**11.0**	**1.6**			
PCB 118	50.6	53.7	44.1	8.80	9.30	8.90	49.5	9.9	9.00	2.94	29.7	5.6	**10.0**	**1.1**	2.7	1.7	0.7
PCB 153	96.3	97.5	89.4	14.2	15.4	18.1	94.4	4.6	15.9	12.6	50.6	11.8	**17.6**	**1.9**	**3.5**	1.7	0.3
PCB 105	36.0	36.7	34.2	6.20	6.40	7.60	35.6	3.6	6.73	11.25	11.9	1.9	**3.65**	**0.27**	**8.0**	**6.1**	0.2
PCB 138/163/164	___	___	___	0.0	0.0	0.0	NA	NA	NA	NA	44.9	8.7	**13.38**	**0.97**			
PCB 187/182	___	___	___	___	___	___	NA	NA	NA	NA	11.5	2.2	7.0	2.6			
PCB 128	11.2	10.5	9.70	2.70	2.80	1.60	10.5	7.2	2.37	28.13	8.22	1.54	**1.87**	**0.32**	1.1	0.7	0.5
PCB 180	31.8	30.0	27.9	7.90	8.50	11.4	29.9	6.5	9.27	20.20	21.7	8.6	**5.83**	**0.58**	1.5	0.7	0.4
PCB 170/190	___	___	___	0.00	0.00	0.00	NA	NA	NA	NA	12.6	3.0	**3.00**	**0.46**			
PCB 195	___	___	___	___	___	___	NA	NA	NA	NA	2.61	0.61	<3				
PCB 206	<0.25	<0.25	<0.25	4.60	4.80	8.90	NA	NA	6.10	39.79	3.30	0.67	**3.67**	**0.87**			
PCB 209	5.70	5.90	2.60	10.1	8.30	14.1	4.73	39.09	10.8	27.4	2.33	0.66	**8.34**	**0.49**	**4.1**	1.9	2.6
PCB 66	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 20
PCBs in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	10	56
Qualitative	0	0
Not Determined	8	44

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

Water in Sediment VIII

	Sediment VIII, %: S 1	S 2	S 3	lab: mean, %	%RSD	Sediment VIII, %: assigned	95% CL	exercise, %: mean	95% CL	Sediment VIII: z (25%)	z (s)	p (15%)
water	45.4	45.3	45.4	45.3	0.1	44.9	1.3	44.9	1.3	0.0	0.1	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 21
Reporting Date: 10/28/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	9/15/98 S 1	9/15/98 S 2	9/15/98 S 3	9/15/98 S 1	9/15/98 S 2	9/15/98 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	70.3	81.4	62.2	750	740	760	71.3	13.5	750	1	107	15	**1010**	**140**	-1.3	-1.2	0.9
2-methylnaphthalene	48.7	65.2	44.1	340	292	300	52.7	21.1	311	8	77.4	10.2	325	60	-1.3	-1.3	1.4
1-methylnaphthalene	30.2	40.1	29.0	160	130	140	33.1	18.4	143	11	50.7	7.3	150	30	-1.4	-1.3	1.2
biphenyl	18.7	22.6	15.8	130	120	110	19.0	17.9	120	8	36.6	13.5	175	18	-1.9	-1.4	1.2
2,6-dimethylnaphthalene	34.0	51.6	33.7	190	160	160	39.8	25.8	170	10	51.2	8.9	120	24	-0.9	-0.7	1.7
acenaphthylene	65.0	90.3	71.7	124	130	110	75.7	17.3	121	8	50.2	22.6	37	14	2.0	0.9	1.2
acenaphthene	33.1	34.4	28.1	36.1	42.0	49.3	31.9	10.4	42.5	15.6	38.2	3.9	41	10	-0.7	-0.9	0.7
1,6,7-trimethylnaphthalene	14.1	31.4	21.0	43.3	37.0	33.8	22.2	39.3	38.0	12.7	27.2	7.4	48	10	-0.7	-0.6	2.6
fluorene	26.3	41.1	31.0	55.8	47.1	42.8	32.8	23.1	48.6	13.6	67.9	11.1	**97.3**	**8.6**	-2.1	-1.9	1.5
phenanthrene	560	580	570	610	560	560	570	2	577	5	604	63	**489**	**23**	-0.2	-0.3	0.1
anthracene	150	160	130	250	190	190	147	10	210	16	183	27	**184**	**14**	-0.8	-0.6	0.7
1-methylphenanthrene	28.5	38.4	30.0	81.2	66.4	71.6	32.3	16.5	73.1	10.3	87.3	13.4	101	27	-2.5	-2.4	1.1
fluoranthene	712	860	760	1000	980	980	777	10	987	1	1293	166	**981**	**78**	-1.6	-1.4	0.6
pyrene	830	900	780	820	880	910	837	7	870	5	1367	175	**811**	**24**	-1.6	-1.4	0.5
benz[a]anthracene	450	430	370	504	520	510	417	10	511	2	551	48	**427**	**25**	-1.0	-1.2	0.7
chrysene + triphenylene	400	520	450	572	500	470	457	13	514	10	944	115	577	35	-2.1	-2.0	0.9
benzofluoranthenes [b+j+k]	1100	1200	1100	1500	1300	1400	1133	5	1400	7	2110	316	1441	150	-1.9	-1.5	0.3
benzo[e]pyrene	480	530	460	470	500	500	490	7	490	4	805	103	**553**	**59**	-1.6	-1.7	0.5
benzo[a]pyrene	420	500	430	540	500	540	450	10	527	4	832	98	**628**	**52**	-1.8	-1.8	0.6
perylene	150	130	120	300	370	380	133	11	350	12	248	26	**452**	**58**	-1.9	-2.2	0.8
indeno[1,2,3-cd]pyrene	490	450	420	630	580	580	453	8	597	5	710	102	**501**	**72**	-1.4	-1.2	0.5
dibenz[a,h]anthracene + [a,c]	84.5	79.7	67.0	96.7	97.3	89.1	77.1	11.7	94.4	4.8	161	23	**117**	**14**	-2.1	-1.9	0.8
benzo[ghi]perylene	330	450	390	280	490	490	390	15	420	29	683	104	**525**	**67**	-1.7	-1.3	1.0

Laboratory: 21
PAH in Sediment VIII

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	18	21	22
2 to 3	5	2	1
≥ 3	0	0	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 21
Reporting Date: 10/28/98

PESTICIDES

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	____	____	____	____	____	____	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							NA	NA	NA	NA	<2		<2				
hexachlorobenzene							NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH							NA	NA	NA	NA	<2		<2				
heptachlor							NA	NA	NA	NA	<2		<2				
aldrin							NA	NA	NA	NA	<2		<2				
heptachlor epoxide							NA	NA	NA	NA	<2		<2				
oxychlordane							NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane							NA	NA	NA	NA	1.65	0.51	<2				
2,4'-DDE							NA	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I							NA	NA	NA	NA	<2		<2				
cis-chlordane							NA	NA	NA	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor							NA	NA	NA	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin							NA	NA	NA	NA	<2		1.26	0.37			
4,4'-DDE							NA	NA	NA	NA	6.86	0.94	**6.59**	**0.56**			
2,4'-DDD							NA	NA	NA	NA	7.15	1.57	<2				
endrin							NA	NA	NA	NA	<2		<2				
endosulfan II							NA	NA	NA	NA	<2		<2				
4,4'-DDD							NA	NA	NA	NA	17.3	3.0	**5.06**	**0.56**			
2,4'-DDT							NA	NA	NA	NA	5.14	1.00	<2				
cis-nonachlor							NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT							NA	NA	NA	NA	19.4	2.6	1.25	0.10			
mirex							NA	NA	NA	NA	<2		<2				

Laboratory: 21
Pesticides in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 21
Reporting Date: 10/28/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/25/98 S 1	10/25/98 S 2	10/25/98 S 3	10/25/98 S 1	10/25/98 S 2	10/25/98 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	0.440	0.860	0.410	1.38	1.51	NA	0.570	44.139	1.45	6.36	2.04	1.39	1.39	0.19	-2.9	-1.0	2.9
PCB 18	3.50	3.50	3.50	5.32	4.01	NA	3.50	0.00	4.67	19.86	3.61	0.68	1.15	0.16	-0.1	-0.1	0.0
PCB 28	2.40	3.60	2.80	7.66	8.96	NA	2.93	20.83	8.31	11.06	4.95	0.79	9.8	3.7	-1.6	-1.2	1.4
PCB 52	7.00	7.40	5.70	6.81	7.78	NA	6.70	13.27	7.30	9.40	15.6	3.4	**6.89**	**0.56**	-2.3	-1.4	0.9
PCB 44	3.90	5.50	5.70	5.00	4.72	NA	5.03	19.60	4.86	4.07	7.90	1.42	**4.80**	**0.62**	-1.5	-0.9	1.3
PCB 66/95	3.30	5.00	3.90	8.30	8.07	NA	4.07	21.20	8.19	1.99	16.7	7.5	**14.3**	**2.5**	-3.0	-1.2	1.4
PCB 101/90	13.0	17.0	19.0	12.2	10.8	NA	16.3	18.7	11.5	8.7	33.3	6.4	**11.0**	**1.6**	-2.0	-1.2	1.2
PCB 118	14.0	19.0	22.0	12.9	13.6	NA	18.3	22.0	13.2	3.5	29.7	5.6	**10.0**	**1.1**	-1.5	-1.0	1.5
PCB 153	12.0	14.0	12.0	7.77	7.01	NA	12.7	9.1	7.39	7.27	50.6	11.8	**17.6**	**1.9**	-3.0	-1.5	0.6
PCB 105	6.00	9.00	10.0	6.56	6.50	NA	8.33	24.98	6.53	0.65	11.9	1.9	**3.65**	**0.27**	-1.2	-0.9	1.7
PCB 138/163/164	23.0	30.0	32.0	14.3	14.5	NA	28.3	16.7	14.4	1.0	44.9	8.7	**13.38**	**0.97**	-1.5	-0.9	1.1
PCB 187/182	5.40	6.40	8.40	6.96	6.80	NA	6.73	22.69	6.88	1.64	11.5	2.2	7.0	2.6	-1.7	-1.0	1.5
PCB 128	3.90	4.80	5.20	1.62	1.53	NA	4.63	14.4	1.58	4.04	8.22	1.54	**1.87**	**0.32**	-1.7	-1.1	1.0
PCB 180	9.40	12.0	13.0	10.2	10.6	NA	11.5	16.2	10.4	2.8	21.7	8.6	**5.83**	**0.58**	-1.9	-0.9	1.1
PCB 170/190	6.60	8.90	12.0	22.7	4.87	NA	9.17	29.56	13.8	91.5	12.6	3.0	**3.00**	**0.46**	-1.1	-0.7	2.0
PCB 195	1.60	1.60	1.40	1.23	3.14	NA	1.53	7.53	2.19	61.81	2.61	0.61	<3		-1.7	-0.9	0.5
PCB 206	1.10	1.80	1.90	3.93	4.76	NA	1.60	27.24	4.35	13.51	3.30	0.67	**3.67**	**0.87**	-2.1	-1.4	1.8
PCB 209	1.30	1.40	NA	8.24	11.2	NA	1.35	5.24	9.73	21.59	2.33	0.66	**8.34**	**0.49**	-1.7	-0.8	0.3
PCB 66	___	___	___	___	___	___	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	___	___	___	___	___	___	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 21
PCBs in Sediment VIII

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	18	17
2 to 3	5	0	1
≥ 3	1	0	0

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	44.0	44.0	44.0	44.0	0.0	44.9	1.3	44.9	1.3	-0.1	-0.3	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 22

Reporting Date: 11/7/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 10/30/98 S 1	S 2	S 3	SRM 1941a, ng/g dry 10/30/98 S 1	S 2	S 3	Sediment VIII lab mean ng/g dry	lab %RSD	SRM 1941a lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
naphthalene	79.0	71.0	61.0	462	405	397	70.3	12.8	421	8	107	15	**1010**	**140**	-1.4	-1.3	0.9
2-methylnaphthalene	66.0	71.0	62.0	196	186	204	66.3	6.8	195	5	77.4	10.2	325	60	-0.6	-0.6	0.5
1-methylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene	76.0	81.0	86.0	68.0	65.0	73.0	81.0	6.2	68.7	5.9	50.2	22.6	37	14	2.4	1.1	0.4
acenaphthene	38.0	43.0	42.0	33.0	33.0	32.0	41.0	6.5	32.7	1.8	38.2	3.9	41	10	0.3	0.4	0.4
1,6,7-trimethylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	70.0	79.0	87.0	77.0	78.0	79.0	78.7	10.8	78.0	1.3	67.9	11.1	**97.3**	**8.6**	0.6	0.6	0.7
phenanthrene	575	642	634	456	445	433	617	6	445	3	604	63	**489**	**23**	0.1	0.1	0.4
anthracene	176	197	212	181	179	186	195	9	182	2	183	27	**184**	**14**	0.3	0.2	0.6
1-methylphenanthrene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene	1478	1559	1607	1021	976	1008	1548	4	1002	2	1293	166	**981**	**78**	0.8	0.7	0.3
pyrene	1380	1602	1597	763	747	717	1526	8	742	3	1367	175	**811**	**24**	0.5	0.4	0.6
benz[a]anthracene	582	634	658	466	435	432	625	6	444	4	551	48	**427**	**25**	0.5	0.7	0.4
chrysene + triphenylene	872	977	949	552	518	523	933	6	531	3	944	115	577	35	0.0	0.0	0.4
benzofluoranthenes [b+j+k]	2166	2471	2457	1429	1384	1413	2365	7	1409	2	2110	316	1441	150	0.5	0.4	0.5
benzo[e]pyrene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene	1004	1086	1102	665	613	620	1064	5	633	4	832	98	**628**	**52**	1.1	1.1	0.3
perylene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene	663	728	750	458	438	440	714	6	445	2	710	102	**501**	**72**	0.0	0.0	0.4
dibenz[a,h]anthracene + [a,c]	139	163	166	100	88.0	83.0	156	9	90.3	9.7	161	23	**117**	**14**	-0.1	-0.1	0.6
benzo[ghi]perylene	572	616	685	386	367	369	624	9	374	3	683	104	**525**	**67**	-0.3	-0.3	0.6

Laboratory: 22
PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 22
Reporting Date: 11/7/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	11/2/98 S 1	11/5/98 S 2	11/6/98 S 3	11/2/98 S 1	11/5/98 S 2	11/6/98 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	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		<2				
hexachlorobenzene	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		<2				
heptachlor	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		<2				
aldrin	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		<2				
heptachlor epoxide	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		<2				
oxychlordane	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane	< 1	< 1	< 1	< 1	< 1	< 1	<1	NA	<1	NA	1.65	0.51	<2				
2,4'-DDE	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		<2				
cis-chlordane	< 1	< 1	< 1	< 1	< 1	< 1	<1	NA	<1	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		1.26	0.37			
4,4'-DDE	2.12	3.08	4.67	4.08	3.85	4.19	3.29	39.07	4.04	4.25	6.9	0.9	**6.59**	**0.56**	-2.1	-1.8	2.6
2,4'-DDD	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	7.15	1.57	<2				
endrin	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		<2				
endosulfan II	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		<2				
4,4'-DDD	3.74	4.22	5.74	5.92	3.74	4.81	4.57	22.86	4.82	22.58	17.3	3.0	**5.06**	**0.56**	-2.9	-2.0	1.5
2,4'-DDT	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	5.14	1.00	<2				
cis-nonachlor	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	3.77	5.29	5.80	< 1.5	< 1.5	< 1.5	4.95	21.39	<1.5	NA	19.4	2.6	1.25	0.10	-3.0	**-3.4**	1.4
mirex	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	<2		<2				

Laboratory: 22
Pesticides in Sediment VIII

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	0	1	2
2 to 3	3	1	1
≥ 3	0	1	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Laboratory No.: 22

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Reporting Date: 11/7/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	11/2/98 S 1	11/2/98 S 2	11/2/98 S 3	11/2/98 S 1	11/2/98 S 2	11/2/98 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	4.37	2.28	8.11	< 1	6.99	7.72	4.92	60.0	<7.72	NA	2.04	1.39	1.39	0.19	**5.7**	1.9	**4.0**
PCB 18	2.12	< 1	2.67	2.86	4.67	3.10	<2.67	NA	3.54	27.76	3.61	0.68	1.15	0.16			
PCB 28	N/A	N/A	N/A	5.49	6.48	6.63	NA	NA	6.20	9.97	4.95	0.79	9.80	3.70			
PCB 52	8.32	9.95	10.7	8.55	7.66	6.78	9.64	12.48	7.66	11.54	15.6	3.4	**6.89**	**0.56**	-1.5	-1.0	0.8
PCB 44	3.44	4.54	2.34	5.33	4.07	3.42	3.44	31.99	4.27	22.75	7.90	1.42	**4.80**	**0.62**	-2.3	-1.5	2.1
PCB 66/95	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	17.3	23.0	23.5	11.3	9.68	8.36	21.3	16.1	9.77	14.83	33.3	6.4	**11.0**	**1.6**	-1.4	-0.9	1.1
PCB 118	16.0	17.3	21.1	11.1	10.2	9.04	18.1	14.7	10.1	10.3	29.7	5.6	**10.0**	**1.1**	-1.6	-1.0	1.0
PCB 153	19.0	22.5	25.8	12.3	15.0	17.1	22.4	15.1	14.8	16.2	50.6	11.8	**17.6**	**1.9**	-2.2	-1.1	1.0
PCB 105	7.68	7.63	10.4	2.04	3.82	3.32	8.56	18.27	3.06	29.94	11.9	1.9	**3.65**	**0.27**	-1.1	-0.8	1.2
PCB 138/163/164	17.3	25.7	22.4	10.6	8.68	14.3	21.8	19.5	11.2	25.7	44.9	8.7	**13.38**	**0.97**	-2.1	-1.3	1.3
PCB 187/182	3.35	7.37	8.54	8.45	6.70	4.62	6.42	42.46	6.59	29.06	11.5	2.2	7.0	2.6	-1.8	-1.0	2.8
PCB 128	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	8.22	1.54	**1.87**	**0.32**			
PCB 180	6.60	13.1	11.9	9.44	8.70	7.71	10.6	33.0	8.62	10.06	21.7	8.6	**5.83**	**0.58**	-2.1	-1.0	2.2
PCB 170/190	< 2	< 2	5.30	5.51	2.31	2.97	<5.3	NA	3.60	47.02	12.6	3.0	**3.00**	**0.46**			
PCB 195	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	2.61	0.61	<3				
PCB 206	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	3.30	0.67	**3.67**	**0.87**			
PCB 209	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	2.33	0.66	**8.34**	**0.49**			
PCB 66	5.30	6.39	8.16	4.79	5.65	4.34	6.62	21.82	4.93	13.61	8.85	2.51	**6.8**	**1.4**	-1.0	-0.6	1.5
PCB 95	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 22
PCBs in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	10	56
Qualitative	2	11
Not Determined	6	33

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	5	10	6
2 to 3	4	0	3
≥ 3	1	0	1

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.3	45.2	44.5	45.0	1.0	44.9	1.3	44.9	1.3	0.0	0.0	0.1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 23

Reporting Date: 11/10/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/29/98 S 1	10/29/98 S 2	10/29/98 S 3	10/29/98 S 1	10/29/98 S 2	10/29/98 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	23.9	16.1	21.1	158	88.2	163	20.4	19.4	136	31	107	15	**1010**	**140**	**-3.2**	-3.0	1.3
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene	55.1	54.8	51.5	48.0	39.0	38.0	53.8	3.7	41.7	13.2	50.2	22.6	37	14	0.3	0.1	0.2
acenaphthene	27.6	25.3	26.6	24.4	17.2	23.1	26.5	4.4	21.6	17.8	38.2	3.9	41	10	-1.2	-1.6	0.3
1,6,7-trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	50.0	41.0	38.3	38.6	27.0	32.7	43.1	14.2	32.8	17.7	67.9	11.1	**97.3**	**8.6**	-1.5	-1.3	0.9
phenanthrene	633	580	517	343	301	232	577	10	292	19	604	63	**489**	**23**	-0.2	-0.2	0.7
anthracene	135	123	109	88.6	75.8	46.0	122	11	70.1	31.2	183	27	**184**	**14**	-1.3	-1.1	0.7
1-methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene	1410	1330	1260	730	755	746	1333	6	744	2	1293	166	**981**	**78**	0.1	0.1	0.4
pyrene	1010	988	913	424	432	355	970	5	404	10	1367	175	**811**	**24**	-1.2	-1.0	0.3
benz[a]anthracene	522	538	508	299	298	478	523	3	358	29	551	48	**427**	**25**	-0.2	-0.3	0.2
chrysene + triphenylene	591	621	586	345	344	363	599	3	351	3	944	115	577	35	-1.5	-1.4	0.2
benzofluoranthenes [b+j+k]	4330	4380	4170	2320	2250	2640	4293	3	2403	9	2110	316	1441	150	**4.1**	**3.4**	0.2
benzo[e]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene	686	682	642	346	339	363	670	4	349	4	832	98	**628**	**52**	-0.8	-0.8	0.2
perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene	558	572	507	271	253	340	546	6	288	16	710	102	**501**	**72**	-0.9	-0.8	0.4
dibenz[a,h]anthracene + [a,c]	105	109	79.5	52.4	42.8	120	97.8	16.4	71.7	58.7	161	23	**117**	**14**	-1.6	-1.5	1.1
benzo[ghi]perylene	460	474	387	188	199	235	440	11	207	12	683	104	**525**	**67**	-1.4	-1.1	0.7

Laboratory: 23
PAH in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	15	65
Qualitative	0	0
Not Determined	8	35

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise **Laboratory No.: 23**

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant) Reporting Date: 11/10/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/31/98 S 1	10/31/98 S 2	10/31/98 S 3	11/5/98 S 1	11/5/98 S 2	11/5/98 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	74.5	<3	94.2	6.50	8.50	9.76	84.4	16.5	8.25	19.92	<2		<2				1.1
hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH	11.4	7.24	17.1	<3	<3	<3	11.9	41.6	<3	NA	<2		<2				2.8
heptachlor	<3	<3	<3	<3	<3	<3	<3	NA	<3	NA	<2		<2				
aldrin	23.9	4.04	18.7	<3	<3	<3	15.5	66.2	<3	NA	<2		<2				**4.4**
heptachlor epoxide	7.03	<3	<3	8.25	14.5	12.4	<7.03	NA	11.7	27.1	<2		<2				
oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane	<3	<3	<3	3.48	4.05	7.85	<3	NA	5.13	46.34	1.65	0.51	<2				
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I	<3	<3	<3	3.48	4.05	5.81	<3	NA	4.45	27.31	<2		<2				
cis-chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin	5.28	5.95	39.1	3.18	3.92	<3	16.8	115.3	<3.92	NA	<2		1.26	0.37			**7.7**
4,4'-DDE	5.18	2.72	9.05	4.07	5.58	12.1	5.65	56.48	7.25	58.86	6.9	0.9	**6.59**	**0.56**	-0.7	-0.6	3.8
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.15	1.57	<2				
endrin	<3	<3	<3	26.7	23.9	<3	<3	NA	<26.7	NA	<2		<2				
endosulfan II	<3	<3	88.80	<3	<3	31.4	<88.8	NA	<31.4	NA	<2		<2				
4,4'-DDD	27.5	80.1	48.9	23.3	24.7	43.4	52.2	50.7	30.5	36.8	17.3	3.0	**5.06**	**0.56**	**8.0**	**5.5**	**3.4**
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.14	1.00	<2				
cis-nonachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	87.9	73.4	94.2	42.6	40.2	34.1	85.2	12.5	39.0	11.2	19.4	2.6	1.25	0.10	**13.6**	**15.3**	0.8
mirex	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		<2				

Laboratory: 23
Pesticides in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	7	32
Qualitative	6	27
Not Determined	9	41

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise **Laboratory No.: 23**

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant) Reporting Date: 11/10/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry S1	S2	S3	SRM 1941a, ng/g dry S1	S2	S3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
PCB 8							NA	NA	NA	NA	2.04	1.39	1.39	0.19			
PCB 18							NA	NA	NA	NA	3.61	0.68	1.15	0.16			
PCB 28							NA	NA	NA	NA	4.95	0.79	9.8	3.7			
PCB 52							NA	NA	NA	NA	15.6	3.4	**6.89**	**0.56**			
PCB 44							NA	NA	NA	NA	7.90	1.42	**4.80**	**0.62**			
PCB 66/95							NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90							NA	NA	NA	NA	33.3	6.4	**11.0**	**1.6**			
PCB 118							NA	NA	NA	NA	29.7	5.6	**10.0**	**1.1**			
PCB 153							NA	NA	NA	NA	50.6	11.8	**17.6**	**1.9**			
PCB 105							NA	NA	NA	NA	11.9	1.9	**3.65**	**0.27**			
PCB 138/163/164							NA	NA	NA	NA	44.9	8.7	**13.38**	**0.97**			
PCB 187/182							NA	NA	NA	NA	11.5	2.2	7.0	2.6			
PCB 128							NA	NA	NA	NA	8.22	1.54	**1.87**	**0.32**			
PCB 180							NA	NA	NA	NA	21.7	8.6	**5.83**	**0.58**			
PCB 170/190							NA	NA	NA	NA	12.6	3.0	**3.00**	**0.46**			
PCB 195							NA	NA	NA	NA	2.61	0.61	<3				
PCB 206							NA	NA	NA	NA	3.30	0.67	**3.67**	**0.87**			
PCB 209							NA	NA	NA	NA	2.33	0.66	**8.34**	**0.49**			
PCB 66							NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95							NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 23
PCBs in Sediment VIII

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 VIII

	Sediment VIII, % S1	S2	S3	lab mean, %	lab %RSD	Sediment VIII, % assigned	95% CL	exercise, % mean	95% CL	Sediment VIII z (25%)	z (s)	p (15%)
water	40.5			40.5	ND	44.9	1.3	44.9	1.3	-0.4	-1.3	

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

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 24

Reporting Date: 11/13/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 1/0/00 S 1	S 2	S 3	SRM 1941a, ng/g dry 1/0/00 S 1	S 2	S 3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	Sediment VIII 95% CL	SRM 1941a, ng/g dry target value[b]	SRM 1941a 95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
naphthalene							NA	NA	NA	NA	107	15	**1010**	**140**			
2-methylnaphthalene							NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene							NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl							NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene							NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene							NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene							NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	27.2	7.4	48	10			
fluorene							NA	NA	NA	NA	67.9	11.1	**97.3**	**8.6**			
phenanthrene							NA	NA	NA	NA	604	63	**489**	**23**			
anthracene							NA	NA	NA	NA	183	27	**184**	**14**			
1-methylphenanthrene							NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene							NA	NA	NA	NA	1293	166	**981**	**78**			
pyrene							NA	NA	NA	NA	1367	175	**811**	**24**			
benz[a]anthracene							NA	NA	NA	NA	551	48	**427**	**25**			
chrysene + triphenylene							NA	NA	NA	NA	944	115	577	35			
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	2110	316	1441	150			
benzo[e]pyrene							NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene							NA	NA	NA	NA	832	98	**628**	**52**			
perylene							NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	710	102	**501**	**72**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	161	23	**117**	**14**			
benzo[ghi]perylene							NA	NA	NA	NA	683	104	**525**	**67**			

Laboratory: 24

PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 24

Reporting Date: 11/13/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	9/30/98	10/13/98	10/29/98				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	<0.1	<0.1	<0.1	1.42	0.505	0.330	<0.1	NA	0.752	77.882	<2		<2				
hexachlorobenzene	0.224	0.742	0.199	46.6	64.0	62.0	0.388	79.028	57.5	16.6	<3		**70**	**25**			5.3
gamma-HCH	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<2		<2				
heptachlor	<0.1	<0.1	<0.1	3.16	5.88	6.77	<0.1	NA	5.27	35.67	<2		<2				
aldrin	<0.1	<0.1	<0.1	0.156	0.290	0.262	<0.1	NA	0.236	29.931	<2		<2				
heptachlor epoxide	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<2		<2				
oxychlordane	inf	inf	inf	inf	inf	inf	inf	NA	inf	NA	<2		2.59	0.20			
trans-chlordane	<0.1	<0.1	<0.1	1.42	1.68	1.38	<0.1	NA	1.49	10.88	1.65	0.51	<2				
2,4'-DDE	inf	inf	inf	2.19	2.48	2.33	inf	NA	2.33	6.23	<2		**0.73**	**0.11**			
endosulfan I	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<2		<2				
cis-chlordane	<0.1	<0.1	<0.1	1.78	1.89	1.39	<0.1	NA	1.69	15.35	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	<0.1	<0.1	<0.1	0.879	0.854	0.873	<0.1	NA	0.869	1.487	0.489	0.412	**1.26**	**0.13**			
dieldrin	<0.1	<0.1	<0.1	0.721	1.04	0.804	<0.1	NA	0.856	19.563	<2		1.26	0.37			
4,4'-DDE	2.46	4.83	3.40	5.59	6.20	5.93	3.56	33.42	5.91	5.16	6.9	0.9	**6.59**	**0.56**	-1.9	-1.7	2.2
2,4'-DDD	4.24	7.68	6.01	1.87	1.96	2.15	5.98	28.75	1.99	7.23	7.15	1.57	<2		-0.7	-0.5	1.9
endrin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<2		<2				
endosulfan II	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	NA	<2		<2				
4,4'-DDD	9.58	14.1	12.1	5.67	6.64	7.09	11.9	19.0	6.47	11.23	17.3	3.0	**5.06**	**0.56**	-1.2	-0.9	1.3
2,4'-DDT	inf	inf	inf	inf	inf	inf	inf	NA	inf	NA	5.14	1.00	<2				
cis-nonachlor	<0.1	<0.1	<0.1	1.07	1.12	0.935	<0.1	NA	1.04	9.05	1.63	1.07	<2				
4,4'-DDT	inf	inf	inf	inf	inf	inf	inf	NA	inf	NA	19.4	2.6	1.25	0.10			
mirex	inf	inf	inf	inf	inf	inf	inf	NA	inf	NA	<2		<2				

Laboratory: 24
Pesticides in Sediment VIII

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

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 24

Reporting Date: 11/13/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	a/3o/98 S 1	a/3o/98 S 2	a/3o/98 S 3	a/3o/98 S 1	a/3o/98 S 2	a/3o/98 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	0.893	1.46	1.03	1.64	1.91	2.25	1.13	26.33	1.94	15.79	2.04	1.39	1.39	0.19	-1.8	-0.6	1.8
PCB 18	2.24	4.33	2.49	2.76	3.08	3.80	3.02	37.78	3.22	16.51	3.61	0.68	1.15	0.16	-0.7	-0.4	2.5
PCB 28	2.32	5.39	3.38	5.32	7.49	6.94	3.69	42.18	6.58	17.16	4.95	0.79	9.8	3.7	-1.0	-0.7	2.8
PCB 52	9.84	17.1	12.4	8.61	10.8	10.4	13.1	28.2	9.94	11.74	15.6	3.4	**6.89**	**0.56**	-0.6	-0.4	1.9
PCB 44	5.31	9.72	6.79	4.65	5.99	5.86	7.27	30.84	5.50	13.37	7.90	1.42	**4.80**	**0.62**	-0.3	-0.2	2.1
PCB 66/95	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	21.7	28.8	21.2	10.9	11.4	10.7	23.9	17.9	11.0	3.2	33.3	6.4	**11.0**	**1.6**	-1.1	-0.7	1.2
PCB 118	17.3	23.2	17.3	9.22	10.2	9.25	19.3	17.7	9.55	5.83	29.7	5.6	**10.0**	**1.1**	-1.4	-0.9	1.2
PCB 153	23.5	28.5	21.8	14.3	14.1	13.6	24.6	14.1	14.0	2.4	50.6	11.8	**17.6**	**1.9**	-2.1	-1.0	0.9
PCB 105	7.52	10.5	7.80	2.97	3.40	2.91	8.62	19.39	3.09	8.67	11.9	1.9	**3.65**	**0.27**	-1.1	-0.8	1.3
PCB 138/163/164	28.3	35.6	29.2	13.8	13.8	13.3	31.0	12.9	13.7	2.3	44.9	8.7	**13.38**	**0.97**	-1.2	-0.8	0.9
PCB 187/182	8.29	9.61	7.33	7.07	6.95	6.50	8.41	13.61	6.84	4.43	11.5	2.2	7.0	2.6	-1.1	-0.6	0.9
PCB 128	10.4	7.40	6.32	1.67	1.56	1.65	8.02	26.01	1.63	3.38	8.22	1.54	**1.87**	**0.32**	-0.1	-0.1	1.7
PCB 180	13.4	15.8	12.0	9.84	10.2	9.13	13.7	13.9	9.73	5.72	21.7	8.6	**5.83**	**0.58**	-1.5	-0.7	0.9
PCB 170/190	8.75	11.9	7.89	4.73	5.07	4.49	9.52	22.27	4.76	6.11	12.6	3.0	**3.00**	**0.46**	-1.0	-0.6	1.5
PCB 195	1.14	1.58	1.23	0.831	2.11	2.06	1.32	17.77	1.67	43.44	2.61	0.61	<3		-2.0	-1.1	1.2
PCB 206	1.14	1.54	1.12	inf	inf	inf	1.27	18.81	inf	NA	3.30	0.67	**3.67**	**0.87**	-2.5	-1.7	1.3
PCB 209	0.624	0.895	0.528	10.6	8.18	9.48	0.682	27.869	9.43	13.08	2.33	0.66	**8.34**	**0.49**	-2.8	-1.3	1.9
PCB 66	5.07	7.63	4.95	7.36	7.46	8.11	5.89	25.71	7.64	5.36	8.85	2.51	**6.8**	**1.4**	-1.3	-0.8	1.7
PCB 95	15.5	24.1	17.7	6.22	7.66	6.96	19.1	23.6	6.95	10.33	20.2	8.1	**7.5**	**1.1**	-0.2	-0.1	1.6

Laboratory: 24
PCBs in Sediment VIII

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	17	14
2 to 3	3	0	3
≥ 3	0	0	0

Water in Sediment VIII

	Sediment VIII, %: S 1	S 2	S 3	lab: mean, %	%RSD	Sediment VIII, %: assigned	95% CL	exercise, %: mean	95% CL	Sediment VIII: z (25%)	z (s)	p (15%)
water	41.9	44.7	45.0	43.9	3.9	44.9	1.3	44.9	1.3	-0.1	-0.3	0.3

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 25

Reporting Date: 11/10/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 10/30/98 S 1	S 2	S 3	SRM 1941a, ng/g dry 10/30/98 S 1	S 2	S 3	Sediment VIII lab mean ng/g dry	lab %RSD	SRM 1941a lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
naphthalene	___	___	___	___	___	___	NA	NA	NA	NA	107	15	**1010**	**140**			
2-methylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	___	___	___	___	___	___	NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene	___	___	___	___	___	___	NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene	___	___	___	___	___	___	NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene	___	___	___	___	___	___	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	___	___	___	___	___	___	NA	NA	NA	NA	67.9	11.1	**97.3**	**8.6**			
phenanthrene	1110	569	4060	___	___	___	1913	98	NA	NA	604	63	**489**	**23**	**8.7**	**10.3**	**6.5**
anthracene	507	196	266	___	___	___	323	51	NA	NA	183	27	**184**	**14**	**3.1**	2.5	**3.4**
1-methylphenanthrene	211	189	186	___	___	___	195	7	NA	NA	87.3	13.4	101	27	**4.9**	**4.6**	0.5
fluoranthene	2410	1540	2350	___	___	___	2100	23	NA	NA	1293	166	**981**	**78**	2.5	2.2	1.5
pyrene	2090	1470	2220	___	___	___	1927	21	NA	NA	1367	175	**811**	**24**	1.6	1.5	1.4
benz[a]anthracene	3180	1030	1480	___	___	___	1897	60	NA	NA	551	48	**427**	**25**	**9.8**	**12.3**	**4.0**
chrysene + triphenylene	3090	1150	1560	___	___	___	1933	53	NA	NA	944	115	577	35	**4.2**	**4.0**	**3.5**
benzofluoranthenes [b+j+k]	596	1107	814	___	___	___	839	31	NA	NA	2110	316	1441	150	-2.4	-2.0	2.0
benzo[e]pyrene	___	___	___	___	___	___	NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene	901	470	1810	___	___	___	1060	65	NA	NA	832	98	**628**	**52**	1.1	1.1	**4.3**
perylene	354	461	976	___	___	___	597	56	NA	NA	248	26	**452**	**58**	**5.6**	**6.7**	**3.7**
indeno[1,2,3-cd]pyrene	577	143	384	___	___	___	368	59	NA	NA	710	102	**501**	**72**	-1.9	-1.6	**3.9**
dibenz[a,h]anthracene + [a,c]	600	158	79	___	___	___	279	101	NA	NA	161	23	**117**	**14**	2.9	2.7	**6.7**
benzo[ghi]perylene	554	125	235	___	___	___	305	73	NA	NA	683	104	**525**	**67**	-2.2	-1.6	**4.9**

Laboratory: 25
PAH in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	13	57
Qualitative	0	0
Not Determined	10	43

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	3	4	3
2 to 3	4	4	1
≥ 3	6	5	9

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Laboratory No.: 25

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Reporting Date: 11/10/98

PESTICIDES

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/2/98 S 1	10/2/98 S 2	10/2/98 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	NA	NA	<2		<2				
hexachlorobenzene							NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH							NA	NA	NA	NA	<2		<2				
heptachlor							NA	NA	NA	NA	<2		<2				
aldrin							NA	NA	NA	NA	<2		<2				
heptachlor epoxide							NA	NA	NA	NA	<2		<2				
oxychlordane							NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane							NA	NA	NA	NA	1.65	0.51	<2				
2,4'-DDE	1280						1280	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I							NA	NA	NA	NA	<2		<2				
cis-chlordane							NA	NA	NA	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor							NA	NA	NA	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin							NA	NA	NA	NA	<2		1.26	0.37			
4,4'-DDE	329						329	NA	NA	NA	6.86	0.94	**6.59**	**0.56**	**187.9**	**165.9**	
2,4'-DDD	1560	406	1120				1029	57	NA	NA	7.15	1.57	<2		**571.6**	**466.0**	**3.8**
endrin							NA	NA	NA	NA	<2		<2				
endosulfan II							NA	NA	NA	NA	<2		<2				
4,4'-DDD	1090	210	888				729	63	NA	NA	17.3	3.0	**5.06**	**0.56**	**164.4**	**113.3**	**4.2**
2,4'-DDT							NA	NA	NA	NA	5.14	1.00	<2				
cis-nonachlor							NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	822	104	473				466	77	NA	NA	19.4	2.6	1.25	0.10	**92.2**	**104.0**	**5.1**
mirex							NA	NA	NA	NA	<2		<2				

Laboratory: 25
Pesticides in Sediment VIII

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

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

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 25

Reporting Date: 11/10/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/2/98 S 1	10/2/98 S 2	10/2/98 S 3	10/2/98 S 1	10/2/98 S 2	10/2/98 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	2.04	1.39	1.39	0.19			
PCB 18	___	___	___	___	___	___	NA	NA	NA	NA	3.61	0.68	1.15	0.16			
PCB 28	___	___	___	___	___	___	NA	NA	NA	NA	4.95	0.79	9.8	3.7			
PCB 52	___	___	___	___	___	___	NA	NA	NA	NA	15.6	3.4	**6.89**	**0.56**			
PCB 44	300	___	550	___	___	___	425	42	NA	NA	7.90	1.42	**4.80**	**0.62**	**211.3**	**137.0**	2.8
PCB 66/95	293	475	1150	___	___	___	639	71	NA	NA	16.7	7.5	**14.3**	**2.5**	**148.8**	**59.1**	**4.7**
PCB 101/90	315	___	___	___	___	___	315	NA	NA	NA	33.3	6.4	**11.0**	**1.6**	**33.9**	**20.7**	
PCB 118	904	491	1710	___	___	___	1035	60	NA	NA	29.7	5.6	**10.0**	**1.1**	**135.4**	**84.3**	**4.0**
PCB 153	___	549	___	___	___	___	549	NA	NA	NA	50.6	11.8	**17.6**	**1.9**	**39.4**	**19.8**	
PCB 105	___	893	2890	___	___	___	1892	75	NA	NA	11.9	1.9	**3.65**	**0.27**	**633.1**	**478.7**	**5.0**
PCB 138/163/164	___	___	___	___	___	___	NA	NA	NA	NA	44.9	8.7	**13.38**	**0.97**			
PCB 187/182	470	395	986	___	___	___	617	52	NA	NA	11.5	2.2	7.0	2.6	**211.1**	**123.9**	**3.5**
PCB 128	1540	1190	3060	___	___	___	1930	52	NA	NA	8.22	1.54	**1.87**	**0.32**	**935.4**	**599.8**	**3.4**
PCB 180	884	504	1720	___	___	___	1036	60	NA	NA	21.7	8.6	**5.83**	**0.58**	**186.5**	**91.0**	**4.0**
PCB 170/190	885	294	1290	___	___	___	823	61	NA	NA	12.6	3.0	**3.00**	**0.46**	**256.8**	**156.1**	**4.1**
PCB 195	___	___	___	___	___	___	NA	NA	NA	NA	2.61	0.61	<3				
PCB 206	___	___	584	___	___	___	584	NA	NA	NA	3.30	0.67	**3.67**	**0.87**	**703.8**	**482.5**	
PCB 209	___	___	475	___	___	___	475	NA	NA	NA	2.33	0.66	**8.34**	**0.49**	**812.2**	**383.1**	
PCB 66	___	___	___	___	___	___	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	___	___	___	___	___	___	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 25

PCBs in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	12	67
Qualitative	0	0
Not Determined	6	33

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

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	43.0	44.0	43.0	43.3	1.3	44.9	1.3	44.9	1.3	-0.1	-0.5	0.1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Laboratory No.: 26

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Reporting Date: November 18,1998

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/6/98 S 1	10/6/98 S 2	10/5/98 S 3	10/6/98 S 1	10/6/98 S 2	10/5/98 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	66.0	70.6	72.0	465	660	____	69.5	4.5	563	25	107	15	**1010**	**140**	-1.4	-1.3	0.3
2-methylnaphthalene	55.2	65.4	68.5	188	261	____	63.0	11.0	225	23	77.4	10.2	325	60	-0.7	-0.8	0.7
1-methylnaphthalene	37.6	40.6	42.5	94	118	____	40.2	6.1	106	16	50.7	7.3	150	30	-0.8	-0.8	0.4
biphenyl	26.0	27.8	29.3	60	80	____	27.7	6.0	70.2	20.1	36.6	13.5	175	18	-1.0	-0.7	0.4
2,6-dimethylnaphthalene	48.1	53.1	58.3	103	139	____	53.2	9.6	121	21.0	51.2	8.9	120	24	0.2	0.1	0.6
acenaphthylene	109	83.6	95.4	72	62	____	96.0	13.2	67.0	11.5	50.2	22.6	37	14	3.6	1.7	0.9
acenaphthene	39.7	35.3	31.3	30	27	____	35.4	11.9	28.5	7.4	38.2	3.9	41	10	-0.3	-0.4	0.8
1,6,7-trimethylnaphthalene	N.A.	9.50	8.90	16	14	____	9.20	4.61	14.8	8.6	27.2	7.4	48	10	-2.6	-2.0	0.3
fluorene	78.2	63.9	57.8	52	48	____	66.6	15.7	50.0	5.4	67.9	11.1	**97.3**	**8.6**	-0.1	-0.1	1.0
phenanthrene	540	512	526	304	294	____	526	2.7	299	2	604	63	**489**	**23**	-0.5	-0.6	0.2
anthracene	265	218	242	155	138	____	242	9.7	147	8	183	27	**184**	**14**	1.3	1.0	0.6
1-methylphenanthrene	N.A.	63.3	67.4	41	43	____	65.4	4.4	42.1	3.2	87.3	13.4	101	27	-1.0	-0.9	0.3
fluoranthene	1310	1280	1470	751	865	____	1353	8	808	10	1293	166	**981**	**78**	0.2	0.2	0.5
pyrene	1340	1350	1540	630	712	____	1410	8	671	9	1367	175	**811**	**24**	0.1	0.1	0.5
benz[a]anthracene	597	588	717	400	425	____	634	11	413	4	551	48	**427**	**25**	0.6	0.8	0.8
chrysene + triphenylene	829	962	1140	427	547	____	977	16	487	17	944	115	577	35	0.1	0.1	1.1
benzofluoranthenes [b+j+k]	2670	1980	2320	1530	1410	____	2323	15	1470	6	2110	316	1441	150	0.4	0.3	1.0
benzo[e]pyrene	870	756	868	542	556	____	831	8	549	2	805	103	**553**	**59**	0.1	0.1	0.5
benzo[a]pyrene	945	706	798	558	477	____	816	15	518	11	832	98	**628**	**52**	-0.1	-0.1	1.0
perylene	304	228	265	392	335	____	266	14	364	11	248	26	**452**	**58**	0.3	0.3	1.0
indeno[1,2,3-cd]pyrene	619	508	653	414	381	____	593	13	398	6	710	102	**501**	**72**	-0.7	-0.5	0.9
dibenz[a,h]anthracene + [a,c]	220	174	224	151	115	____	206	13	133	19	161	23	**117**	**14**	1.1	1.0	0.9
benzo[ghi]perylene	578	476	594	473	385	____	549	12	429	15	683	104	**525**	**67**	-0.8	-0.6	0.8

Laboratory: 26
PAH in Sediment VIII

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	1	1	0
≥ 3	1	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 26

Reporting Date: November 18,1998

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/5/98 S 1	11/2/98 S 2	11/2/98 S 3	10/5/98 S 1	11/2/98 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	N.A.	N.A.	N.A.	N.A.	N.A.	____	NA	NA	NA	NA	<2		<2				
hexachlorobenzene	0.500	0.300	0.400	68.7	68.4	____	0.400	25.000	68.6	0.3	<3		**70**	**25**			1.7
gamma-HCH	<0.6	<0.6	<0.6	<0.6	<0.6	____	<0.6	NA	<0.6	NA	<2		<2				
heptachlor	<0.5	<0.5	<0.5	<0.5	<0.5	____	<0.5	NA	<0.5	NA	<2		<2				
aldrin	<0.7	<0.7	<0.7	<0.7	<0.7	____	<0.7	NA	<0.7	NA	<2		<2				
heptachlor epoxide	<0.5	<0.5	<0.5	<0.5	<0.5	____	<0.5	NA	<0.5	NA	<2		<2				
oxychlordane	N.A.	N.A.	N.A.	N.A.	N.A.	____	N.A.	NA	N.A.	NA	<2		2.59	0.20			
trans-chlordane	N.A.	N.A.	N.A.	N.A.	N.A.	____	N.A.	NA	N.A.	NA	1.65	0.51	<2				
2,4'-DDE	<0.8	<0.8	<0.8	<0.8	<0.8	____	<0.8	NA	<0.8	NA	<2		**0.73**	**0.11**			
endosulfan I	N.A.	N.A.	N.A.	N.A.	N.A.	____	N.A.	NA	N.A.	NA	<2		<2				
cis-chlordane	0.800	<0.8	<0.8	3.40	2.80	____	<0.8	NA	3.10	13.69	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	0.400	0.200	0.200	1.30	1.10	____	0.267	43.301	1.20	11.79	0.489	0.412	**1.26**	**0.13**	-1.8	-0.9	2.9
dieldrin	other	other	other	other	other	____	other	NA	other	NA	<2		1.26	0.37			
4,4'-DDE	5.60	8.20	11.3	7.20	6.70	____	8.37	34.11	6.95	5.09	6.86	0.94	**6.59**	**0.56**	0.9	0.8	2.3
2,4'-DDD	other	other	other	other	other	____	other	NA	other	NA	7.15	1.57	<2				
endrin	N.A.	N.A.	N.A.	N.A.	N.A.	____	N.A.	NA	N.A.	NA	<2		<2				
endosulfan II	N.A.	N.A.	N.A.	N.A.	N.A.	____	N.A.	NA	N.A.	NA	<2		<2				
4,4'-DDD	31.8	27.4	33.8	12.9	7.50	____	31.0	10.6	10.2	37.4	17.3	3.0	**5.06**	**0.56**	**3.2**	2.2	0.7
2,4'-DDT	13.8	8.50	10.9	4.70	1.70	____	11.1	24.0	3.20	66.29	5.14	1.00	<2		**4.6**	**4.0**	1.6
cis-nonachlor	N.A.	N.A.	N.A.	N.A.	N.A.	____	N.A.	NA	N.A.	NA	1.63	1.07	<2				
4,4'-DDT	32.9	22.6	29.7	1.80	1.30	____	28.4	18.6	1.55	22.81	19.4	2.6	1.25	0.10	1.9	2.1	1.2
mirex	<0.6	0.100	0.200	<0.6	<0.6	____	0.150	47.140	<0.6	NA	<2		<2				**3.1**

Laboratory: 26
Pesticides in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	7	32
Qualitative	14	64
Not Determined	1	5

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

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 26

Reporting Date: November 18,1998

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/5/98 S 1	10/5/98 S 2	10/5/98 S 3	10/5/98 S 1	10/5/98 S 2	10/5/98 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	1.70	1.10	1.80	2.60	3.30	___	1.53	24.69	2.95	16.78	2.04	1.39	1.39	0.19	-1.0	-0.3	1.6
PCB 18	4.00	3.30	9.20	3.60	4.10	___	5.50	58.61	3.85	9.18	3.61	0.68	1.15	0.16	2.1	1.3	**3.9**
PCB 28	9.50	7.60	7.70	10.4	9.50	___	8.27	12.93	9.95	6.40	4.95	0.79	9.8	3.7	2.7	2.0	0.9
PCB 52	26.9	18.4	19.0	10.4	11.5	___	21.4	22.1	11.0	7.1	15.6	3.4	**6.89**	**0.56**	1.5	0.9	1.5
PCB 44	11.2	11.0	13.1	6.00	5.50	___	11.8	9.9	5.75	6.15	7.90	1.42	**4.80**	**0.62**	2.0	1.3	0.7
PCB 66/95	43.5	32.5	35.4	15.5	14.9	___	37.1	15.4	15.2	2.8	16.7	7.5	**14.3**	**2.5**	**4.9**	1.9	1.0
PCB 101/90	44.0	34.3	37.8	14.7	14.7	___	38.7	12.7	14.7	0.0	33.3	6.4	**11.0**	**1.6**	0.7	0.4	0.8
PCB 118	42.0	31.9	35.9	9.20	9.10	___	36.6	13.9	9.15	0.77	29.7	5.6	**10.0**	**1.1**	0.9	0.6	0.9
PCB 153	70.8	58.3	64.9	18.4	18.6	___	64.7	9.7	18.5	0.8	50.6	11.8	**17.6**	**1.9**	1.1	0.6	0.6
PCB 105	13.7	11.1	12.1	3.70	3.00	___	12.3	10.7	3.35	14.78	11.9	1.9	**3.65**	**0.27**	0.1	0.1	0.7
PCB 138/163/164	N.A.	44.4	49.6	17.6	31.1	___	47.0	7.8	24.4	39.2	44.9	8.7	**13.38**	**0.97**	0.2	0.1	0.5
PCB 187/182	19.5	11.2	12.4	9.40	9.10	___	14.4	31.2	9.25	2.29	11.5	2.2	7.0	2.6	1.0	0.6	2.1
PCB 128	12.5	9.00	10.2	1.80	1.90	___	10.6	16.8	1.85	3.82	8.22	1.54	**1.87**	**0.32**	1.1	0.7	1.1
PCB 180	32.1	19.4	22.6	12.5	11.5	___	24.7	26.7	12.0	5.9	21.7	8.6	**5.83**	**0.58**	0.5	0.3	1.8
PCB 170/190	N.A.	12.8	14.8	<0.5	<0.5	___	13.8	10.2	<0.5	NA	12.6	3.0	**3.00**	**0.46**	0.4	0.2	0.7
PCB 195	4.20	2.90	3.50	<0.6	<0.6	___	3.53	18.41	<0.6	NA	2.61	0.61	<3		1.4	0.8	1.2
PCB 206	3.90	3.20	3.30	4.40	4.50	___	3.47	10.92	4.45	1.6	3.30	0.67	**3.67**	**0.87**	0.2	0.1	0.7
PCB 209	2.70	1.60	1.70	11.3	11.7	___	2.00	30.41	11.5	2.5	2.33	0.66	**8.34**	**0.49**	-0.6	-0.3	2.0
PCB 66	___	___	___	___	___	___	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	___	___	___	___	___	___	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 26
PCBs in Sediment VIII

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	15	18	15
2 to 3	2	0	2
≥ 3	1	0	1

Water in Sediment VIII

	Sediment VIII, %				lab			Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3		mean, %	%RSD		assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	44.3	45.3	45.5		45.0	1.4		44.9	1.3	44.9	1.3	0.0	0.0	0.1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 27

Reporting Date: 11/16/98

PAH

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	9/29/98 S 1	9/29/98 S 2	9/29/98 S 3	9/29/98 S 1	9/29/98 S 2	9/25/98 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	63.9	<35.0	____	527	620	____	63.9	NA	574	11	107	15	**1010**	**140**	-1.6	-1.5	
2-methylnaphthalene	N.A.	N.A.	____	N.A.	N.A.	____	NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene	N.A.	N.A.	____	N.A.	N.A.	____	NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl	N.A.	N.A.	____	N.A.	N.A.	____	NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene	N.A.	N.A.	____	N.A.	N.A.	____	NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene	63.9	<54.0	____	81.0	61.0	____	63.9	NA	71.0	19.9	50.2	22.6	37	14	1.1	0.5	
acenaphthene	31.9	<28.0	____	30.4	30.5	____	31.9	NA	30.5	0.2	38.2	3.9	41	10	-0.7	-0.9	
1,6,7-trimethylnaphthalene	N.A.	N.A.	____	N.A.	N.A.	____	NA	NA	NA	NA	27.2	7.4	48	10			
fluorene	47.9	<41.0	____	50.6	41.0	____	47.9	NA	45.8	14.8	67.9	11.1	**97.3**	**8.6**	-1.2	-1.1	
phenanthrene	259	522	____	294	305	____	391	48	300	3	604	63	**489**	**23**	-1.4	-1.7	**3.2**
anthracene	113	286	____	122	122	____	200	61	122	0	183	27	**184**	**14**	0.4	0.3	**4.1**
1-methylphenanthrene	N.A.	N.A.	____	N.A.	N.A.	____	NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene	728	657	____	669	661	____	693	7	665	1	1293	166	**981**	**78**	-1.9	-1.6	0.5
pyrene	842	657	____	588	589	____	750	17	589	0	1367	175	**811**	**24**	-1.8	-1.6	1.2
benz[a]anthracene	388	253	____	355	305	____	321	30	330	11	551	48	**427**	**25**	-1.7	-2.1	2.0
chrysene + triphenylene	615	623	____	385	518	____	619	1	452	21	944	115	577	35	-1.4	-1.3	0.1
benzofluoranthenes [b+j+k]	1130	960	____	963	976	____	1045	12	970	1	2110	316	1441	150	-2.0	-1.7	0.8
benzo[e]pyrene	N.A.	N.A.	____	N.A.	N.A.	____	NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene	420	488	____	375	427	____	454	11	401	9	832	98	**628**	**52**	-1.8	-1.8	0.7
perylene	N.A.	N.A.	____	N.A.	N.A.	____	NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene	340	<117	____	385	437	____	340	NA	411	9	710	102	**501**	**72**	-2.1	-1.7	
dibenz[a,h]anthracene + [a,c]	<70.0	<70.0	____	70.9	71.1	____	<70.0	NA	71.0	0.2	161	23	**117**	**14**			
benzo[ghi]perylene	291	<115	____	415	427	____	291	NA	421	2	683	104	**525**	**67**	-2.3	-1.7	

Laboratory: 27
PAH in Sediment VIII

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	13	6
2 to 3	3	1	0
≥ 3	0	0	2

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 27
Reporting Date: 11/16/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	9/28/98 S 1	S 2	S 3	9/28/98 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	<2.50			<2.50			<2.50	NA	<2.50	NA	<2		<2				
hexachlorobenzene	N.A.			N.A.			NA	NA	NA	NA	<3		**70**	**25**			
gamma-HCH	<2.50			<2.50			<2.50	NA	<2.50	NA	<2		<2				
heptachlor	<2.50			<2.50			<2.50	NA	<2.50	NA	<2		<2				
aldrin	<2.50			<2.50			<2.50	NA	<2.50	NA	<2		<2				
heptachlor epoxide	<2.50			<2.50			<2.50	NA	<2.50	NA	<2		<2				
oxychlordane	N.A.			N.A.			NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane	1.63			2.04			1.63	NA	2.04	NA	1.65	0.51	<2		0.0	-0.1	
2,4'-DDE	N.A.			N.A.			NA	NA	NA	NA	<2		**0.73**	**0.11**			
endosulfan I	<2.50			<2.50			<2.50	NA	<2.50	NA	<2		<2				
cis-chlordane	<2.50			<2.50			<2.50	NA	<2.50	NA	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	N.A.			N.A.			NA	NA	NA	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin	<5.00			<5.00			<5.00	NA	<5.00	NA	<2		1.26	0.37			
4,4'-DDE	4.02			5.26			4.0	NA	5.26	NA	6.86	0.94	**6.59**	**0.56**	-1.7	-1.5	
2,4'-DDD	N.A.			N.A.			NA	NA	NA	NA	7.15	1.57	<2				
endrin	<5.00			<5.00			<5.00	NA	<5.00	NA	<2		<2				
endosulfan II	<5.00			<5.00			<5.00	NA	<5.00	NA	<2		<2				
4,4'-DDD	12.2			5.93			12.2	NA	5.93	NA	17.3	3.0	**5.06**	**0.56**	-1.2	-0.8	
2,4'-DDT	N.A.			N.A.			NA	NA	NA	NA	5.14	1.00	<2				
cis-nonachlor	N.A.			N.A.			NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	18.3			<5.00			18.3	NA	<5.00	NA	19.4	2.6	1.25	0.10	-0.2	-0.3	
mirex	N.A.			N.A.			NA	NA	NA	NA	<2		<2				

Laboratory: 27
Pesticides in Sediment VIII

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	4	4	0
2 to 3	0	0	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 27
Reporting Date: 11/16/98

PCBs

	Data as submitted by laboratory									Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	s/z/98 S 1	s/z/98 S 2	s/z/98 S 3	s/z/98 S 1	s/z/98 S 2	s/z/98 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	<0.50			<0.50			<0.50	NA	<0.50	NA	2.04	1.39	1.39	0.19			
PCB 18	<0.50			<0.50			<0.50	NA	<0.50	NA	3.61	0.68	1.15	0.16			
PCB 28	N.A.			N.A.			NA	NA	NA	NA	4.95	0.79	9.8	3.7			
PCB 52	5.57			5.30			5.57	NA	5.30	NA	15.6	3.4	**6.89**	**0.56**	-2.6	-1.6	
PCB 44	5.62			4.30			5.62	NA	4.30	NA	7.90	1.42	**4.80**	**0.62**	-1.2	-0.7	
PCB 66/95	N.A.			N.A.			NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	17.8			8.06			17.8	NA	8.06	NA	33.3	6.4	**11.0**	**1.6**	-1.9	-1.1	
PCB 118	25.2			8.62			25.2	NA	8.62	NA	29.7	5.6	**10.0**	**1.1**	-0.6	-0.4	
PCB 153	14.7			7.08			14.7	NA	7.08	NA	50.6	11.8	**17.6**	**1.9**	-2.8	-1.4	
PCB 105	7.22			3.10			7.22	NA	3.10	NA	11.9	1.9	**3.65**	**0.27**	-1.6	-1.2	
PCB 138/163/164	<0.50			<0.50			<0.50	NA	<0.50	NA	44.9	8.7	**13.38**	**0.97**			
PCB 187/182	5.43			5.25			5.43	NA	5.25	NA	11.5	2.2	7.0	2.6	-2.1	-1.2	
PCB 128	7.60			2.85			7.60	NA	2.85	NA	8.22	1.54	**1.87**	**0.32**	-0.3	-0.2	
PCB 180	10.7			7.43			10.7	NA	7.43	NA	21.7	8.6	**5.83**	**0.58**	-2.0	-1.0	
PCB 170/190	4.38			2.82			4.38	NA	2.82	NA	12.6	3.0	**3.00**	**0.46**	-2.6	-1.6	
PCB 195	<0.50			<0.50			<0.50	NA	<0.50	NA	2.61	0.61	<3				
PCB 206	N.A.			N.A.			NA	NA	NA	NA	3.30	0.67	**3.67**	**0.87**			
PCB 209	N.A.			N.A.			NA	NA	NA	NA	2.33	0.66	**8.34**	**0.49**			
PCB 66	<0.50			4.99			<0.50	NA	4.99	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	11.1			4.88			11.1	NA	4.88	NA	20.2	8.1	**7.5**	**1.1**	-1.8	-1.2	

Laboratory: 27
PCBs in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	10	56
Qualitative	4	22
Not Determined	4	22

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

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	60.8	58.8		59.8	2.4	44.9	1.3	44.9	1.3	1.3	4.5	0.2

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 28

Reporting Date: 11/20/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
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	107	15	**1010**	**140**			
2-methylnaphthalene							NA	NA	NA	NA	77.4	10.2	325	60			
1-methylnaphthalene							NA	NA	NA	NA	50.7	7.3	150	30			
biphenyl							NA	NA	NA	NA	36.6	13.5	175	18			
2,6-dimethylnaphthalene							NA	NA	NA	NA	51.2	8.9	120	24			
acenaphthylene							NA	NA	NA	NA	50.2	22.6	37	14			
acenaphthene							NA	NA	NA	NA	38.2	3.9	41	10			
1,6,7-trimethylnaphthalene							NA	NA	NA	NA	27.2	7.4	48	10			
fluorene							NA	NA	NA	NA	67.9	11.1	**97.3**	**8.6**			
phenanthrene							NA	NA	NA	NA	604	63	**489**	**23**			
anthracene							NA	NA	NA	NA	183	27	**184**	**14**			
1-methylphenanthrene							NA	NA	NA	NA	87.3	13.4	101	27			
fluoranthene							NA	NA	NA	NA	1293	166	**981**	**78**			
pyrene							NA	NA	NA	NA	1367	175	**811**	**24**			
benz[a]anthracene							NA	NA	NA	NA	551	48	**427**	**25**			
chrysene + triphenylene							NA	NA	NA	NA	944	115	577	35			
benzofluoranthenes [b+j+k]							NA	NA	NA	NA	2110	316	1441	150			
benzo[e]pyrene							NA	NA	NA	NA	805	103	**553**	**59**			
benzo[a]pyrene							NA	NA	NA	NA	832	98	**628**	**52**			
perylene							NA	NA	NA	NA	248	26	**452**	**58**			
indeno[1,2,3-cd]pyrene							NA	NA	NA	NA	710	102	**501**	**72**			
dibenz[a,h]anthracene + [a,c]							NA	NA	NA	NA	161	23	117	14			
benzo[ghi]perylene							NA	NA	NA	NA	683	104	**525**	**67**			

Laboratory: 28

PAH in Sediment VIII

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 28
Reporting Date: 11/20/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/22/98 S 1	10/22/98 S 2	10/22/98 S 3	10/22/98 S 1	10/22/98 S 2	10/22/98 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	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	<2		<2				
hexachlorobenzene	<1.0	<1.0	<1.0	98.4	85.0	79.3	<1.0	NA	87.6	11.2	<3		**70**	**25**			
gamma-HCH	<1.0	<1.0	<1.0	<1.0	1.42	1.07	<1.0	NA	1.25	19.88	<2		<2				
heptachlor	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	<2		<2				
aldrin	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	<2		<2				
heptachlor epoxide	3.66	3.65	3.88	<1.0	<1.0	<1.0	3.73	3.49	<1.0	NA	<2		<2				0.2
oxychlordane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	<2		2.59	0.20			
trans-chlordane	<1.0	<1.0	<1.0	2.13	1.93	<1.0	<1.0	NA	2.03	6.97	1.65	0.51	<2				
2,4'-DDE	<1.0	<1.0	1.06	<1.0	<1.0	<1.0	<1.06	NA	<1.0	NA	<2		**0.73**	**0.11**			
endosulfan I	4.62	4.22	4.94	<1.0	1.03	1.66	4.59	7.85	1.35	33.12	<2		<2				0.5
cis-chlordane	<1.0	<1.0	<1.0	2.44	3.62	2.47	<1.0	NA	2.84	23.66	1.78	1.32	**2.33**	**0.56**			
trans-nonachlor	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin	4.51	5.74	5.18	2.49	1.71	1.00	5.14	11.97	1.73	43.00	<2		1.26	0.37			0.8
4,4'-DDE	9.04	9.58	10.3	6.97	5.84	5.98	9.64	6.56	6.26	9.83	6.86	0.94	**6.59**	**0.56**	1.6	1.4	0.4
2,4'-DDD	6.04	5.92	6.34	1.77	1.99	1.84	6.10	3.55	1.87	6.02	7.15	1.57	<2		-0.6	-0.5	0.2
endrin	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	<2		<2				
endosulfan II	12.8	15.1	14.8	1.83	1.68	1.34	14.2	8.8	1.62	15.53	<2		<2				0.6
4,4'-DDD	20.7	19.0	20.0	4.73	4.39	3.84	19.9	4.3	4.32	10.40	17.3	3.0	**5.06**	**0.56**	0.6	0.4	0.3
2,4'-DDT	6.86	6.20	6.77	<1	<1	<1	6.61	5.41	<1.0	NA	5.14	1.00	<2		1.1	1.0	0.4
cis-nonachlor	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	1.63	1.07	<2				
4,4'-DDT	24.1	20.7	22.3	<1.0	<1.0	<1.0	22.4	7.6	<1.0	NA	19.4	2.6	1.25	0.10	0.6	0.7	0.5
mirex	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	<2		<2				

Laboratory: 28
Pesticides in Sediment VIII

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	5	5	9
2 to 3	0	0	0
≥ 3	0	0	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 28

Reporting Date: 11/20/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/22/98 S 1	10/22/98 S 2	10/22/98 S 3	10/22/98 S 1	10/22/98 S 2	10/22/98 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	2.74	6.26	3.54	2.96	2.55	3.45	4.18	44.14	2.99	15.09	2.04	1.39	1.39	0.19	**4.2**	1.4	2.9
PCB 18	4.28	5.35	5.33	6.14	2.23	2.25	4.99	12.27	3.54	63.61	3.61	0.68	1.15	0.16	1.5	1.0	0.8
PCB 28	5.96	6.01	5.92	7.11	8.15	7.54	5.96	0.76	7.60	6.88	4.95	0.79	9.8	3.7	0.8	0.6	0.1
PCB 52	21.7	22.7	23.4	8.30	9.39	8.68	22.6	3.8	8.79	6.29	15.6	3.4	**6.89**	**0.56**	1.8	1.1	0.3
PCB 44	11.8	11.8	13.3	5.93	6.02	6.25	12.3	7.0	6.07	2.72	7.90	1.42	**4.80**	**0.62**	2.2	1.4	0.5
PCB 66/95	___	___	___	___	___	___	NA	NA	NA	NA	16.7	7.5	**14.3**	**2.5**			
PCB 101/90	50.9	54.8	58.4	12.4	13.9	12.2	54.7	6.9	12.8	7.2	33.3	6.4	**11.0**	**1.6**	2.6	1.6	0.5
PCB 118	47.9	49.7	52.0	10.9	11.4	11.4	49.9	4.1	11.2	2.6	29.7	5.6	**10.0**	**1.1**	2.7	1.7	0.3
PCB 153	49.7	49.7	55.4	12.8	14.9	14.3	51.6	6.4	14.0	7.7	50.6	11.8	**17.6**	**1.9**	0.1	0.0	0.4
PCB 105	15.3	15.3	16.2	3.77	1.48	2.54	15.6	3.3	2.60	44.14	11.9	1.9	**3.65**	**0.27**	1.3	0.9	0.2
PCB 138/163/164	58.2	65.1	66.2	9.8	11.4	11.0	63.2	6.9	10.7	7.9	44.9	8.7	**13.38**	**0.97**	1.6	1.0	0.5
PCB 187/182	16.3	18.6	18.1	6.71	7.08	6.50	17.7	6.8	6.76	4.34	11.5	2.2	7.0	2.6	2.2	1.3	0.5
PCB 128	11.0	12.1	11.8	1.67	1.58	1.52	11.6	4.9	1.59	4.75	8.22	1.54	**1.87**	**0.32**	1.7	1.1	0.3
PCB 180	28.8	34.2	32.9	10.2	9.84	9.55	32.0	8.8	9.86	3.30	21.7	8.6	**5.83**	**0.58**	1.9	0.9	0.6
PCB 170/190	14.6	18.1	17.6	4.81	3.65	3.35	16.8	11.3	3.94	19.59	12.6	3.0	**3.00**	**0.46**	1.3	0.8	0.8
PCB 195	2.92	3.24	3.31	1.70	<1	<1	3.16	6.6	<1.70	NA	2.61	0.61	<3		0.8	0.4	0.4
PCB 206	4.01	4.16	4.27	5.50	4.66	5.01	4.15	3.1	5.06	8.34	3.30	0.67	**3.67**	**0.87**	1.0	0.7	0.2
PCB 209	2.88	2.30	3.22	10.5	11.1	11.0	2.80	16.6	10.9	3.0	2.33	0.66	**8.34**	**0.49**	0.8	0.4	1.1
PCB 66	12.1	12.4	12.7	12.9	8.61	7.66	12.4	2.4	9.72	28.71	8.85	2.51	**6.8**	**1.4**	1.6	1.0	0.2
PCB 95	___	___	___	___	___	___	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 28
PCBs in Sediment VIII

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	12	17	16
2 to 3	4	0	1
≥ 3	1	0	0

Water in Sediment VIII

	Sediment VIII, %				lab			Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3		mean, %	%RSD		assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	44.5	44.6	45.1		44.7	0.7		44.9	1.3	44.9	1.3	0.0	-0.1	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 29
Reporting Date: 12/4/98

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	11/22/98 S 1	11/23/98 S 2	11/23/98 S 3	11/22/98 S 1	11/22/98 S 2	11/22/98 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	127	145	165	1031	____	____	146	13	1031	NA	107	15	**1010**	**140**	1.4	1.3	0.9
2-methylnaphthalene	100	114	125	367	____	____	113	11	367	NA	77.4	10.2	325	60	1.8	1.9	0.8
1-methylnaphthalene	60.3	66.8	74.3	168	____	____	67.1	10.4	168	NA	50.7	7.3	150	30	1.3	1.3	0.7
biphenyl	42.0	41.8	45.9	109	____	____	43.2	5.3	109	NA	36.6	13.5	175	18	0.7	0.5	0.4
2,6-dimethylnaphthalene	67.2	76.8	84.8	170	____	____	76.3	11.6	170	NA	51.2	8.9	120	24	2.0	1.6	0.8
acenaphthylene	29.5	28.0	34.0	46.4	____	____	30.5	10.2	46.4	NA	50.2	22.6	37	14	-1.6	-0.7	0.7
acenaphthene	54.7	58.1	59.5	44.8	____	____	57.4	4.3	44.8	NA	38.2	3.9	41	10	2.0	2.6	0.3
1,6,7-trimethylnaphthalene	22.9	23.8	26.6	36.7	____	____	24.4	7.9	36.7	NA	27.2	7.4	48	10	-0.4	-0.3	0.5
fluorene	98.0	98.7	96.0	92.5	____	____	97.6	1.4	92.5	NA	67.9	11.1	**97.3**	**8.6**	1.7	1.6	0.1
phenanthrene	607	642	657	447	____	____	635	4	447	NA	604	63	**489**	**23**	0.2	0.2	0.3
anthracene	115	124	138	139	____	____	126	9	139	NA	183	27	**184**	**14**	-1.2	-1.0	0.6
1-methylphenanthrene	99.3	107	106	86.6	____	____	104	4	86.6	NA	87.3	13.4	101	27	0.8	0.7	0.3
fluoranthene	1572	1566	1648	958	____	____	1595	3	958	NA	1293	166	**981**	**78**	0.9	0.8	0.2
pyrene	1533	1665	1710	721	____	____	1636	6	721	NA	1367	175	**811**	**24**	0.8	0.7	0.4
benz[a]anthracene	796	776	812	501	____	____	795	2	501	NA	551	48	**427**	**25**	1.8	2.2	0.2
chrysene + triphenylene	993	971	1026	513	____	____	997	3	513	NA	944	115	577	35	0.2	0.2	0.2
benzofluoranthenes [b+j+k]	2818	2537	2776	1608	____	____	2710	6	1608	NA	2110	316	1441	150	1.1	0.9	0.4
benzo[e]pyrene	957	861	966	578	____	____	928	6	578	NA	805	103	**553**	**59**	0.6	0.7	0.4
benzo[a]pyrene	826	770	844	456	____	____	813	5	456	NA	832	98	**628**	**52**	-0.1	-0.1	0.3
perylene	255	239	261	301	____	____	252	5	301	NA	248	26	**452**	**58**	0.1	0.1	0.3
indeno[1,2,3-cd]pyrene	974	801	872	547	____	____	882	10	547	NA	710	102	**501**	**72**	1.0	0.8	0.7
dibenz[a,h]anthracene + [a,c]	173	158	173	91.2	____	____	168	5	91.2	NA	161	23	**117**	**14**	0.2	0.2	0.3
benzo[ghi]perylene	767	747	884	434	____	____	799	9	434	NA	683	104	**525**	**67**	0.7	0.5	0.6

Laboratory: 29
PAH in Sediment VIII

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	21	23
2 to 3	1	2	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 29
Reporting Date: 12/4/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	11/21/98	11/21/98	11/21/98	#####	____	____	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%)
alpha-HCH	NA	NA	NA	NA	____	____	NA	NA	NA	NA	<2		<2				
hexachlorobenzene	0.234	0.296	0.321	54.4	____	____	0.284	15.790	54.4	NA	<3		**70**	**25**			1.1
gamma-HCH	<0.248	<0.240	<0.247	0.67	____	____	<0.248	NA	0.673	NA	<2		<2				
heptachlor	0.554	0.555	0.823	2.01	____	____	0.644	24.071	2.01	NA	<2		<2				1.6
aldrin	<0.248	<0.240	<0.21	<0.197	____	____	<0.248	NA	<0.197	NA	<2		<2				
heptachlor epoxide	<0.248	0.318	<0.247	<0.12	____	____	<0.318	NA	<0.127	NA	<2		<2				
oxychlordane	1.30	1.15	1.24	1.08	____	____	1.23	6.14	1.08	NA	<2		2.59	0.20			0.4
trans-chlordane	NA	NA	NA	NA	____	____	NA	NA	NA	NA	1.65	0.51	<2				
2,4'-DDE	<0.248	<0.240	<0.247	0.669	____	____	<0.248	NA	0.669	NA	<2		**0.730**	**0.110**			
endosulfan I	NA	NA	NA	NA	____	____	NA	NA	NA	NA	<2		<2				
cis-chlordane	3.39	3.28	3.24	4.39	____	____	3.30	2.35	4.39	NA	1.78	1.32	**2.33**	**0.56**	**3.4**	1.8	0.2
trans-nonachlor	0.854	1.10	0.484	1.20	____	____	0.813	38.155	1.20	NA	0.489	0.412	**1.26**	**0.13**	2.7	1.3	2.5
dieldrin	2.10	2.28	2.07	1.92	____	____	2.15	5.28	1.92	NA	<2		1.26	0.37			0.4
4,4'-DDE	7.94	8.57	8.62	5.95	____	____	8.38	4.52	5.95	NA	6.86	0.94	**6.59**	**0.56**	0.9	0.8	0.3
2,4'-DDD	2.48	4.18	4.81	<0.197	____	____	3.82	31.52	<0.197	NA	7.15	1.57	<2		-1.9	-1.5	2.1
endrin	NA	NA	NA	NA	____	____	NA	NA	NA	NA	<2		<2				
endosulfan II	NA	NA	NA	NA	____	____	NA	NA	NA	NA	<2		<2				
4,4'-DDD	17.1	14.7	14.4	5.13	____	____	15.4	9.6	5.13	NA	17.3	3.0	**5.06**	**0.56**	-0.4	-0.3	0.6
2,4'-DDT	3.54	3.87	2.90	1.51	____	____	3.44	14.35	1.51	NA	5.14	1.00	<2		-1.3	-1.1	1.0
cis-nonachlor	NA	NA	NA	NA	____	____	NA	NA	NA	NA	1.63	1.07	<2				
4,4'-DDT	20.4	20.2	17.2	2.08	____	____	19.3	9.3	2.08	NA	19.4	2.6	1.25	0.10	0.0	0.0	0.6
mirex	<0.248	<0.240	<0.247	<0.197	____	____	<0.248	NA	<0.197	NA	<2		<2				

Laboratory: 29
Pesticides in Sediment VIII

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	5	7	9
2 to 3	1	0	2
≥ 3	1	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 29
Reporting Date: 12/4/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	11/20/98 S 1	11/20/98 S 2	11/20/98 S 3	11/20/98 S 1	11/20/98 S 2	11/20/98 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	2.22	2.43	2.38	1.03	____	____	2.34	4.68	1.03	NA	2.04	1.39	1.39	0.19	0.6	0.2	0.3
PCB 18	4.32	6.94	6.25	2.45	____	____	5.84	23.27	2.45	NA	3.61	0.68	1.15	0.16	2.5	1.6	1.6
PCB 28	6.75	6.56	5.99	6.85	____	____	6.43	6.15	6.85	NA	4.95	0.79	9.80	3.70	1.2	0.9	0.4
PCB 52	22.7	23.2	22.1	8.59	____	____	22.7	2.4	8.59	NA	15.6	3.4	**6.89**	**0.56**	1.8	1.1	0.2
PCB 44	13.0	12.9	12.3	6.91	____	____	12.7	3.0	6.91	NA	7.90	1.42	**4.80**	**0.62**	2.5	1.6	0.2
PCB 66/95	32.2	29.4	27.3	8.2	____	____	29.6	8.3	8.21	NA	16.7	7.5	**14.3**	**2.5**	**3.1**	1.2	0.6
PCB 101/90	43.6	29.4	35.0	10.2	____	____	36.0	19.9	10.2	NA	33.3	6.4	**11.0**	**1.6**	0.3	0.2	1.3
PCB 118	29.8	22.4	19.6	8.86	____	____	23.9	22.0	8.86	NA	29.7	5.6	**10.0**	**1.1**	-0.8	-0.5	1.5
PCB 153	68.1	67.1	59.1	14.6	____	____	64.8	7.6	14.6	NA	50.6	11.8	**17.6**	**1.9**	1.1	0.6	0.5
PCB 105	18.2	18.6	16.6	3.72	____	____	17.8	5.9	3.72	NA	11.9	1.9	**3.65**	**0.27**	2.0	1.5	0.4
PCB 138/163/164	66.7	67.0	58.4	11.1	____	____	64.0	7.6	11.1	NA	44.9	8.7	**13.38**	**0.97**	1.7	1.1	0.5
PCB 187/182	17.1	17.8	15.0	6.43	____	____	16.6	8.8	6.43	NA	11.5	2.2	7.0	2.6	1.8	1.1	0.6
PCB 128	12.6	12.5	11.0	2.29	____	____	12.0	7.4	2.29	NA	8.22	1.54	**1.87**	**0.32**	1.9	1.2	0.5
PCB 180	30.0	31.1	26.3	11.4	____	____	29.1	8.6	11.40	NA	21.7	8.6	**5.83**	**0.58**	1.4	0.7	0.6
PCB 170/190	18.4	15.4	13.1	3.80	____	____	15.6	17.0	3.80	NA	12.6	3.0	**3.00**	**0.46**	1.0	0.6	1.1
PCB 195	5.32	5.67	4.59	<0.246	____	____	5.19	10.61	<0.246	NA	2.61	0.61	<3		**3.9**	2.1	0.7
PCB 206	6.67	6.68	5.25	22.8	____	____	6.20	13.27	22.8	NA	3.30	0.67	**3.67**	**0.87**	**3.5**	2.4	0.9
PCB 209	4.68	4.35	3.65	9.16	____	____	4.23	12.44	9.16	NA	2.33	0.66	**8.34**	**0.49**	**3.3**	1.5	0.8
PCB 66	____	____	____	____	____	____	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	____	____	____	____	____	____	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 29
PCBs in Sediment VIII

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	16	18
2 to 3	2	2	0
≥ 3	4	0	0

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	44.1	43.3	43.8	43.7	0.9	44.9	1.3	44.9	1.3	-0.1	-0.3	0.1

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 30

Reporting Date: 12/1/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	11/6/98 S 1	11/6/98 S 2	11/5/98 S 3	11/6/98 S 1	11/6/98 S 2	11/5/98 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	80.1	86.9	83.8	551	557	562	83.6	4.1	557	1	107	15	**1010**	**140**	-0.9	-0.8	0.3
2-methylnaphthalene	49.5	49.3	52.4	192	166	169	50.4	3.4	176	8	77.4	10.2	325	60	-1.4	-1.4	0.2
1-methylnaphthalene	35.8	37.7	40.0	104	96.1	95.3	37.8	5.6	98.5	4.9	50.7	7.3	150	30	-1.0	-1.0	0.4
biphenyl	23.2	24.3	25.2	63.5	60.4	61.3	24.2	4.1	61.7	2.6	36.6	13.5	175	18	-1.3	-1.0	0.3
2,6-dimethylnaphthalene	26.4	27.8	28.6	48.4	57.2	57.0	27.6	4.0	54.2	9.3	51.2	8.9	120	24	-1.8	-1.5	0.3
acenaphthylene	96.5	95.4	94.4	34.5	75.9	70.4	95.4	1.1	60.3	37.3	50.2	22.6	37	14	**3.6**	1.7	0.1
acenaphthene	41.7	44.5	45.2	30.8	32.3	34.3	43.8	4.2	32.5	5.4	38.2	3.9	41	10	0.6	0.8	0.3
1,6,7-trimethylnaphthalene	15.4	15.2	14.6	32.9	22.7	20.6	15.1	2.8	25.4	25.9	27.2	7.4	48	10	-1.8	-1.4	0.2
fluorene	74.0	76.3	76.4	53.8	58.9	59.9	75.6	1.8	57.5	5.7	67.9	11.1	**97.3**	**8.6**	0.5	0.4	0.1
phenanthrene	634	650	645	374	396	409	643	1	393	5	604	63	**489**	**23**	0.3	0.3	0.1
anthracene	317	316	312	178	223	215	315	1	205	12	183	27	**184**	**14**	2.9	2.3	0.1
1-methylphenanthrene	100	98.5	96.6	76.5	68.8	73.5	98.4	1.7	72.9	5.3	87.3	13.4	101	27	0.5	0.5	0.1
fluoranthene	1430	1380	1400	829	902	901	1403	2	877	5	1293	166	**981**	**78**	0.3	0.3	0.1
pyrene	1510	1450	1460	700	727	711	1473	2	713	2	1367	175	**811**	**24**	0.3	0.3	0.1
benz[a]anthracene	675	648	665	418	381	391	663	2	397	5	551	48	**427**	**25**	0.8	1.0	0.1
chrysene + triphenylene	958	934	924	526	451	458	939	2	478	9	944	115	577	35	0.0	0.0	0.1
benzofluoranthenes [b+j+k]	2540	2540	2530	1192	1440	1420	2537	0	1351	10	2110	316	1441	150	0.8	0.7	0.0
benzo[e]pyrene	964	963	977	474	554	554	968	1	527	9	805	103	**553**	**59**	0.8	0.9	0.1
benzo[a]pyrene	1020	1010	1020	539	563	552	1017	1	551	2	832	98	**628**	**52**	0.9	0.9	0.0
perylene	297	291	290	330	351	351	293	1	344	4	248	26	**452**	**58**	0.7	0.9	0.1
indeno[1,2,3-cd]pyrene	785	776	797	470	412	439	786	1	440	7	710	102	**501**	**72**	0.4	0.3	0.1
dibenz[a,h]anthracene + [a,c]	163	173	155	110	81.2	88.4	164	6	93.2	16.1	161	23	**117**	**14**	0.1	0.1	0.4
benzo[ghi]perylene	741	730	734	434	412	416	735	1	421	3	683	104	**525**	**67**	0.3	0.2	0.1

Laboratory: 30

PAH in Sediment VIII

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	1	1	0
≥ 3	1	0	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 30
Reporting Date: 12/1/98

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry 11/26/98 S1	S2	S3	SRM 1941a, ng/g dry 11/26/98 S1	S2	S3	Sediment VIII lab mean ng/g dry	Sediment VIII lab %RSD	SRM 1941a lab mean ng/g dry	SRM 1941a lab %RSD	Material reference values: Sediment VIII, ng/g dr assigned value	95% CL	SRM 1941a, ng/g dry target value[b]	95% CL	Performance scores[a] Sediment VIII z-score (25%)	z-score (s)	p-score (15%)
alpha-HCH	0.749	0.858	0.791	2.90	3.27	3.20	0.799	6.878	3.12	6.29	<2		<2				0.5
hexachlorobenzene	2.72	2.62	2.58	72.1	72.5	69.0	2.64	2.73	71.2	2.7	<3		**70**	**25**			0.2
gamma-HCH	0.661	0.734	0.857	1.40	1.16	1.37	0.751	13.196	1.31	9.98	<2		<2				0.9
heptachlor	1.99	1.97	1.43	<2	<2	<2	1.80	17.68	<2	NA	<2		<2				1.2
aldrin	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
heptachlor epoxide	1.03	1.02	0.844	0.858	0.846	1.47	0.965	10.845	1.06	33.73	<2		<2				0.7
oxychlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2		2.59	0.20			
trans-chlordane	1.20	1.19	1.06	1.96	1.98	1.82	1.15	6.79	1.92	4.54	1.65	0.51	<2		-1.2	-1.2	0.5
2,4'-DDE	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		**0.73**	**0.11**			
endosulfan I	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
cis-chlordane	1.28	1.27	1.22	3.20	2.74	3.36	1.26	2.56	3.10	10.38	1.78	1.32	**2.33**	**0.56**	-1.2	-0.6	0.2
trans-nonachlor	<2	<2	<2	1.45	1.55	1.47	<2	NA	1.49	3.55	0.489	0.412	**1.26**	**0.13**			
dieldrin	1.63	1.67	1.53	1.72	1.56	1.76	1.61	4.48	1.68	6.30	<2		1.26	0.37			0.3
4,4'-DDE	13.3	16.6	14.4	8.81	8.23	8.36	14.8	11.4	8.47	3.59	6.86	0.94	**6.59**	**0.56**	**4.6**	**4.1**	0.8
2,4'-DDD	7.83	7.98	7.87	2.90	2.46	2.26	7.89	0.98	2.54	12.89	7.15	1.57	<2		0.4	0.3	0.1
endrin	<2	<2	<2	<2	<2	<2	<2	NA	<2	NA	<2		<2				
endosulfan II	8.47	8.93	8.56	0.448	0.781	0.814	8.65	2.82	0.681	29.729	<2		<2				0.2
4,4'-DDD	31.5	33.4	33.8	5.79	6.10	5.18	32.9	3.7	5.69	8.23	17.3	3.0	**5.06**	**0.56**	**3.6**	2.5	0.2
2,4'-DDT	5.42	6.50	5.05	1.12	0.307	0.926	5.66	13.32	0.784	54.137	5.14	1.00	<2		0.4	0.3	0.9
cis-nonachlor	2.26	2.24	2.22	1.29	1.28	1.54	2.24	0.89	1.37	10.75	1.63	1.07	<2		1.5	0.6	0.1
4,4'-DDT	14.1	15.6	13.9	<2	<2	<2	14.5	6.4	<2	NA	19.4	2.6	1.25	0.10	-1.0	-1.1	0.4
mirex	1.60	1.49	1.51	1.32	1.33	1.19	1.53	3.82	1.28	6.10	<2		<2				0.3

Laboratory: 30
Pesticides in Sediment VIII

Reported Results	No. of Analytes	%
Quantitative	16	73
Qualitative	5	23
Not Determined	1	5

Category	Number by Category z (25%)	z (s)	p (15%)
≤ 2	6	6	16
2 to 3	0	1	0
≥ 3	2	1	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Laboratory No.: 30

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Reporting Date: 12/1/98

PCBs

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry, 11/26/98 S 1	S 2	S 3	SRM 1941a, ng/g dry, 11/26/98 S 1	S 2	S 3	Sediment VIII: lab mean ng/g dry	lab %RSD	SRM 1941a: lab mean ng/g dry	lab %RSD	Material reference values: Sediment VIII, ng/g dr: assigned value	95% CL	SRM 1941a, ng/g dry: target value[b]	95% CL	Performance scores[a]: Sediment VIII: z-score (25%)	z-score (s)	p-score (15%)
PCB 8	7.08	7.19	6.88	5.23	6.22	6.22	7.05	2.23	5.89	9.70	2.04	1.39	1.39	0.19	**9.8**	**3.3**	0.1
PCB 18	7.23	6.40	6.76	7.17	5.90	6.08	6.80	6.12	6.38	10.77	3.61	0.68	1.15	0.16	**3.5**	2.2	0.4
PCB 28	5.95	5.70	6.08	7.42	7.90	7.37	5.91	3.27	7.56	3.87	4.95	0.79	9.8	3.7	0.8	0.6	0.2
PCB 52	20.9	20.1	20.8	8.97	8.86	8.94	20.6	2.1	8.92	0.64	15.6	3.4	**6.89**	**0.56**	1.3	0.8	0.1
PCB 44	12.1	11.6	12.1	6.01	5.66	5.81	11.9	2.4	5.83	3.01	7.90	1.42	**4.80**	**0.62**	2.0	1.3	0.2
PCB 66/95	15.5	15.0	15.7	11.2	10.3	10.5	15.4	2.3	10.7	4.4	16.7	7.5	**14.3**	**2.5**	-0.3	-0.1	0.2
PCB 101/90	53.3	52.6	52.9	11.0	10.9	10.3	52.9	0.7	10.7	3.5	33.3	6.4	**11.0**	**1.6**	2.4	1.4	0.0
PCB 118	49.7	49.2	48.3	11.8	10.8	12.0	49.1	1.4	11.5	5.6	29.7	5.6	**10.0**	**1.1**	2.6	1.6	0.1
PCB 153	47.9	48.2	47.2	16.9	17.8	14.9	47.8	1.1	16.5	9.0	50.6	11.8	**17.6**	**1.9**	-0.2	-0.1	0.1
PCB 105	18.8	19.5	18.7	3.87	3.72	3.63	19.0	2.3	3.74	3.24	11.9	1.9	**3.65**	**0.27**	2.4	1.8	0.2
PCB 138/163/164	67.6	71.1	70.8	11.8	12.4	14.5	69.8	2.8	12.9	11.0	44.9	8.7	**13.38**	**0.97**	2.2	1.4	0.2
PCB 187/182	14.9	14.8	15.0	6.60	6.06	5.30	14.9	0.7	5.99	10.91	11.5	2.2	7.0	2.6	1.2	0.7	0.0
PCB 128	16.2	15.7	16.7	2.71	2.36	2.49	16.2	3.1	2.52	7.02	8.22	1.54	**1.87**	**0.32**	**3.9**	2.5	0.2
PCB 180	29.3	29.8	29.5	7.68	6.30	6.06	29.5	0.9	6.68	13.09	21.7	8.6	**5.83**	**0.58**	1.4	0.7	0.1
PCB 170/190	20.6	20.5	21.0	4.43	3.75	4.18	20.7	1.3	4.12	8.35	12.6	3.0	**3.00**	**0.46**	2.6	1.6	0.1
PCB 195	2.16	2.01	2.15	0.923	0.870	1.38	2.11	3.98	1.06	26.51	2.61	0.61	<3		-0.8	-0.4	0.3
PCB 206	5.48	5.34	5.39	4.97	4.74	4.88	5.40	1.31	4.86	2.38	3.30	0.67	**3.67**	**0.87**	2.5	1.7	0.1
PCB 209	2.15	1.99	1.96	10.9	12.0	12.2	2.03	5.02	11.7	6.0	2.33	0.66	**8.34**	**0.49**	-0.5	-0.2	0.3
PCB 66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 30
PCBs in Sediment VIII

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	8	15	18
2 to 3	7	2	0
≥ 3	3	1	0

Water in Sediment VIII

	Sediment VIII, %: S 1	S 2	S 3	lab: mean, %	%RSD	Sediment VIII, %: assigned	95% CL	exercise, %: mean	95% CL	Sediment VIII: z (25%)	z (s)	p (15%)
water	45.6	45.4	45.5	45.5	0.2	44.9	1.3	44.9	1.3	0.1	0.2	0.0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 31

Reporting Date: 12/10/98

PAH

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/25/98 S 1	10/26/98 S 2	10/25/98 S 3	10/25/98 S 1	10/26/98 S 2	10/25/98 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	119	120	121	716	862	___	120	1	789	13	107	15	**1010**	**140**	0.5	0.4	0.0
2-methylnaphthalene	91.7	92.5	94.7	280	352	___	93.0	1.7	316	16	77.4	10.2	325	60	0.8	0.8	0.1
1-methylnaphthalene	56.5	56.6	59.0	126	162	___	57.4	2.5	144	18	50.7	7.3	150	30	0.5	0.5	0.2
biphenyl	27.1	26.9	28.9	78.9	91.1	___	27.6	4.0	85.0	10.1	36.6	13.5	175	18	-1.0	-0.7	0.3
2,6-dimethylnaphthalene	77.0	73.9	76.8	145	173	___	75.9	2.3	159	12	51.2	8.9	120	24	1.9	1.6	0.2
acenaphthylene	128	122	127	112	118	___	126	3	115	4	50.2	22.6	37	14	**6.0**	2.8	0.2
acenaphthene	37.8	38.0	40.7	34.0	43.3	___	38.8	4.2	38.7	17.0	38.2	3.9	41	10	0.1	0.1	0.3
1,6,7-trimethylnaphthalene	55.5	52.5	54.7	56.4	68.9	___	54.2	2.9	62.7	14.1	27.2	7.4	48	10	**4.0**	3.0	0.2
fluorene	64.4	62.7	68.4	74.8	75.6	___	65.2	4.5	75.2	0.8	67.9	11.1	**97.3**	**8.6**	-0.2	-0.1	0.3
phenanthrene	656	650	695	445	544	___	667	4	494	14	604	63	**489**	**23**	0.4	0.5	0.2
anthracene	287	287	296	227	234	___	290	2	230	2	183	27	**184**	**14**	2.3	1.9	0.1
1-methylphenanthrene	74.4	79.9	89.1	121	75	___	81.1	9.2	98.0	32.6	87.3	13.4	101	27	-0.3	-0.3	0.6
fluoranthene	1216	1215	1318	721	821	___	1250	5	771	9	1293	166	**981**	**78**	-0.1	-0.1	0.3
pyrene	1330	1413	1477	617	673	___	1407	5	645	6	1367	175	**811**	**24**	0.1	0.1	0.3
benz[a]anthracene	532	586	606	367	403	___	574	7	385	7	551	48	**427**	**25**	0.2	0.2	0.4
chrysene + triphenylene	925	1018	1027	518	568	___	990	6	543	7	944	115	577	35	0.2	0.2	0.4
benzofluoranthenes [b+j+k]	2102	2196	2353	1086	1423	___	2217	6	1254	19	2110	316	1441	150	0.2	0.2	0.4
benzo[e]pyrene	891	900	960	439	556	___	917	4	497	17	805	103	**553**	**59**	0.6	0.6	0.3
benzo[a]pyrene	715	757	814	381	471	___	762	7	426	15	832	98	**628**	**52**	-0.3	-0.3	0.4
perylene	262	276	289	361	397	___	276	5	379	7	248	26	**452**	**58**	0.4	0.5	0.3
indeno[1,2,3-cd]pyrene	730	741	819	367	444	___	763	6	405	13	710	102	**501**	**72**	0.3	0.2	0.4
dibenz[a,h]anthracene + [a,c]	148	151	173	73.5	102	___	157	9	87.8	23.0	161	23	**117**	**14**	-0.1	-0.1	0.6
benzo[ghi]perylene	677	686	765	339	426	___	709	7	382	16	683	104	**525**	**67**	0.2	0.1	0.5

Laboratory: 31

PAH in Sediment VIII

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	21	23
2 to 3	1	1	0
≥ 3	2	1	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 31
Reporting Date: 12/10/98

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	10/24,26,29/	10/24,26,29/98	10/24,26,29/	10/24/98			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%)
alpha-HCH	<0.972	<0.972	<0.972	41.78	___	___	<0.972	NA	41.8	NA	<2		<2				
hexachlorobenzene	<0.632	<0.632	<0.632	66.9	___	___	<0.632	NA	66.9	NA	<3		**70**	**25**			
gamma-HCH	4.53	3.01	5.36	2.64	___	___	4.30	27.72	2.64	NA	<2		<2				1.8
heptachlor	<0.624	<0.624	<0.624	<0.624	___	___	<0.624	NA	<0.624	NA	<2		<2				
aldrin	<0.672	<0.672	<0.672	14.81	___	___	<0.672	NA	14.8	NA	<2		<2				
heptachlor epoxide	0.630	0.570	0.700	4.78	___	___	0.633	10.273	4.78	NA	<2		<2				0.7
oxychlordane	<0.728	<0.728	0.460	1.30	___	___	<0.728	NA	1.30	NA	<2		2.59	0.20			
trans-chlordane	<0.564	<0.564	<0.564	0.690	___	___	<0.564	NA	0.690	NA	1.65	0.51	<2				
2,4'-DDE	0.850	0.960	0.830	0.890	___	___	0.880	7.955	0.890	NA	<2		**0.73**	**0.11**			0.5
endosulfan I	NA*	NA*	NA*	NA*	___	___	NA	NA	NA	NA	<2		<2				
cis-chlordane	1.13	1.32	1.26	3.15	___	___	1.24	7.85	3.15	NA	1.78	1.32	**2.33**	**0.56**	-1.2	-0.7	0.5
trans-nonachlor	<0.40	<0.40	<0.40	2.36	___	___	<0.40	NA	2.36	NA	0.489	0.412	**1.26**	**0.13**			
dieldrin	1.49	1.50	1.52	1.51	___	___	1.50	1.02	1.51	NA	<2		1.26	0.37			0.1
4,4'-DDE	6.92	7.87	7.74	5.81	___	___	7.51	6.86	5.81	NA	6.86	0.94	**6.59**	**0.56**	0.4	0.3	0.5
2,4'-DDD	6.26	9.46	9.43	1.48	___	___	8.38	21.94	1.48	NA	7.15	1.57	<2		0.7	0.6	1.5
endrin	1.19	0.750	<1.212	<1.212	___	___	<1.212	NA	<1.212	NA	<2		<2				
endosulfan II	9.83	11.0	11.3	<0.368	___	___	10.7	7.0	<0.368	NA	<2		<2				0.5
4,4'-DDD	22.4	22.4	22.0	6.53	___	___	22.3	1.0	6.53	NA	17.3	3.0	**5.06**	**0.56**	1.1	0.8	0.1
2,4'-DDT	8.43	8.16	7.36	1.29	___	___	7.98	6.97	1.29	NA	5.14	1.00	<2		2.2	1.9	0.5
cis-nonachlor	2.34	2.19	1.98	2.08	___	___	2.17	8.33	2.08	NA	1.63	1.07	<2		1.3	0.5	0.6
4,4'-DDT	19.5	20.2	16.6	1.51	___	___	18.7	10.1	1.51	NA	19.4	2.6	1.25	0.10	-0.1	-0.2	0.7
mirex	<0.330	<0.330	<0.330	<0.330	___	___	<0.330	NA	<0.330	NA	<2		<2				

Laboratory: 31
Pesticides in Sediment VIII

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	6	7	12
2 to 3	1	0	0
≥ 3	0	0	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 31

Reporting Date: 12/10/98

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	/24,26,29/ S 1	/24,26,29/80/24,26,29/ S 2	/24,26,29/ S 3	/24,26,29/ S 1	/24,26,29/ S 2	/24,26,29/ 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	1.83	2.08	1.92	23.8	____	____	1.94	6.52	23.8	NA	2.04	1.39	1.39	0.19	-0.2	-0.1	0.4
PCB 18	2.96	2.58	2.28	2.35	____	____	2.61	13.07	2.35	NA	3.61	0.68	1.15	0.16	-1.1	-0.7	0.9
PCB 28	5.55	6.54	6.58	15.2	____	____	6.22	9.38	15.2	NA	4.95	0.79	9.8	3.7	1.0	0.8	0.6
PCB 52	19.5	19.2	16.4	7.51	____	____	18.4	9.3	7.51	NA	15.6	3.4	**6.89**	**0.56**	0.7	0.4	0.6
PCB 44	12.5	12.0	11.2	6.95	____	____	11.9	5.4	6.95	NA	7.90	1.42	**4.80**	**0.62**	2.0	1.3	0.4
PCB 66/95	42.6	43.6	42.2	7.19	____	____	42.8	1.7	7.19	NA	16.7	7.5	**14.3**	**2.5**	**6.2**	2.5	0.1
PCB 101/90	46.8	47.3	47.3	13.5	____	____	47.1	0.6	13.5	NA	33.3	6.4	**11.0**	**1.6**	1.7	1.0	0.0
PCB 118	42.1	43.7	43.7	9.23	____	____	43.2	2.2	9.23	NA	29.7	5.6	**10.0**	**1.1**	1.8	1.1	0.1
PCB 153	77.9	81.3	78.7	16.8	____	____	79.3	2.2	16.8	NA	50.6	11.8	**17.6**	**1.9**	2.3	1.1	0.1
PCB 105	10.9	13.8	13.4	2.82	____	____	12.7	12.4	2.82	NA	11.9	1.9	**3.65**	**0.27**	0.3	0.2	0.8
PCB 138/163/164	84.5	87.7	90.2	20.0	____	____	87.5	3.3	20.0	NA	44.9	8.7	**13.38**	**0.97**	**3.8**	2.4	0.2
PCB 187/182	15.1	16.0	15.9	9.38	____	____	15.7	3.1	9.38	NA	11.5	2.2	7.0	2.6	1.5	0.9	0.2
PCB 128	8.90	9.01	8.99	1.09	____	____	8.97	0.65	1.09	NA	8.22	1.54	**1.87**	**0.32**	0.4	0.2	0.0
PCB 180	24.3	26.0	26.3	8.60	____	____	25.5	4.4	8.60	NA	21.7	8.6	**5.83**	**0.58**	0.7	0.3	0.3
PCB 170/190	NA**	NA**	NA**	NA**	____	____	NA	NA	NA	NA	12.6	3.0	**3.00**	**0.46**			
PCB 195	1.96	2.48	2.39	<0.328	____	____	2.28	12.21	<0.328	NA	2.61	0.61	<3		-0.5	-0.3	0.8
PCB 206	4.15	4.20	4.26	4.05	____	____	4.20	1.31	4.05	NA	3.30	0.67	**3.67**	**0.87**	1.1	0.8	0.1
PCB 209	3.41	1.72	1.59	11.8	____	____	2.24	45.33	11.8	NA	2.33	0.66	**8.34**	**0.49**	-0.2	-0.1	3.0
PCB 66	NA	NA	NA	NA	____	____	NA	NA	NA	NA	8.85	2.51	**6.8**	**1.4**			
PCB 95	NA	NA	NA	NA	____	____	NA	NA	NA	NA	20.2	8.1	**7.5**	**1.1**			

Laboratory: 31
PCBs in Sediment VIII

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	13	15	16
2 to 3	2	2	0
≥ 3	2	0	1

Water in Sediment VIII

	Sediment VIII, %				lab			Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3		mean, %	%RSD		assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	44.4	44.4	44.3		44.4	0.1		44.9	1.3	44.9	1.3	0.0	-0.2	0.0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 32a

Reporting Date: 1/22/99

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	1/15/99 S 1	1/15/99 S 2	1/15/99 S 3	1/15/99 S 1	1/15/99 S 2	1/15/99 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											107	15	**1010**	**140**			
2-methylnaphthalene											77.4	10.2	325	60			
1-methylnaphthalene											50.7	7.3	150	30			
biphenyl											36.6	13.5	175	18			
2,6-dimethylnaphthalene											51.2	8.9	120	24			
acenaphthylene											50.2	22.6	37	14			
acenaphthene											38.2	3.9	41	10			
1,6,7-trimethylnaphthalene											27.2	7.4	48	10			
fluorene	77.5	70.1	59.1	61.6	63.7	66.8	68.9	13.4	64.0	4.1	67.9	11.1	**97.3**	**8.6**	0.1	0.1	0.9
phenanthrene	749	719	718	473	474	483	729	2	476	1	604	63	**489**	**23**	0.8	1.0	0.2
anthracene	166	158	158	166	186	188	161	3	180	7	183	27	**184**	**14**	-0.5	-0.4	0.2
1-methylphenanthrene	0	0	0								87.3	13.4	101	27			
fluoranthene	1490	1440	1410	865	874	864	1447	3	868	1	1293	166	**981**	**78**	0.5	0.4	0.2
pyrene	1640	1580	1563	720	742	697	1594	3	720	3	1367	175	**811**	**24**	0.7	0.6	0.2
benz[a]anthracene	599	442	443	337	364	376	495	18	359	5	551	48	**427**	**25**	-0.4	-0.5	1.2
chrysene + triphenylene	1510	1410	1455	545	500	428	1458	3	491	12	944	115	577	35	2.2	2.1	0.2
benzofluoranthenes [b+j+k]	792	853	843	353	283	339	829	4	325	11	2110	316	1441	150	-2.4	-2.0	0.3
benzo[e]pyrene	835	741	777	379	437	487	784	6	434	12	805	103	**553**	**59**	-0.1	-0.1	0.4
benzo[a]pyrene	1230	1220	1280	628	542	638	1243	3	603	9	832	98	**628**	**52**	2.0	2.0	0.2
perylene	301	285	297	312	355	351	294	3	339	7	248	26	**452**	**58**	0.7	0.9	0.2
indeno[1,2,3-cd]pyrene	931	688	700	437	447	432	773	18	439	2	710	102	**501**	**72**	0.4	0.3	1.2
dibenz[a,h]anthracene + [a,c]	136	139	139	63.0	56.5	59.7	138	1	59.7	5.4	161	23	**117**	**14**	-0.6	-0.5	0.1
benzo[ghi]perylene	1070	1010	1090	524	493	504	1057	4	507	3	683	104	**525**	**67**	2.2	1.6	0.3

Laboratory: 32a
PAH in Sediment VIII

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

Category	Number by Category: z (25%)	z (s)	p (15%)
≤ 2	11	12	14
2 to 3	3	2	0
≥ 3	0	0	0

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII

(data reported as if three figures were significant)

Laboratory No.: 32a
Reporting Date: 1/22/99

PESTICIDES

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	1/21/99 S 1	1/21/99 S 2	1/21/99 S 3	1/21/99 S 1	##### S 2	1/21/99 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		<2				
hexachlorobenzene	1.82	1.78	2.19	60.8	56.4	55.2	1.93	11.79	57.5	5.1	<3		**70**	**25**			
gamma-HCH	1.38	1.13	1.12	1.32	1.63	1.37	1.21	12.53	1.44	11.60	<2		<2				0.8
heptachlor	0.613	0.537	0.528	3.43	3.83	3.63	0.559	8.346	3.63	5.51	<2		<2				
aldrin	< 0.013	< 0.013	< 0.013	0.809	1.11	1.11			1.01	17.24	<2		<2				
heptachlor epoxide	< 0.102	< 0.102	< 0.102	< 0.102	< 0.102	< 0.102					<2		<2				
oxychlordane	NA	NA	NA	NA	NA	NA					<2		2.59	0.20			
trans-chlordane	NA	NA	NA	NA	NA	NA					1.65	0.51	<2				
2,4'-DDE	2.20	2.08	1.93	0.867	0.823	1.12	2.07	6.52	0.938	17.332	<2		**0.73**	**0.11**			0.4
endosulfan I	NA	NA	NA	NA	NA	NA					<2		<2				
cis-chlordane	1.03	1.10	0.95	4.50	4.38	4.53	1.03	7.25	4.47	1.83	1.78	1.32	**2.33**	**0.56**	-1.7	-0.9	0.5
trans-nonachlor	1.14	1.14	1.15	1.73	1.69	1.76	1.14	0.19	1.73	2.14	0.489	0.412	**1.26**	**0.13**	**5.4**	0.8	0.0
dieldrin	< 0.181	< 0.181	< 0.181	< 0.181	< 0.181	< 0.181					<2		1.26	0.37			
4,4'-DDE	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033					6.86	0.94	**6.59**	**0.56**			
2,4'-DDD	< 0.061	< 0.061	< 0.061	< 0.061	< 0.061	< 0.061					7.15	1.57	<2				
endrin	NA	NA	NA	NA	NA	NA					<2		<2				
endosulfan II	NA	NA	NA	NA	NA	NA					<2		<2				
4,4'-DDD	38.1	40.2	36.9	< 0.243	11.10	7.38	38.4	4.4	9.24	28.48	17.3	3.0	**5.06**	**0.56**	**4.9**	**3.3**	0.3
2,4'-DDT	8.31	9.05	6.35	< 0.144	< 0.144	< 0.144	7.90	17.62			5.14	1.00	<2		2.2	1.9	1.2
cis-nonachlor	NA	NA	NA	NA	NA	NA					1.63	1.07	<2				
4,4'-DDT	15.8	18.4	18.3	< 0.016	< 0.016	< 0.016	17.5	8.2			19.4	2.6	1.25	0.10	-0.4	-0.4	0.5
mirex	< 0.157	< 0.157	< 0.157	< 0.157	< 0.157	< 0.157					<2		<2				

Laboratory: 32a
Pesticides in Sediment VIII

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	2	4	7
2 to 3	1	0	0
≥ 3	2	1	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 32a

Reporting Date: 1/22/99

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
Analysis date	1/21/99 S 1	1/21/99 S 2	1/21/99 S 3	1/21/99 S 1	1/21/99 S 2	1/21/99 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	2.39	2.53	2.54	3.64	3.08	2.92	2.49	3.24	3.21	11.80	2.04	1.39	1.39	0.19	0.9	0.3	0.2
PCB 18	3.18	3.36	3.40	0.989	1.24	1.11	3.31	3.49	1.11	11.11	3.61	0.68	1.15	0.16	-0.3	-0.2	0.2
PCB 28	1.7	1.7	2.3	5.93	0.79	0.93	1.89	16.78	2.55	114.81	4.95	0.79	9.8	3.7	-2.5	-1.8	1.1
PCB 52	23.1	21.2	20.8	10.6	11.5	10.7	21.7	5.7	10.9	4.6	15.6	3.4	**6.89**	**0.56**	1.6	1.0	0.4
PCB 44	11.4	10.3	10.9	6.84	7.21	6.84	10.9	5.2	6.96	3.03	7.90	1.42	**4.80**	**0.62**	1.5	1.0	0.3
PCB 66/95	NA	NA	NA	NA	NA	NA					16.7	7.5	**14.3**	**2.5**			
PCB 101/90	48.3	51.9	50.5	18.7	18.4	17.2	50.2	3.6	18.1	4.4	33.3	6.4	**11.0**	**1.6**	2.0	1.2	0.2
PCB 118	49.2	49.6	53.9	11.5	13.5	12.2	50.9	5.2	12.4	8.1	29.7	5.6	**10.0**	**1.1**	2.9	1.8	0.3
PCB 153	77.8	80.2	76.8	22.1	24.3	23.6	78.3	2.2	23.3	4.7	50.6	11.8	**17.6**	**1.9**	2.2	1.1	0.1
PCB 105	21.3	23.0	22.9	5.46	6.17	5.62	22.4	4.3	5.75	6.50	11.9	1.9	**3.65**	**0.27**	**3.6**	2.7	0.3
PCB 138/163/164	67.0	65.3	68.2	15.8	16.2	14.5	66.8	2.2	15.5	5.7	44.9	8.7	**13.38**	**0.97**	2.0	1.3	0.1
PCB 187/182	14.7	14.3	14.1	9.44	9.00	8.98	14.4	2.2	9.14	2.86	11.5	2.2	7.0	2.6	1.0	0.6	0.1
PCB 128	11.3	10.7	10.8	1.69	1.91	1.70	10.9	2.9	1.77	6.94	8.22	1.54	**1.87**	**0.32**	1.3	0.8	0.2
PCB 180	27.4	27.6	27.3	11.7	11.3	11.0	27.5	0.5	11.3	3.2	21.7	8.6	**5.83**	**0.58**	1.1	0.5	0.0
PCB 170/190	20.9	21.1	20.8	7.13	6.92	6.57	20.9	0.8	6.88	4.11	12.6	3.0	**3.00**	**0.46**			
PCB 195	3.34	3.28	3.18	1.14	0.741	0.701	3.27	2.52	0.860	28.161	2.61	0.61	<3		1.0	0.5	0.2
PCB 206	4.17	4.14	4.18	3.86	3.70	4.06	4.16	0.50	3.88	4.68	3.30	0.67	**3.67**	**0.87**	1.0	0.7	0.0
PCB 209	2.47	2.37	2.39	10.9	10.1	10.6	2.41	2.26	10.6	4.1	2.33	0.66	**8.34**	**0.49**	0.1	0.1	0.2
PCB 66	10.2	8.71	9.68	11.1	10.9	11.2	9.53	7.97	11.1	1.2	8.85	2.51	**6.8**	**1.4**	0.3	0.5	0.5
PCB 95	NA	NA	NA	NA	NA	NA					20.2	8.1	**7.5**	**1.1**			

Laboratory: 32a
PCBs in Sediment VIII

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	11	15	16
2 to 3	4	1	0
≥ 3	1	0	0

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.5	43.9	44.9	44.8	1.8	44.9	1.3	44.9	1.3	0.0	0.0	0.1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 32b

Reporting Date: 2/3/99

PAH

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	1/27/99 S 1	1/27/99 S 2	1/27/99 S 3	1/27/99 S 1	1/27/99 S 2	1/27/99 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	232	203	245	678	1180	1170	227	9	1009	28	107	15	**1010**	**140**	**4.5**	**4.1**	0.6
2-methylnaphthalene	159	142	172	250	413	452	158	10	372	29	77.4	10.2	325	60	**4.1**	**4.2**	0.6
1-methylnaphthalene	91.6	85.2	102	117	194	212	92.9	9.1	174	29	50.7	7.3	150	30	**3.3**	**3.2**	0.6
biphenyl	51.7	44.4	50.5	75.6	117	119	48.9	8.0	104	24	36.6	13.5	175	18	1.3	1.0	0.5
2,6-dimethylnaphthalene	55.7	53.3	62.0	62.7	89.1	133	57.0	7.9	94.9	37.4	51.2	8.9	120	24	0.5	0.4	0.5
acenaphthylene	23.0	20.1	25.8	30.2	61.2	52.3	23.0	12.4	47.9	33.3	50.2	22.6	37	14	-2.2	-1.0	0.8
acenaphthene	73.0	65.0	76.9	50.1	57.4	61.5	71.6	8.5	56.3	10.3	38.2	3.9	41	10	**3.5**	**4.6**	0.6
1,6,7-trimethylnaphthalene	22.3	23.0	19.9	24.1	26.2	28.7	21.7	7.5	26.3	8.7	27.2	7.4	48	10	-0.8	-0.6	0.5
fluorene	91.4	92.7	86.4	60.9	64.3	66.8	90.2	3.7	64.0	4.6	67.9	11.1	**97.3**	**8.6**	1.3	1.2	0.2
phenanthrene	868	861	861	520	461	470	863	0	484	6.6	604	63	**489**	**23**	1.7	2.0	0.0
anthracene	177	182	174	168	170	181	178	2	173	4.0	183	27	**184**	**14**	-0.1	-0.1	0.2
1-methylphenanthrene	107	109	106	86.8	81.0	79.9	107	1	82.6	4.5	87.3	13.4	101	27	0.9	0.9	0.1
fluoranthene	1800	1860	1800	985	915	900	1820	2	933	4.9	1293	166	**981**	**78**	1.6	1.4	0.1
pyrene	1960	2060	1990	807	771	733	2003	3	770	4.8	1367	175	**811**	**24**	1.9	1.7	0.2
benz[a]anthracene	711	712	677	425	370	361	700	3	385	9.0	551	48	**427**	**25**	1.1	1.4	0.2
chrysene + triphenylene	1240	1290	1220	580	523	516	1250	3	540	6.5	944	115	577	35	1.3	1.2	0.2
benzofluoranthenes [b+j+k]	3050	3020	3230	1430	1400	1440	3100	4	1423	1.5	2110	316	1441	150	1.9	1.6	0.2
benzo[e]pyrene	1150	1150	1160	516	529	524	1153	1	523	1.3	805	103	**553**	**59**	1.7	1.9	0.0
benzo[a]pyrene	1110	1090	1180	505	502	508	1127	4	505	0.6	832	98	**628**	**52**	1.4	1.4	0.3
perylene	365	356	393	341	360	364	371	5	355	3.5	248	26	**452**	**58**	2.0	2.4	0.3
indeno[1,2,3-cd]pyrene	1130	1100	1280	530	602	562	1170	8	565	6.4	710	102	**501**	**72**	2.6	2.1	0.5
dibenz[a,h]anthracene + [a,c]	150	172	216	92.4	85.4	88.0	179	19	88.6	4.0	161	23	**117**	**14**	0.5	0.4	1.2
benzo[ghi]perylene	968	989	1050	487	503	504	1002	4	498	1.9	683	104	**525**	**67**	1.9	1.4	0.3

Laboratory: 32b
PAH in Sediment VIII

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	17	16	23
2 to 3	2	3	0
≥ 3	4	4	0

[a] z- and p-scores ≥ 3 are bolded.

[b] Certified values for the reference material are bolded.

FY98 NIST Intercomparison Exercise **Laboratory No.: 32b**

Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant) Reporting Date: 2/3/99

PESTICIDES

Analysis date	Data as submitted by laboratory: Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Material reference values: Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Performance scores[a]: Sediment VIII		
	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											<2		<2				
hexachlorobenzene											<3		**70**	**25**			
gamma-HCH											<2		<2				
heptachlor											<2		<2				
aldrin											<2		<2				
heptachlor epoxide											<2		<2				
oxychlordane											<2		2.59	0.20			
trans-chlordane											1.65	0.51	<2				
2,4'-DDE											<2		**0.73**	**0.11**			
endosulfan I											<2		<2				
cis-chlordane											1.78	1.32	**2.33**	**0.56**			
trans-nonachlor											0.489	0.412	**1.26**	**0.13**			
dieldrin											<2		1.26	0.37			
4,4'-DDE											6.86	0.94	**6.59**	**0.56**			
2,4'-DDD											7.15	1.57	<2				
endrin											<2		<2				
endosulfan II											<2		<2				
4,4'-DDD											17.3	3.0	**5.06**	**0.56**			
2,4'-DDT											5.14	1.00	<2				
cis-nonachlor											1.63	1.07	<2				
4,4'-DDT											19.4	2.6	1.25	0.10			
mirex											<2		<2				

Laboratory: 32b
Pesticides in Sediment VIII

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

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 values for the reference material are bolded.

FY98 NIST Intercomparison Exercise
Sample: QA98SED8 - Marine Sediment VIII (data reported as if three figures were significant)

Laboratory No.: 32b
Reporting Date: 2/3/99

PCBs

	Data as submitted by laboratory										Material reference values				Performance scores[a]		
	Sediment VIII, ng/g dry			SRM 1941a, ng/g dry			Sediment VIII		SRM 1941a		Sediment VIII, ng/g dr		SRM 1941a, ng/g dry		Sediment VIII		
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%)
PCB 8											2.04	1.39	1.39	0.19			
PCB 18											3.61	0.68	1.15	0.16			
PCB 28											4.95	0.79	9.8	3.7			
PCB 52											15.6	3.4	**6.89**	**0.56**			
PCB 44											7.90	1.42	**4.80**	**0.62**			
PCB 66/95											16.7	7.5	**14.3**	**2.5**			
PCB 101/90											33.3	6.4	**11.0**	**1.6**			
PCB 118											29.7	5.6	**10.0**	**1.1**			
PCB 153											50.6	11.8	**17.6**	**1.9**			
PCB 105											11.9	1.9	**3.65**	**0.27**			
PCB 138/163/164											44.9	8.7	**13.38**	**0.97**			
PCB 187/182											11.5	2.2	7.0	2.6			
PCB 128											8.22	1.54	**1.87**	**0.32**			
PCB 180											21.7	8.6	**5.83**	**0.58**			
PCB 170/190											12.6	3.0	**3.00**	**0.46**			
PCB 195											2.61	0.61	<3				
PCB 206											3.30	0.67	**3.67**	**0.87**			
PCB 209											2.33	0.66	**8.34**	**0.49**			
PCB 66											8.85	2.51	**6.8**	**1.4**			
PCB 95											20.2	8.1	**7.5**	**1.1**			

Laboratory: 32b
PCBs in Sediment VIII

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

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

Water in Sediment VIII

	Sediment VIII, %			lab		Sediment VIII, %		exercise, %		Sediment VIII		
	S 1	S 2	S 3	mean, %	%RSD	assigned	95% CL	mean	95% CL	z (25%)	z (s)	p (15%)
water	45.5	43.9	44.9	44.8	1.8	44.9	1.3	44.9	1.3	0.0	0.0	0.1

[a]z- and p-scores ≥ 3 are bolded.

[b]Certified values for the reference material are bolded.

Appendix E: Laboratory Notes Accompanying Data, Mussel Tissue IX

Laboratory Notes Accompanying Data

Mussel Tissue IX: Notes included with e-files used for data submission by the participating laboratories

Lab	Notes
1a-b	None
2	PT coelutes with domain 138/163/164 on both columns. #153 calculated by difference: 168/153 coelute on DB-XLB 153/105 coelute on DB-5 168/153 -168 from DB5=#153, assuming RF to be similar.
4	none

5				
	benzofluoranthenes [b]	108	97.5	99.5
	benzofluoranthenes [k]	137.4	128	120.9

6							
	PCB 49	49.33	53.13	50.03	123.9	77.28	70.97
	PCB 74	27.38	55.85	29.02	0	0	0
	PCB 87	22.13	22.37	20.98	63.92	40.84	37
	PCB 99	33.15	25.94	22.75	65.66	57.45	47.84
	PCB 110	46.35	53.79	44.11	147.1	85.63	74.99
	PCB 132	14.19	18.94	13.29	44.86	25.23	21.5
	PCB 149	30.53	38.14	33.75	88.05	51.27	48.49
	PCB 156	5.62	8.25	6.36	14.21	9.22	5.95
	PCB 183	8.07	0	7.06	24.69	14.81	9.64

7		
	Percent Total Extractable for Unknown Mussel : 3 Measurements	
	Soxhlet extraction (8 hour), reduce volume and transfer to 100 mL volumetric flask (hexane).	
	10 mL aliquot removed and gravimetrically weighed after evaporation of solvent	
	Units : % by weight;	0.6978
	Weight residue/weight wet sample	0.6978
	These measurements not done for SRM	0.6778
	SRM 2262 used for calibration solutions	
8	None	
9	Blank cells indicate that the samples were not analyzed for those analytes. All target analytes that were included in the analyses but not detected have the detection limit reported. SRMs were not analyzed for non-certified analytes	
11	None	

Laboratory Notes Accompanying Data **Mussel Tissue IX QA98TIS9**

Lab	Notes
12	None
13	e = Estimated quantitation below DL/calibration range.
14	Samples were analyzed in a single batch.
15	Other: Means HCB present but not quantyfied. Total extractable organics: 53.8 mg/g (dw)
16	Endosulfan I co-elutes with 2,4'-DDE.
17	PCB 99 30.4 31.9 34.4 48.1 45.3 PCB 77 7.8 10.9 9.91 9.44 7.51 PCB 183 12.1 16.1 17.7 16.3 13.5
18	Qa98tis9 bottle 245 53.2 mg/g of total extractable organics. Qa98tis9 bottle 255 49.9 mg/g of total extractable organics. Qa98tis9 bottle 251 62.8 mg/g of total extractable organics.
19	None
22	ALL TISSUE REPORTED AS WET WEIGHT !!!!
24	percent lipid data - extracted 2.5 g for this purpose SRM 1974a 0.796 0.588 0.704 TIS IX 0.708 0.405 0.563
25	None
26	other: dieldrin: sulfuric acid treatment removes analyte. 2,4'-DDD: coelutes with BZ154.
27	none
28	none
29	heptachlor detected in QA98TIS9 #170 not confirmed on 2nd column (DB-1701)
30	none
31	*endosulfan I coelutes with 2,4'DDE

Appendix F: Laboratory Notes Accompanying Data, Sediment VIII

Marine Sediment VIII: Notes included with e-files used for data submission by the participating laboratories

Lab Notes

1a-b None

1c

	SEDVIII average	std dev	SRM 1941a average
Chrysene	958	11	445
Triphenylene	259	4	200
Benzo[b]fluoranthene	1355	68	842
Benzo[k]fluoranthene	626	22	366
Dibenz[a,c]anthracene	90.7	1.9	53.2

2 #153 calculated by difference :168/153 coelute on DB-XLB
/153 coelute on DB-XLB; 153/105 coelute on DB-5
PT coelutes with domain 138/163/164 on both columns

3 None

4 *Sediment VIII, batch C Sample 3 was lost in preparation
** NA means not analyzed

5 None

6							
	PCB 49	6.73	3.43	5.72	4.45	4.04	4.13
	PCB 74	4.16	2.29	5.81	4.09	7.29	5.23
	PCB 87	15.89	7.84	15.51	2.34	2.55	3.03
	PCB 99	11.32	6.75	12.12	4.59	4.75	4.73
	PCB 110	26.27	16.08	29.15	6.36	6.76	6.06
	PCB 132	12.19	7.67	14.75	2.72	2.84	2.88
	PCB 149	22.89	13.07	26.6	7.46	7.09	7.11
	PCB 156	6.23	3.41	5.64	1.36	<1	1.22
	PCB 183	6.26	3.86	7.41	1.53	1.43	1.53

7

"Batch and Sample #	Extrt'n Dat	leanup MT	C MS Date
"Batch A Sample 1: Jar 14	"9/29/98	Florisil SPE	"10/20/98
"Batch B Sample 2: Jar 23	"10/19/98	lorisil colum	"10/22/98
"Batch B Sample 2: SRM	"9/21/98	lorisil colum	"10/22/98
"Batch C Sample #: Jar 14	"10/06/98	Florisil SPE	"10/21/98
"Batch C Sample 3: SRM	"9/21/98	Florisil SPE	"10/19/98

"NIST SRM 2262 used for calibration
"SRM certificate Moisture value used

Information for Pesticide analyses

Sample Information	Extrt'n Dat	leanup MT	GCMS Date
"Jar 125, Jar 143, SRM sa	"09/29/98	Florisil SPE	"11/12/98

Lab	Notes

SRM Sample 1 "09/21/98 lorisil colum "10/28/98
SRM Sample 2 "09/21/98 Florisil SPE "10/29/98
"Jar 239 "10/19/98 lorisil colum "10/27/98
"SRM certificate moisture value used
NIST SRM 2261 used for calibration with addtitional added pesticides:
alpha-HCH, oxychlordane, gamma-chlordane, ES-I, ES-II, endrin, cis-nonachlor

Labelled Pesticide	pike nG/mL
Heptachlor epoxide	100
gamma-HCH	100
4,4'-DDE	100
Mirex	100
Heptachlor	105
alpha-HCH	100
gamma-chlordane	100
4,4'-DDT	110
Dieldrin	100
Aldrin	100
Endosulfan-I (ES-I)	118
Endosulfan-II (ES-II)	64

PCB GC-MS analyses were performed on different days than pesticide GC-MS analyses

8 Only two SRM1941a were prepared and analyzed.

Laboratory Notes Accompanying Data **Marine Sediment VIII QA98SED8**

Lab	Notes
9	Blank cells indicate that the samples were not analyzed for those analytes. All target analytes that were included in the analyses but not detected have the detection limit reported. SRMs were not analyzed for non-certified analytes
10	Sample # 1 suffered an extraction casualty More sample for next year would be appreciated.
11	None
12	None
14	Samples were analyzed in a single sample batch.
15	* : Instead of SRM 1941A we have used a remaining portion of CRM IAEA 357 Other: Means confirmed as HCB but not quantyfied. **: Means lost extract of sample.
16	Endosulfan I co-elutes with 2,4'-DDE. PCB170/190 has interference in GC analysis.
17	PCB 99 1.88 2.1 2.08 2.82 2.82 2.11 PCB 183 1.85 1.85 1.49 2.11 1.41 2.1 NOTE: The fraction containing the light Pah's was accidently subjected to conditions which affected thier recovery, so we did not analyze for these compounds.
19	none

Laboratory Notes Accompanying Data **Marine Sediment VIII QA98SED8**

Lab	Notes						
20	*PCB 66	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	*PCB 95	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	*PCB 101	18.5	15.6	15.5	14.9	14.5	17.9
	*PCB 138	65.3	69.6	69.5	12.5	13.3	16.1
	*PCB 170	34.2	39.2	37.2	11.2	10.2	8.9
	* PCB 28+31	14.3	16.4	23.1	8.5	17.3	16.1

21 NA on sample BZ 101 for QA98SED-126 due to improper spike in that sample.
SRM with NA designation was not analyzed on the system.

22 none

23 Triphenylene, benzo(j) fluoranthene and dibenz(a,c) anthracene were not determined

24 none

25 none

26 other: dieldrin: sulfuric acid treatment removes analyte.
2,4'-DDD co-elutes with BZ154.

27 none

28 none

29 Concentrations reported for "PCB 153" is the sum of concentrations for congeners 153 and 132

30 none

31 *endosulfan I coelutes with 2,4'DDE
**phthalate (di-2-ethyl beryl phthalate interferes with PCB 170/190
there is an interference in the SRM for PCB 8

Appendix G: Laboratory Methods Used, Mussel Tissue IX

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No./ Reporting Date	Approximate amount of sample extracted:		Procedures used to determine percentage water
1a	Mussel IX, g (wet basis)	10	freeze-drying
10/30/98	SRM 1974a, g (wet basis)	10	
1b	Mussel IX, g (wet basis)	10	freeze-drying
10/30/98	SRM 1974a, g (wet basis)	10	
2	Mussel IX, g (wet basis)	5	Dried at 103 C, Gravimetric
10/15/98	SRM 1974a, g (wet basis)	6(PAH)	
4	Mussel IX, g (wet basis)	10	Did not correcct for moisture.
10/22/98	SRM 1974a, g (wet basis)	10	
5	Mussel IX, g (wet basis)	10.4	Freeze drying was used to determine the moisture content of the mussel tissue. The procedure was repeated until a constant mass was obtained.
10/29/98	SRM 1974a, g (wet basis)	8	
6	Mussel IX, g (wet basis)	7.8	Weighed 1g of the sample with an analytical balance with an accuracy of 0.2mg. Dry it in oven at 104 C for 1hour , Weighed it again to get dry weight
10/21/98	SRM 1974a, g (wet basis)	7.6	
7	Mussel IX, g (wet basis)	10.0	Freeze drying for both Tissue IX and SRM 1974a
ctober 30,19	SRM 1974a, g (wet basis)	8.0	
8	Mussel IX, g (wet basis)	5.84	Weighed approximately 2 g of sample into a preweighed aluminum pan and dried for 24 hours in an oven set at 105 degree centigrade. To calculate percent water, the dry weight was divided by the wet weight, subtracted from 1, and multiplied by 100.
10/26/98	SRM 1974a, g (wet basis)	5	
9	Mussel IX, g (wet basis)	11	Homogenized aliquot weighed into a pre-weighed aluminum weighing pan. Weight recorded to nearest 0.01g. Sample covered and placed in drying oven at ~105 C. After ~24 hr, sample removed and cooled at room temperature for at least 30 min. Sample weighed; weight recorded to nearest 0.01 g.
10/29/98	SRM 1974a, g (wet basis)	7	
11	Mussel IX, g (wet basis)	14	Entire sample was freeze dried and percent moisture was calculated.
11/1/98	SRM 1974a, g (wet basis)	16.8	
12	Mussel IX, g (wet basis)	7.3	Total solids at 105 degrees C by gravimetric
10/29/98	SRM 1974a, g (wet basis)	15.2	
13	Mussel IX, g (wet basis)	10	Portion of wet sample weighed onto tared pan, allowed to dry in dessicator at room temperature until constant weight.
10/29/1998	SRM 1974a, g (wet basis)	10	
14	Mussel IX, g (wet basis)	5	Gravimetric with oven drying
10/29/98	SRM 1974a, g (wet basis)	3	

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No./ Reporting Date	Approximate amount of sample extracted:		Procedures used to determine percentage water
15	Mussel IX, g (wet basis)	6.88	Weight difference betwen wet and dried sample. Drya weight after heating overnight at 105 °C.
10/30/98	SRM 1974a, g (wet basis)	*	
16	Mussel IX, g (wet basis)	10	An aliquot of the tissue sample is placed in a beaker and weighed. The sample in the beaker is dried in an oven at 50 degrees cenigrade to a constant weight. The percentage of water is calculated based on the weight loss.
10/29/98	SRM 1974a, g (wet basis)	10	
17	Mussel IX, g (wet basis)	13	Weighed approximately 2 grams of smaple into a preweighed aluminum pan. Samples were dried overnight at 120 degree C.
11/4/98	SRM 1974a, g (wet basis)	13	
18	Mussel IX, g (wet basis)	9.5	
11/2/98	SRM 1974a, g (wet basis)	9	
19	Mussel IX, g (wet basis)	10	Gravimetric. Dried an aliquot in a drying oven for 24 hrs.
11/3/98	SRM 1974a, g (wet basis)		
22	Mussel IX, g (wet basis)	5	Not enough sample to determine moisture
11/7/98	SRM 1974a, g (wet basis)	4	
24	Mussel IX, g (wet basis)	5	SAMPLE WEIGHED THEN DRIED AT 120 DEG C FOR 24 H THEN REWEIGHED
11/13/98	SRM 1974a, g (wet basis)	5	
25	Mussel IX, g (wet basis)	2.02	Drying oven at 70degC for 5 hours
11/10/98	SRM 1974a, g (wet basis)		
26	Mussel IX, g (wet basis)	13.3	Sample heated at 110-120 degree C. to constant weight.
vember 18,1	SRM 1974a, g (wet basis)	10.3	
27	Mussel IX, g (wet basis)	12	freeze drying
11/17/98	SRM 1974a, g (wet basis)	12	
28	Mussel IX, g (wet basis)	8	Sample dried for 48 hrs at 70C
11/20/98	SRM 1974a, g (wet basis)	8	
29	Mussel IX, g (wet basis)	14	vacuum freeze dried ~15g wet tissue for 24h determine % water gravimetrically = ((wet - dry tissue)/wet tissue)*100
12/4/98	SRM 1974a, g (wet basis)	16	
30	Mussel IX, g (wet basis)	10	Dry at 105 degrees C, for 24 hours
1/7/99	SRM 1974a, g (wet basis)	10	
31	Mussel IX, g (wet basis)	2	gravimetric after drying
12/22/98	SRM 1974a, g (wet basis)	2	

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Extraction method	Extraction solvent	Extraction time	Extraction - other
1a	PFE	dichloromethane	5 min equilibrium time, 5 min static	100 C, 2000 psi
1b	PFE	dichloromethane	5 min equilibrium time, 5 min static	100 C, 2000 psi
2	Soxhlet	Methylene chloride/Acetone 2/1	18 - 20 hrs.	Acetonitrile (Pesticides)
4	Soxhlet	Methylene Chloride	overnight (min. of 12 hours)	
5	Soxhlet	Dichloromethane	24 hours	
6	3550 Sonication	75mL of Methylene Chloride:Acetone (1:1)	3 x 2 minute pulse sonication	
7	Freidrich Soxhlet	1:1 hexane/acetone	8 Hour	
8	Microwave Solvent Extraction	30 ml 4:1 acetone:hexane	15 minutes in the microwave	
9	Tissumizer technique; tissue homogenate spiked w/ surrogates, mixed w/ Na2SO4 and solvent	methylene chloride	2 min + 2 min + 2 min	
11	Soxhlet extraction	3:1 mixture of methylene chloride and acetone.	16 hrs	
12	Sample mixed with anhydrous sodium sulfate and activated copper: extracted 3 times using rotary tumbler.	Methylene Chloride	Three times for a total of 38 hr..: first 16 hrs., second 6hrs., and last 16 hr.	Rotated at 40 RPM in 500 ml Teflon Bottle
13	Soxhlet	Petroleum Ether	__18 hours	
14	NOAA Technical Memorandum NOS ORCA 71 Volume IV, Chapter 2	methylene chloride		sodium sulfate added to samples and solvent prior to extraction
15	Soxhlet extraction, by 16 hours.	Methylene Chloride-Hexane (50:50)	16 hours	
16	Extracted with DCM and 40 grams NaSO4. Tissumized 3 times.	Dichloromethane	Tissuemized 3 times for 3 minute duration	Samples were dried by the addition of NaSO4 prior to extraction.
17	Soxhlet	Dichlormethane	18 hours	
18				
19	Tissuemiser	Methylene chloride	3 minutes	

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Extraction method	Extraction solvent	Extraction time	Extraction - other
22	PFE 5 min heat, 5 min static, 300 sec purge, 85 % flush, 2000 psi, 100 degrees C	PAH- 10% Acetone/ 90% methylene chloride PEST/PCB- 10% Acetone/ 90% Hexane	Approx 15 min	The 33 ml cells were extracted twice for each sample. The extracts were combined into a 250 ml KD, concentrated to approx 5 mls, then concentrated by nitrogen blowdown to 0.5 mls for pah and 1.0 mls for Pest/PCB
24	ACCELERATED SOLVENT EXRACTION WITH DCM	DCM	CA 20 MINUTES	
25	EPA Method 3550 - sonication	Methylene chloride/acetone (50:50)	3 x 5 min	0.45 um filtration sodium sulfate drying column
26	Metabolic shaker of sample and solvents at 50 degrees C.	Acetonitrile : hexane. (3:2)	One (1) hour.	Cool, add water, centrifuge and draw off hexane layer; repeat with hexane twice more.
27	soxhlet	50% methylene chloride/ 50% acetone	24 hrs.	
28	Accelerated Solvent Extractor (ASE)	Methylene chloride/acetone	40 minutes	
29	Soxhlet	CH2Cl2 (400ml)	16h	
30	Tissumizer w/ sodium sulfate	Methylene chloride	3 times, 2 min. each	
31	Accelerated Solvent Extraction (Dionex ASE 200)	100% dichloromethane	11 min per sample	2000 psi, 100 oC, 2 static extraction cycles/sample, 100% solvent flush TurboVapII and/or water bath at 60oC, solvent reduction to 1.0 mL

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Wet or dry samples extracted? Tissue IX	SRM 1974a	Sample extract cleanup method
1a	wet	wet	size exclusion chromatography to remove lipid and biogenic material LC-aminopropylsilane column for separation of PCB and lower polarity pesticides from more polar pesticides
1b	wet	wet	size exclusion chromatography to remove lipid and biogenic material LC-aminopropylsilane column for separation of PCB and lower polarity pesticides from more polar pesticides
2	Wet	Wet	Florisil and copper clean up
4	_____	_____	GPC Sodium Sulfate filtration column alumina-silica clean-up column
5	wet	wet	The steps involved were: [1] Sulfuric acid wash [2] Clean with activated copper [3] Silica column [4] Sephadex LH-20 column
6	wet	wet	No cleanup performed for PAH Solvent exchange to hexane with turbvap for pesticide/PCB Acid clean and copper clean were performed for pesticide/PCB
7	wet	wet	Multi-column (1) 20g 2% deactivated Florisil, eluted 300 mL hexane, rotovap to 1 mL (2) 3.7 g Alumina column, eluted 50 mL 15%ethyl ether in hexane, rotovap to 2 mL
8	WET	WET	Silica Gel Column Chromatography to separate PCBs from chlorinated pesticides and PAHs
9	wet	wet	2% deactivated alumina column (20 g) followed by HPLC
11	Dry	Dry	Lipid was removed using Florisil dry column method. Silica gel column chromatography and sulfuric acid cleanup method was used for PCB fraction. Silica gel column chromatographic method for pesticides.
12	wet	wet	Alumina-Silica Gel and GPC
13	__wet sample	__wet sample	Acetonitrile / Petroleum ether liquid-liquid partition followed by florisil column chromatography
14	wet	wet	See reference above.
15	Dry (Na_2SO_4)	*	Solid-liquid chromatography, using alumina and silica gel %5 percent deactivated with water.
16	Dry	Dry	1. Silica/Alumina column cleanup: 10g Alumina and 20g silica gel. Elute with 200 mL pentane/DCM(50:50 v/v). 2. HPLC gel permiation chromatography.
17	wet	wet	Extracts were cleaned up using high performance GPC on porous divinylbenzene copolymer gel to remove the majority of the lipids. The extracts were then fractionated using a semipreparative aminosilane column.
18	wet	wet	
19	wet	_____	Extract run through silica gel/alumina column with pentane and methylene chloride.
22	wet	wet	The Pest/PCB cells were packed with 6 grams of alumina (7% water activated) followed by the samples. The sample were sulfuric acid cleaned prior to injection.
24	WET	WET	GPC FOLLOWED BY HPLC (AMINOPROPYL) USED TO SEPARATED PCBS FROM PESTICIDES.

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Wet or dry samples extracted? Tissue IX	SRM 1974a	Sample extract cleanup method
25	Wet	_____	EPA Method 3620 - Florisil hexane elute hexane/15% ether elute 100% ether elute
26	wet samples	wet sample	Cleanup using silica gel column chromatography to give one fraction using 70% hexane/ 30% dichloromethane. Split fraction and treat PCB/OCP portion with concentrated sulfuric acid before GC analysis. PAH portion untreated.
27	wet	wet	Gel Permeation chloromatograph and Florisil column
28	wet	wet	GPC and Florisil columns
29	dry	dry	18.0g Florisil (1% water deactivated) packed column chromatography F1 -- 75-100ml hexane F2 -- 150ml CH2Cl2:hexane (30:70 v/v) F3 -- 150ml CH2Cl2:hexane (50:50 v/v)
30	wet	wet	alumina, HPLC w/ GPC column
31	dry	dry	Samples were processed through alumina (10g, 1% deactivation)/silica gel (20g, 5% deactivation) chromatography columns followed by HPLC clean up using size exclusion columns (Phenogel 100 A columns) Solvent reduction was by Turbo Vap II or water bath set at 60oC.

Summary of Methods Used

Mussel Tissue IX QA98TIS9

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/MS	GC/MS	GC/MS	PAH	IS
	Column Phase:	DB-17 MS	DB-5 MS	DB-5 MS	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		
2	Instrument:	GCMS	HP5890	HP5890	PAH	IS
	Column Phase:	DB5	DB5	DB5	Pesticides:	IS
	Col. Length, m:	30	60	60	PCBs:	IS
	Col. Inner Diameter, mm:	0.25	0.32	0.32		
	Col. film thickness, µm:	0.25	0.25	0.25		
4	Instrument:		GC-ECD		PAH	
	Column Phase:		RTX5/RTX1701		Pesticides:	ES
	Col. Length, m:		30		PCBs:	
	Col. Inner Diameter, mm:		0.25			
	Col. film thickness, µm:		0.25			
5	Instrument:	GC-MS (HREI)			PAH	IS, ES
	Column Phase:	DB-5			Pesticides:	
	Col. Length, m:	20			PCBs:	
	Col. Inner Diameter, mm:	0.1				
	Col. film thickness, µm:	0.1				
	Col. film thickness, µm:	0.25				
6	Instrument:	HP 5972	HP 6890	HP 6890	PAH	IS
	Column Phase:	5% diphenyl	Rtx-5 and Rtx-35	Rtx-5 and Rtx-35	Pesticides:	IS
	Col. Length, m:	30	60	60	PCBs:	IS
	Col. Inner Diameter, mm:	0.32	0.25	0.25		
	Col. film thickness, µm:	0.5	0.25	0.25		
7	Instrument:			AutoSpecQ	PAH	
	Column Phase:			DB5	Pesticides:	
	Col. Length, m:			60 m	PCBs:	IS
	Col. Inner Diameter, mm:			0.25		
	Col. film thickness, µm:			0.25		
8	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:	30m	30m	30m	PCBs:	IS
	Col. Inner Diameter, mm:	0.25mm	0.25mm	0.25mm		
	Col. film thickness, µm:	0.25um	0.25um	0.25um		

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.		PAH	Pesticides	PCB Congeners	Method of quantitation	
9	Instrument:	GC/MS HP 5972	GC/ECD HP	GC/ECD HP 6890	PAH	IS
	Column Phase:	DB5	DB5	DB5	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		
11	Instrument:		GC-ECD	GC-ECD	PAH	
	Column Phase:		DB-5	DB-5	Pesticides:	ES
	Col. Length, m:		30 m	30 m	PCBs:	ES
	Col. Inner Diameter, mm:		0.25 mm	0.25 mm		
	Col. film thickness, µm:		0.25 micron	0.25 micron		
12	Instrument:	GCMS	NA	GCMS	PAH	IS
	Column Phase:	DB5-MS	NA	DB5-MS	Pesticides:	NA
	Col. Length, m:	30	NA	30	PCBs:	IS
	Col. Inner Diameter, mm:	0.32	NA	0.32		
	Col. film thickness, µm:	0.25	NA	0.25		
13	Instrument:	GC/MS SIM	GC/MS SIM	GC/MS SIM	PAH	ES
	Column Phase:	DB-5	DB-5	DB-5	Pesticides:	ES
	Col. Length, m:	30 M	30 M	30 M	PCBs:	ES
	Col. Inner Diameter, mm:	0.25 mm	0.32 mm	0.32 mm		
	Col. film thickness, µm:	0.25 um	0.25 um	0.25 um		
14	Instrument:	GC/MS	GC/ECD	GC/ECD	PAH	IS
	Column Phase:	DB-5	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	30m	30m	30m	PCBs:	IS
	Col. Inner Diameter, mm:	0.25 mm	0.25 mm	0.25 mm		
	Col. film thickness, µm:	0.25 microns	0.25 microns	0.25 microns		
15	Instrument:	Not analyzed	GC-ECD	GC-ECD	PAH	
	Column Phase:		SE 54	SE 54	Pesticides:	IS
	Col. Length, m:		30 m	30 m	PCBs:	IS
	Col. Inner Diameter, mm:		0.25	0.25		
	Col. film thickness, µm:		0.25	0.25		
16	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	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25	0.25		
17	Instrument:	GC/MS	GC/MS	GC/MS	PAH	IS
	Column Phase:	DB-5	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	30	30	30	PCBs:	IS
	Col. Inner Diameter, mm:	.32	.32	.32		
	Col. film thickness, µm:	.25	.25	.25		

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.		PAH	Pesticides	PCB Congeners	Method of quantitation	
18	Instrument:	HRGC-MS	GC-ECD	GC-ECD	PAH	
	Column Phase:	DB-5MS	DB-5 and DB-17	DB-5 and DB-17	Pesticides:	
	Col. Length, m:	30	30	30	PCBs:	
	Col. Inner Diameter, mm:	0.25	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25	0.25		
19	Instrument:	GC-MSD			PAH	IS
	Column Phase:	5%PH ME siloxane			Pesticides:	
	Col. Length, m:	25			PCBs:	
	Col. Inner Diameter, mm:	0.2				
	Col. film thickness, µm:	0.33				
22	Instrument:	HP GC/MS	Ion Trap	Ion Trap	PAH	IS
	Column Phase:	DB-5	JW XLB-ITD	JW XLB-ITD	Pesticides:	ES
	Col. Length, m:	30 m	60 m	61 m	PCBs:	ES
	Col. Inner Diameter, mm:	0.25 mm	0.25 mm	0.25 mm		
	Col. film thickness, µm:	0.25 um	0.25 um	0.25 um		
24	Instrument:		GC-ECD	GC-ECD	PAH	
	Column Phase:		DB-5	DB-5	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		
25	Instrument:	GC-MS	GC-AED	GC-AED	PAH	IS
	Column Phase:	ZB-1	DB-1		Pesticides:	IS
	Col. Length, m:	30	30		PCBs:	IS
	Col. Inner Diameter, mm:	0.25	0.32			
	Col. film thickness, µm:	0.25	0.25			
26	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	IS
	Column Phase:	XLB	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	30M	30M	30M	PCBs:	IS
	Col. Inner Diameter, mm:	0.25mm	0.25mm	0.25mm		
	Col. film thickness, µm:	0.25µm	0.25µm	0.25µm		
27	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	IS
	Column Phase:	Rtx-5MS	50% me/50% phenol	50% me/50% phenol	Pesticides:	ES
	Col. Length, m:	30	30	30	PCBs:	ES
	Col. Inner Diameter, mm:	0.25	0.32	0.32		
	Col. film thickness, µm:	0.25	0.25	0.25		

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.		PAH	Pesticides	PCB Congeners	Method of quantitation	
28	Instrument:		GC-ECD	GC-ECD	PAH	
	Column Phase:		DB5/DB17	DB5/DB17	Pesticides:	ES
	Col. Length, m:		60 m	60 m	PCBs:	ES
	Col. Inner Diameter, mm:		0.25 mm	0.25 mm		
	Col. film thickness, µm:		25 um	25 um		
29	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	
	Column Phase:	DB-XLB	DB-5	DB-5	Pesticides:	
	Col. Length, m:	30	30	30	PCBs:	
	Col. Inner Diameter, mm:	0.25	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25	0.25		
30	Instrument:	GC/MSD	GC/ECD	GD/ECD	PAH	IS
	Column Phase:	DB-5-MS	RTX-5/DB-17	RTX-5/DB-17	Pesticides:	IS
	Col. Length, m:	30 m	30 m	30 m	PCBs:	IS
	Col. Inner Diameter, mm:	0.25 mm	0.25 mm	0.25 mm		
	Col. film thickness, µm:	0.25	0.25	0.25		
31	Instrument:	GC/MS HP5972	GC/ECD HP5890	GC/ECD HP5890	PAH	IS
	Column Phase:	HP-5MS	SPB5	SPB5	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		

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatographic	Other(s)
1a	PAH:	naph-d8, biphenyl-d10, acenaph-d10, phen-d10, fluoran-d10, pyrene-d10, b[a]a-d12, b[a]p-d12, perylene-d12, b[ghi]p-d12	none	none
	Pesticides:	endosulfan-d4, 4,4'-DDT-d8	none	none
	PCBs:	PCB 103, PCB 198	none	none
1b	PAH:	naph-d8, biphenyl-d10, acenaph-d10, phen-d10, fluoran-d10, pyrene-d10, b[a]a-d12, b[a]p-d12, perylene-d12, b[ghi]p-d12	none	none
	Pesticides:	endosulfan-d4, 4,4'-DDT-d8	none	none
	PCBs:	PCB 103, PCB 198	none	none
2	PAH:	None	Phenanthrene-D10, Chrysene-D12,Perylene-D12, Acenaphthene-D10,Naphthalene-D8, 1,2-Dichlorobnezene-D4	None
	Pesticides:	None	4,4'-Dibromooctafluorobiphenyl	None
	PCBs:	None	4,4'-Dibromooctafluorobiphenyl	None
4	PAH:			
	Pesticides:			
	PCBs:			
5	PAH:	DPAC-1 (see-attached)		Perylene-d12 (as a volumetric internal standard) added after clean-up, just prior to the analysis
	Pesticides:			
	PCBs:			
6	PAH:		FLUORENE-d10 and CHRYSENE-D12	
	Pesticides:	40ng of tetrachloro-m-xylene spiked for surrogate	4,4' Dibromo-octofloro-biphenyl for IS	
	PCBs:	40ng of tetra-m-chloroxylene spiked for surrogate	4,4' Dibromo-octofloro-biphenyl for IS	
7	PAH:			
	Pesticides:		0	
	PCBs:	Fully C13 Labelled IUPAC #'s 28,52,101,118,105,153,138,128,180,170,209	IUPAC # 100	none
8	PAH:	d10-phenanthrene, d12- benz(a)anthracene, d12-perylene	4-chloro-p-terphenyl	none
	Pesticides:	2,5-dichloro-m-terphenyl		none
	PCBs:	PCB 198		none
9	PAH:	naphthalene-d8, phenanthrene-d10, chrysene-d12	acenaphthene-d10, fluorene-d10, benzo[a]pyrene-d12	
	Pesticides:	PCB Cl3(34), Cl3(103), Cl5(112)	PCB Cl3(29), Cl6(166)	
	PCBs:	PCB Cl3(34), Cl3(103), Cl5(112)	PCB Cl3(29), Cl6(166)	
11	PAH:			
	Pesticides:			

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatographic	Other(s)
	PCBs:			
12	PAH:	Naphthalene-13C6, Benzo(ghi)perylene-13C12, Fluoranthene-d10	NONE	NONE
	Pesticides:	NA	NA	NA
	PCBs:	PCB 28-13C12, PCB 153-13C12, PCB 194-13C12, 4,4'-Dibromooctafluorobiphenyl	NONE	NONE
13	PAH:	_Dibromooctaflorobiphenyl;Pentachloronitrobenzene;Octachloronaphthalene (surrogates)		
	Pesticides:	Same as above.		
	PCBs:	_Same as above		
14	PAH:	naphthalene-d8, acenaphthene-d10, benzo[a]perylene-d12	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 clean-up
15	PAH:			
	Pesticides:	PCB 103		
	PCBs:	PCB 103		
16	PAH:	d8-Naphthalene, d10-Acenaphthene, d10-Phenanthrene, d12-Chrysene, d12-Perylene	d10-Fluorene, d12-Benzo(a)pyrene	
	Pesticides:	PCB-103, PCB-198, DBOFB	TCMX	
	PCBs:	PCB-103, PCB-198, DBOFB	TCMX	
17	PAH:	Bromononane, Octanophenone	Phenanthrene d-10, Pyrene d-10, Chrysene d-12	
	Pesticides:	Isodrin	Phenanthrene d-10, Pyrene d-10, Chrysene d-12	
	PCBs:	Dibromobiphenyl	Phenanthrene d-10, Pyrene d-10, Chrysene d-12	
18	PAH:	Napthalene-d8, Acenapthene-d10, Phenanthrene-d10, Fluoranthene-d10, Chrysene-d12, Benzo(a)Pyrene-d12,Benzo(ghi)Perylene-d12	Flurene-d10, Pyrene-d10 and Perylene-d12	

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatographic	Other(s)
	Pesticides:	gamma-chlordene	4,4'-Dibromooctafluorobiphenyl	
	PCBs:	BZ 103, BZ 198	4,4'-Dibromooctafluorobiphenyl	
19	PAH:	deuterated Naphthalene, Acenaphthene, Phenanthrene, Chrysene, Benzo-a-pyrene, Perylene	Hexamethylbenzene	
	Pesticides:			
	PCBs:			
22	PAH:	2-Fluorobiphenyl, d14-Terphenyl	d8-Naphthalene, d10-Acenaphthene, d10-Phenanthrene, d12-Chrysene, d14-Perylene	
	Pesticides:			
	PCBs:			
24	PAH:			
	Pesticides:	D4 ENDOSULFAN I, D8 4,4'-DDD, D8 4,4'-		
	PCBs:	PCB 103 PCB 198 AND D8-4,4'-DDE		
25	PAH:	ISM-560		
	Pesticides:	ISM-560		
	PCBs:	ISM-560		
26	PAH:	NAP-d8, ACT-d10, ANT-d10, BAP-d12.		o-terphenyl
	Pesticides:	DBOFB, BZ103, BZ198.		BZ100
	PCBs:	DBOFB, BZ103, BZ198.		BZ100
				ES, added just prior to GC analysis to calculate IS recoveries.
27	PAH:	1,2-dichlorobenzene-d4, nitrobenzene-d5, 2-fluorobiphenyl, p-terphenyl-d14	1,4-dichlorobenzene-d4, naphthalene d8, acenaphthene-d10, phenanthrene d10	
	Pesticides:	2,4,5,6 tetrachloro-m-xylene, dibutyl chlorendate		
	PCBs:	2,4,5,6 tetrachloro-m-xylene, dibutyl chlorendate		
28	PAH:			
	Pesticides:			
	PCBs:			
29	PAH:			
	Pesticides:			
	PCBs:			
30	PAH:	d8-naphthalene, d10-acenaphthene, d10-phananthrene, d12-benzo(a)pyrene	d10-fluorene, d12-chrysene	
	Pesticides:	DBOFB, PCB 103, PCB 198	TCMX	
	PCBs:	DBOFB, PCB 103, PCB 198	TCMX	
31	PAH:	Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	Fluorene-d10, Benzo[a]pyrene-d12, Pyrene-d10	none

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatographic	Other(s)
Pesticides:	4,4'-Dibromooctafluorobiphenyl (DBOFB), 2,3',4,5',6-Pentachlorobiphenyl, 2,2',3,3',4,5,5'6-Octachlorobiphenyl	2,4,5,6-Tetrachloro-meta-Xylene (TCMX)	none
PCBs:	4,4'-Dibromooctafluorobiphenyl (DBOFB), 2,3',4,5',6-Pentachlorobiphenyl, 2,2',3,3',4,5,5'6-Octachlorobiphenyl	2,4,5,6-Textrachloro-meta-Xylene (TCMX)	none

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Int.stds/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?	Percent recovery range (if applicable)	
1a	x			PAH	
				Pesticides	
				PCB Congeners	
1b	x			PAH	
				Pesticides	
				PCB Congeners	
2	_____	X	No	PAH	No
				Pesticides	No
				PCB Conge	No
4				PAH	
				Pesticides	
				PCB Congeners	
5	X			PAH	
				Pesticides	
				PCB Congeners	
6	0	X	No	PAH	60-118%
				Pesticides	70-90%
				PCB Conge	70-90%
7	X	X	YES	PAH	
				Pesticides	
				PCB Conge	ST PCB's >65%,
				# 209 35 - 45%, Method blanks > samples	
8	X		NO	PAH	
				Pesticides	
				PCB Congeners	
9	X (PCB/Pest)	X (PAH)	yes	PAH	69 to 88%
				Pesticides	74 to 80%
				PCB Conge	74 to 80%
11	DBOFB			PAH	
				Pesticides	80-120
				PCB Conge	80-120
12	X			PAH	NA
				Pesticides	NA
				PCB Conge	NA
13		X_____	_____No_____	PAH	75%--130%
				Pesticides	_75%--130%
				PCB Conge	_75%--130%
14	X			PAH	
				Pesticides	
				PCB Congeners	
15	yes			PAH	
				Pesticides	75 -110
				PCB Conge	64 -115

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Int.stds/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?	Percent recovery range (if applicable)	
16	X			PAH Pesticides PCB Congeners	
17		X	NO	PAH Pesticides PCB Conge	75-95 75-95 75-95
18		yes	no	PAH Pesticides PCB Congeners	
19		X		PAH Pesticides PCB Congeners	30-120
22		XXX	NO	PAH Pesticides PCB Congeners	87-160 %
24				PAH Pesticides PCB Congeners	
25				PAH Pesticides PCB Congeners	
26	X			PAH Pesticides PCB Congeners	
27	SURR.	IS.	NO	PAH Pesticides PCB Congeners	0
28		X		PAH Pesticides PCB Congeners	
29				PAH Pesticides PCB Congeners	
30		X	Yes	PAH Pesticides PCB Congen	53 - 81 % 46 - 67 % 46 - 67 %
31	NO	YES	YES	PAH Pesticides PCB Congen	40-120 40-120 40-120

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Calibration	PAH	Pesticides	PCBs
1a	Points:	6	6	6
	Conc. Range:	10 - 800 ng/g	1-250 ng/g	1-250 ng/g
	Analytes outside of calibrated range:	none	none	none
1b	Points:	6	6	6
	Conc. Range:	10 - 800 ng/g	1-250 ng/g	1-250 ng/g
	Analytes outside of calibrated range:	none	none	none
2	Points:	5	6	6
	Conc. Range:	2 -30 ppm	10-100ppb	10-100ppb
	Analytes outside of calibrated range:	None	None	None
4	Points:		6	
	Conc. Range:		5-200 pg/ul	
	Analytes outside of calibrated range:		All, except DDE and DDD were outside the curve.	
5	Points:	7		
	Conc. Range:	0.280 - 0.0008 x NIST 1491		
	Analytes outside of calibrated range:			
6	Points:	5	3	3
	Conc. Range:	50 -20,000 ng/mL	2ng/mL-10ng/mL	1ng/mL-5ng/mL
	Analytes outside of calibrated range:		0	0
7	Points:			FOUR
	Conc. Range:			2,20,80,120 nG/mL
	Analytes outside of calibrated range:			NONE
8	Points:	5	5	5
	Conc. Range:	0.5 - 20 ng/ul	3.3 - 30 pg/ul	3.3 - 30 pg/ul
	Analytes outside of calibrated range:			
9	Points:	5	5	5
	Conc. Range:	0.025 to 8.7ng/uL	0.008 to 0.15 ng/uL	0.008 to 0.15 ng/uL
	Analytes outside of calibrated range:			
11	Points:		4	4
	Conc. Range:		16-80 pg/uL	16-80 pg/uL
	Analytes outside of calibrated range:			
12	Points:	6	NA	5
	Conc. Range:	50 - 5000 ng/ml	NA	20 - 2000 ng/ml
	Analytes outside of calibrated range:	None	NA	None
13	Points:	5	6	6
	Conc. Range:	10 ng/ml---1000 ng/ml	10 ng/ml---2000 ng/ml	0.01ng---2.0 ng _10 ng/ml---2000 ng/ml
	Analytes outside of calibrated range:			
14	Points:	1	6	6
	Conc. Range:	~3 ng/mL	0.001-0.500 ng/mL	0.001-0.500 ng/mL
	Analytes outside of calibrated range:	N/A	None	None
15	Points:		4	4
	Conc. Range:		5 - 160 ng/ml	5 - 160 ng/ml

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Calibration	PAH	Pesticides	PCBs
	Analytes outside of calibrated range:		None of them	None of them
16	Points:	5	5	5
	Conc. Range:	20-1000 ng/mL	5-200 ng/mL	5-200 ng/mL
	Analytes outside of calibrated range:	Dilution to bring into range	Dilution to bring into range	Dilution to bring into range
17	Points:	5	5	5
	Conc. Range:	2 to 24 ng	0.2 to 16 ng	0.2 to 16 ng
	Analytes outside of calibrated range:			
18	Points:	5	4	4
	Conc. Range:	10-1200 ng/ml	5-100 ng/ml	5-100 ng/ml
	Analytes outside of calibrated range:	none	none	none
19	Points:	5		
	Conc. Range:	6-1800 ng/g		
	Analytes outside of calibrated range:			
22	Points:	10 point	6 point	4 point
	Conc. Range:	0.01-15 ug	2-100 ng	50-400ng
	Analytes outside of calibrated range:	NONE	NONE	NONE
24	Points:		4	4
	Conc. Range:		0.005 PPM TO 0.1 PPM	0.005 PPM TO 0.1 PPM
	Analytes outside of calibrated range:		0	0
25	Points:			
	Conc. Range:			
	Analytes outside of calibrated range:			
26	Points:	4	3	3
	Conc. Range:	1.0-20ng	8-100pg	8-100pg
	Analytes outside of calibrated range:			
27	Points:	5	6	5
	Conc. Range:	2 to 40 (ppm)	0.4 to 40 (ppb)	1 to 100 (ppb)
	Analytes outside of calibrated range:	no	no	no
28	Points:		5	6
	Conc. Range:		0.05--500 ppb	0.1--20
	Analytes outside of calibrated range:			
29	Points:	5	5	5
	Conc. Range:	0.2-8 ng	2-100pg	2-100pg
	Analytes outside of calibrated range:	benzo[k]fluoranthene, benzo[ghi]perylene (criteria: >15% RSD)	none (all < 15%)	none (all < 15%)
30	Points:	5	5	5
	Conc. Range:	25 - 5000 ng/mL	5 - 200 ng/mL	5 - 200 ng/mL
	Analytes outside of calibrated range:	None	None	None
31	Points:	5	5	5
	Conc. Range:	0.021-1.0 micrograms/mL	5-200 pg/microliter	5-200 pg/microliter
	Analytes outside of calibrated range:	none	none	none

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Were PCBs separated from pesticides prior to GC?	Does PCB 132 coelute with PCB 153, PCB 105 or both?	Differences in procedures used for SRM 1974a from those for described Mussel Tissue IX
1a	yes	separated from both	
1b	yes	separated from both	
2	No	On DB-XLB 168/153 coelute	
4	DDE,HCB, Mirex, Aldrin, and Heptachlor		
5			
6	yes	PCB 153 and 132 was seperated on one column	No None
7	LY THE MORE POLAR O	132 COELUTES ON LEADING EDGE OF 105	None
8	YES	PCB 132 co-elutes with PCB153 and	Moisture was standardized in SRM1974a prior to microwave extraction.
9	no	separated	none
11		PCB-132 coelutes with PCB-105	No
12	no		
13			
14	No	Coelutes with PCB 153	3g of SRM 1974a extracted, vs. 5g of Tissue IX.
15	No	Coelute with PCB 153	* * Instead of use SRM 1974 we used IAEA CRM-IAEA 351
16	No	PCB-132 Coelutes with PCB-153	None
17	YES	APPEARS TO COELUTE WITH 153	
18	yes		PCB 28, 44, 66, 101, 138, 153 ,118 and pp'-DDE are outside of the calibration curve range for the SRM.
19			We were unable to obtain any SRM 1974a because shipper could not find courier to take dry ice.
22	NO	separate	NONE
24	YES	SEPARATES	NONE
25	No		
26	NO	We don't measure BZ132.	NONE
27	no	Coelution (PCB 132 is not in the method)	
28	NO		

Summary of Methods Used

Mussel Tissue IX QA98TIS9

Lab No.	Were PCBs separated from pesticides prior to GC?	Does PCB 132 coelute with PCB 153, PCB 105 or both?	Differences in procedures used for SRM 1974a from those for described Mussel Tissue IX
29	partially	PCB-132 appears to co-elute with -153	
30	No		
31	NO	coelutes with PCB 153 only	

Appendix H: Laboratory Methods Used, Sediment VIII

Summary of Methods Used

Marine Sediment VIII QA98SED8

Lab No./ Reporting Date	Approximate amount of sample extracted:		Procedures used to determine percentage water
1a 9/11/98	Sediment VIII, g (wet bas SRM 1941a, g (dry basis	19 5	freeze-drying
1b 10/30/98	Sediment VIII, g (wet bas SRM 1941a, g (dry basis	19 5	freeze-drying
1c 11/16/98	Sediment VIII, g (wet bas SRM 1941a, g (dry basis	5 10	Not determined - dry samples analyzed
2 10/15/98	Sediment VIII, g (wet basis) SRM 1941a, g (dry basis)	8g 10g	Dried at 103 C, Gravimetric
3 10/23/98	Sediment VIII, g (wet basis) SRM 1941a, g (dry basis)	10 1g for PAHs and 10g for Pest./Cong.	EPA 160.3
4 10\15\98	Sediment VIII, g (wet basis) SRM 1941a, g (dry basis)	15-19 15-22	Drying balance
5 10/27/98	Sediment VIII, g (wet basis) SRM 1941a, g (dry basis)	16.1 10	The percent water in the sediments was determined by drying the wet sediment in an oven at 90oC. The sediment was dried for 18 hours and then allowed to cool in a dessicator. Once cooled to room temperature, the sediment was reweighed and the % moisture was
6 10/21/98	Sediment VIII, g (wet basis) SRM 1941a, g (dry basis)	9.4 6.4	Weighed 1g of the sample with an analytical balance with an accuracy of 0.2mg. Dry it in oven at 104 C for 1hour , Weighed it again to get dry weight
7 10/30/98	Sediment VIII, g (wet basis) SRM 1941a, g (dry basis)	5 5	oven drying
8 10/25/98	Sediment VIII, g (wet basis) SRM 1941a, g (dry basis)	5 2.5	Weighed approximately 2 grams of sample into a preweighed aluminum pan and dried for 24
9 10/30/98	Sediment VIII, g (wet basis) SRM 1941a, g (dry basis)	6.8 5	Homogenized aliquot weighed into a pre-weighed aluminum weighing pan. Weight recorded to nearest 0.01g. Sample covered and placed in drying oven at ~105 C. After ~24 hr, sample removed and cooled at room temperature for at least 30 min. Sample weighed; weight recorded to nearest 0.01 g.
10 10/30/98	Sediment VIII, g (wet basis) SRM 1941a, g (dry basis)	16 10	104 degree C oven. EPA SW-846 method for determining % solids

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No./ Reporting Date	Approximate amount of sample extracted:		Procedures used to determine percentage water
11	Sediment VIII, g (wet basis)	20g	Entire sample was freeze dried and percent moisture was calculated.
11/1/98	SRM 1941a, g (dry basis)	5g	
12	Sediment VIII, g (wet basis)	3.2	Total solids at 105C by gravimetric
10/29/98	SRM 1941a, g (dry basis)	2.5	
14	Sediment VIII, g (wet basis)	10	Gravimetric with oven drying
10/27/98	SRM 1941a, g (dry basis)	2	
15	Sediment VIII, g (wet basis)	11.5	Weight difference between wet and dried sample. Sample was dried by heating overnight
10/30/98	SRM 1941a, g (dry basis)	*	
16	Sediment VIII, g (wet basis)	15	An aliquot of the tissue sample is placed in a beaker and weighed. The sample in the beaker is dried in an oven at 50 degrees cenigrade to a constant weight. The percentage of water is calculated based on the weight loss.
10/29/98	SRM 1941a, g (dry basis)	1	
17	Sediment VIII, g (wet basis)	15	Weighed approximately 2 grams of smaple into a preweighed aluminum pan. Samples were dried overnight at 120 degree C. Samples were transfered to a dessicator and allowed to coll before reweighing.
10/30/98	SRM 1941a, g (dry basis)		
19	Sediment VIII, g (wet basis)	20	Gravimetric. Dried an aliquot in drying oven for 24 hrs.
11/3/98	SRM 1941a, g (dry basis)	1	
20	Sediment VIII, g (wet bas	5 -- 7	by weighting
11/4/98	SRM 1941a, g (dry basis	5	
21	Sediment VIII, g (wet bas	12	Sample was completely mix. A portion of the sample is placed in a pre-weighed tin, weighed, and dried in a 105c oven over night. The sample is cooled and rewieghed and the percent water determined. water
10/28/98	SRM 1941a, g (dry basis	6	
22	Sediment VIII, g (wet bas	3	approx. 2.5 grams weighed into aluminum pan and dried overnight at 120 dgrees C. Samples reweighted and percent moisture was determined by difference
11/7/98	SRM 1941a, g (dry basis	2	
23	Sediment VIII, g (wet bas	9.4	Standard Methods 2540b
11/10/98	SRM 1941a, g (dry basis	8.1	
24	Sediment VIII, g (wet bas	10	SAMPLE WEIGHED THEN DRIED AT 120 DEG C FOR 24 H THEN REWEIGHED

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No./ Reporting Date	Approximate amount of sample extracted:		Procedures used to determine percentage water
11/13/98	SRM 1941a, g (dry basis	5	
25 11/10/98	Sediment VIII, g (wet bas SRM 1941a, g (dry basis)	3.94	Drying oven at 70degC for 5 hours
26 mber 18,	Sediment VIII, g (wet bas SRM 1941a, g (dry basis	14 1.9	Sample heated at 110-120 degree C. to constant weight.
27 11/16/98	Sediment VIII, g (wet bas SRM 1941a, g (dry basis	10.3 9.87	oven
28 11/20/98	Sediment VIII, g (wet bas SRM 1941a, g (dry basis	5 5	Sample dried for 48 hrs at 70C
29 12/4/98	Sediment VIII, g (wet bas SRM 1941a, g (dry basis	18 10	vacuum freeze dried a 18g wet wt. aliquot of sediment for 24h
30 12/1/98	Sediment VIII, g (wet bas SRM 1941a, g (dry basis	8 5	OVEN DRY; 24 HOURS @ 105C
31 12/10/98	Sediment VIII, g (wet bas SRM 1941a, g (dry basis	3 2	gravimetric difference after drying

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No.	Extraction method	Extraction solvent	Extraction time	Extraction - other
1a	PFE	dichloromethane	5 min equilibrium time, 5 min static	100 C, 2000 psi
1b	PFE	dichloromethane	5 min equilibrium time, 5 min static	100 C, 2000 psi
1c	Soxhlet	dichloromethane	20 h	
2	Soxhlet	Methylene chloride:Acetone 2:1	18 - 20 hours	Acetonitrile
3	Dionex ASE	Methylene Chloride	5MIN	100DEG C, 5 MIN EQUILIBRATION TIME,1500->2000PSI 0.6 TIMES TUBE VOLUME FOR FLUSH, PURGE 45 SEC NITROGEN @ 150 PSI
4	soxhlet	methylene chloride	overnight	
5	Soxhlet	Dichloromethane	24 hours	
6	3550 Sonication	75mL of Methylene Chloride:Acetone (1:1)	3 x 2 minute pulse sonication	
7	Freidrichs Soxhlet	1:1 acetone/hexane	24 hours	
8	Microwave Solvent Extraction	30 ml of a 1:1 acetone:hexane	15 minutes in the microwave	
9	NOAA (1993). Three DCM extractions using shaker table techniques. Sample spiked with surrogates, Na2SO4 added, followed by solvent	methylene chloride (DCM)	12 hr + 4 hr + 1 hr	
10	EPA SW3540A	Acetone	16 hr	
11	Soxhlet extraction	3:1 mixture of methylene chloride and acetone	16 hrs	
12	sample mixed with anhydrous sodium sulfate and activated copper: extracted 3 times using rotary tumbler.	Methylene Chloride	Three times for a total of 38 hr.: first 16 hrs, second 6 hrs, and last 16 hrs.	Rotated at 40 rpm in 500 ml Teflon bottle
14	NOAA Technical Memorandum NOS ORCA 71 Volume IV, Chapter 2	methylene chloride		sodium sulfate and copper added to samples and solvent prior to extraction
15	Soxhlet extraction	Methylene Chloride-Hexane (50:50)	16 hours.	
16	Soxhlet extraction	Dichloromethane	8 hours	Samples were "dried" prior to extraction by addition of sodium sulfate

Lab No.	Extraction method	Extraction solvent	Extraction time	Extraction - other
17	Soxhlet Extraction	Dichloromethane	18 hours	
19	Agitator/tumbler	Methylene Chloride	36 hrs.	
20	Soxhlet	Hexane/Acetone (50/50)	24 hours	
21	Doinex automated soxhlet extractor	Methylene chloride	15 minutes	
22	PFE- 5 min heat, 5 min static, 85% flush, 300 second purge, 2000 psi, 100 degrees C	10% acetone/ 90% methylene chloride	approx 15 min	each 33 ml cell was extracted twice. The two extracts were combined in a 250 ml KD and concentrated to approx 5 ml on steam bath. The extracts were further concentrated by nitrogen blowdown to 1.0 ml final volume.
23	USEPA 3550a	methylene chloride:acetone	20 minutes	solvent evaporation to final volume using autoevaporation= 1 hour
24	ACCELERATED SOLVENT EXRACTION WITH DCM	DCM	CA 20 MINUTES	
25	EPA Method 3550	Methylene chloride/acetone (50:50)	3 x 5 min	0.45 um filtration Sodium sulfate drying column
26	Metabolic shaker of sample and solvents at 50 degrees C.	Acetonitrile : hexane. (3:2)	One (1) hour.	Cool, add water, centrifuge and draw off hexane layer; repeat with hexane twice more.
27	wet	50%methylene chloride/ 50% acetone	24 hours	
28	Accelerated Solvent Extractor (ASE)	Methylene chloride/acetone	40 minutes	
29	Soxhlet	CH2Cl2	16 h	
30	Ultrasonication; Ambient Temperature shaking	1:1 Methylene chloride:Acetone	Three cycles of 3 minute sonication, 4 hours Shaker Table	
31	Accelerated Solvent Extraction (Dionex ASE 200)	50:50 v/v Dichloromethane : Hexane and 100% Dichloromethane	13 min per sample	200 psi, 100 o C, 2 static extraction cycles/sample TurboVapII reduction to 1.0 mL

Summary of Methods Used

Marine Sediment VIII QA98SED8

Lab No.	Wet or dry samples extracted? Sediment VIII	SRM 1941a	Sample extract cleanup method
1a	wet	dry	silica Sep Pak, copper powder to remove sulfur, LC-aminopropylsilane column for separation of PCB and lower polarity pestcides from more polar pesticides
1b	wet	dry	silica Sep Pak, copper powder to remove sulfur, LC-aminopropylsilane column for separation of PCB and lower polarity pestcides from more polar pesticides
1c	dry	dry	two precleaned aminopropylsilane solid phase extraction columns LC
2	wet	dry	Florisil and copper clean up
3	Wet	Wet	PAH: Alumina/activated copper _____ PCB/PESTICIDES: Alumina/activated copper; exchange to hexane
4	wet	dry	1. Gel Permeation chromatography clean-up 2. Alumina-Silica clean-up column
5	wet	wet	The steps involved were: [1] Sulfuric acid wash [2] Clean with activated copper [3] Silica column [4] Sephadex LH-20 column
6	wet	wet	No cleanup method performed for PAH Solvent exchange to hexane with turbvap for pesticide/PCB Acid clean and copper clean were performed for pesticide/PCB
7	wet	wet	20 g 2% deactivated Florisil, elute 200 mL hexane for PCB fraction, then elute 200 mL 30% methylene chloride/hexane for pesticide fraction or SPE using a 1.0g/6.0mL Florisil SPE tube, elute 10 mL 2% ethyl ether /hexane for PCB fraction, then elute 10 mL 6% ethyl ether/hexane for pesticides
8	WET	DRY	Silica Gel Chromatography to separate PCBs from chlorinated pesticides and PAHs
9	wet	dry	2% deactivated alumina column followed by HPLC (modified Krahn method); activated Cu on extract
10	wet	dry	Silica gel
11	Dry	Dry	Silica gel column chromatography. For PCB fraction, in addition to silica gel column chromatographic cleanup activated copper treatment was performed to remove sulfur.
12	wet	dry	Alumina-Silica Gel and GPC
14	wet	wet	see reference above
15	dry (Na2SO4)	NA	Solid-Liquid chromatography wit alumina and silica gel both 5% water deactivated.
16	Dry	Dry	Silica/alumina column cleanup: 10 g of alumina and 20 g of silica gel. Samples were placed on the column and eluted with 200 ml of pentane/DCM (1:1, v/v).

Summary of Methods Used

Marine Sediment VIII QA98SED8

Lab No.	Wet or dry samples extracted? Sediment VIII	SRM 1941a	Sample extract cleanup method
17	wet	dry	Extracts were cleaned up using high performance GPC on porous divinylbenzene copolymer gel to remove the majority of the lipids. The extracts were then fractionated using a semipreparative aminosilane
19	wet	dry	Extract run through silica gel/alumina column with pentane and methylene chloride
20	dry	dry	By using a column of 6 % (w/w) deactivated Florisil (100-200 mesh). The column was 20 cm long by 1 cm diameter. Florisil was previously Soxhlet extracted with dichloromethane (16 h) for cleaning. Samples were eluted with 25 ml of hexane and 10 ml of cichloromethane in hexane (10 %) in only one fraction A treatment with Hg was neccessary to remove the S present in the sample.
21	wet	wet	Sediment samples were cleaned up through GPC for PAHs, and the congeners were cleaned with alumina.
22	wet	dry	none
23	wet	wet	copper for sulfur GPC for samples undergoing ECD analysis
24			GPC FOLLOWED BY HPLC (AMINOPROPYL) USED TO SEPARATED PCBS FROM PESTICIDES. ACTIVATED COPPER USED TO REMOVE SULFUR
25	Wet		EPA Method 3620 - Florisil Hexane elute Hexane/15% ether elute 100% Ether elute
26	wet samples	wet samples (2.2%)	Removal of elemental surfur via copper powder. Cleanup using silica gel column chromatography to give one fraction, using 70% hexane/30% dichloromethane. Split fraction and treat PCB/OCP portion with concentrated sulfuric acid before GC analysis. No treatment for PAH portion.
27	wet	wet	Gel Permeation Chromatography and Florisil Column
28	wet	dry	Florisil columns
29	dry	dry	silica gel packed column chromatography, 2.0g activated @ 130oC overnight and slurry packed in hexane F1 -- 75ml hexane F2 -- 150ml CH2Cl2 in hexane (1:1 v/v)
30	Wet	Dry	Alumina/Silica gel column, granulated copper
31	3 g dry	2 g dry	addition of copper granules to extracts for sulfur removal

Summary of Methods Used **Marine Sediment VIII QA98SED8**

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	esticides	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/MS	GC/MS	GC/MS	PAH	IS
	Column Phase:	DB-17 MS	DB-5 MS	DB-5 MS	esticides	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		
1c	Instrument:	LC-Fl	1/0/00	0	PAH	IS
	Column Phase:	Hypersil PAH	1/0/00	0	esticides	0
	Col. Length, m:	0	0	0	PCBs:	0
	Col. Inner Diameter, mm:	0.00	0.00	0		
	Col. film thickness, µm:	0.00	0.00	0		
2	Instrument:	GCMS	HP5890	HP5890	PAH	IS
	Column Phase:	DB5	DB5	DB5	Pesticides:	IS
	Col. Length, m:	30m	60m	60m	PCBs:	IS
	Col. Inner Diameter, mm:	0.25mm	0.32mm	0.32mm		
	Col. film thickness, µm:	0.25um	0.25um	0.25um		
3	Instrument:	GC/MS	GC-ECD	GC-ECD	PAH	IS
	Column Phase:	DB5.MS	DB5.MS/DB17.MS	DB5.MS/DB17.M	Pesticides:	IS
	Col. Length, m:	30	60	60	PCBs:	IS
	Col. Inner Diameter, mm:	0.32	0.25	0.25		
	Col. film thickness, µm:	0.25	0.25	0.25		
4	Instrument:	GCMS	GC-ECD		PAH	IS
	Column Phase:	5% phenyl	Rtx-5, rtx-1701		Pesticides:	IS (when nec
	Col. Length, m:	25	30		PCBs:	
	Col. Inner Diameter, mm:	0.2	0.25			
	Col. film thickness, µm:	0.33	0.25			
5	Instrument:	GC-MS (HREI)			PAH	IS, ES
	Column Phase:	DB-5			Pesticides:	
	Col. Length, m:	20			PCBs:	
	Col. Inner Diameter, mm:	0.1				
	Col. film thickness, µm:	0.1				
6	Instrument:	HP5972	HP 6890	HP 6890	PAH	IS
	Column Phase:	RTX-5MS	Rtx-5 and Rtx-35	Rtx-5 and Rtx-35	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		
7	Instrument:	0	AutoSpecQ	AutoSpecQ	PAH	0
	Column Phase:	0	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	0	60 m	60 m	PCBs:	IS
	Col. Inner Diameter, mm:	0	0.25	0.25		
	Col. film thickness, µm:	0	0.25	0.25		
8	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:	30m	30m	30m	PCBs:	IS
	Col. Inner Diameter, mm:	0.25mm	0.25mm	0.25mm		
	Col. film thickness, µm:	**0.25um**	**0.25um**	**0.25um**		

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No.		PAH	Pesticides	PCB Congeners	Method of quantitation	
9	Instrument:	GC/MS HP 5972	GC/ECD HP 6890	GC/ECD HP 6890	PAH	IS
	Column Phase:	DB5	DB5	DB5	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		
10	Instrument:	HP 5871 GC/MS	HP5890 ECD	same as above	PAH	Dilution for m
	Column Phase:	DB-5MS	DB-5/DB608		Pesticides:	ES
	Col. Length, m:	30m	30m		PCBs:	ES
	Col. Inner Diameter, mm:	0.25mm	0.32mm			
	Col. film thickness, µm:	0.25	0.25/0.5			
11	Instrument:		GC-ECD	GC-ECD	PAH	
	Column Phase:		DB-5	DB-5	Pesticides:	ES
	Col. Length, m:		30 m	30 m	PCBs:	ES
	Col. Inner Diameter, mm:		0.25 mm	0.25 mm		
	Col. film thickness, µm:		0.25 micron	0.25 micron		
12	Instrument:	GC-MS	NA	GC-MS	PAH	IS
	Column Phase:	DB5-MS	NA	DB5-MS	Pesticides:	NA
	Col. Length, m:	30	NA	30	PCBs:	IS
	Col. Inner Diameter, mm:	0.32	NA	0.32		
	Col. film thickness, µm:	0.25	NA	0.25		
14	Instrument:	GC/MS	GC/ECD	GC/ECD	PAH	IS
	Column Phase:	DB-5	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	30m	30m	30m	PCBs:	IS
	Col. Inner Diameter, mm:	0.25 mm	0.25 mm	0.25 mm		
	Col. film thickness, µm:	0.25 microns	0.25 microns	0.25 microns		
15	Instrument:	NA	GC-ECD	GC-ECD	PAH	
	Column Phase:		SE 54	SE 54	Pesticides:	IS
	Col. Length, m:		30	30	PCBs:	IS
	Col. Inner Diameter, mm:		0.25	0.25		
	Col. film thickness, µm:		0.25	0.25		
16	Instrument:	GC/ECD	GC/ECD	0	PAH	IS
	Column Phase:	DB-5	DB-5	0	Pesticides:	IS
	Col. Length, m:	30	30	0	PCBs:	0
	Col. Inner Diameter, mm:	0.25	0.25	0		
	Col. film thickness, µm:	0.25	0.25	0		
17	Instrument:	GC/MS	GC/MS	GC/MS	PAH	IS
	Column Phase:	DB-5	DB-5	DB-5	Pesticides:	IS
	Col. Length, m:	30	30	30	PCBs:	IS
	Col. Inner Diameter, mm:	.32	.32	.32		
	Col. film thickness, µm:	.25	.25	.25		
19	Instrument:	GC-MSD			PAH	IS
	Column Phase:	5% PH ME silox			Pesticides:	
	Col. Length, m:	25			PCBs:	
	Col. Inner Diameter, mm:	.2				
	Col. film thickness, µm:	.33				

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No.		PAH	Pesticides	PCB Congeners	Method of quantitation	
20	Instrument:			Fisons Ins. 8160	PAH	
	Column Phase:			DB-5	esticides:	
	Col. Length, m:			30	PCBs:	IS
	Col. Inner Diameter, mm:			0.25		
	Col. film thickness, µm:			0.25		
21	Instrument:	GC-MS	GC-ECD	GC-EC D	PAH	IS
	Column Phase:	RTX-5	CLP1 & CLP2	DB5/ Apiazon L	esticides	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		
22	Instrument:	HP GC/MS	Ion Trap	Ion Trap	PAH	IS
	Column Phase:	DB-5	JW XLB-ITD	JW XLB-ITD	esticides	ES
	Col. Length, m:	30 m	60 m	60 m	PCBs:	ES
	Col. Inner Diameter, mm:	0.25 mm	0.25 mm	0.25 mm		
	Col. film thickness, µm:	0.25 um	0.25 um	0.25 um		
23	Instrument:	GC/MS	GC/ECD	NA	PAH	IS
	Column Phase:	DB-5	DB5/DB1701		Pesticides	IS
	Col. Length, m:	30	30		PCBs:	NA
	Col. Inner Diameter, mm:	.32	.32			
	Col. film thickness, µm:	.25	.25			
24	Instrument:		GC-ECD	GC-ECD	PAH	
	Column Phase:		DB-5	DB-5	esticides	IS
	Col. Length, m:		60	60	PCBs:	IS
	Col. Inner Diameter, mm:		0.25	0.25		
	Col. film thickness, µm:		0.25	0.25		
25	Instrument:	GC-MS	GC-AED	GC-AED	PAH	IS
	Column Phase:	ZB-1	DB-1		Pesticides	IS
	Col. Length, m:	30	30		PCBs:	IS
	Col. Inner Diameter, mm:	0.25	0.32			
	Col. film thickness, µm:	0.25	0.25			
26	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	IS
	Column Phase:	XLB	DB-5	DB-5	esticides	IS
	Col. Length, m:	30M	30M	30M	PCBs:	IS
	Col. Inner Diameter, mm:	0.25mm	0.25mm	0.25mm		
	Col. film thickness, µm:	0.25µm	0.25µm	0.25µm		
27	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	IS
	Column Phase:	Rtx-5MS	50%methyl	50%methyl	esticides	ES
	Col. Length, m:	30	30	30	PCBs:	ES
	Col. Inner Diameter, mm:	0.25	0.32	0.32		
	Col. film thickness, µm:	0.25	0.25	0.25		
28	Instrument:		GC-ECD	GC-ECD	PAH	
	Column Phase:		DB5/DB17	DB5/DB17	esticides	ES
	Col. Length, m:		60 m	60 m	PCBs:	ES
	Col. Inner Diameter, mm:		0.25 mm	0.25 mm		
	Col. film thickness, µm:		25 um	25 um		

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No.		PAH	Pesticides	PCB Congeners	Method of quantitation	
29	Instrument:	GC-MS	GC-ECD	GC-ECD	PAH	ES
	Column Phase:	DB-XLB	DB-5	DB-5	esticides	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		
30	Instrument:	GC-MS-	GC/ECD	GC/ECD	PAH	IS
	Column Phase:	DB-5	RTX-5/DB-17	RTX-5/DB-17	esticides	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		
31	Instrument:	GC/MS HP5972	GC/ECD HP5890	GC/ECD HP5890	PAH	IS
	Column Phase:	HP-5MS	SPB5	SPB5	esticides	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		

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatogr. analysis	Other(s)
1a	PAH:	naph-d8, biphenyl-d10, acenaph-d10, phen-d10, fluoran-d10, pyrene-d10, b[a]a-d12, b[a]p-d12, perylene-d12, b[ghi]p-d12	none	none
	Pesticides	endosulfan-I d4, 4,4'-DDT-d8	none	none
	PCBs:	PCB 103, PCB 198	none	none
1b	PAH:	naph-d8, biphenyl-d10, acenaph-d10, phen-d10, fluoran-d10, pyrene-d10, b[a]a-d12, b[a]p-d12, perylene-d12, b[ghi]p-d12	none	none
	Pesticides	endosulfan-I d4, 4,4'-DDT-d8	none	none
	PCBs:	PCB 103, PCB 198	none	none
1c	PAH:	naph-d8, biphenyl-d10, acenaph-d10, phen-d10, fluoran-d10, pyrene-d10, b[a]a-d12, b[a]p-d12, perylene-d12, b[ghi]p-	none	none
	Pesticides:			
	PCBs:			
2	PAH:	None	Phenanthrene-D10, Chrysene-D12, Perylene-D12, Acenaphthene-D10, Naphthalene-D8, 1,2-Dichlorobenzene-D4	None
	Pesticides:	None	4,4'-dibromo-octafluorobiphenyl(DBOFB)	None
	PCBs:	None	4,4'-dibromo-octafluorobiphenyl(DBOFB)	None
3	PAH:	D8-NAPHTHALENE	D10-FLUORENE	
	Pesticides:	DIBROMOOCTAFLUOROBIPHENYL	TETRACHLORO-M-XYLENE	
	PCBs:	BZ# 103, BZ# 198	TETRACHLORO-M-XYLENE	
4	PAH:	Nitrobenzene d 5,2 fluorobiphenyl terphenyl d14	1,4 dichlorobenzene d4, naphthalene d8, acenaphthene d10, phenanthrene d10, Chysene d12, perylene d12	
	Pesticides:	3,5-dichlorobiphenyl, alpha HCH d6, octochlorobiphenyl	___Tetrachloro-m-xylene, decachlorobiphenyl	
	PCBs:			
5	PAH:	DPAC-1 (see attached)		Perylene-d12 (as a volumetric internal standard) added after clean-up, just prior to the analysis
	Pesticides:			
	PCBs:			

Summary of Methods Used

Marine Sediment VIII QA98SED8

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatogr. analysis	Other(s)
6	PAH:	1ng Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Perylene-d12	Fluorene-d10 and Chrysene-d12	
	Pesticides:	40ng of tetrachloro-m-xylene spiked	4,4'- Dibromooctaflorobiphenyl spiked for IS	
	PCBs:	40ng of tetrachloro-m-xylene spiked	4,4'- Dibromooctaflorobiphenyl spiked for IS	
7	PAH:			
	Pesticides:	various labelled pesticides see note at end	IUPAC #100, PCB	
	PCBs:	C13 fully labelled IUPAC #28, 52, 101, 118, 105, 153, 138, 128, 180, 170, 209	IUPAC #100, PCB	
8	PAH:	d10-phenanthrene, d12-benz(a)anthracene, d12-perylene	4-chloro-p-terphenyl	none
	Pesticides:	2,5-dichloro-m-terphenyl	none	none
	PCBs:	PCB 198	none	none
9	PAH:	naphthalene-d8, phenanthrene-d10, chrysene-d12	acenaphthene-d10, fluorene-d10, benzo[a]pyrene-d12	
	Pesticides:	PCB Cl3(34), Cl3(103), Cl5(112)	PCB Cl3(29), Cl6(166)	
	PCBs:	PCB Cl3(34), Cl3(103), Cl5(112)	PCB Cl3(29), Cl6(166)	
10	PAH:	all but 1,6,7-trimethylnaphthalene, dibenzofuran, 9H-carbazole, 1 and 2-methylphenanthrenes, Retene	2,2' Difluorobiphenyl	
	Pesticides:	tetrachloro-m-xylene, Dibutylchlorendate, 2.2',4,4',5,5'-hexabromobiphenyl	N/A	
	PCBs:	same	N/A	
11	PAH:			
	Pesticides:			
	PCBs:			
12	PAH:	Naphthalene-13C6, Benzo(ghi)perylene-13C12, Fluoranthene-d10	none	none
	Pesticides:	NA	NA	NA
	PCBs:	PCB 28-13C12, PCB 153-13C12, PCB 194-13C12, 4,4'-Dibromooctafluorobiphenyl	none	none
14	PAH:	naphthalene-d8, acenaphthene-d10, benzo[a]pyrene-d12	hexamethylbenzene	phenanthrene-10, biphenyl-d10, fluorene-d10
	Pesticides:	4,4'-dibromooctafluorobiphenyl	tetrachloro-m-xylene	tetrachloro-o-xylene
	PCBs:	4,4'-dibromooctafluorobiphenyl	tetrachloro-m-xylene	tetrachloro-o-xylene
15	PAH:			
	Pesticides:	PCB 103		
	PCBs:	PCB 103		

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatogr. analysis	Other(s)
16	PAH:	PCB-103, PCB-198, DBOFB	TCMX	
	Pesticides:	PCB-103, PCB-198, DBOFB	TCMX	
	PCBs:			
17	PAH:	Bromononane, Octanophenone	Phenanthrene d-10, Pyrene d-10, Chrysene d-12	
	Pesticides:	Isodrin	Phenanthrene d-10, Pyrene d-10, Chrysene d-12	
	PCBs:	Dibromobiphenyl	Phenanthrene d-10, Pyrene d-10, Chrysene d-12	
19	PAH:	deuterated Naphthalene, Acenaphthene, Phenanthrene, Chrysene, Benzo-a-pyrene, Perylene	Hexamethylbenzene	
	Pesticides:			
	PCBs:			
20	PAH:			
	Pesticides:			
	PCBs:	PCBs 30 + 204		
21	PAH:	Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10,	Fluorene-d10, Benzo(a)pyrene-d12	
	Pesticides	DBOB, BZ-198	TMX	
	PCBs:	DBOB, BZ-198	TMX	
22	PAH:	2-Fluorobiphenyl, d14-Terphenyl	d8-Naphthalene, d10-Acenaphthene, d10-Phenanthrene, d12-Chrysene, d14-Perylene	
	Pesticides	NONE		
	PCBs:	NONE		
23	PAH:	2-Fluorophenol, Phenol d6, Nitrobenzene, 2-Fluorobiphenyl, 2,4,6-Tribromophenol, Terphenyl d14	1,4-dichlorobenzene d4, naphthalene d8, acenaphthene d10, phenanthrene d10, chrysene d12, perylene	
	Pesticides	Tetrachlorometaxylene, Decachlorobiphenyl	pentachloronitrobenzene	
	PCBs:	NA	NA	

Lab No.		Internal standards (IS)/ surrogates added prior to extraction	IS/surrogates added after extraction/cleanup and just prior to chromatogr. analysis	Other(s)
24	PAH:			
	Pesticides	D4 ENDOSULFAN I, D8 4,4'-DDD, D8 4,4'-DDT		
	PCBs:	PCB 103 PCB 198 AND D8-4,4'-DDE		
25	PAH:	ISM-560		
	Pesticides	ISM-560		
	PCBs:	ISM-560		
26	PAH:	NAP-d8, ACT-d10, ANT-d10, BAP d12.		o-terphenyl
	Pesticides	DBOFB, BZ103, BZ198.		BZ100
	PCBs:	DBOFB, BZ103, BZ198.		BZ100 ESTD, added just prior to GC analysis to calculate IS
27	PAH:	1,2-dichlorobenzene-d4, nitrobenzene-d5, 2-fluorobiphenyl, p-terphenyl-d14	1,4-dichlorobenzene-d4, naphthalene-d8, acenaphthene d10, phenanthrene-d10	
	Pesticides	2,4,5,6 tetrachloro-m-xylene, dibutyl chlorendate		
	PCBs:	2,4,5,6 tetrachloro-m-xylene, dibutyl chlorendate		
28	PAH:			
	Pesticides:			
	PCBs:			
29	PAH:			
	Pesticides:			
	PCBs:			
30	PAH:	d8-Naphthalene; d10-Acenaphthene; d10-Phenanthrene; d12-	d10-Fluorene	NONE
	Pesticides	DBOFB , PCB 103, PCB 198	TCMX	NONE
	PCBs:	DBOFB , PCB 103, PCB 198	TCMX	NONE
31	PAH:	Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	Fluorene-d10, Benzo(a)pyrene-d12, Pyrene-d10	none
	Pesticides	4,4'-Dibromooctafluorobiphenyl (DBOFB), 2,3',4,5',6-Pentachlorobiphenyl, 2,2',3,3',4,5,5',6-	2,4,5,6-Tetrachloro-meta-Xylene (TCMX)	none
	PCBs:	4,4'-Dibromooctafluorobiphenyl (DBOFB), 2,3',4,5',6-Pentachlorobiphenyl, 2,2',3,3',4,5,5',6-	2,4,5,6-Tetrachloro-meta-Xylene (TXMX)	none

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No.	Int.stds/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?	Percent recovery range (if applicable)
1a	x			PAH Pesticides PCB Congeners
1b	x			PAH Pesticides PCB Congeners
1c	x			PAH Pesticides PCB Congeners
2		X	No	PAH No Pesticides No PCB Congen No
3	X			PAH Pesticides PCB Congeners
4		x	no	PAH 40-100 Pesticides PCB Congeners
5	X			PAH Pesticides PCB Congeners
6	0	X	No	PAH 44-117% Pesticides 70-90% PCB Congen 70-90%
7	X	X		PAH Pesticides Idrin, ES-II, Mir PCB Congen : 25-40; blank
8	X	———	NO	PAH Pesticides PCB Congeners
9	X (PCB/Pest)	X (PAH)	yes	PAH 48% to 75% Pesticides 54% to 77% PCB Congen 54% to 77%
10	yes			PAH ~40 to 120% Pesticides PCB Congeners
11	DBOFB			PAH Pesticides 80-120

Summary of Methods Used

Marine Sediment VIII QA98SED8

Lab No.	Int.stds/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?	Percent recovery range (if applicable)
				PCB Congen 80-120
12	X	_____	_____	PAH PAH NA Pesticides NA PCB Congen NA
14	X	_____	_____	PAH Pesticides PCB Congeners
15	Yes			PAH Pesticides 75 - 110 PCB Congen 64 - 115
16	e IS/surrogates added after extraction/cleanup extraction were used for quantitat			PAH Pesticides PCB Congeners
17		IS	yes	PAH 60-80 Pesticides 75-90 PCB Congen 80-90
19		_____	_____	PAH 30-120 Pesticides _____ PCB Congen _____
20	X			PAH Pesticides PCB Congeners
21	yes	yes		PAH re recovery c Pesticide not analyzed PCB Conge not recovery
22		XXX	NO	PAH 75-150% Pesticides PCB Congeners
23		X	no	PAH 20-130 Pesticide 60-130 PCB Conge NA
24				PAH Pesticides PCB Congeners
25				PAH Pesticides PCB Congeners
26	X			PAH

Summary of Methods Used

Marine Sediment VIII QA98SED8

Lab No.	Int.stds/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?	Percent recovery range (if applicable)	
				Pesticides	
				PCB Congeners	
27	SURR.	IS.	NO	PAH	
				Pesticides	
				PCB Congeners	
28		X		PAH	
				Pesticides	
				PCB Congeners	
29				PAH	
				Pesticides	
				PCB Congeners	
30		XXX	YES	PAH	40-79
				Pesticide	55-97
				PCB Conge	55-97
31	NO	YES	YES	PAH	40-120
				Pesticide	40-120
				PCB Conge	40-120

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No.	Calibration	PAH	Pesticides	PCBs
1a	Points:	6	6	6
	Conc. Range:	0.1-20 ug/g	0.5-600 ng/g	0.5-600 ng/g
	Analytes outside of calibr. range:	none	none	none
1b	Points:	6	6	6
	Conc. Range:	0.1-20 ug/g	0.5-600 ng/g	0.5-600 ng/g
	Analytes outside of calibr. range:	none	none	none
1c	Points:	3 to 5	0	0
	Conc. Range:	0.1-20 ug/g	0.00	0.00
	Analytes outside of calibr. range:	none	0	0
2	Points:	5 points	6 points	6 points
	Conc. Range:	2-30ppm	10-100ppb	10-100ppb
	Analytes outside of calibr. range:	None	None	None
3	Points:	6	5	5
	Conc. Range:	100-4000NG/ML	5-200NG/ML	5-200NG/ML
	Analytes outside of calibr. range:	None	None	None
4	Points:	7	6	
	Conc. Range:	25 ng/g-1000 ng/g	5-200	
	Analytes outside of calibr. range:	none	HCB	
5	Points:	7		
	Conc. Range:	0.280 - 0.0031 x NIST 1491		
	Analytes outside of calibr. range:			
6	Points:	5	3	3
	Conc. Range:	50 -20,000 ng/mL	2ng/mL-10ng/mL	1ng/mL-5ng/mL
	Analytes outside of calibr. range:		0	0
7	Points:	0	four	Four
	Conc. Range:	0	2, 6, 20, 100	2,20,80,120 ng/mL
	Analytes outside of calibr. range:		many below lowest standard, none above highest standard	NONE
8	Points:	5	5	5
	Conc. Range:	0.5 - 20 ng/ul	3.3 - 30 pg/ul	3.3 - 30 pg/ul
	Analytes outside of calibr. range:			
9	Points:	5	5	5
	Conc. Range:	0.031 to 8.7 ng/uL	0.008 to 0.15 ng/uL	0.008 to 0.15 ng/uL
	Analytes outside of calibr. range:			
10	Points:	eight	five	five
	Conc. Range:	0.02 to 1.6 ug/ml	2.5 to 50 pg/ul	2.5 to 50 pg/ul
	Analytes outside of calibr. range:			

Summary of Methods Used

Marine Sediment VIII QA98SED8

Lab No.	Calibration	PAH	Pesticides	PCBs
11	Points:		4 pts	4 pts
	Conc. Range:		16-80 pg/ul	16-80 pg/ul
	Analytes outside of calibr. range:			
12	Points:	6	NA	5
	Conc. Range:	50 - 5000 ng/ml	NA	20 - 2000 ng/ml
	Analytes outside of calibr. range:	Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Indeno(1,2,3-c,d)pyrene and Benzo(g,h,i,)perylene	NA	none
14	Points:	1	6	6
	Conc. Range:	~3 ng/µL	.001-.5000 ng/µL	.001-.5000 ng/µL
	Analytes outside of calibr. range:	N/A	None	None
15	Points:		4	4
	Conc. Range:		5 - 160	5 - 160
	Analytes outside of calibr. range:		None of them	None of them
16	Points:	5	5	0
	Conc. Range:	5-200 ng/mL	5-200 ng/mL	0
	Analytes outside of calibr. range:	Dilution to bring into range	Dilution to bring into range	0
17	Points:	5	5	5
	Conc. Range:	2 to 24 ng	0.2 to 16 ng	0.2 to 16 ng
	Analytes outside of calibr. range:			
19	Points:	5		
	Conc. Range:	6-1800 ng/g		
	Analytes outside of calibr. range:			
20	Points:			6
	Conc. Range:			10-200 ng/ml
	Analytes outside of calibr. range:			
21	Points:	6	NA	8
	Conc. Range:	10-5000 ug/l		1-200 ug/l
	Analytes outside of calibr. range:	none	none	none
22	Points:	10 points	6 points	4 points
	Conc. Range:	0.01-15 ug	2-100 ng	50-400 ng
	Analytes outside of calibr. range:	NONE	NONE	NONE
23	Points:	6	6	NA
	Conc. Range:	10-190 ng	5-160pg	
	Analytes outside of calibr. range:	most compounds close to DL		
24	Points:		4	4
	Conc. Range:		0.005-0.1 PPM	0.005-0.1 PPM

Summary of Methods Used **Marine Sediment VIII QA98SED8**

Lab No.	Calibration	PAH	Pesticides	PCBs
	Analytes outside of calibr. range:		0	0
25	Points: Conc. Range: Analytes outside of calibr. range:			
26	Points: Conc. Range: Analytes outside of calibr. range:	4 1.0-20ng	3 8-100pg	3 8-100pg
27	Points: Conc. Range: Analytes outside of calibr. range:	5 2 to 40 (ppm) no	6 0.4 to 40 (ppb) no	5 1 to 100 (ppb) no
28	Points: Conc. Range: Analytes outside of calibr. range:		5 0.5--500 ppb	6 0.1--20 ppb
29	Points: Conc. Range: Analytes outside of calibr. range:	5 0.2-8 ng benzo[k]fluoranthene , benzo[ghi]perylene (criteria: >15% RSD)	5 2-100pg none (all < 15%)	5 2-100pg none (all < 15%)
30	Points: Conc. Range: Analytes outside of calibr. range:	5 25-5000 ng/mL NONE	5 5 - 200 ng/mL NONE	5 5 - 200 ng/mL NONE
31	Points: Conc. Range: Analytes outside of calibr. range:	5 0.021-1.0 micrograms/mL none	5 5-200 pg/microliters none	5 5-200 pg/microliters none

Summary of Methods Used

Marine Sediment VIII QA98SED8

Lab No.	Were PCBs separated from pesticides prior to GC?	Does PCB 132 coelute with PCB 153, PCB 105 or both?	Differences in procedures used for SRM 1941a from those for described Marine Sediment VIII
1a	yes	separated from both	
1b	yes	separated from both	
1c	0	0	
2	No	On DB-XLB-168/153 coelute,	
3	No	Coelutes with 105 on DB17.	
4	yes	not determined	none
5			
6	yes	PCB 153 and 132 was seperated on one column	PAH Analysis: SRM 1941A required two separate filterations using Whatman #41 filter paper in order to reduce the amount of fine particulates in the extract.
7	e long florisil column;	coelutes leading edge 105	NONE
8	YES	PCB 132 co-elutes with PCB153 and is separated	Moisture was standardized in SRM1941a prior to microwave extraction.
9	no	separated	raw extract centrifuged prior to pour-off from extraction container.
10			
11	Yes	PCB-132 coelutes with PCB-105	No
12	no		
14	No	Coelutes with PCB 153	
15	Not	Coelute	* We used the same procedure with our own CRM(IAEA 357) and with blind samples.
16	0	0	
17	yes		Dry sample was weighed, and then wet with a small quanity of DI water, then dried with sodium sulfate.
19			
20		We did not analyze PCB 132. PCB 153 and 105 did not coelute.	PCB 204 was used as internal standard for SRM 1941a analysis and PCB 30 was used as internal standard to quantify Sediment VIII.
21	no	Separate	NONE
22	NO	separate from both	
23	NA	NA	none

Summary of Methods Used **Marine Sediment VIII QA98SED8**

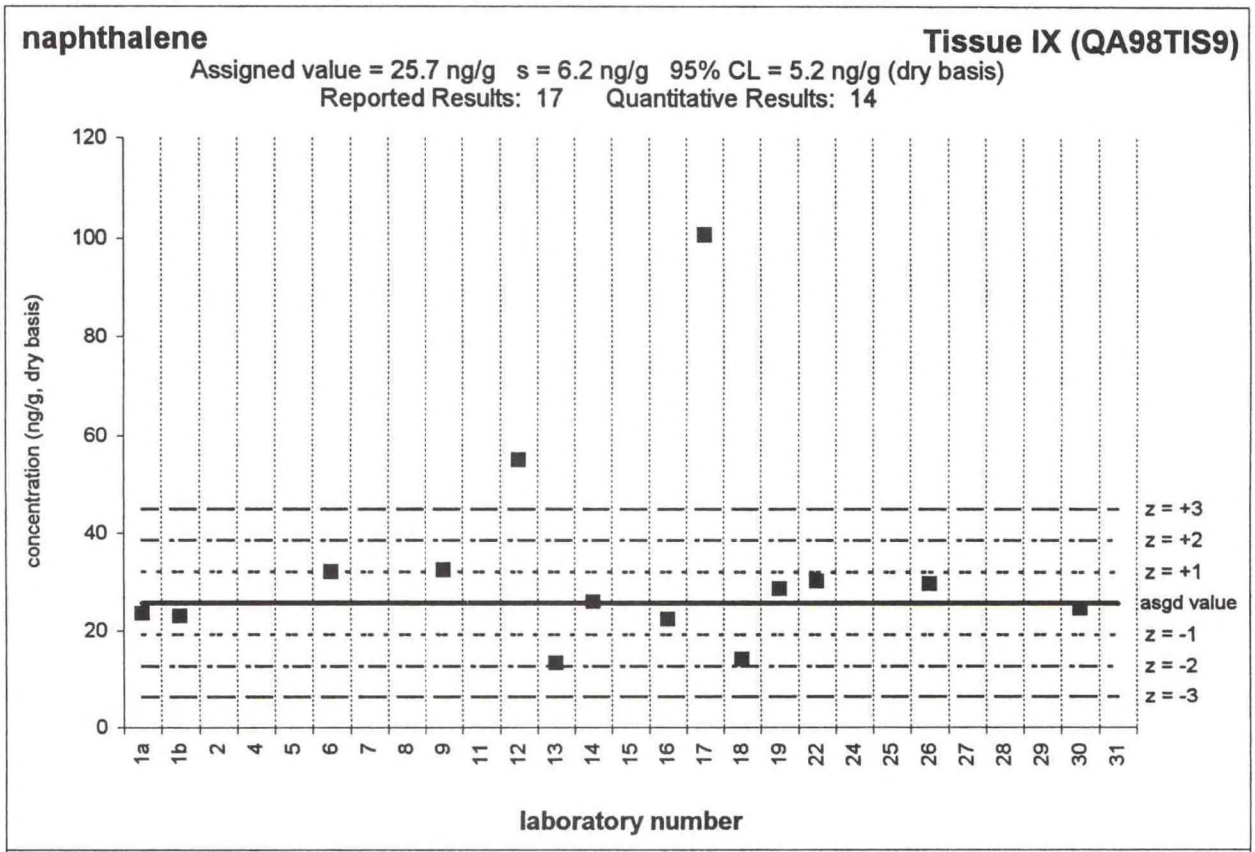
Lab No.	Were PCBs separated from pesticides prior to GC?	Does PCB 132 coelute with PCB 153, PCB 105 or both?	Differences in procedures used for SRM 1941a from those for described Marine Sediment VIII
24	YES	SEPARATES	
25	No		
26	NO	We don't measure BZ132.	NONE
27	no	coelution (PCB 132 is not in the method)	none
28	NO		
29	partially	PCB-132 appears to co-elute with -153	SRM1941a was not oven dried prior to extraction/analysis (SRM1941a is received in dried powder form)
30	NO		
31	NO	coelutes with PCB153 only	

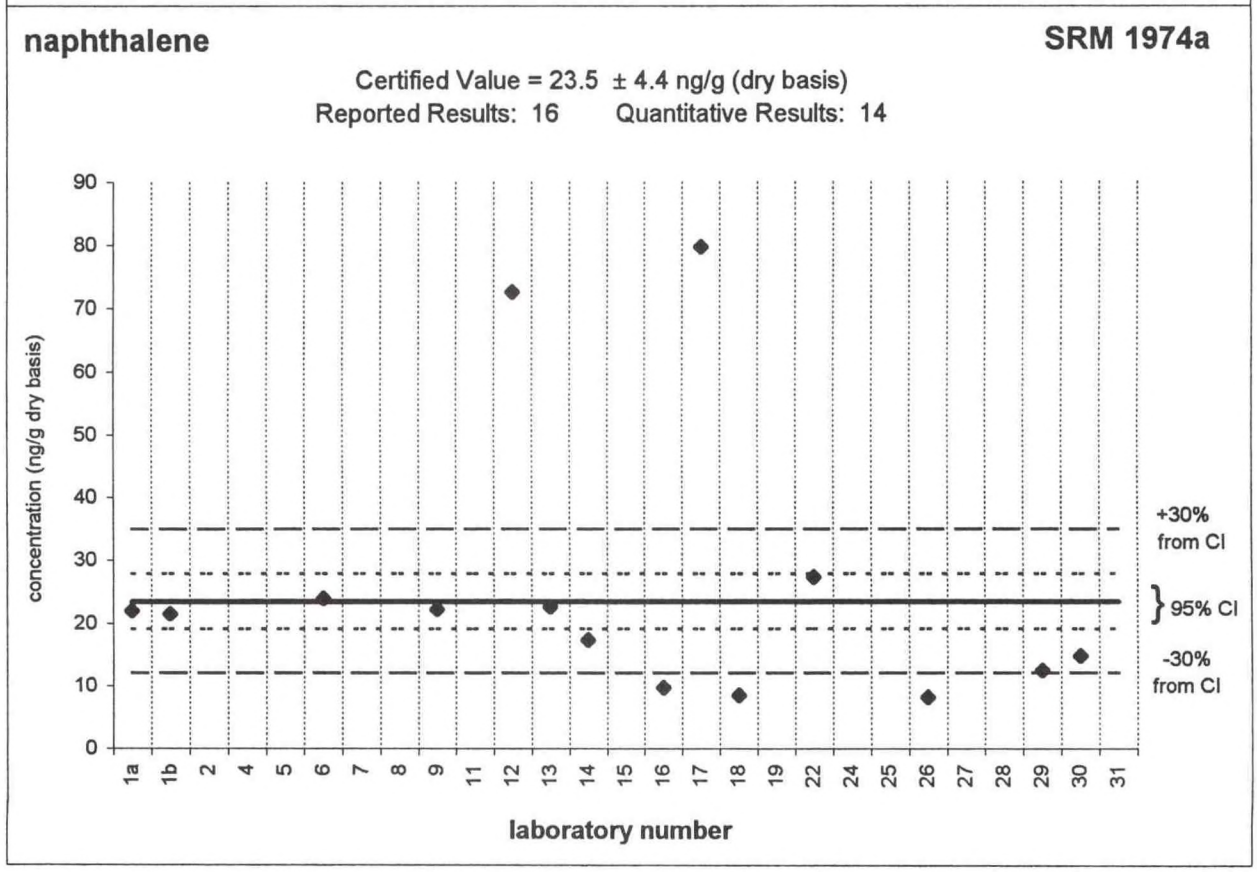
Appendix I: Charts of Mussel Tissue IX and SRM 1974a Results by Analyte

See Tables 2, 3, and 4 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 Mussel Tissue IX plots:
Solid line:
exercise assigned value
Dotted line:
z = ±1, i. e., 25% from assigned value
Dotted/dashed line:
z = ±2, i. e., 50% from assigned value
Dashed line:
z = ±3, i. e., 75% from assigned value

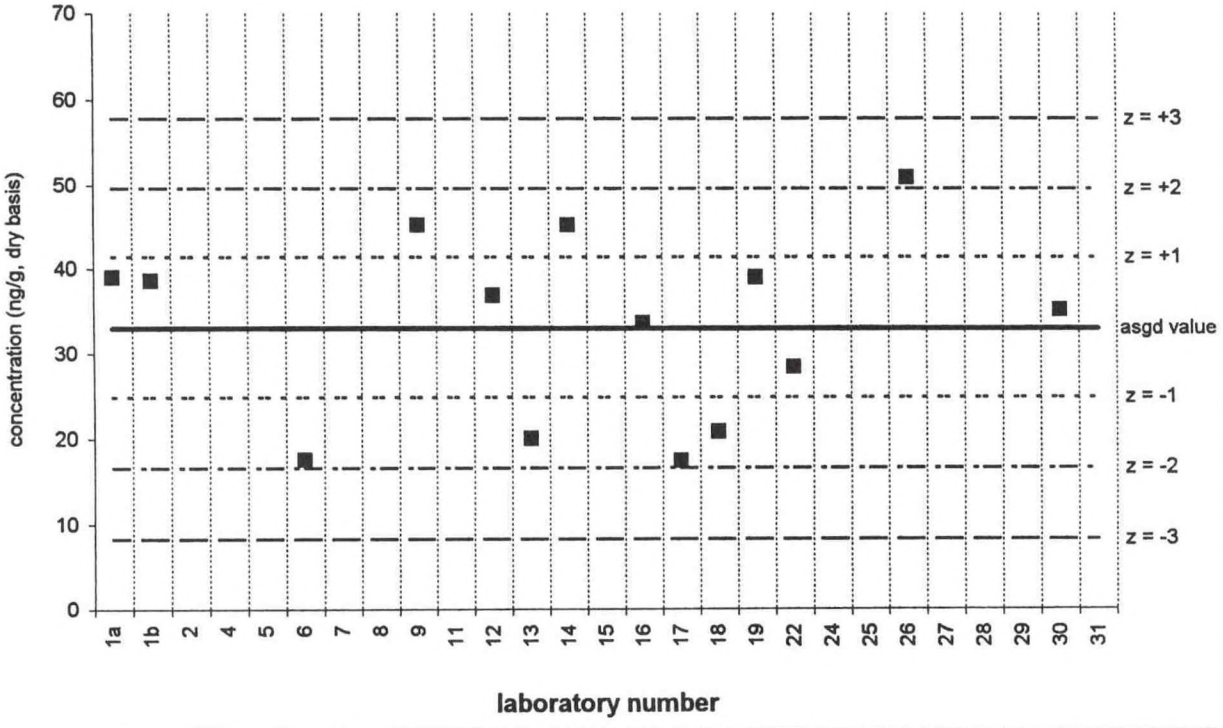
For SRM 1974a plots:
Solid line:
material certified concentration, certificate information concentration or target value (see caption of each plot)
Dotted line:
95% confidence limits
Dashed line:
30% from 95% confidence limits


naphthalene
Tissue IX (QA98TIS9)
Assigned value = 25.7 ng/g s = 6.2 ng/g 95% CL = 5.2 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 14
concentration (ng/g, dry basis)
120
100
80
60
40
20
0
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31
laboratory number


naphthalene
SRM 1974a
Certified Value = 23.5 ± 4.4 ng/g (dry basis)
Reported Results: 16 Quantitative Results: 14
concentration (ng/g dry basis)
90
80
70
60
50
40
30
20
10
0
+30% from CI
95% CI
-30% from CI
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31
laboratory number

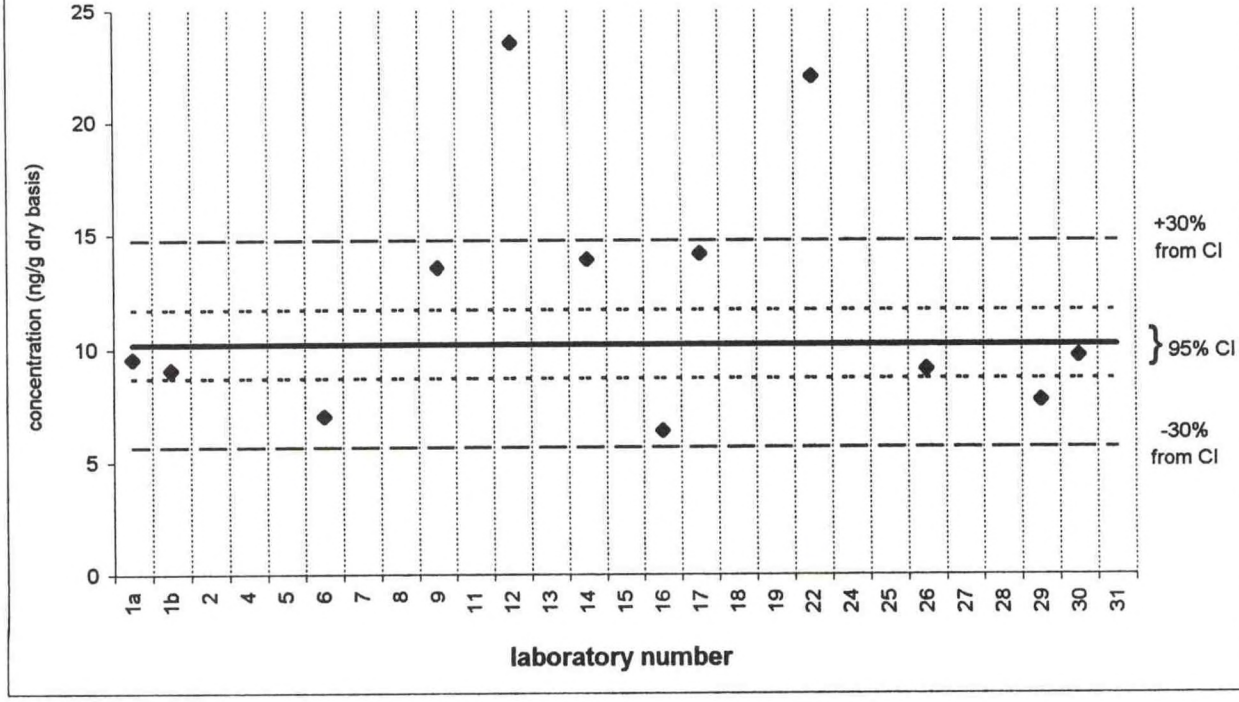
2-methylnaphthalene — Tissue IX (QA98TIS9)

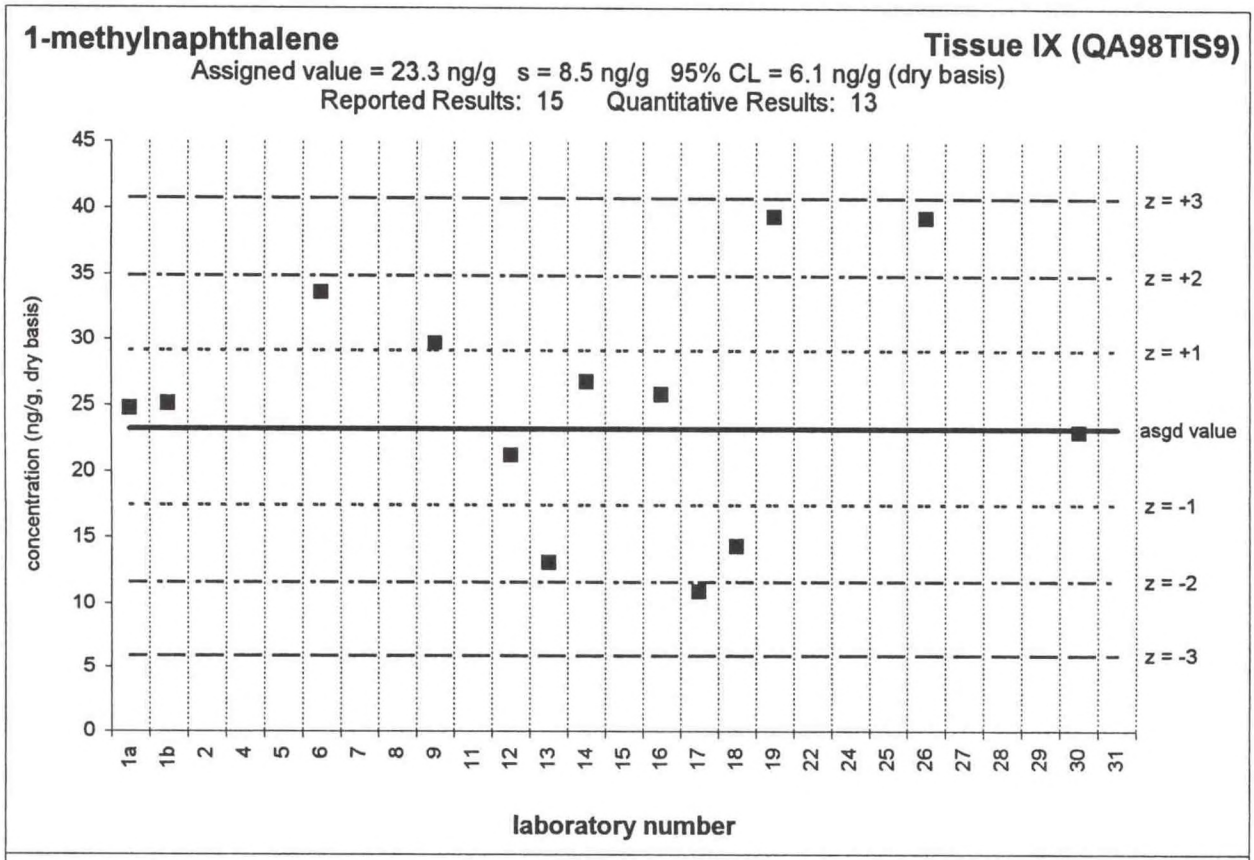
Assigned value = 33.1 ng/g s = 12.2 ng/g 95% CL = 8.2 ng/g (dry basis)
Reported Results: 16 Quantitative Results: 14

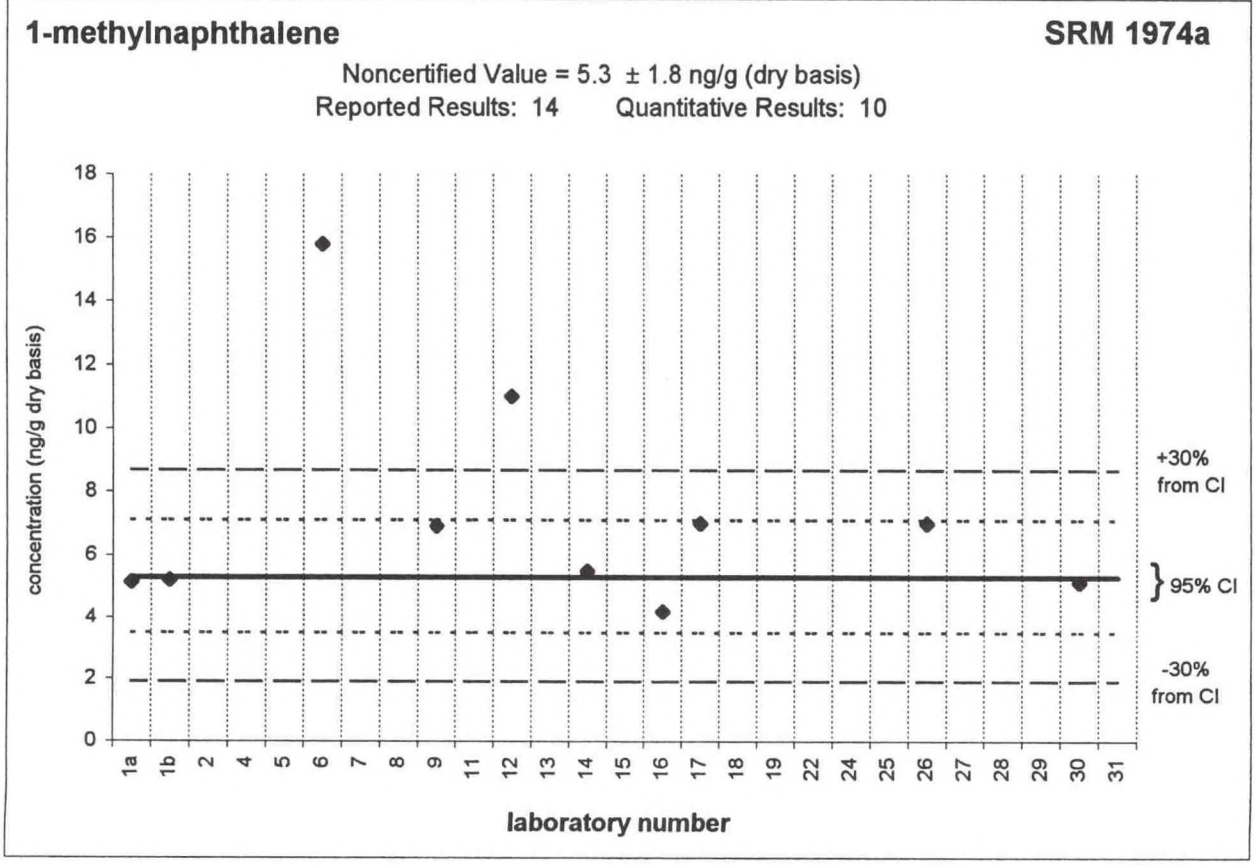


2-methylnaphthalene — SRM 1974a

Noncertified Value = 10.2 ± 1.5 ng/g (dry basis)
Reported Results: 15 Quantitative Results: 12

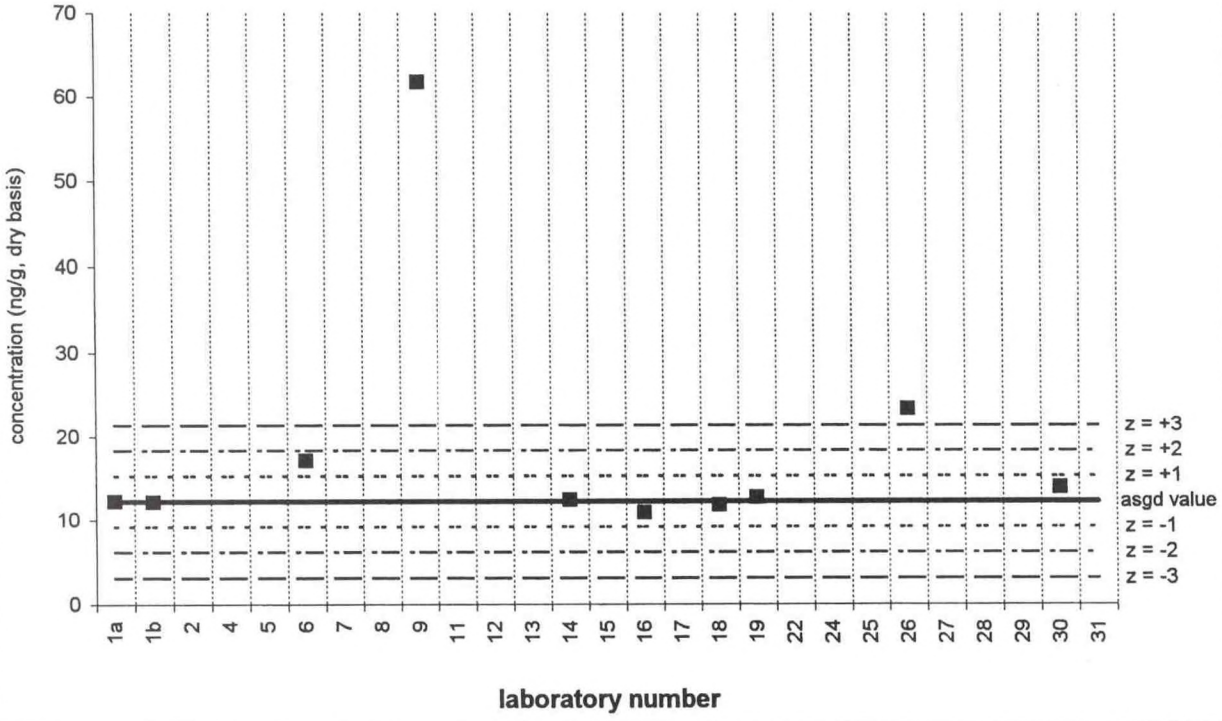



1-methylnaphthalene
Tissue IX (QA98TIS9)
Assigned value = 23.3 ng/g s = 8.5 ng/g 95% CL = 6.1 ng/g (dry basis)
Reported Results: 15 Quantitative Results: 13
concentration (ng/g, dry basis)
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
laboratory number


1-methylnaphthalene
SRM 1974a
Noncertified Value = 5.3 ± 1.8 ng/g (dry basis)
Reported Results: 14 Quantitative Results: 10
concentration (ng/g dry basis)
+30% from CI
95% CI
-30% from CI
laboratory number

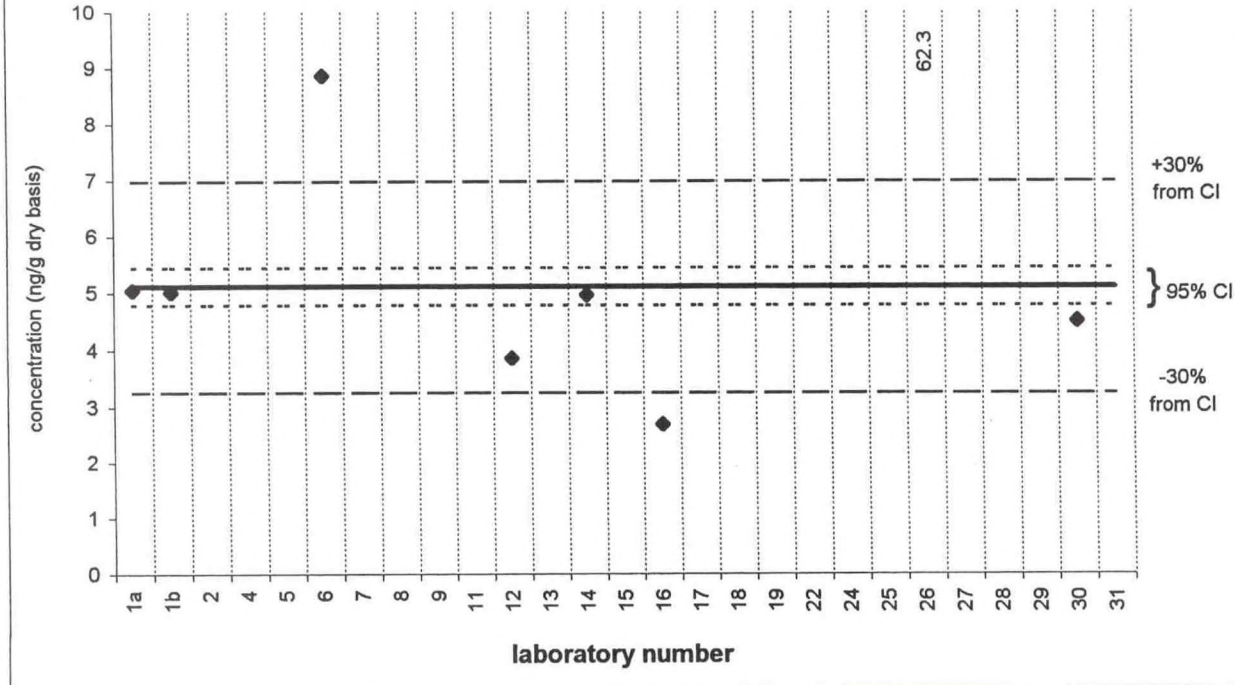
biphenyl **Tissue IX (QA98TIS9)**

Assigned value = 12.2 ng/g s = 1.0 ng/g 95% CL = 1.0 ng/g (dry basis)
Reported Results: 15 Quantitative Results: 10



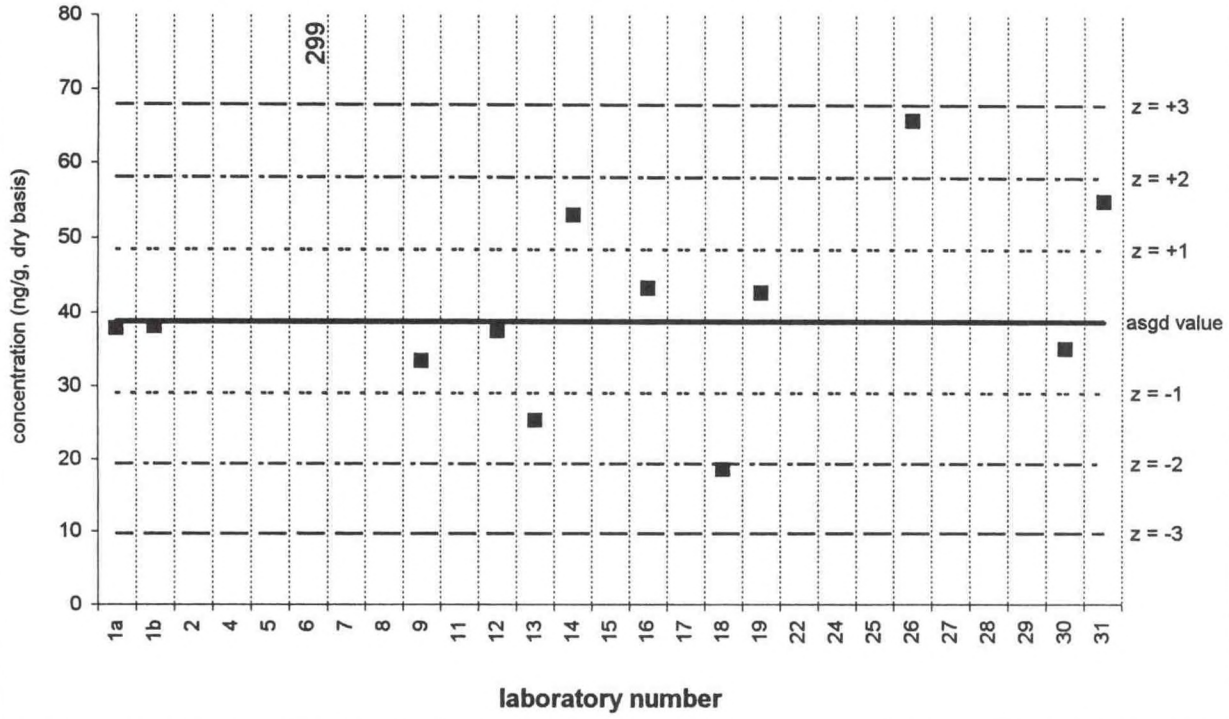
biphenyl **SRM 1974a**

Noncertified Value = 5.11 ± 0.33 ng/g (dry basis)
Reported Results: 14 Quantitative Results: 8



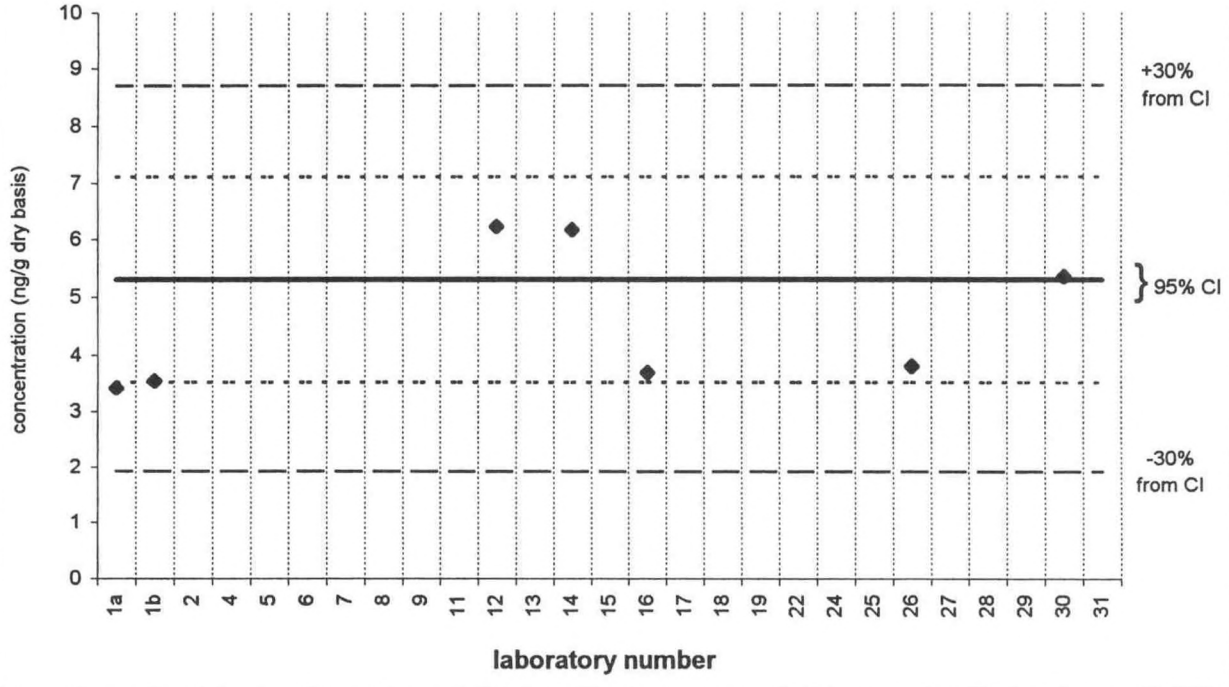
2,6-dimethylnaphthalene — Tissue IX (QA98TIS9)

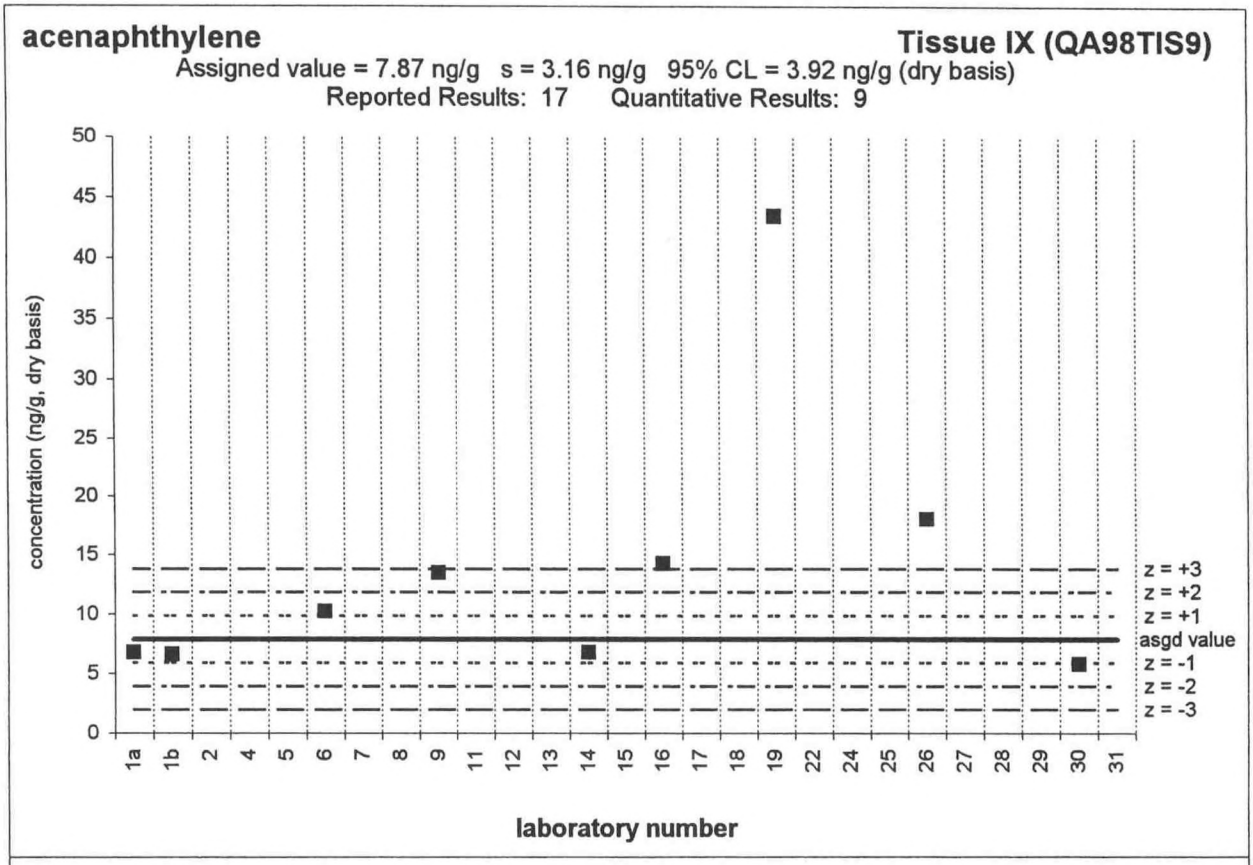
Assigned value = 38.8 ng/g s = 13.3 ng/g 95% CL = 9.5 ng/g (dry basis)
Reported Results: 15 Quantitative Results: 13

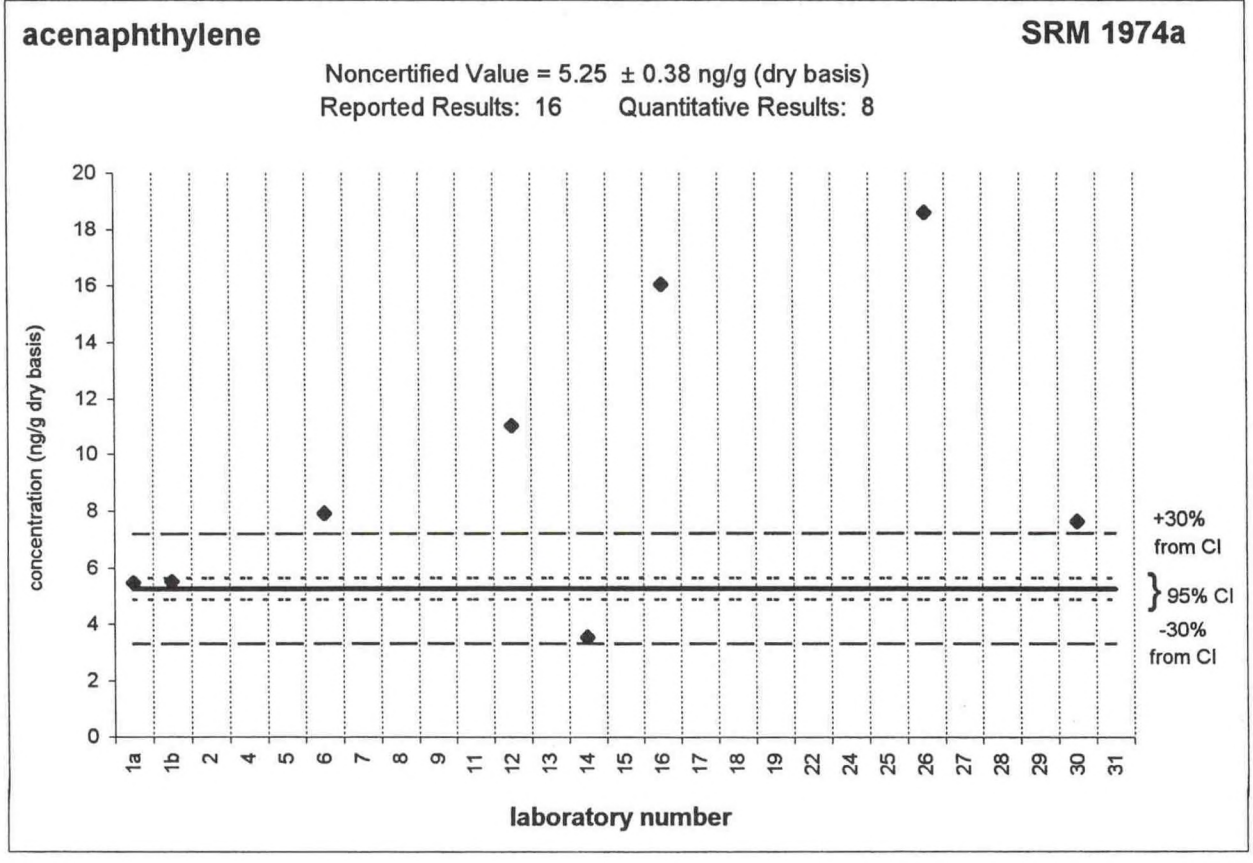


2,6-dimethylnaphthalene — SRM 1974a

Target Value = 5.3 ± 1.8 ng/g (dry basis)
Reported Results: 14 Quantitative Results: 7

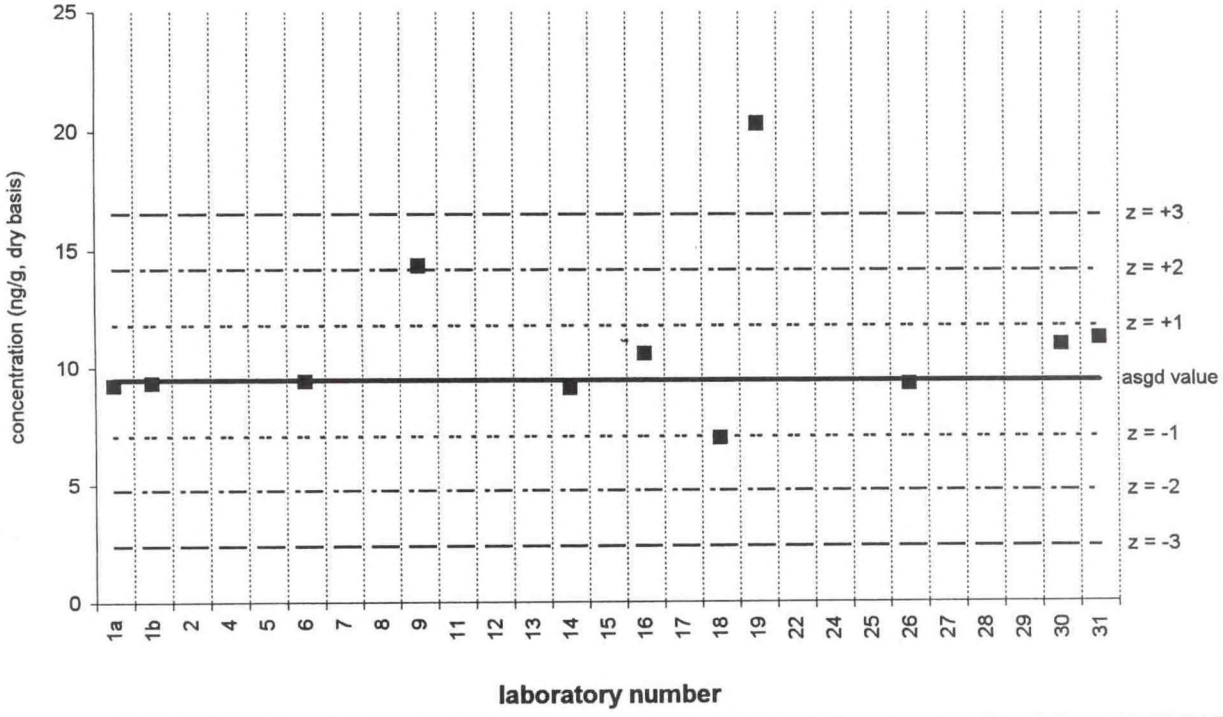



acenaphthylene
Tissue IX (QA98TIS9)
Assigned value = 7.87 ng/g s = 3.16 ng/g 95% CL = 3.92 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 9
concentration (ng/g, dry basis)
50
45
40
35
30
25
20
15
10
5
0
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
1a
1b
2
4
5
6
7
8
9
11
12
13
14
15
16
17
18
19
22
24
25
26
27
28
29
30
31
laboratory number


acenaphthylene
SRM 1974a
Noncertified Value = 5.25 ± 0.38 ng/g (dry basis)
Reported Results: 16 Quantitative Results: 8
concentration (ng/g dry basis)
20
18
16
14
12
10
8
6
4
2
0
+30% from CI
95% CI
-30% from CI
1a
1b
2
4
5
6
7
8
9
11
12
13
14
15
16
17
18
19
22
24
25
26
27
28
29
30
31
laboratory number

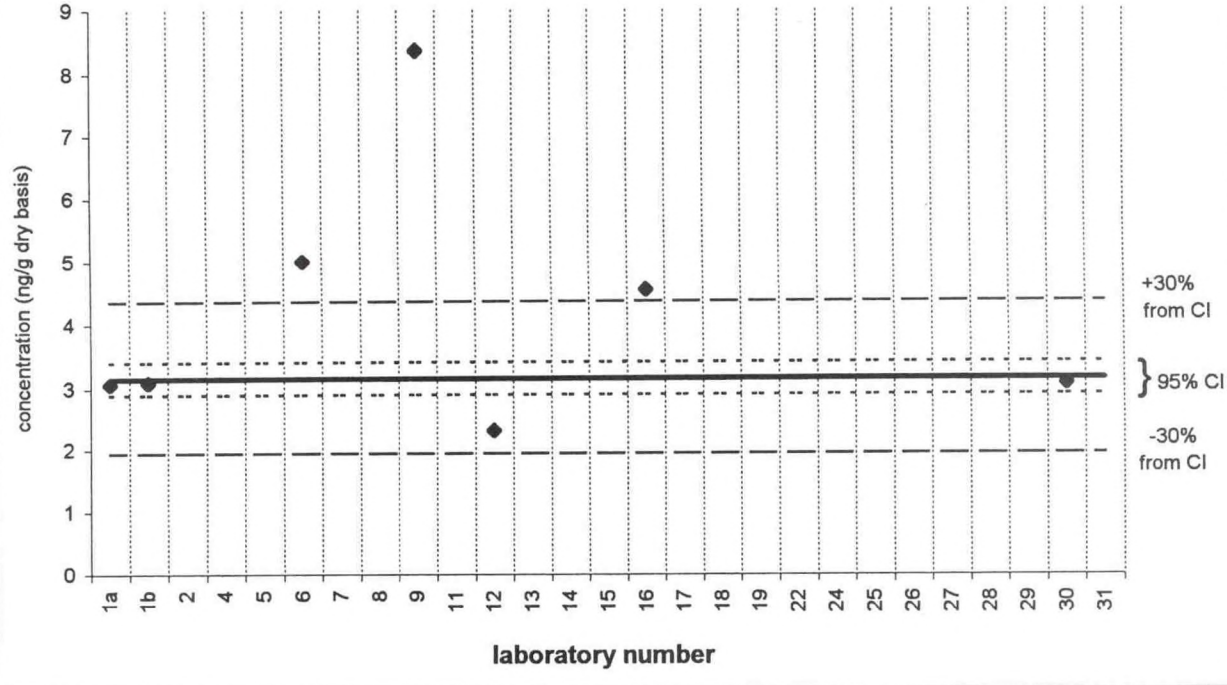
acenaphthene **Tissue IX (QA98TIS9)**

Assigned value = 9.46 ng/g s = 1.42 ng/g 95% CL = 1.31 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 11



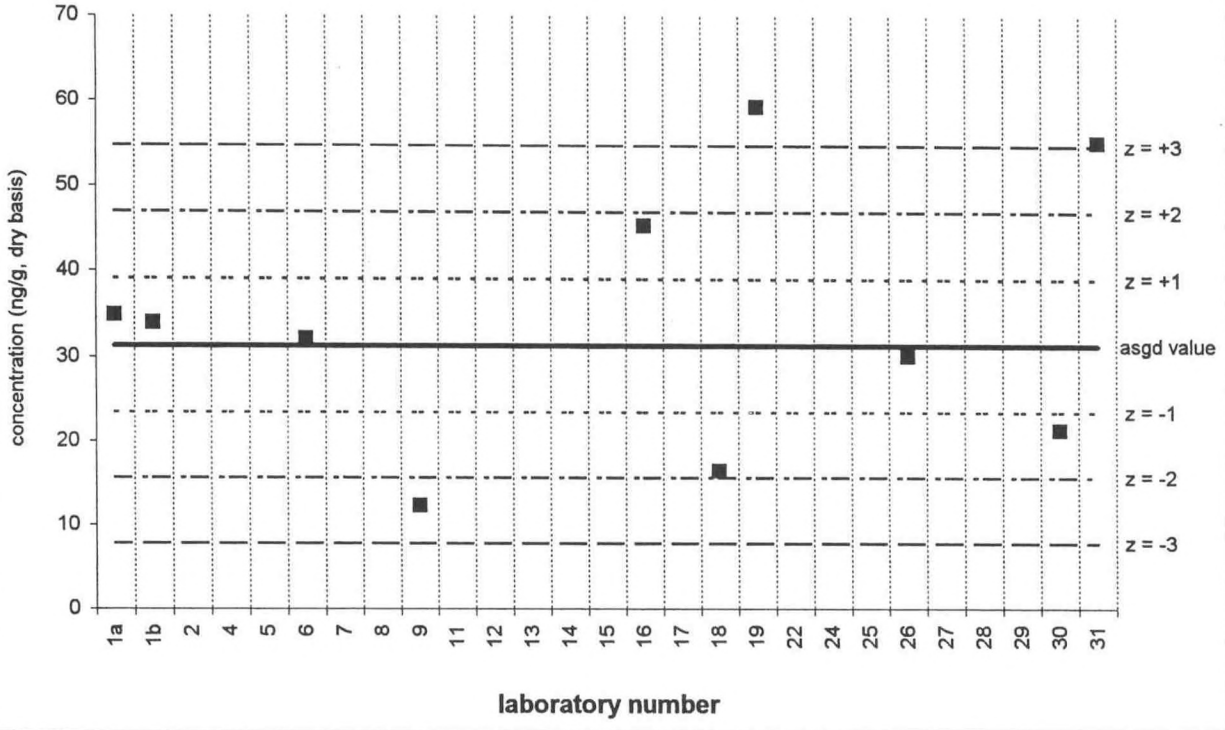
acenaphthene **SRM 1974a**

Noncertified Value = 3.15 ± 0.26 ng/g (dry basis)
Reported Results: 16 Quantitative Results: 7



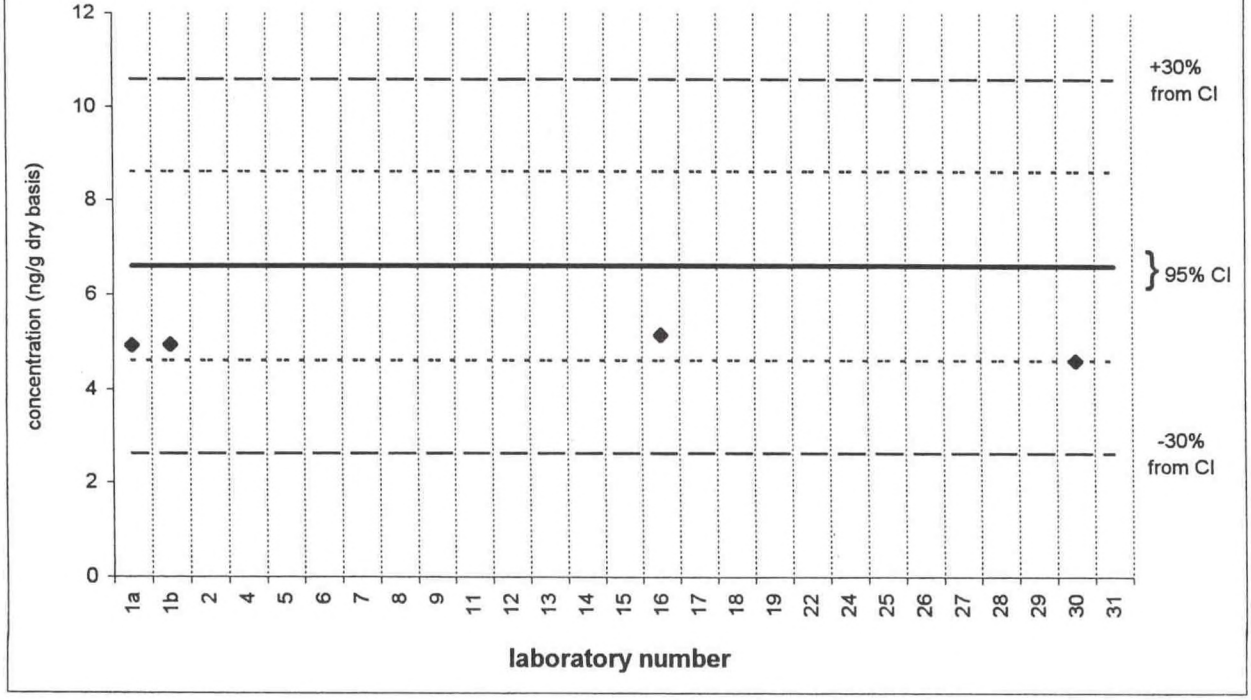
1,6,7-trimethylnaphthalene — Tissue IX (QA98TIS9)

Assigned value = 31.3 ng/g s = 13.6 ng/g 95% CL = 10.4 ng/g (dry basis)
Reported Results: 12 Quantitative Results: 10



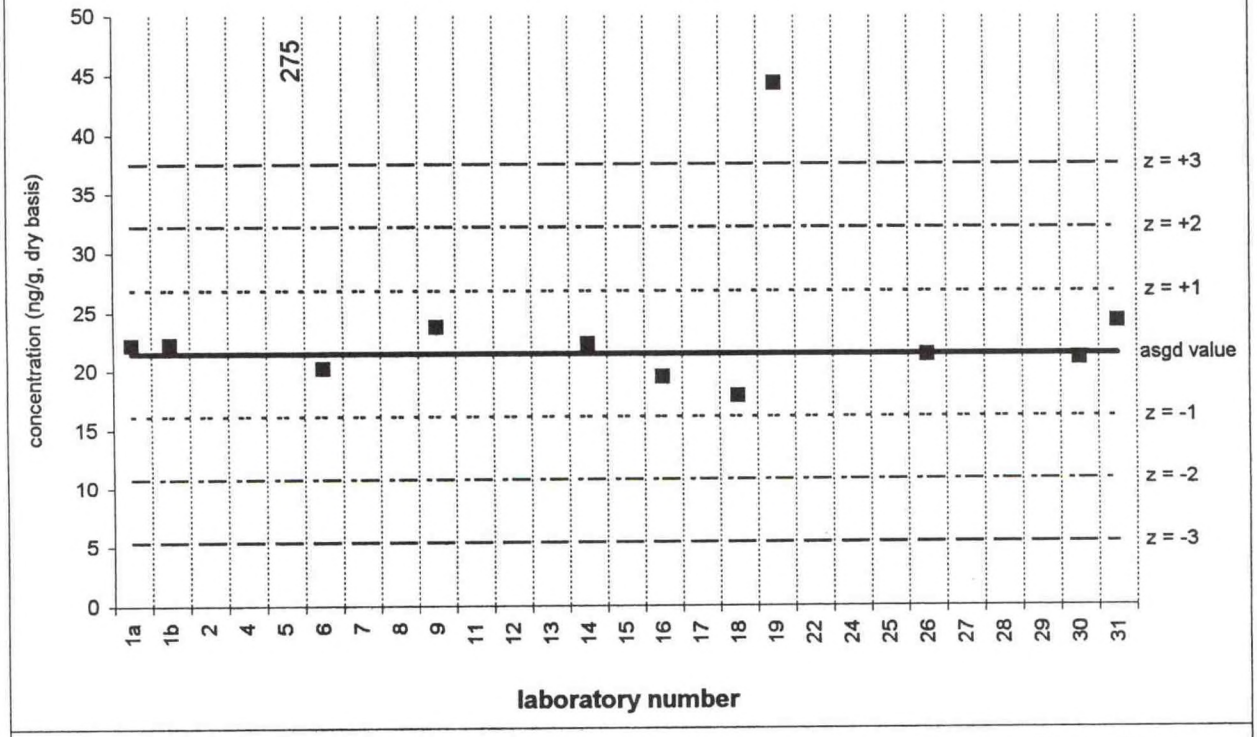
1,6,7-trimethylnaphthalene — SRM 1974a

Target Value = 6.60 ± 2.00 ng/g (dry basis)
Reported Results: 11 Quantitative Results: 4



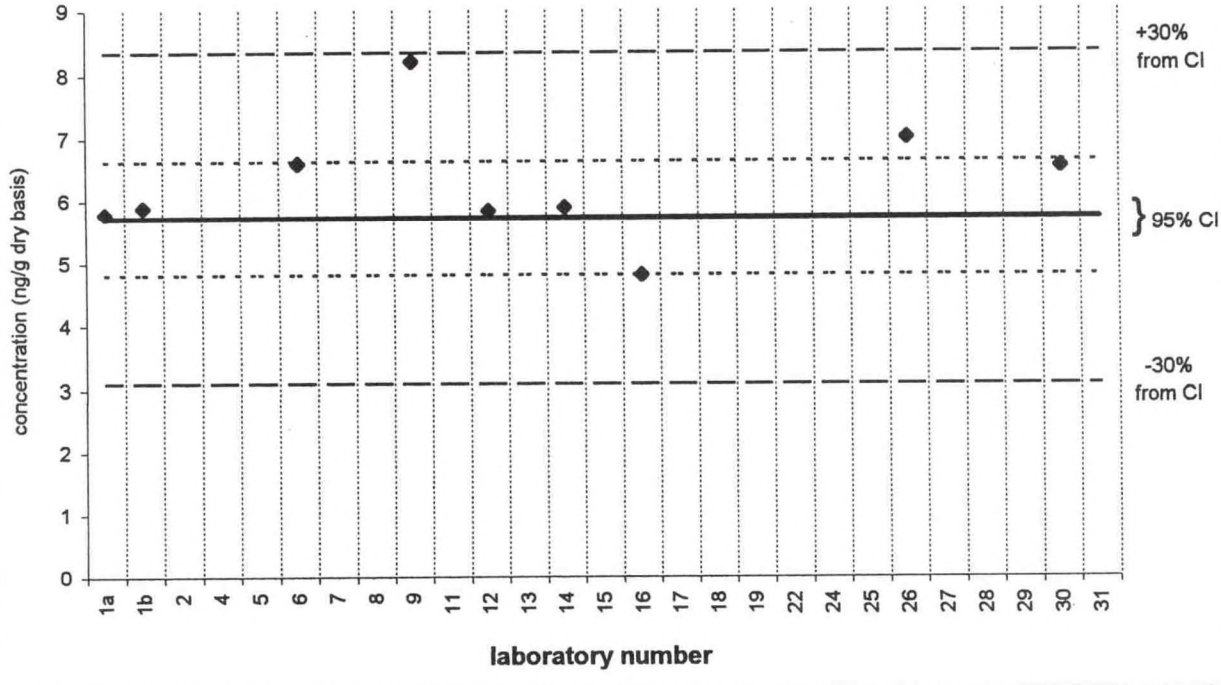
fluorene **Tissue IX (QA98TIS9)**

Assigned value = 21.4 ng/g s = 1.9 ng/g 95% CL = 1.4 ng/g (dry basis)
Reported Results: 19 Quantitative Results: 12



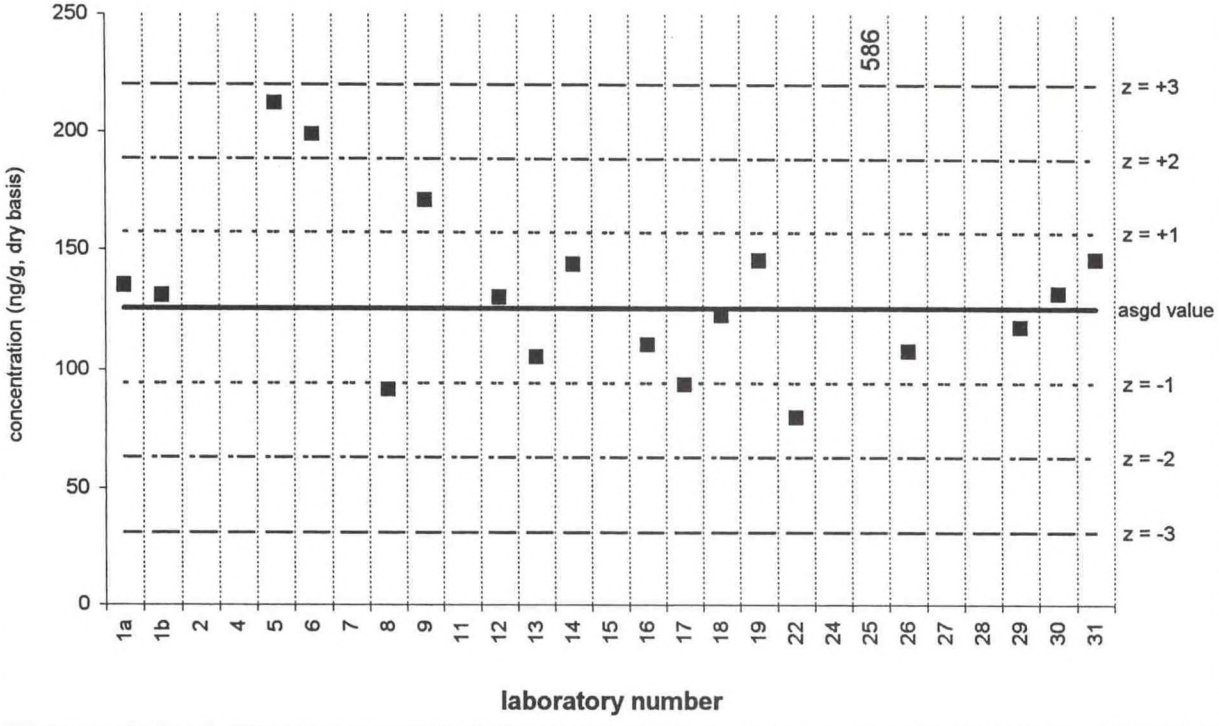
fluorene **SRM 1974a**

Noncertified Value = 5.72 ± 0.91 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 9



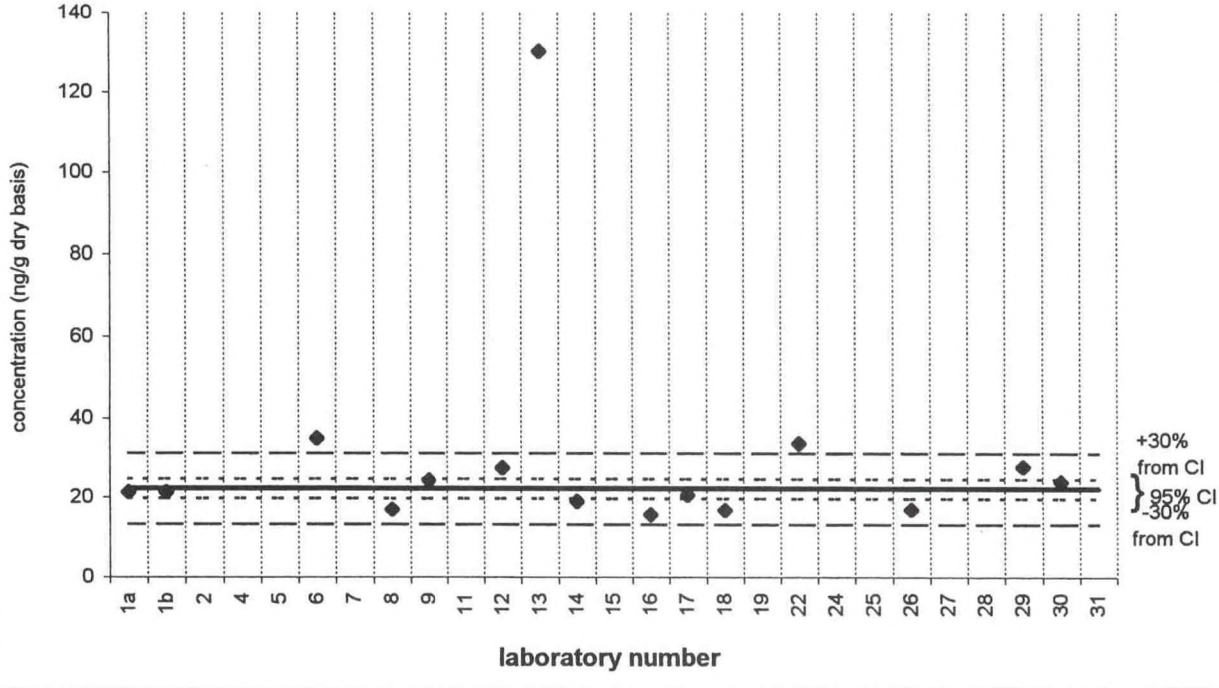
phenanthrene **Tissue IX (QA98TIS9)**

Assigned value = 126 ng/g s = 22 ng/g 95% CL = 13 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 19



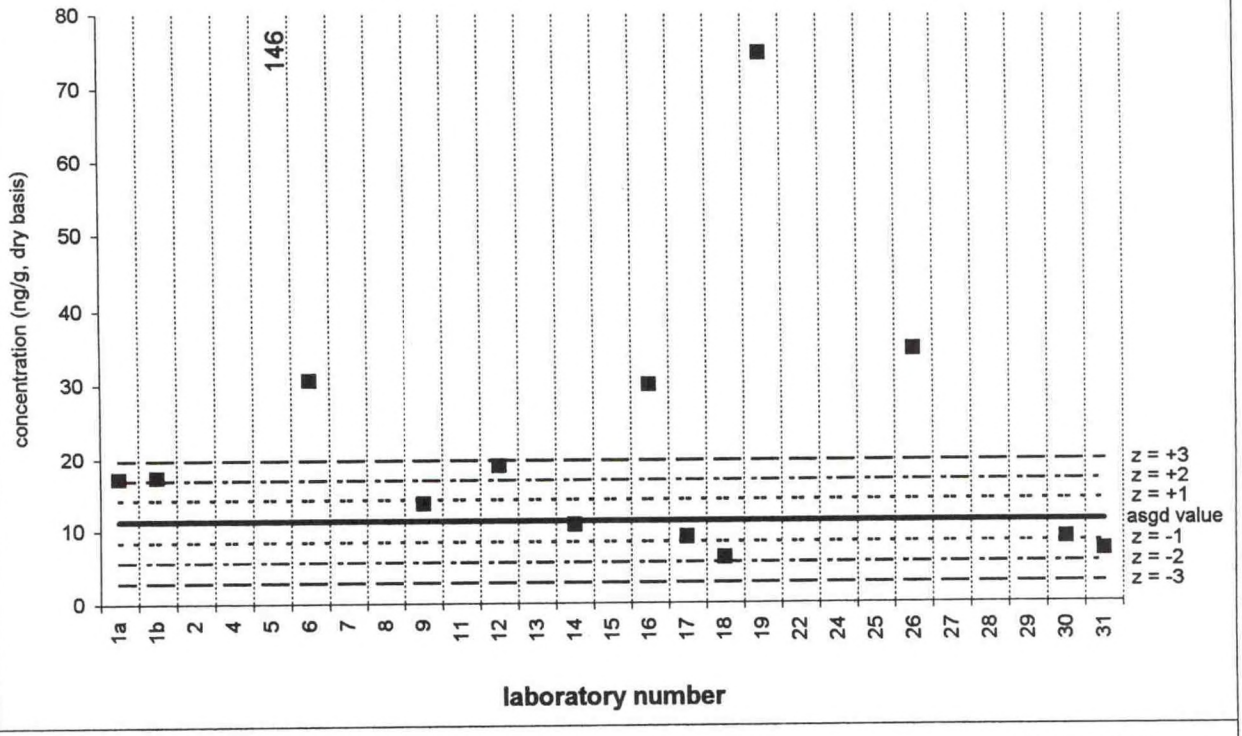
phenanthrene **SRM 1974a**

Certified Value = 22.2 ± 2.4 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 15



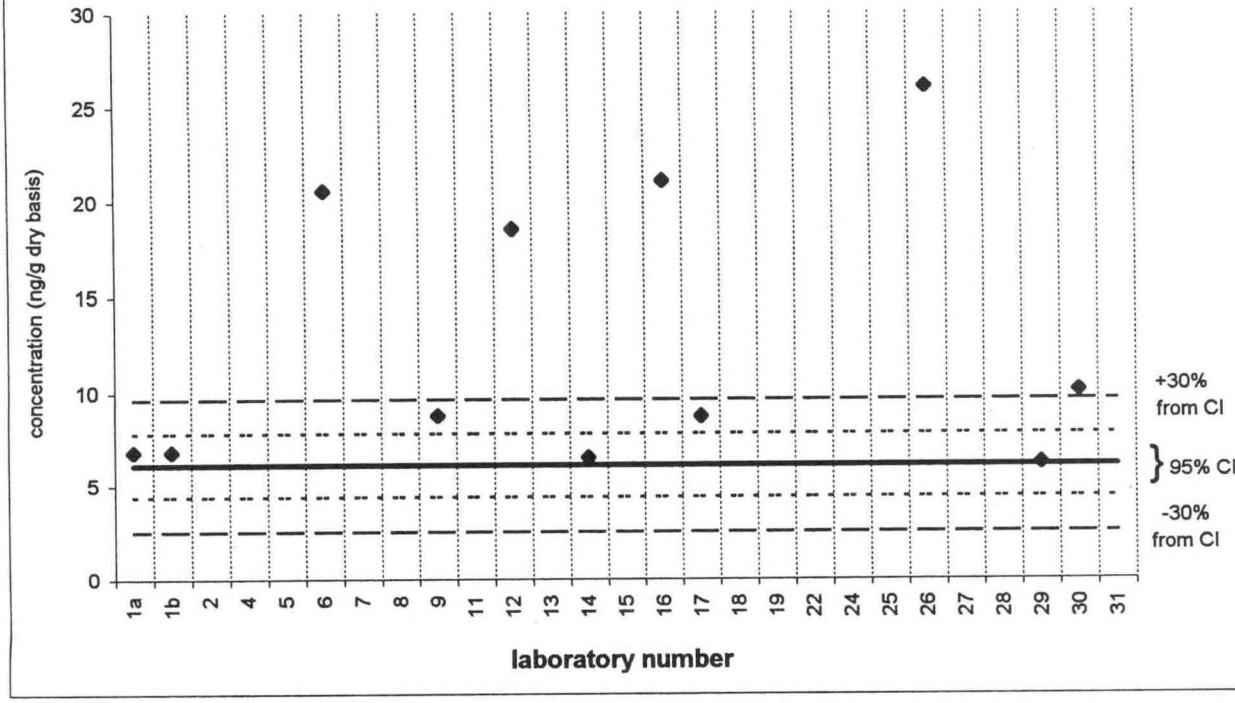
anthracene **Tissue IX (QA98TIS9)**

Assigned value = 11.3 ng/g s = 4.3 ng/g 95% CL = 3.6 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 14



anthracene **SRM 1974a**

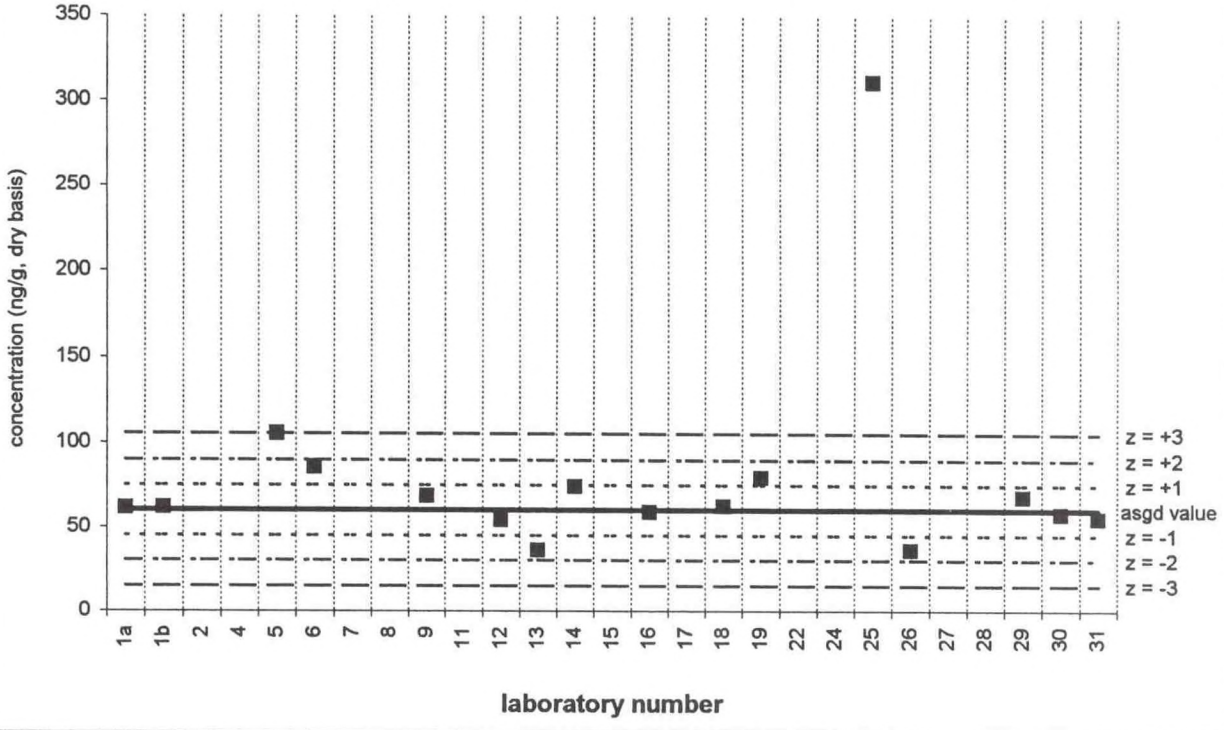
Certified Value = 6.1 ± 1.7 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 11



1-methylphenanthrene

Tissue IX (QA98TIS9)

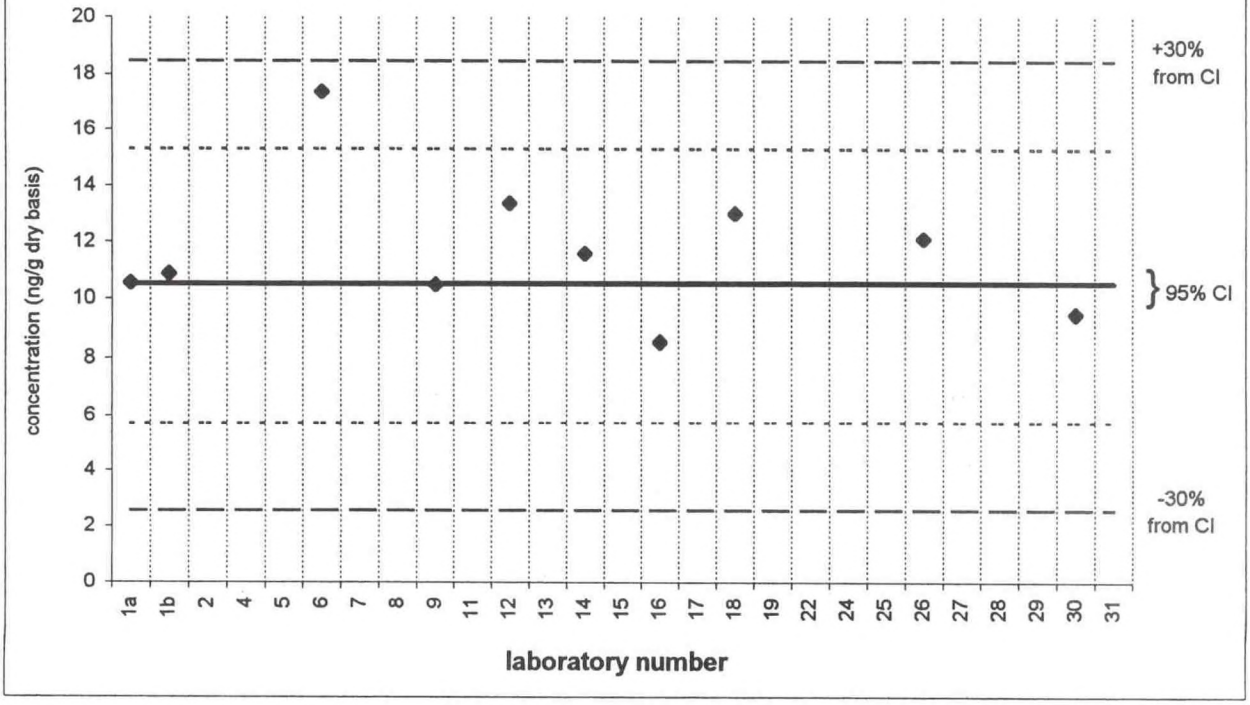
Assigned value = 60.2 ng/g s = 13.6 ng/g 95% CL = 8.2 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 16



1-methylphenanthrene

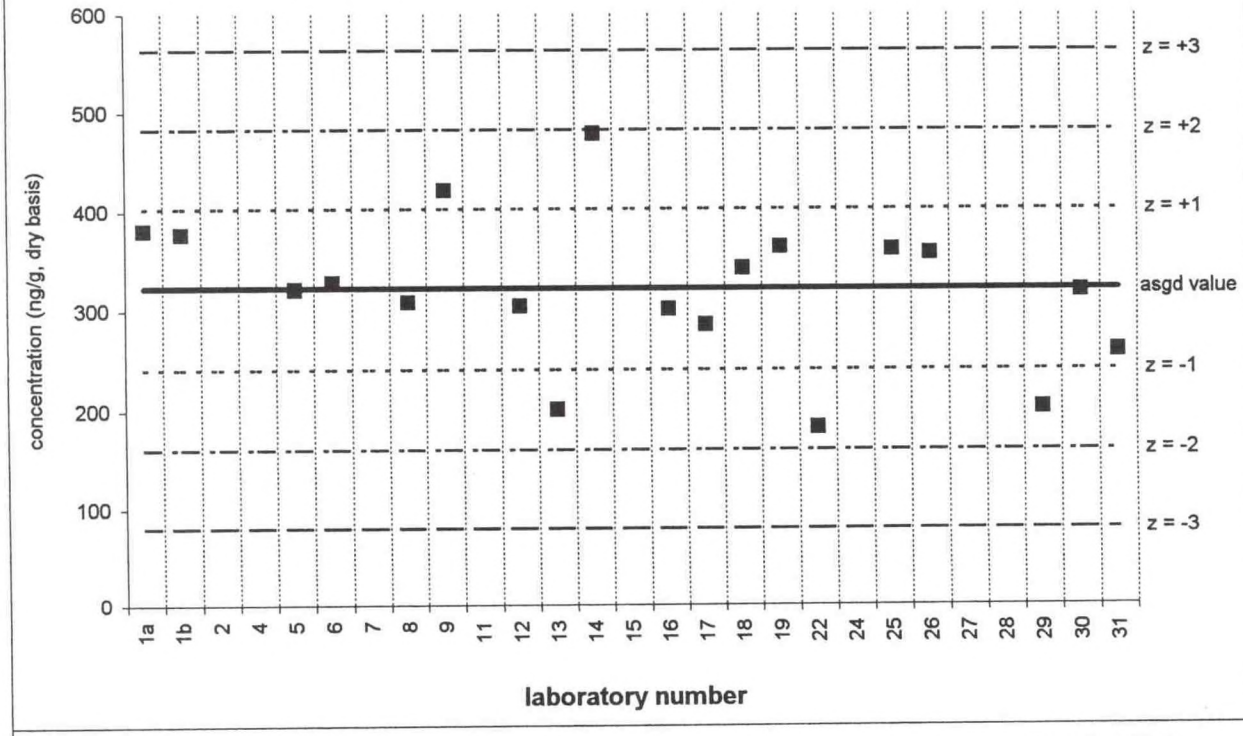
SRM 1974a

Noncertified Value = 10.5 ± 4.8 ng/g (dry basis)
Reported Results: 13 Quantitative Results: 10



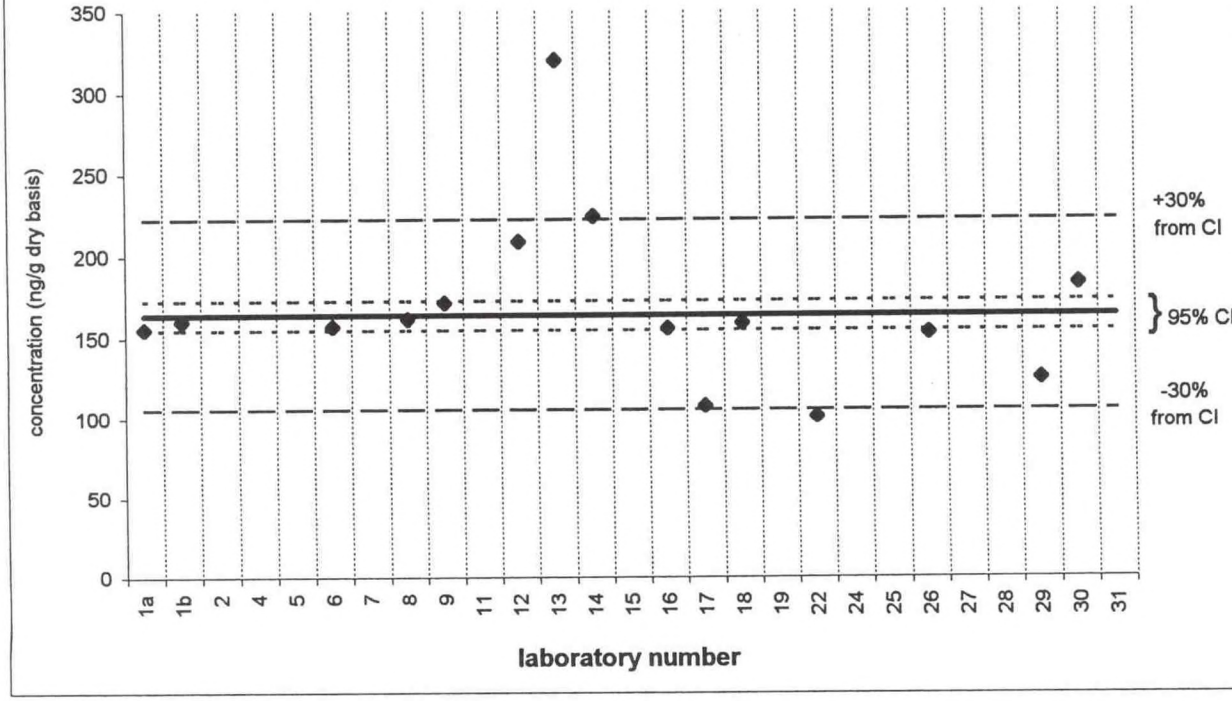
fluoranthene **Tissue IX (QA98TIS9)**

Assigned value = 322 ng/g s = 56 ng/g 95% CL = 34 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 19



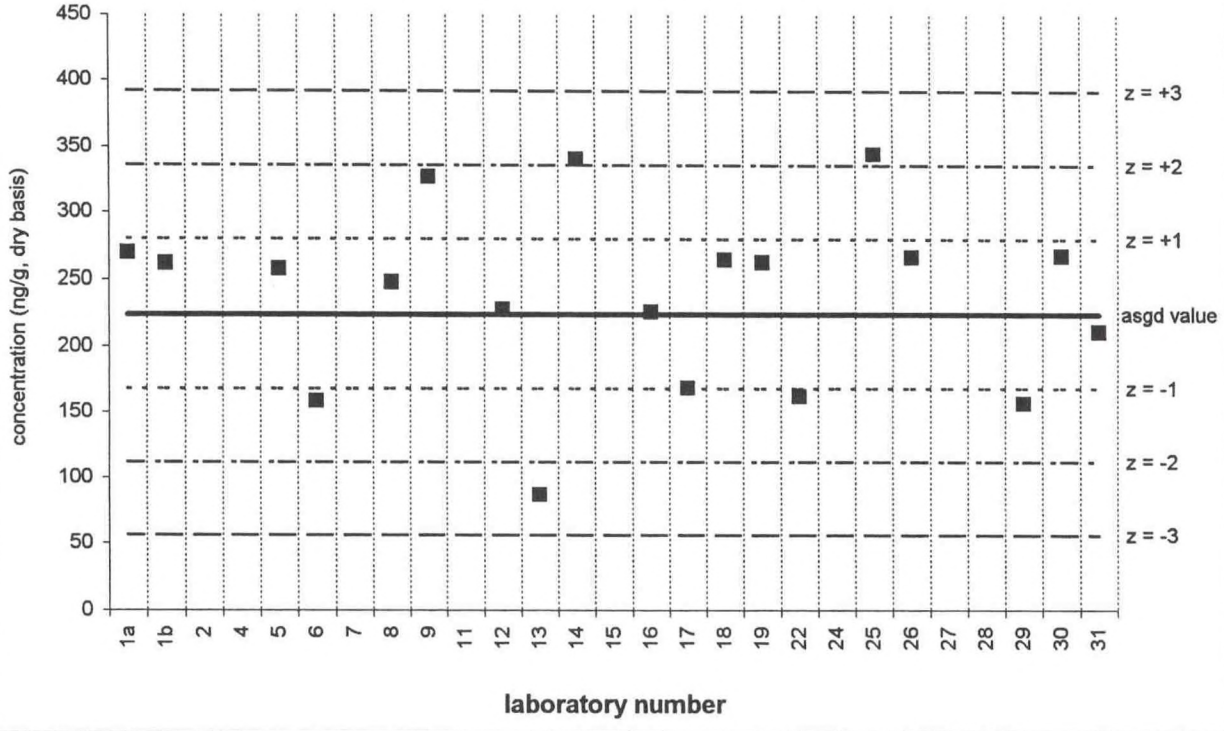
fluoranthene **SRM 1974a**

Certified Value = 163.7 ± 9.1 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 15



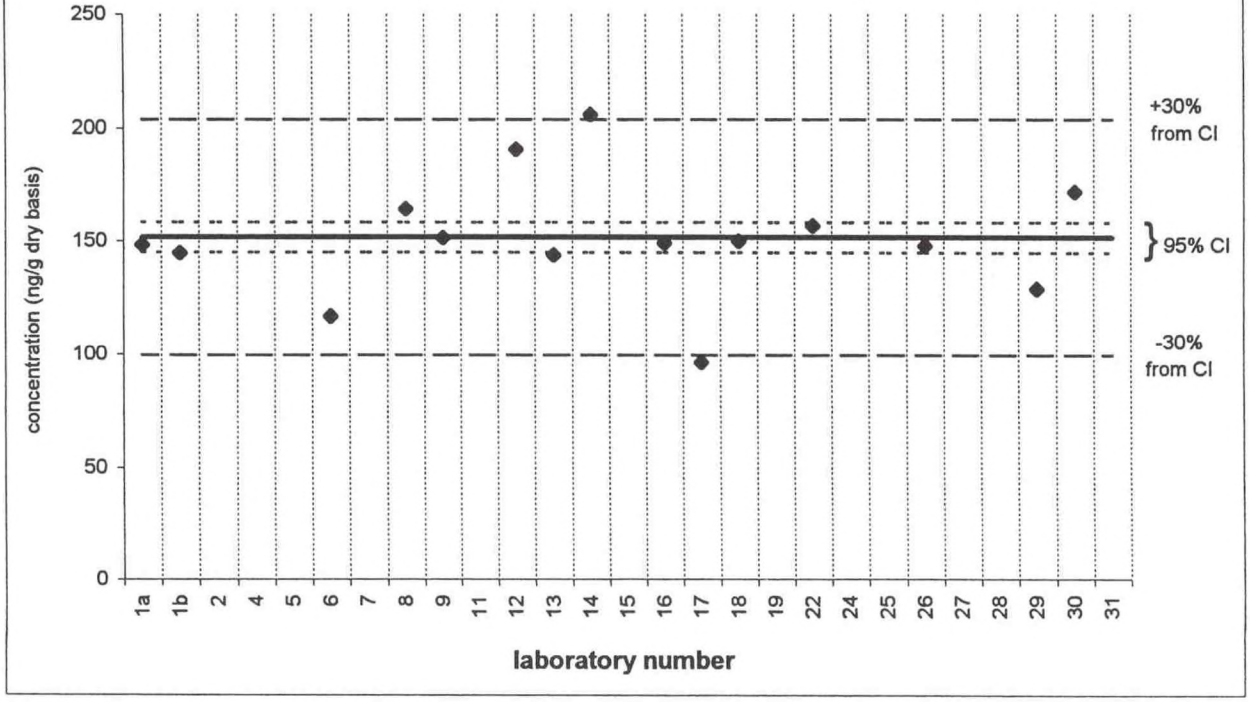
pyrene **Tissue IX (QA98TIS9)**

Assigned value = 224 ng/g s = 63 ng/g 95% CL = 36 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 19



pyrene **SRM 1974a**

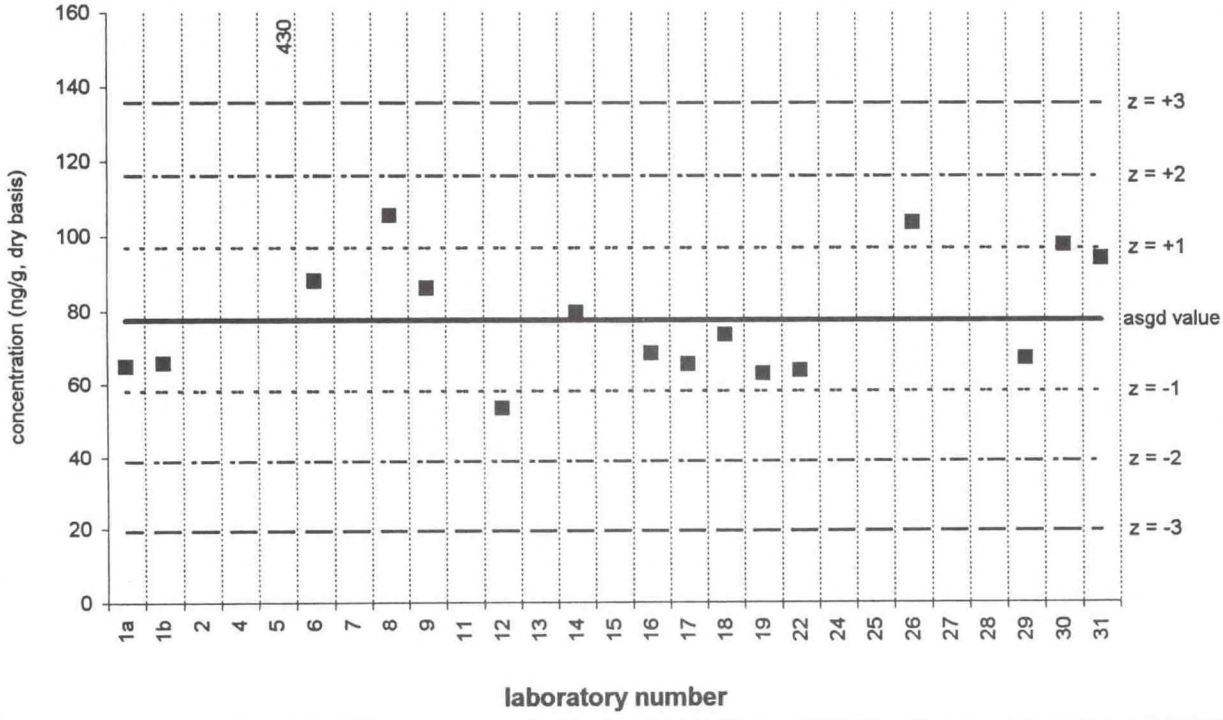
Certified Value = 151.6 ± 6.6 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 15



benz[a]anthracene **Tissue IX (QA98TIS9)**

Assigned value = 77.5 ng/g s = 15.3 ng/g 95% CL = 9.2 ng/g (dry basis)

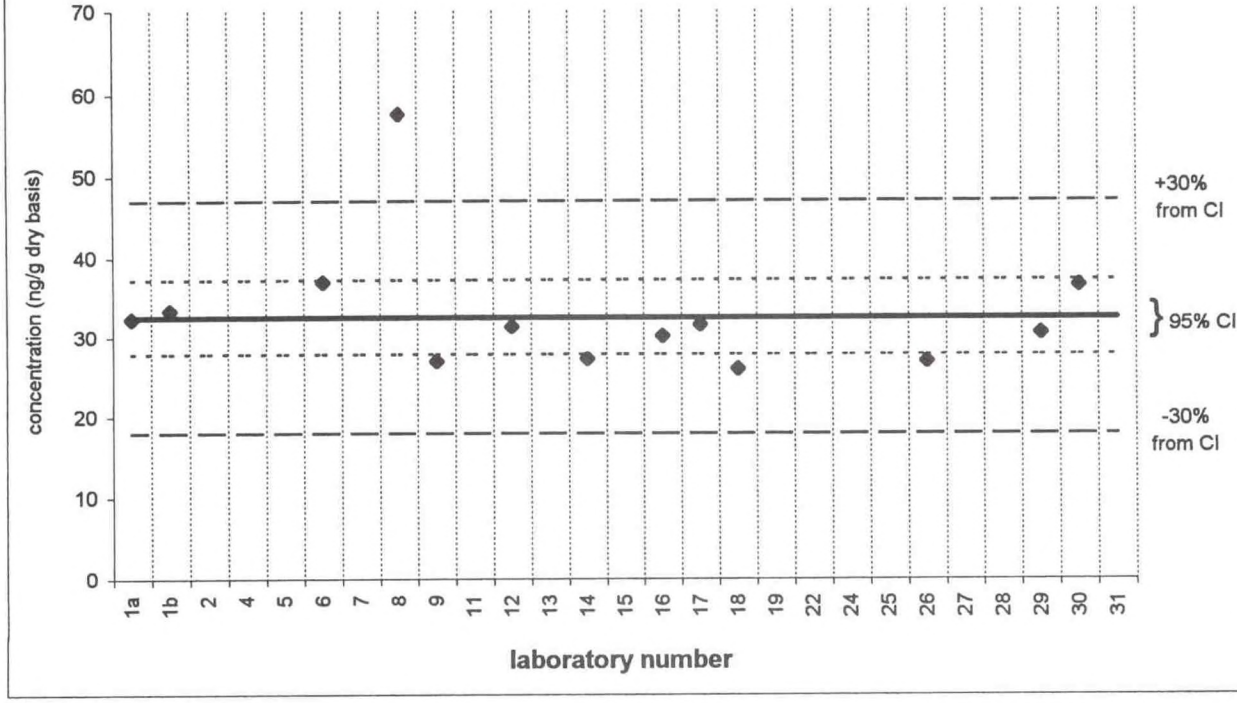
Reported Results: 19 Quantitative Results: 17



benz[a]anthracene **SRM 1974a**

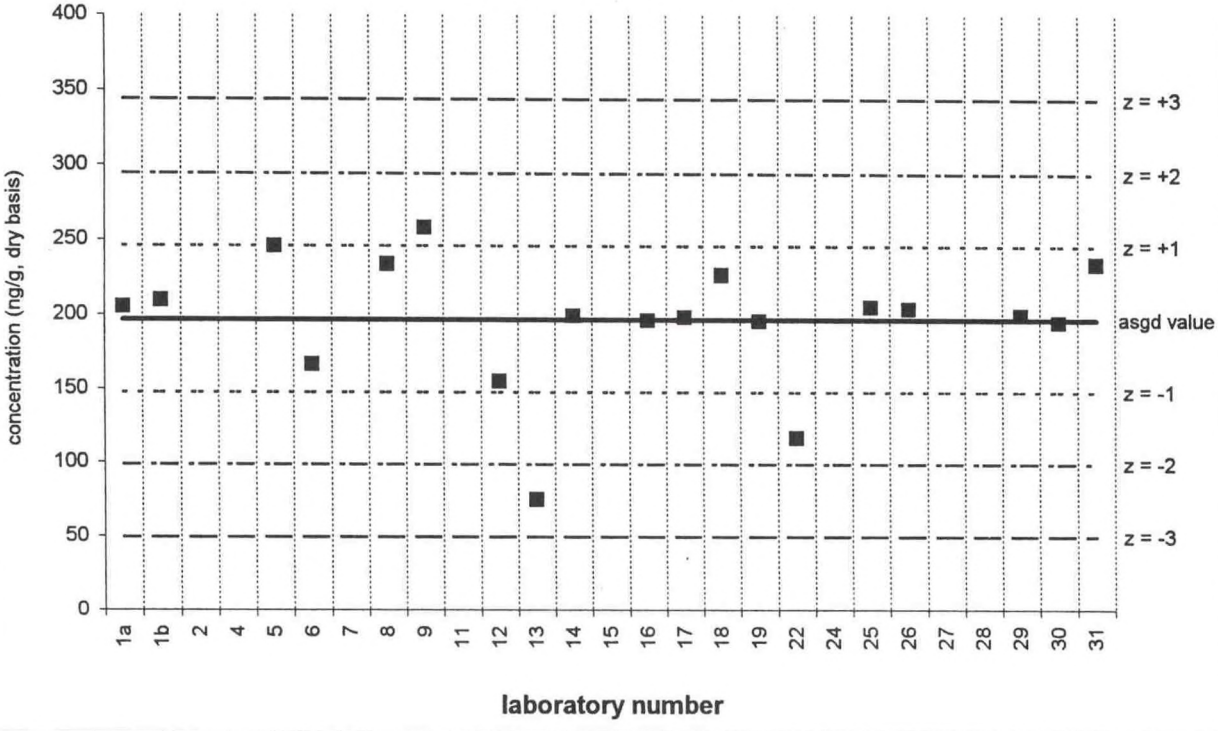
Certified Value = 32.5 ± 4.7 ng/g (dry basis)

Reported Results: 17 Quantitative Results: 13



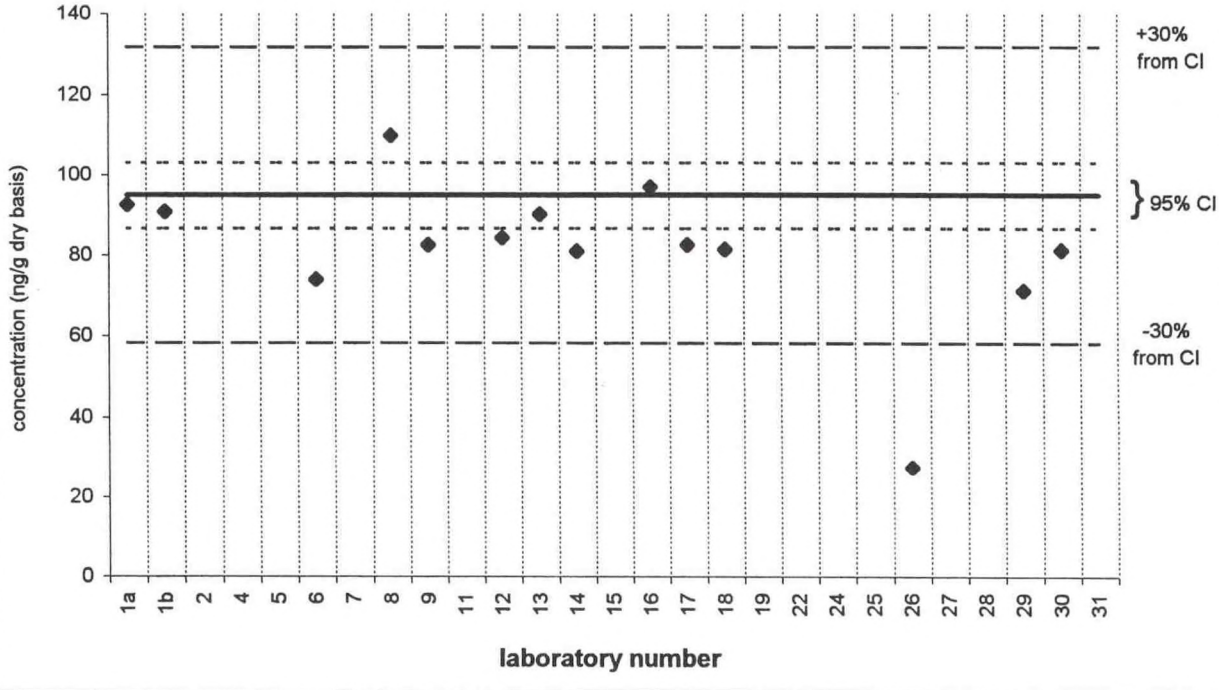
chrysene + triphenylene — Tissue IX (QA98TIS9)

Assigned value = 196 ng/g s = 44 ng/g 95% CL = 25 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 19



chrysene + triphenylene — SRM 1974a

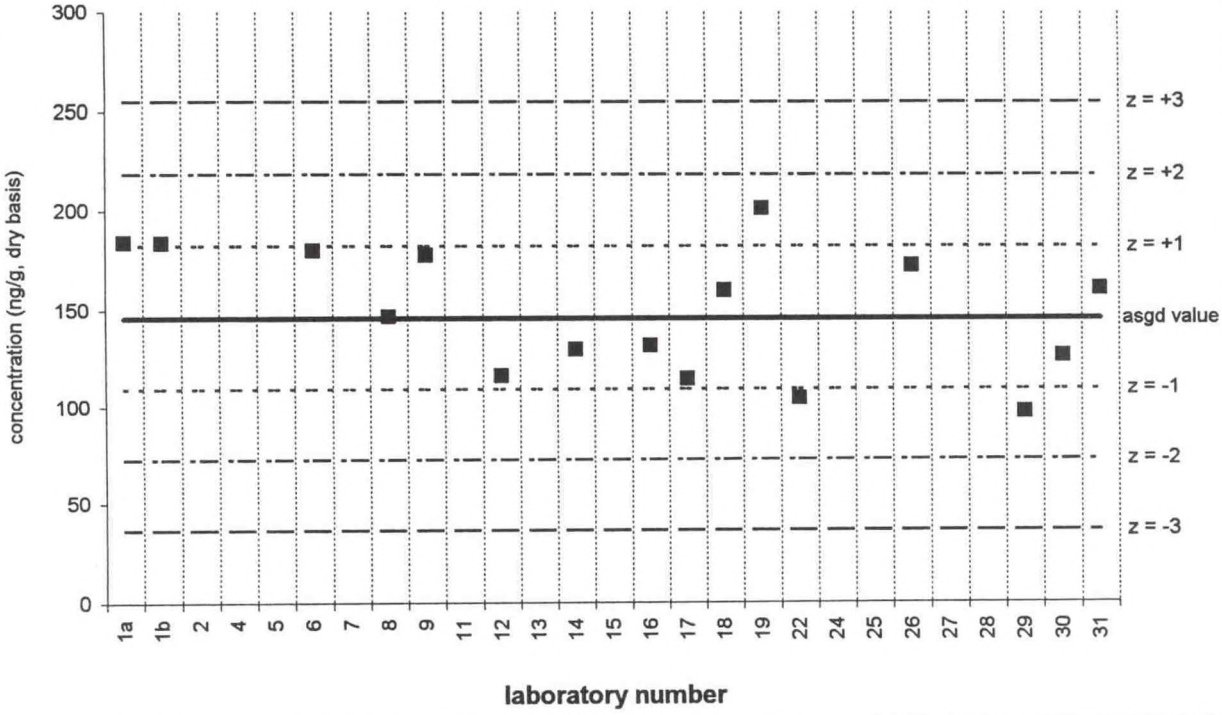
Certified Value = 94.9 ± 8.2 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 14



benzofluoranthenes [b+j+k] **Tissue IX (QA98TIS9)**

Assigned value = 146 ng/g s = 30 ng/g 95% CL = 17 ng/g (dry basis)

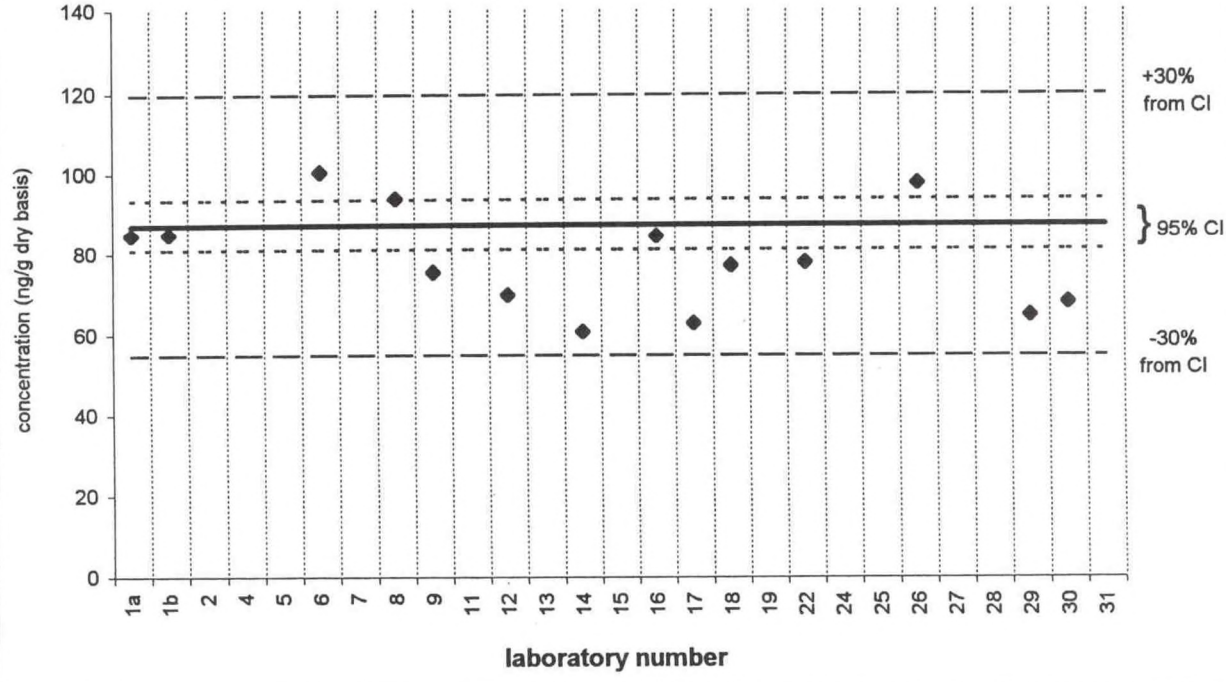
Reported Results: 18 Quantitative Results: 16

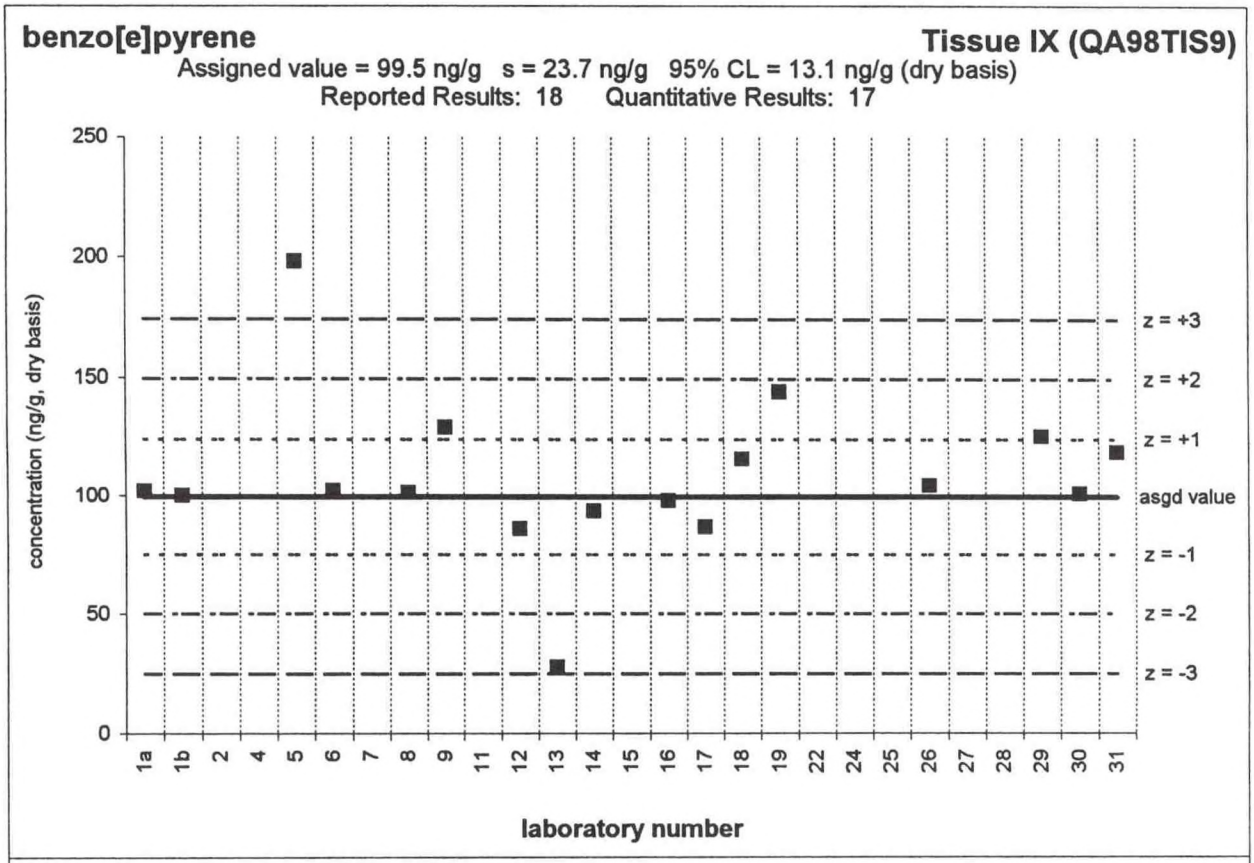


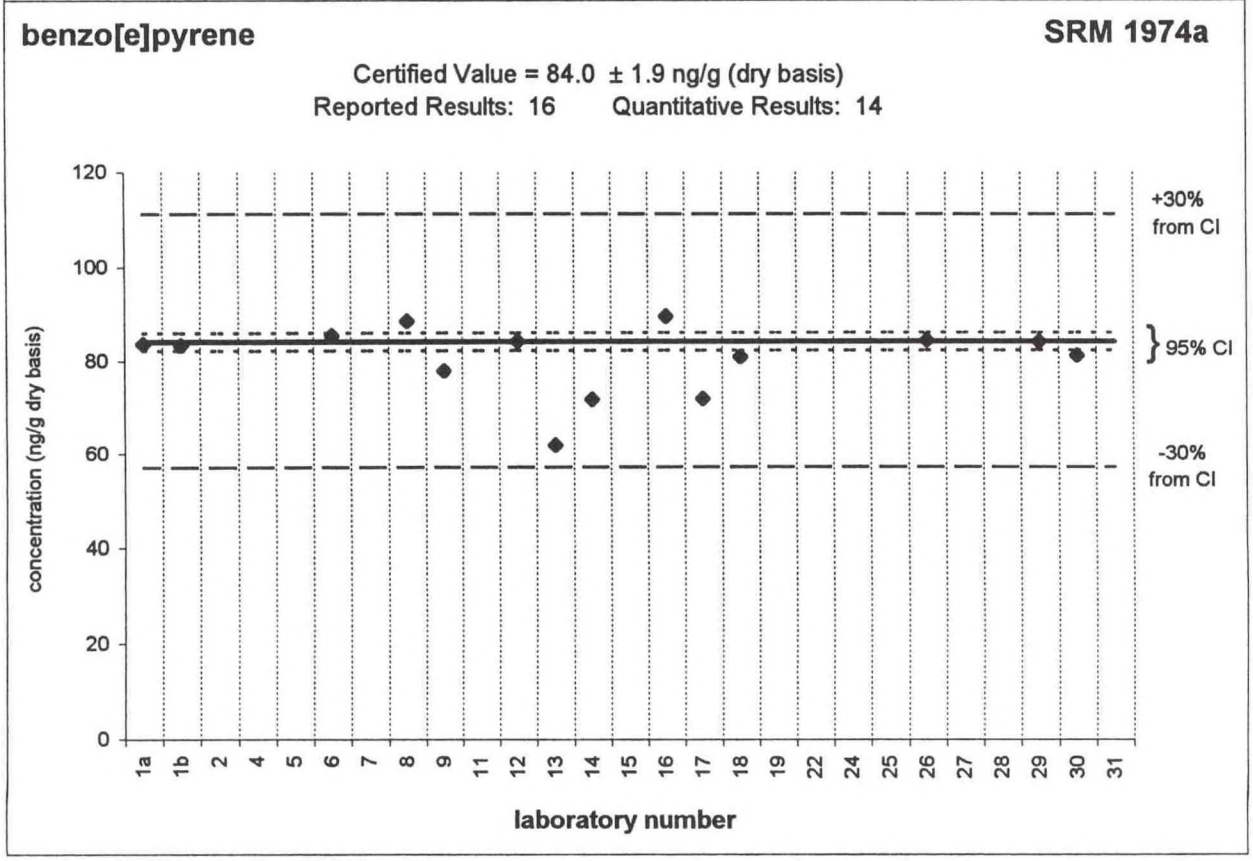
benzofluoranthenes [b+j+k] **SRM 1974a**

Noncertified Value = 87.1 ± 6.2 ng/g (dry basis)

Reported Results: 17 Quantitative Results: 14

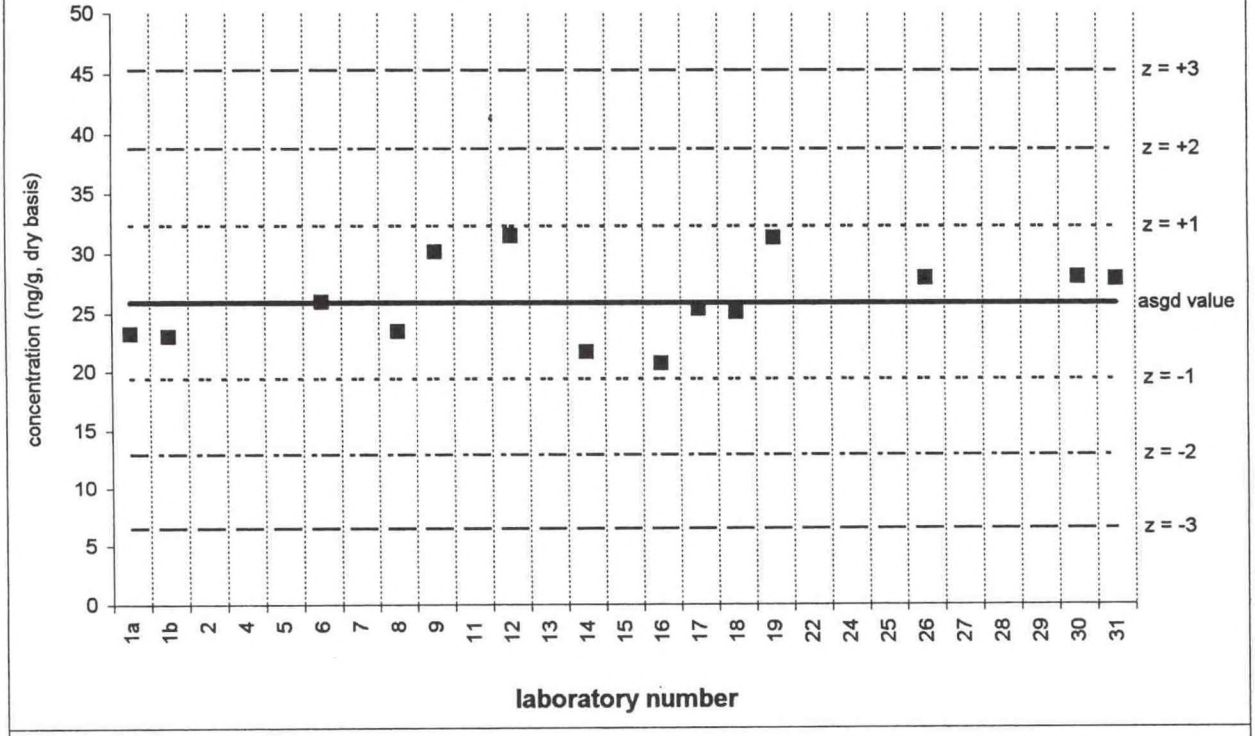



benzo[e]pyrene
Tissue IX (QA98TIS9)
Assigned value = 99.5 ng/g s = 23.7 ng/g 95% CL = 13.1 ng/g (dry basis)
Reported Results: 18 Quantitative Results: 17
concentration (ng/g, dry basis)
250
200
150
100
50
0
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31
laboratory number


benzo[e]pyrene
SRM 1974a
Certified Value = 84.0 ± 1.9 ng/g (dry basis)
Reported Results: 16 Quantitative Results: 14
concentration (ng/g dry basis)
120
100
80
60
40
20
0
+30% from CI
95% CI
-30% from CI
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31
laboratory number

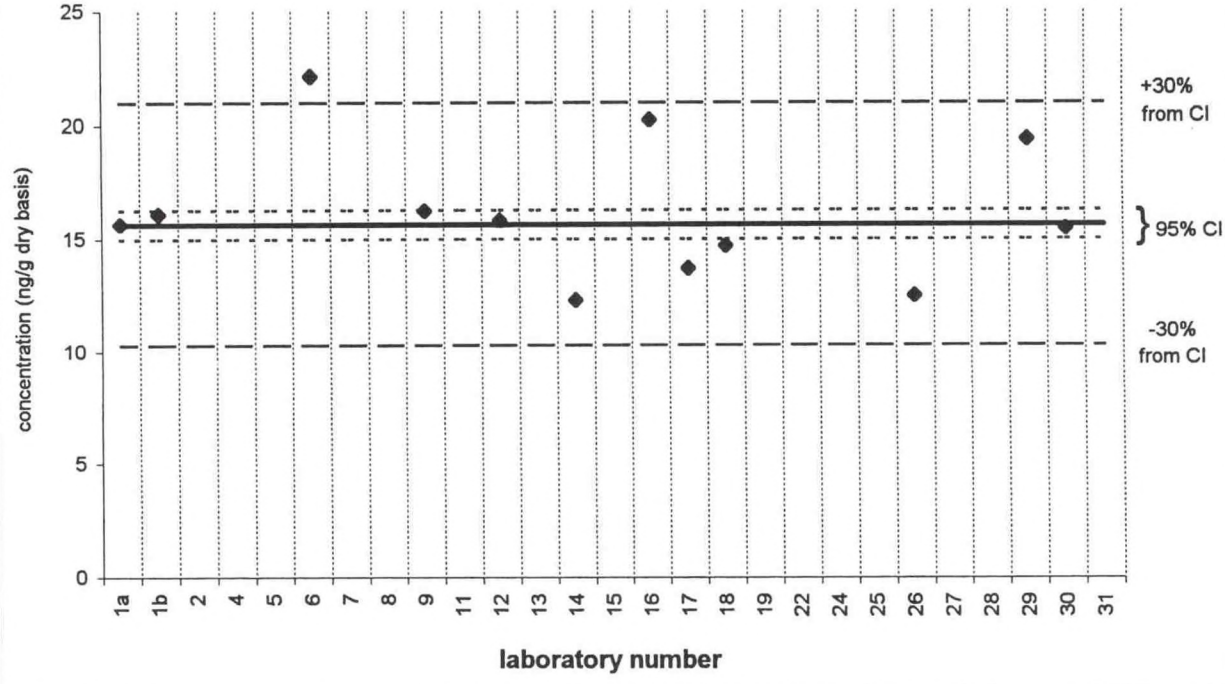
benzo[a]pyrene **Tissue IX (QA98TIS9)**

Assigned value = 26 ng/g s = 4 ng/g 95% CL = 2 ng/g (dry basis)
Reported Results: 18 Quantitative Results: 14



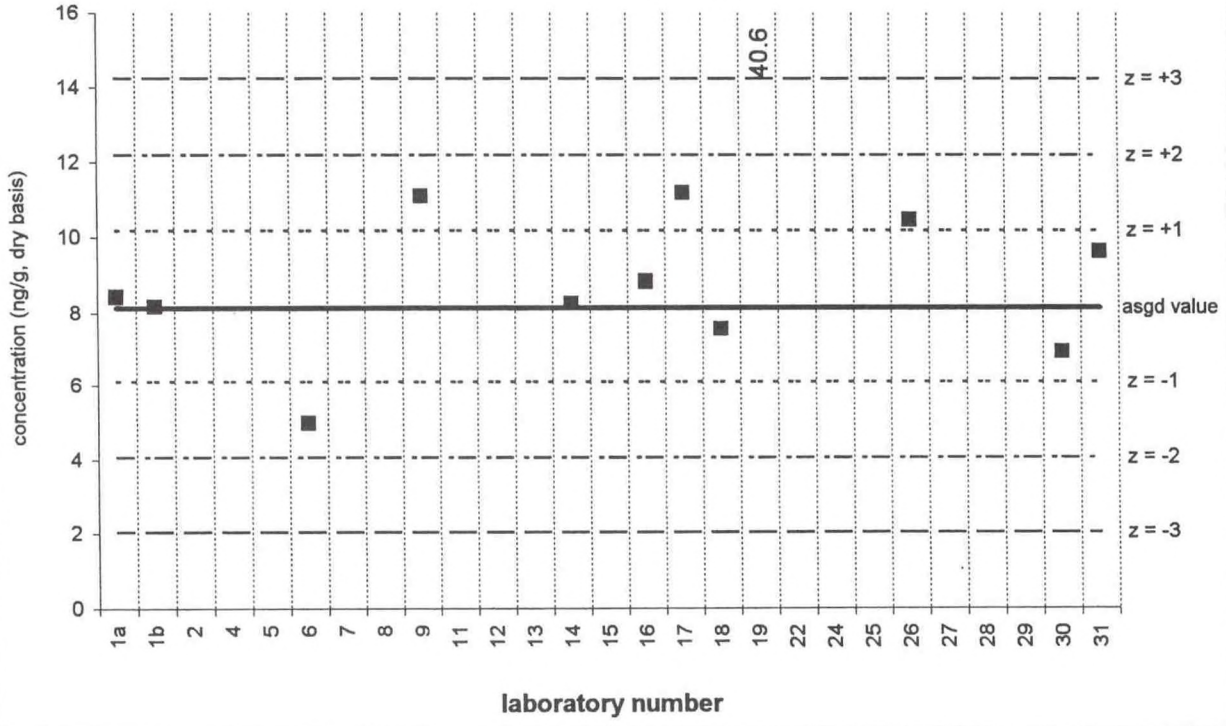
benzo[a]pyrene **SRM 1974a**

Certified Value = 15.63 ± 0.65 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 12



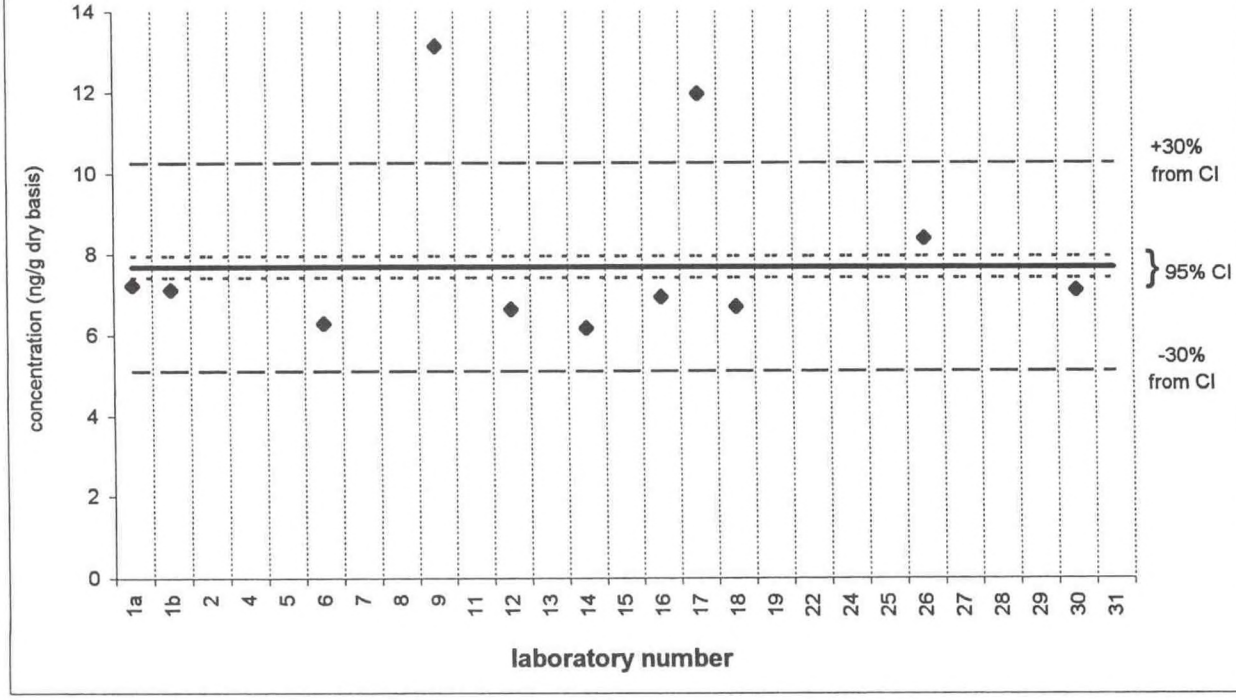
perylene **Tissue IX (QA98TIS9)**

Assigned value = 8.13 ng/g s = 1.58 ng/g 95% CL = 1.21 ng/g (dry basis)
Reported Results: 16 Quantitative Results: 12



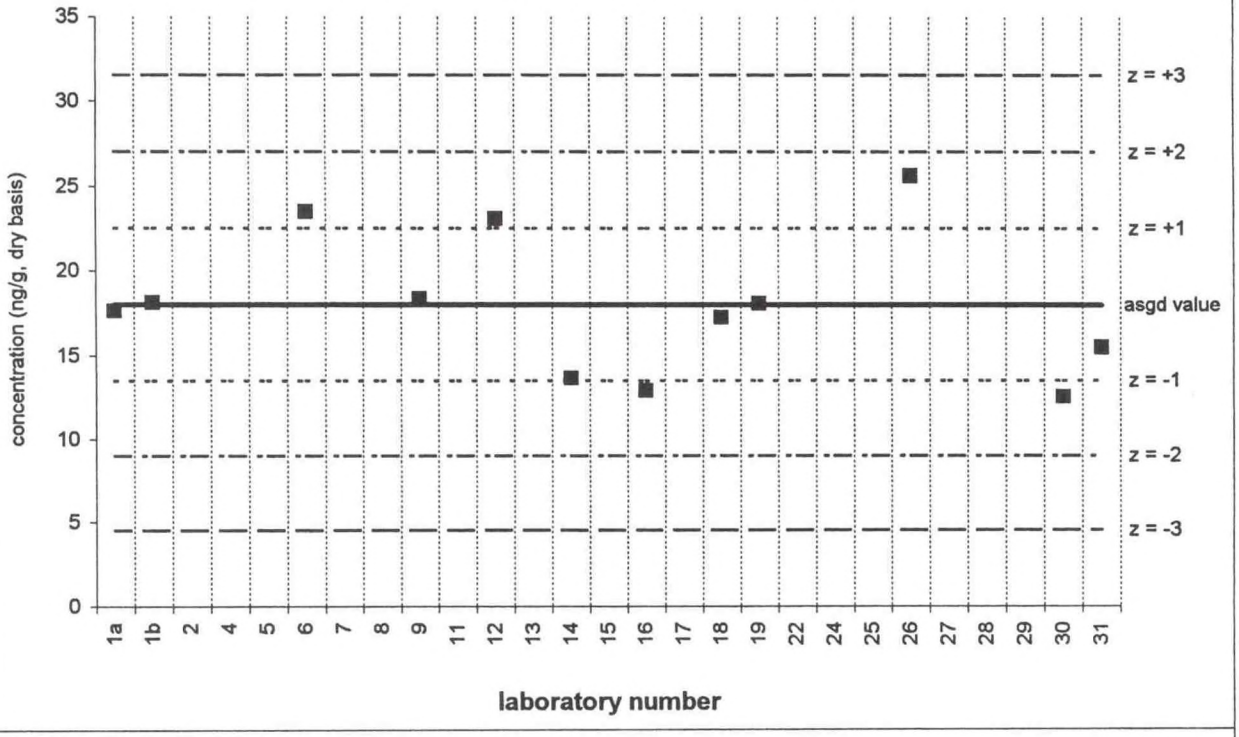
perylene **SRM 1974a**

Certified Value = 7.68 ± 0.27 ng/g (dry basis)
Reported Results: 15 Quantitative Results: 11



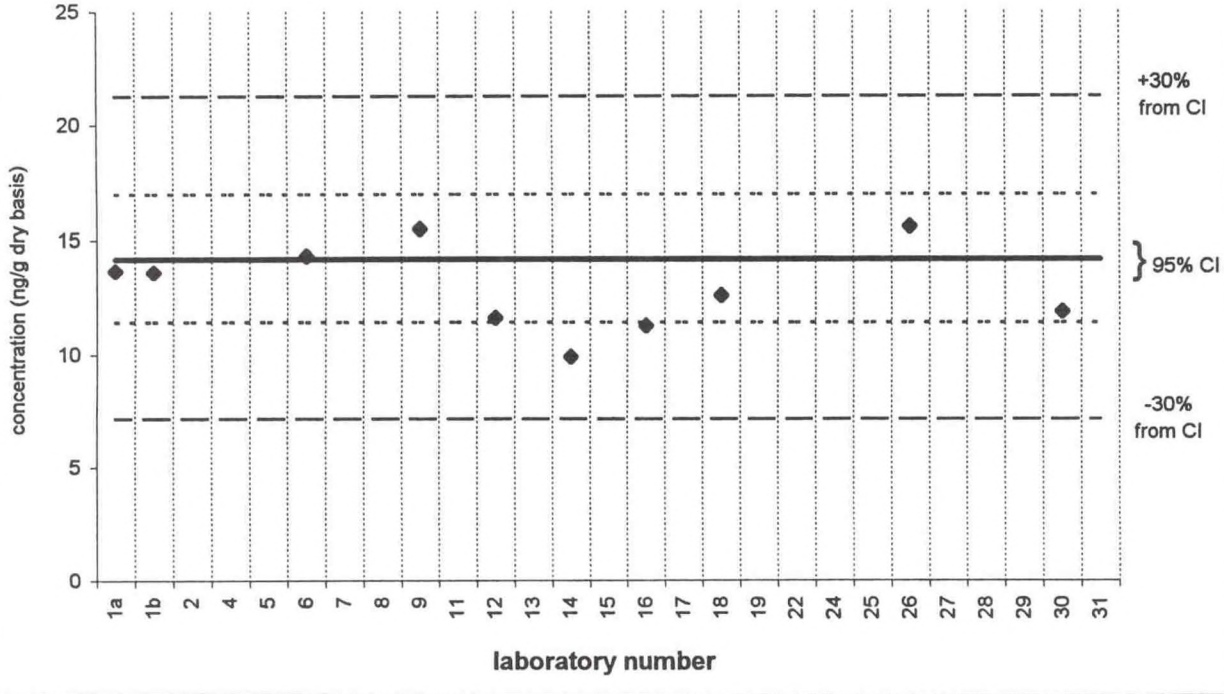
indeno[1,2,3-cd]pyrene — Tissue IX (QA98TIS9)

Assigned value = 18.0 ng/g s = 4.4 ng/g 95% CL = 3.0 ng/g (dry basis)
Reported Results: 18 Quantitative Results: 12



indeno[1,2,3-cd]pyrene — SRM 1974a

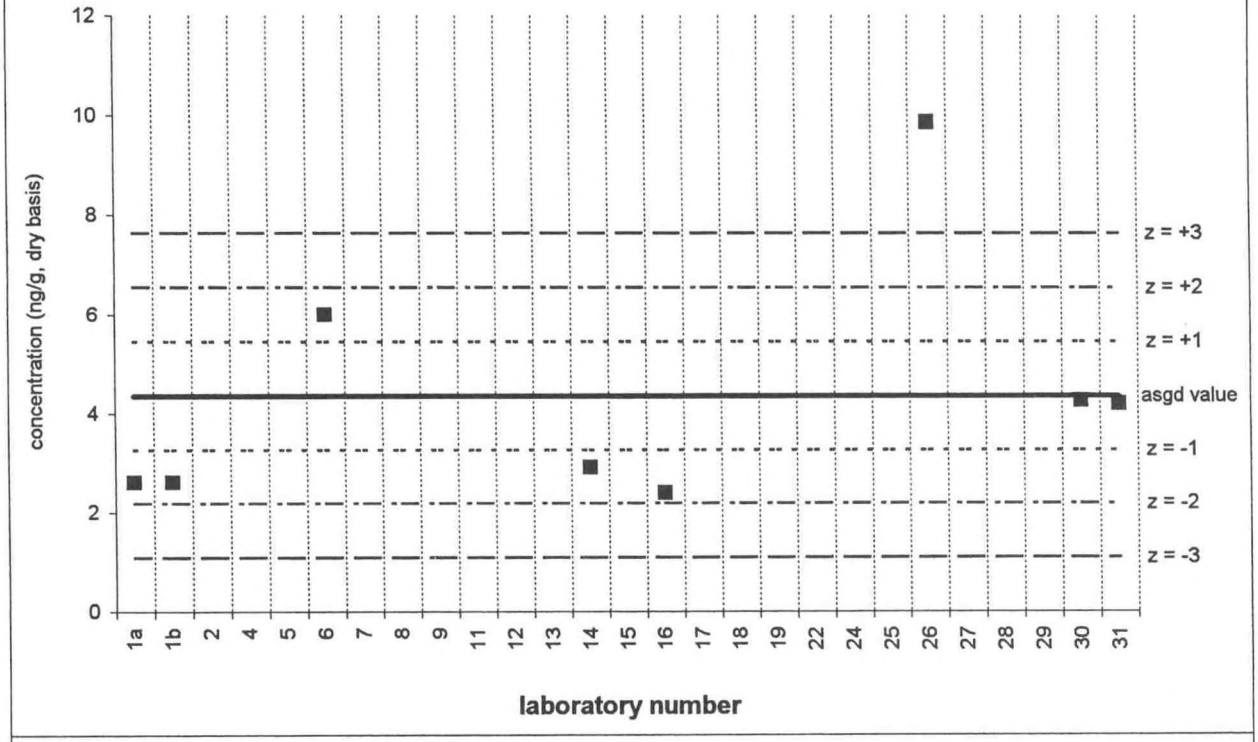
Certified Value = 14.2 ± 2.8 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 10



dibenz[a,h]anthracene + [a,c] **Tissue IX (QA98TIS9)**

Assigned value = 4.36 ng/g s = 2.53 ng/g 95% CL = 2.12 ng/g (dry basis)

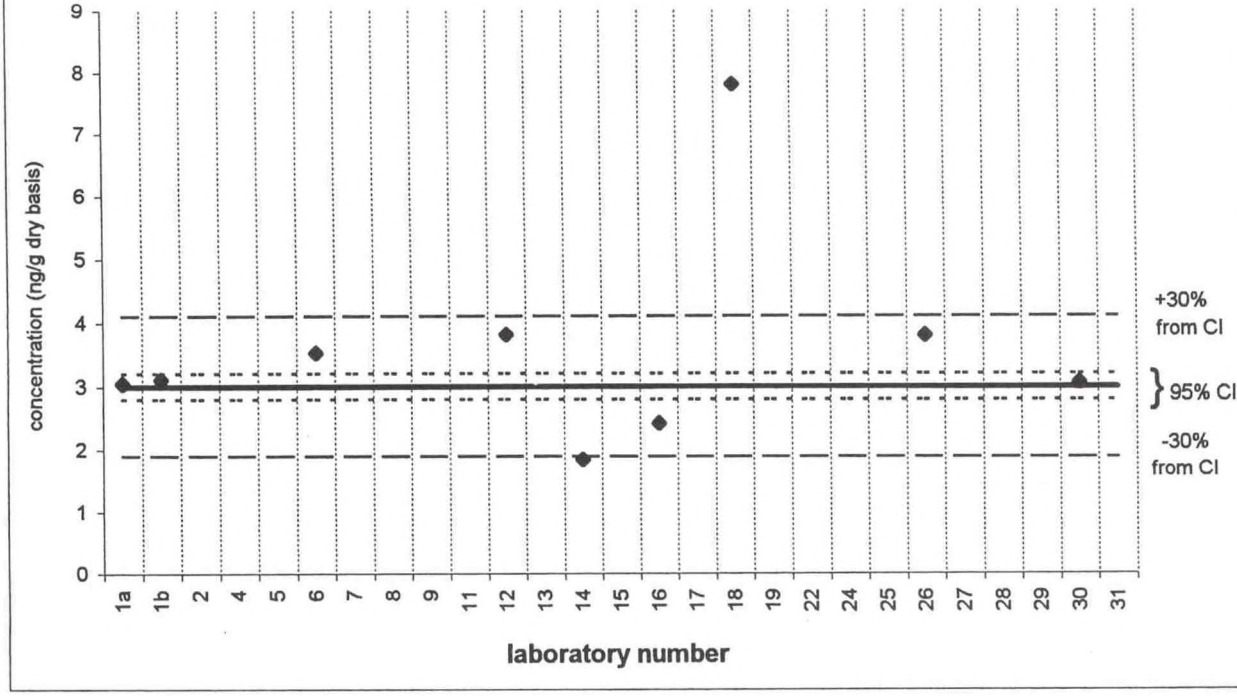
Reported Results: 17 Quantitative Results: 8

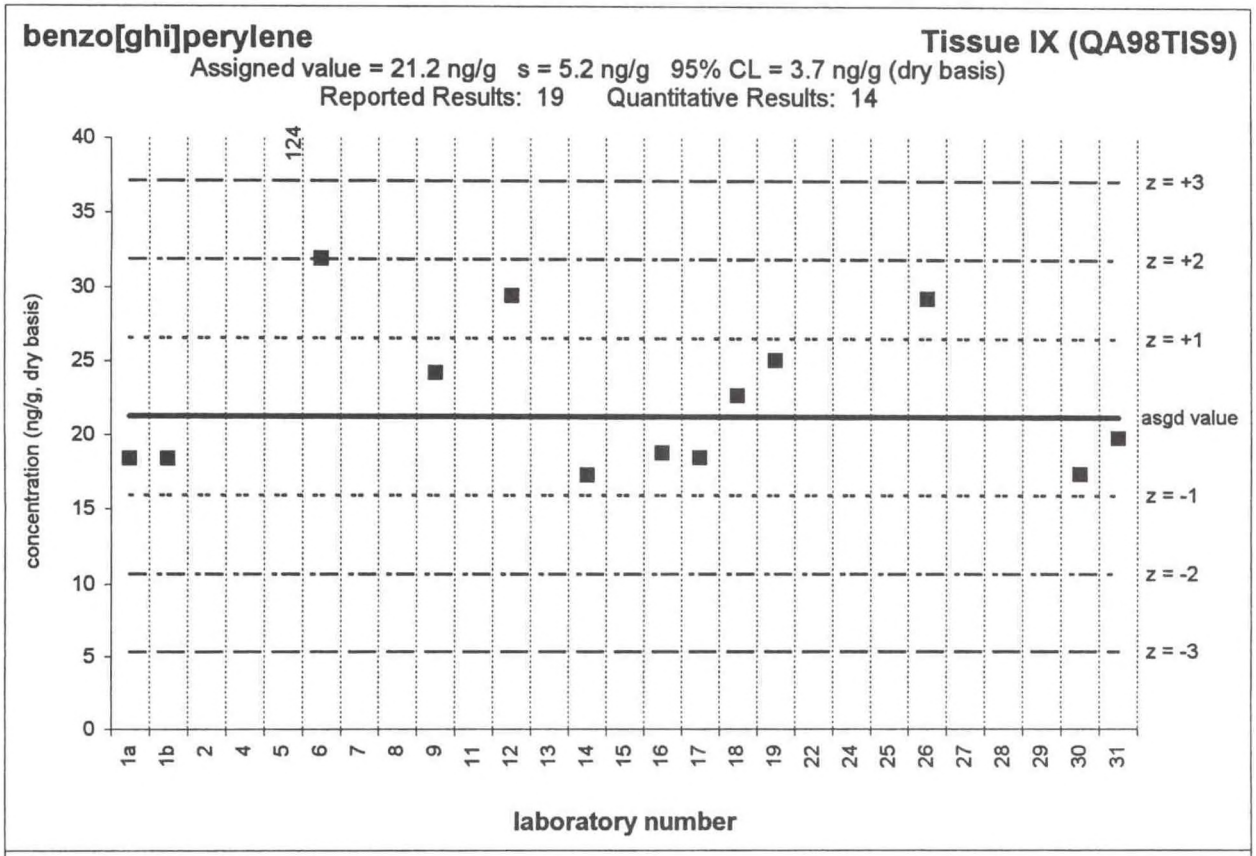


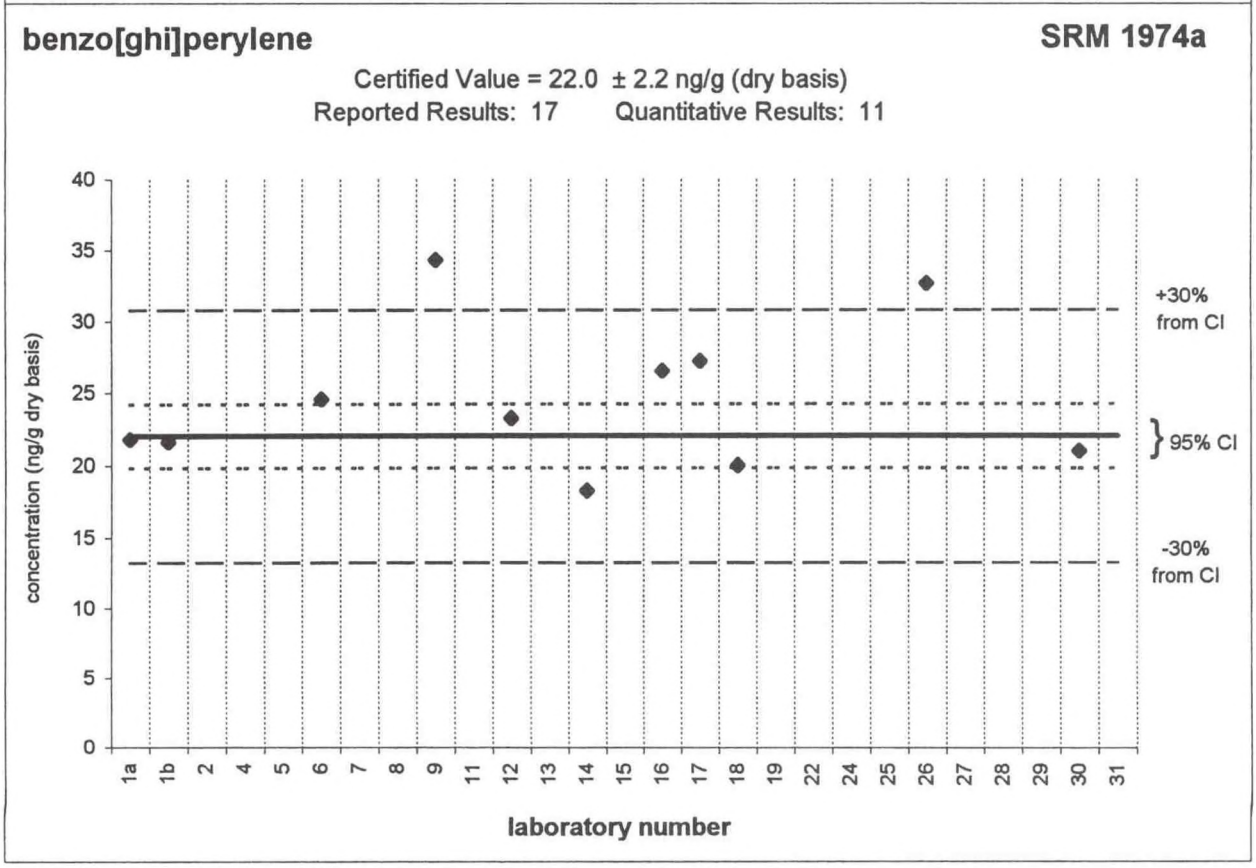
dibenz[a,h]anthracene + [a,c] **SRM 1974a**

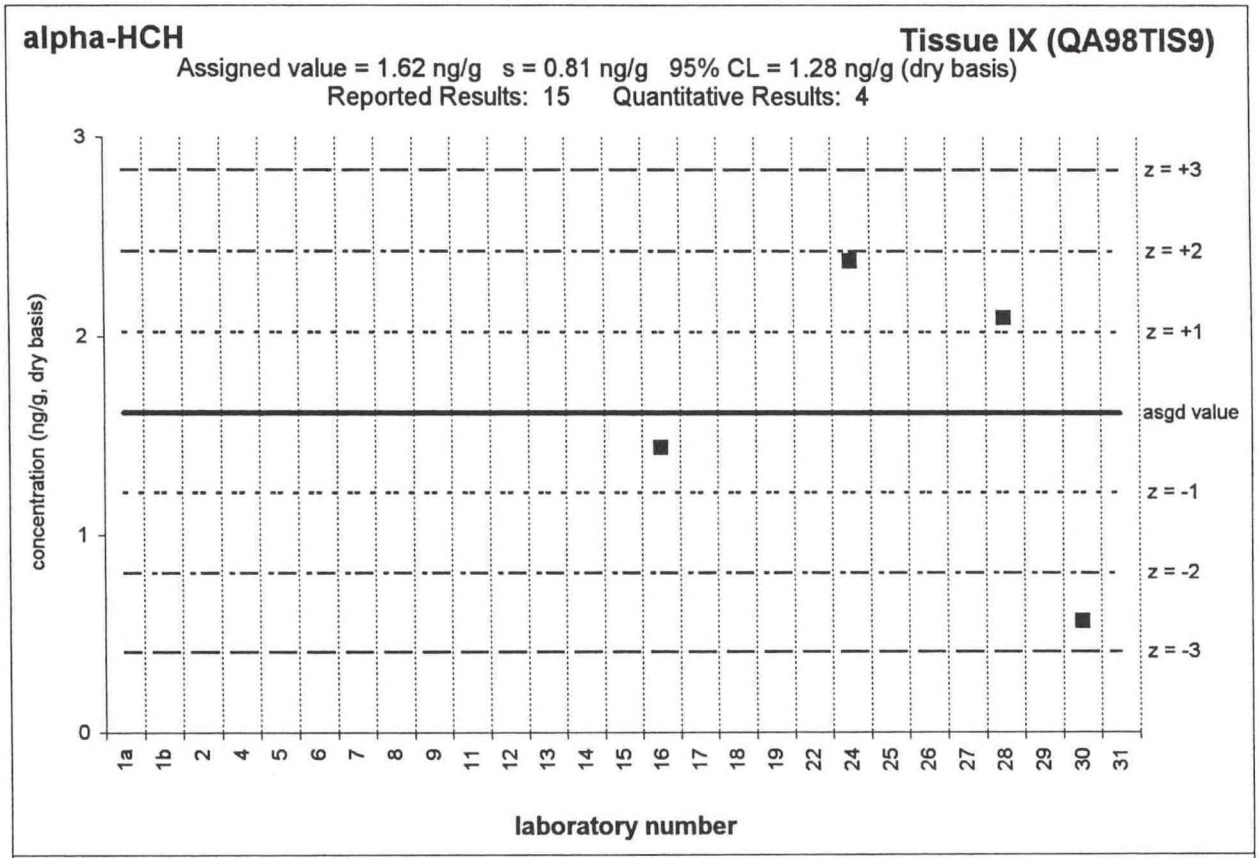
Noncertified Value = 3.00 ± 0.20 ng/g (dry basis)

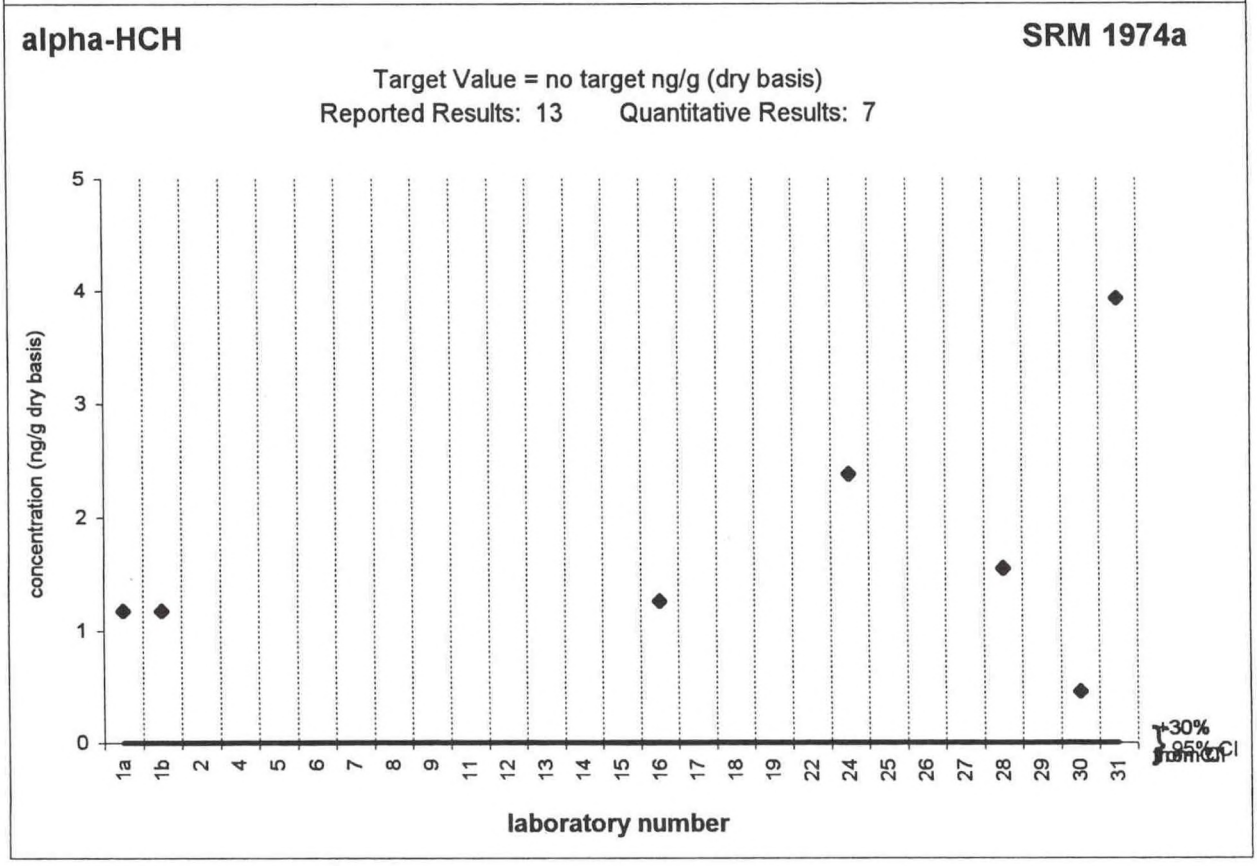
Reported Results: 17 Quantitative Results: 9

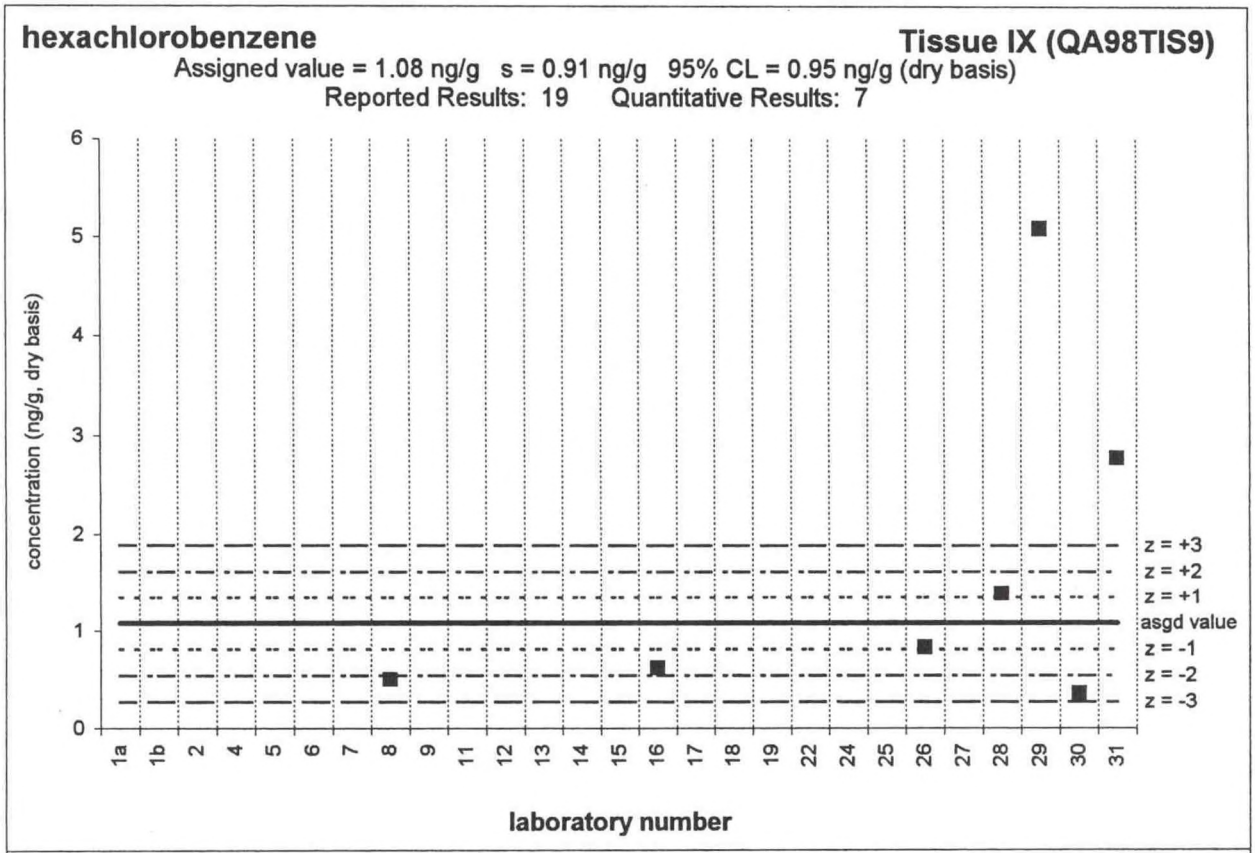


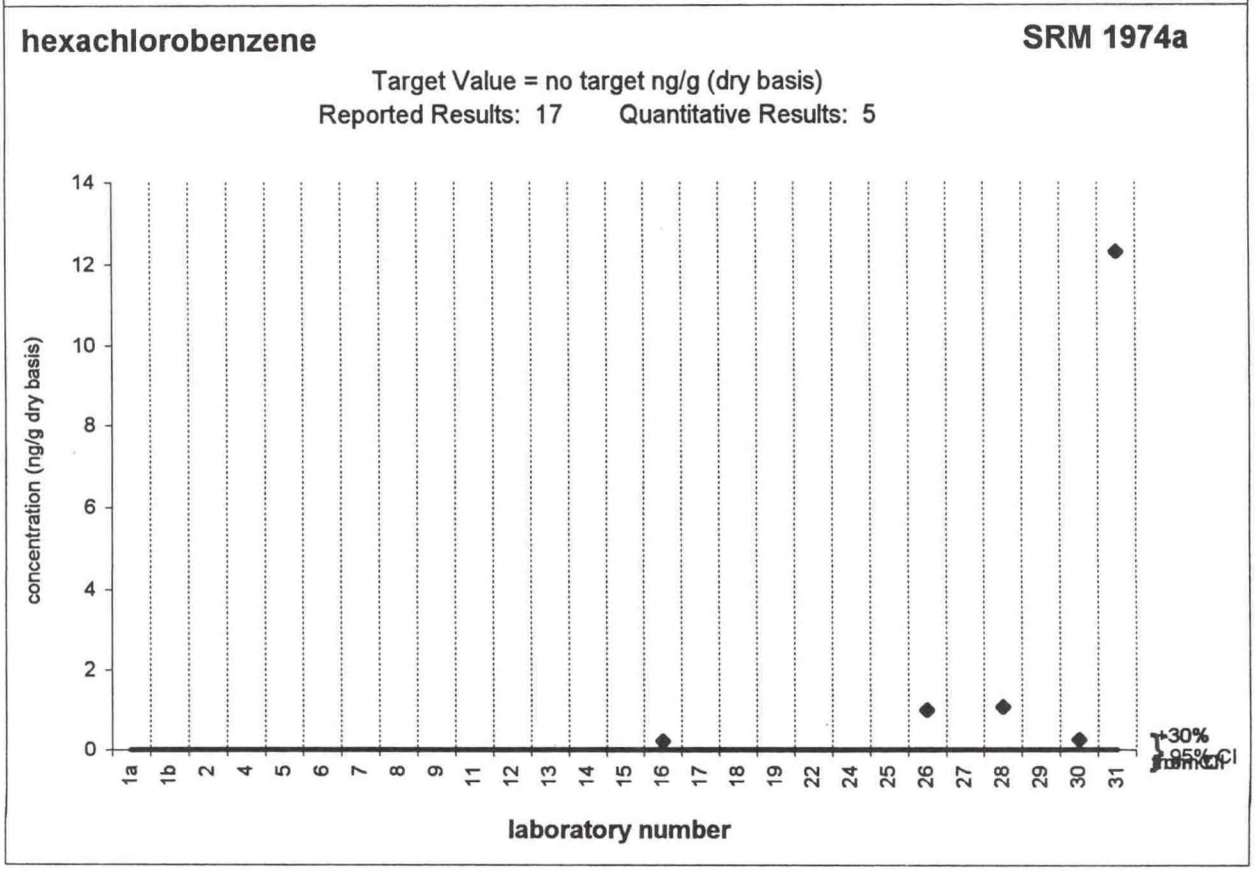

benzo[ghi]perylene
Tissue IX (QA98TIS9)
Assigned value = 21.2 ng/g s = 5.2 ng/g 95% CL = 3.7 ng/g (dry basis)
Reported Results: 19 Quantitative Results: 14
124
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
concentration (ng/g, dry basis)
laboratory number


benzo[ghi]perylene
SRM 1974a
Certified Value = 22.0 ± 2.2 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 11
+30% from CI
95% CI
-30% from CI
concentration (ng/g dry basis)
laboratory number


alpha-HCH
Tissue IX (QA98TIS9)
Assigned value = 1.62 ng/g s = 0.81 ng/g 95% CL = 1.28 ng/g (dry basis)
Reported Results: 15 Quantitative Results: 4
concentration (ng/g, dry basis)
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
laboratory number

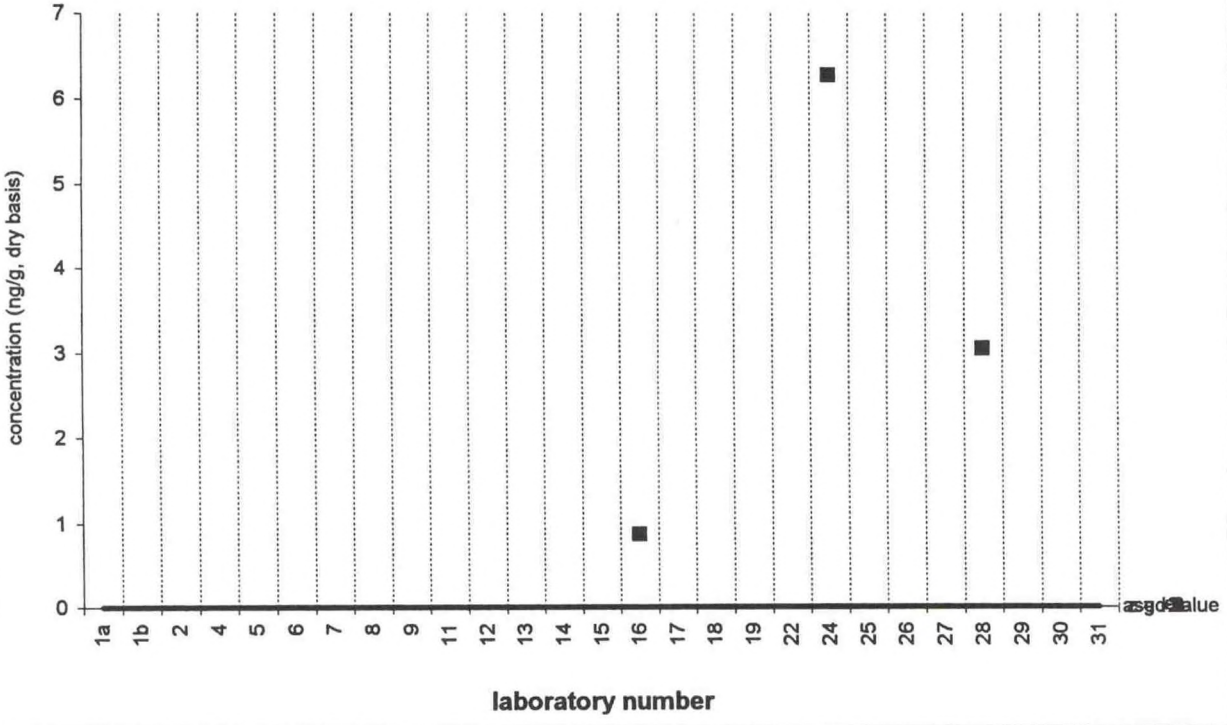

alpha-HCH
SRM 1974a
Target Value = no target ng/g (dry basis)
Reported Results: 13 Quantitative Results: 7
concentration (ng/g dry basis)
laboratory number


hexachlorobenzene
Tissue IX (QA98TIS9)
Assigned value = 1.08 ng/g s = 0.91 ng/g 95% CL = 0.95 ng/g (dry basis)
Reported Results: 19 Quantitative Results: 7
concentration (ng/g, dry basis)
0
1
2
3
4
5
6
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
1a
1b
2
4
5
6
7
8
9
11
12
13
14
15
16
17
18
19
22
24
25
26
27
28
29
30
31
laboratory number


hexachlorobenzene
SRM 1974a
Target Value = no target ng/g (dry basis)
Reported Results: 17 Quantitative Results: 5
concentration (ng/g dry basis)
0
2
4
6
8
10
12
14
+30%
1a
1b
2
4
5
6
7
8
9
11
12
13
14
15
16
17
18
19
22
24
25
26
27
28
29
30
31
laboratory number

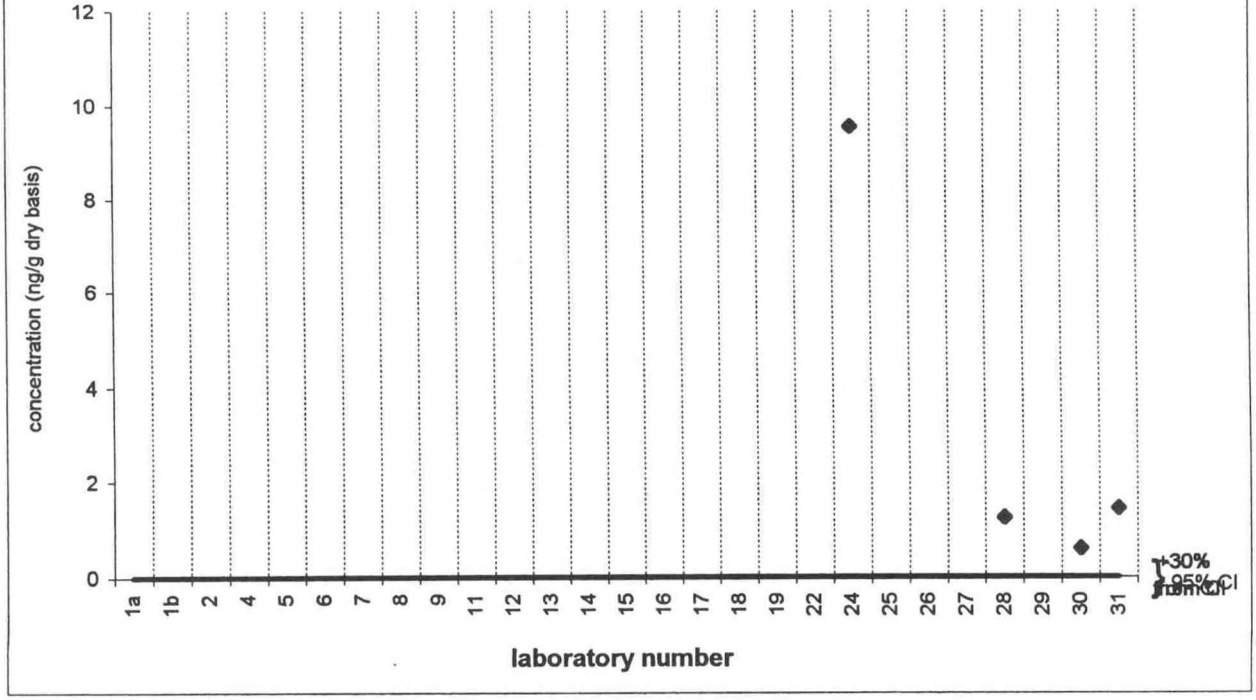
heptachlor **Tissue IX (QA98TIS9)**

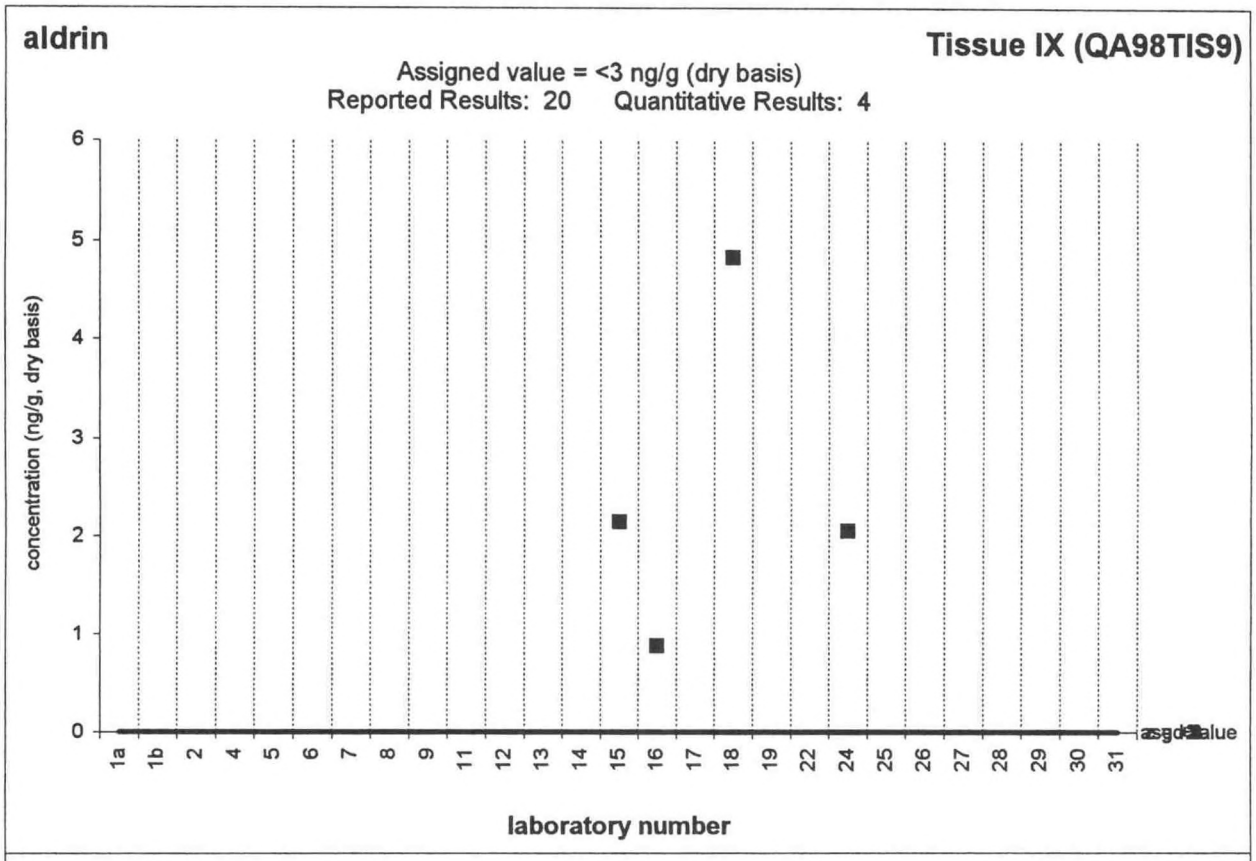
Assigned value = <5 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 3

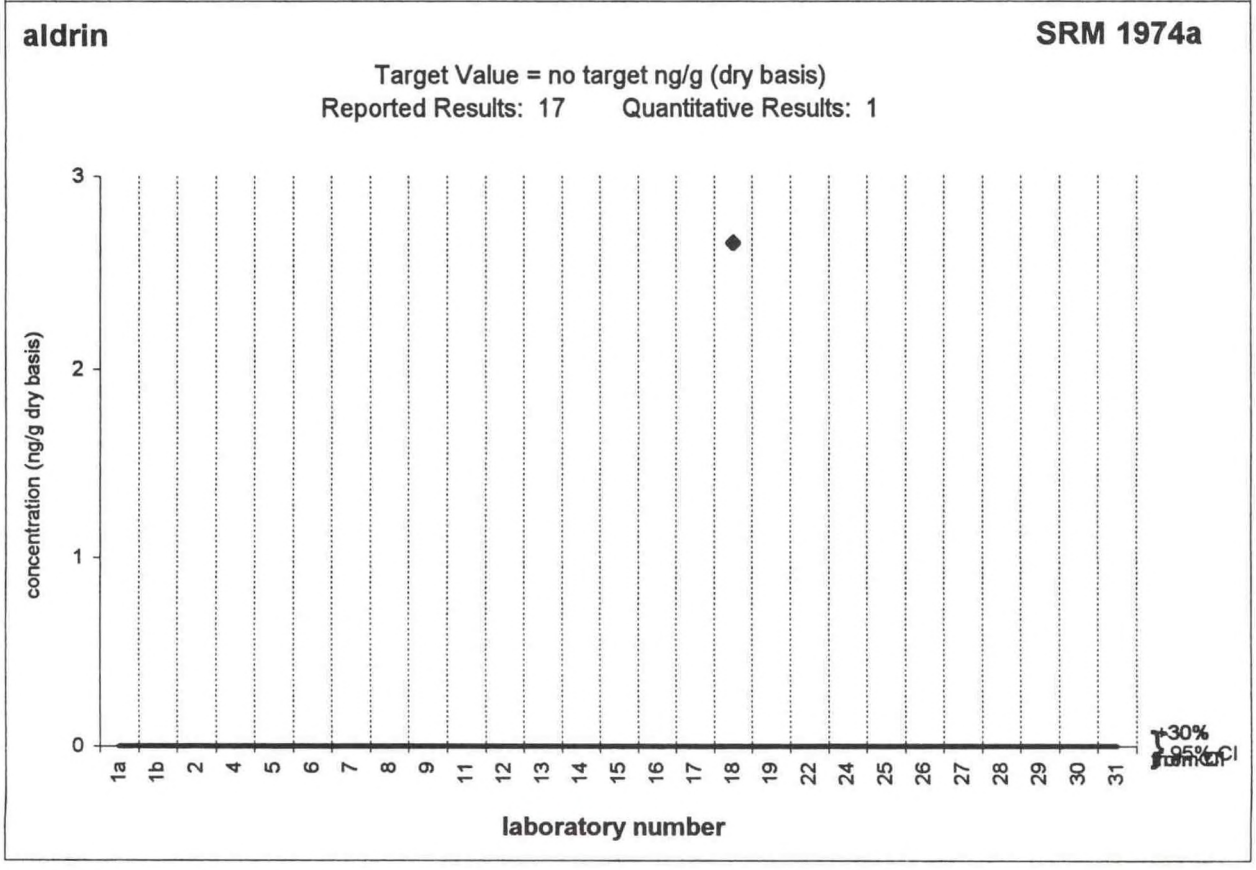


heptachlor **SRM 1974a**

Target Value = no target ng/g (dry basis)
Reported Results: 18 Quantitative Results: 4

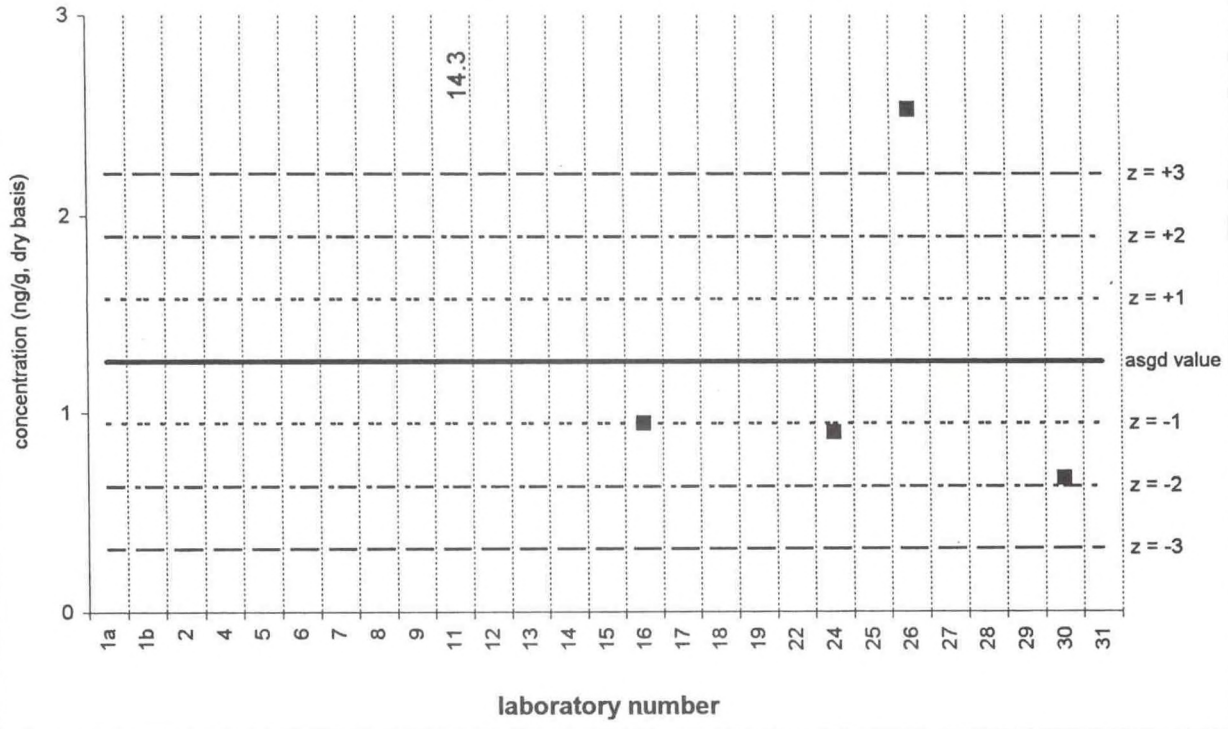



aldrin
Tissue IX (QA98TIS9)
Assigned value = <3 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 4
concentration (ng/g, dry basis)
laboratory number


aldrin
SRM 1974a
Target Value = no target ng/g (dry basis)
Reported Results: 17 Quantitative Results: 1
concentration (ng/g dry basis)
laboratory number

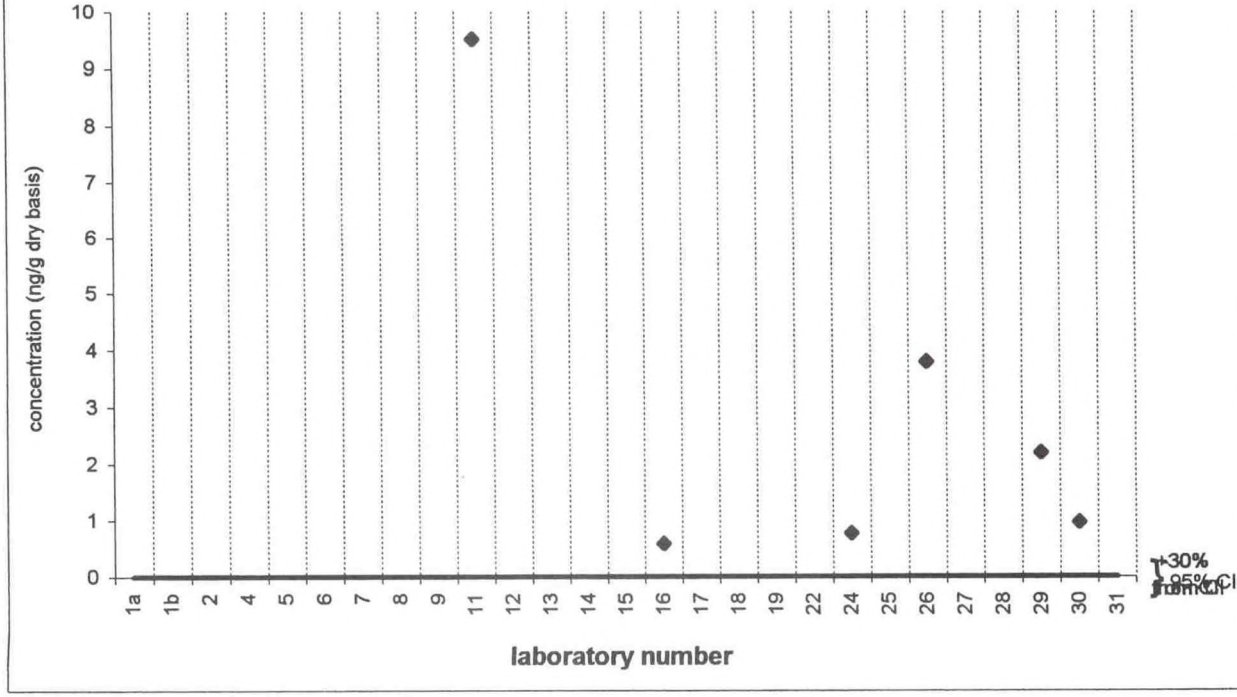
gamma-HCH **Tissue IX (QA98TIS9)**

Assigned value = 1.26 ng/g s = 0.86 ng/g 95% CL = 1.36 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 5



gamma-HCH **SRM 1974a**

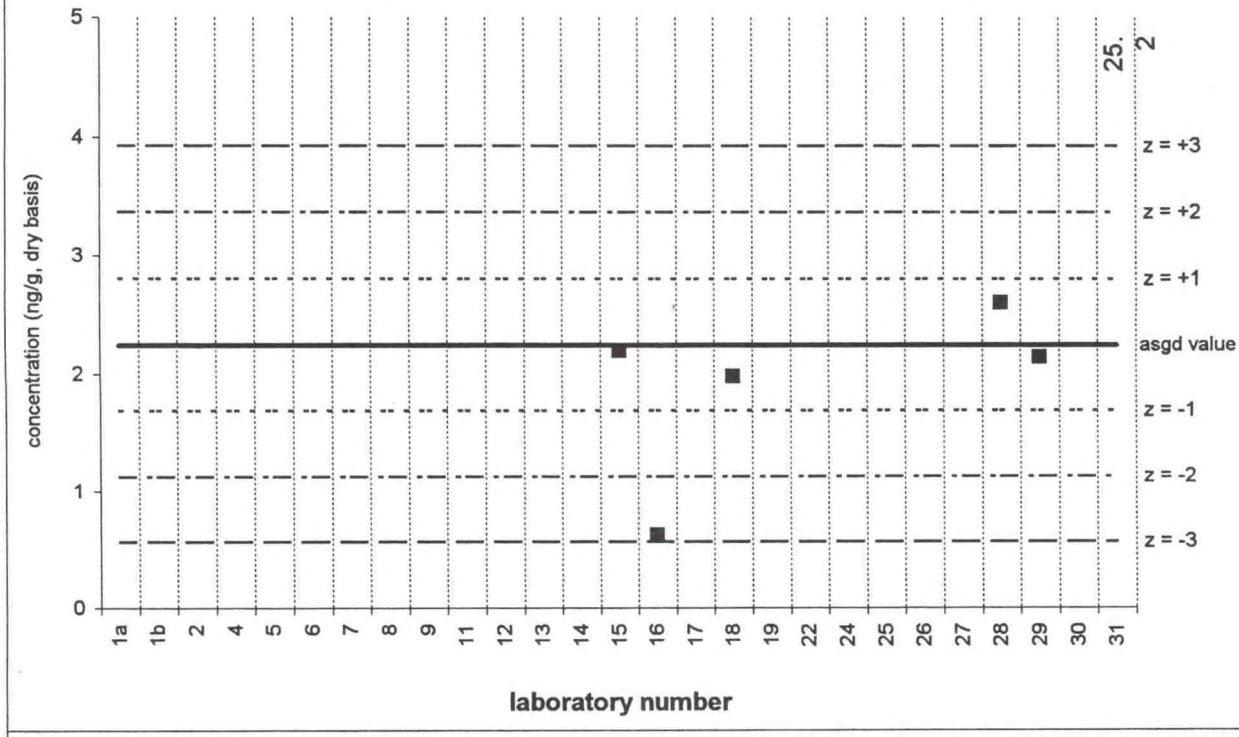
Target Value = no target ng/g (dry basis)
Reported Results: 19 Quantitative Results: 6



heptachlor epoxide **Tissue IX (QA98TIS9)**

Assigned value = 2.25 ng/g s = 0.33 ng/g 95% CL = 0.81 ng/g (dry basis)

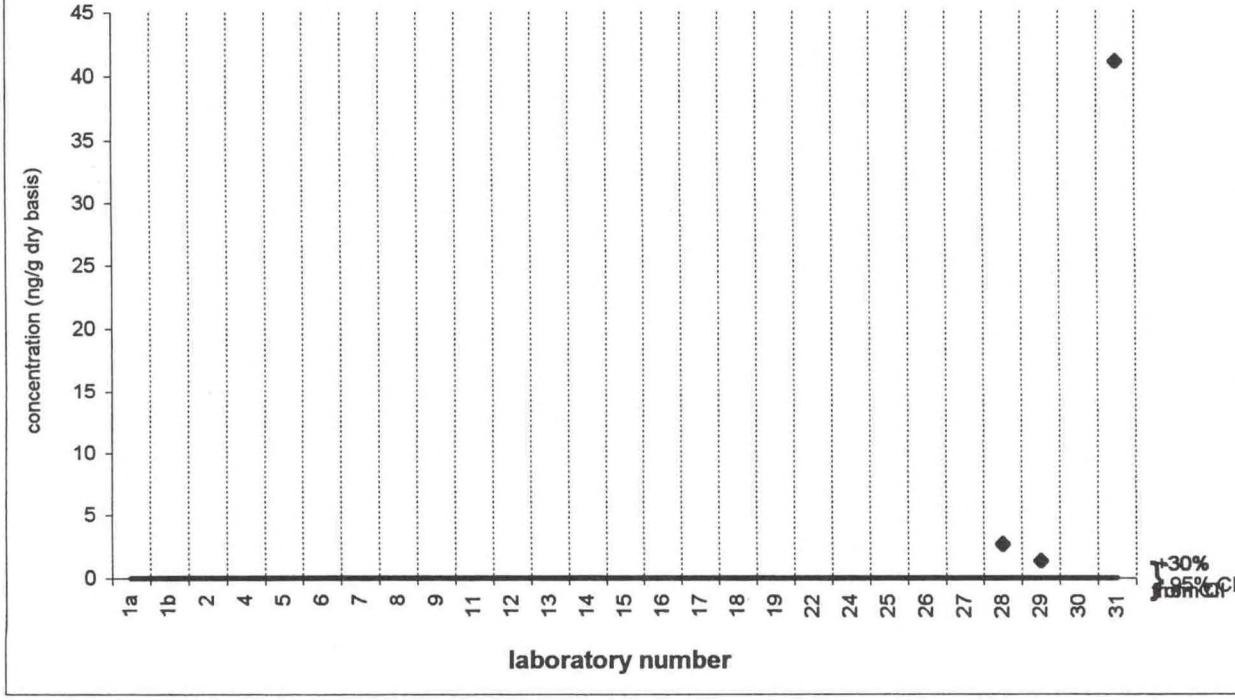
Reported Results: 20 Quantitative Results: 6



heptachlor epoxide **SRM 1974a**

Target Value = no target ng/g (dry basis)

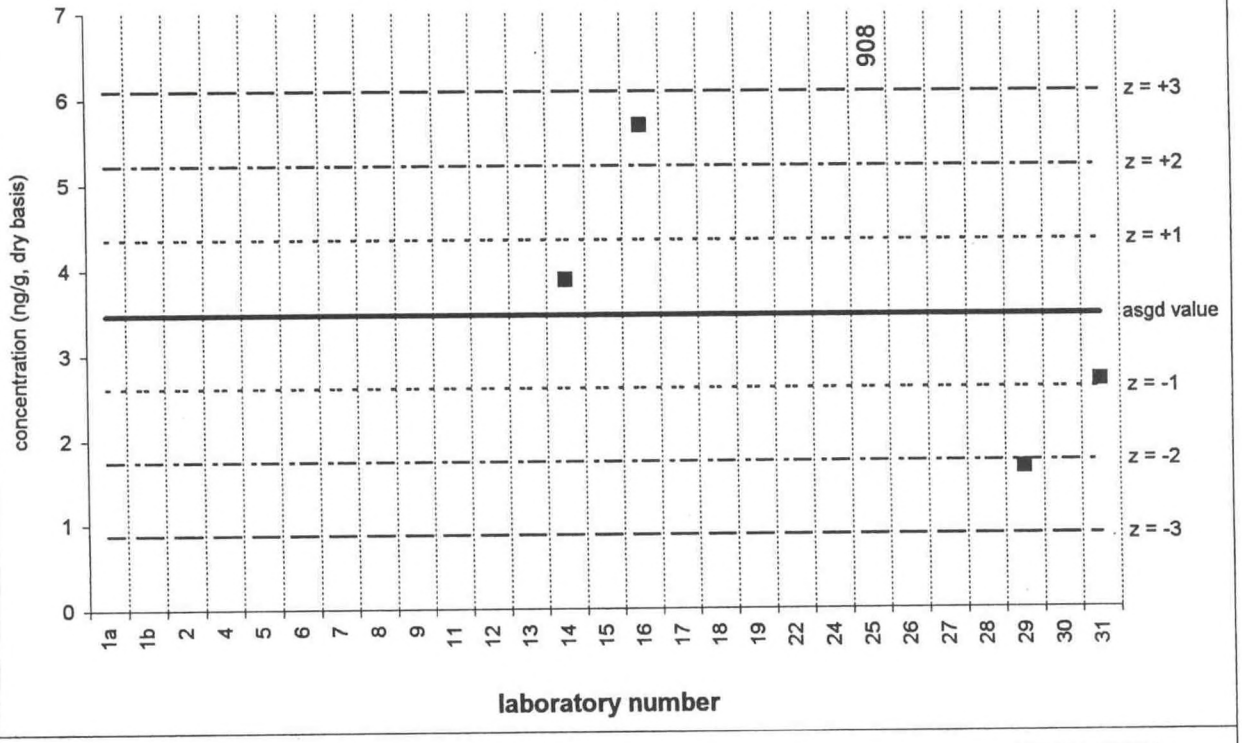
Reported Results: 17 Quantitative Results: 3



oxychlordane **Tissue IX (QA98TIS9)**

Assigned value = 3.48 ng/g s = 1.73 ng/g 95% CL = 2.75 ng/g (dry basis)

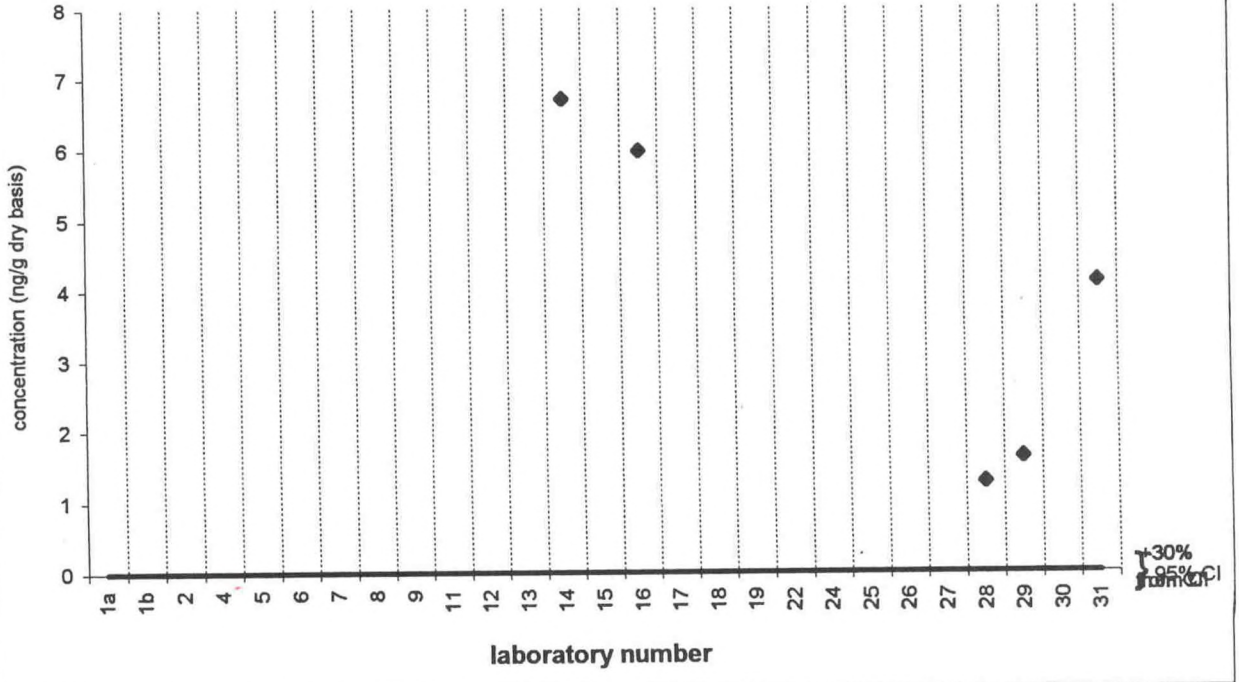
Reported Results: 16 Quantitative Results: 5



oxychlordane **SRM 1974a**

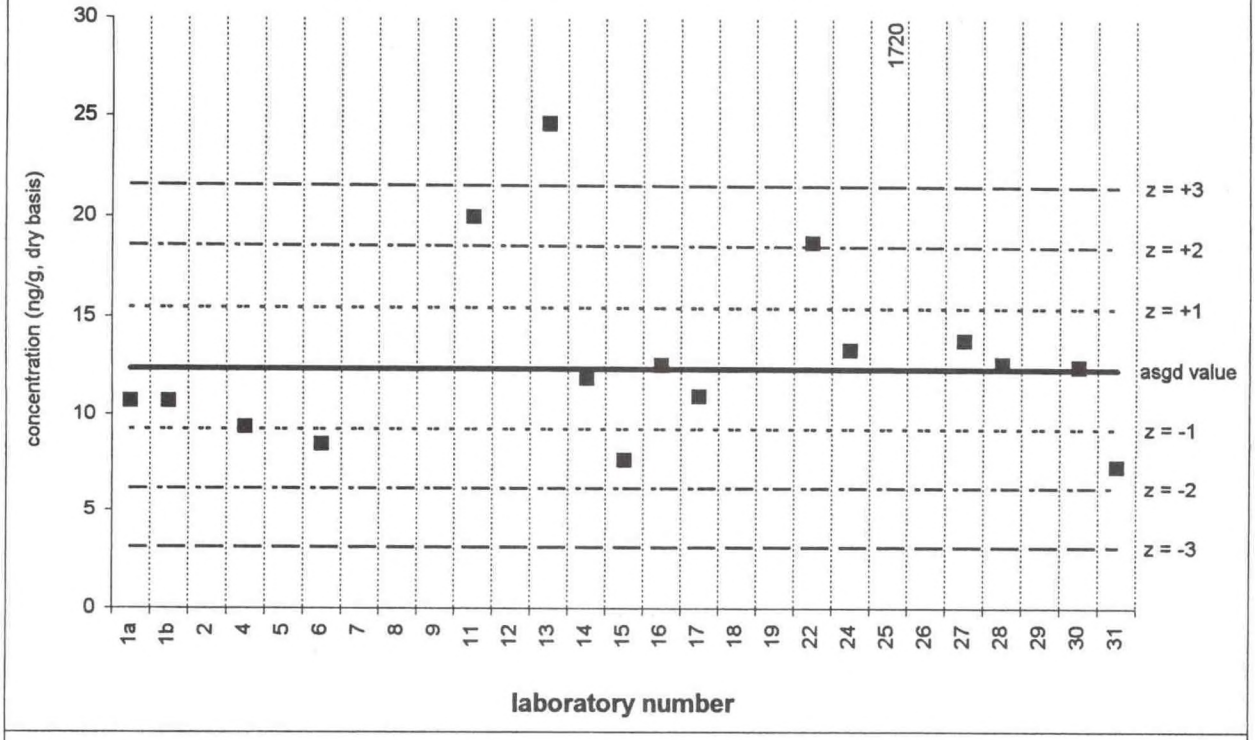
Target Value = no target ng/g (dry basis)

Reported Results: 15 Quantitative Results: 5



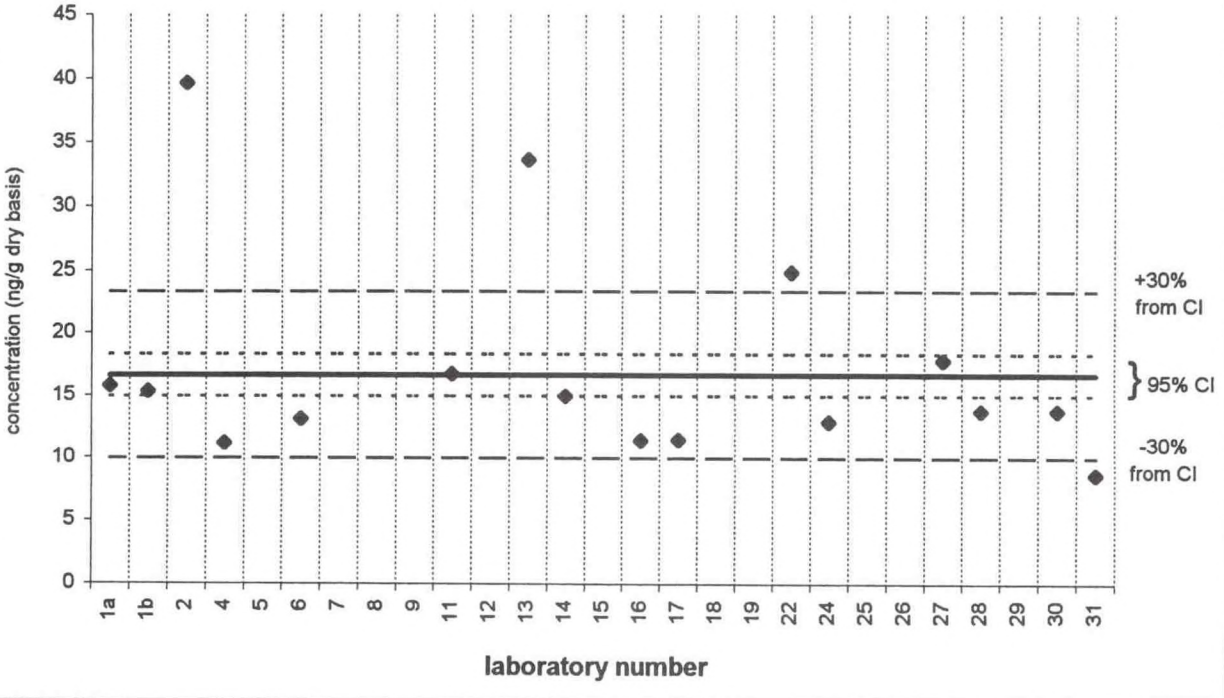
trans-chlordane **Tissue IX (QA98TIS9)**

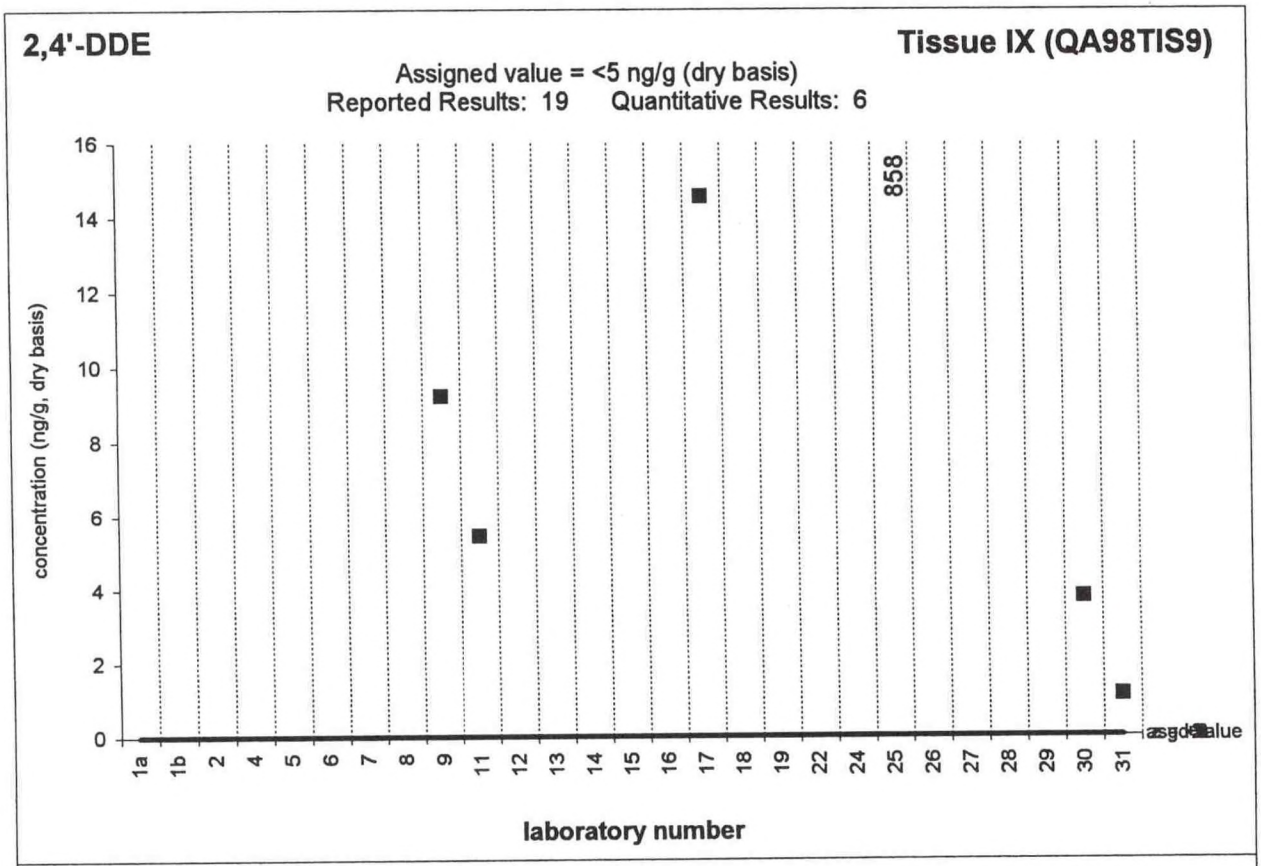
Assigned value = 12.3 ng/g s = 2.9 ng/g 95% CL = 2.0 ng/g (dry basis)
Reported Results: 18 Quantitative Results: 17

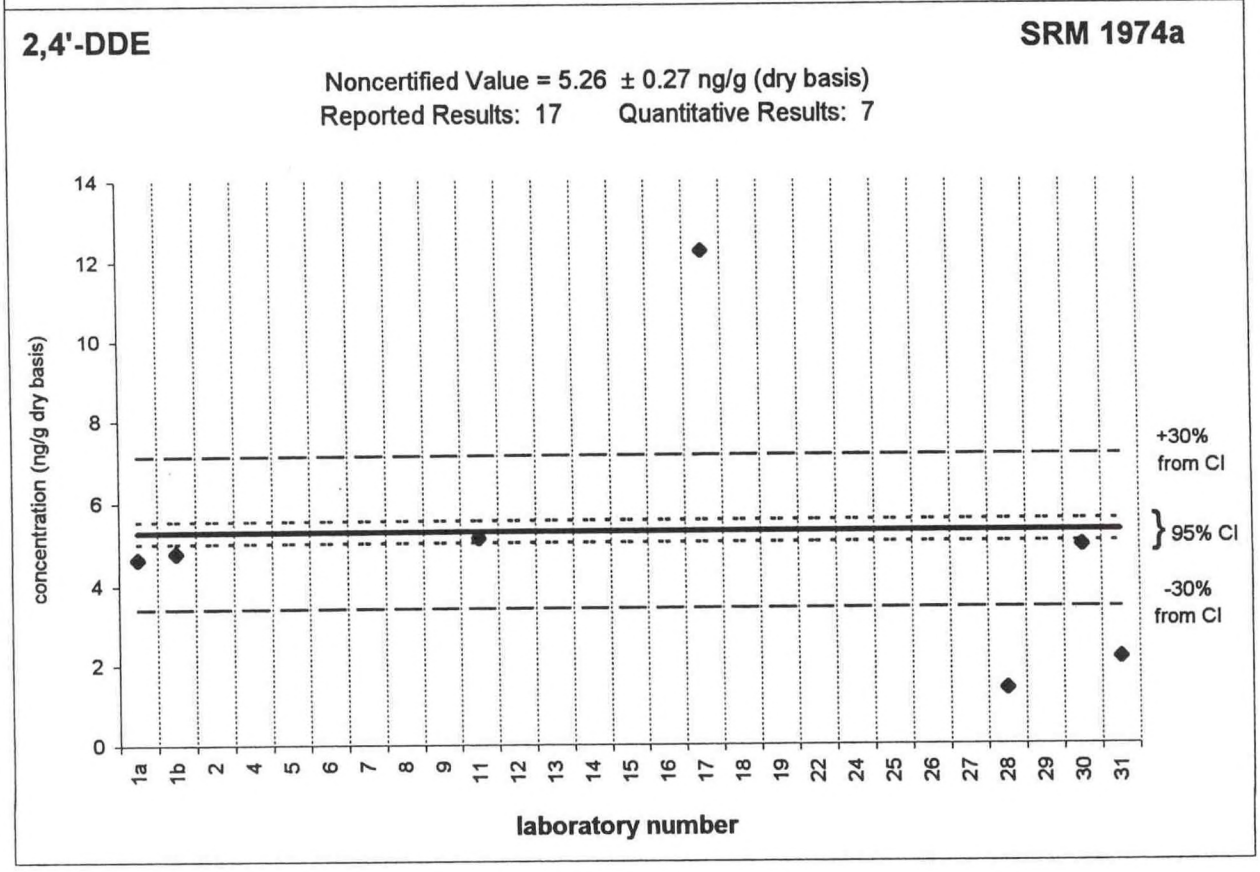


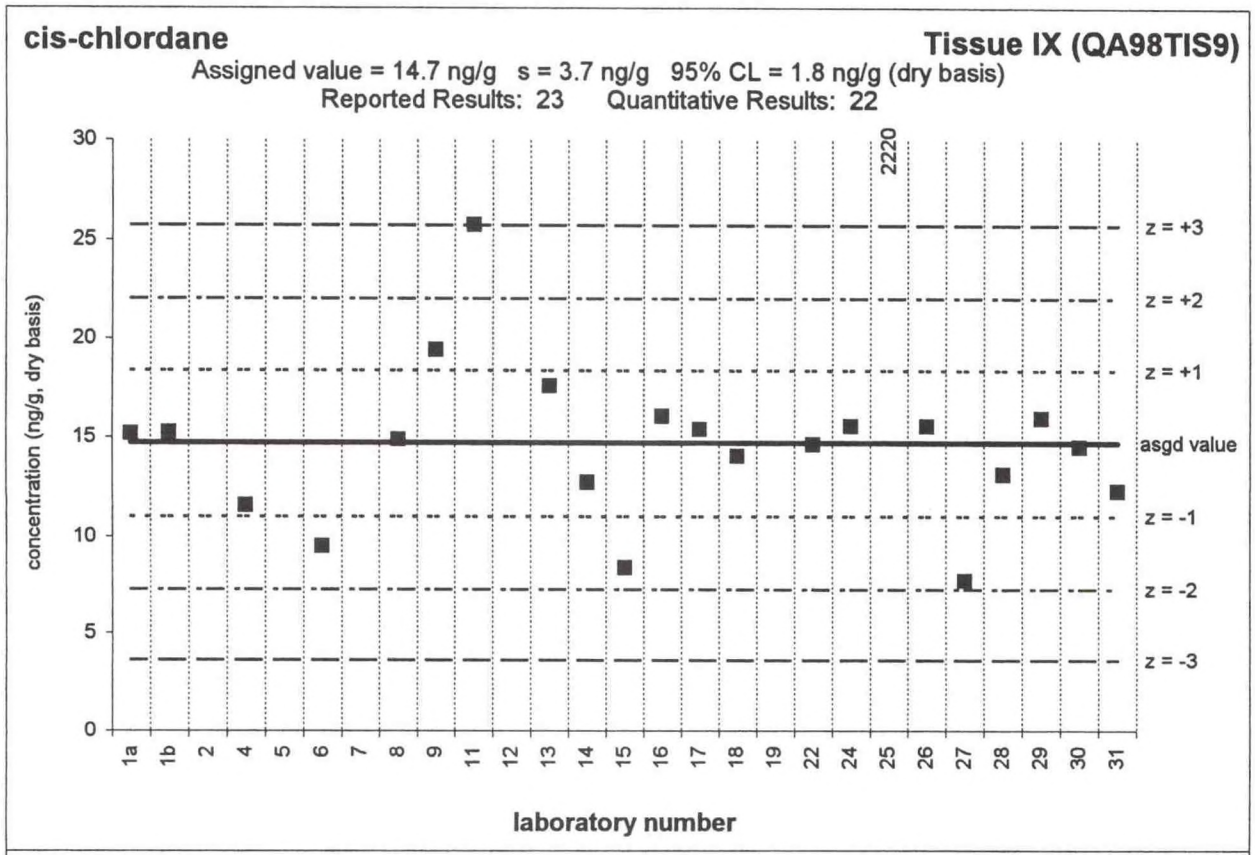
trans-chlordane **SRM 1974a**

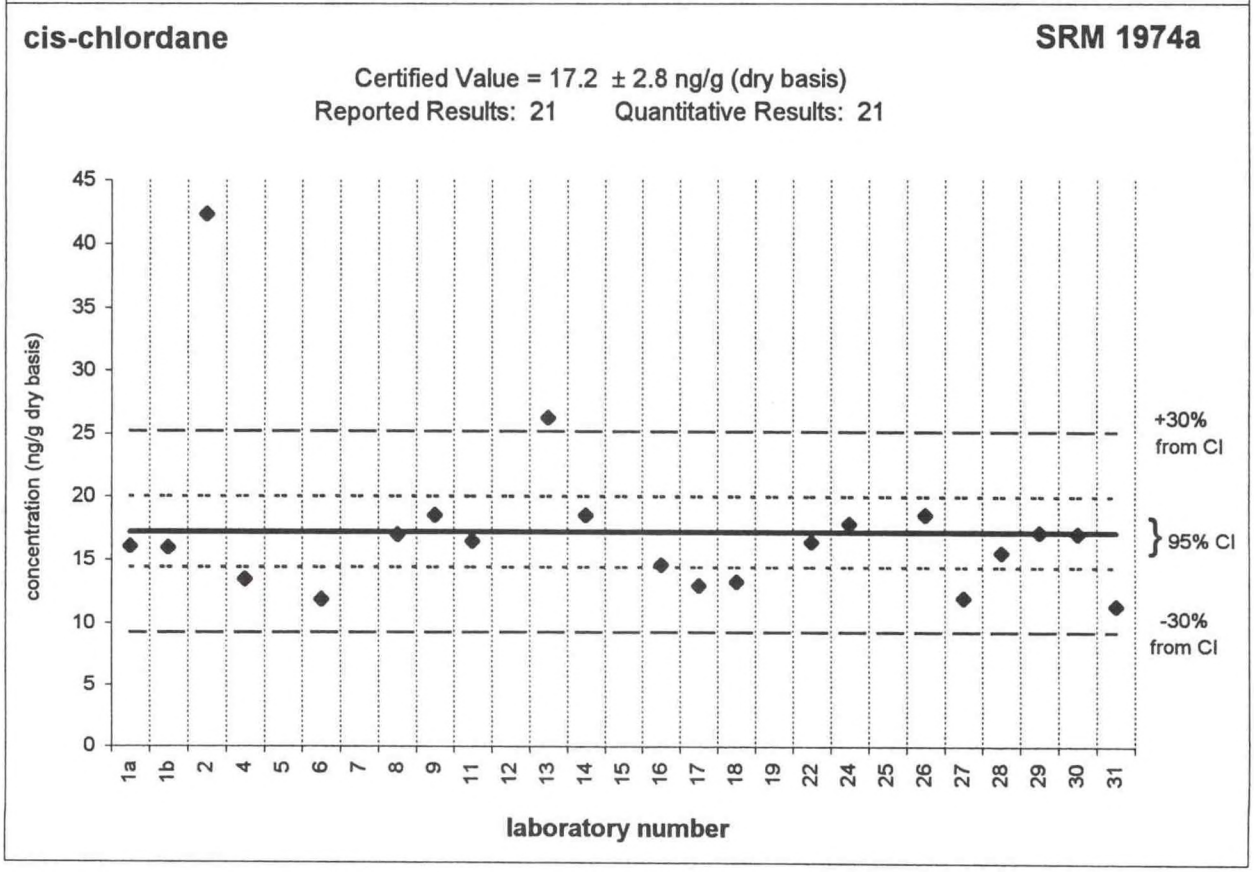
Certified Value = 16.6 ± 1.7 ng/g (dry basis)
Reported Results: 15 Quantitative Results: 16




2,4'-DDE
Tissue IX (QA98TIS9)
Assigned value = <5 ng/g (dry basis)
Reported Results: 19 Quantitative Results: 6
858
concentration (ng/g, dry basis)
laboratory number

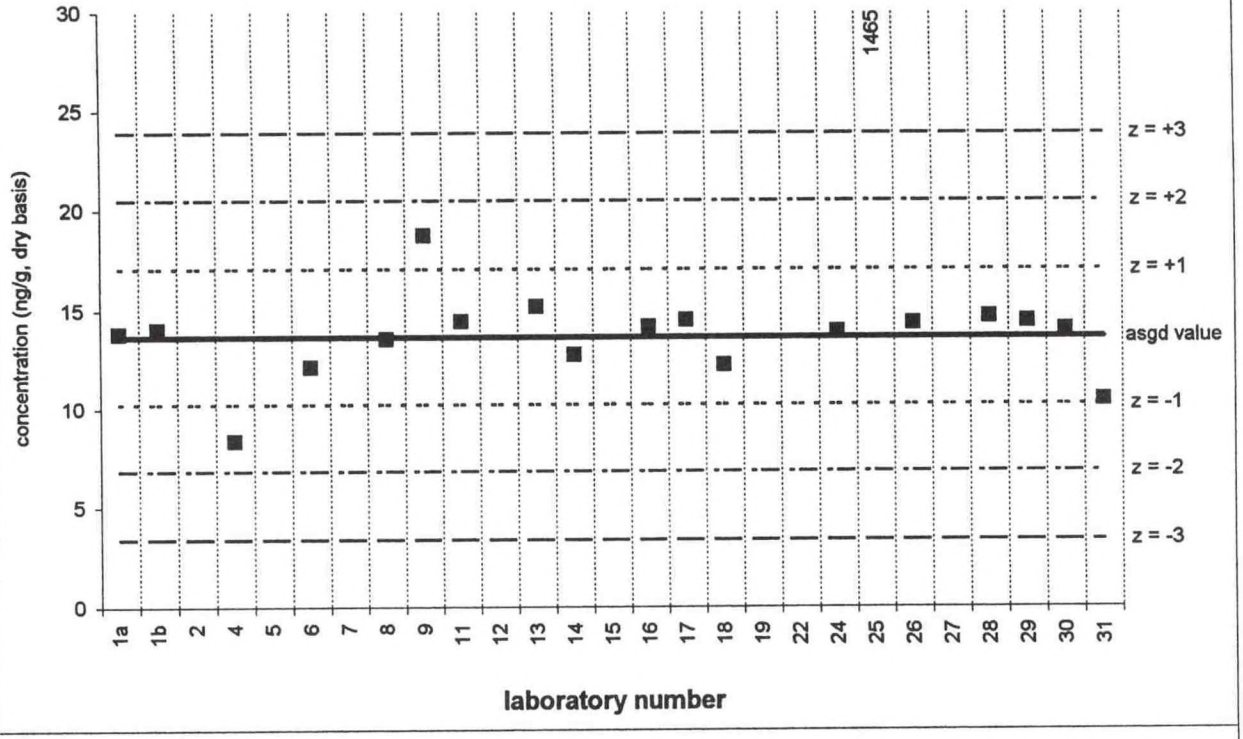

2,4'-DDE
SRM 1974a
Noncertified Value = 5.26 ± 0.27 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 7
concentration (ng/g dry basis)
+30% from CI
95% CI
-30% from CI
laboratory number


cis-chlordane
Tissue IX (QA98TIS9)
Assigned value = 14.7 ng/g s = 3.7 ng/g 95% CL = 1.8 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 22
2220
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
concentration (ng/g, dry basis)
laboratory number


cis-chlordane
SRM 1974a
Certified Value = 17.2 ± 2.8 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 21
+30% from CI
95% CI
-30% from CI
concentration (ng/g dry basis)
laboratory number

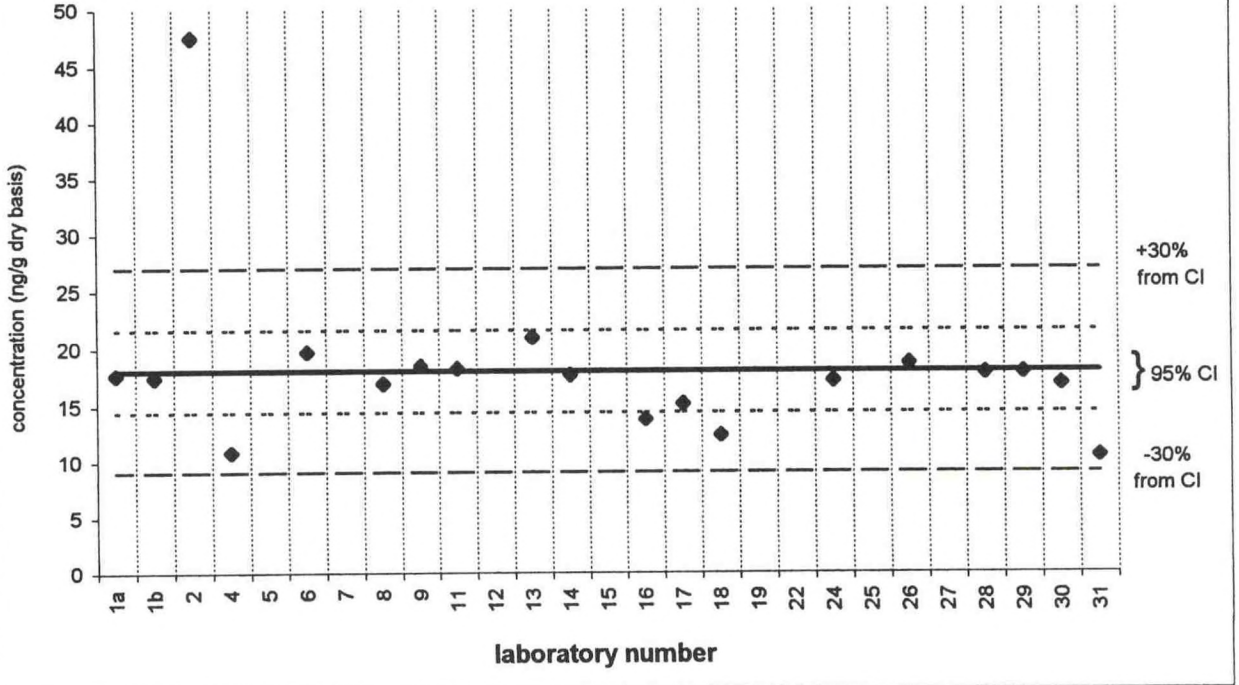
trans-nonachlor **Tissue IX (QA98TIS9)**

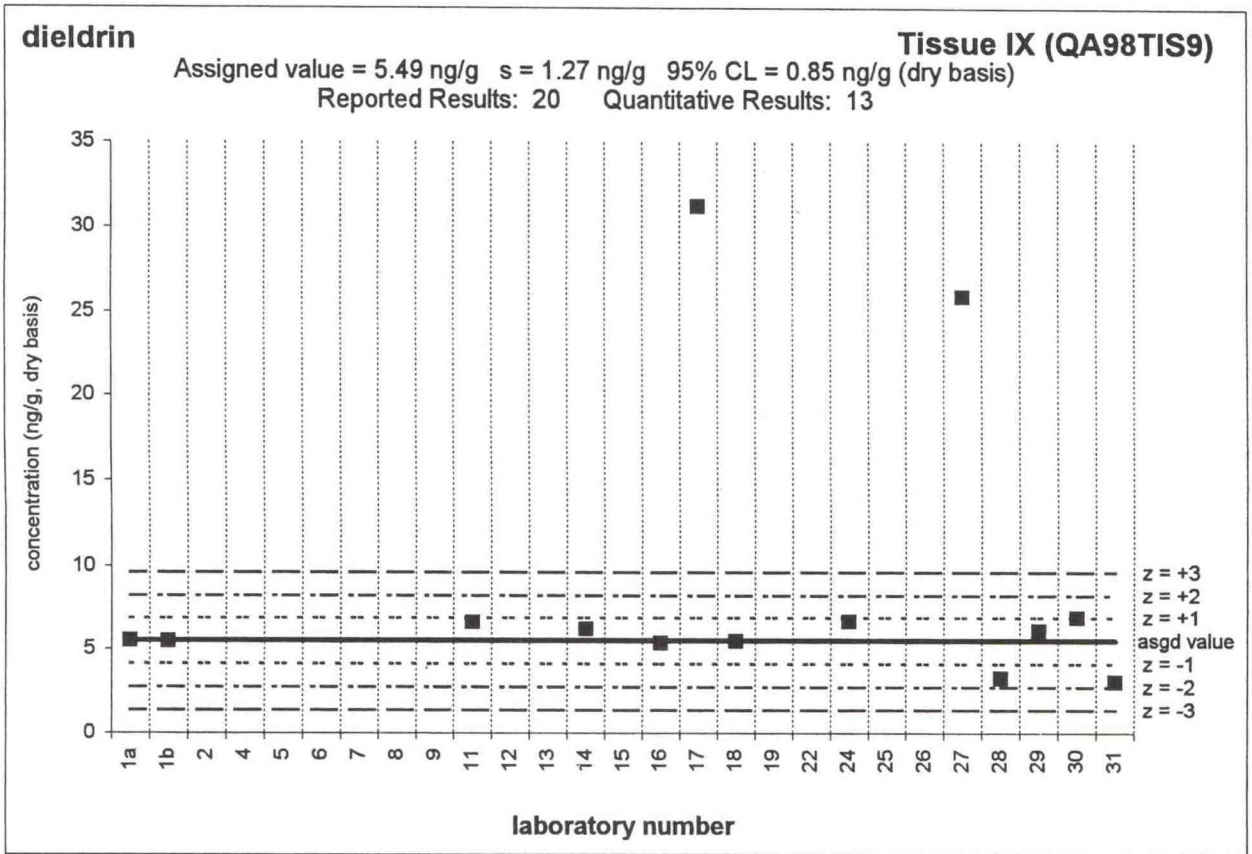
Assigned value = 13.6 ng/g s = 2.1 ng/g 95% CL = 1.0 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 19

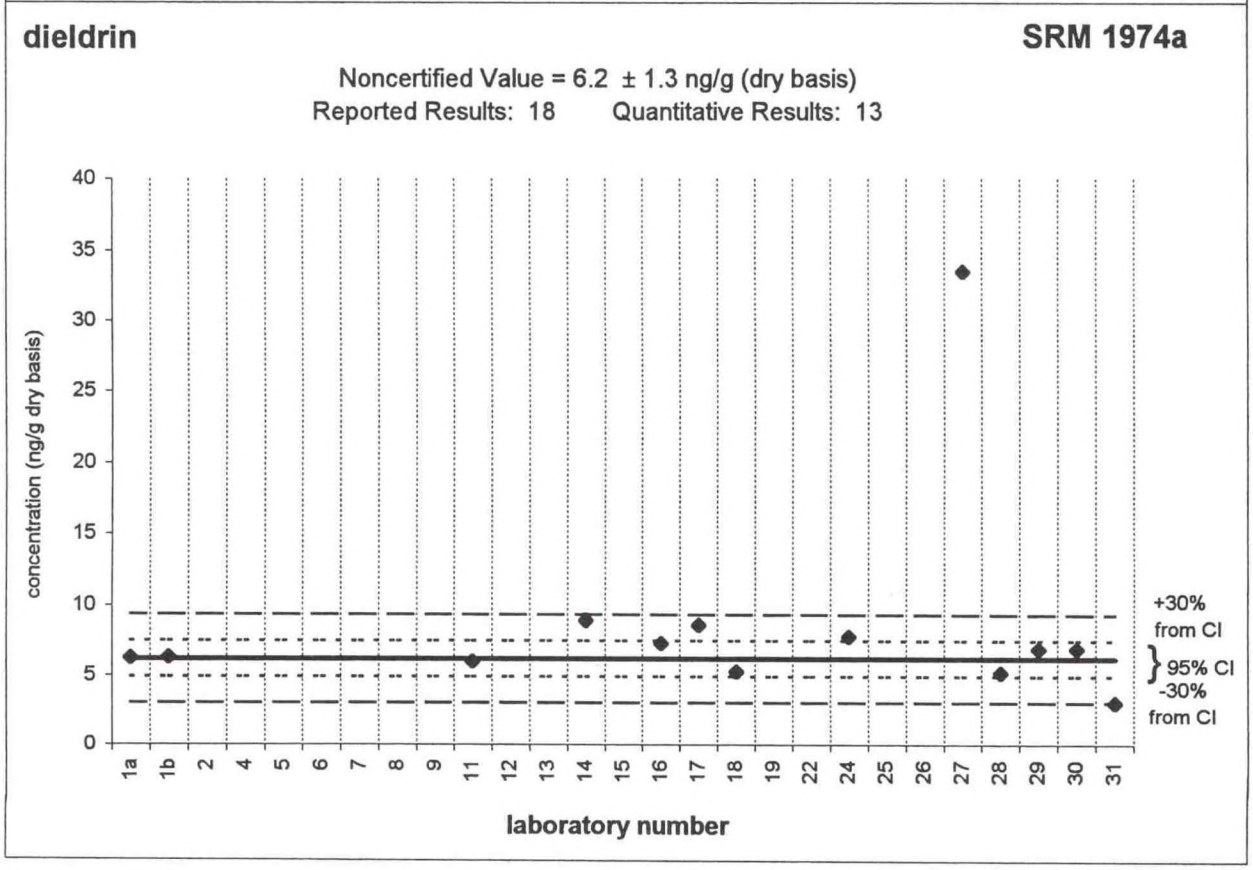


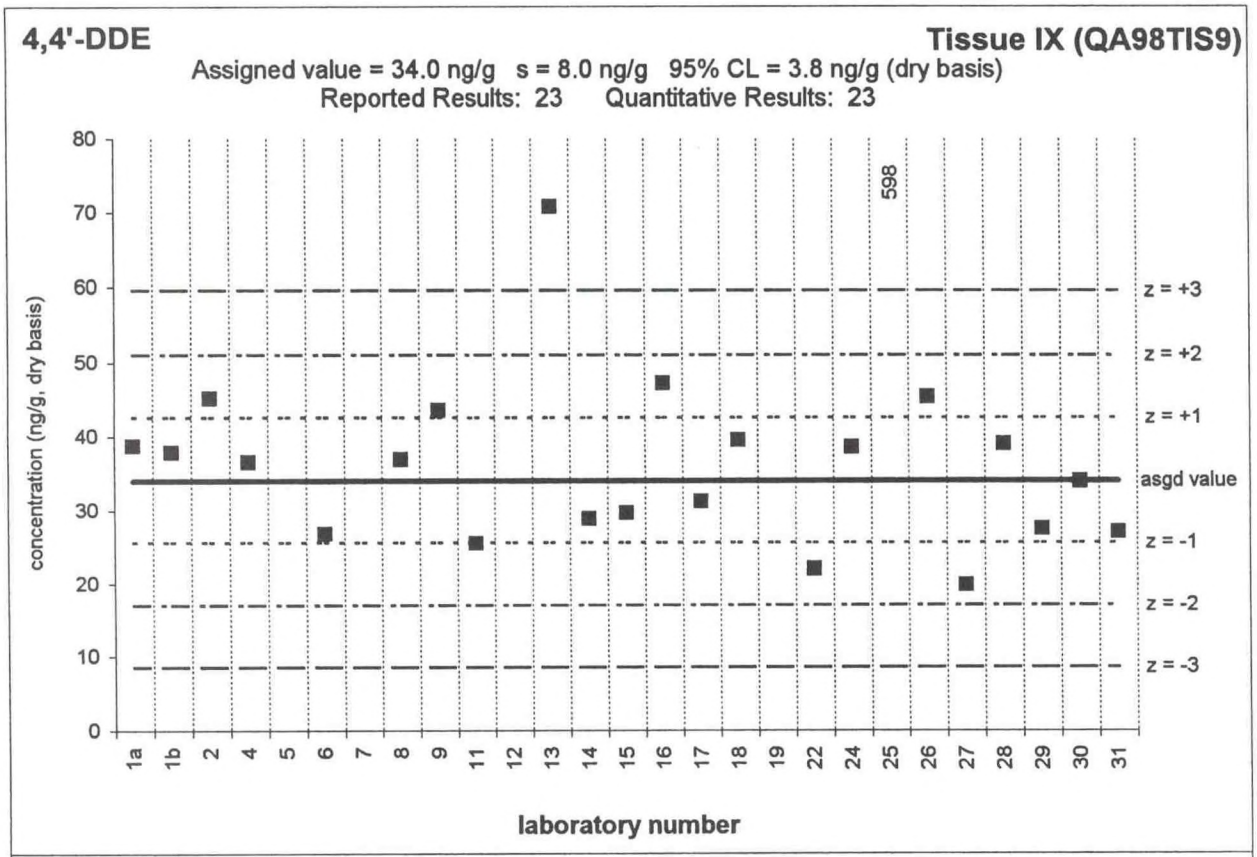
trans-nonachlor **SRM 1974a**

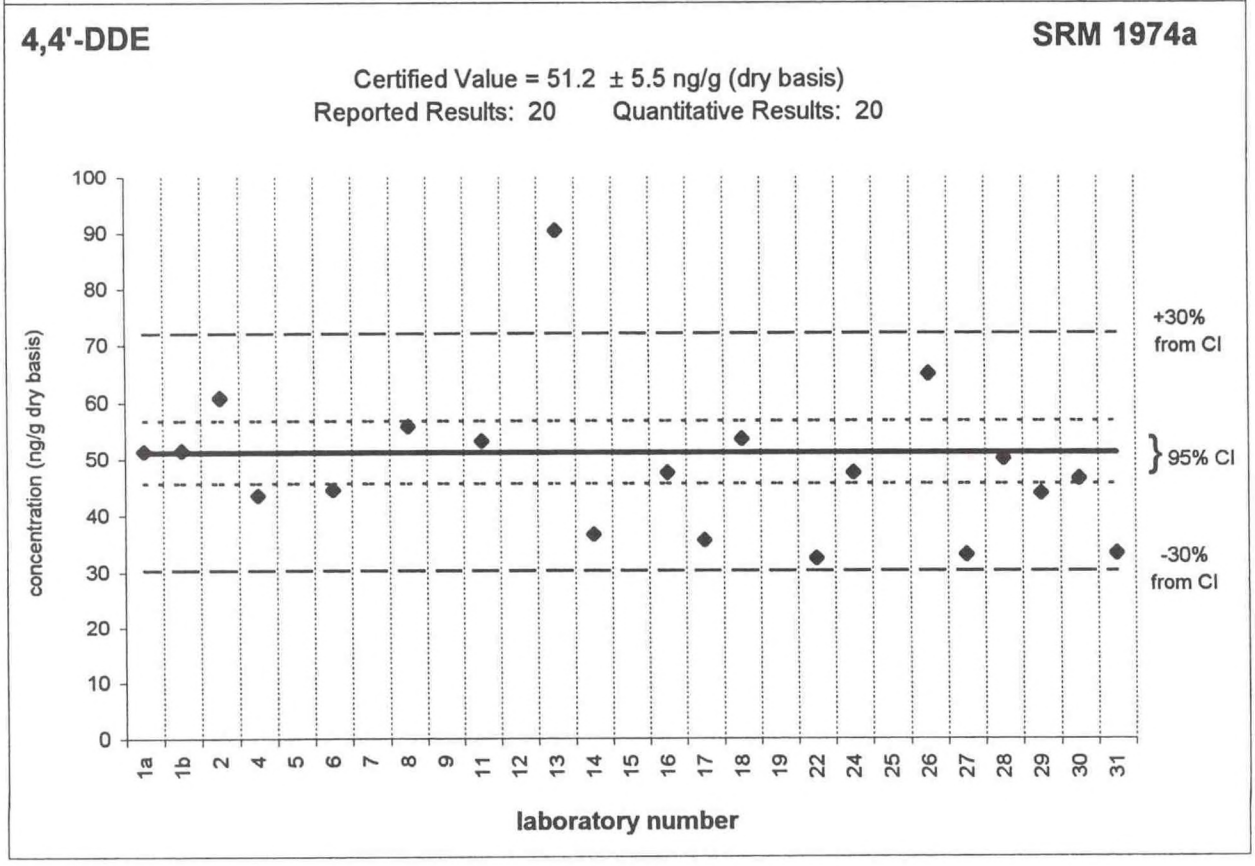
Certified Value = 18.0 ± 3.6 ng/g (dry basis)
Reported Results: 19 Quantitative Results: 19

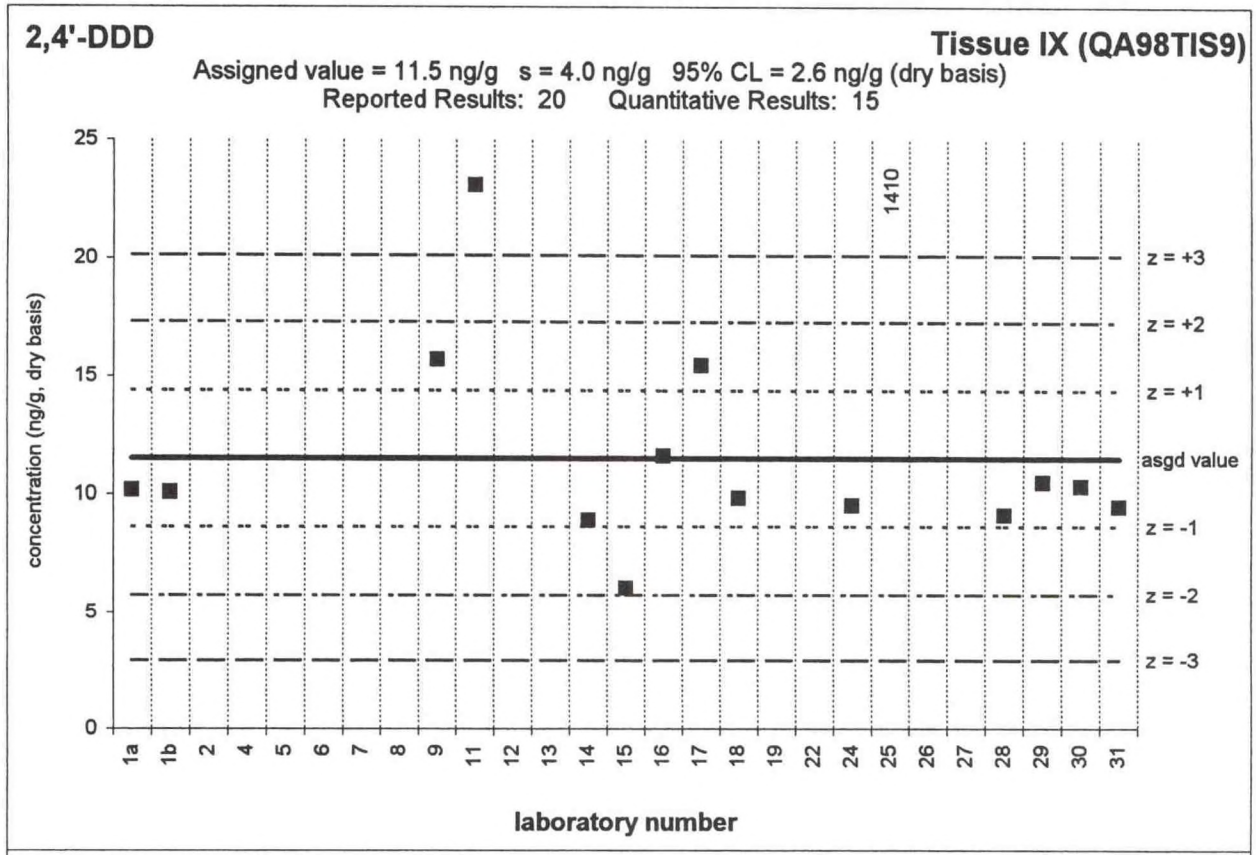


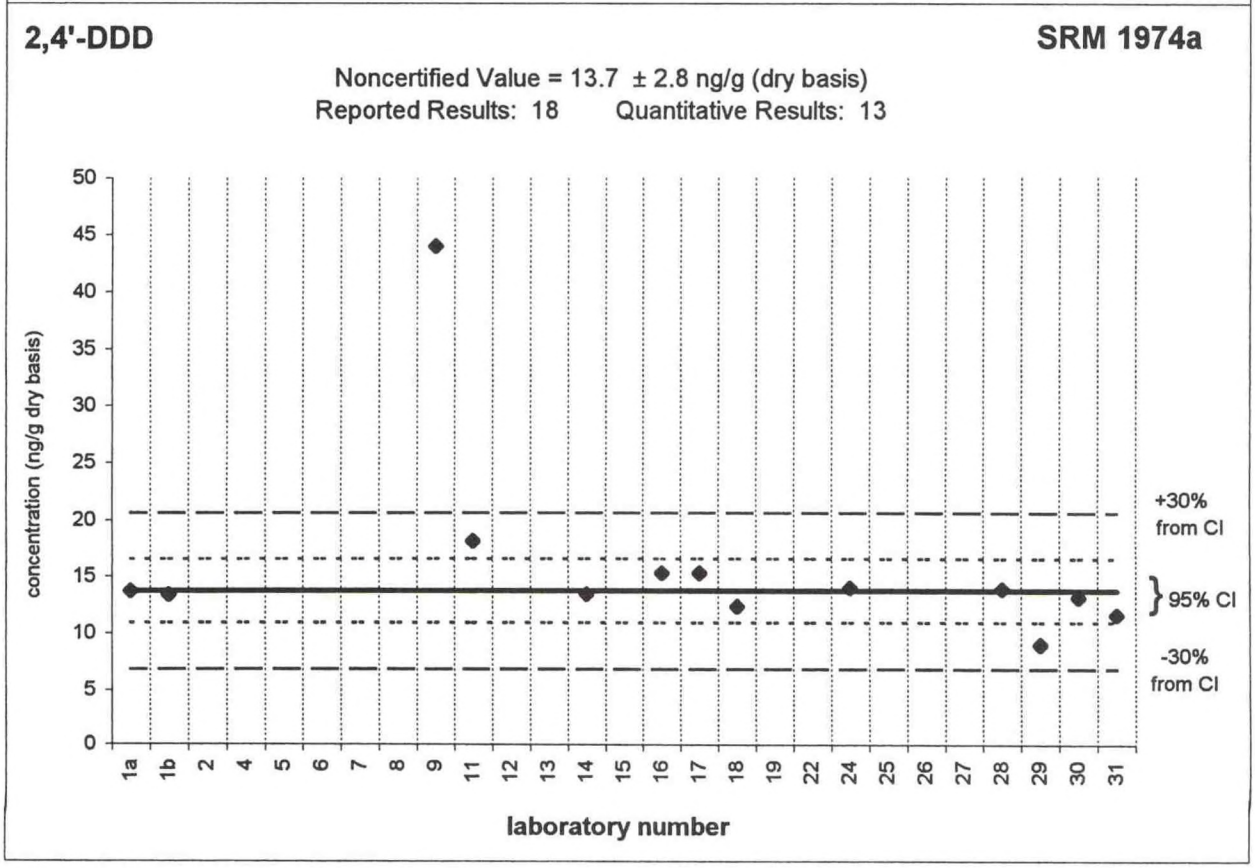

dieldrin
Tissue IX (QA98TIS9)
Assigned value = 5.49 ng/g s = 1.27 ng/g 95% CL = 0.85 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 13
concentration (ng/g, dry basis)
35
30
25
20
15
10
5
0
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31
laboratory number
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3


dieldrin
SRM 1974a
Noncertified Value = 6.2 ± 1.3 ng/g (dry basis)
Reported Results: 18 Quantitative Results: 13
concentration (ng/g dry basis)
40
35
30
25
20
15
10
5
0
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31
laboratory number
+30% from CI
95% CI
-30% from CI


4,4'-DDE
Tissue IX (QA98TIS9)
Assigned value = 34.0 ng/g s = 8.0 ng/g 95% CL = 3.8 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 23
598
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
concentration (ng/g, dry basis)
laboratory number

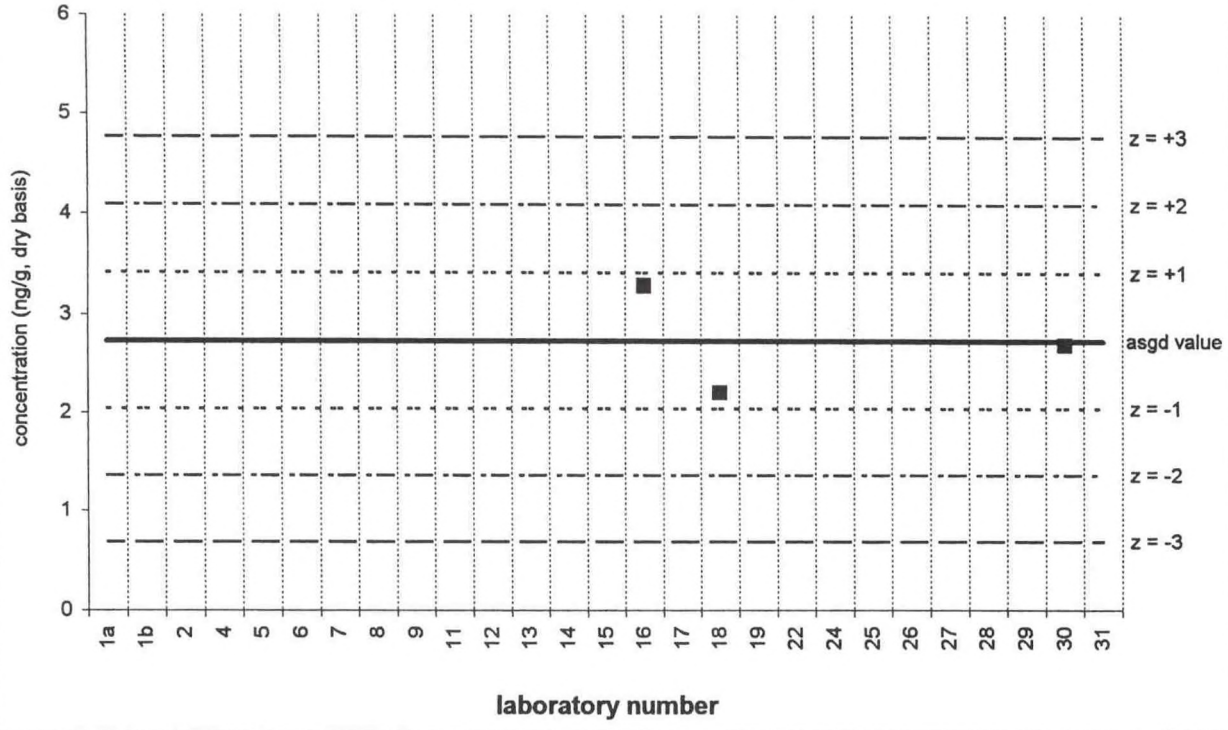

4,4'-DDE
SRM 1974a
Certified Value = 51.2 ± 5.5 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 20
+30% from CI
95% CI
-30% from CI
concentration (ng/g dry basis)
laboratory number


2,4'-DDD
Tissue IX (QA98TIS9)
Assigned value = 11.5 ng/g s = 4.0 ng/g 95% CL = 2.6 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 15
1410
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
concentration (ng/g, dry basis)
laboratory number


2,4'-DDD
SRM 1974a
Noncertified Value = 13.7 ± 2.8 ng/g (dry basis)
Reported Results: 18 Quantitative Results: 13
+30% from CI
95% CI
-30% from CI
concentration (ng/g dry basis)
laboratory number

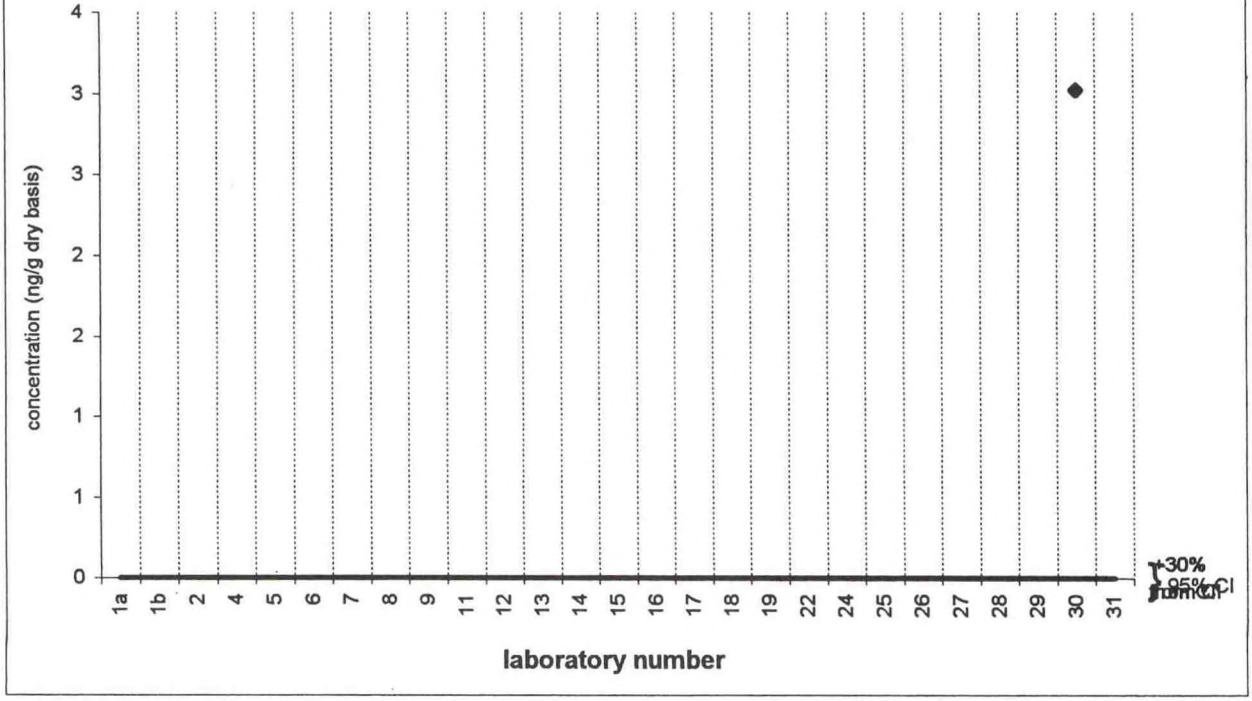
endosulfan II **Tissue IX (QA98TIS9)**

Assigned value = 2.73 ng/g s = 0.54 ng/g 95% CL = 1.34 ng/g (dry basis)
Reported Results: 15 Quantitative Results: 3



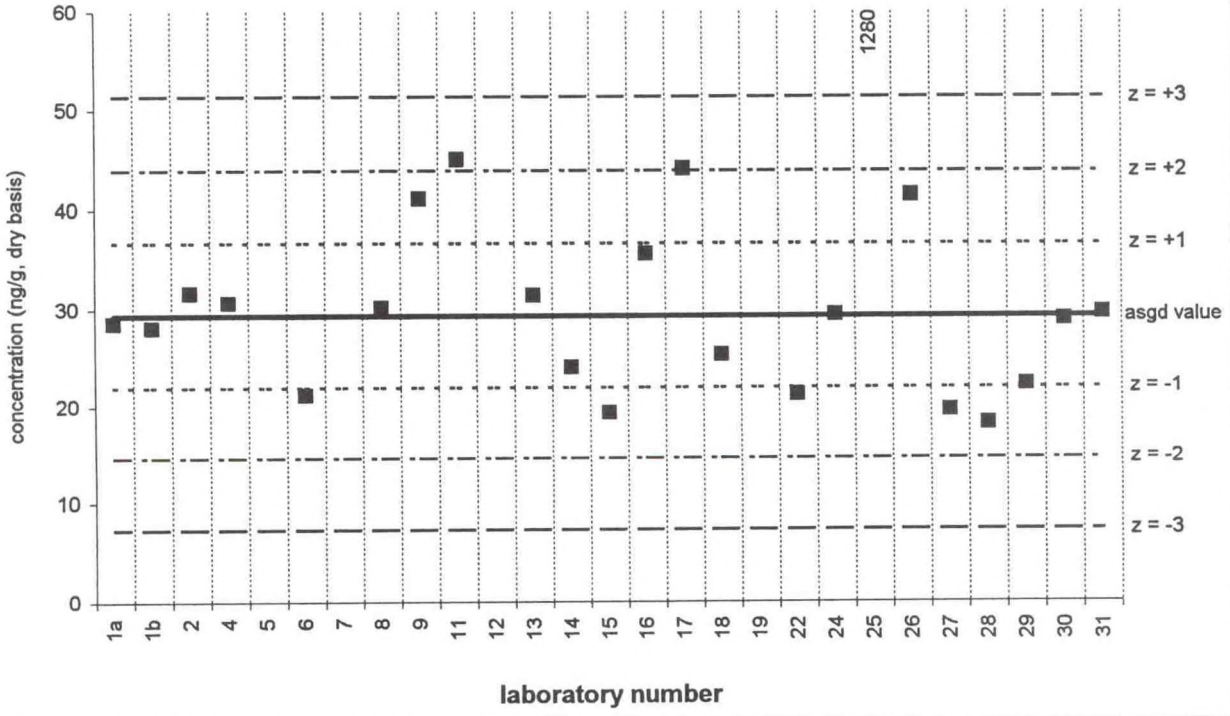
endosulfan II **SRM 1974a**

Target Value = no target ng/g (dry basis)
Reported Results: 14 Quantitative Results: 1



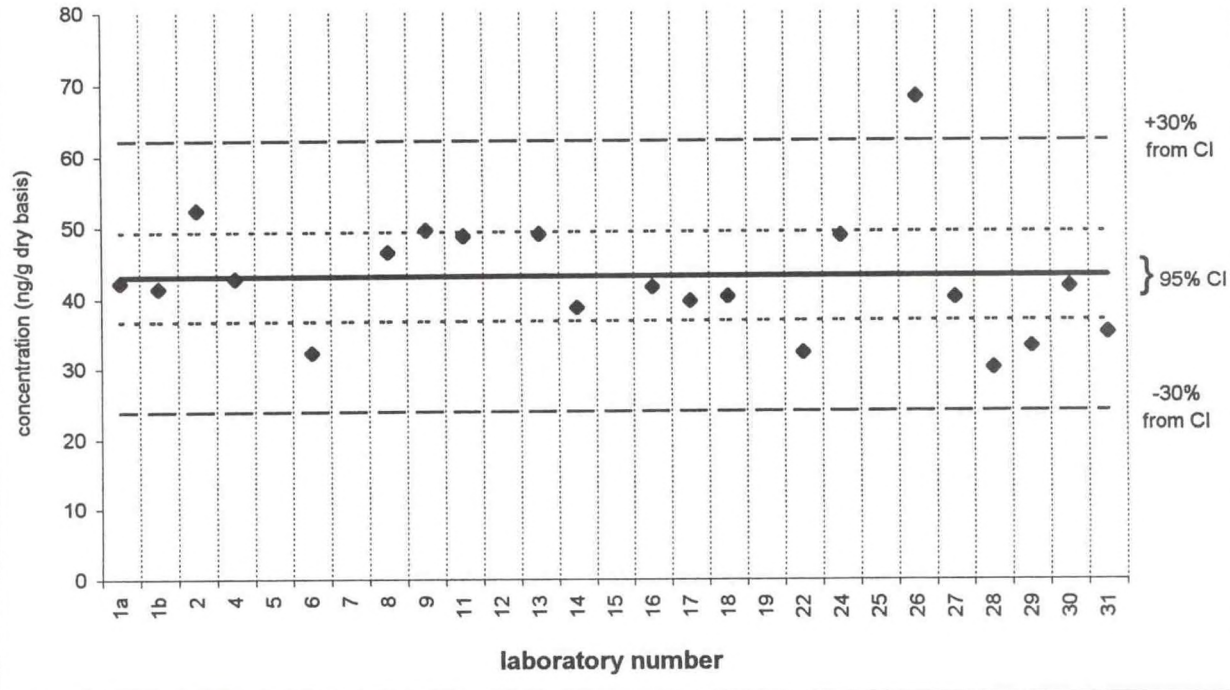
4,4'-DDD **Tissue IX (QA98TIS9)**

Assigned value = 29.3 ng/g s = 7.6 ng/g 95% CL = 3.6 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 23



4,4'-DDD **SRM 1974a**

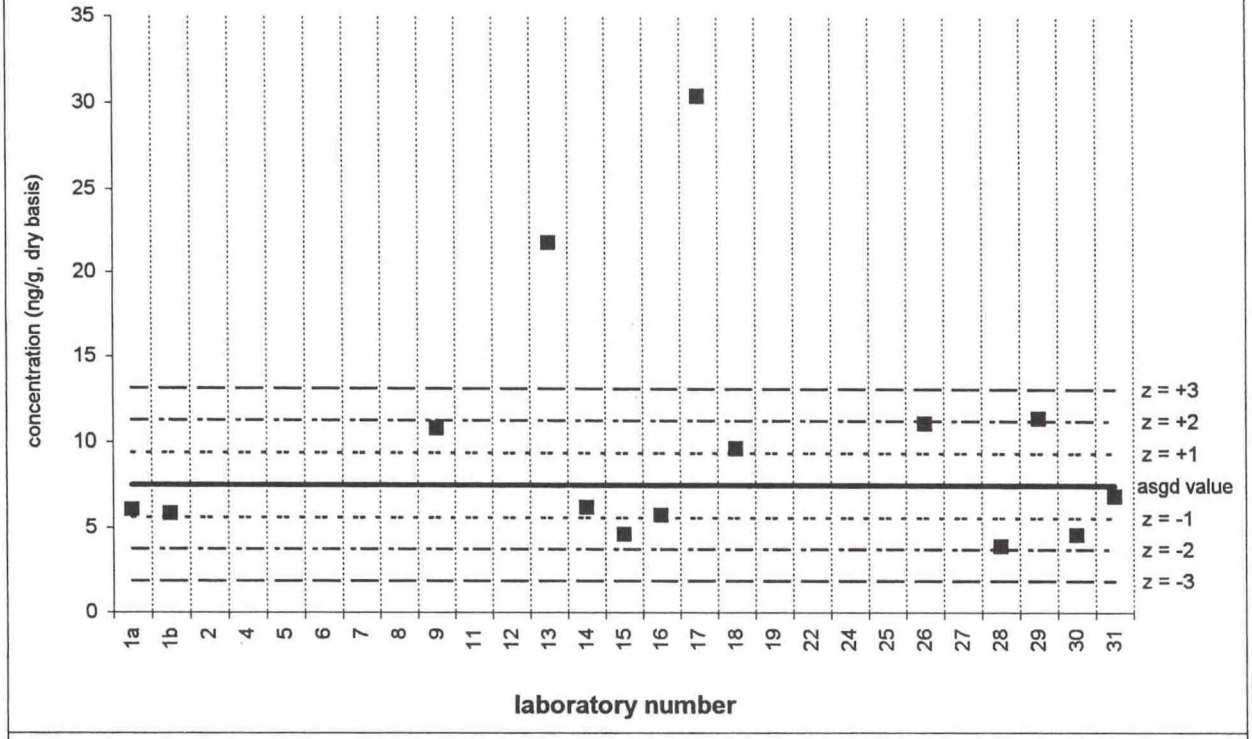
Certified Value = 43.0 ± 6.3 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 21



2,4'-DDT

Tissue IX (QA98TIS9)

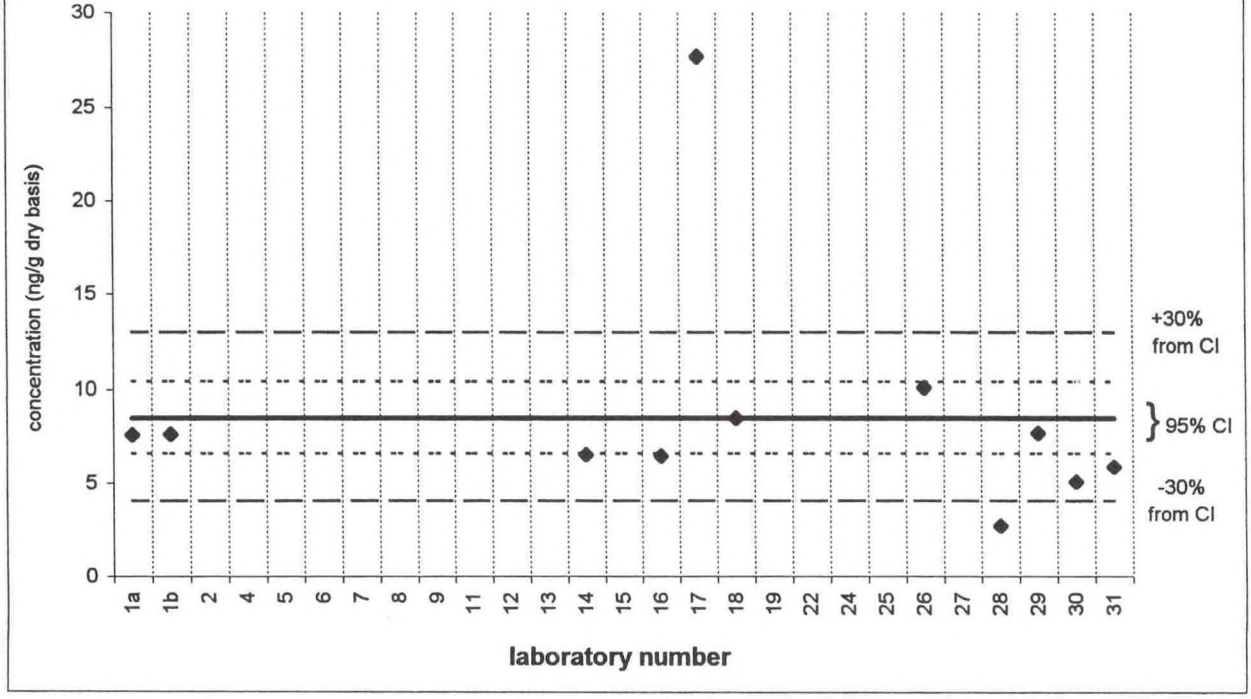
Assigned value = 7.51 ng/g s = 2.53 ng/g 95% CL = 1.94 ng/g (dry basis)
Reported Results: 19 Quantitative Results: 14



2,4'-DDT

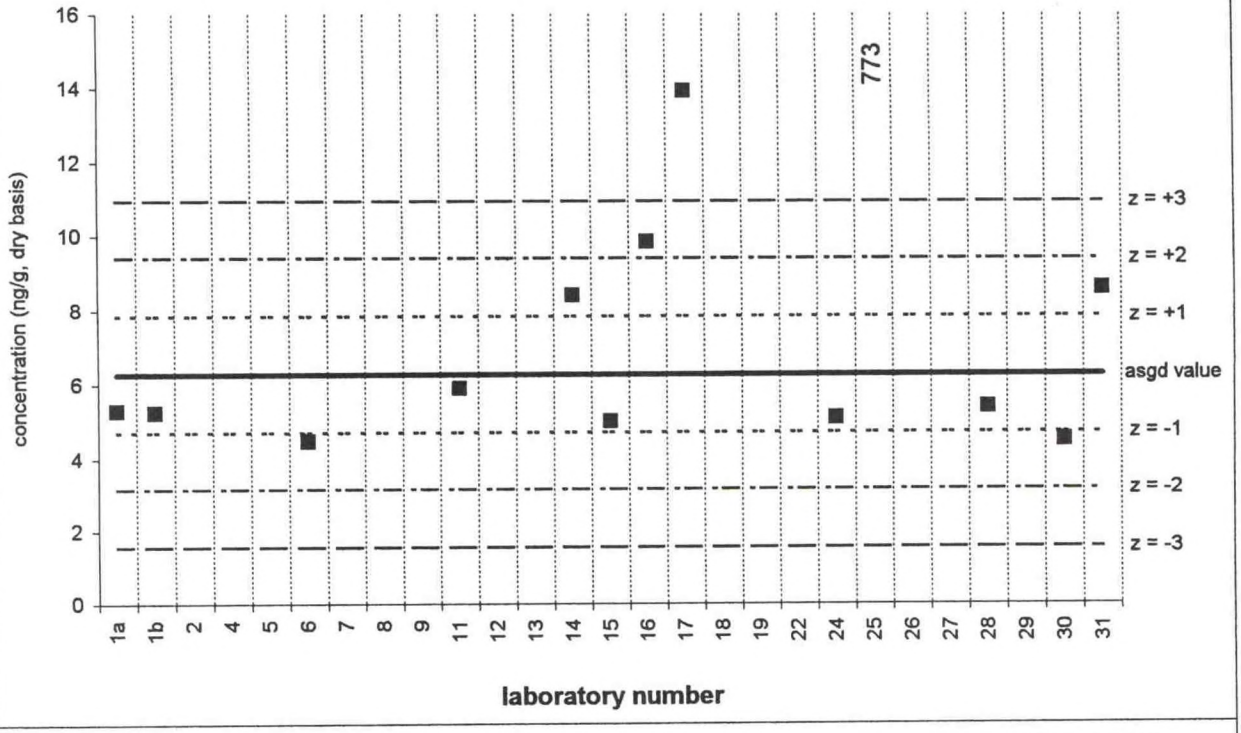
SRM 1974a

Noncertified Value = 8.5 ± 1.9 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 11



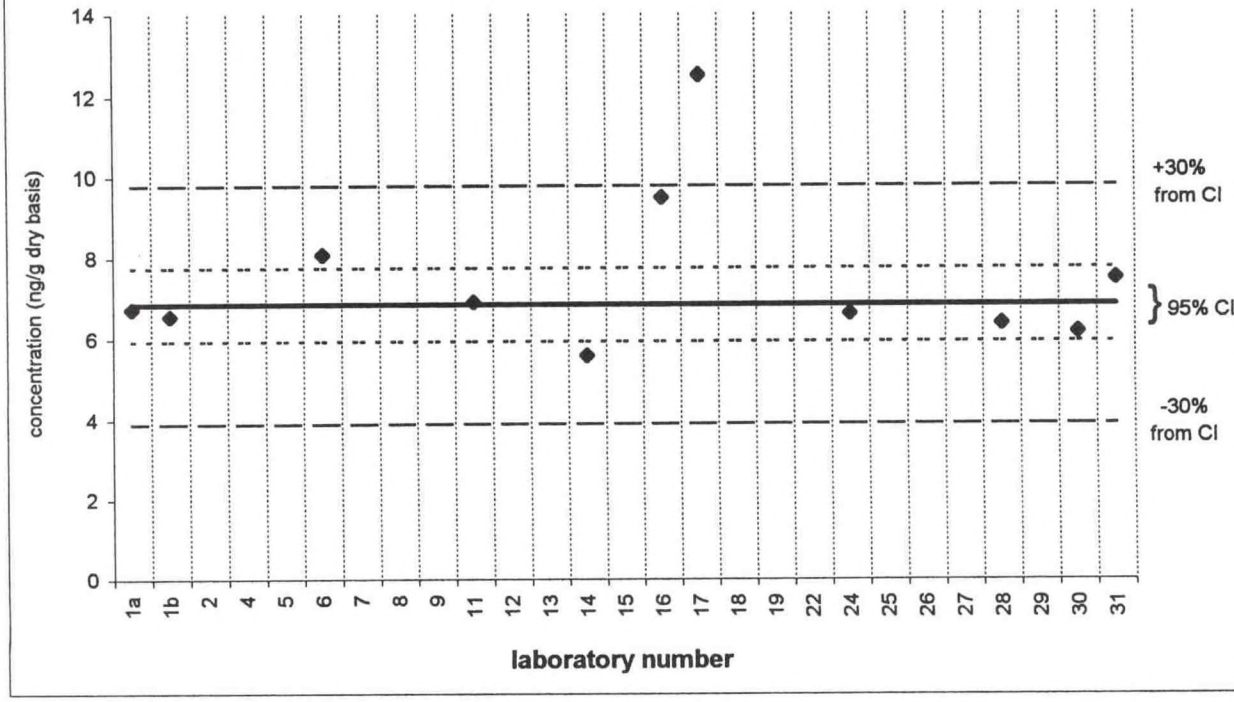
cis-nonachlor **Tissue IX (QA98TIS9)**

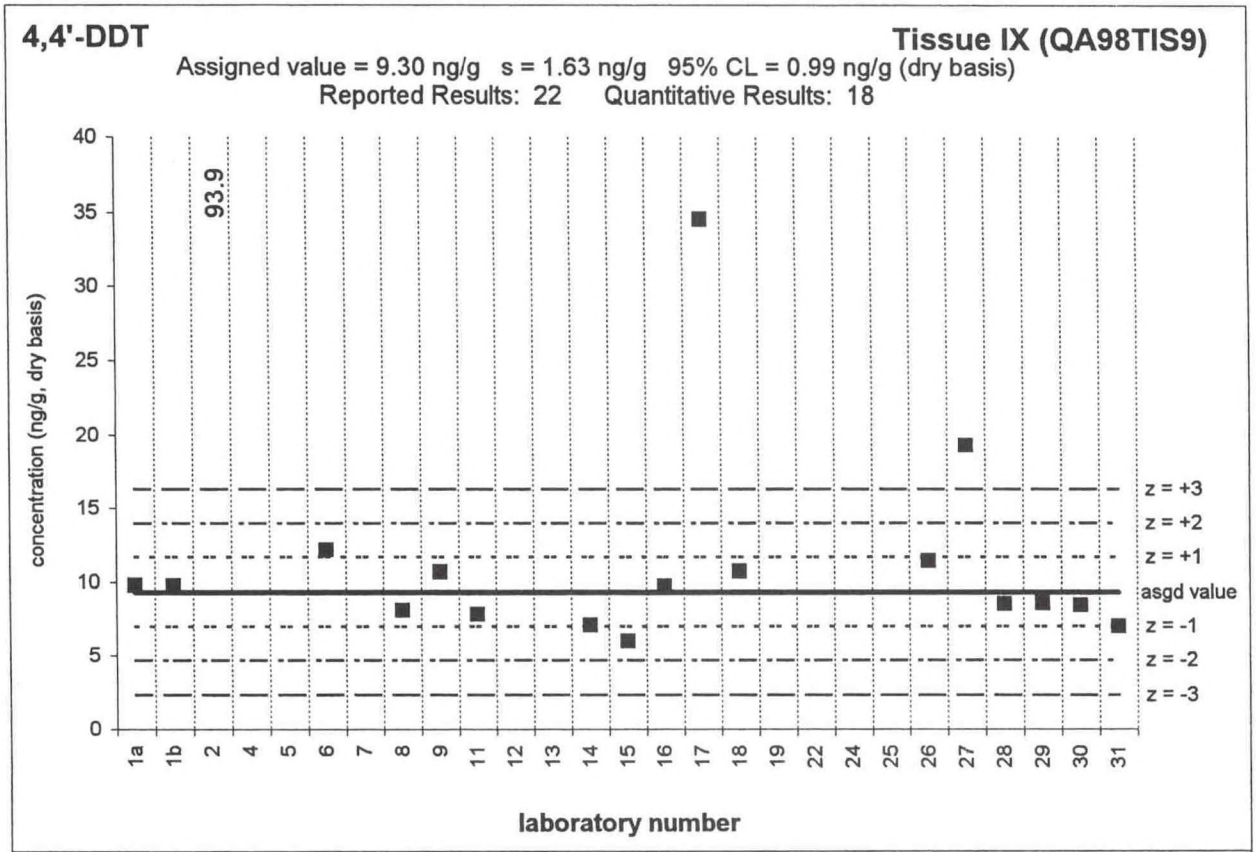
Assigned value = 6.27 ng/g s = 1.93 ng/g 95% CL = 1.38 ng/g (dry basis)
Reported Results: 16 Quantitative Results: 13

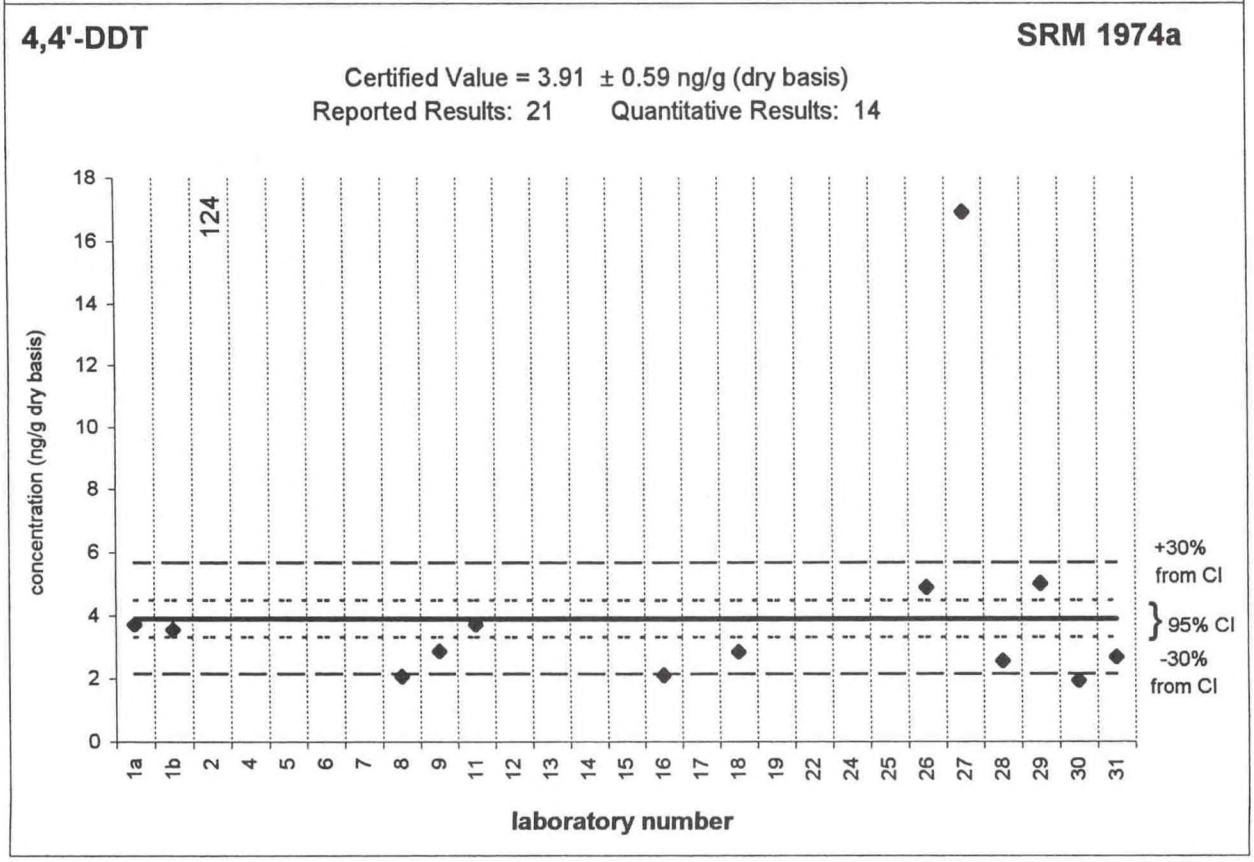


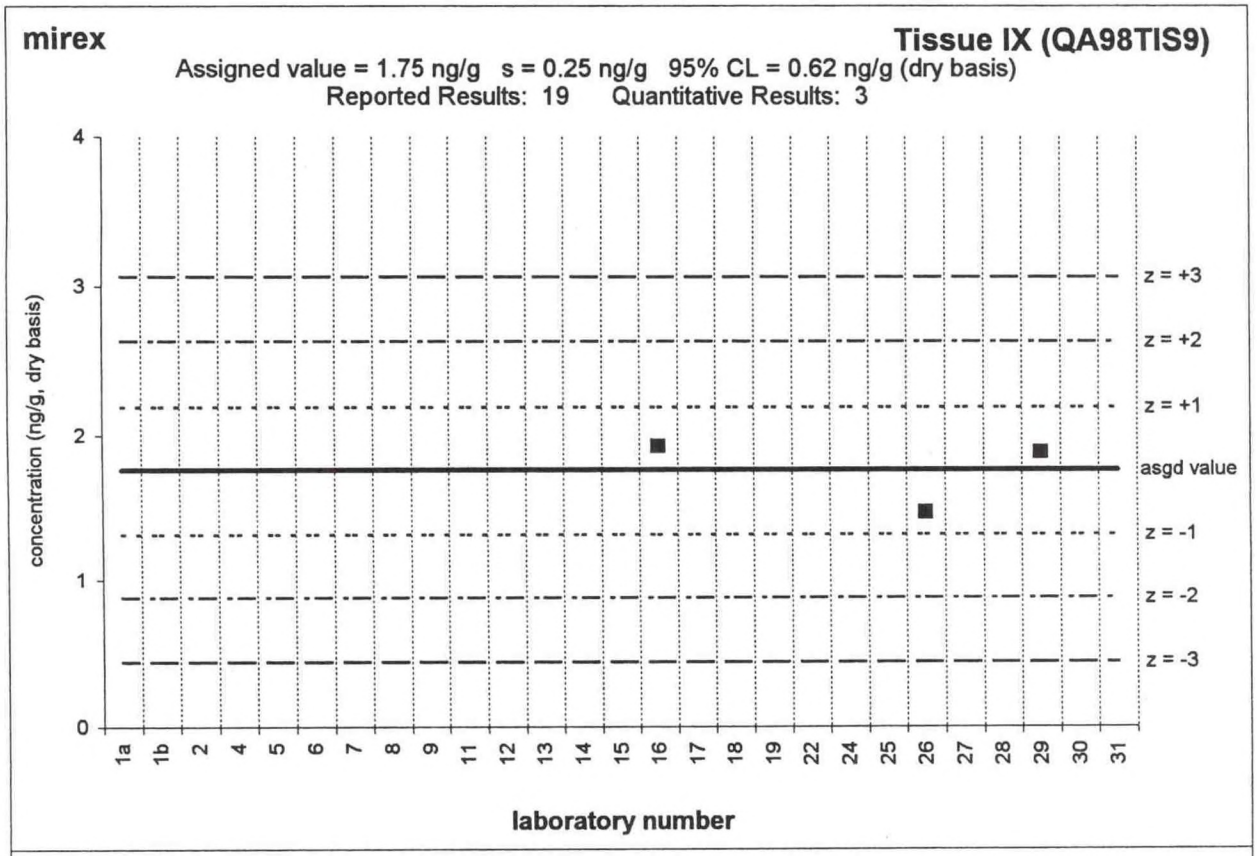
cis-nonachlor **SRM 1974a**

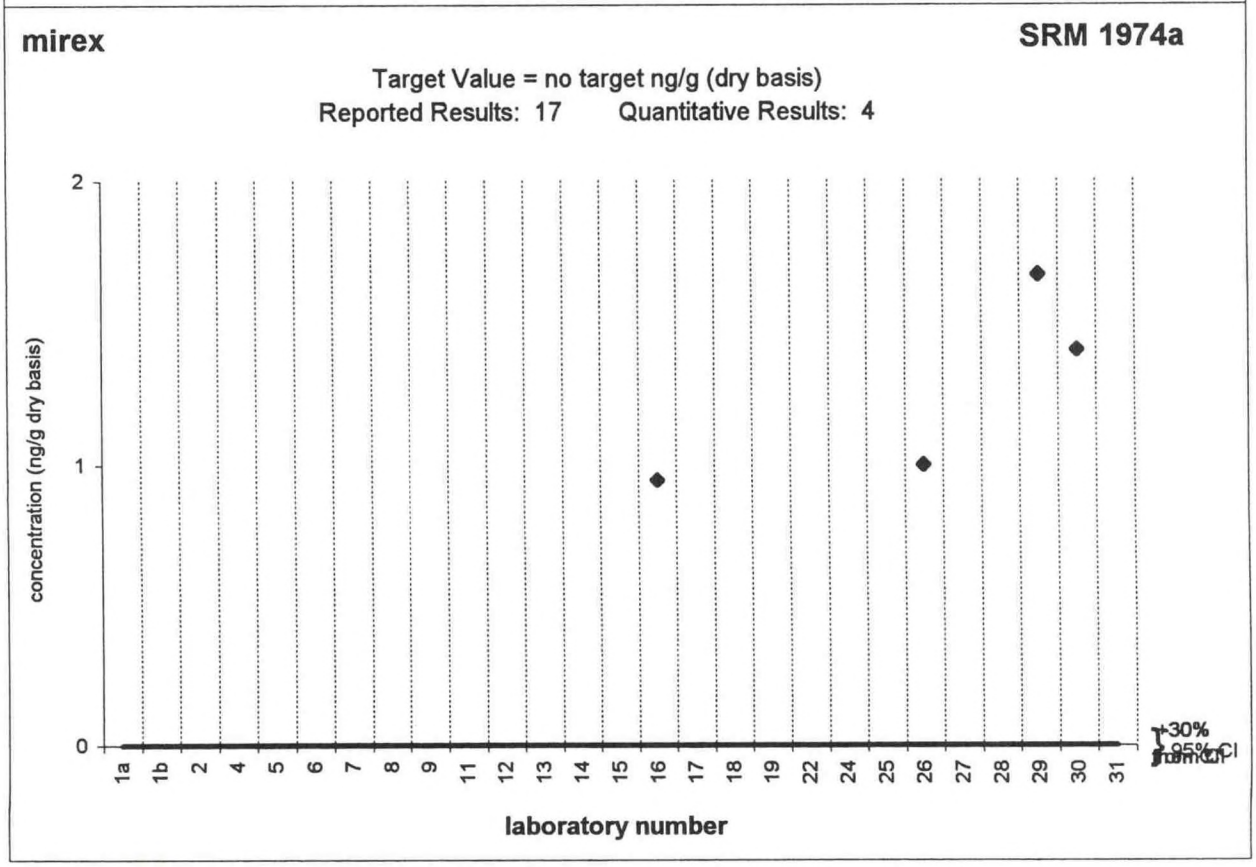
Certified Value = 6.84 ± 0.90 ng/g (dry basis)
Reported Results: 13 Quantitative Results: 11

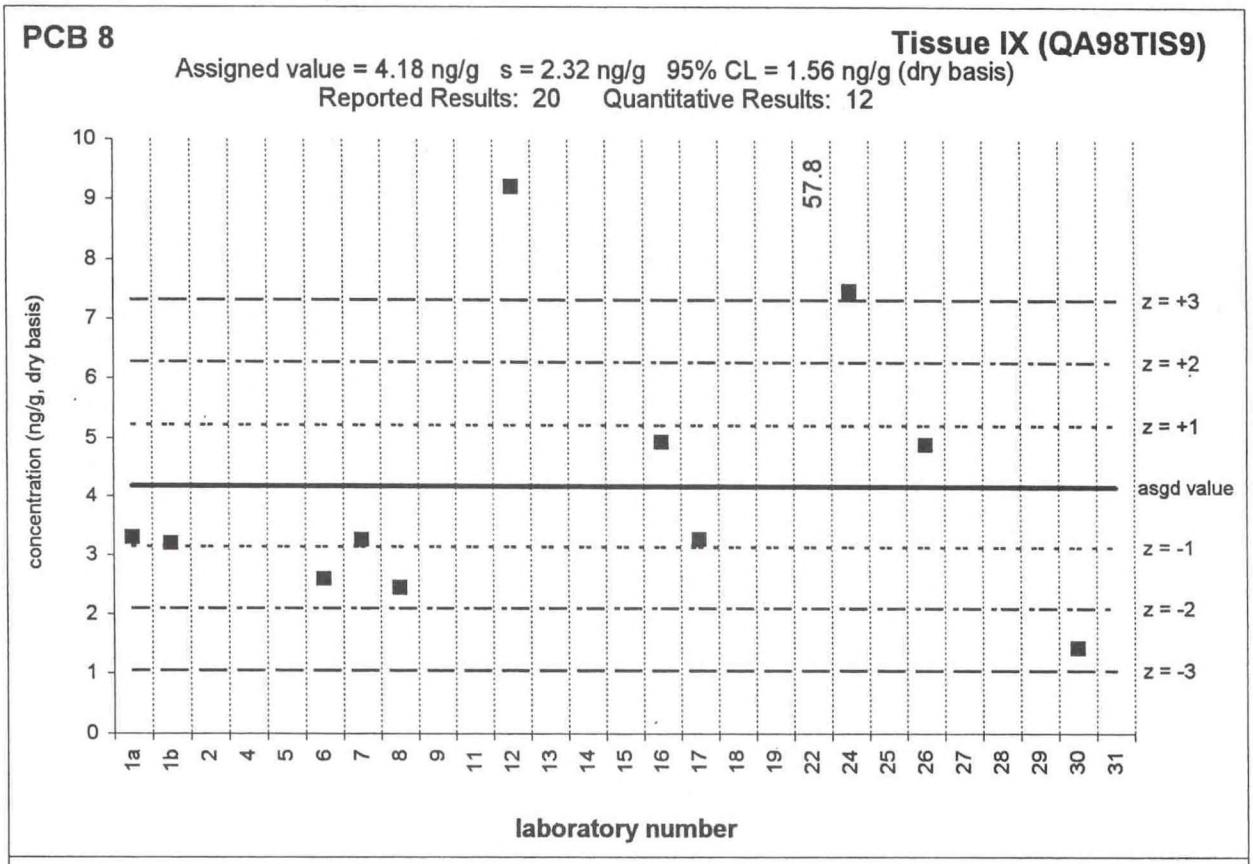


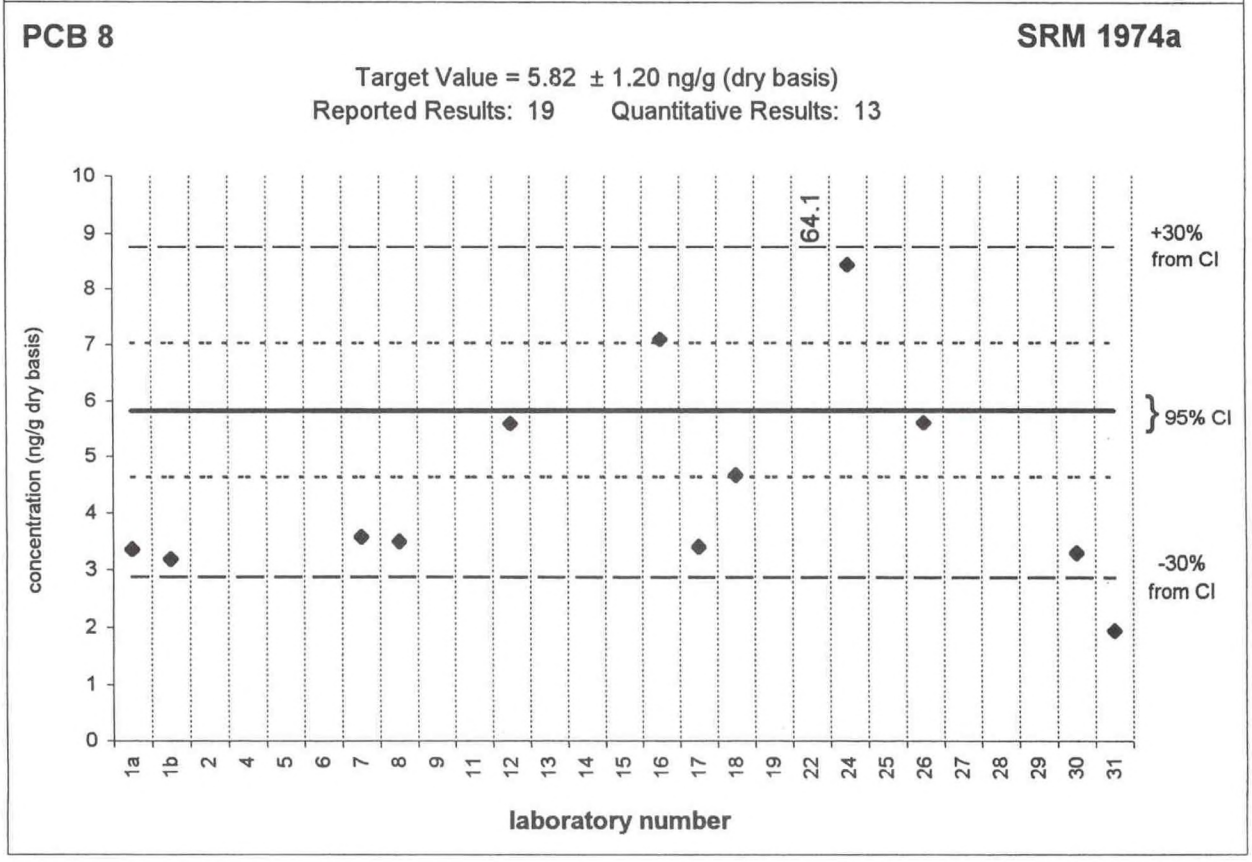

4,4'-DDT
Tissue IX (QA98TIS9)
Assigned value = 9.30 ng/g s = 1.63 ng/g 95% CL = 0.99 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 18
93.9
concentration (ng/g, dry basis)
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
laboratory number


4,4'-DDT
SRM 1974a
Certified Value = 3.91 ± 0.59 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 14
124
concentration (ng/g dry basis)
+30% from CI
95% CI
-30% from CI
laboratory number


mirex
Tissue IX (QA98TIS9)
Assigned value = 1.75 ng/g s = 0.25 ng/g 95% CL = 0.62 ng/g (dry basis)
Reported Results: 19 Quantitative Results: 3
concentration (ng/g, dry basis)
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
laboratory number

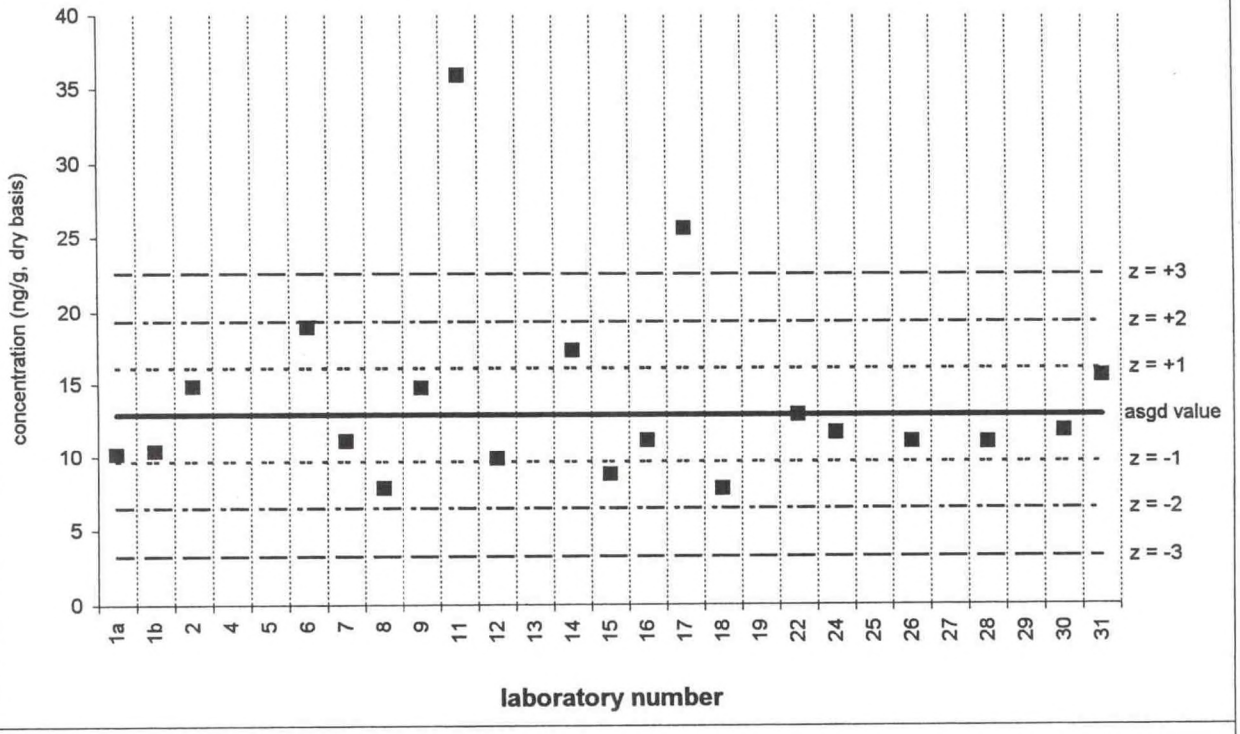

mirex
SRM 1974a
Target Value = no target ng/g (dry basis)
Reported Results: 17 Quantitative Results: 4
concentration (ng/g dry basis)
laboratory number


PCB 8
Tissue IX (QA98TIS9)
Assigned value = 4.18 ng/g s = 2.32 ng/g 95% CL = 1.56 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 12
57.8
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
concentration (ng/g, dry basis)
laboratory number
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31


PCB 8
SRM 1974a
Target Value = 5.82 ± 1.20 ng/g (dry basis)
Reported Results: 19 Quantitative Results: 13
64.1
+30% from CI
95% CI
-30% from CI
concentration (ng/g dry basis)
laboratory number
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31

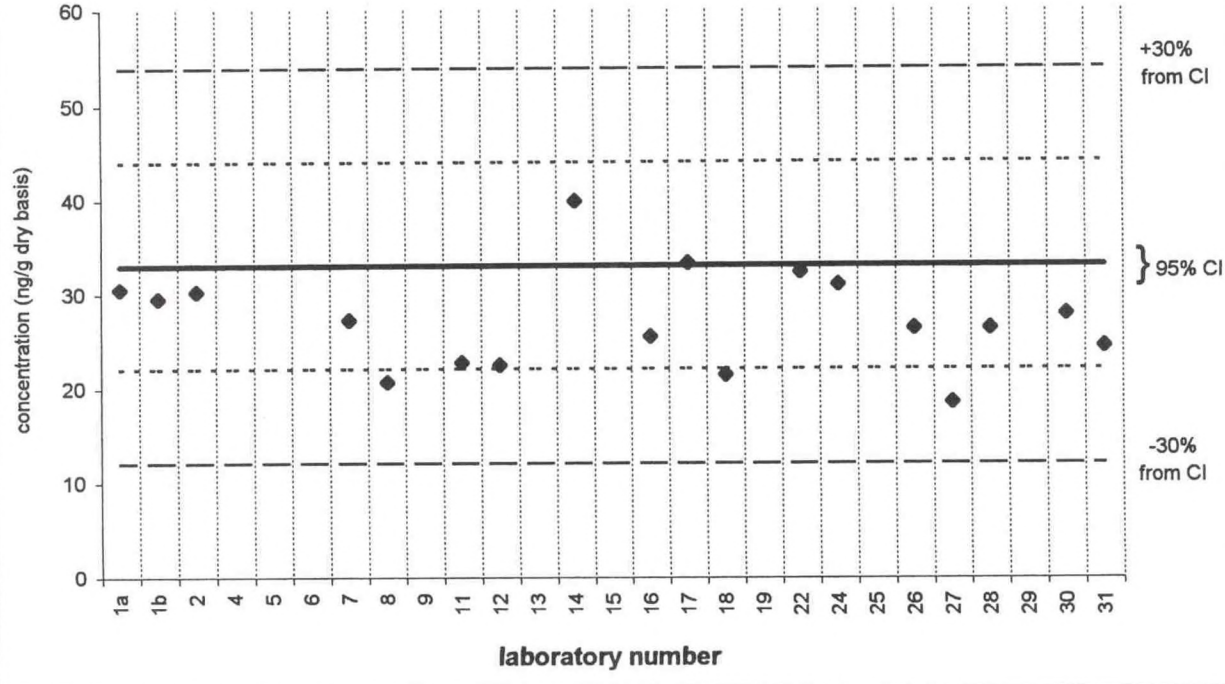
PCB 18 **Tissue IX (QA98TIS9)**

Assigned value = 12.88 ng/g s = 4.48 ng/g 95% CL = 2.30 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 20



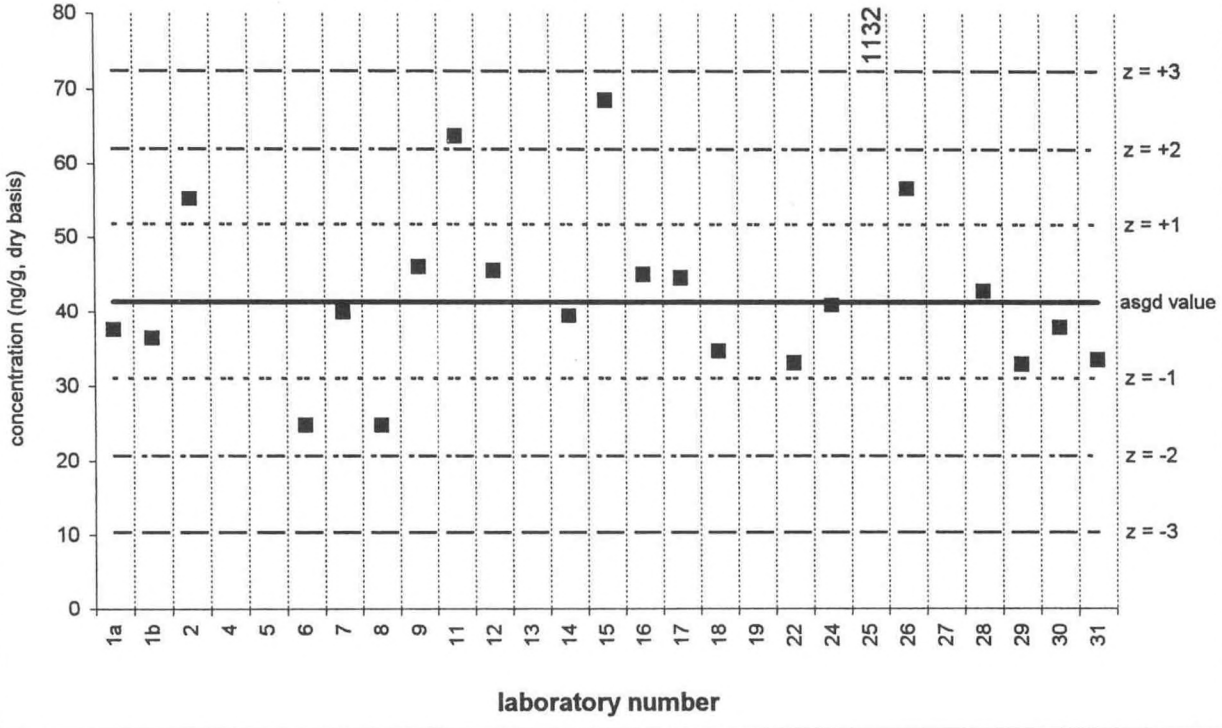
PCB 18 **SRM 1974a**

Noncertified Value = 33 ± 11 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 18



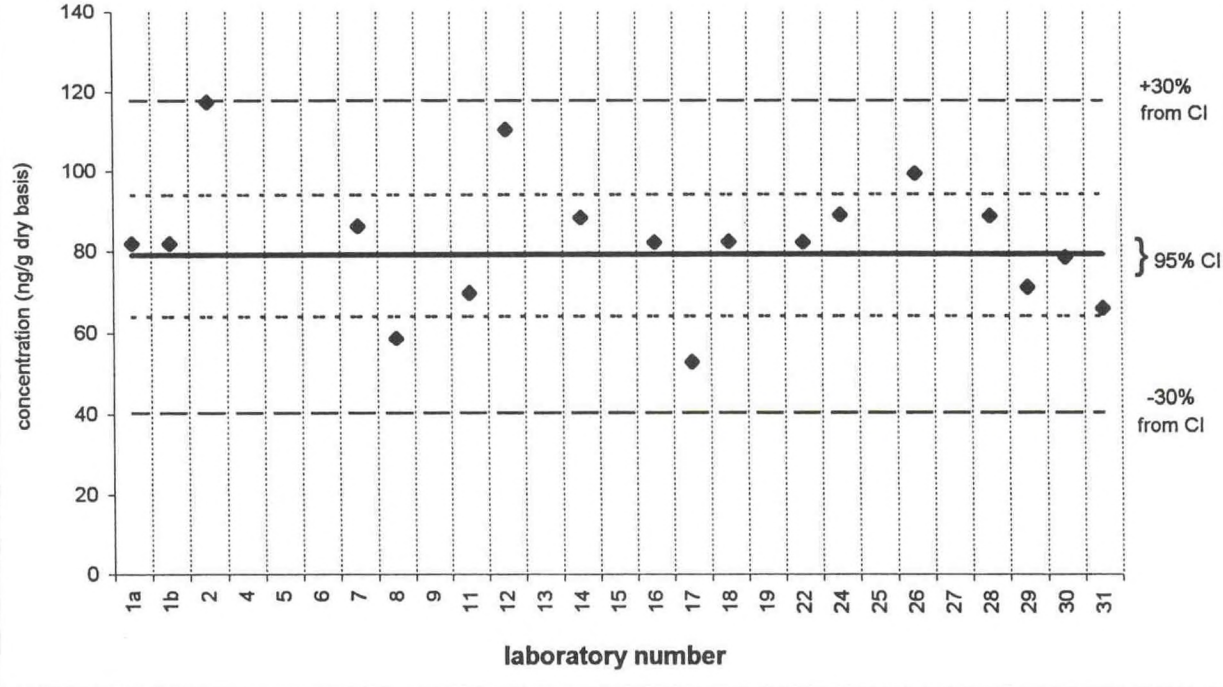
PCB 28 **Tissue IX (QA98TIS9)**

Assigned value = 41.4 ng/g s = 9.6 ng/g 95% CL = 4.8 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 22



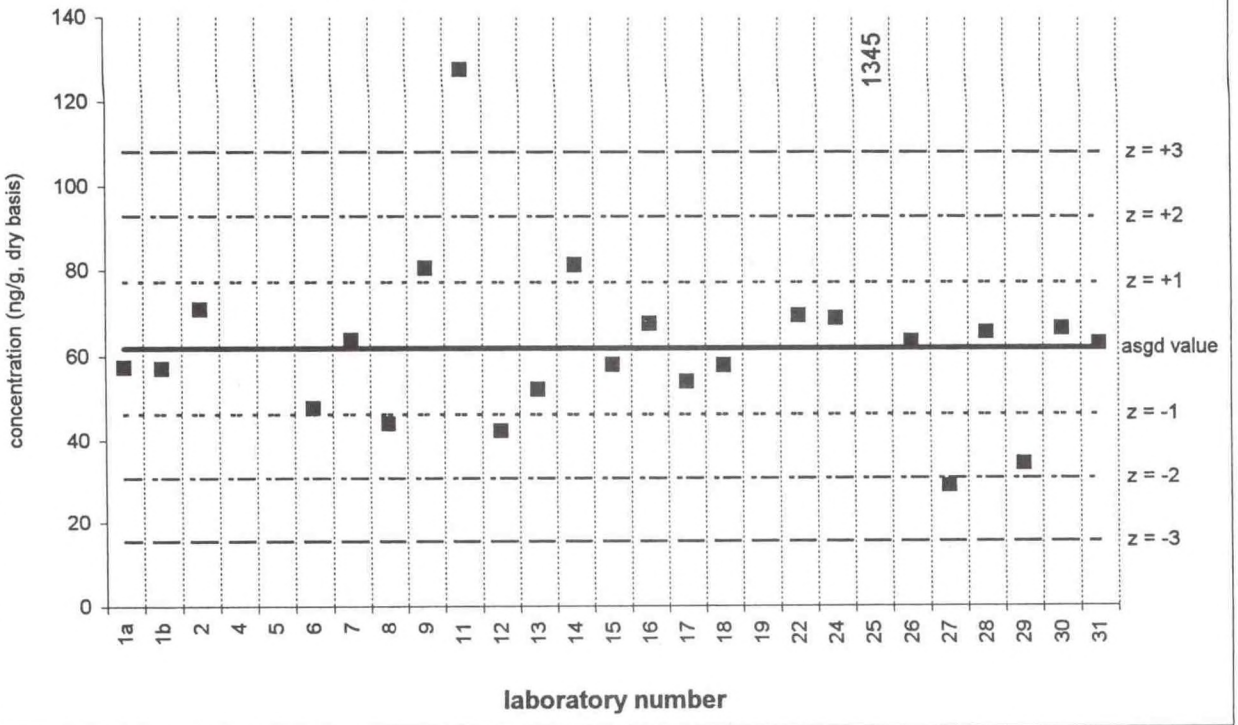
PCB 28 **SRM 1974a**

Noncertified Value = 79 ± 15 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 18



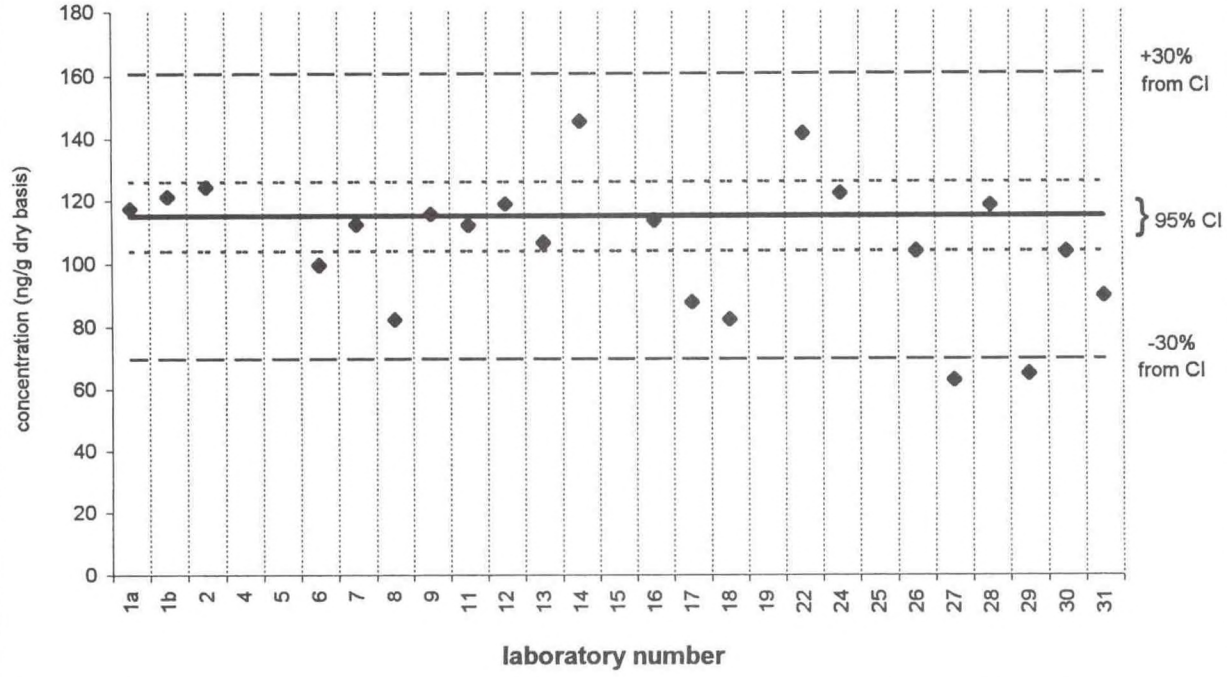
PCB 52 **Tissue IX (QA98TIS9)**

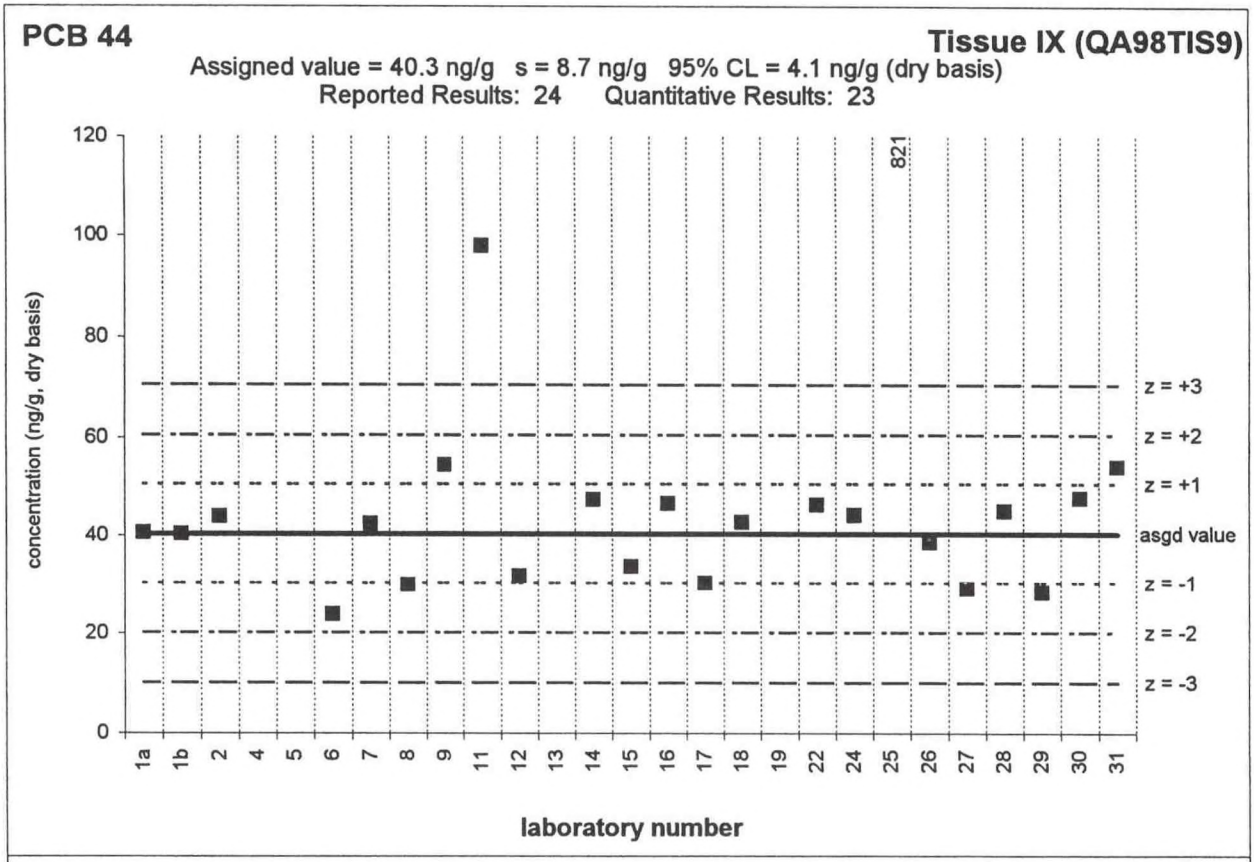
Assigned value = 61.8 ng/g s = 10.8 ng/g 95% CL = 5.2 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 24

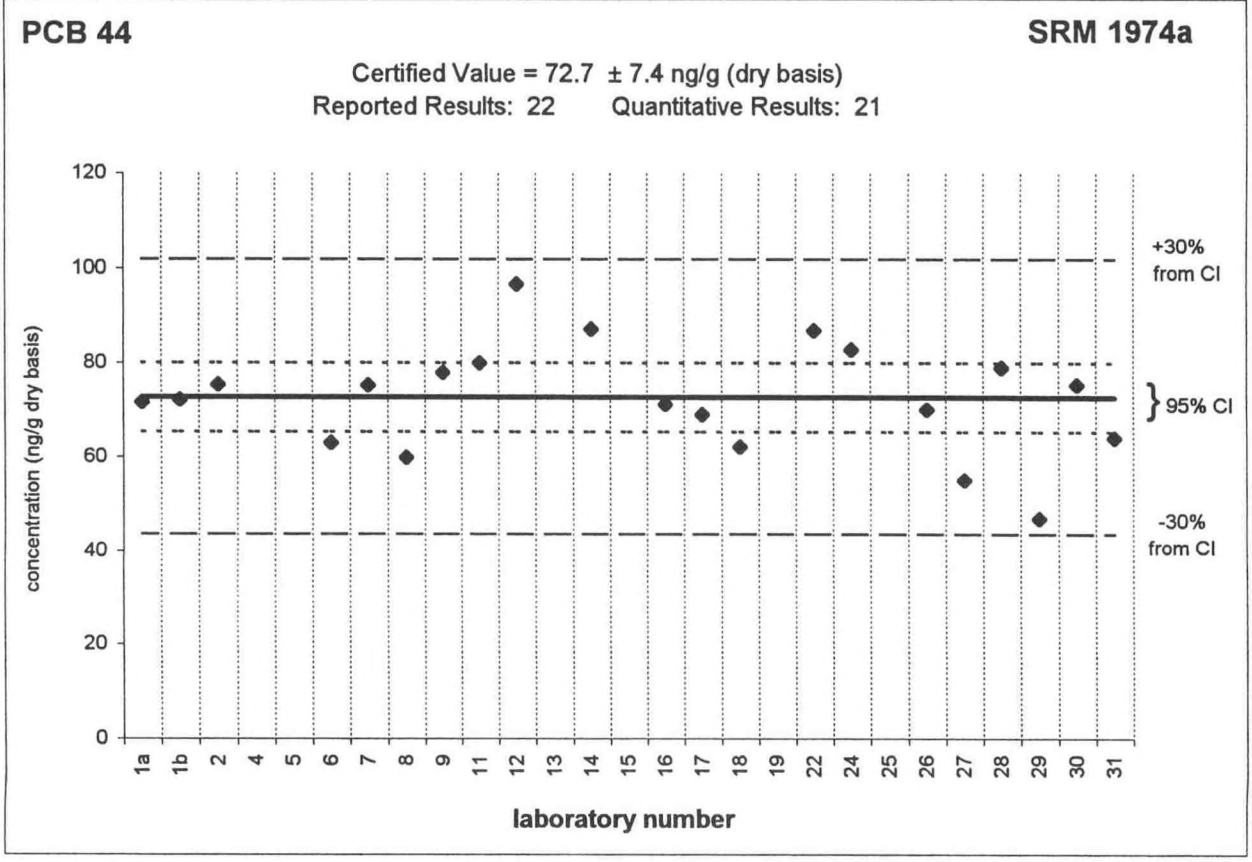


PCB 52 **SRM 1974a**

Certified Value = 115 ± 11 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 22

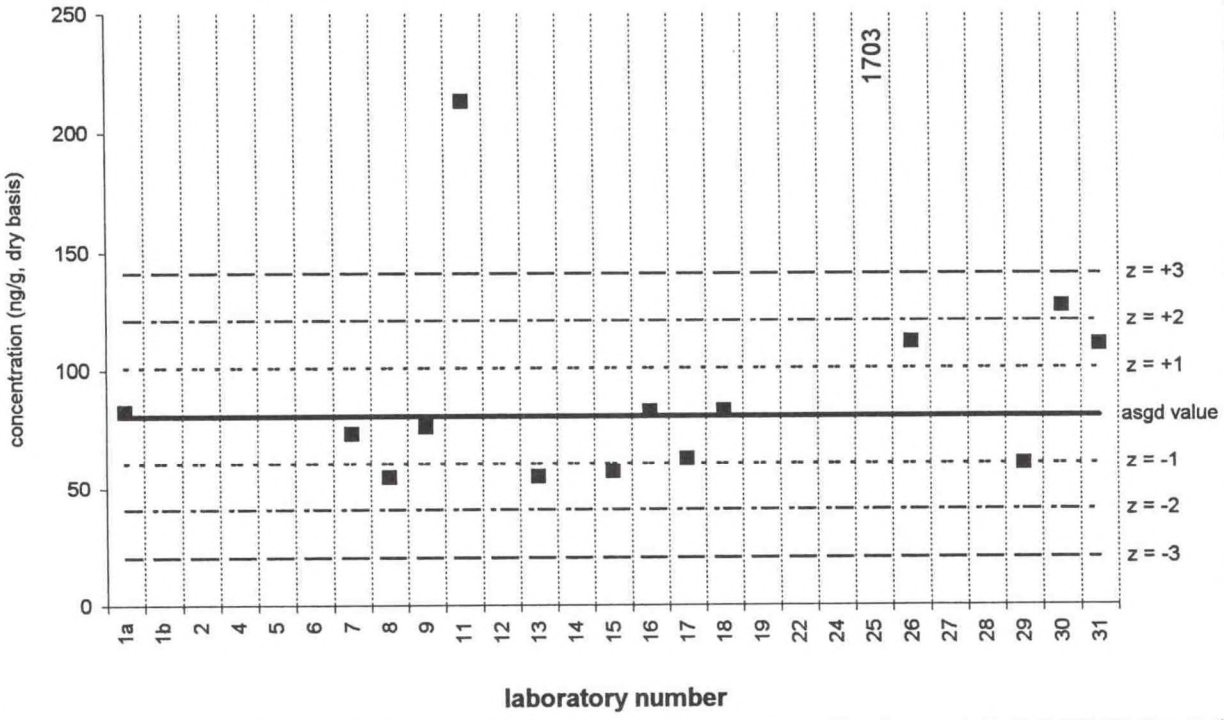



PCB 44
Tissue IX (QA98TIS9)
Assigned value = 40.3 ng/g s = 8.7 ng/g 95% CL = 4.1 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 23
821
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
concentration (ng/g, dry basis)
laboratory number


PCB 44
SRM 1974a
Certified Value = 72.7 ± 7.4 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 21
+30% from CI
95% CI
-30% from CI
concentration (ng/g dry basis)
laboratory number

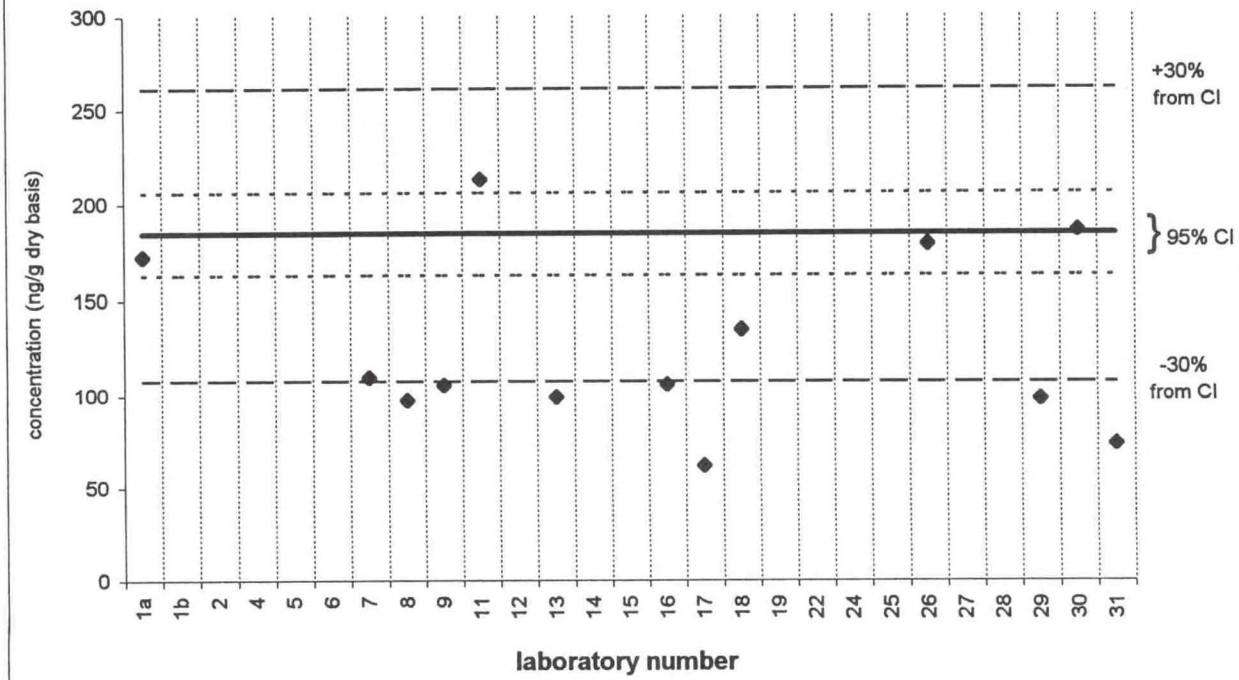
PCB 66/95 **Tissue IX (QA98TIS9)**

Assigned value = 80.6 ng/g s = 23.5 ng/g 95% CL = 16.8 ng/g (dry basis)
Reported Results: 16 Quantitative Results: 15



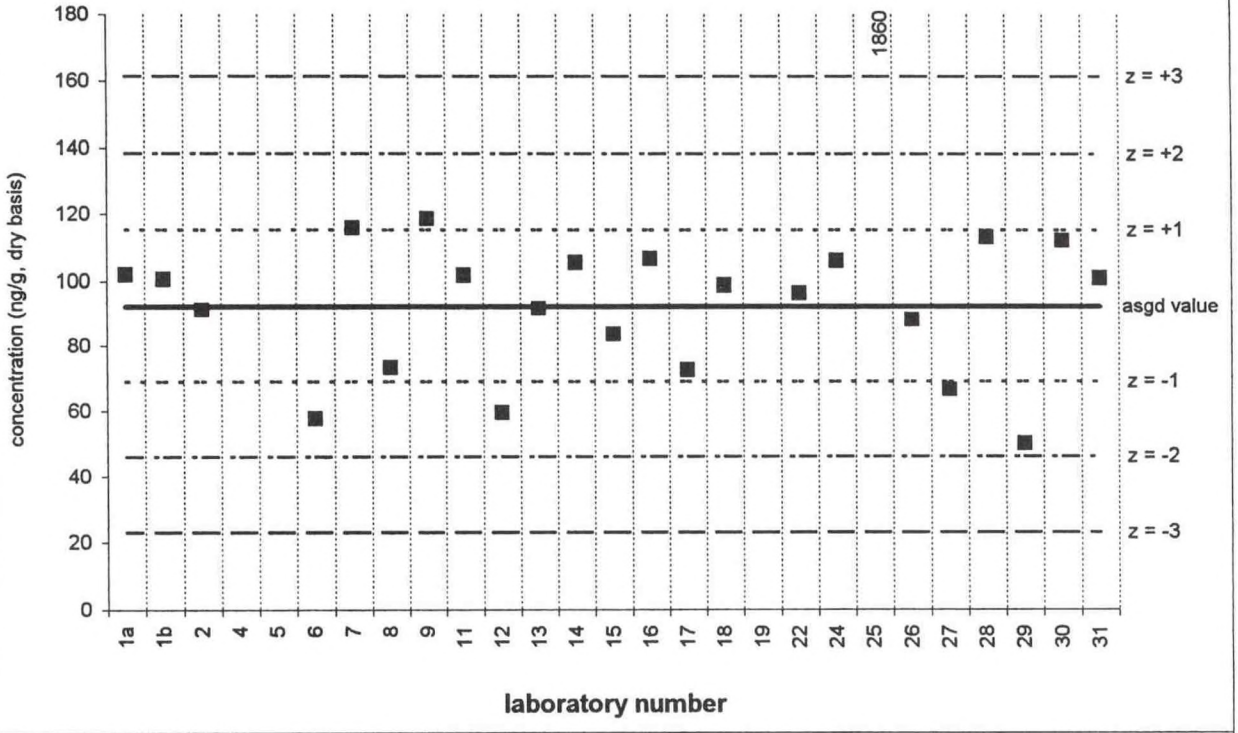
PCB 66/95 **SRM 1974a**

Certified Value = 184 ± 21 ng/g (dry basis)
Reported Results: 14 Quantitative Results: 13



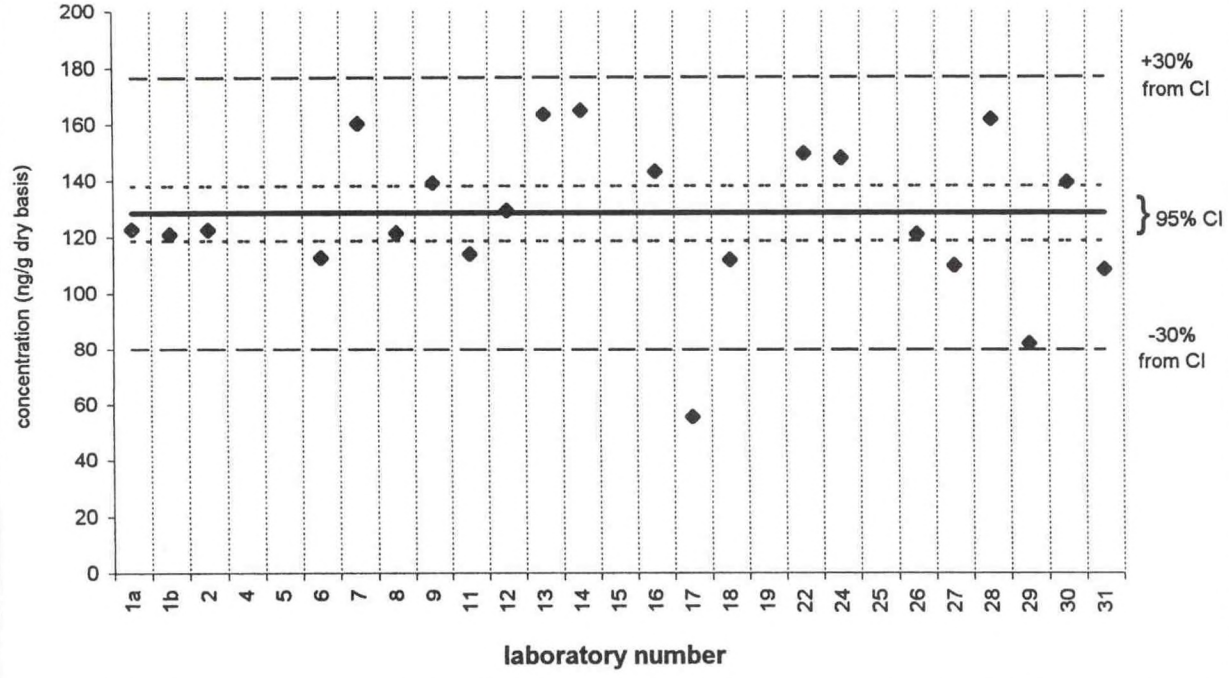
PCB 101/90 **Tissue IX (QA98TIS9)**

Assigned value = 92.2 ng/g s = 20.1 ng/g 95% CL = 8.9 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 24



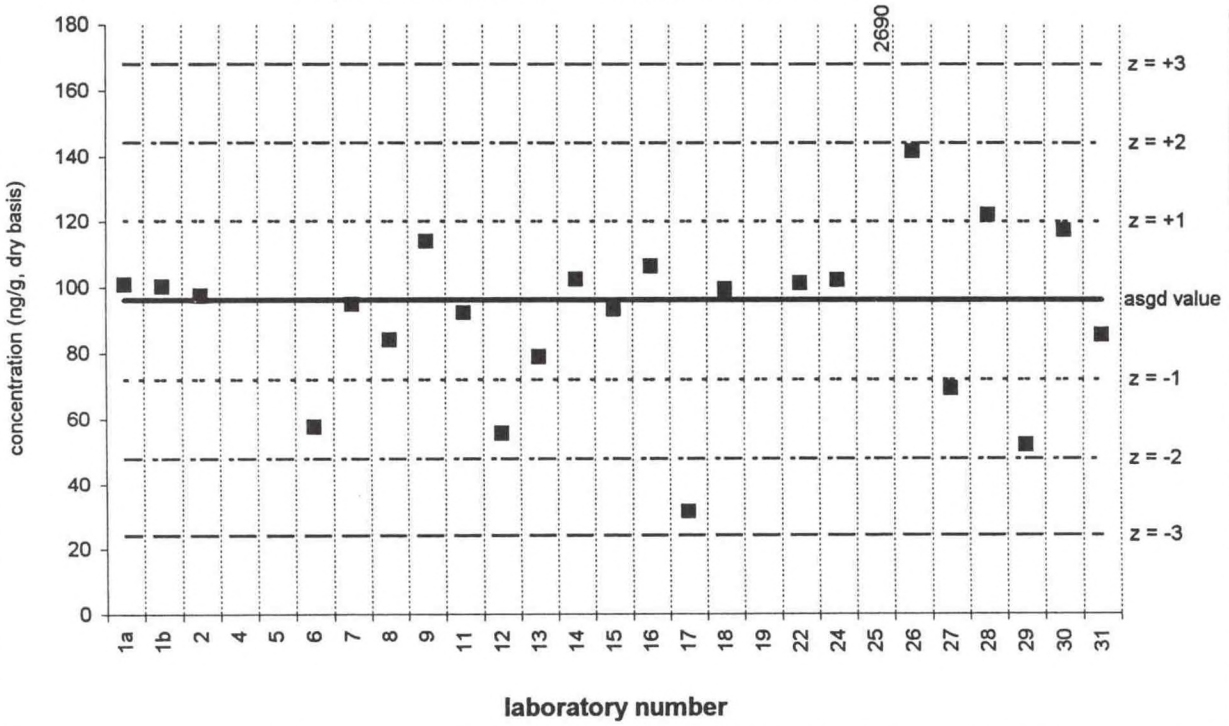
PCB 101/90 **SRM 1974a**

Certified Value = 128.3 ± 9.7 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 22



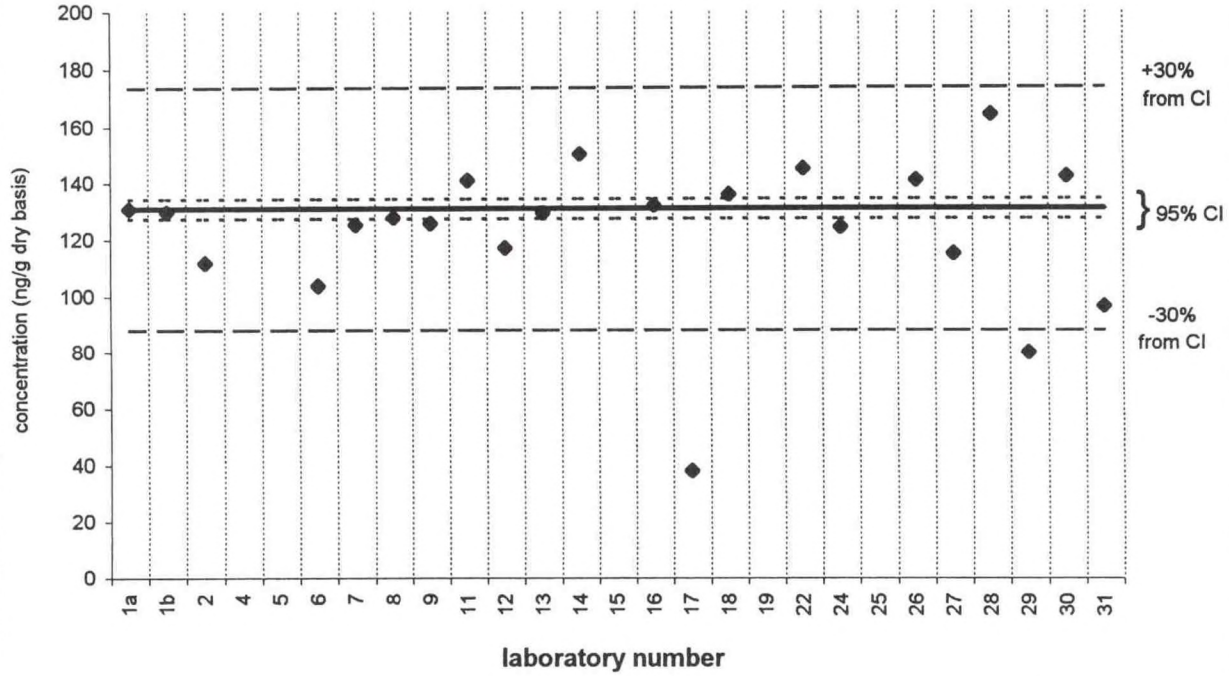
PCB 118 **Tissue IX (QA98TIS9)**

Assigned value = 96.1 ng/g s = 20.7 ng/g 95% CL = 9.7 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 24



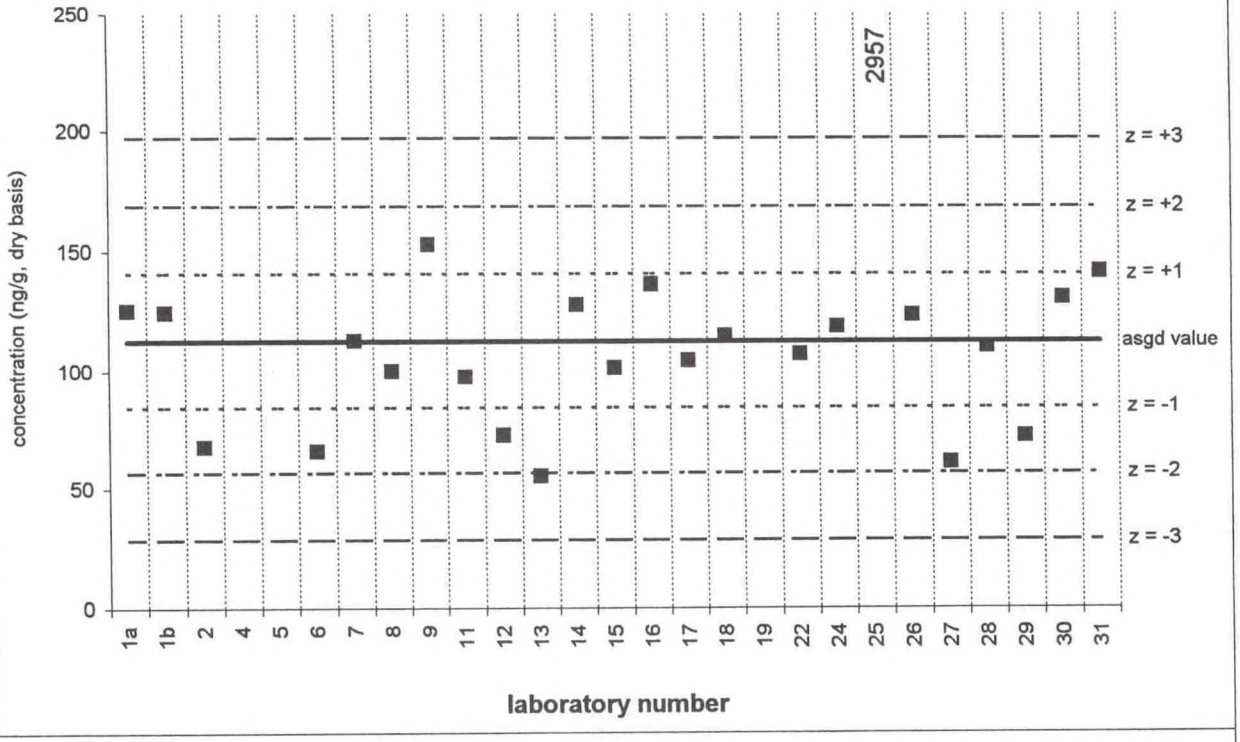
PCB 118 **SRM 1974a**

Certified Value = 130.8 ± 3.6 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 22



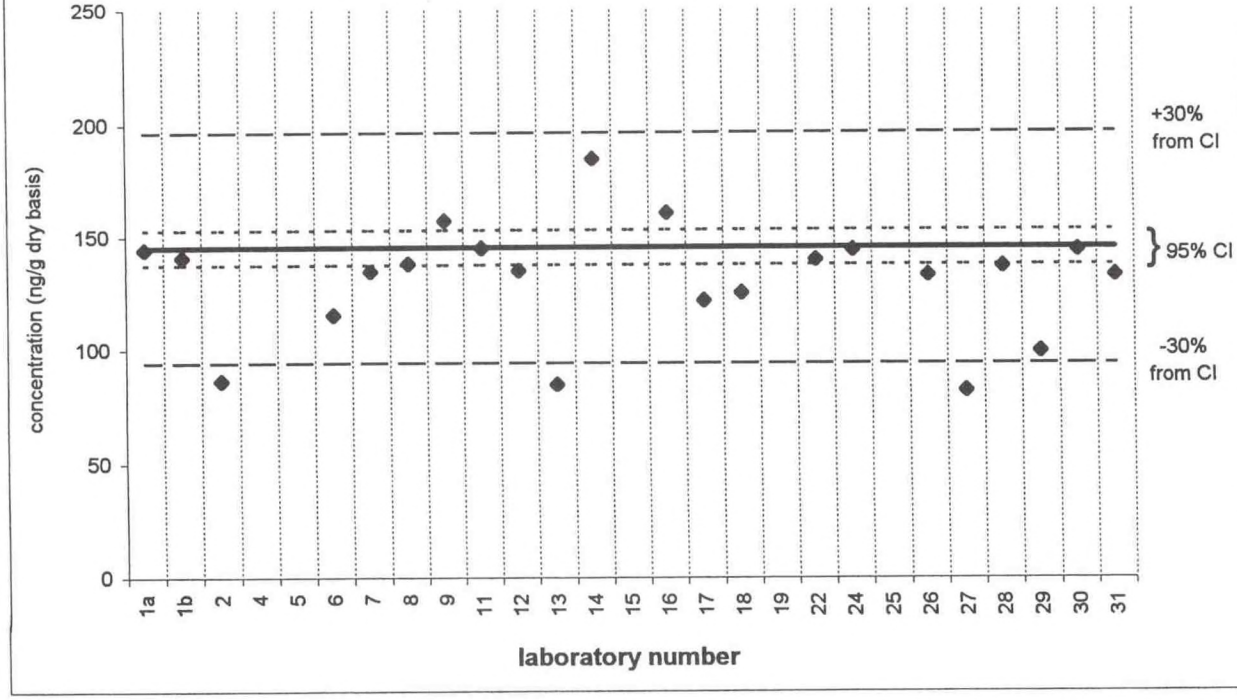
PCB 153 **Tissue IX (QA98TIS9)**

Assigned value = 113 ng/g s = 24 ng/g 95% CL = 11 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 24



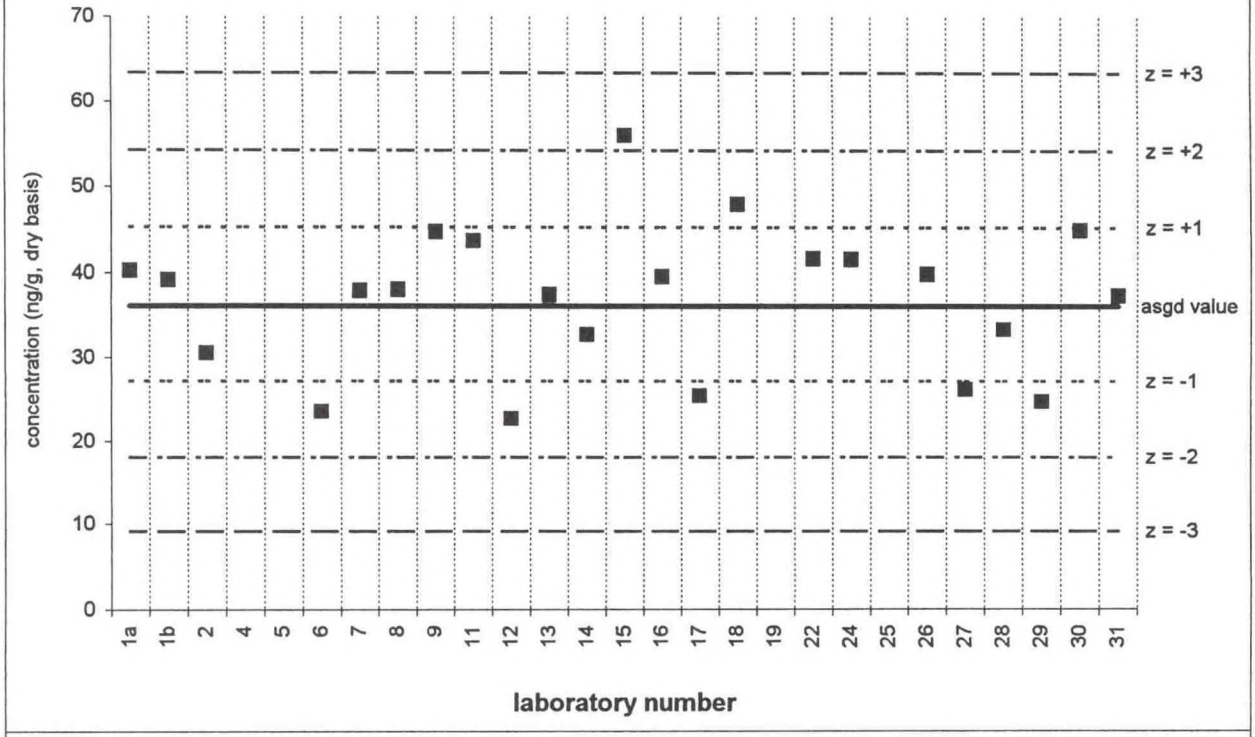
PCB 153 **SRM 1974a**

Certified Value = 145.2 ± 7.6 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 22



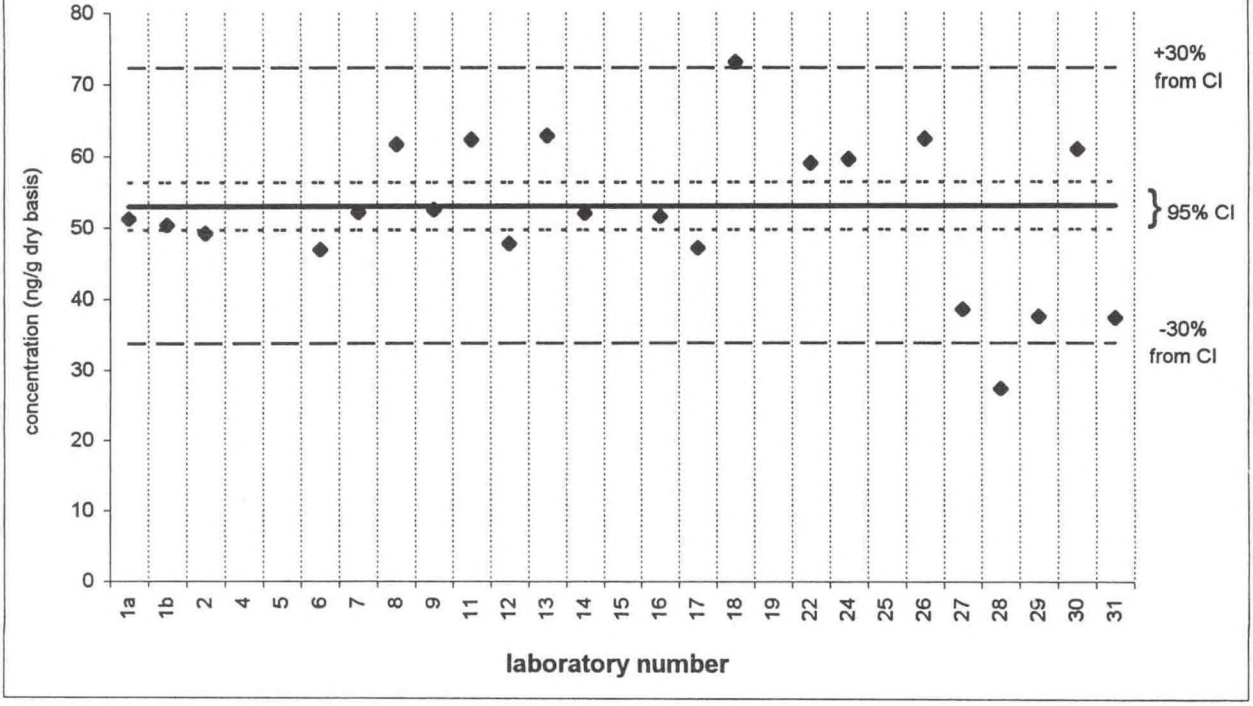
PCB 105 **Tissue IX (QA98TIS9)**

Assigned value = 36.2 ng/g s = 7.7 ng/g 95% CL = 3.5 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 23



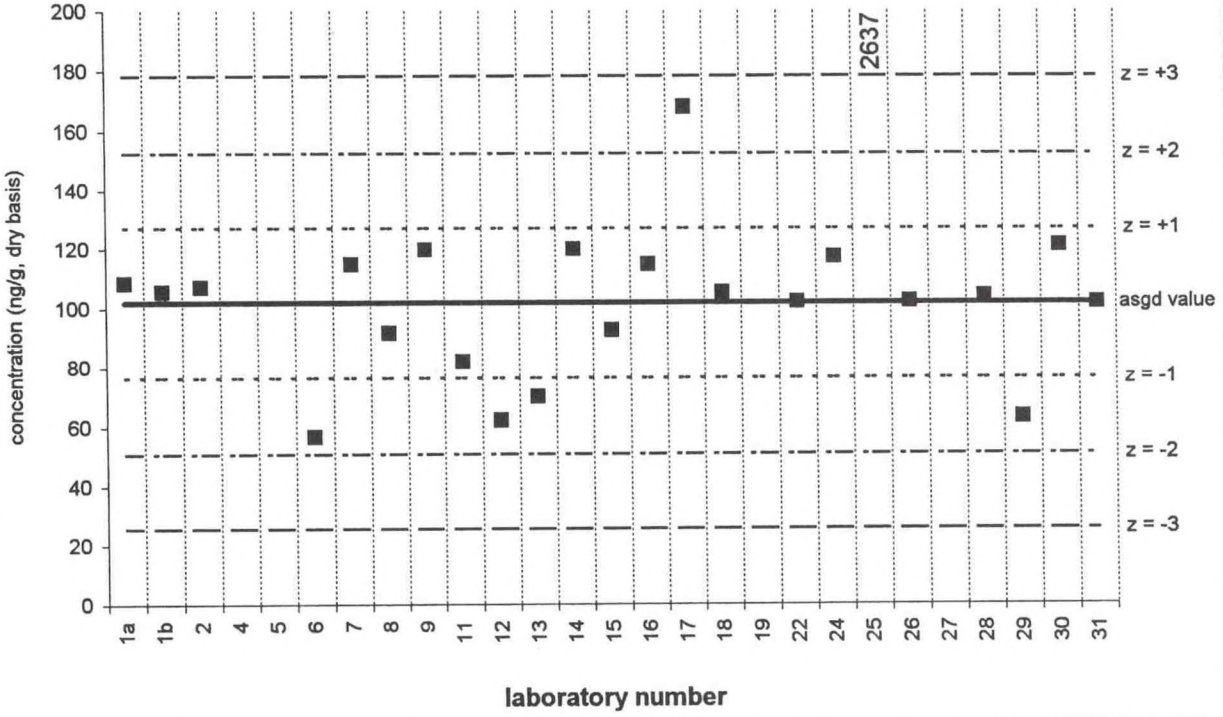
PCB 105 **SRM 1974a**

Certified Value = 53.0 ± 3.4 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 22



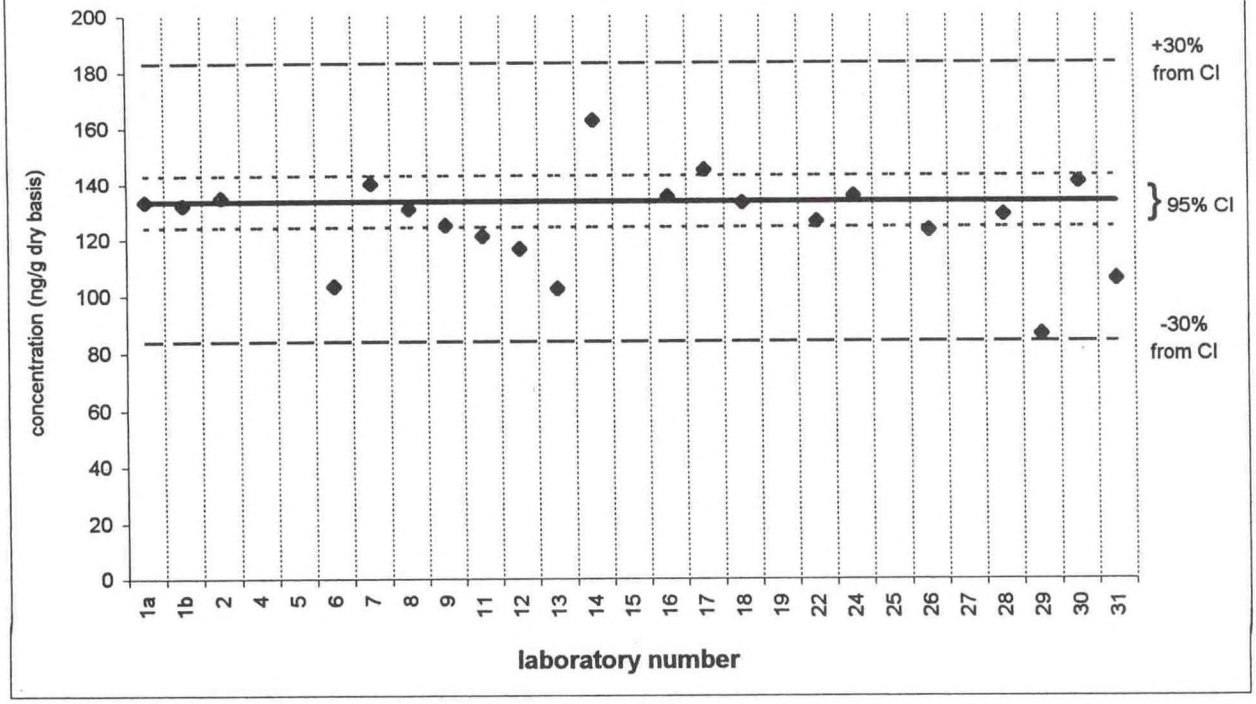
PCB 138/163/164 **Tissue IX (QA98TIS9)**

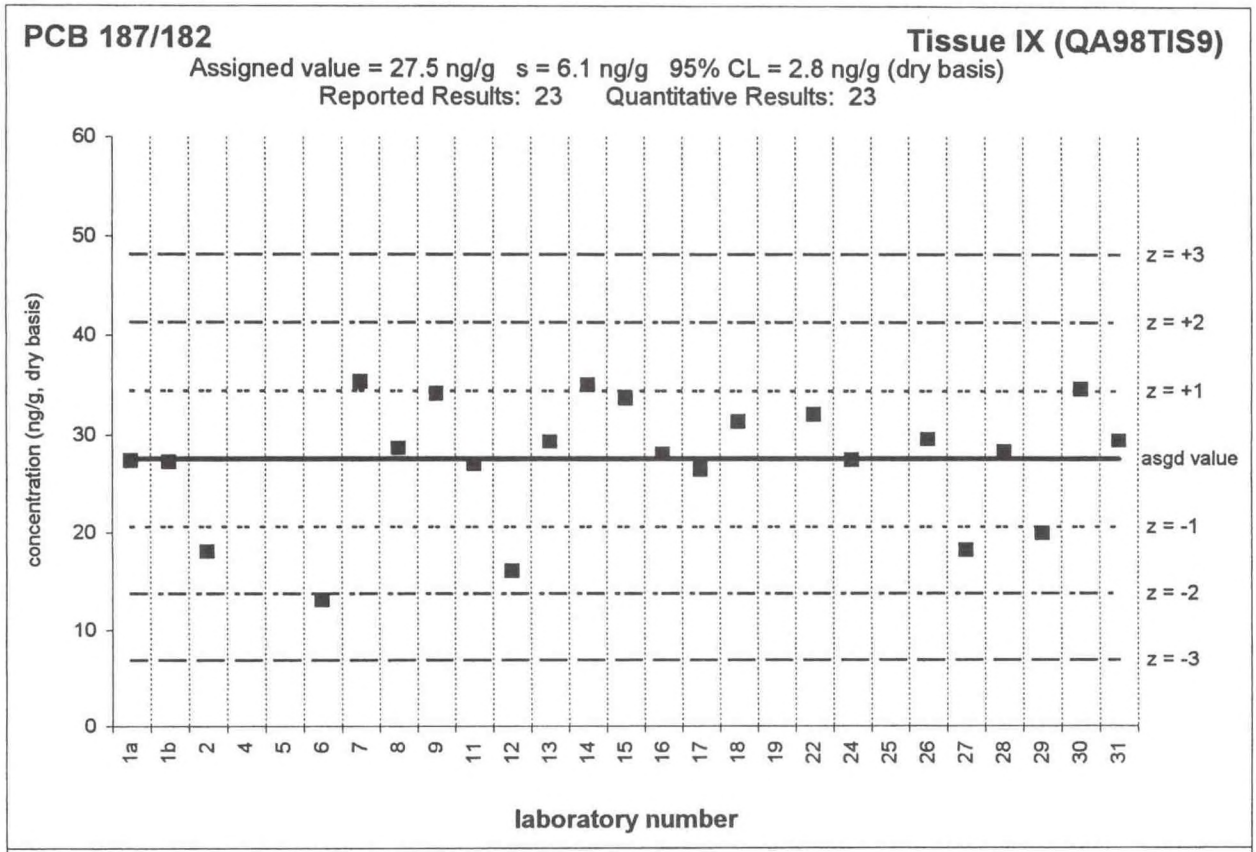
Assigned value = 102 ng/g s = 25 ng/g 95% CL = 11 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 23

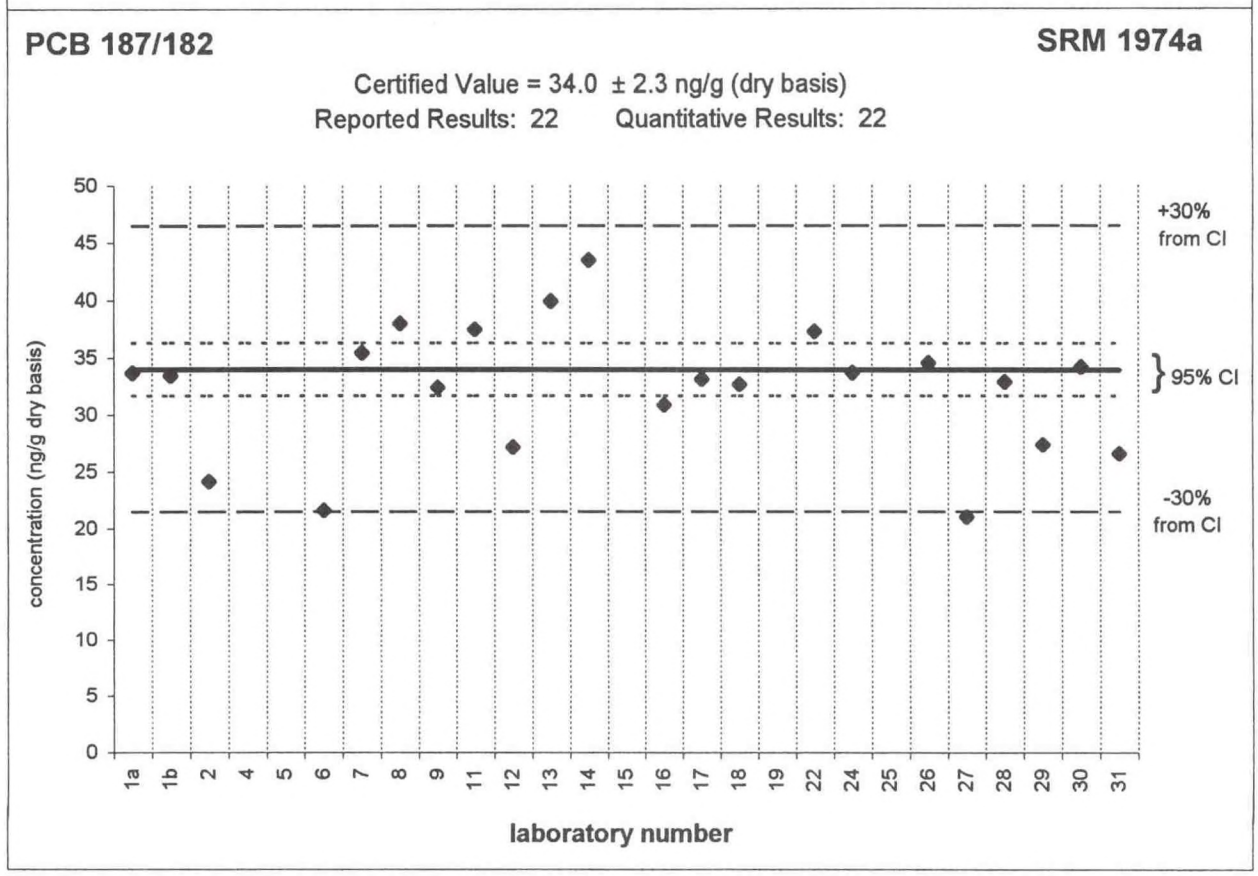


PCB 138/163/164 **SRM 1974a**

Certified Value = 133.5 ± 9.5 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 21

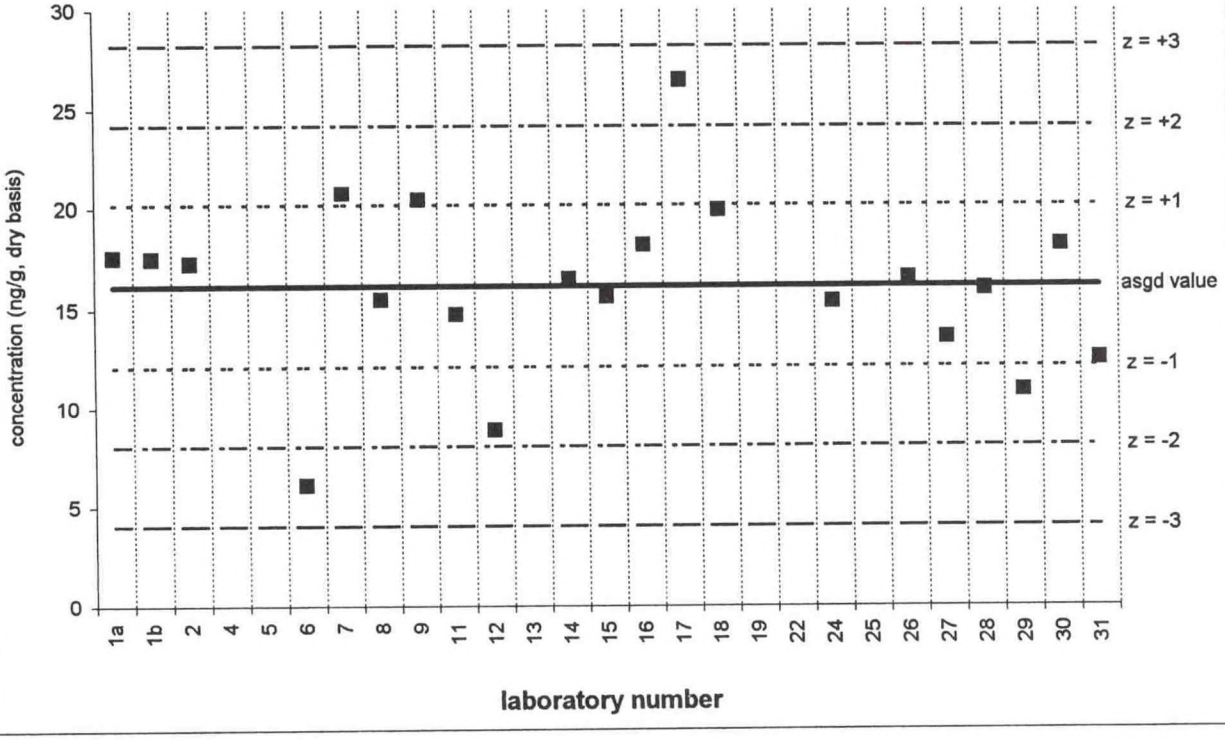



PCB 187/182
Tissue IX (QA98TIS9)
Assigned value = 27.5 ng/g s = 6.1 ng/g 95% CL = 2.8 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 23
concentration (ng/g, dry basis)
60
50
40
30
20
10
0
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31
laboratory number


PCB 187/182
SRM 1974a
Certified Value = 34.0 ± 2.3 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 22
concentration (ng/g dry basis)
50
45
40
35
30
25
20
15
10
5
0
+30% from CI
95% CI
-30% from CI
1a 1b 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 22 24 25 26 27 28 29 30 31
laboratory number

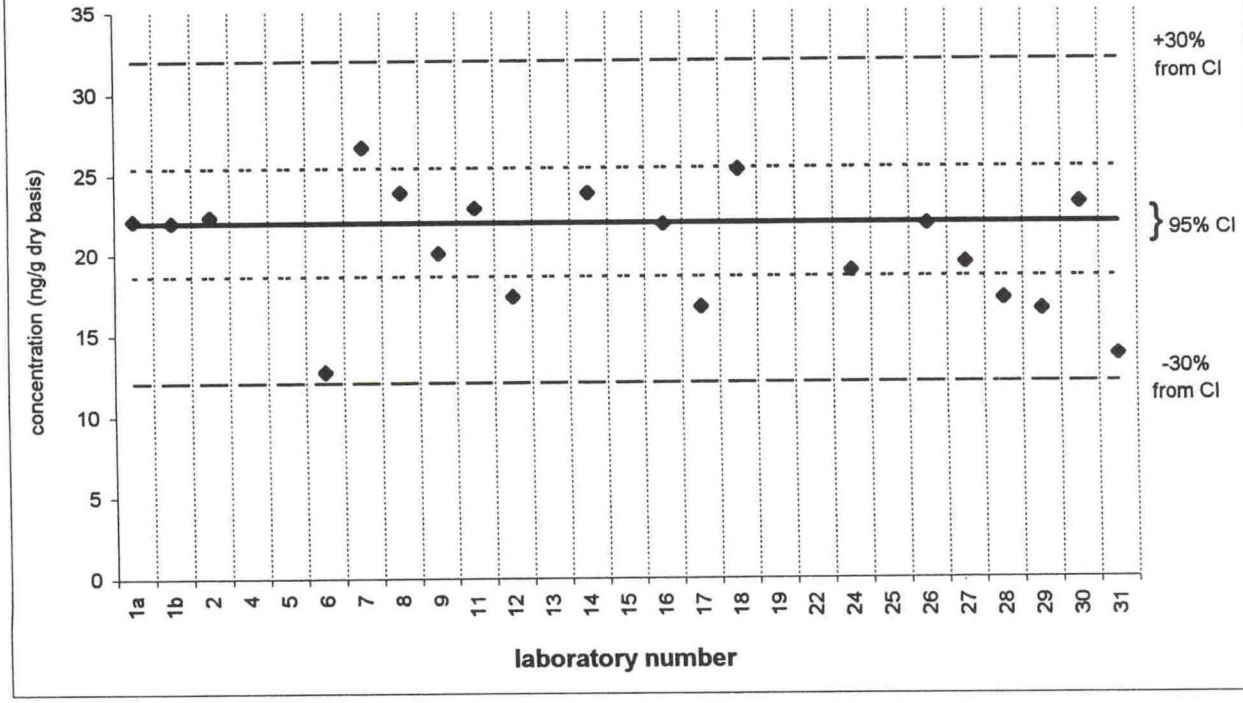
PCB 128 **Tissue IX (QA98TIS9)**

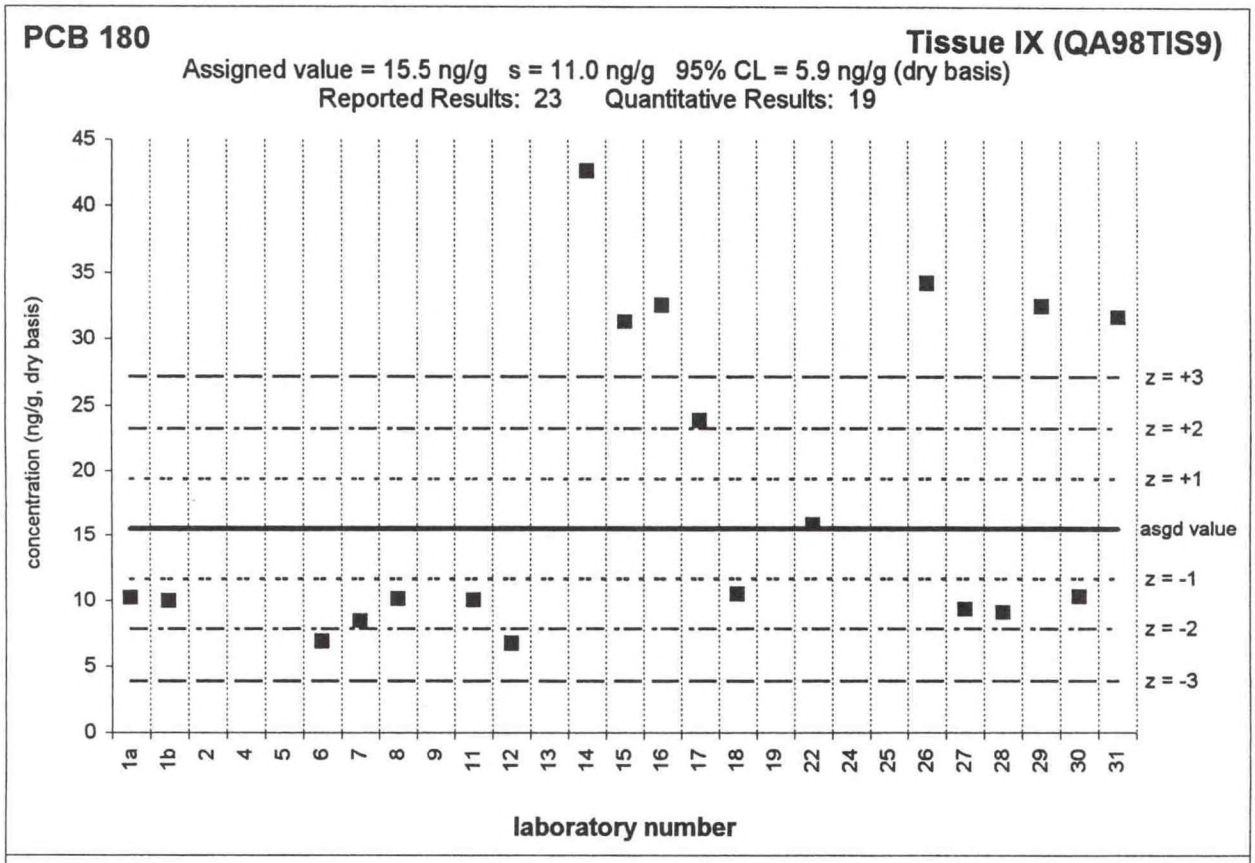
Assigned value = 16.1 ng/g s = 4.5 ng/g 95% CL = 2.1 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 21

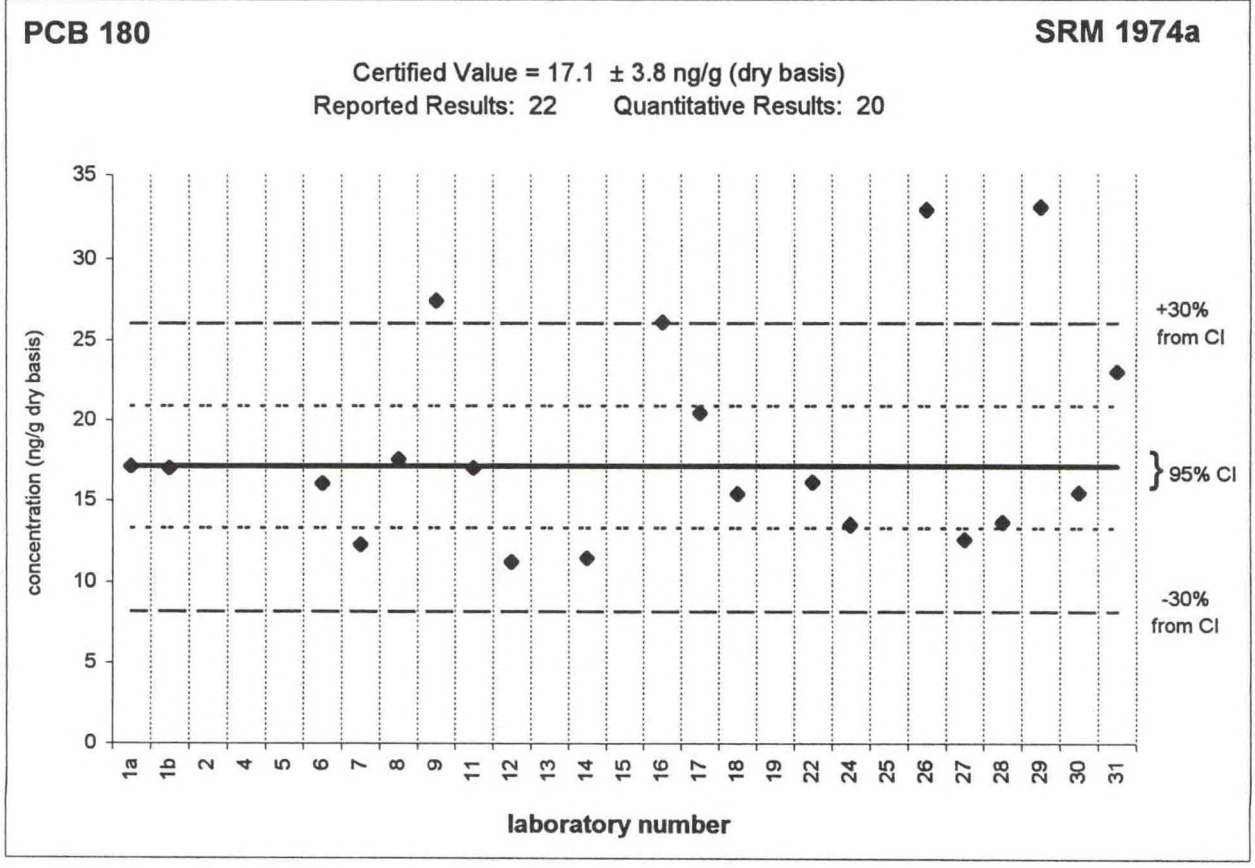


PCB 128 **SRM 1974a**

Certified Value = 22.0 ± 3.4 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 20

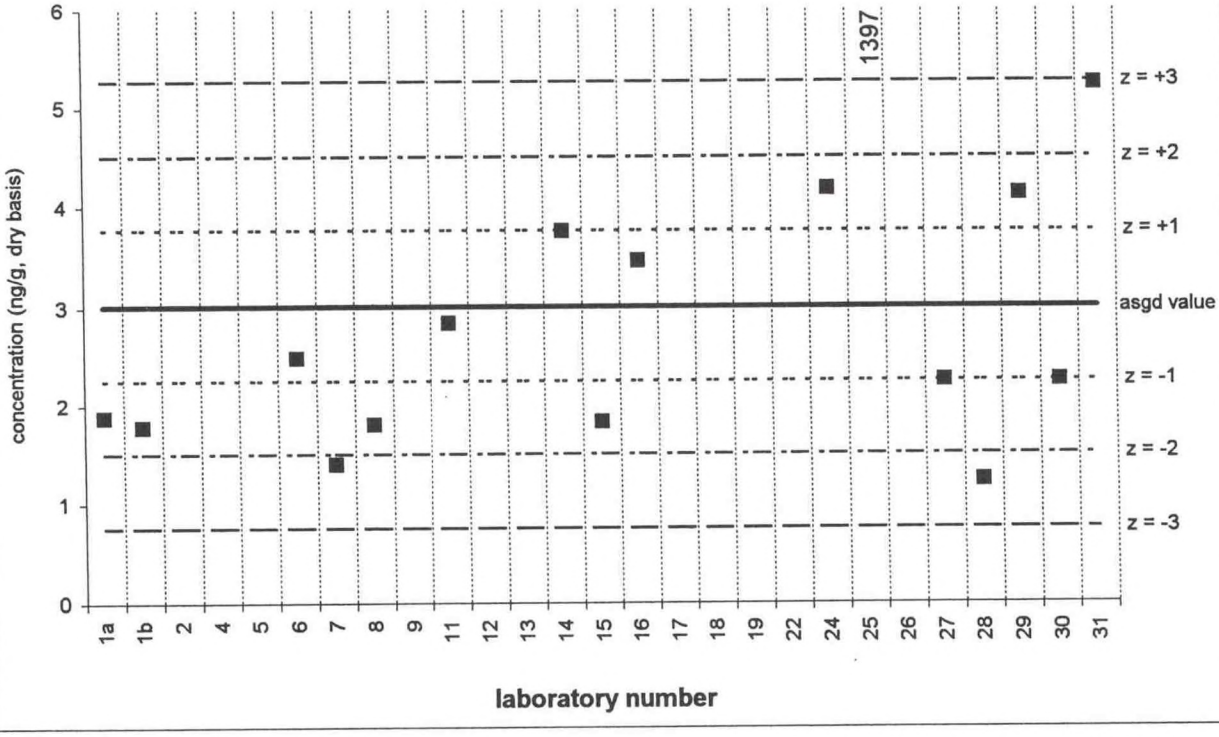



PCB 180
Tissue IX (QA98TIS9)
Assigned value = 15.5 ng/g s = 11.0 ng/g 95% CL = 5.9 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 19
concentration (ng/g, dry basis)
z = +3
z = +2
z = +1
asgd value
z = -1
z = -2
z = -3
laboratory number


PCB 180
SRM 1974a
Certified Value = 17.1 ± 3.8 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 20
concentration (ng/g dry basis)
+30% from CI
95% CI
-30% from CI
laboratory number

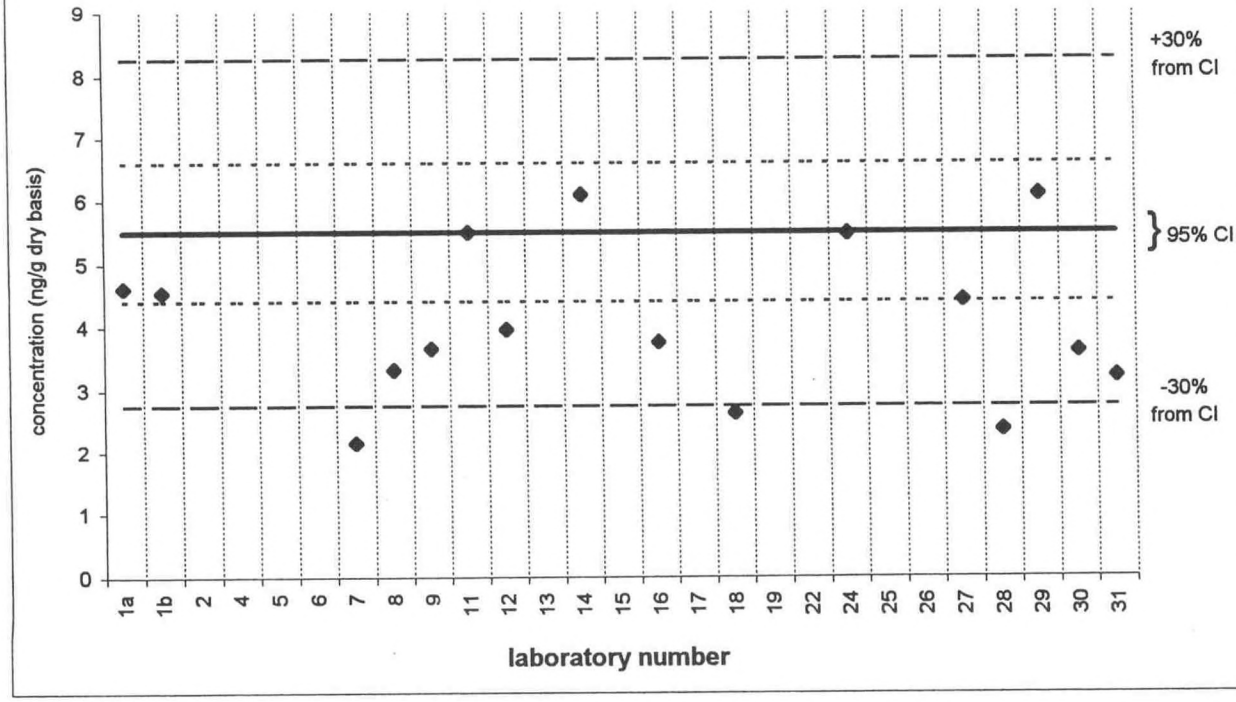
PCB 170/190 **Tissue IX (QA98TIS9)**

Assigned value = 3.01 ng/g s = 1.13 ng/g 95% CL = 0.72 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 16



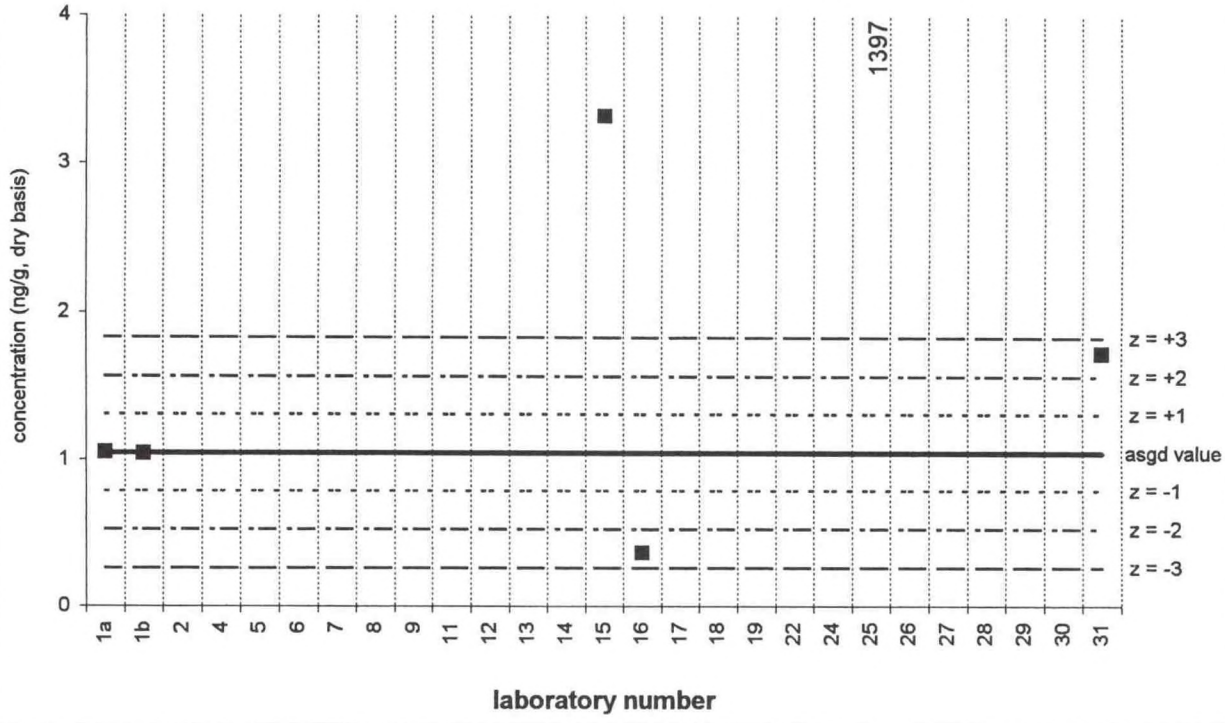
PCB 170/190 **SRM 1974a**

Certified Value = 5.5 ± 1.1 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 16



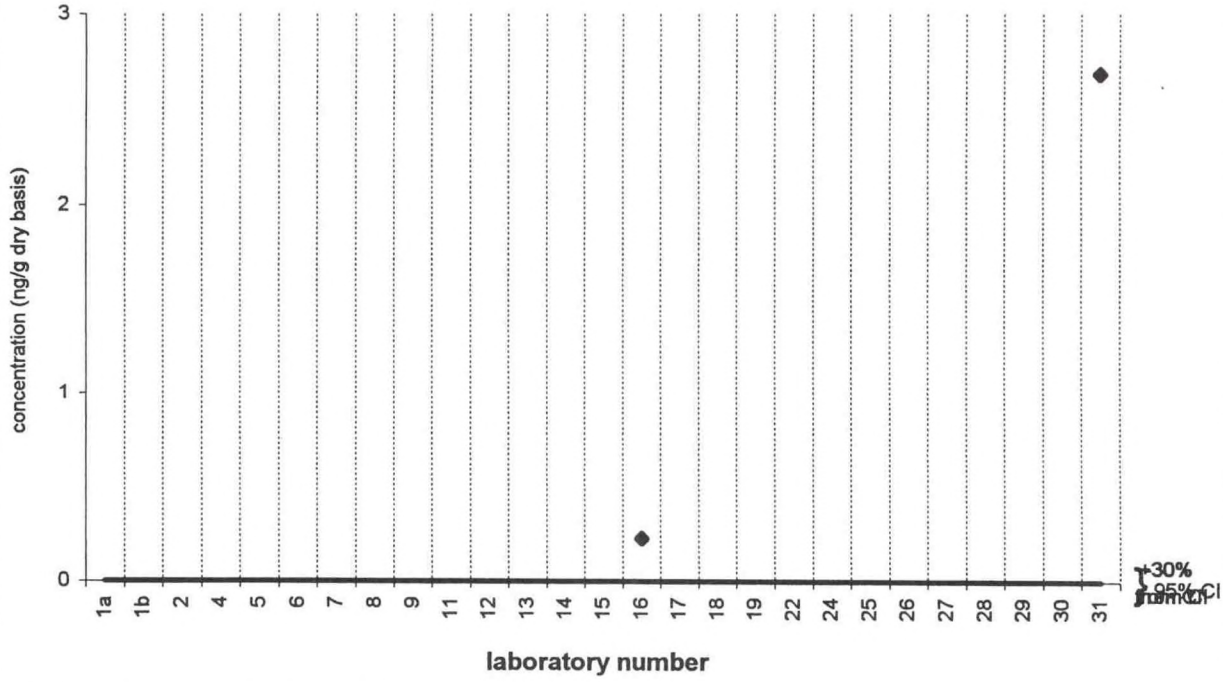
PCB 195 **Tissue IX (QA98TIS9)**

Assigned value = 1.04 ng/g s = 0.55 ng/g 95% CL = 0.69 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 5



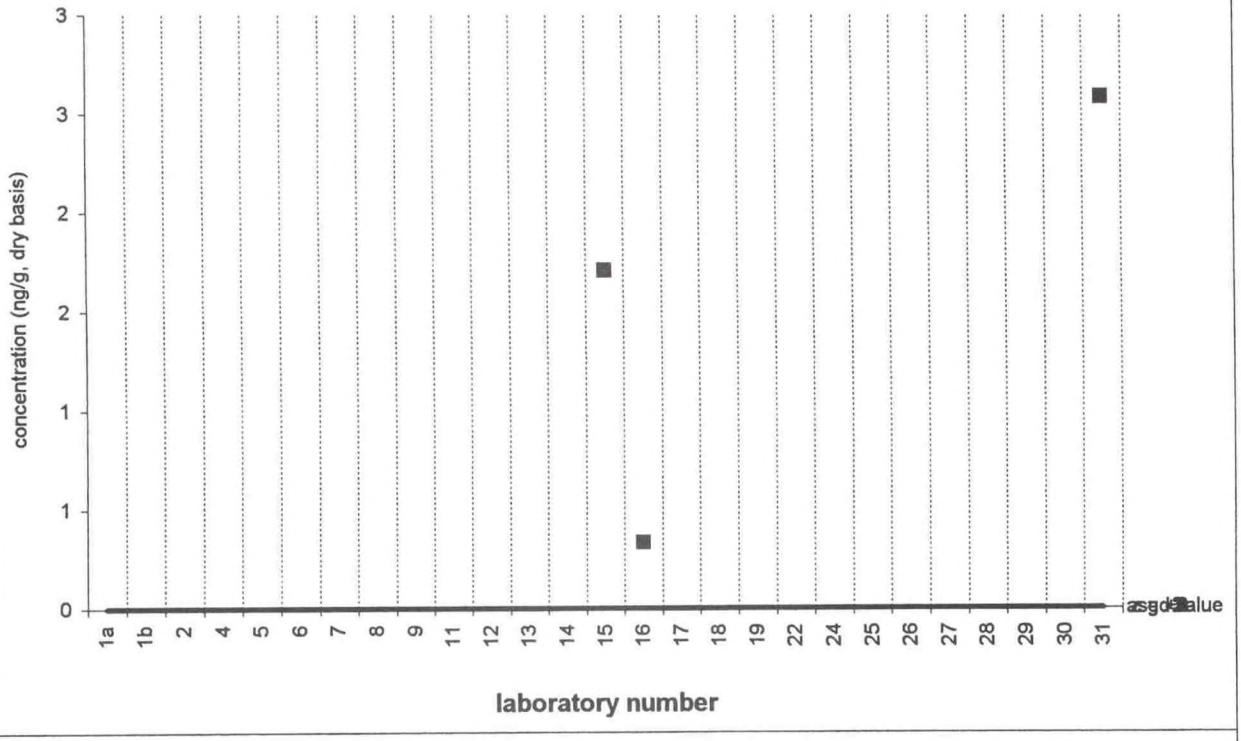
PCB 195 **SRM 1974a**

Target Value = No Target ng/g (dry basis)
Reported Results: 19 Quantitative Results: 2



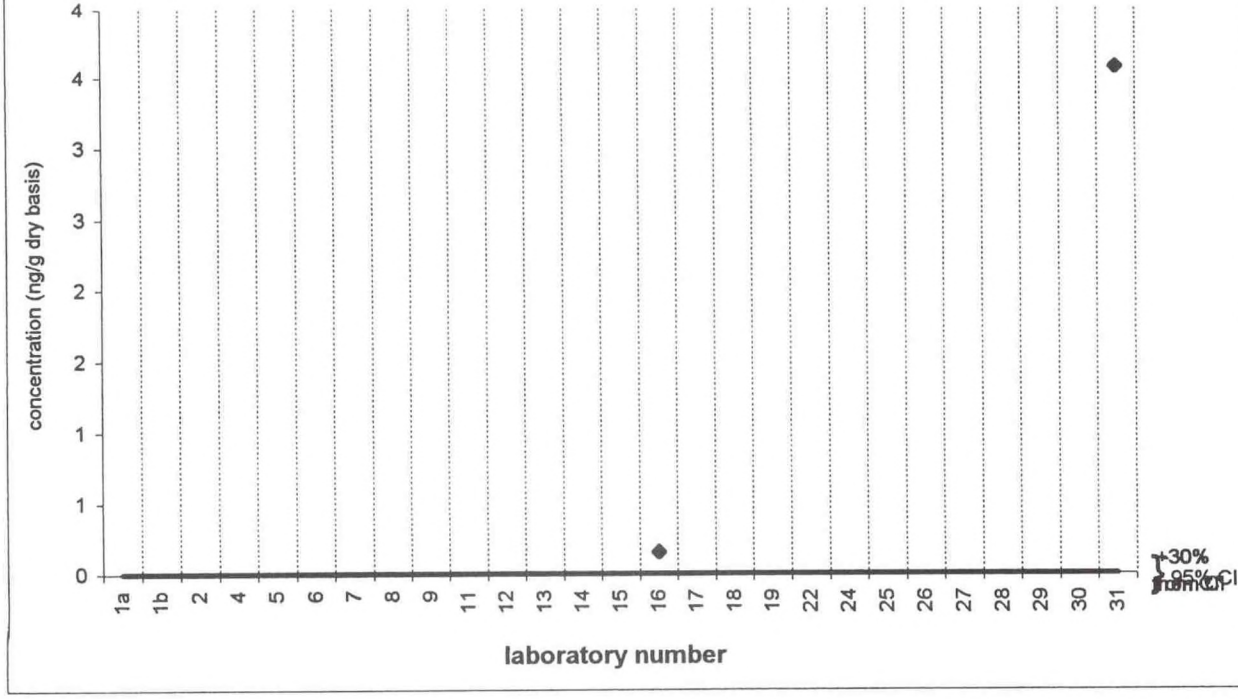
PCB 206 **Tissue IX (QA98TIS9)**

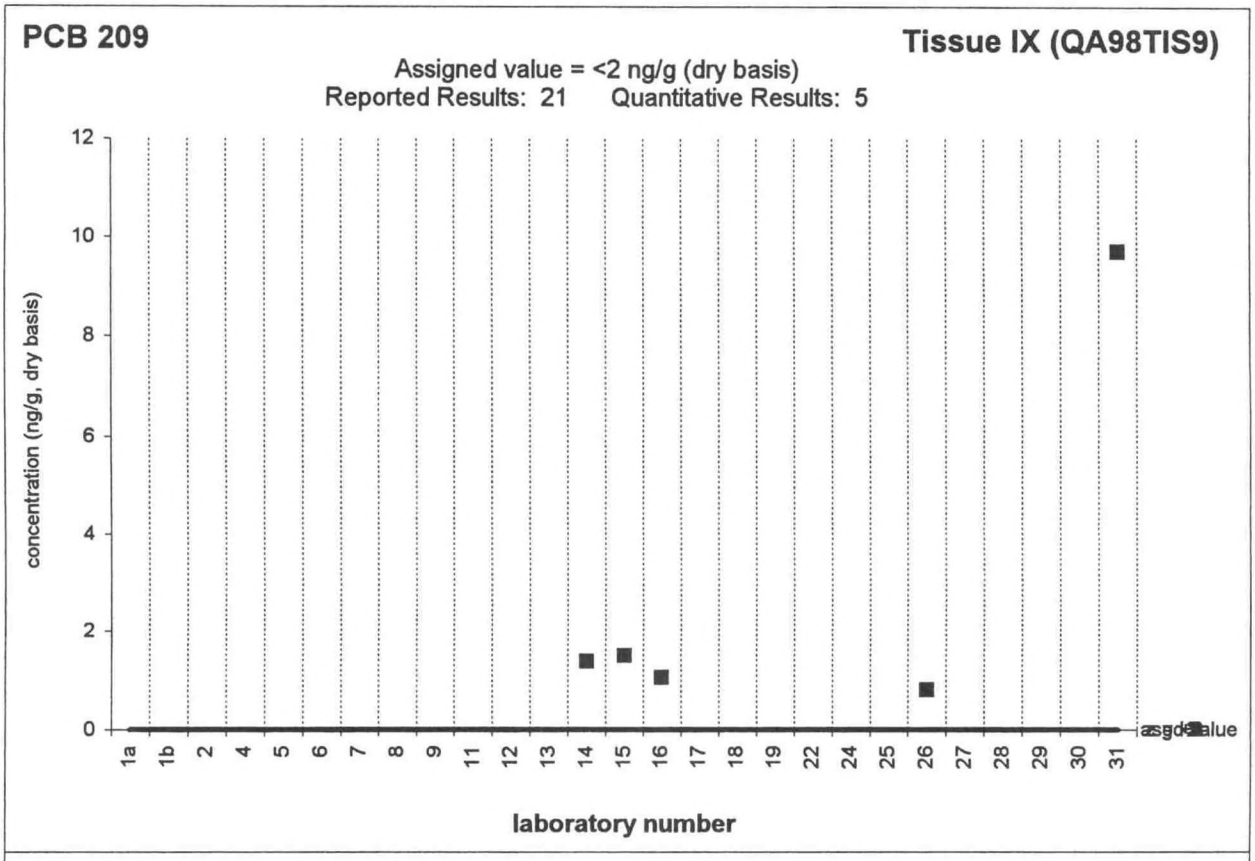
Assigned value = <2 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 3

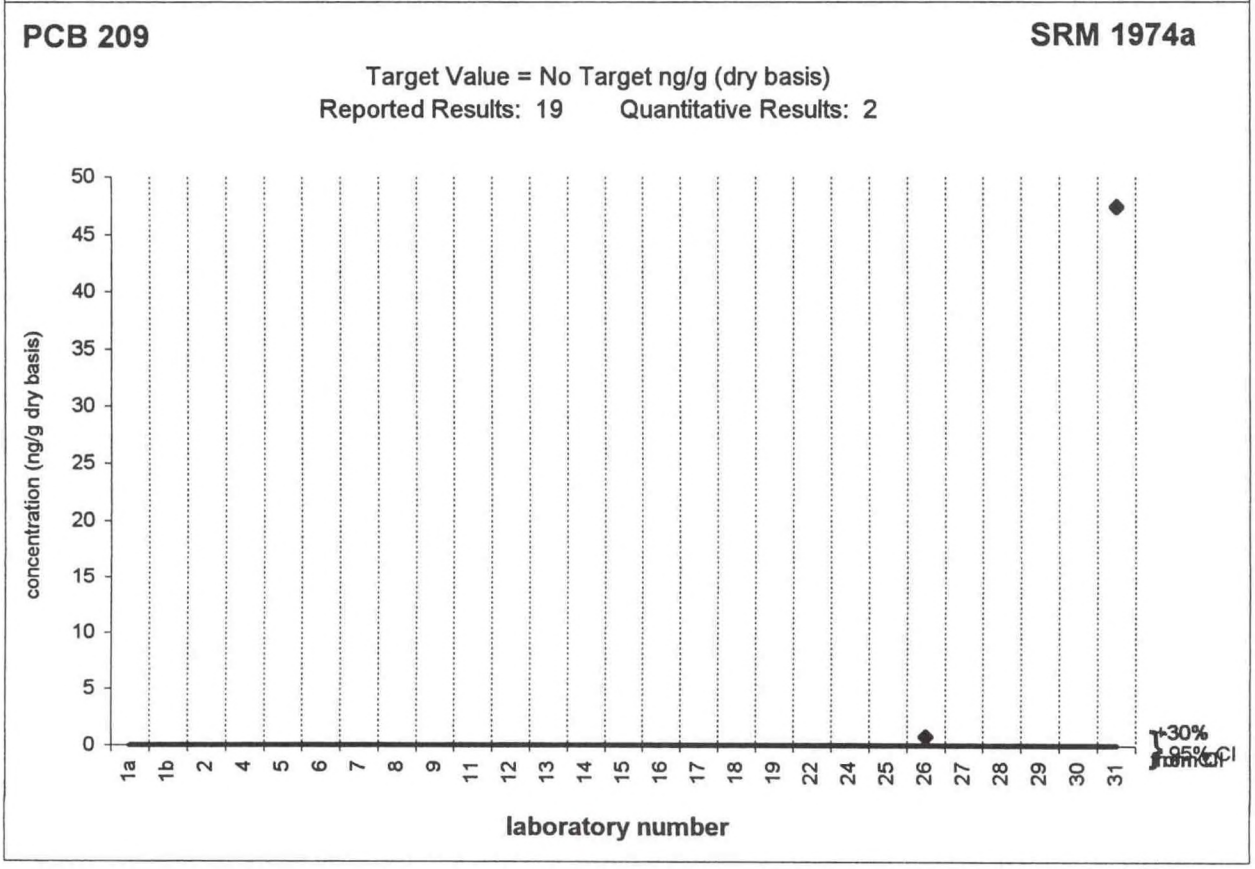


PCB 206 **SRM 1974a**

Target Value = No Target ng/g (dry basis)
Reported Results: 19 Quantitative Results: 2

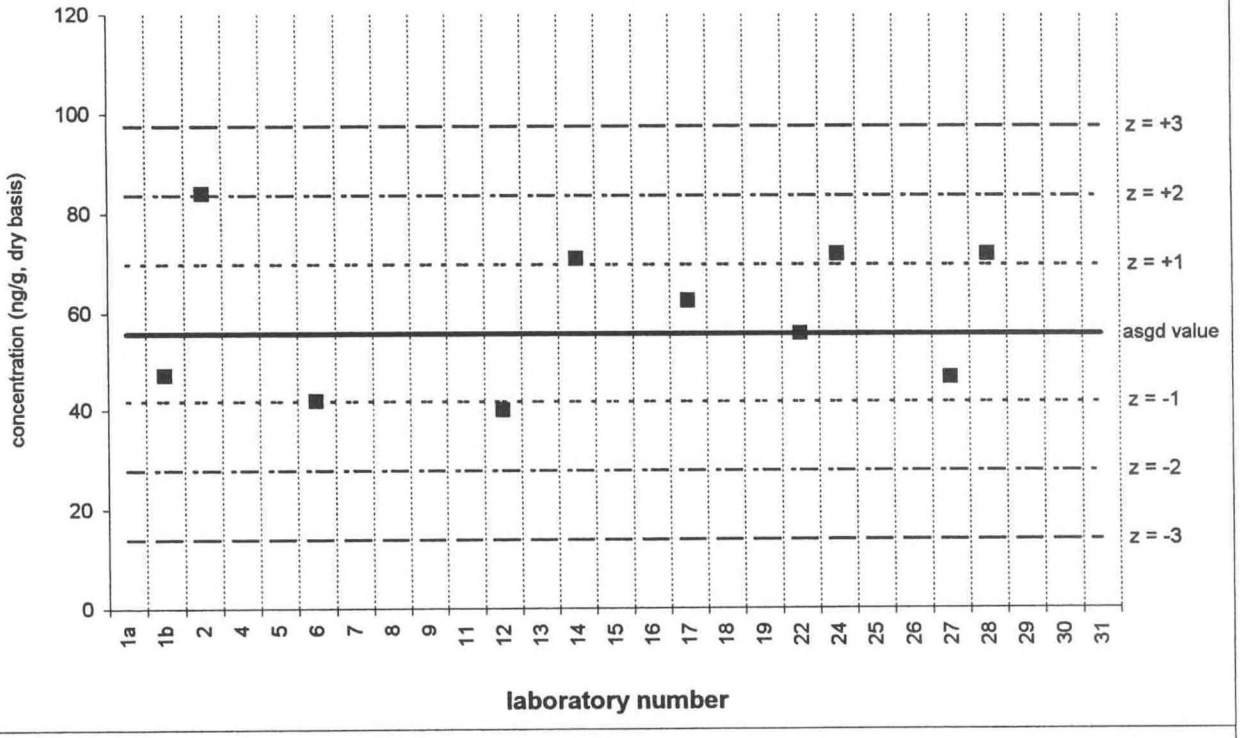



PCB 209
Tissue IX (QA98TIS9)
Assigned value = <2 ng/g (dry basis)
Reported Results: 21 Quantitative Results: 5
concentration (ng/g, dry basis)
laboratory number


PCB 209
SRM 1974a
Target Value = No Target ng/g (dry basis)
Reported Results: 19 Quantitative Results: 2
concentration (ng/g dry basis)
laboratory number

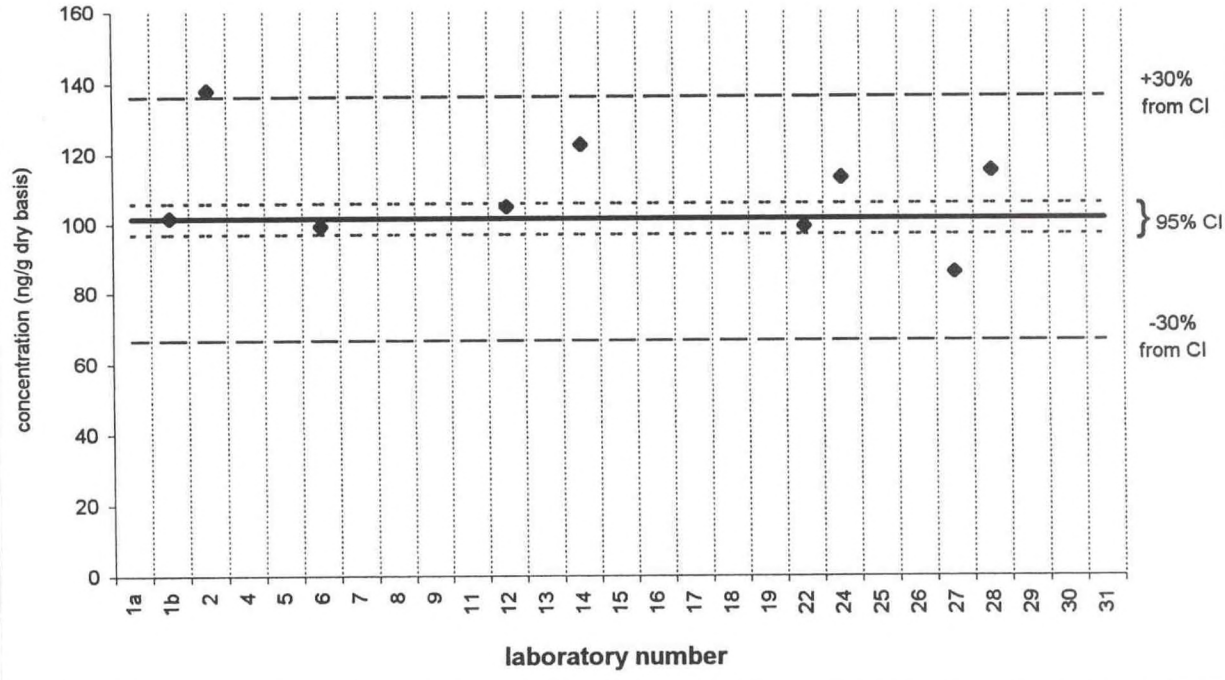
PCB 66 **Tissue IX (QA98TIS9)**

Assigned value = 55.7 ng/g s = 13.8 ng/g 95% CL = 11.5 ng/g (dry basis)
Reported Results: 10 Quantitative Results: 10



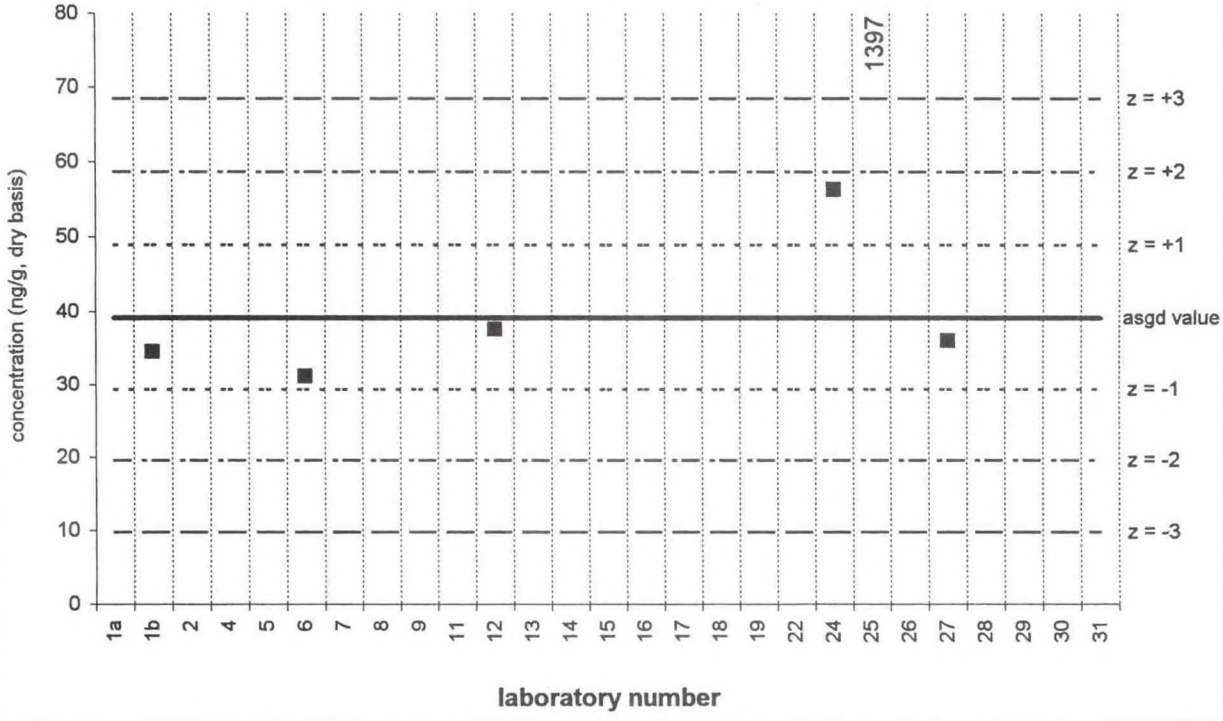
PCB 66 **SRM 1974a**

Certified Value = 101.4 ± 4.4 ng/g (dry basis)
Reported Results: 10 Quantitative Results: 9



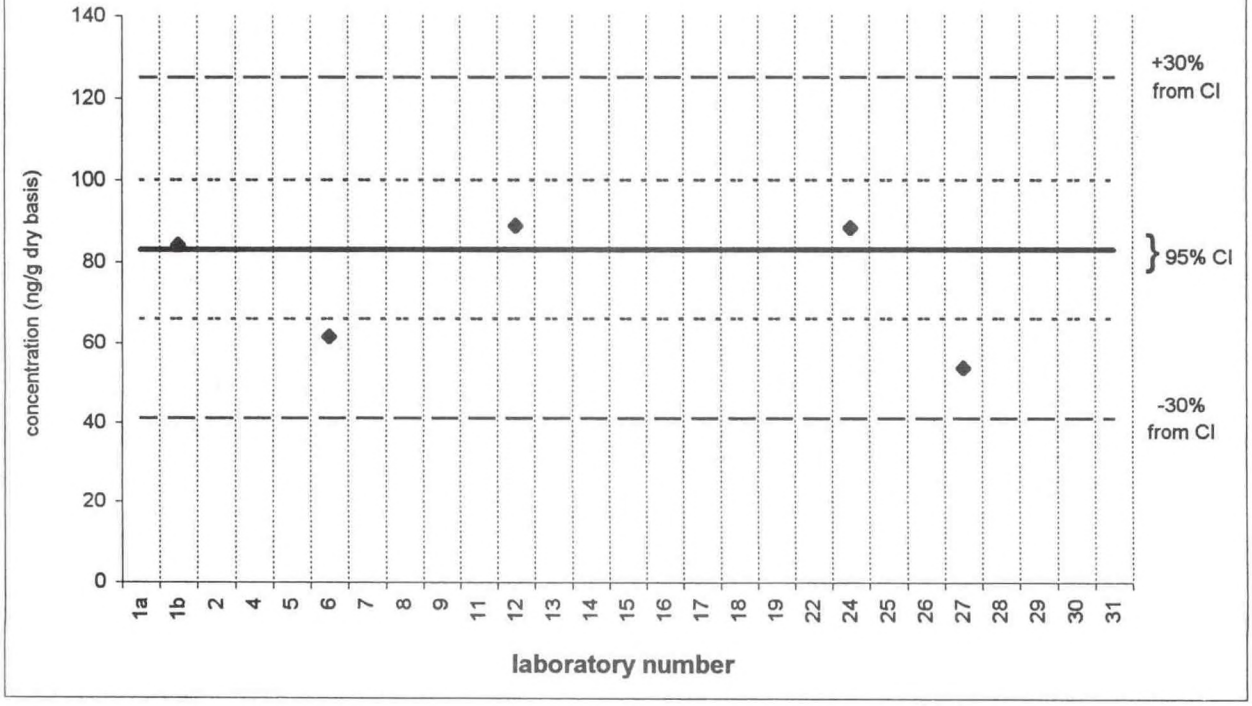
PCB 95 **Tissue IX (QA98TIS9)**

Assigned value = 39.1 ng/g s = 9.9 ng/g 95% CL = 12.3 ng/g (dry basis)
Reported Results: 5 Quantitative Results: 5



PCB 95 **SRM 1974a**

Certified Value = 83 ± 17 ng/g (dry basis)
Reported Results: 6 Quantitative Results: 5



Appendix J: Charts of Sediment VIII and SRM 1941a Results by Analyte

See Tables 5, 6, and 7 and Appendix D for results reported as <*number*, DL, etc.
Charts for analytes with few reported numerical results are not included in this appendix.

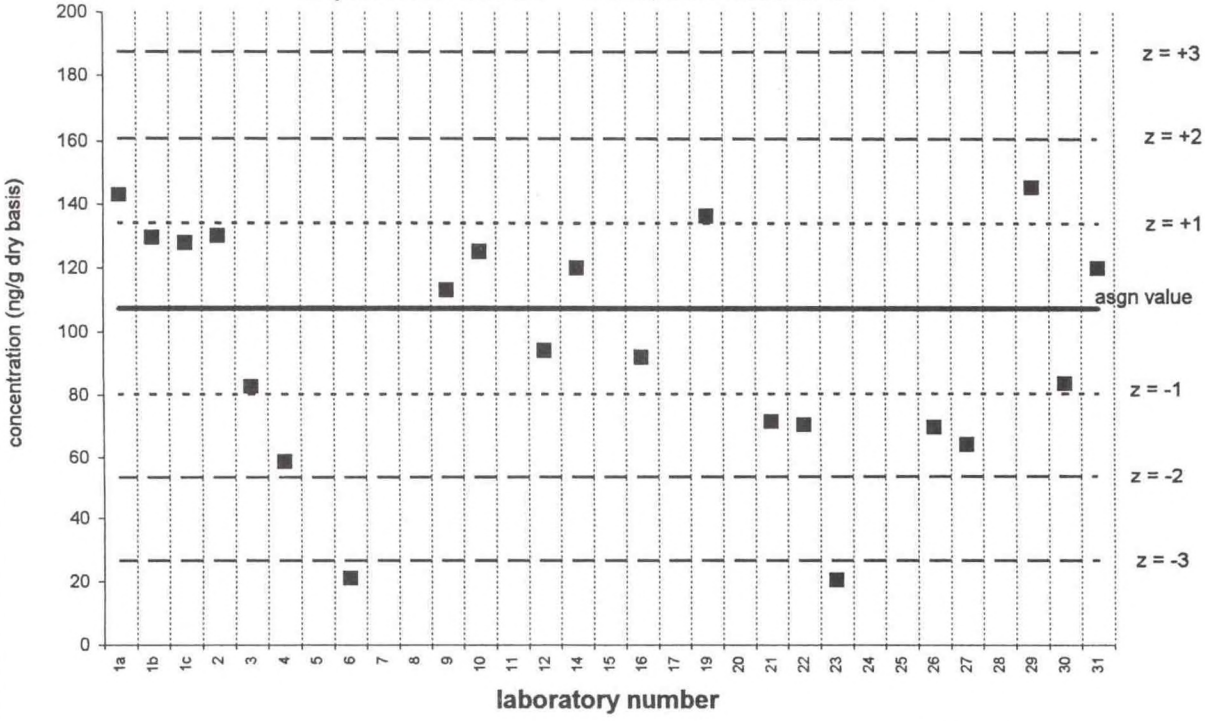
For Sediment VIII plots:
Solid line:
exercise assigned value
Dotted line:
$z = \pm 1$, i. e., 25% from assigned value
Dotted/dashed line:
$z = \pm 2$, i. e., 50% from assigned value
Dashed line:
$z = \pm 3$, i. e., 75% from assigned value

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 VIII (QA98SED8)**

Assigned value = 107 ng/g s = 29 ng/g 95% CL = 15 ng/g (dry basis)

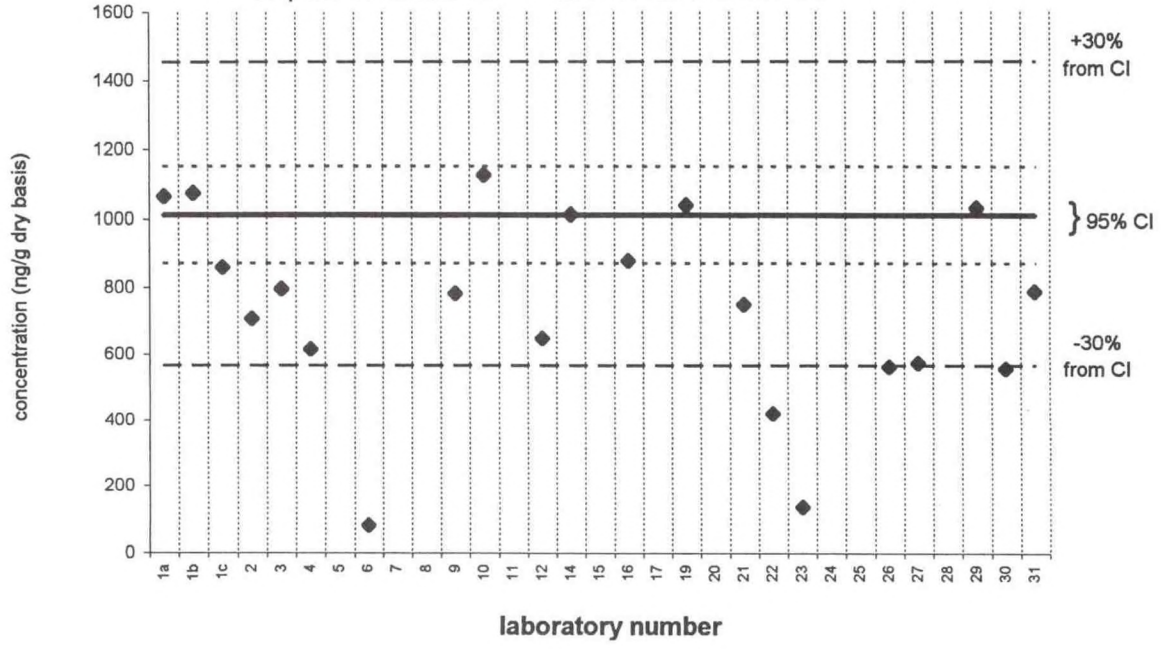
Reported Results: 21 Quantitative Results: 21



naphthalene **SRM 1941a**

Certified Value = 1010 ± 140 ng/g (dry basis)

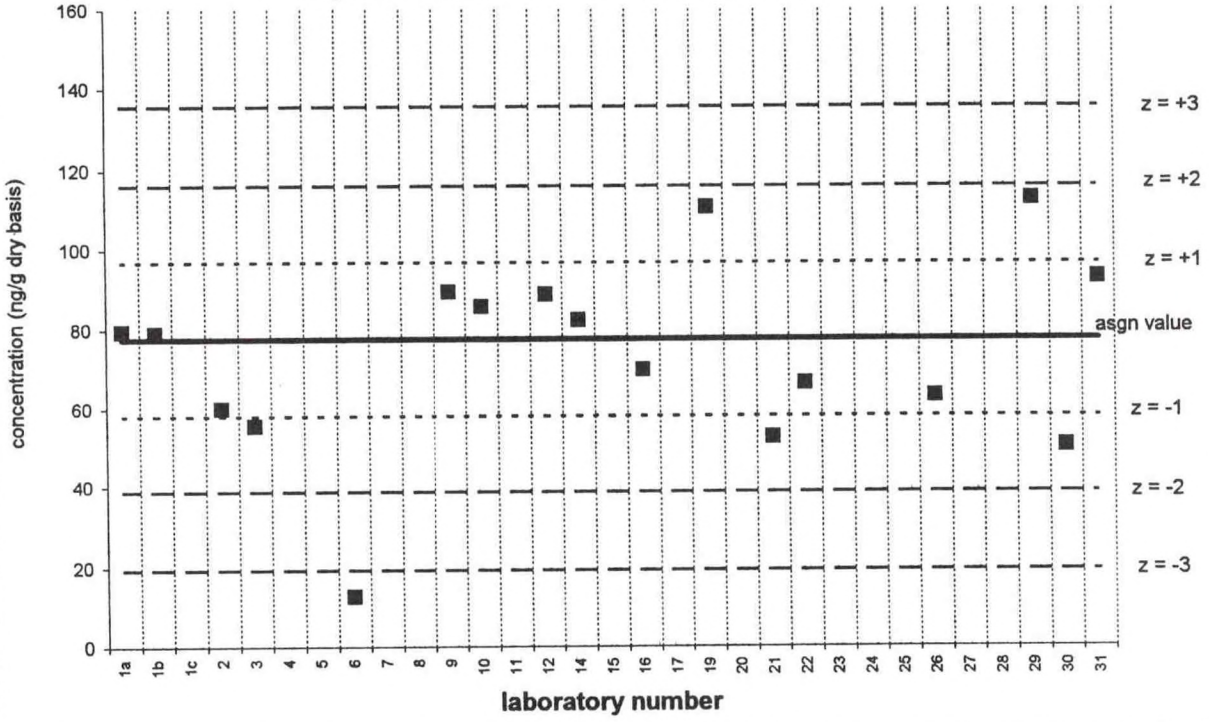
Reported Results: 21 Quantitative Results: 20



2-methylnaphthalene — Sediment VIII (QA98SED8)

Assigned value = 77.4 ng/g s = 19.1 ng/g 95% CL = 10.2 ng/g (dry basis)

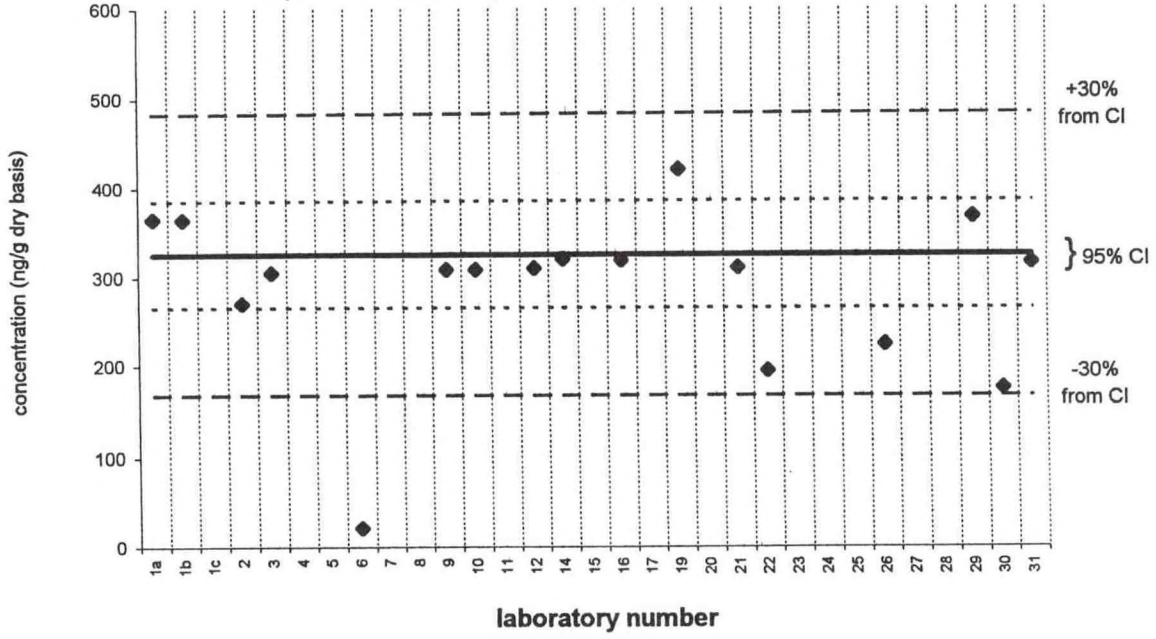
Reported Results: 17 Quantitative Results: 17



2-methylnaphthalene — SRM 1941a

Target Value = 325 ± 60 ng/g (dry basis)

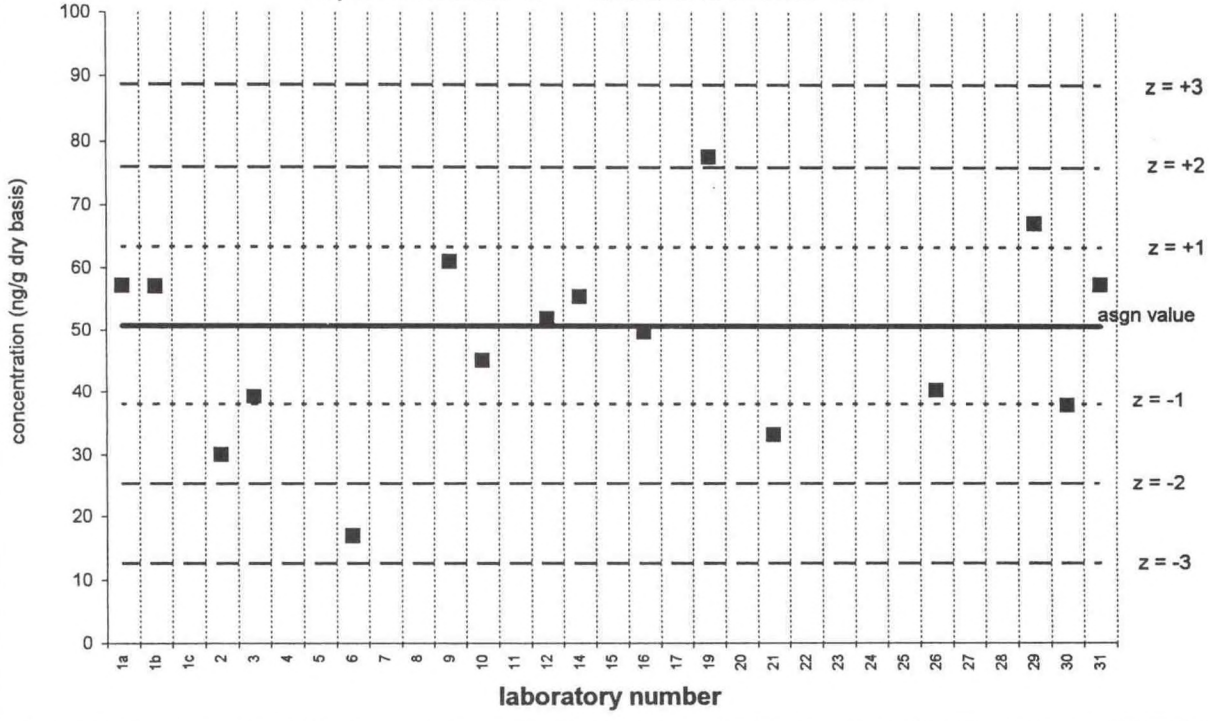
Reported Results: 17 Quantitative Results: 16



1-methylnaphthalene — Sediment VIII (QA98SED8)

Assigned value = 50.7 ng/g s = 13.2 ng/g 95% CL = 7.3 ng/g (dry basis)

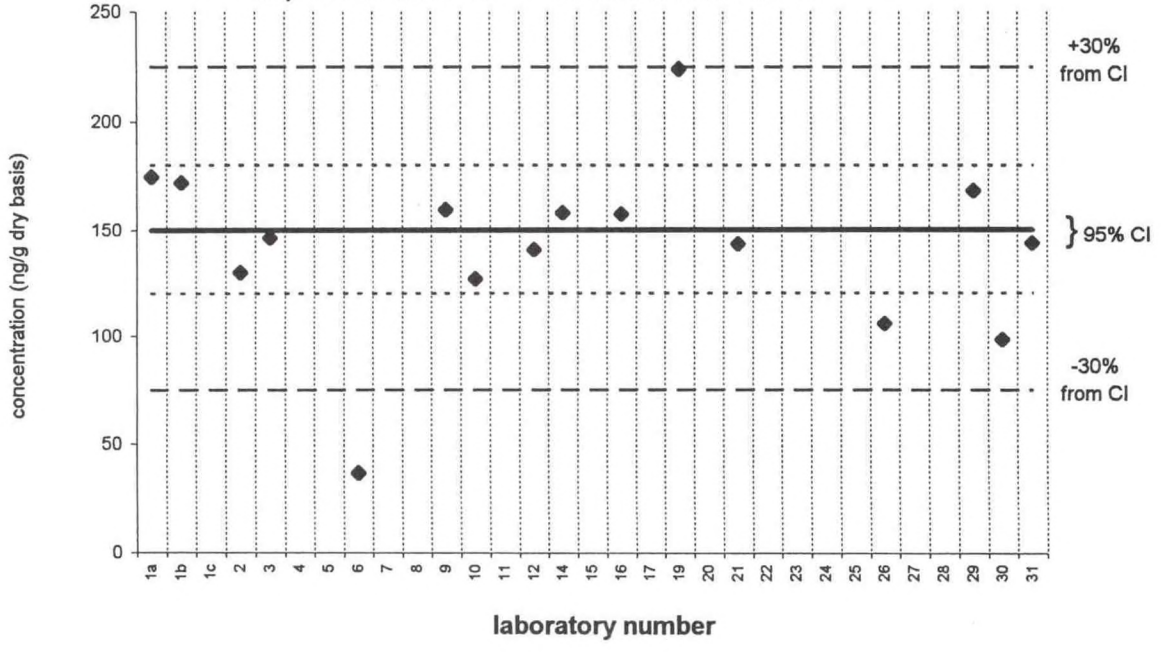
Reported Results: 16 Quantitative Results: 16



1-methylnaphthalene — SRM 1941a

Target Value = 150 ± 30 ng/g (dry basis)

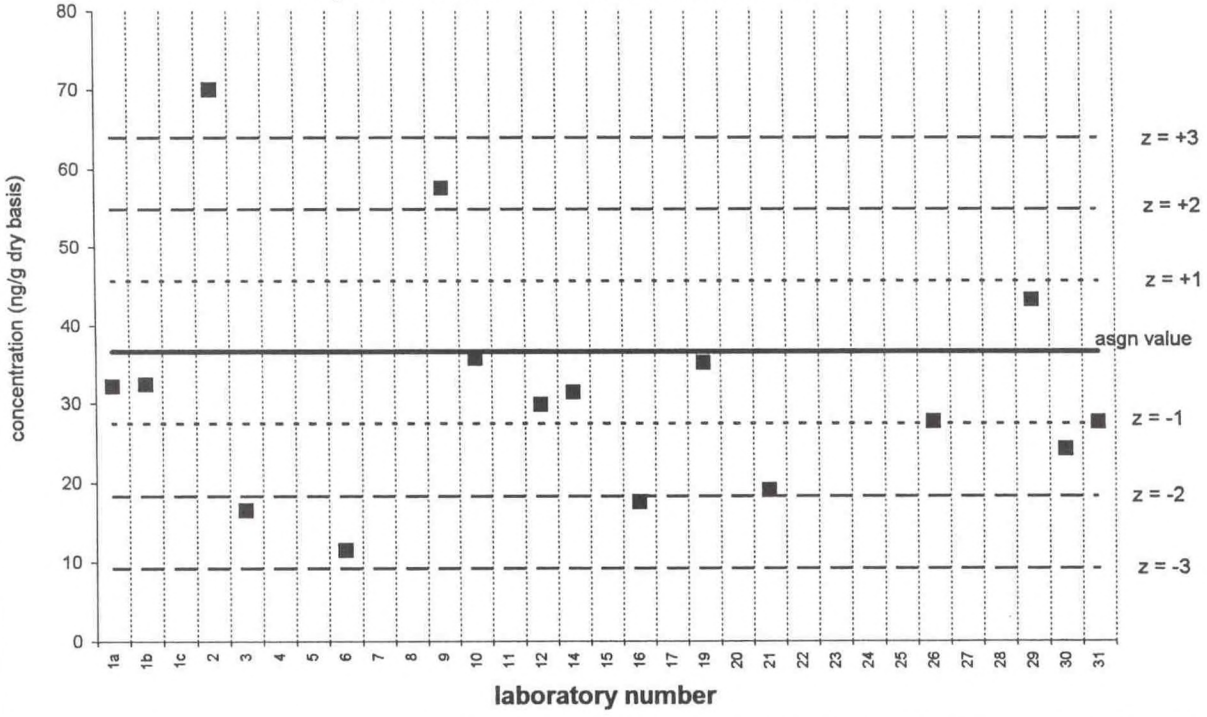
Reported Results: 16 Quantitative Results: 15



biphenyl **Sediment VIII (QA98SED8)**

Assigned value = 36.6 ng/g s = 12.9 ng/g 95% CL = 13.5 ng/g (dry basis)

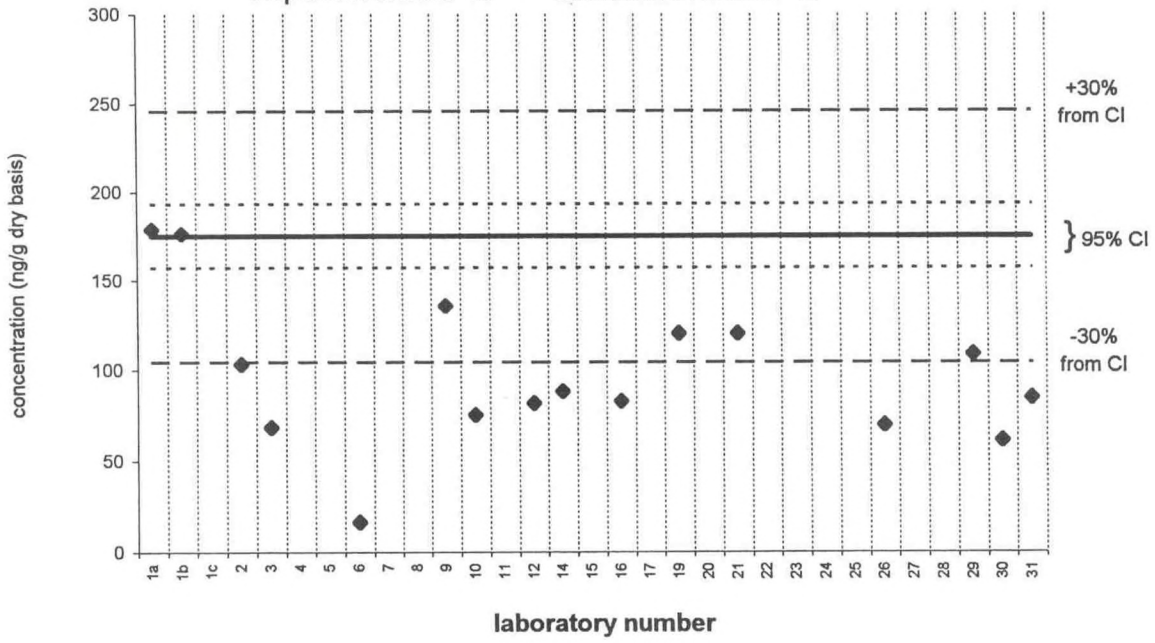
Reported Results: 16 Quantitative Results: 16



biphenyl **SRM 1941a**

Information Value = 175 ± 18 ng/g (dry basis)

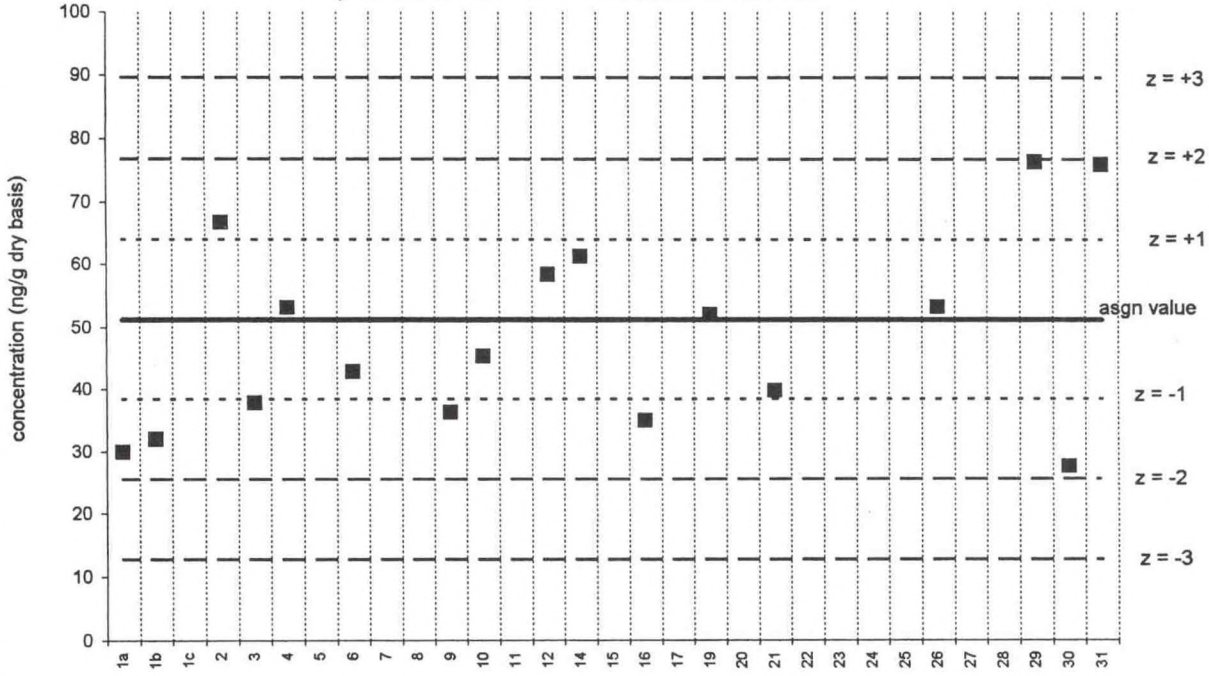
Reported Results: 16 Quantitative Results: 15



2,6-dimethylnaphthalene — Sediment VIII (QA98SED8)

Assigned value = 51.2 ng/g s = 15.4 ng/g 95% CL = 8.9 ng/g (dry basis)

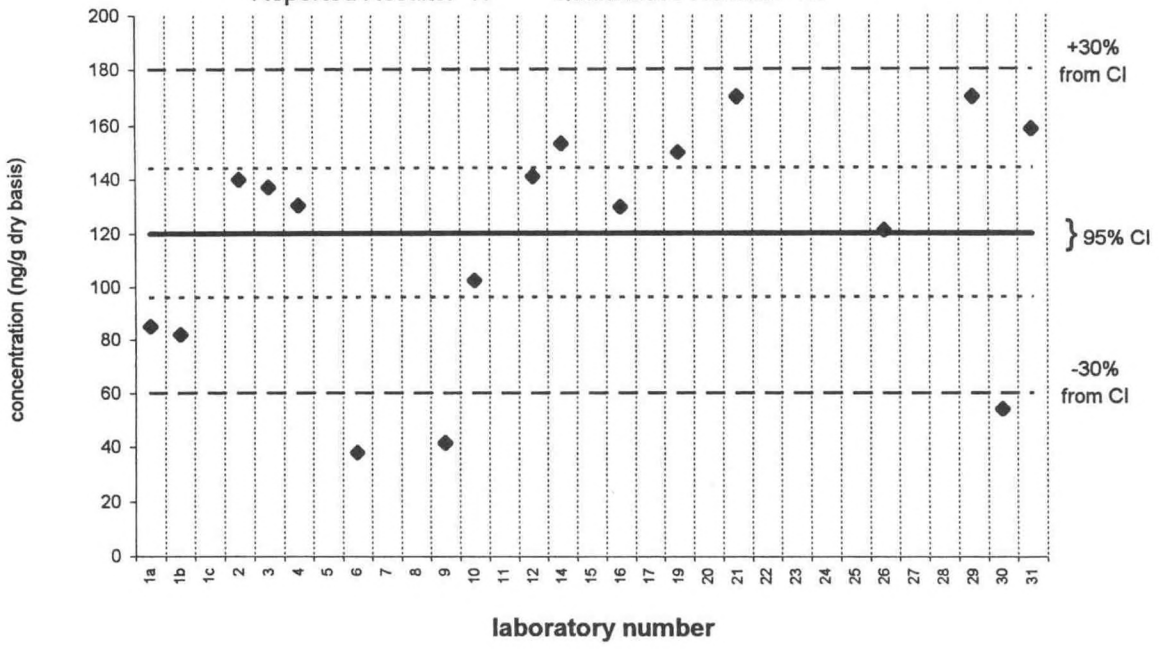
Reported Results: 17 Quantitative Results: 17



2,6-dimethylnaphthalene — SRM 1941a

Target Value = 120 ± 24 ng/g (dry basis)

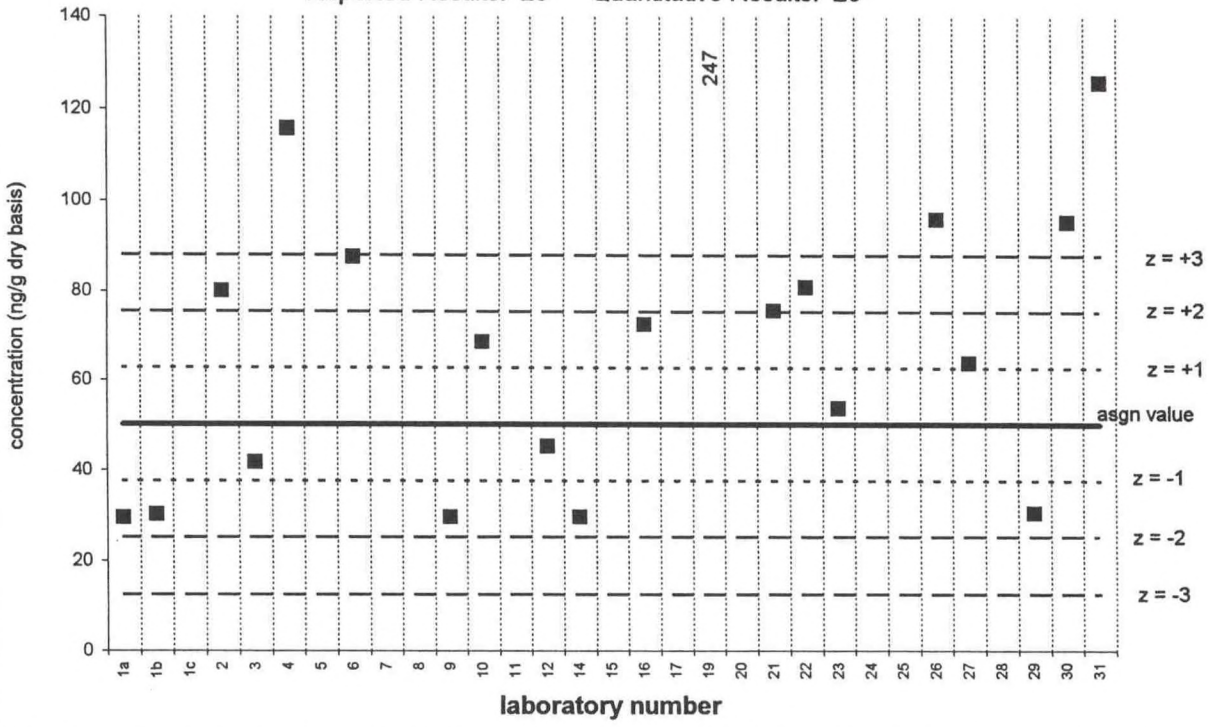
Reported Results: 17 Quantitative Results: 16



acenaphthylene **Sediment VIII (QA98SED8)**

Assigned value = 50.2 ng/g s = 27.0 ng/g 95% CL = 22.6 ng/g (dry basis)

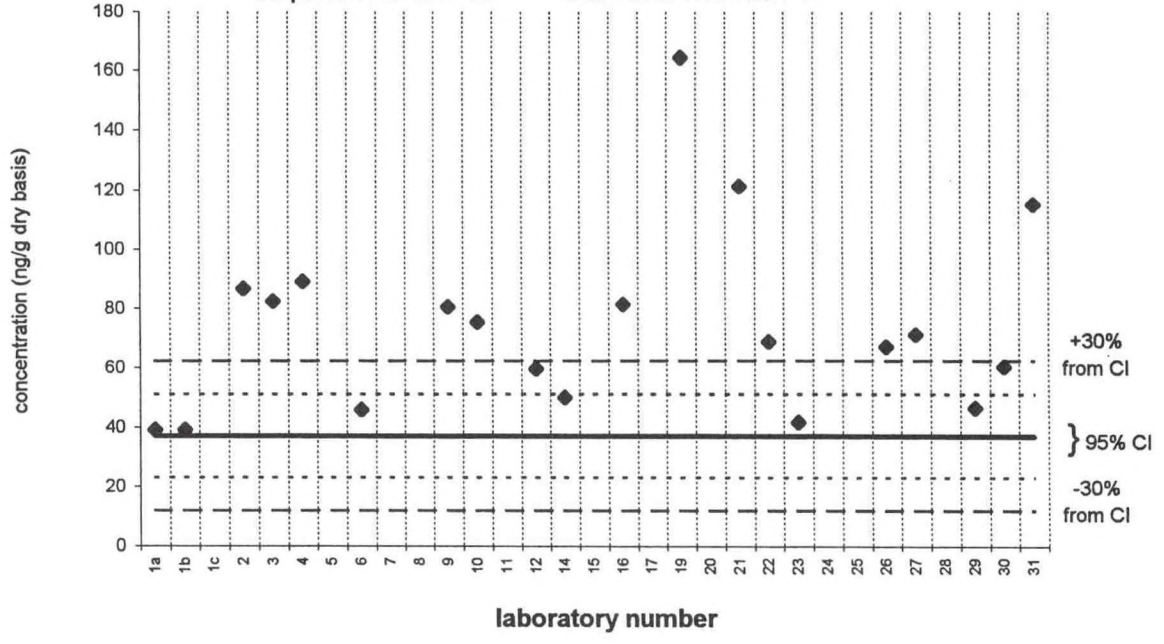
Reported Results: 20 Quantitative Results: 20



acenaphthylene **SRM 1941a**

Information Value = 37 ± 14 ng/g (dry basis)

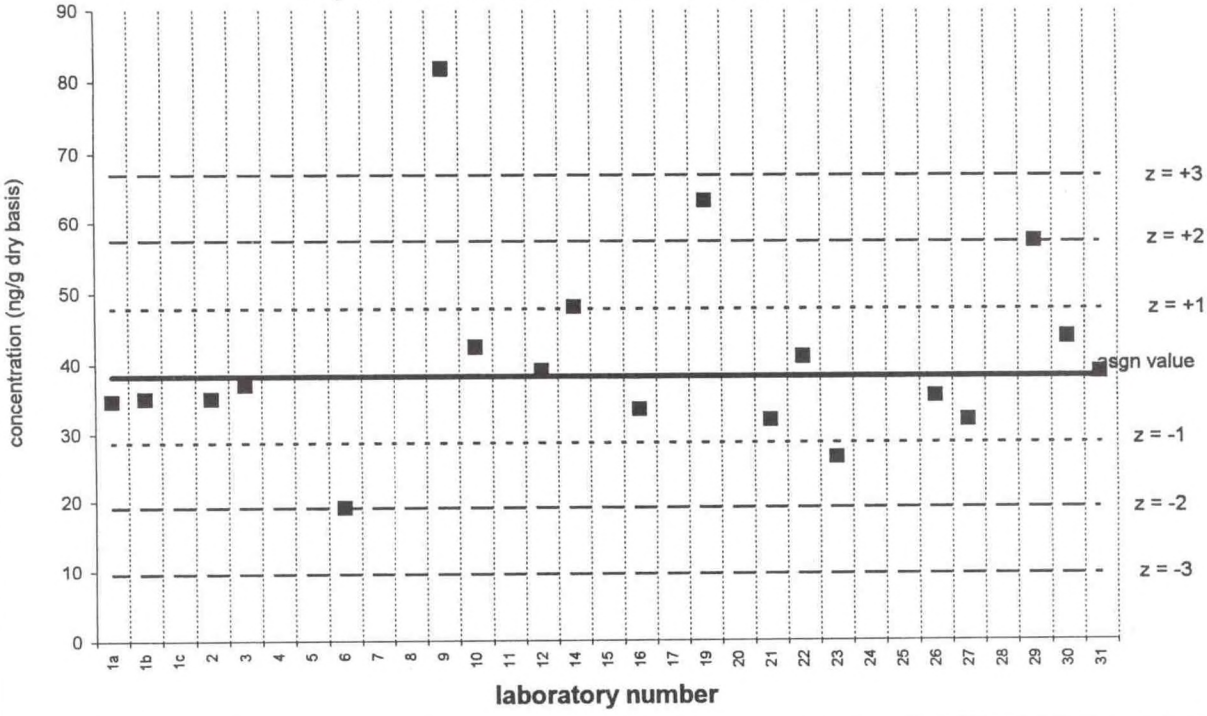
Reported Results: 20 Quantitative Results: 19



acenaphthene **Sediment VIII (QA98SED8)**

Assigned value = 38.2 ng/g s = 7.3 ng/g 95% CL = 3.9 ng/g (dry basis)

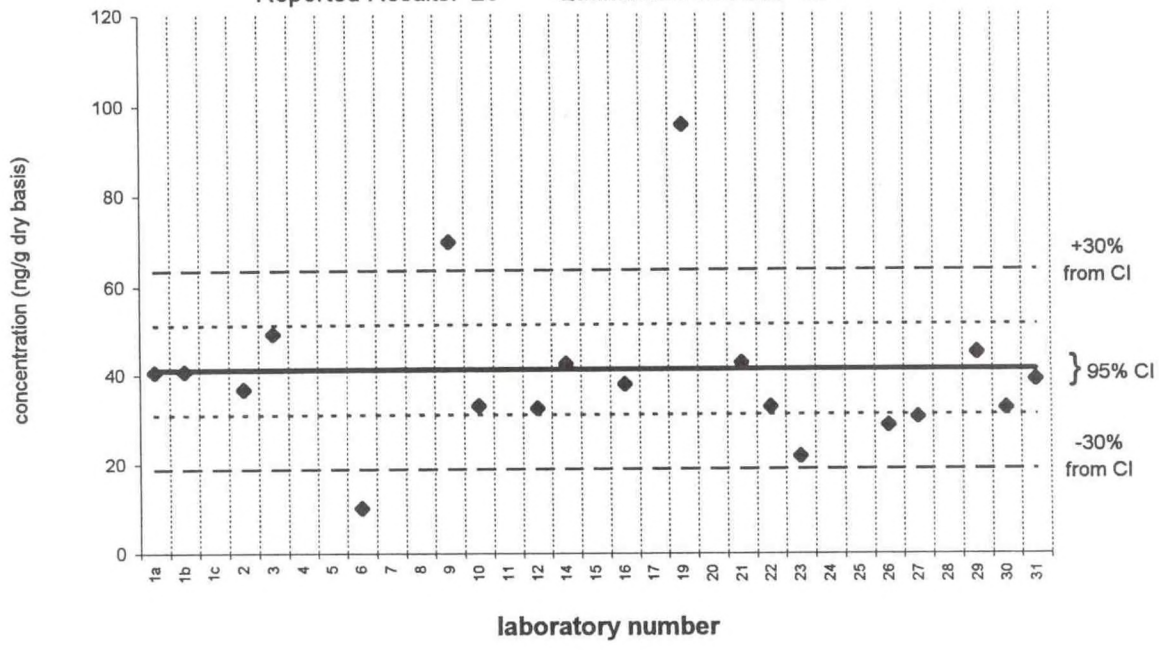
Reported Results: 20 Quantitative Results: 19



acenaphthene **SRM 1941a**

Information Value = 41 ± 10 ng/g (dry basis)

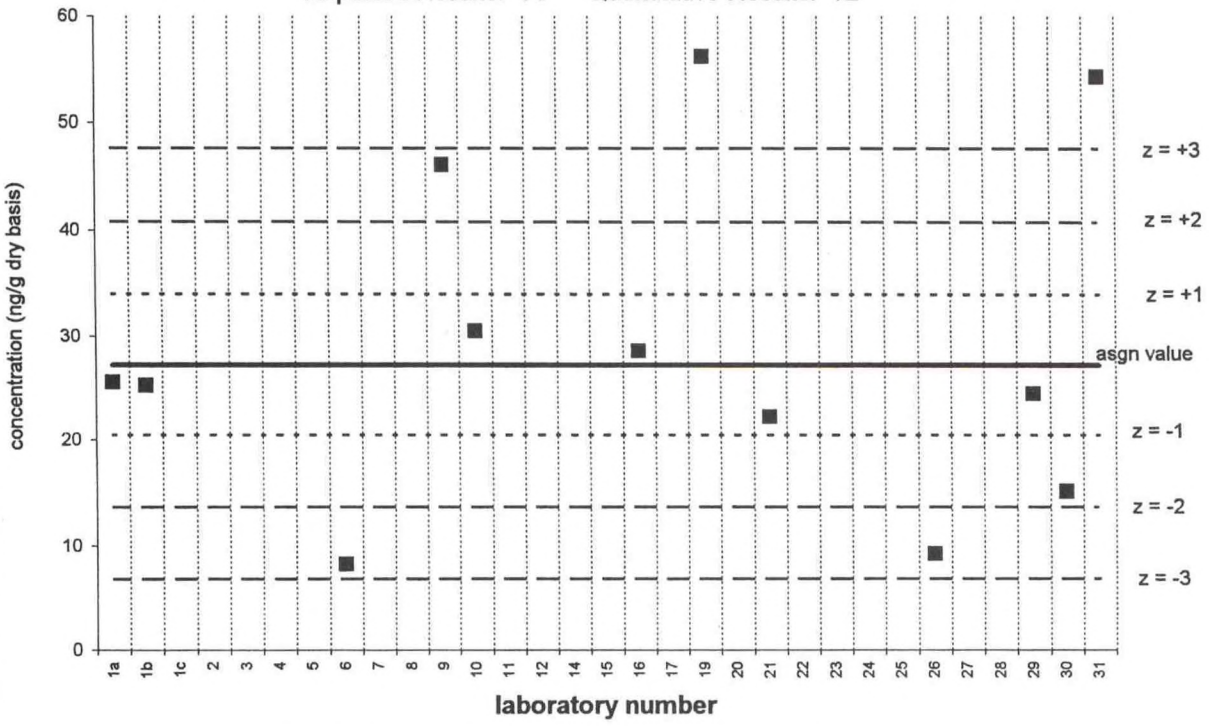
Reported Results: 20 Quantitative Results: 18



1,6,7-trimethylnaphthalene **Sediment VIII (QA98SED8)**

Assigned value = 27.2 ng/g s = 8.9 ng/g 95% CL = 7.4 ng/g (dry basis)

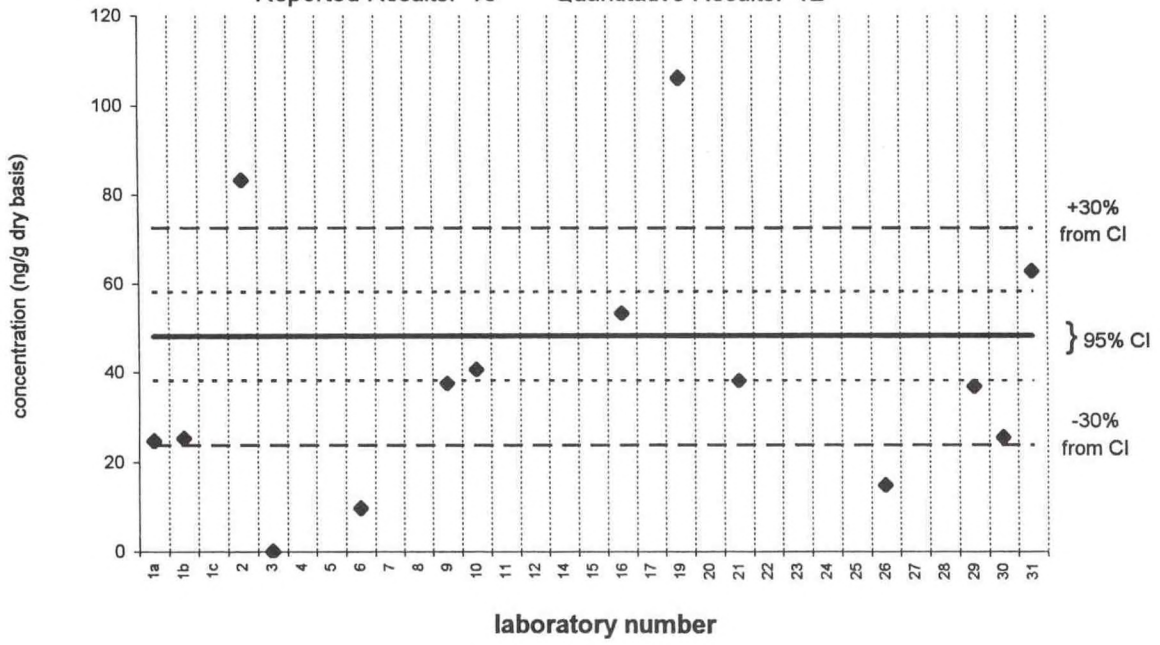
Reported Results: 14 Quantitative Results: 12

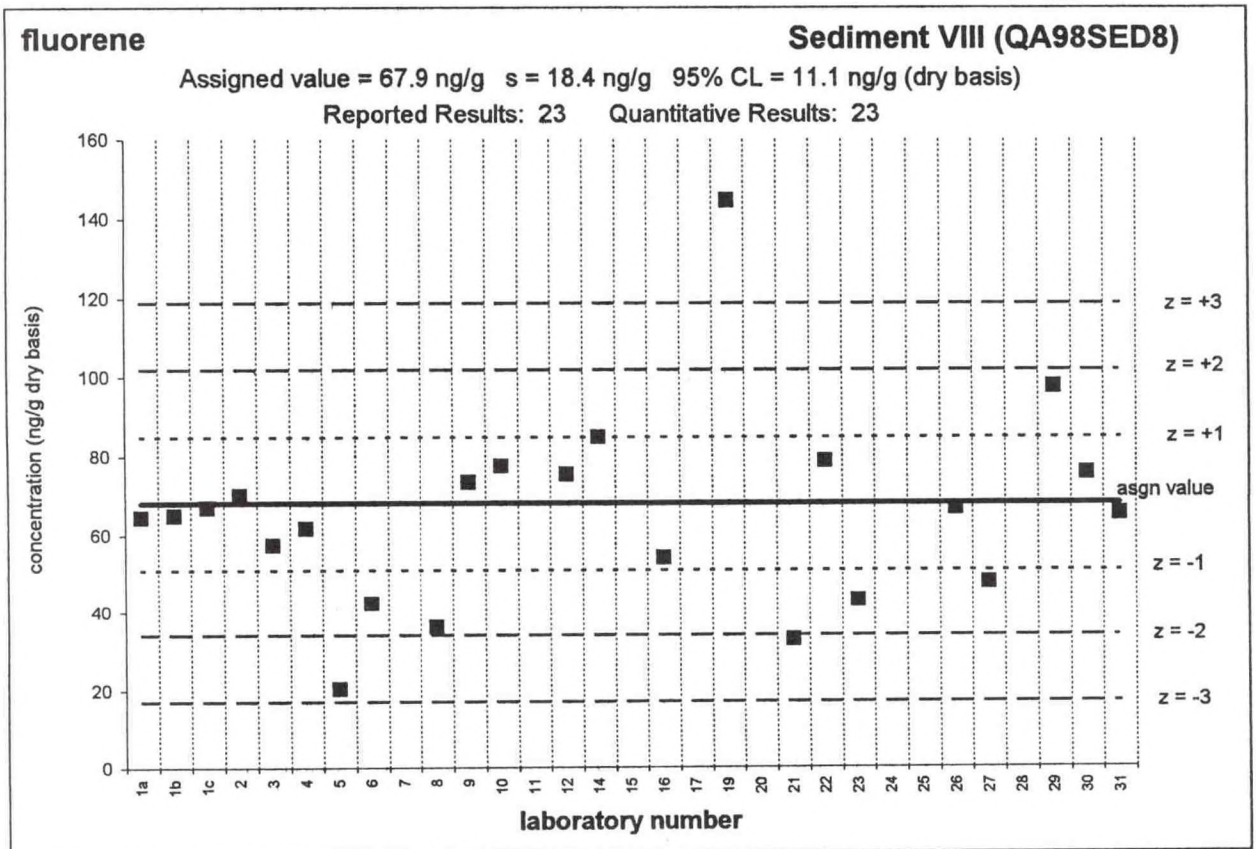


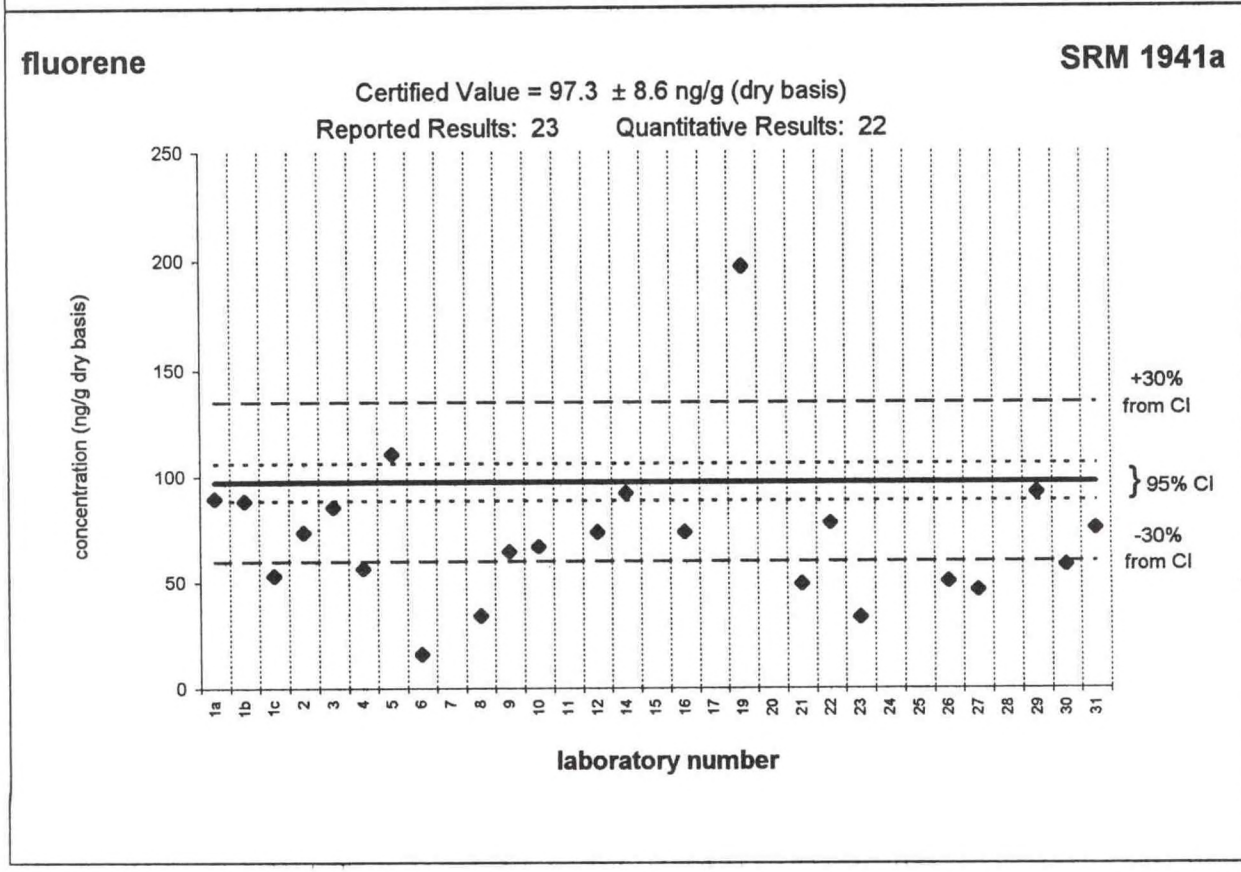
1,6,7-trimethylnaphthalene **SRM 1941a**

Target Value = 48 ± 10 ng/g (dry basis)

Reported Results: 13 Quantitative Results: 12



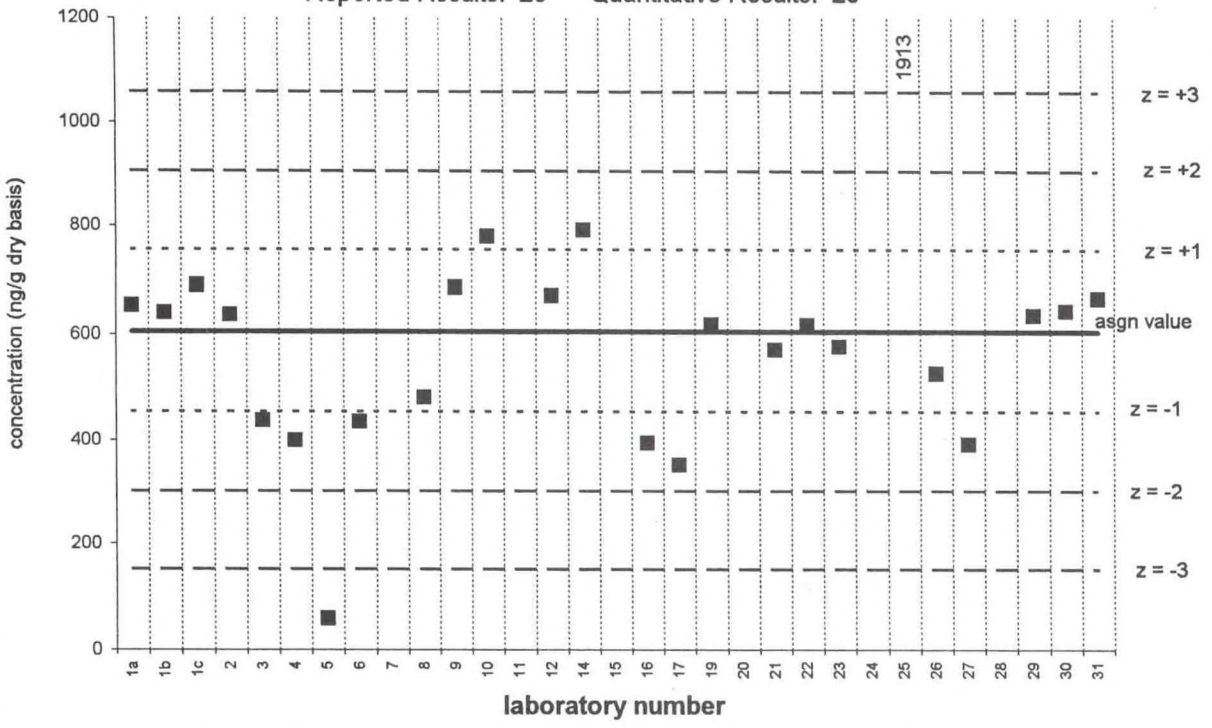

fluorene
Sediment VIII (QA98SED8)
Assigned value = 67.9 ng/g s = 18.4 ng/g 95% CL = 11.1 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 23
concentration (ng/g dry basis)
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3
laboratory number


fluorene
SRM 1941a
Certified Value = 97.3 ± 8.6 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 22
concentration (ng/g dry basis)
+30% from CI
95% CI
-30% from CI
laboratory number

phenanthrene **Sediment VIII (QA98SED8)**

Assigned value = 604 ng/g s = 127 ng/g 95% CL = 63 ng/g (dry basis)

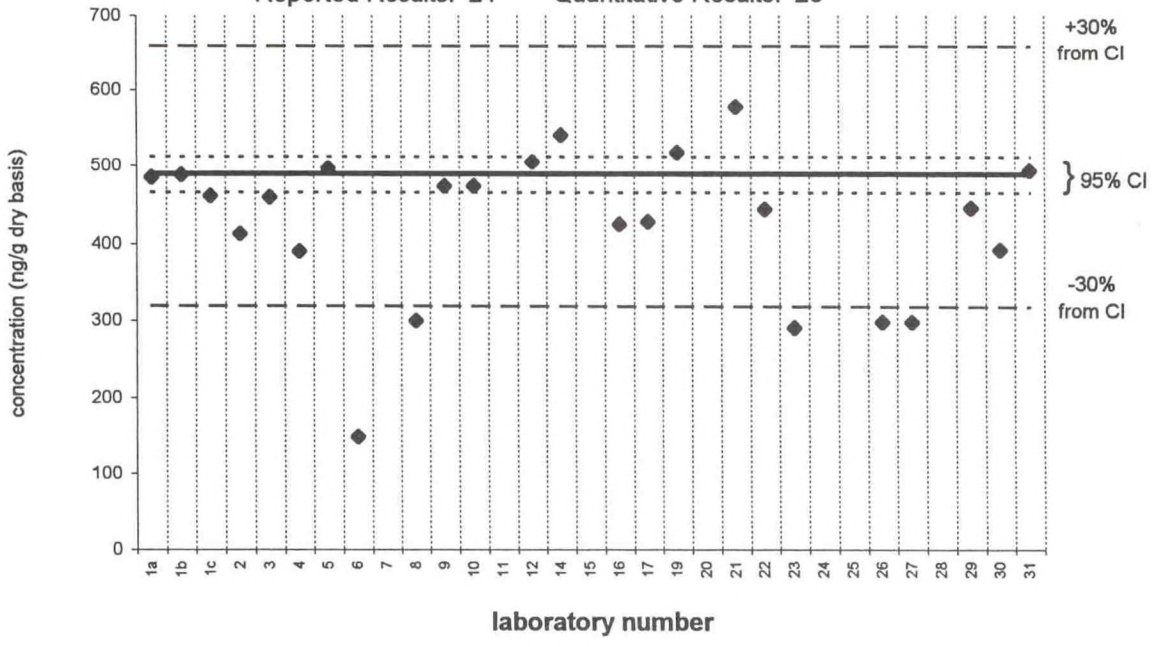
Reported Results: 25 Quantitative Results: 25



phenanthrene **SRM 1941a**

Certified Value = 489 ± 23 ng/g (dry basis)

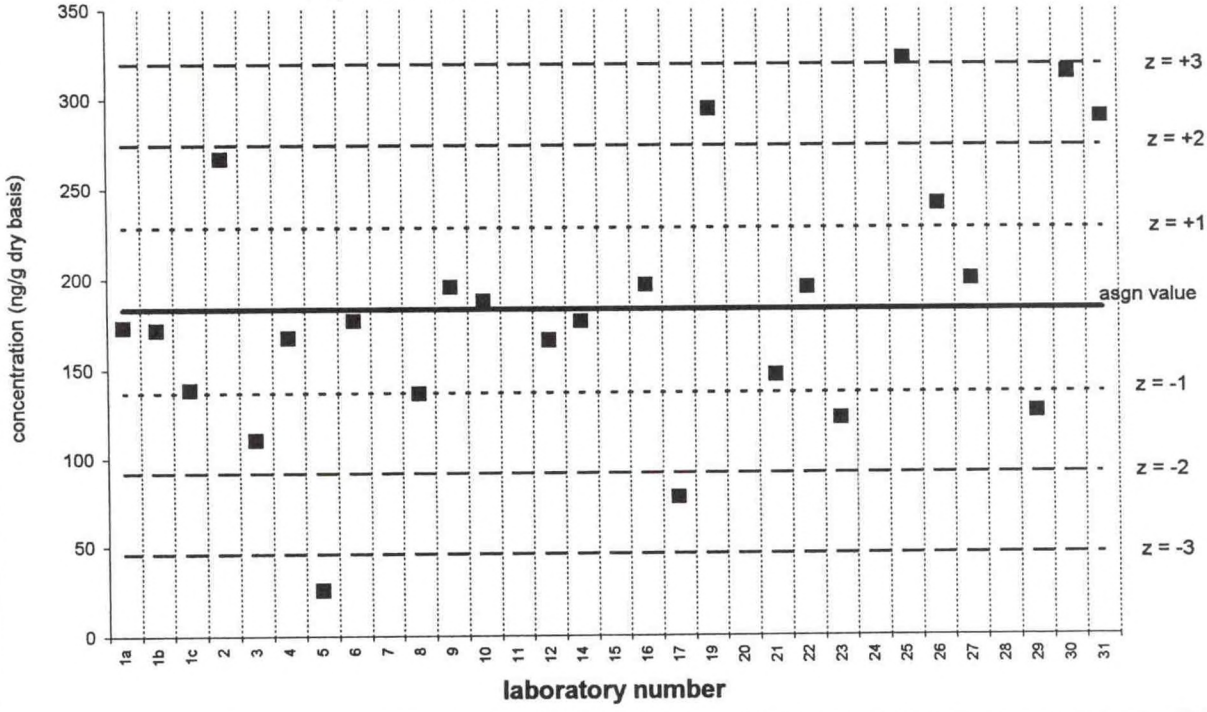
Reported Results: 24 Quantitative Results: 23



anthracene **Sediment VIII (QA98SED8)**

Assigned value = 183 ng/g s = 57 ng/g 95% CL = 27 ng/g (dry basis)

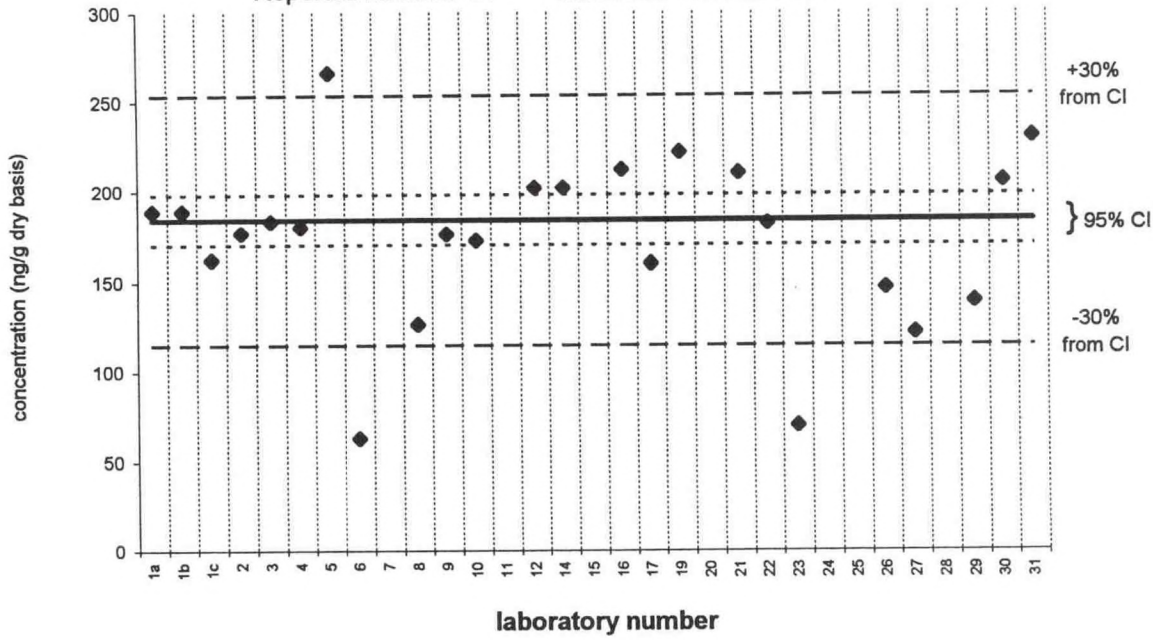
Reported Results: 25 Quantitative Results: 25



anthracene **SRM 1941a**

Certified Value = 184 ± 14 ng/g (dry basis)

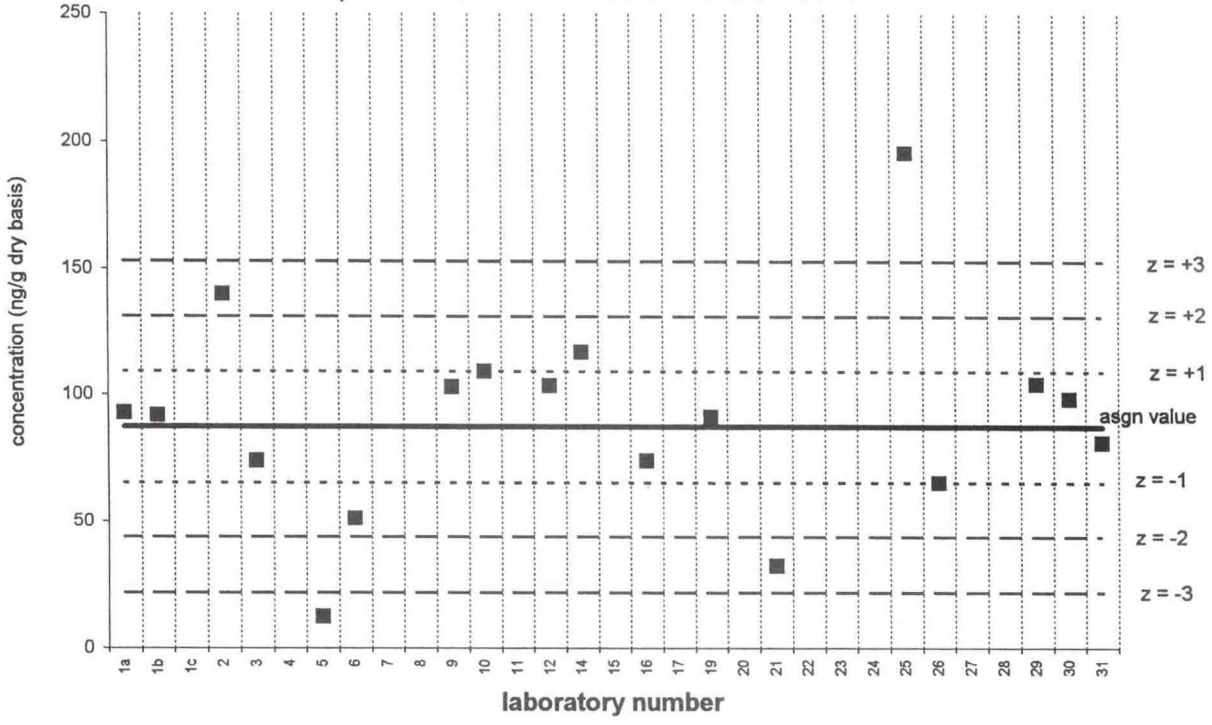
Reported Results: 24 Quantitative Results: 23



1-methylphenanthrene **Sediment VIII (QA98SED8)**

Assigned value = 87.3 ng/g s = 23.3 ng/g 95% CL = 13.4 ng/g (dry basis)

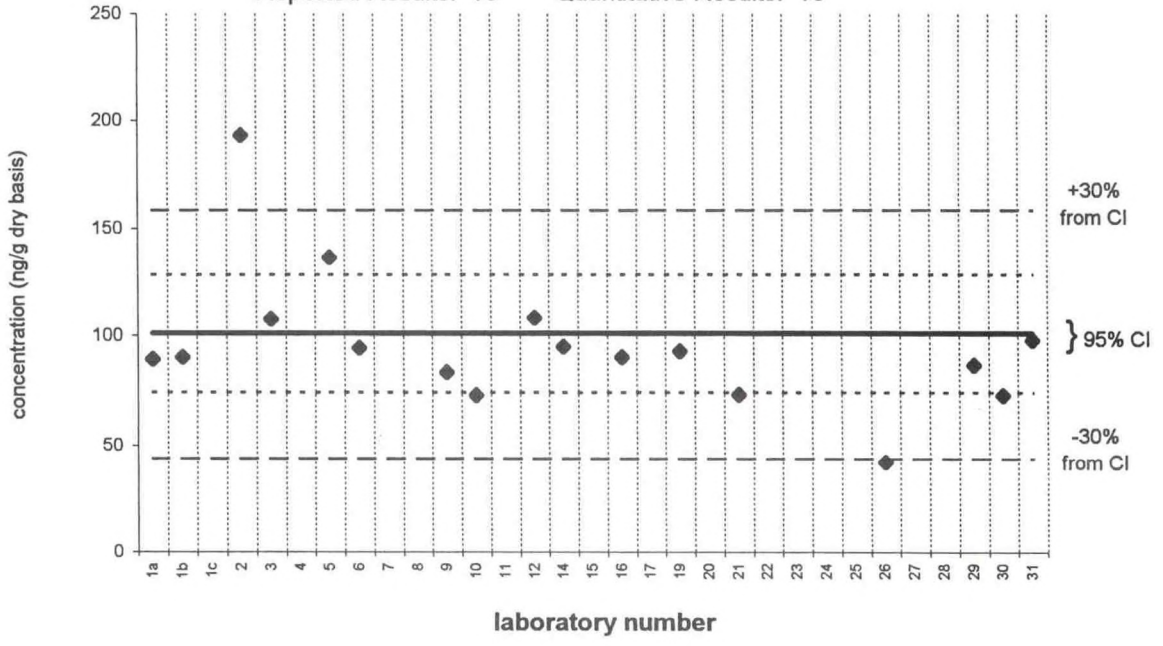
Reported Results: 19 Quantitative Results: 18



1-methylphenanthrene **SRM 1941a**

Information Value = 101 ± 27 ng/g (dry basis)

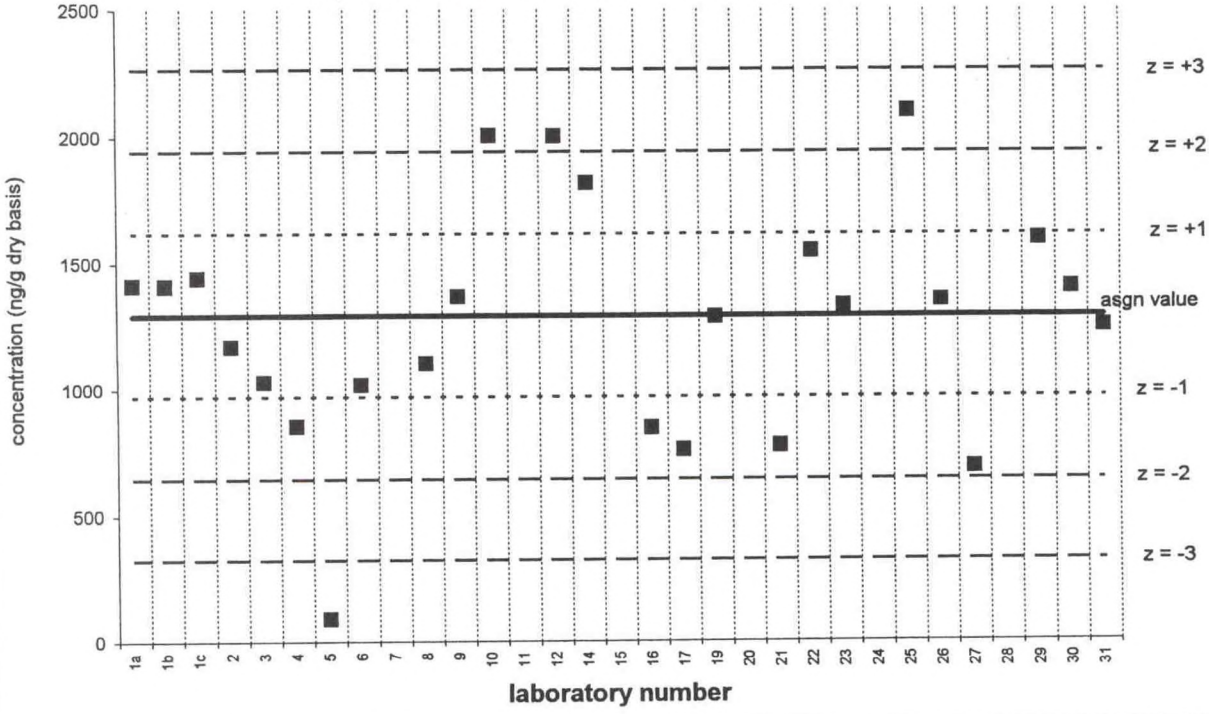
Reported Results: 18 Quantitative Results: 16



fluoranthene **Sediment VIII (QA98SED8)**

Assigned value = 1293 ng/g s = 374 ng/g 95% CL = 166 ng/g (dry basis)

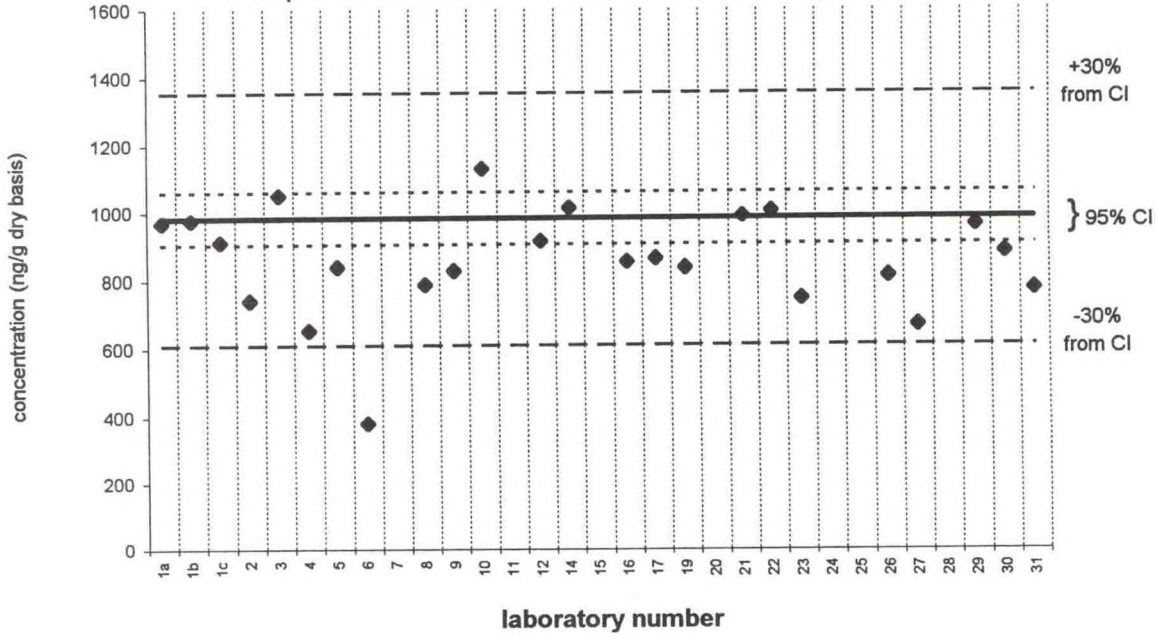
Reported Results: 25 Quantitative Results: 25

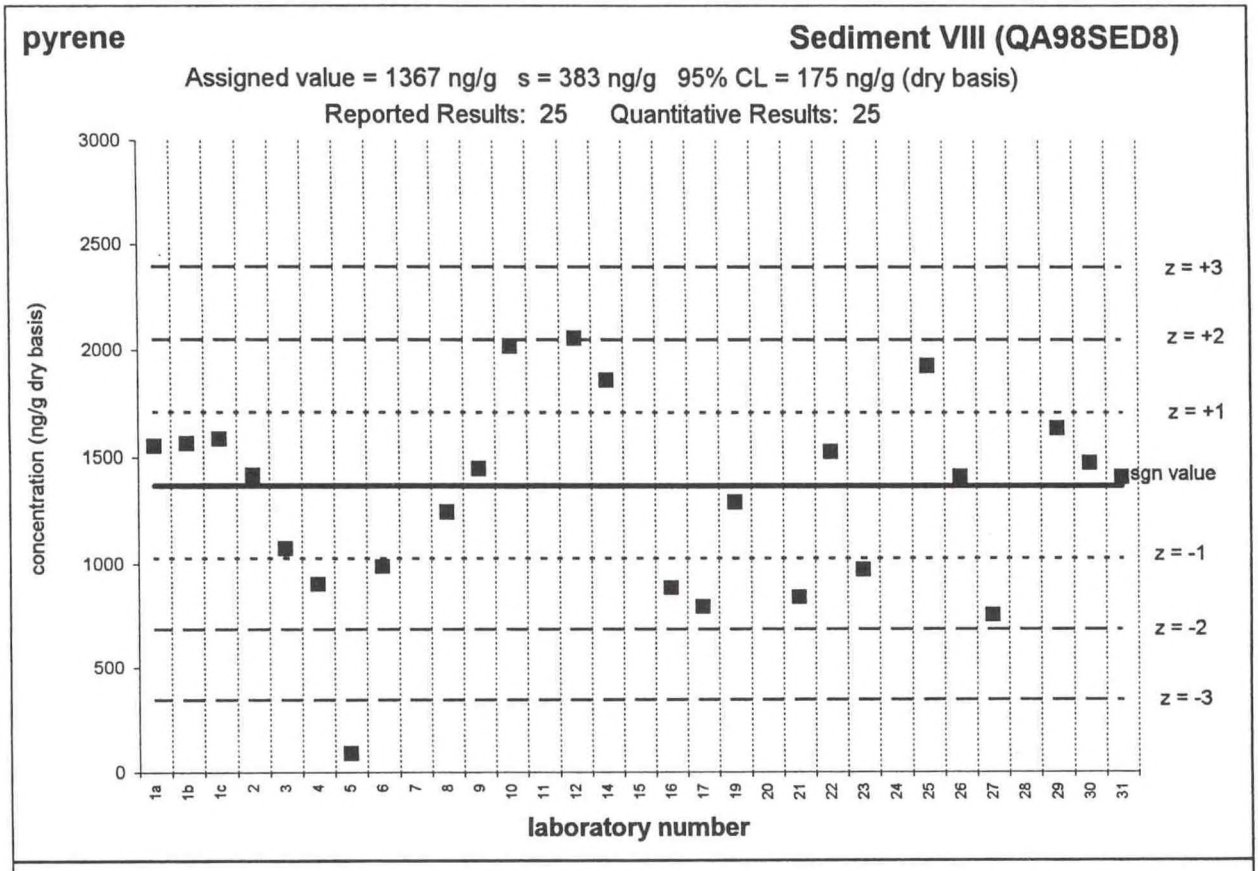


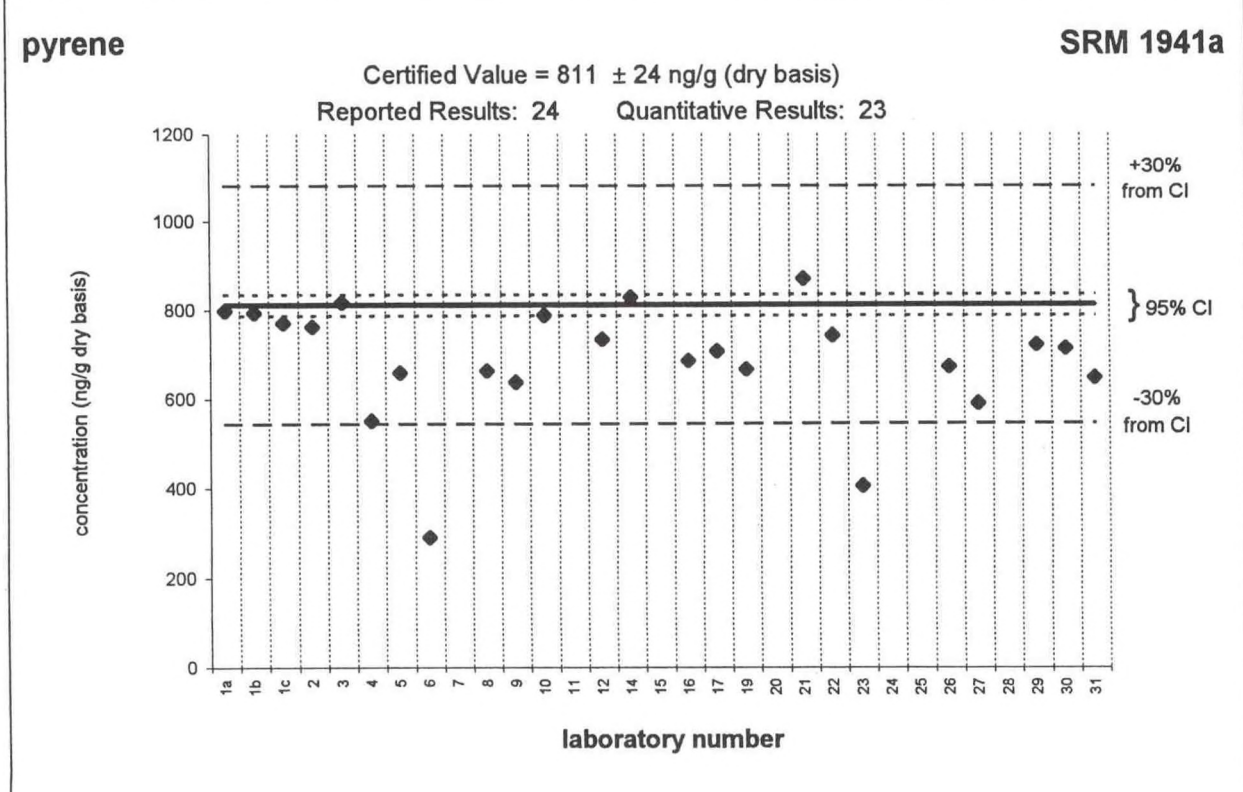
fluoranthene **SRM 1941a**

Certified Value = 981 ± 78 ng/g (dry basis)

Reported Results: 24 Quantitative Results: 23



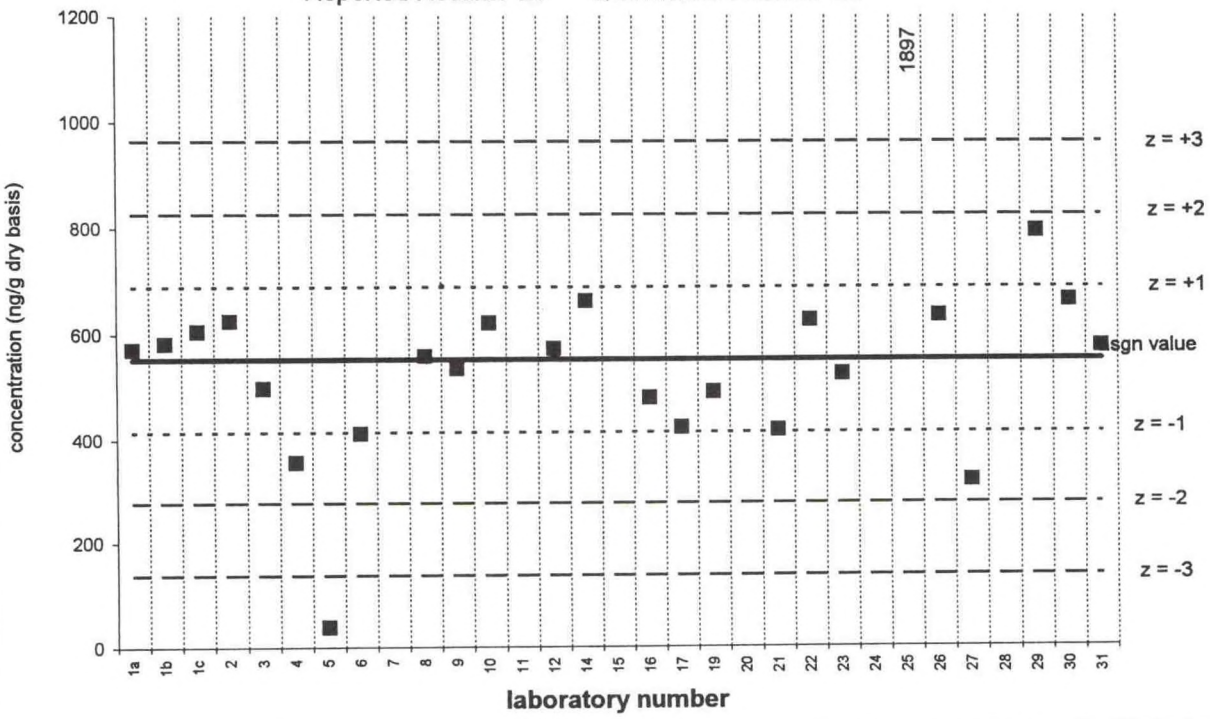

pyrene
Sediment VIII (QA98SED8)
Assigned value = 1367 ng/g s = 383 ng/g 95% CL = 175 ng/g (dry basis)
Reported Results: 25 Quantitative Results: 25
concentration (ng/g dry basis)
3000
2500
2000
1500
1000
500
0
z = +3
z = +2
z = +1
sgn value
z = -1
z = -2
z = -3
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number


pyrene
SRM 1941a
Certified Value = 811 ± 24 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 23
concentration (ng/g dry basis)
1200
1000
800
600
400
200
0
+30% from CI
95% CI
-30% from CI
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number

benz[a]anthracene **Sediment VIII (QA98SED8)**

Assigned value = 551 ng/g s = 109 ng/g 95% CL = 48 ng/g (dry basis)

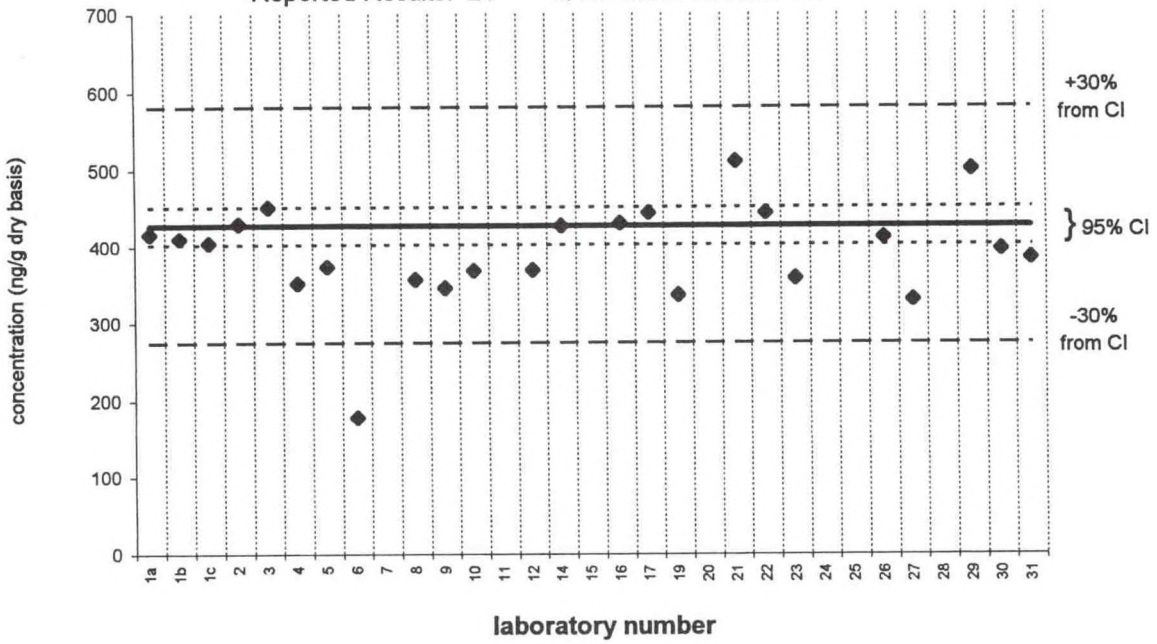
Reported Results: 25 Quantitative Results: 25

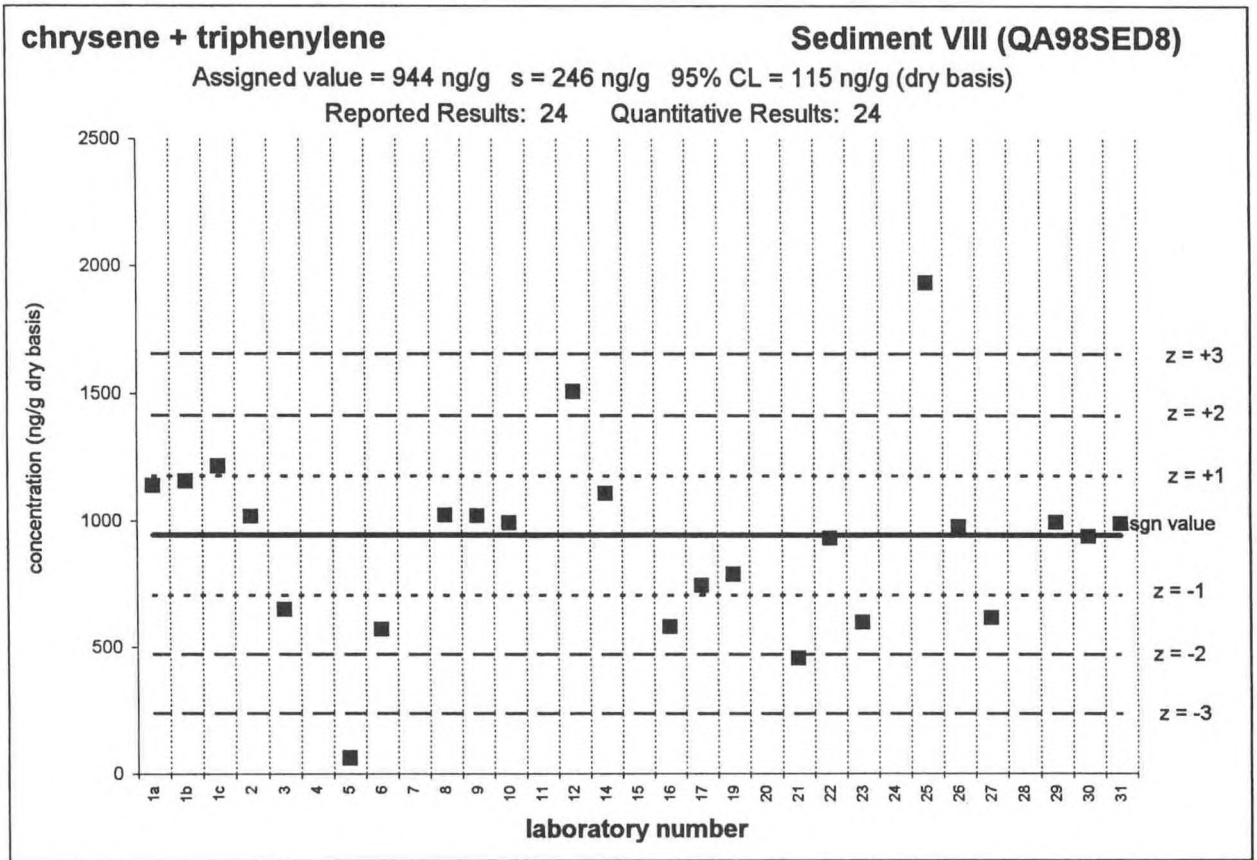


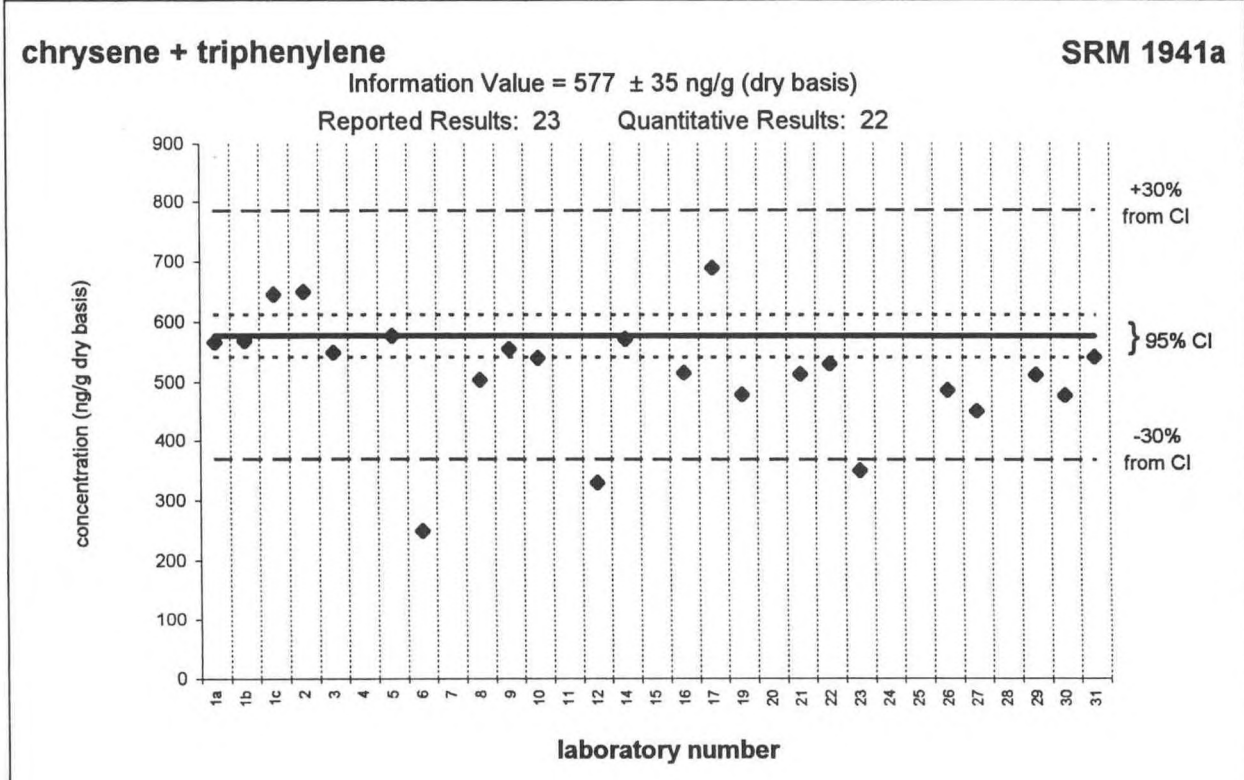
benz[a]anthracene **SRM 1941a**

Certified Value = 427 ± 25 ng/g (dry basis)

Reported Results: 24 Quantitative Results: 23



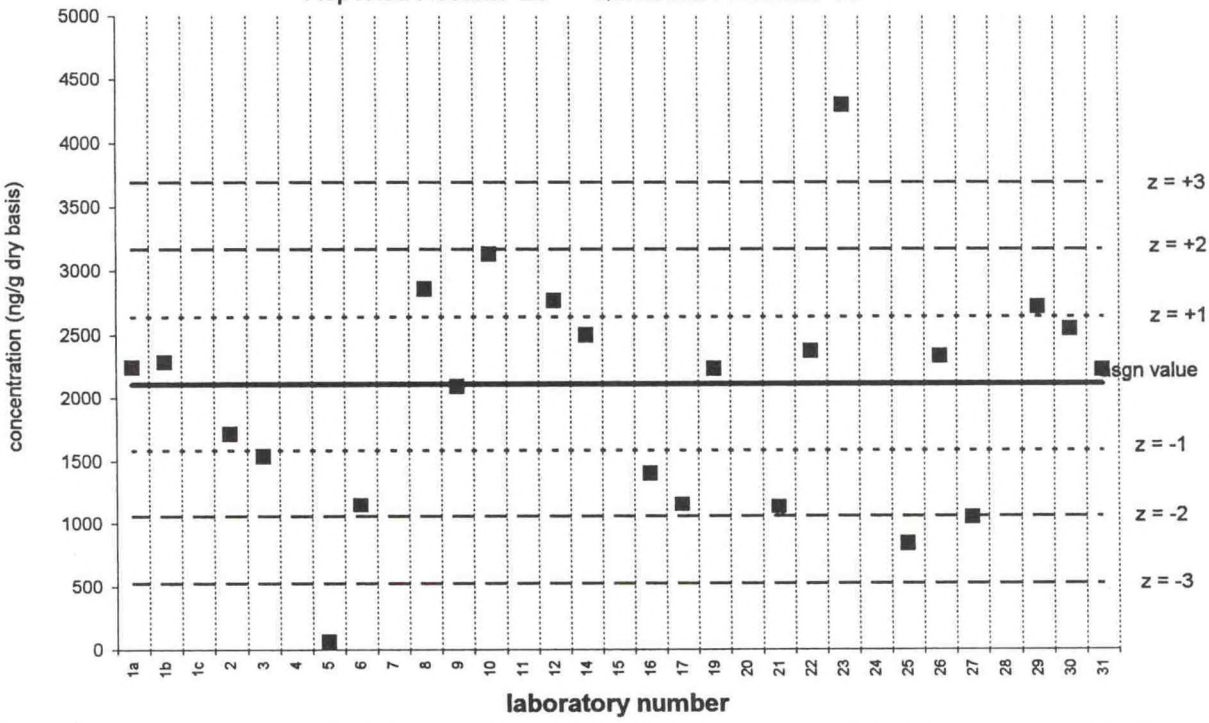

chrysene + triphenylene
Sediment VIII (QA98SED8)
Assigned value = 944 ng/g s = 246 ng/g 95% CL = 115 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 24
concentration (ng/g dry basis)
2500
2000
1500
1000
500
0
z = +3
z = +2
z = +1
sgn value
z = -1
z = -2
z = -3
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number


chrysene + triphenylene
SRM 1941a
Information Value = 577 ± 35 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 22
concentration (ng/g dry basis)
900
800
700
600
500
400
300
200
100
0
+30% from CI
95% CI
-30% from CI
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number

benzofluoranthenes [b+j+k] **Sediment VIII (QA98SED8)**

Assigned value = 2110 ng/g s = 635 ng/g 95% CL = 316 ng/g (dry basis)

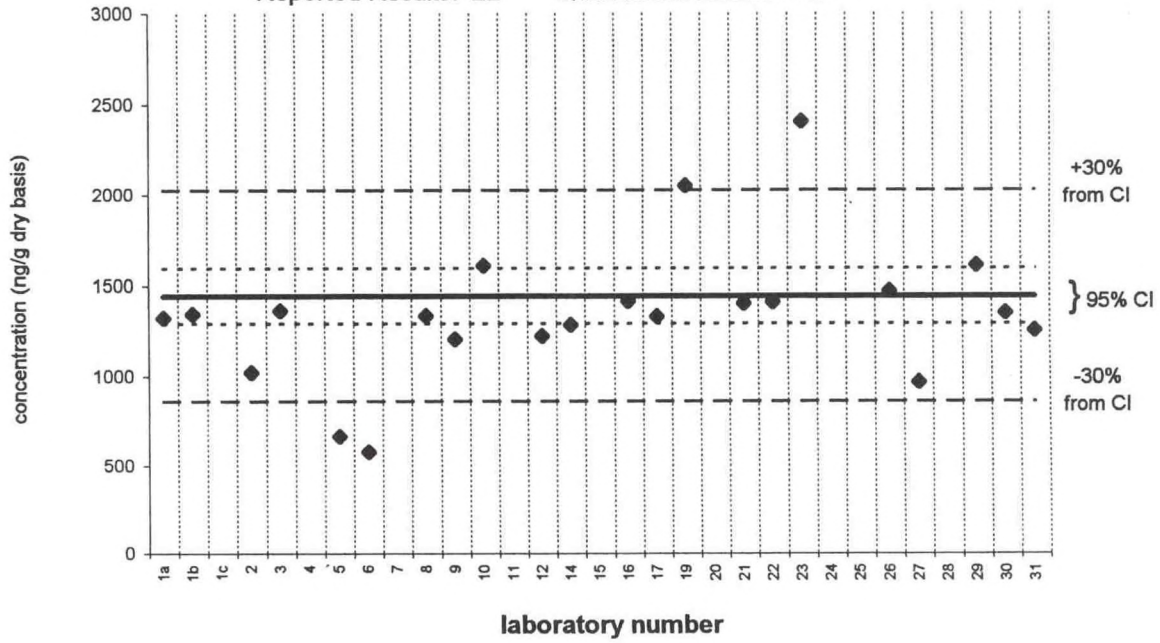
Reported Results: 23 Quantitative Results: 23



benzofluoranthenes [b+j+k] **SRM 1941a**

Information Value = 1441 ± 150 ng/g (dry basis)

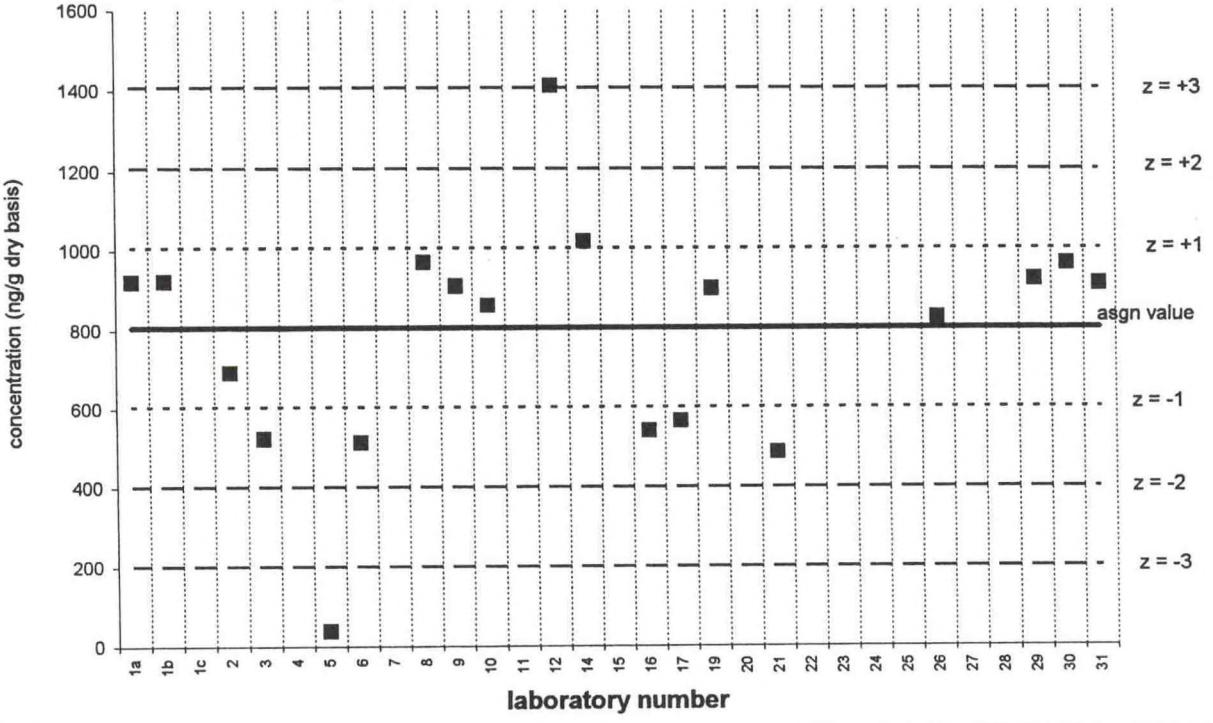
Reported Results: 22 Quantitative Results: 21



benzo[e]pyrene **Sediment VIII (QA98SED8)**

Assigned value = 805 ng/g s = 186 ng/g 95% CL = 103 ng/g (dry basis)

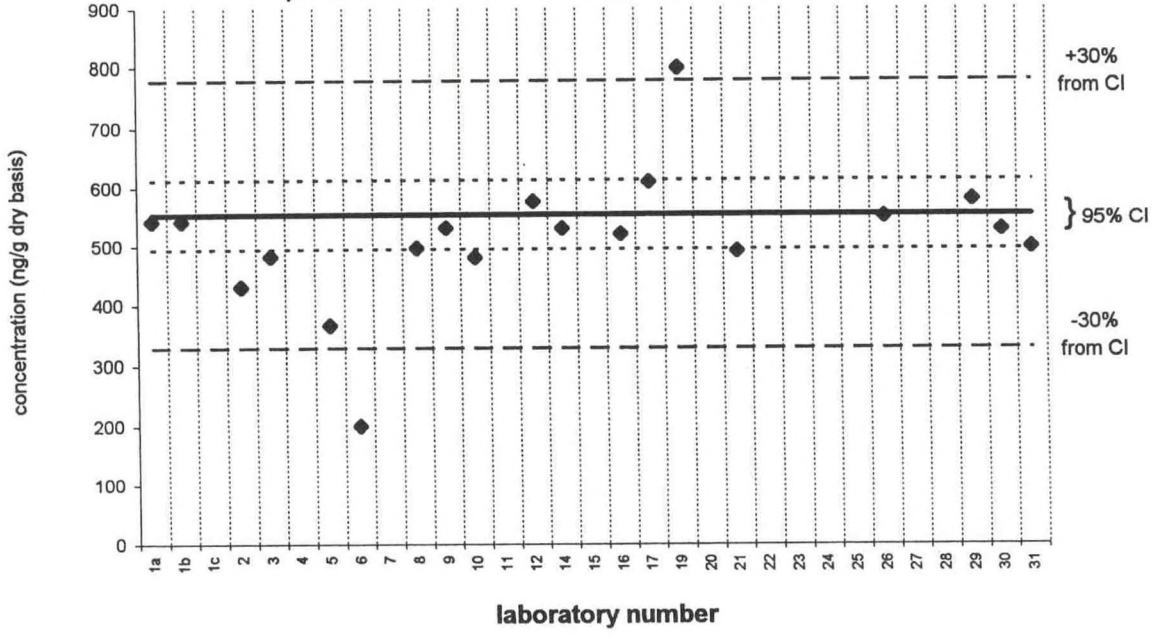
Reported Results: 19 Quantitative Results: 19

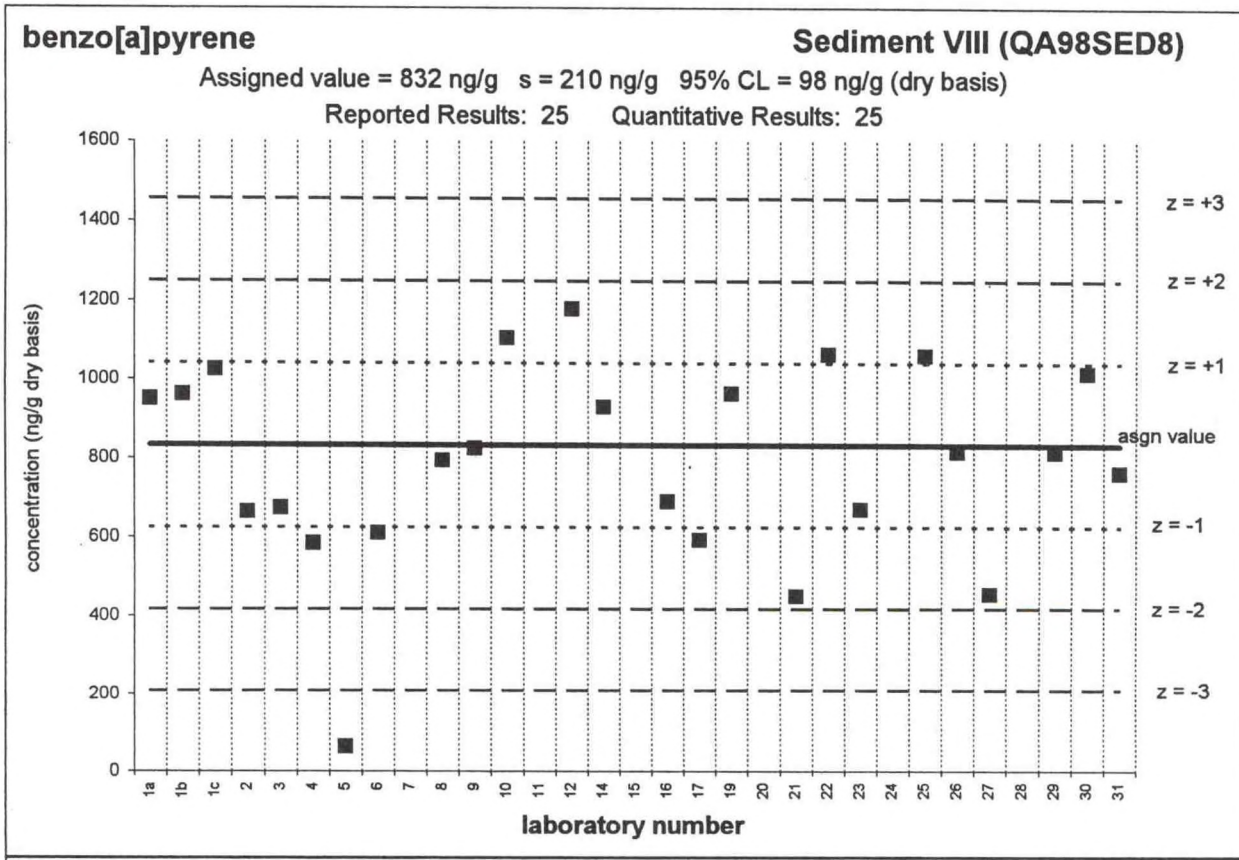


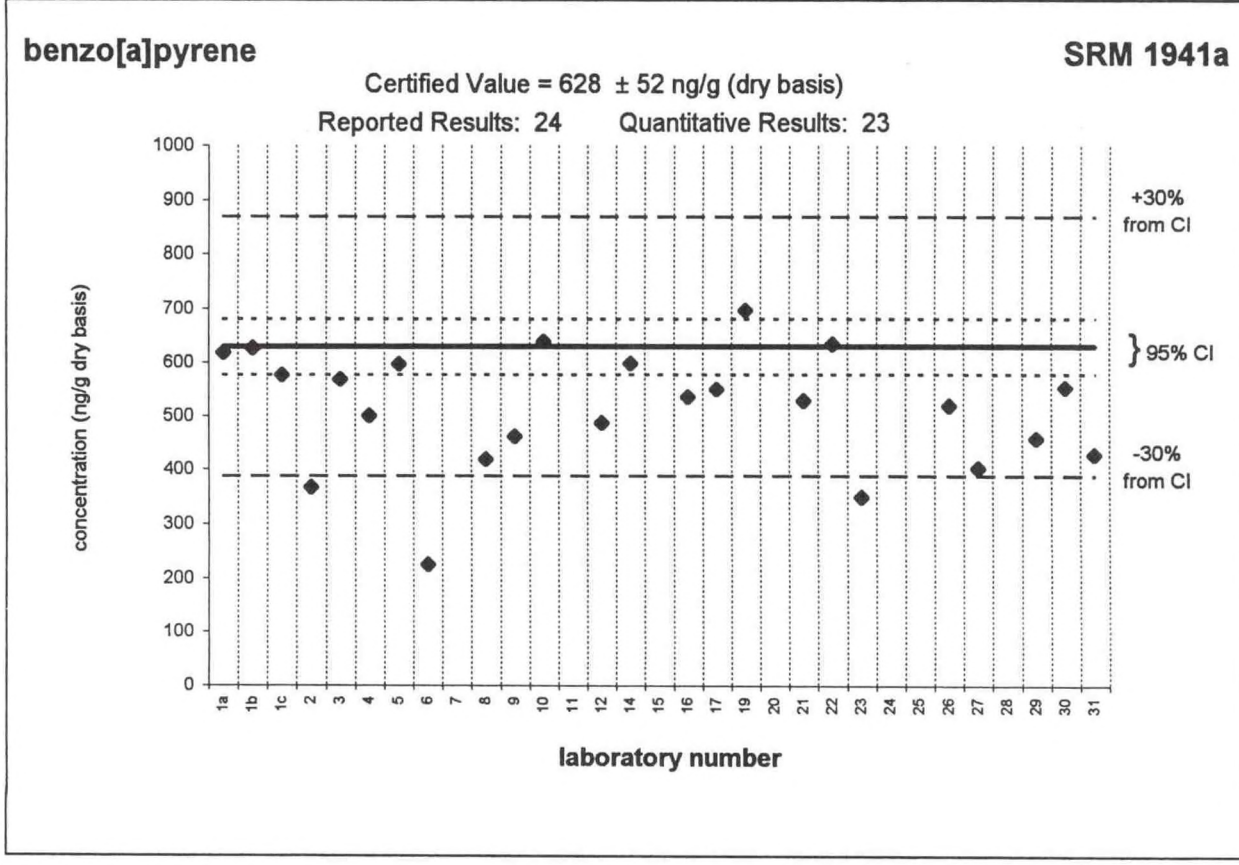
benzo[e]pyrene **SRM 1941a**

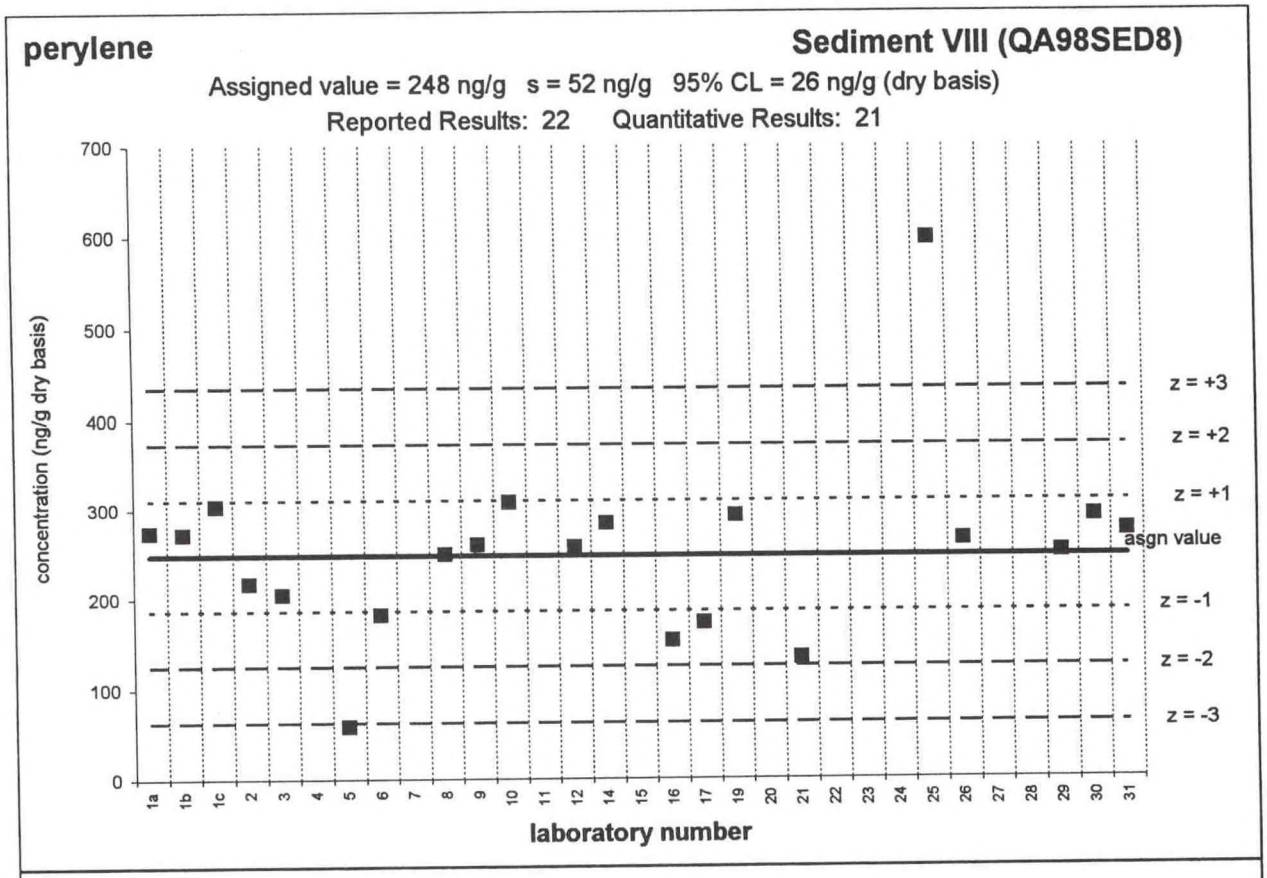
Certified Value = 553 ± 59 ng/g (dry basis)

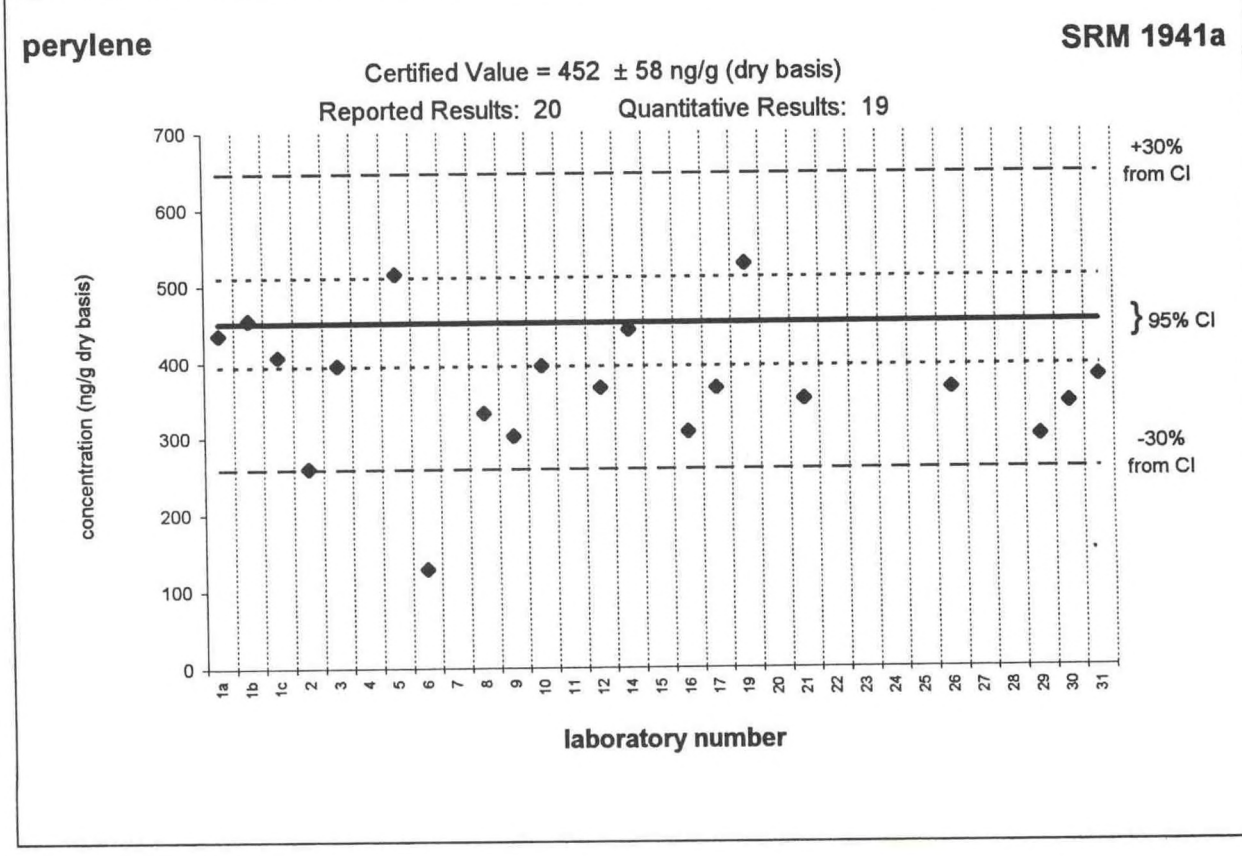
Reported Results: 19 Quantitative Results: 18

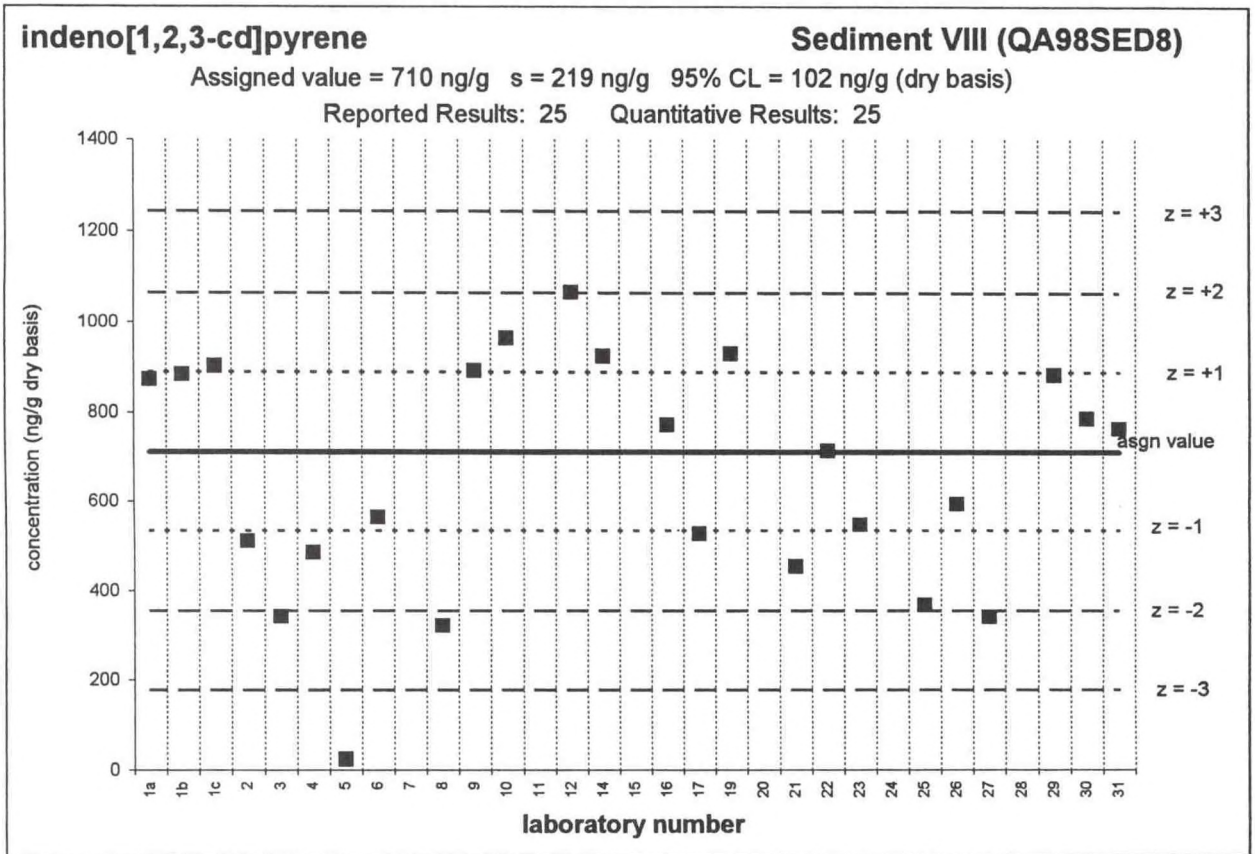


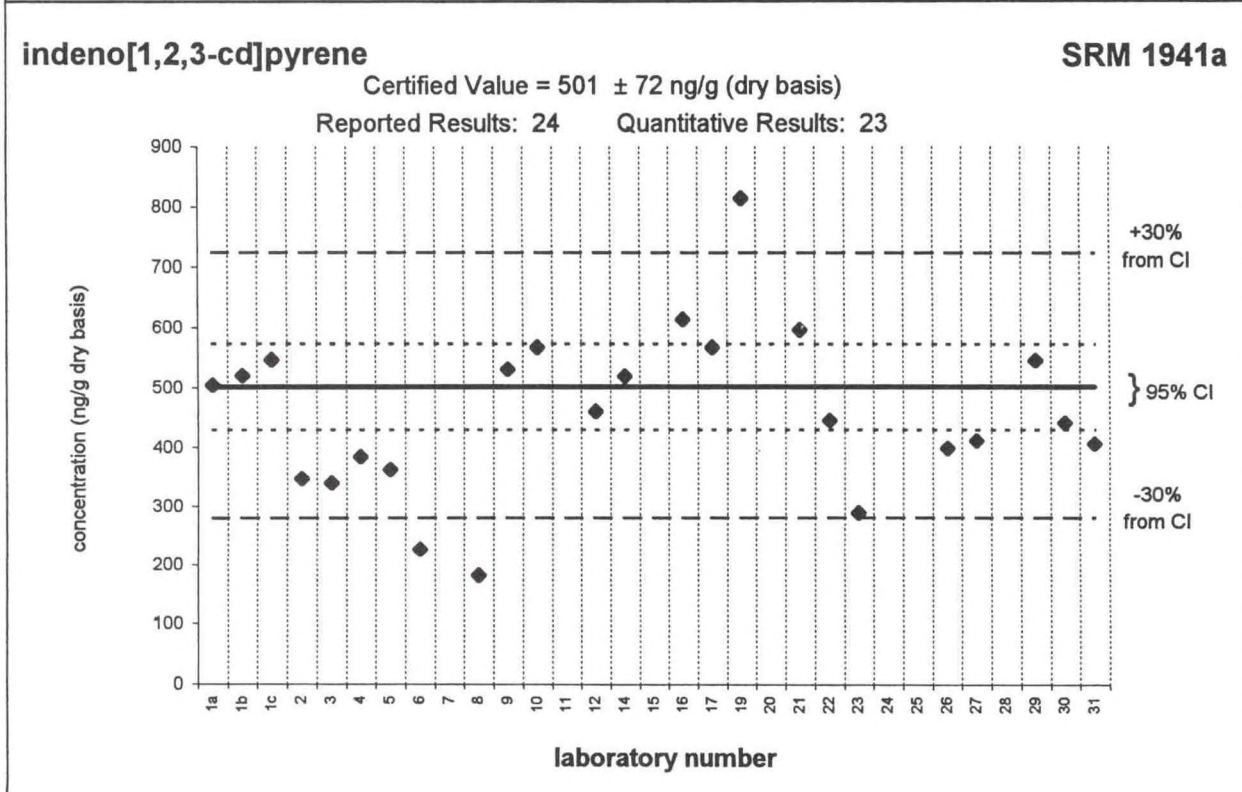

benzo[a]pyrene
Sediment VIII (QA98SED8)
Assigned value = 832 ng/g s = 210 ng/g 95% CL = 98 ng/g (dry basis)
Reported Results: 25 Quantitative Results: 25
concentration (ng/g dry basis)
laboratory number
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3

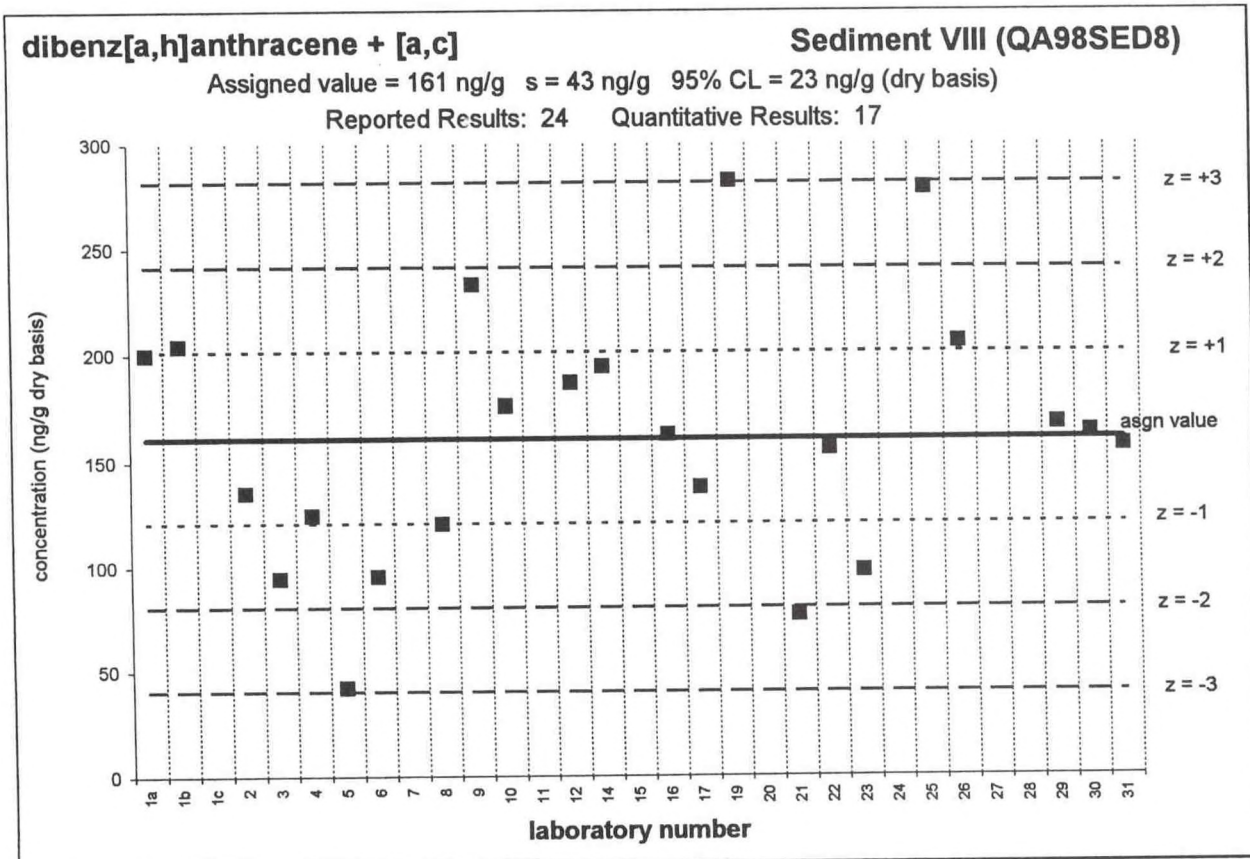

benzo[a]pyrene
SRM 1941a
Certified Value = 628 ± 52 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 23
concentration (ng/g dry basis)
laboratory number
+30% from CI
95% CI
-30% from CI

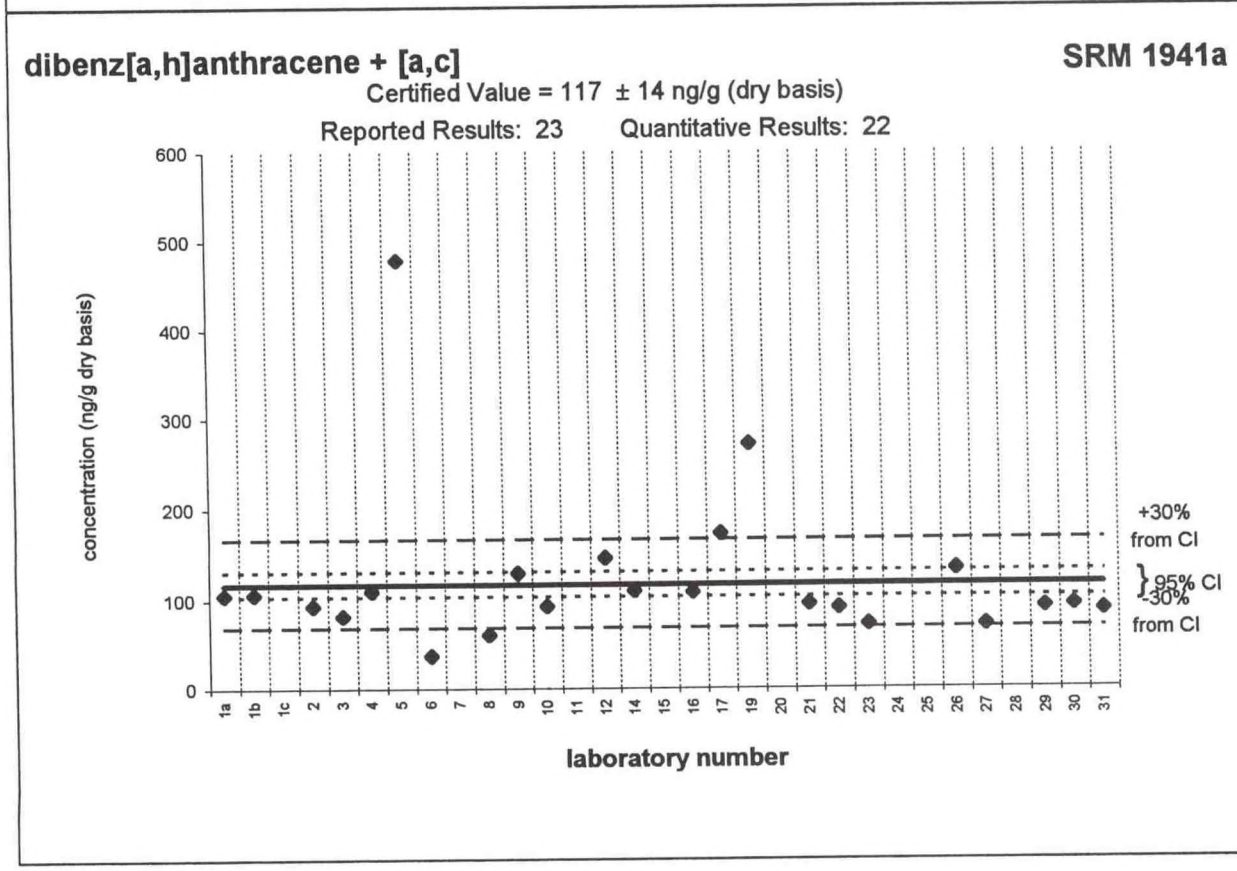

perylene
Sediment VIII (QA98SED8)
Assigned value = 248 ng/g s = 52 ng/g 95% CL = 26 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 21
concentration (ng/g dry basis)
laboratory number
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3

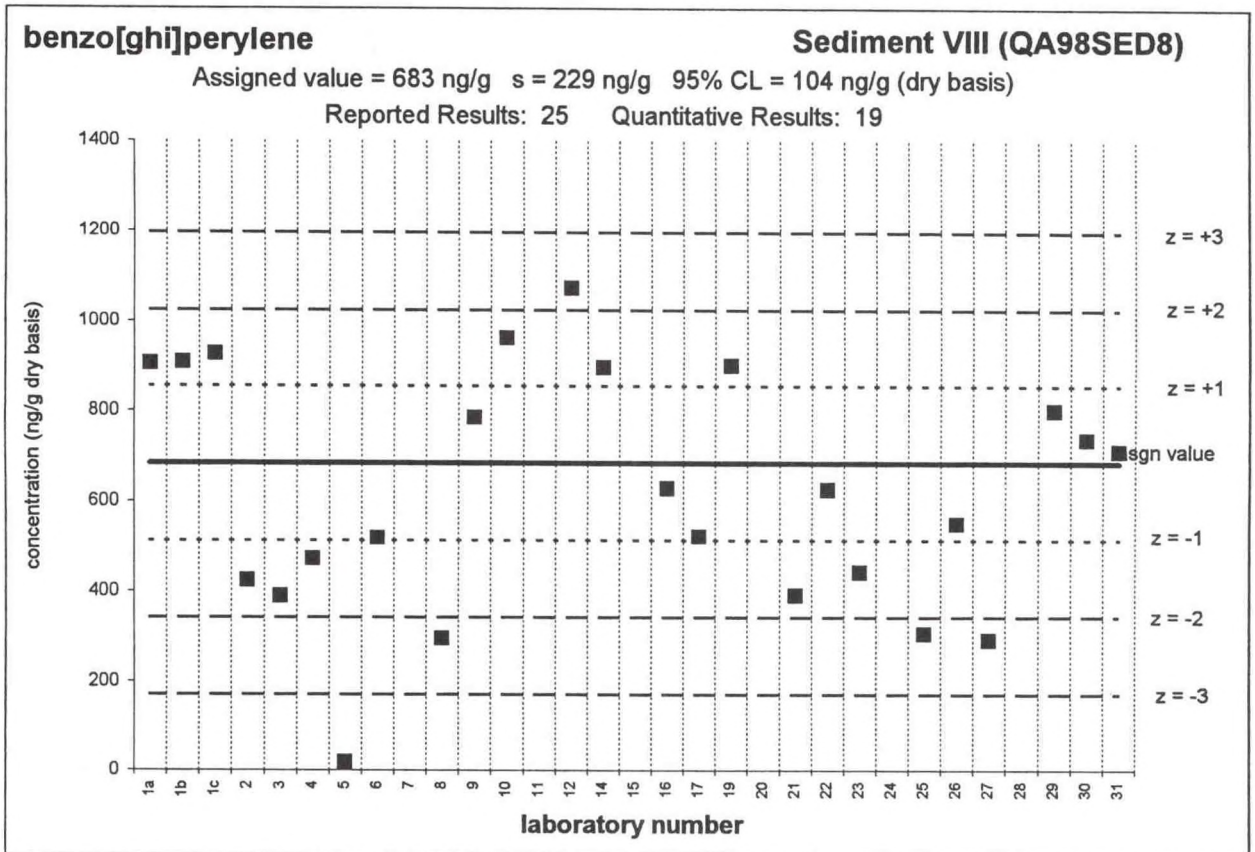

perylene
SRM 1941a
Certified Value = 452 ± 58 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 19
concentration (ng/g dry basis)
laboratory number
+30% from CI
95% CI
-30% from CI

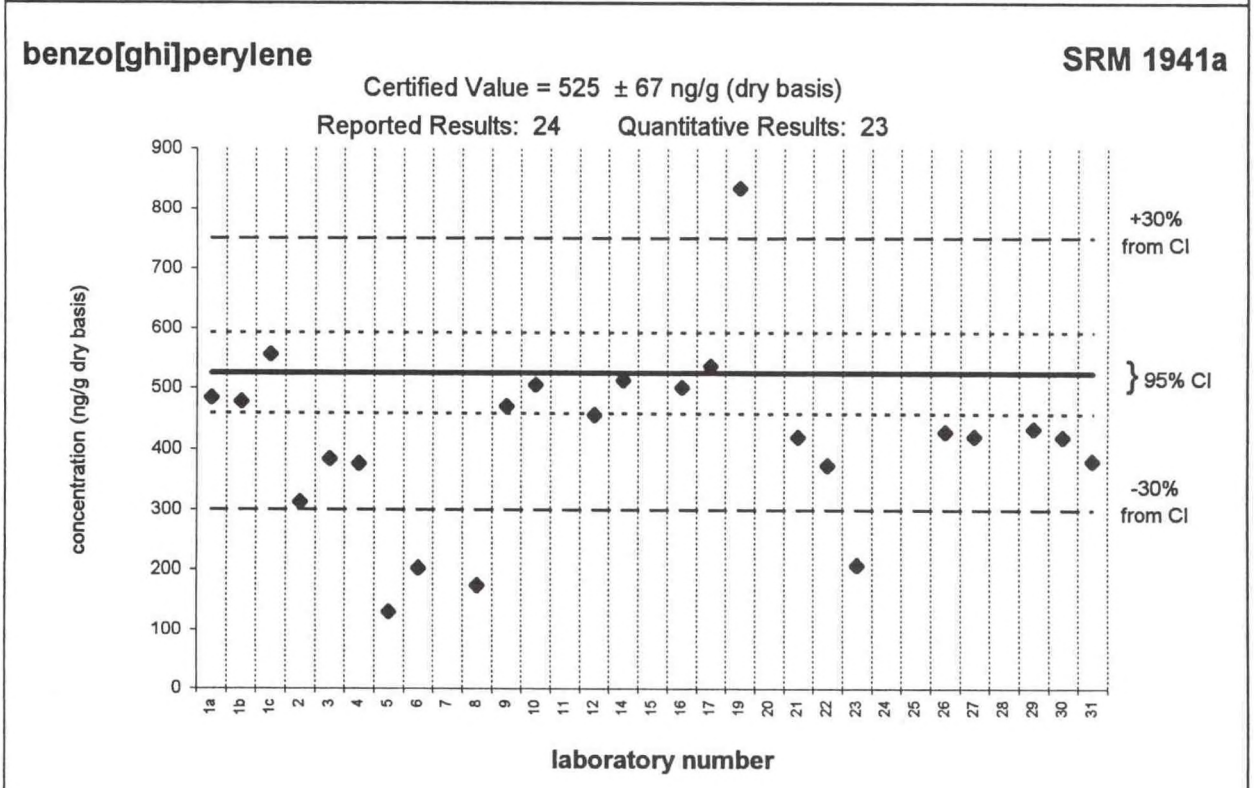

indeno[1,2,3-cd]pyrene
Sediment VIII (QA98SED8)
Assigned value = 710 ng/g s = 219 ng/g 95% CL = 102 ng/g (dry basis)
Reported Results: 25 Quantitative Results: 25
concentration (ng/g dry basis)
laboratory number
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3


indeno[1,2,3-cd]pyrene
SRM 1941a
Certified Value = 501 ± 72 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 23
concentration (ng/g dry basis)
laboratory number
+30% from CI
95% CI
-30% from CI


dibenz[a,h]anthracene + [a,c]
Sediment VIII (QA98SED8)
Assigned value = 161 ng/g s = 43 ng/g 95% CL = 23 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 17
concentration (ng/g dry basis)
300
250
200
150
100
50
0
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number


dibenz[a,h]anthracene + [a,c]
SRM 1941a
Certified Value = 117 ± 14 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 22
concentration (ng/g dry basis)
600
500
400
300
200
100
0
+30% from CI
95% CI
-30% from CI
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number

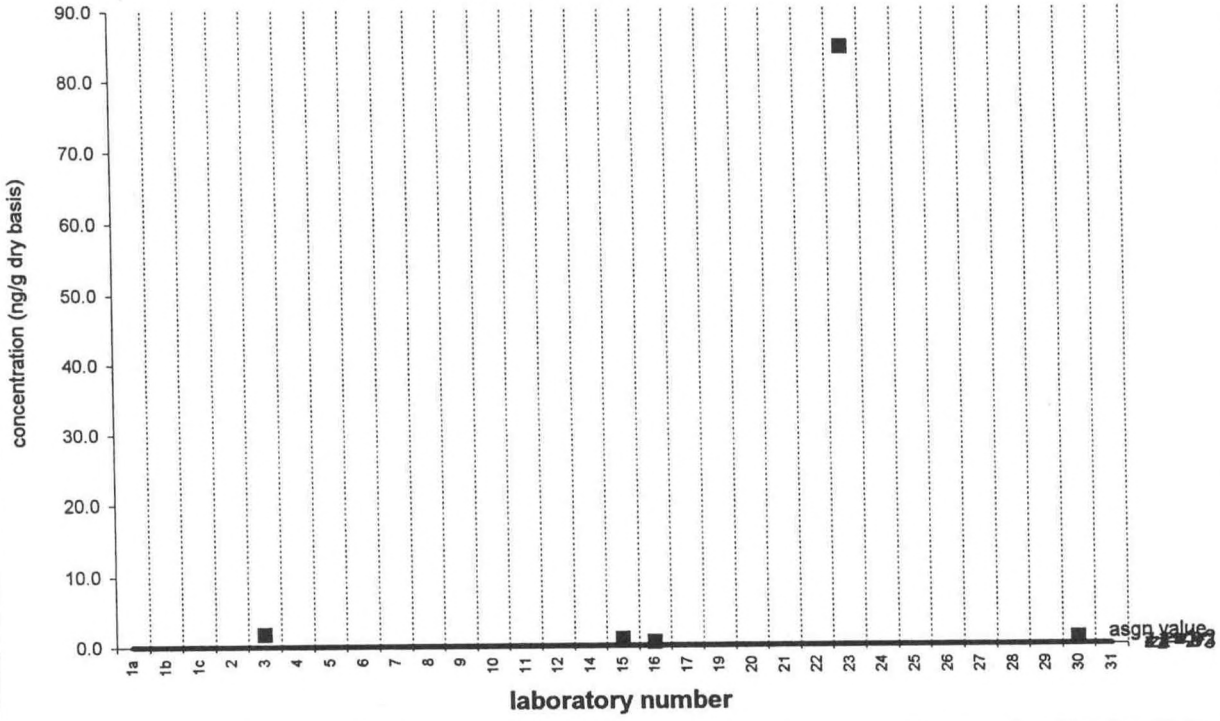

benzo[ghi]perylene
Sediment VIII (QA98SED8)
Assigned value = 683 ng/g s = 229 ng/g 95% CL = 104 ng/g (dry basis)
Reported Results: 25 Quantitative Results: 19
concentration (ng/g dry basis)
laboratory number
z = +3
z = +2
z = +1
sgn value
z = -1
z = -2
z = -3


benzo[ghi]perylene
SRM 1941a
Certified Value = 525 ± 67 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 23
concentration (ng/g dry basis)
laboratory number
+30% from CI
95% CI
-30% from CI

alpha-HCH **Sediment VIII (QA98SED8)**

Assigned value = <2 ng/g (dry basis)

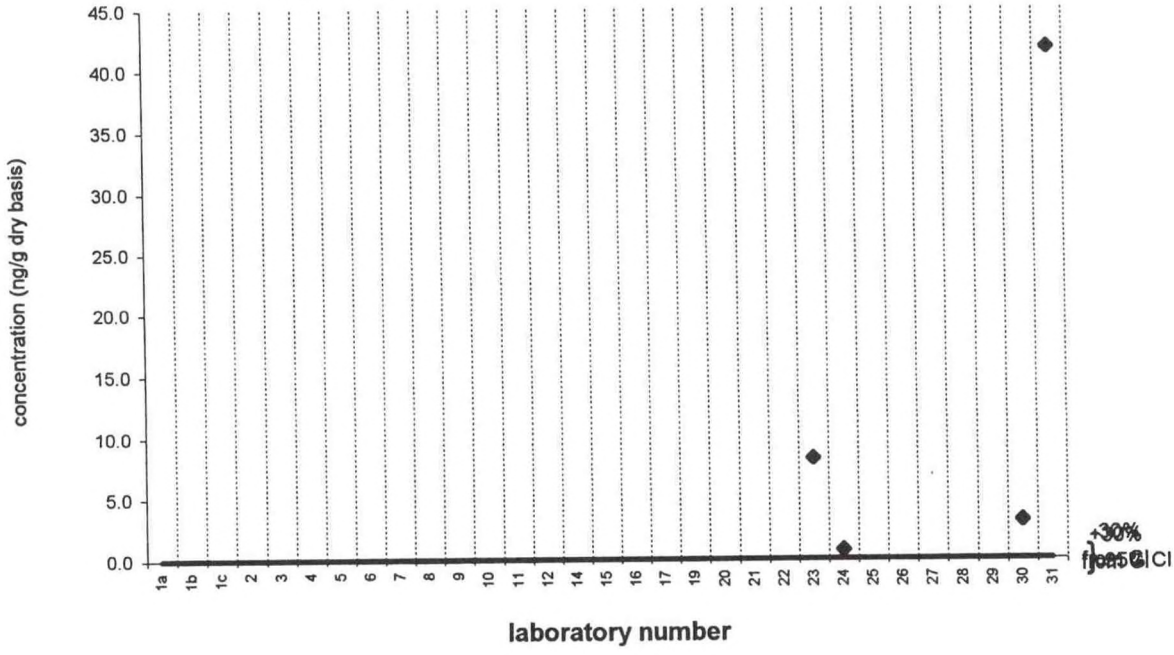
Reported Results: 17 Quantitative Results: 5



alpha-HCH **SRM 1941a**

Target Value = <2 ng/g (dry basis)

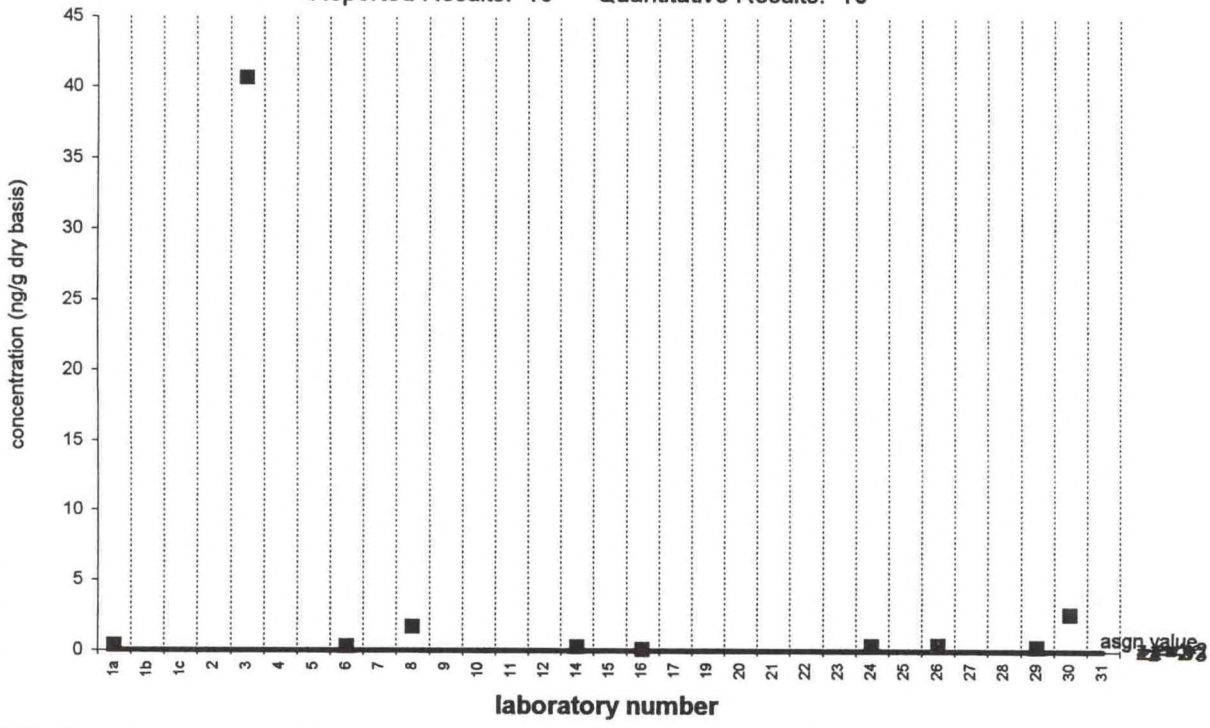
Reported Results: 16 Quantitative Results: 3



hexachlorobenzene **Sediment VIII (QA98SED8)**

Assigned value = <3 ng/g (dry basis)

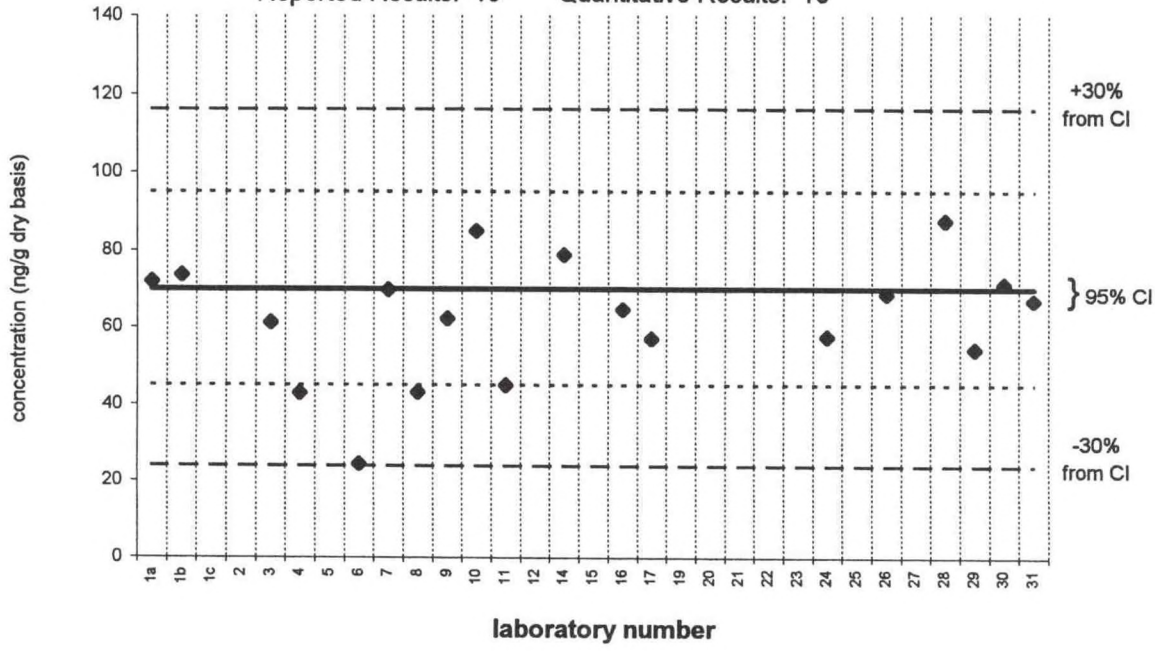
Reported Results: 19 Quantitative Results: 10

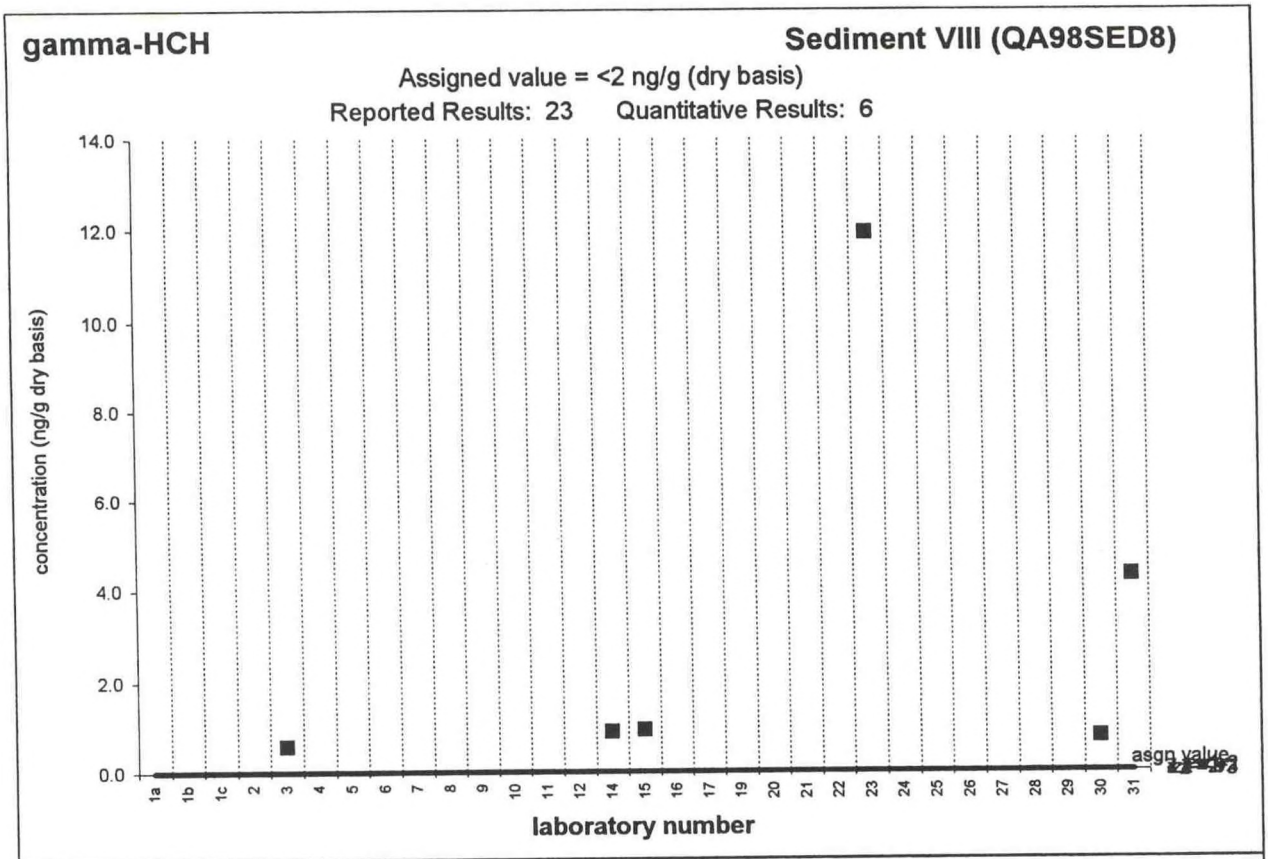


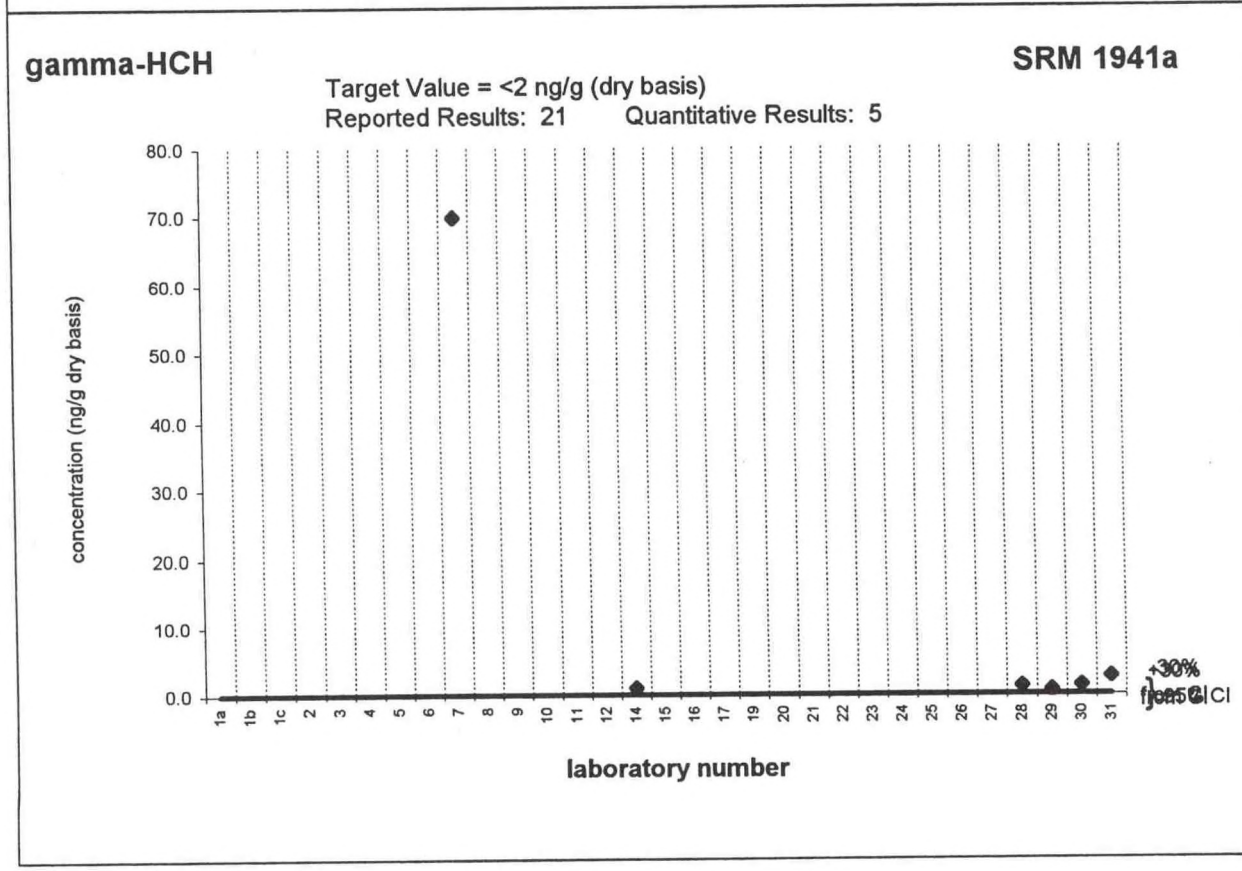
hexachlorobenzene **SRM 1941a**

Certified Value = 70 ± 25 ng/g (dry basis)

Reported Results: 19 Quantitative Results: 18



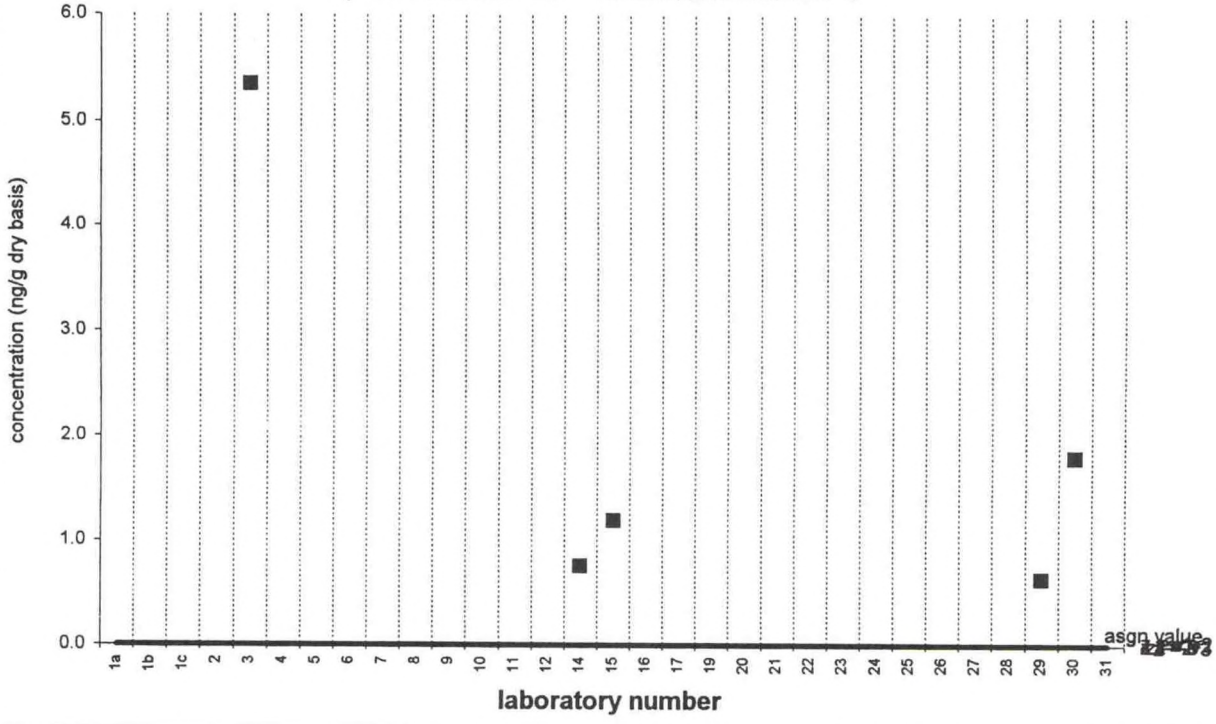

gamma-HCH
Sediment VIII (QA98SED8)
Assigned value = <2 ng/g (dry basis)
Reported Results: 23
Quantitative Results: 6
concentration (ng/g dry basis)
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
asgn value
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number


gamma-HCH
SRM 1941a
Target Value = <2 ng/g (dry basis)
Reported Results: 21
Quantitative Results: 5
concentration (ng/g dry basis)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
+30%
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number

heptachlor **Sediment VIII (QA98SED8)**

Assigned value = <2 ng/g (dry basis)

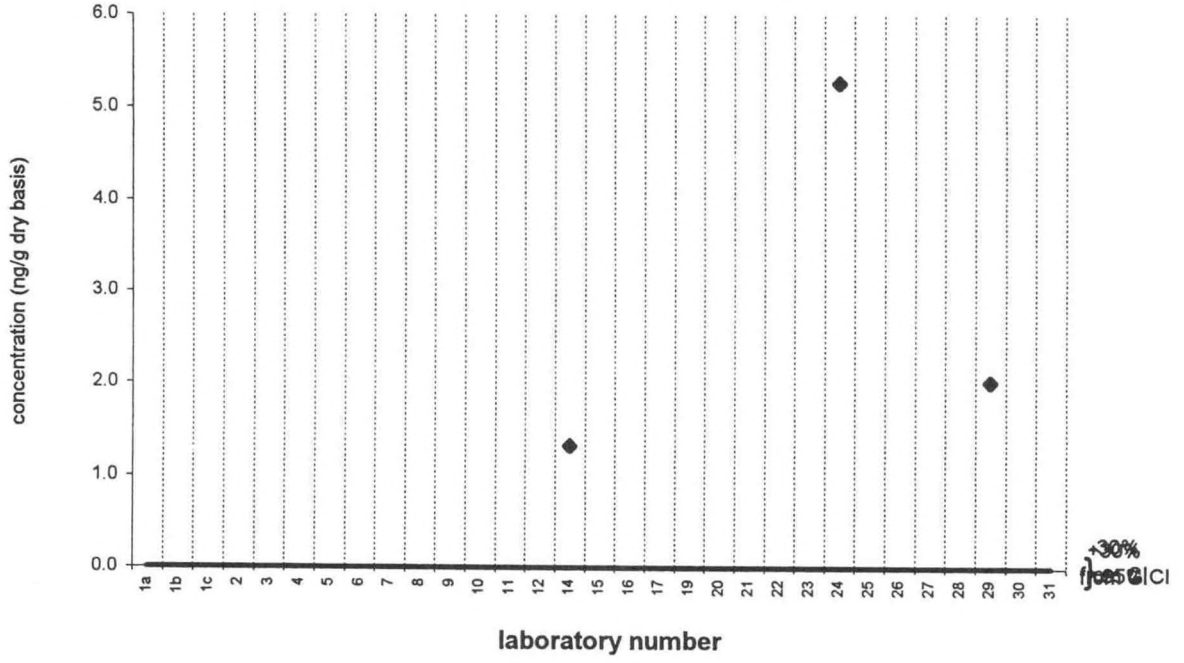
Reported Results: 22 Quantitative Results: 5

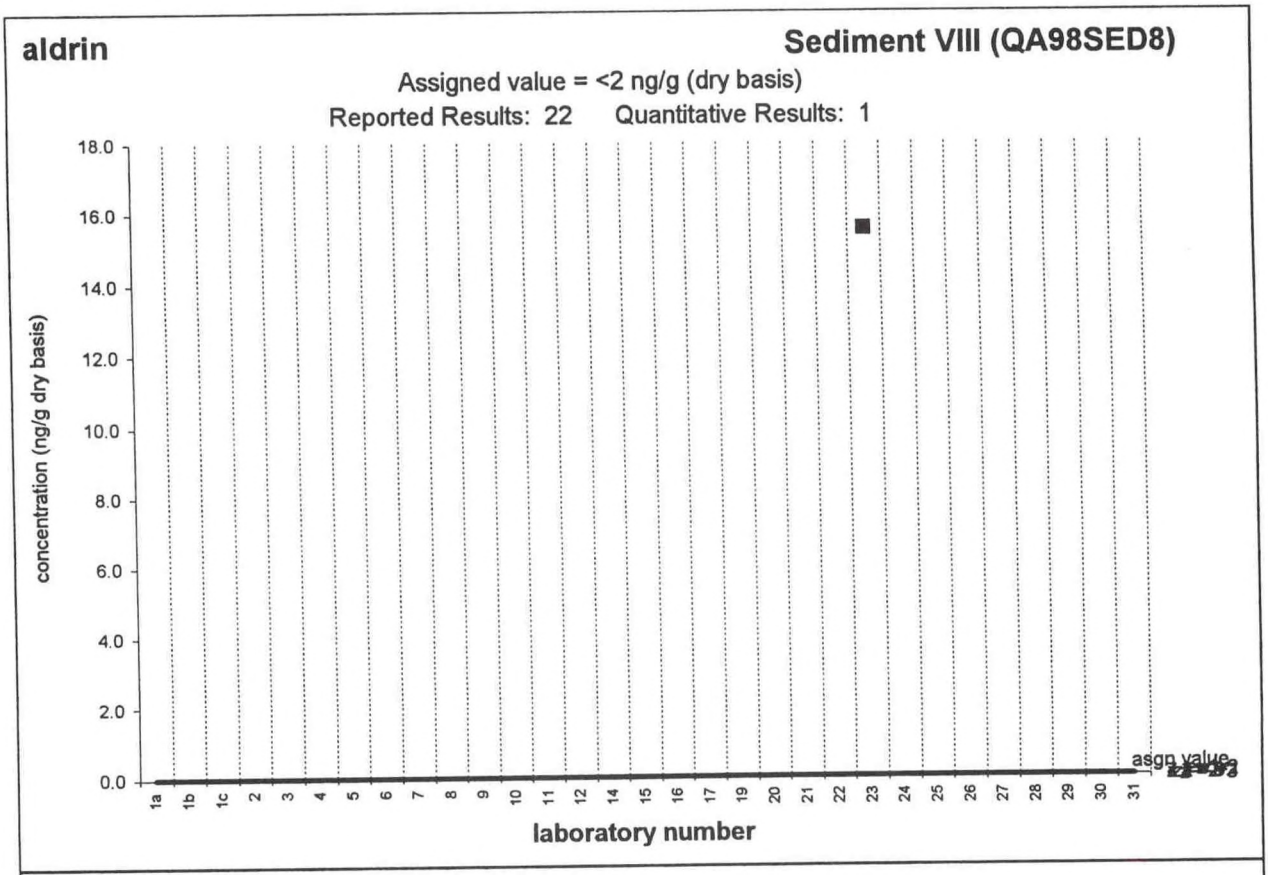


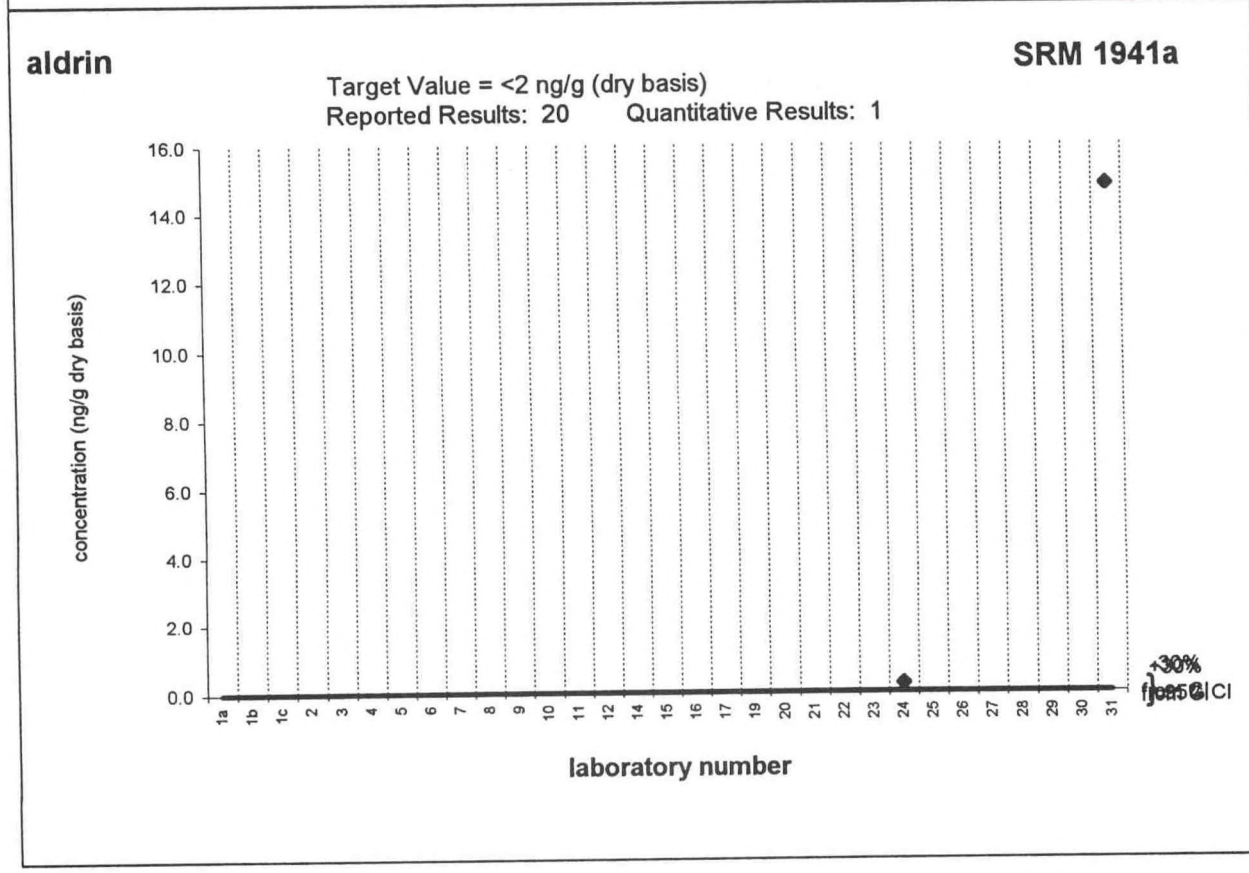
heptachlor **SRM 1941a**

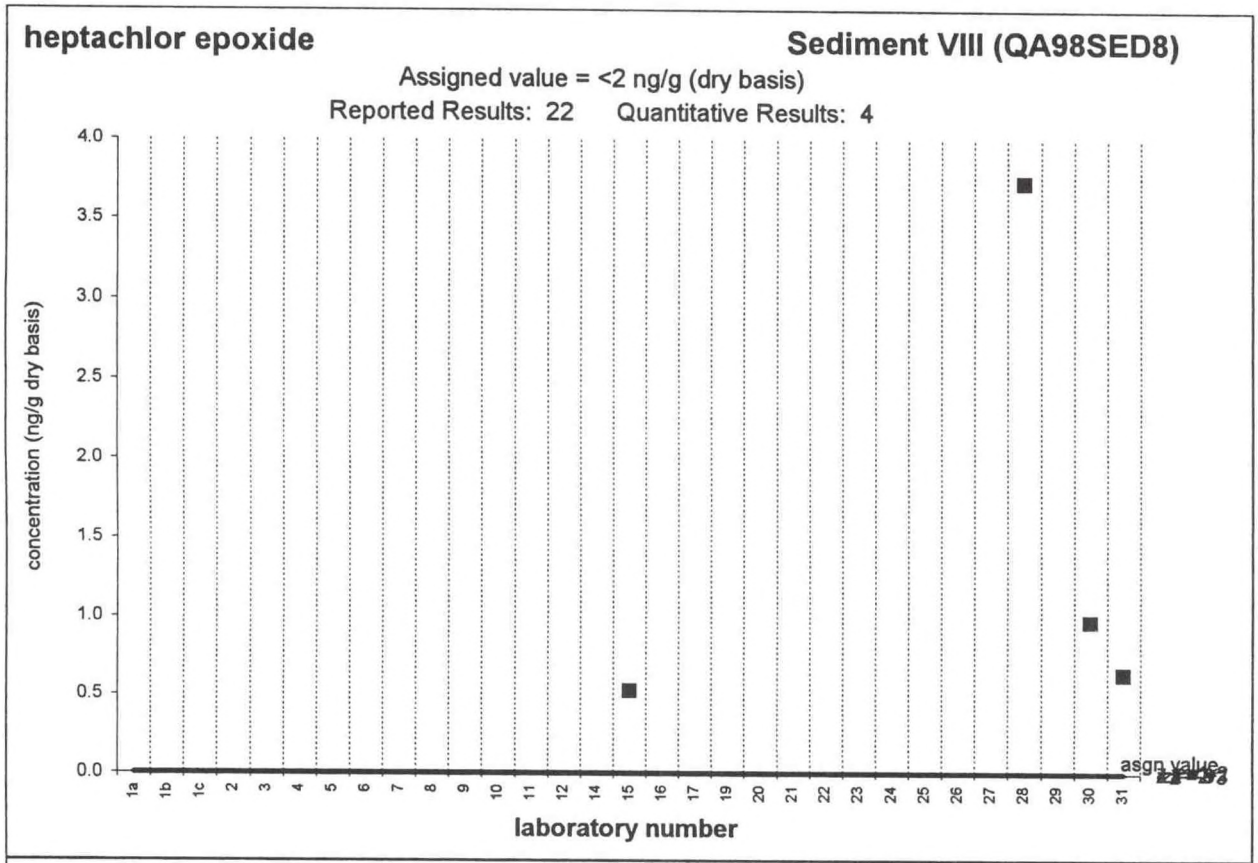
Target Value = <2 ng/g (dry basis)

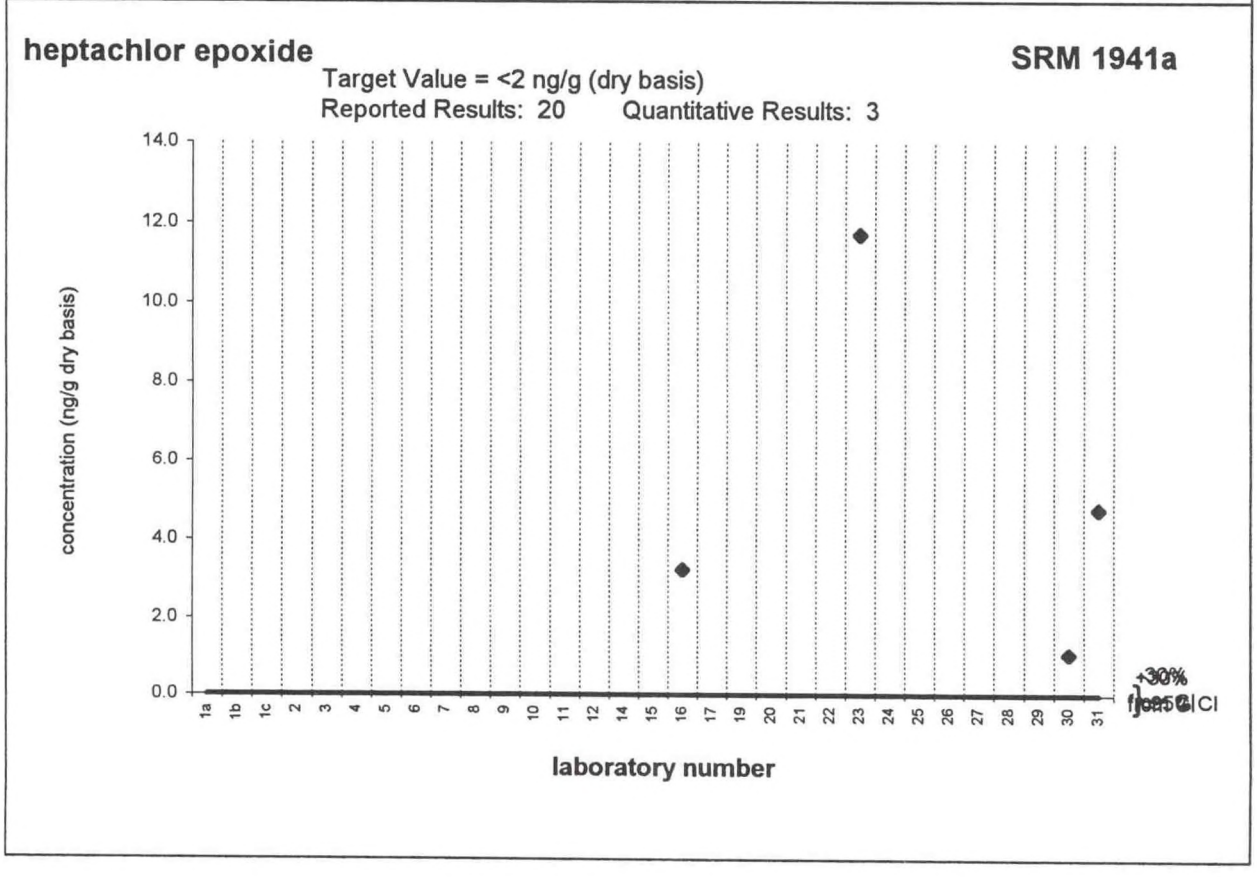
Reported Results: 20 Quantitative Results: 3

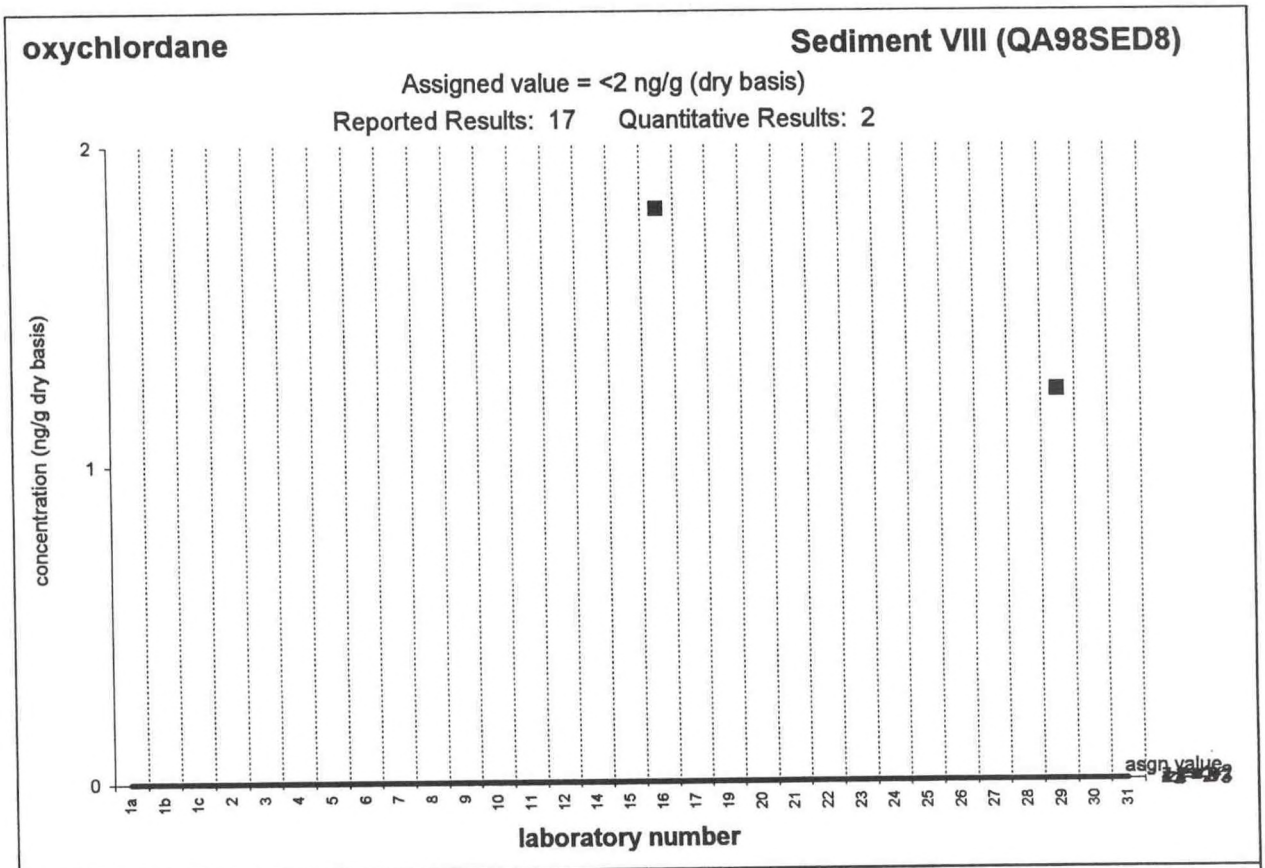


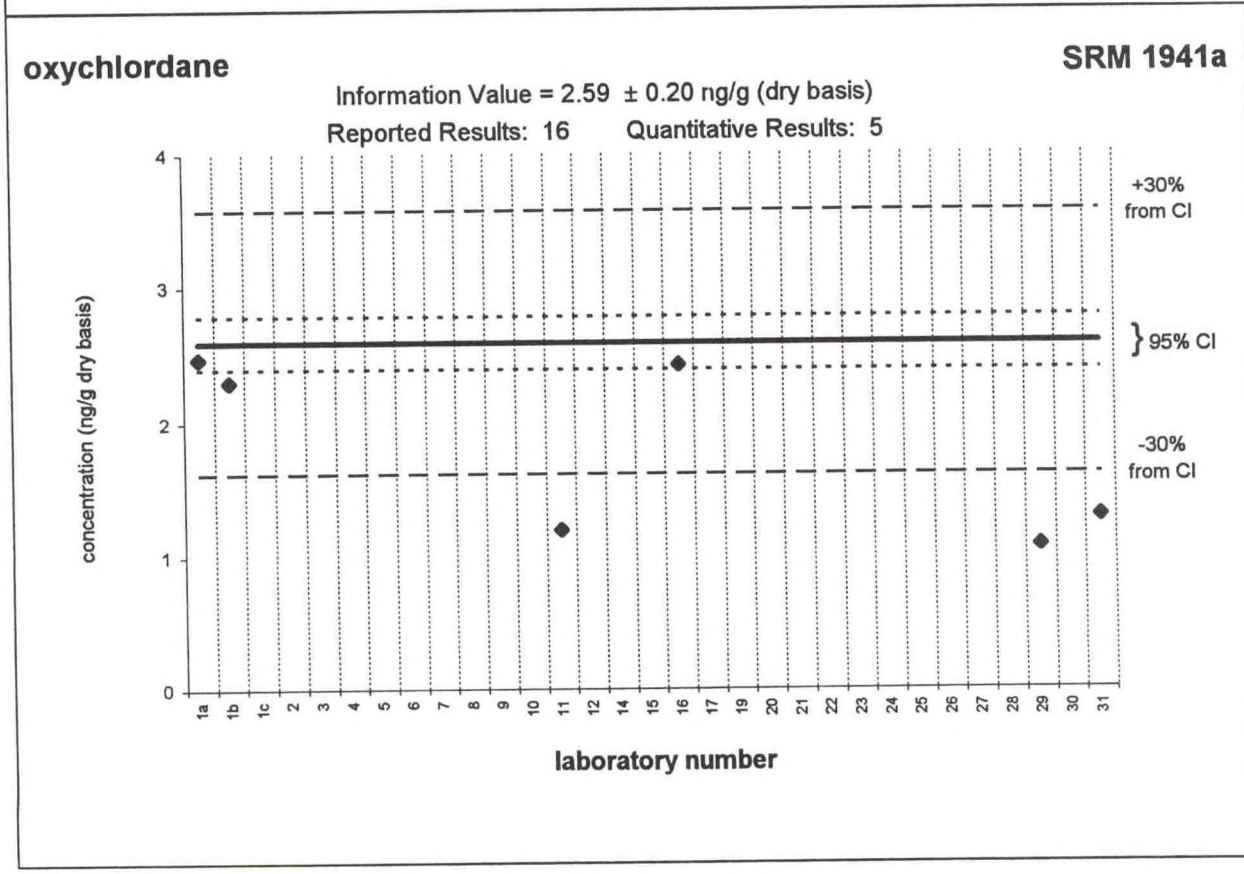

aldrin
Sediment VIII (QA98SED8)
Assigned value = <2 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 1
concentration (ng/g dry basis)
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
asgn value
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number


aldrin
SRM 1941a
Target Value = <2 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 1
concentration (ng/g dry basis)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
+30%
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number


heptachlor epoxide
Sediment VIII (QA98SED8)
Assigned value = <2 ng/g (dry basis)
Reported Results: 22 Quantitative Results: 4
concentration (ng/g dry basis)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
asgn value
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number


heptachlor epoxide
SRM 1941a
Target Value = <2 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 3
concentration (ng/g dry basis)
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
+30%
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number

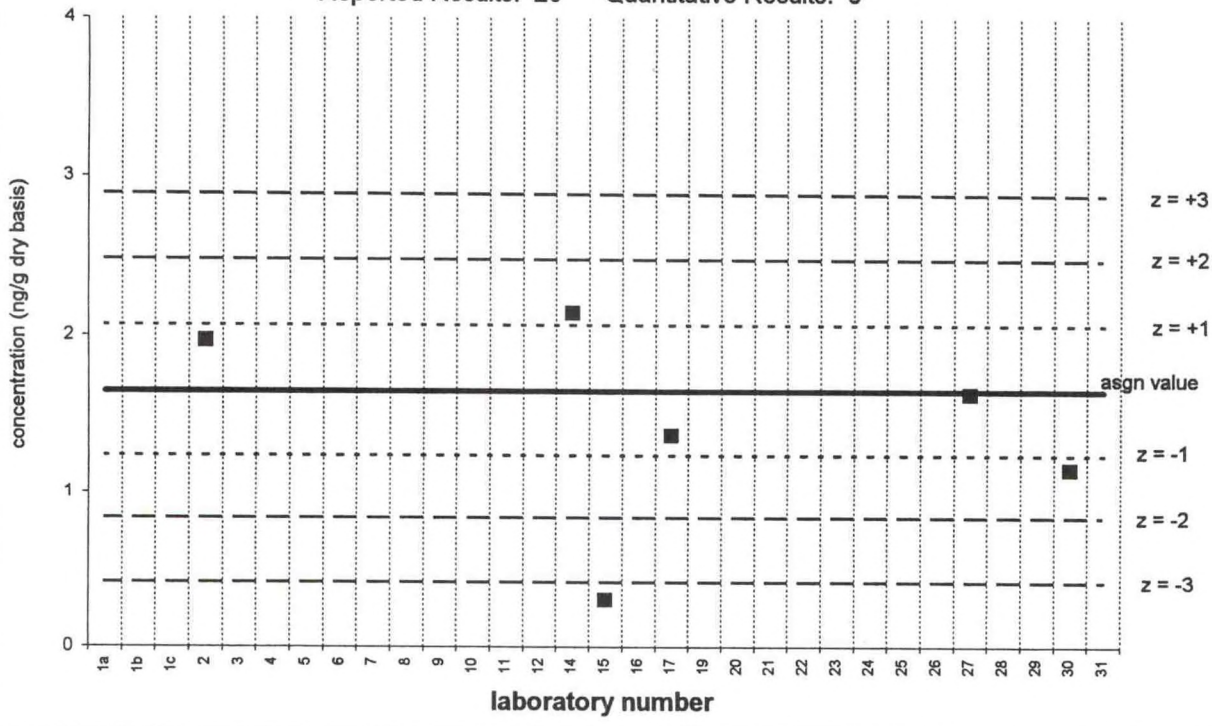

oxychlordane
Sediment VIII (QA98SED8)
Assigned value = <2 ng/g (dry basis)
Reported Results: 17
Quantitative Results: 2
concentration (ng/g dry basis)
asgn value
laboratory number


oxychlordane
SRM 1941a
Information Value = 2.59 ± 0.20 ng/g (dry basis)
Reported Results: 16
Quantitative Results: 5
+30% from CI
95% CI
-30% from CI
concentration (ng/g dry basis)
laboratory number

trans-chlordane **Sediment VIII (QA98SED8)**

Assigned value = 1.65 ng/g s = 0.41 ng/g 95% CL = 0.51 ng/g (dry basis)

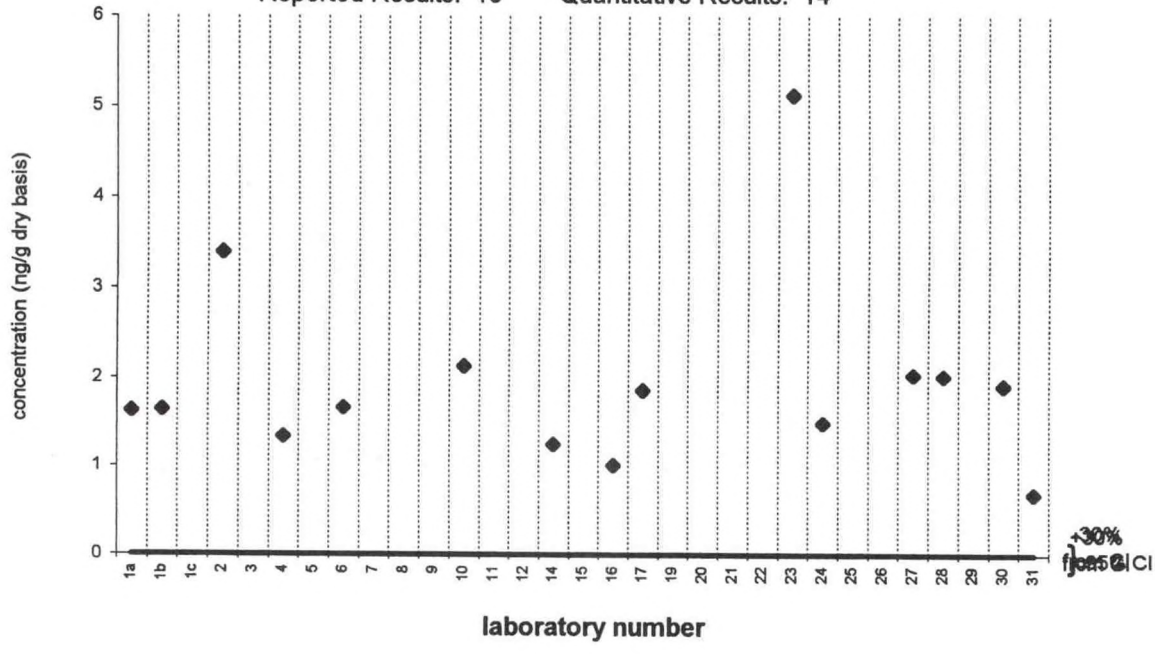
Reported Results: 20 Quantitative Results: 5



trans-chlordane **SRM 1941a**

Target Value = <2 ng/g (dry basis)

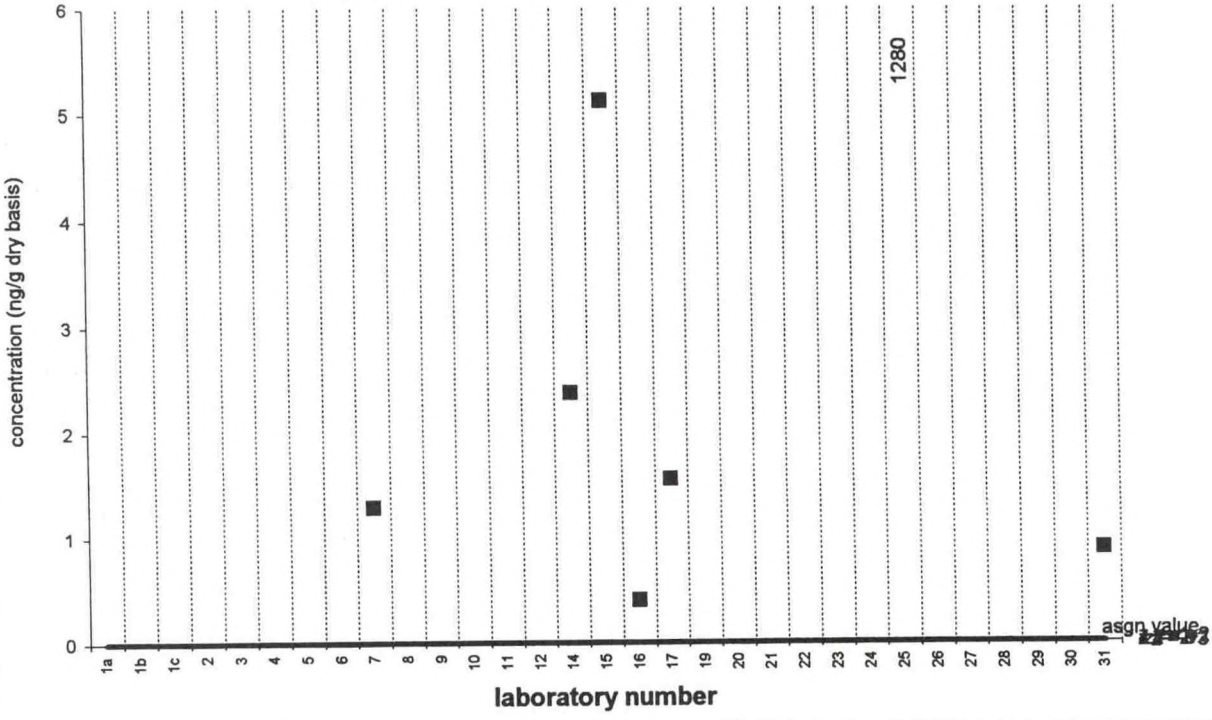
Reported Results: 19 Quantitative Results: 14



2,4'-DDE — Sediment VIII (QA98SED8)

Assigned value = <2 ng/g (dry basis)

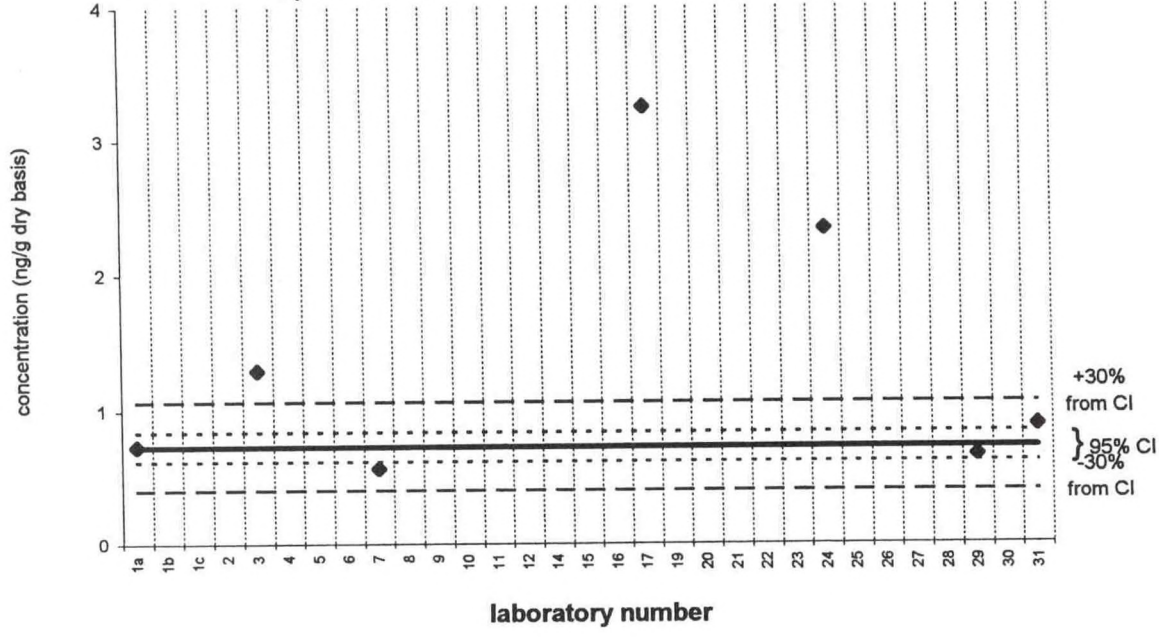
Reported Results: 21 Quantitative Results: 7

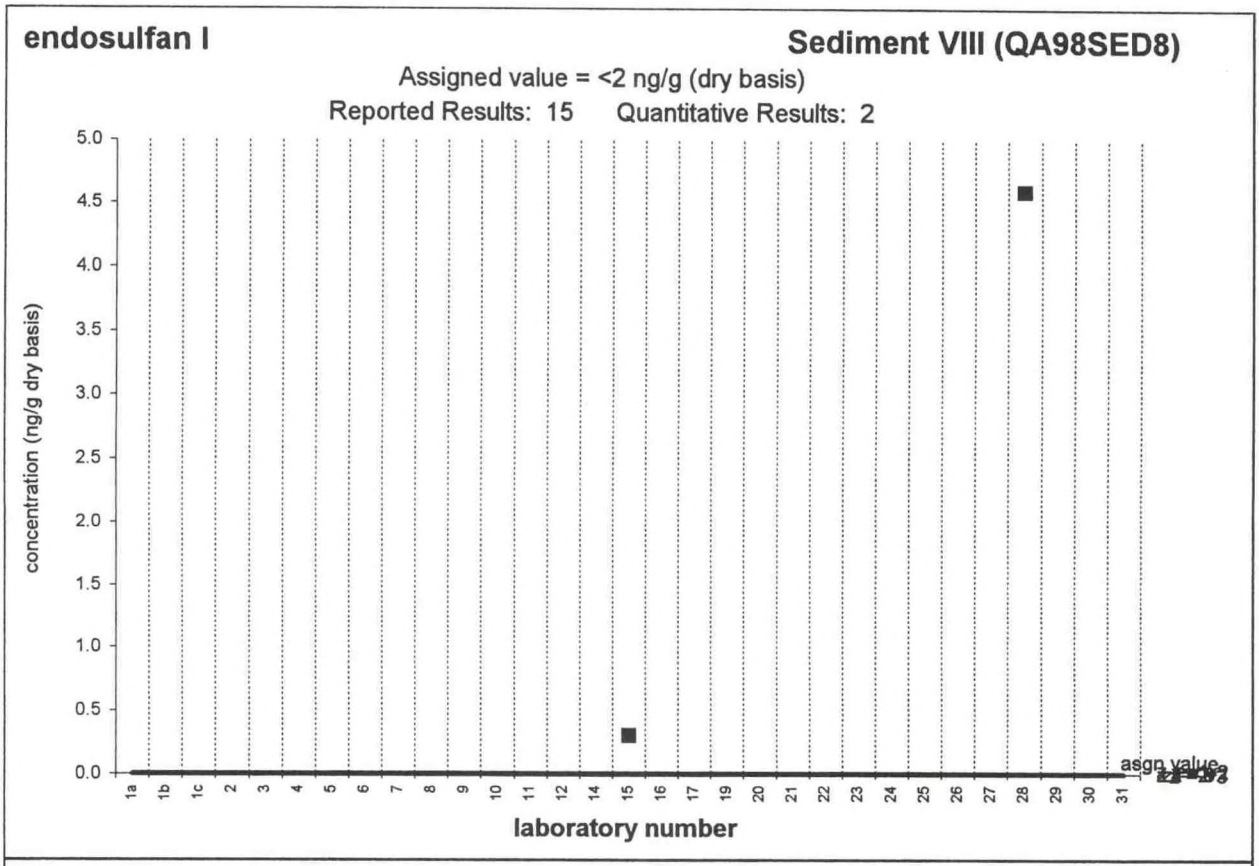


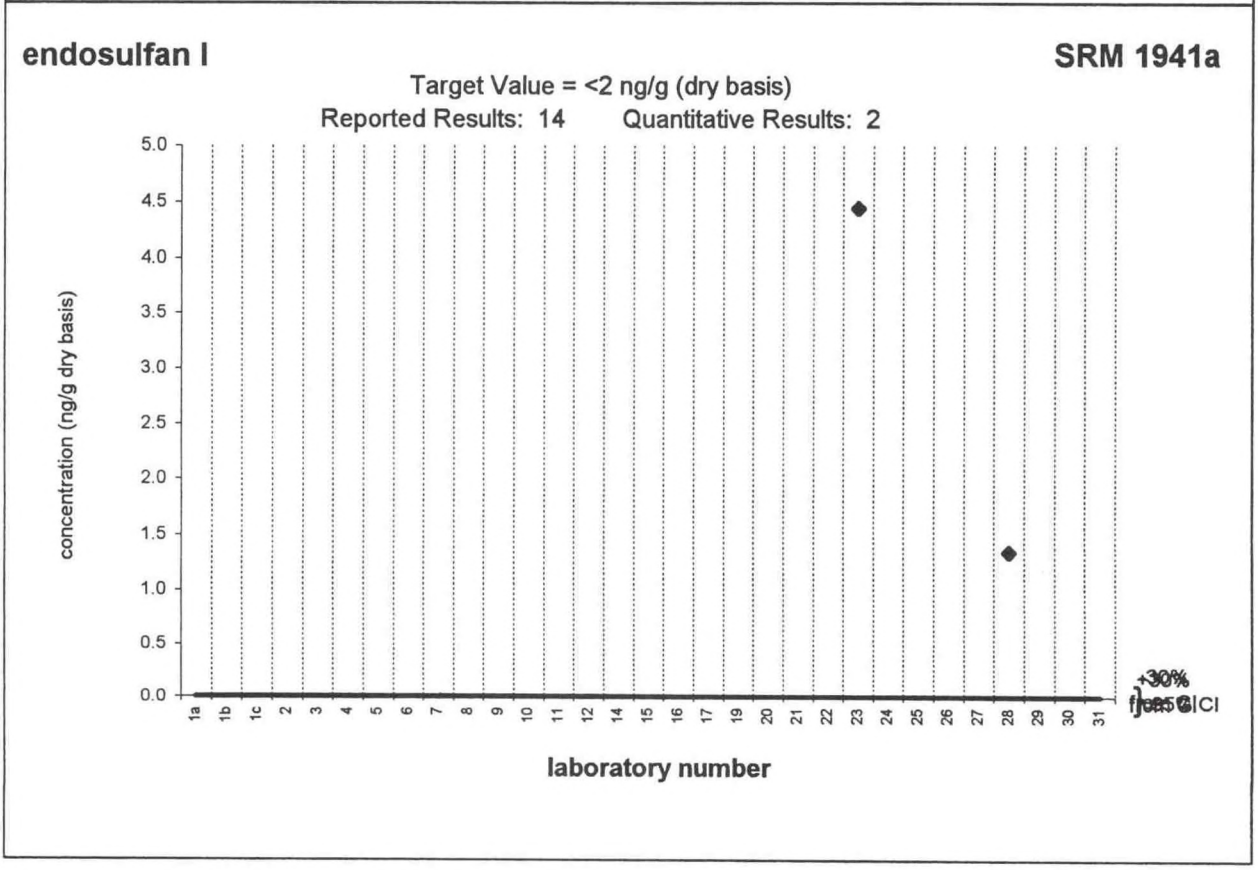
2,4'-DDE — SRM 1941a

Certified Value = 0.73 ± 0.11 ng/g (dry basis)

Reported Results: 18 Quantitative Results: 6



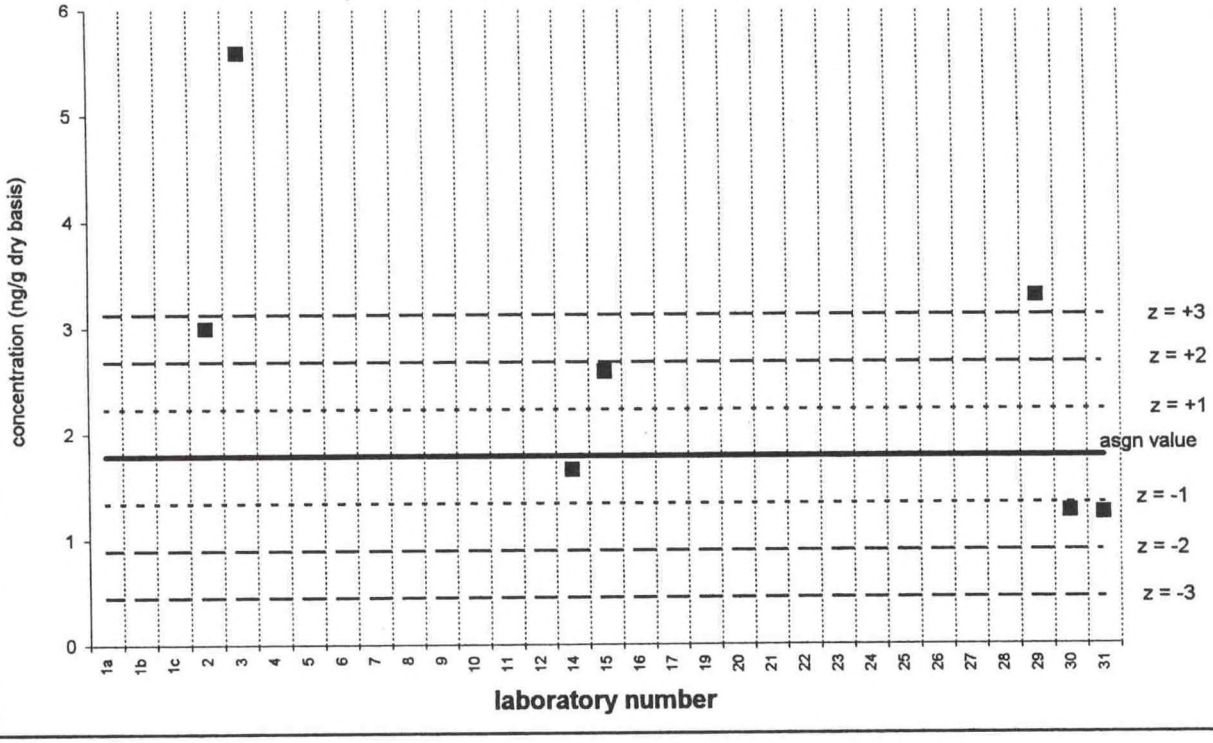

endosulfan I
Sediment VIII (QA98SED8)
Assigned value = <2 ng/g (dry basis)
Reported Results: 15 Quantitative Results: 2
concentration (ng/g dry basis)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
asgn value
laboratory number


endosulfan I
SRM 1941a
Target Value = <2 ng/g (dry basis)
Reported Results: 14 Quantitative Results: 2
concentration (ng/g dry basis)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
+30%
laboratory number

cis-chlordane **Sediment VIII (QA98SED8)**

Assigned value = 1.78 ng/g s = 0.83 ng/g 95% CL = 1.32 ng/g (dry basis)

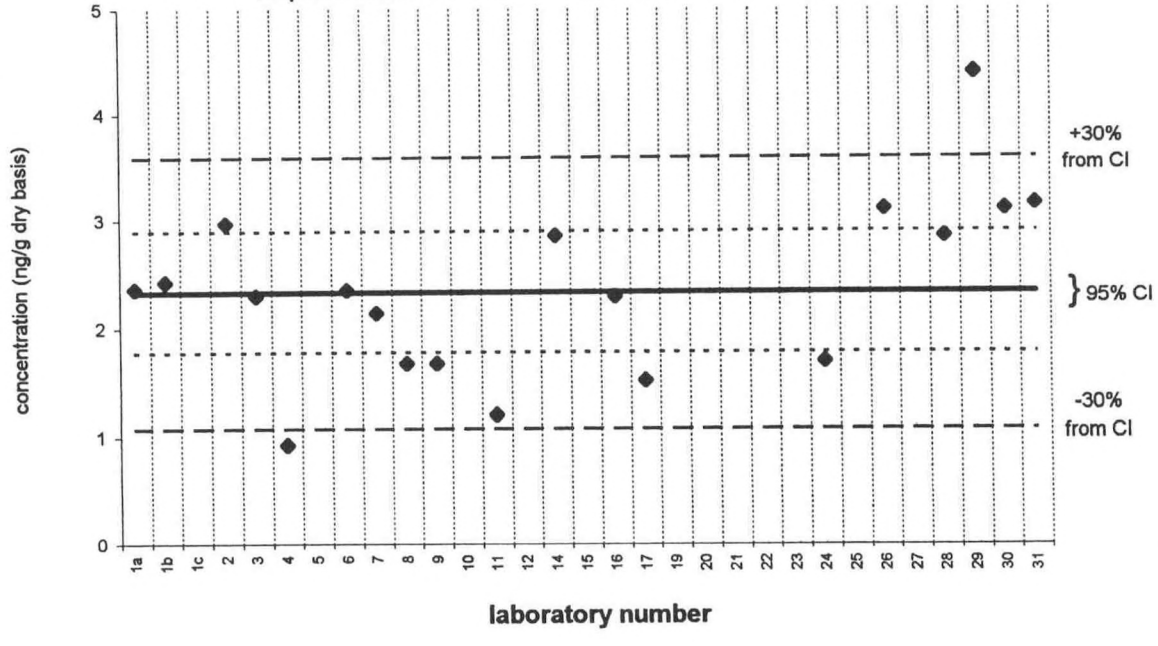
Reported Results: 23 Quantitative Results: 7



cis-chlordane **SRM 1941a**

Certified Value = 2.33 ± 0.56 ng/g (dry basis)

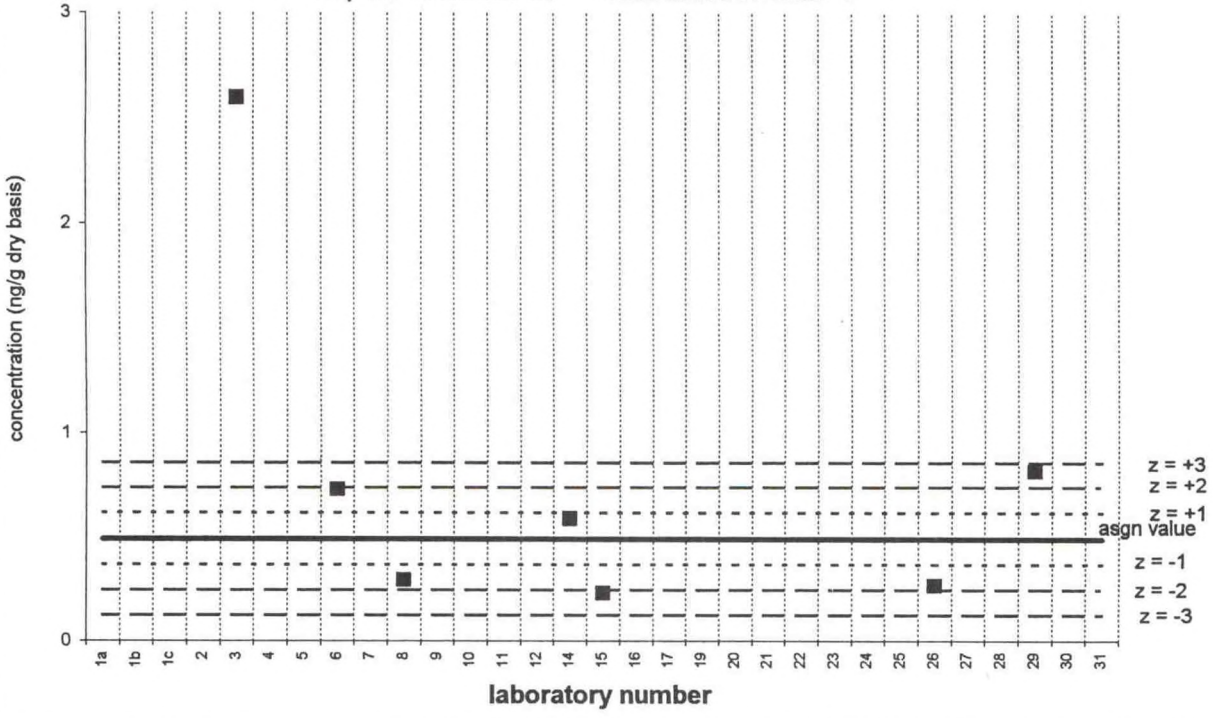
Reported Results: 22 Quantitative Results: 18



trans-nonachlor **Sediment VIII (QA98SED8)**

Assigned value = 0.489 ng/g s = 0.259 ng/g 95% CL = 0.412 ng/g (dry basis)

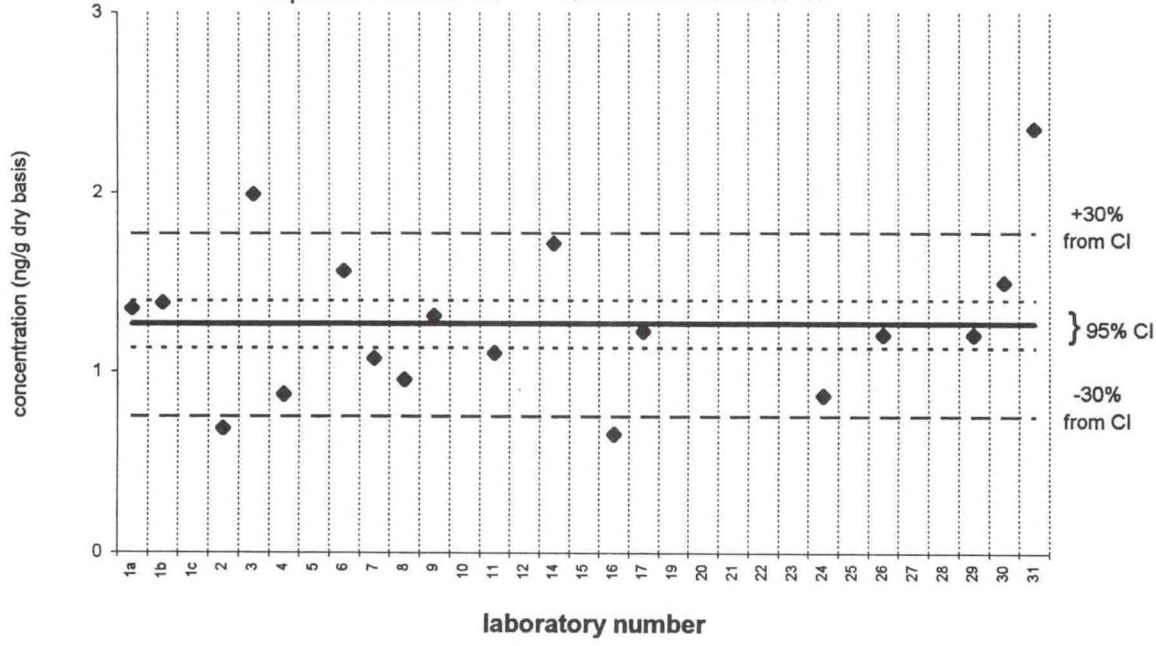
Reported Results: 21 Quantitative Results: 7



trans-nonachlor **SRM 1941a**

Certified Value = 1.26 ± 0.13 ng/g (dry basis)

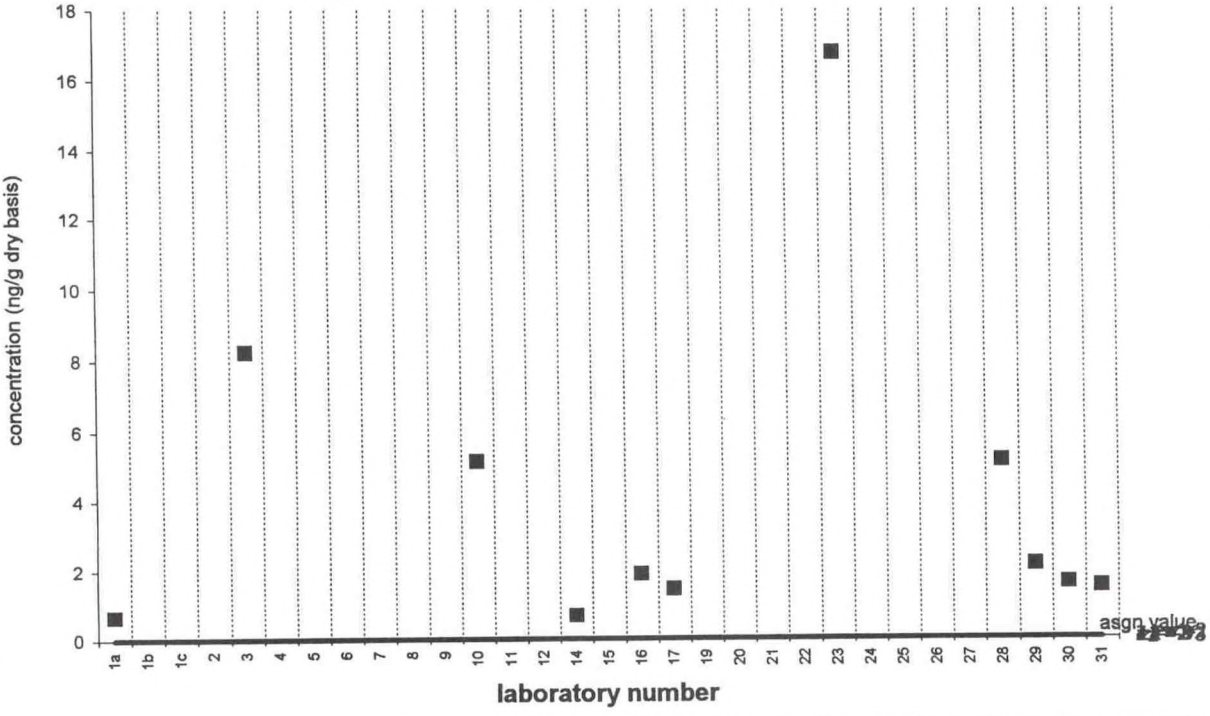
Reported Results: 20 Quantitative Results: 17



dieldrin **Sediment VIII (QA98SED8)**

Assigned value = <2 ng/g (dry basis)

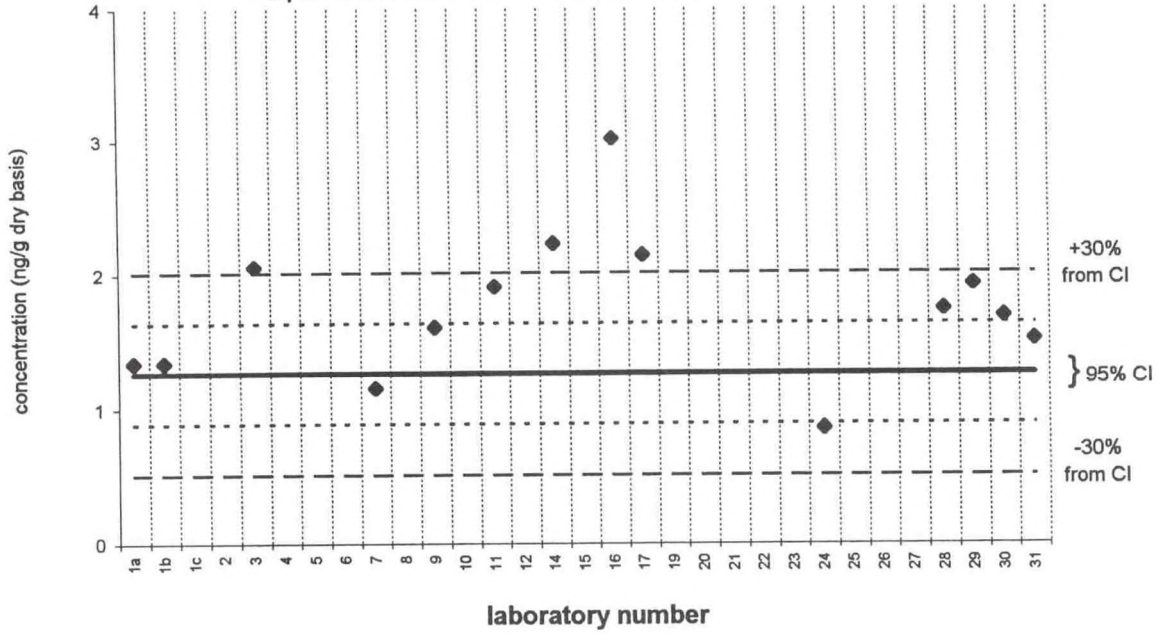
Reported Results: 22 Quantitative Results: 11

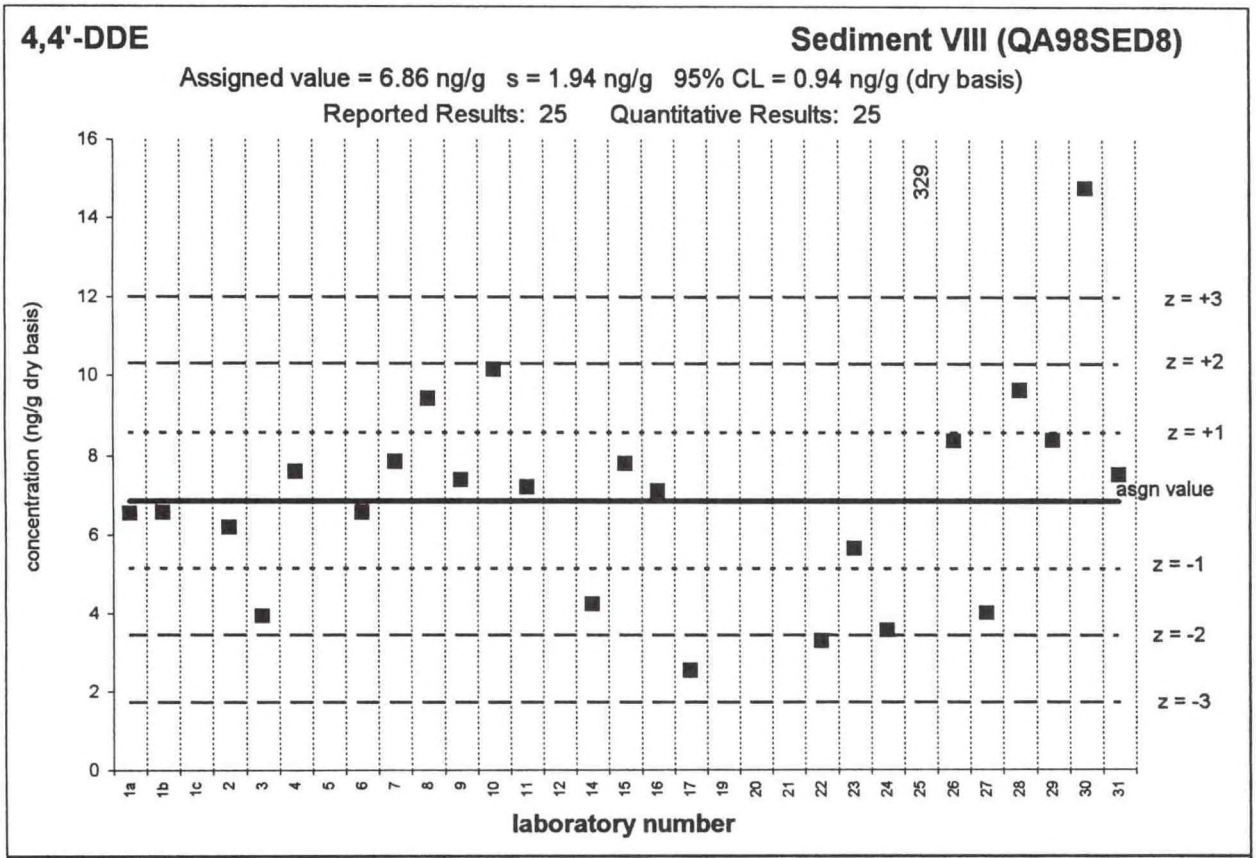


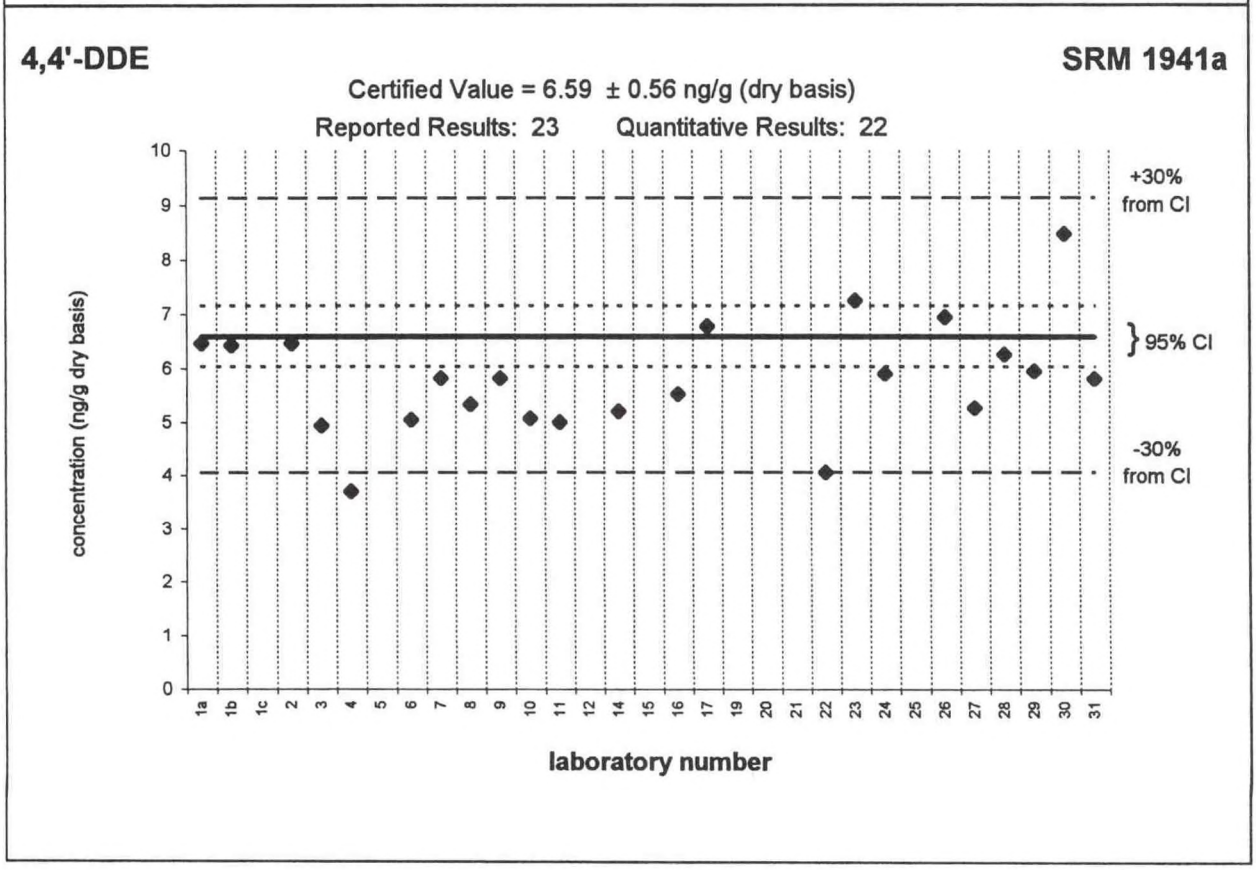
dieldrin **SRM 1941a**

Information Value = 1.26 ± 0.37 ng/g (dry basis)

Reported Results: 21 Quantitative Results: 13



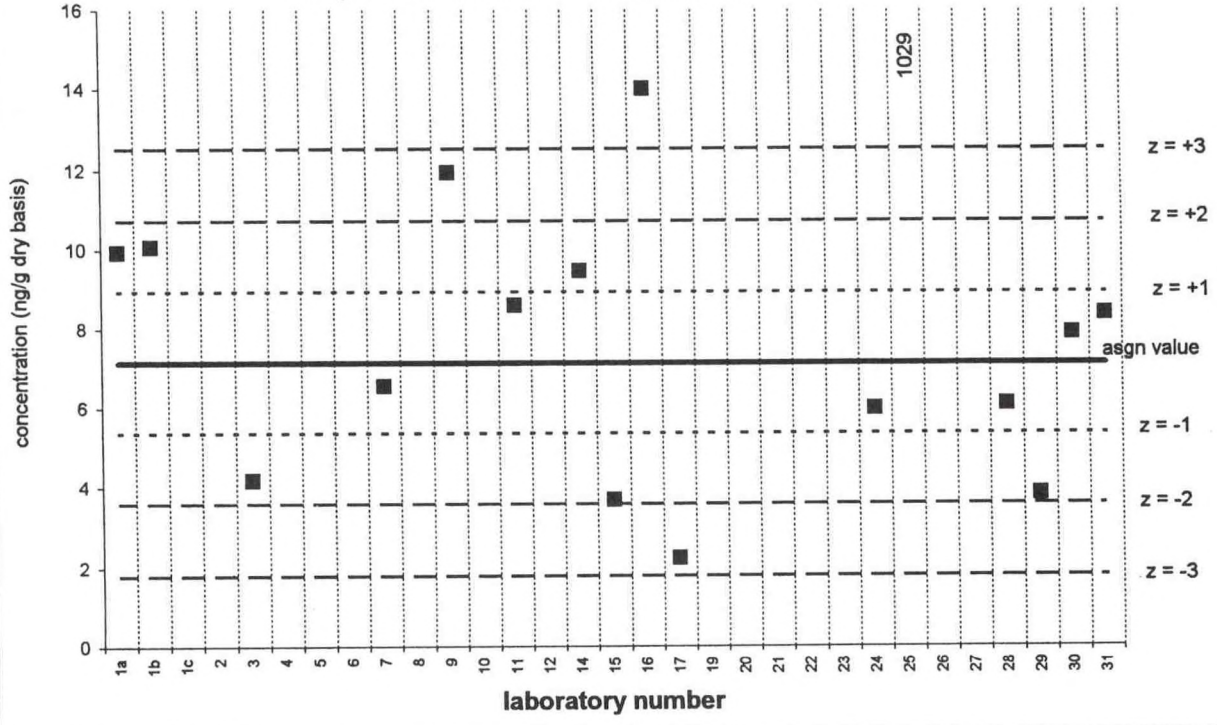

4,4'-DDE
Sediment VIII (QA98SED8)
Assigned value = 6.86 ng/g s = 1.94 ng/g 95% CL = 0.94 ng/g (dry basis)
Reported Results: 25 Quantitative Results: 25
concentration (ng/g dry basis)
laboratory number
329
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3


4,4'-DDE
SRM 1941a
Certified Value = 6.59 ± 0.56 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 22
concentration (ng/g dry basis)
laboratory number
+30% from CI
95% CI
-30% from CI

2,4'-DDD — Sediment VIII (QA98SED8)

Assigned value = 7.15 ng/g s = 2.19 ng/g 95% CL = 1.57 ng/g (dry basis)

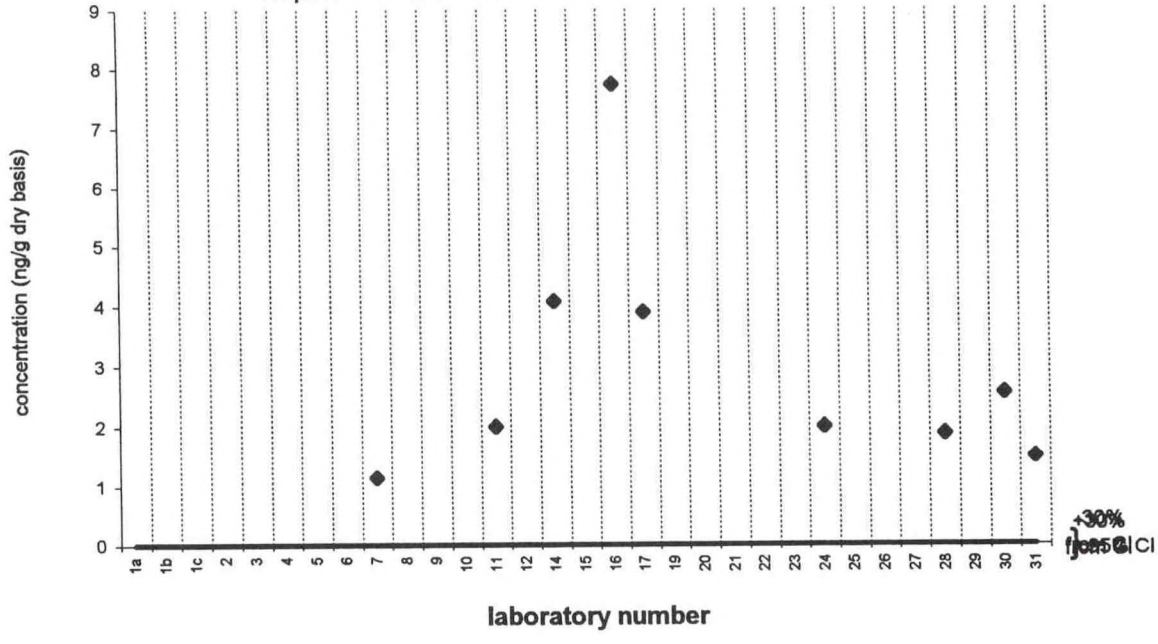
Reported Results: 21 Quantitative Results: 16

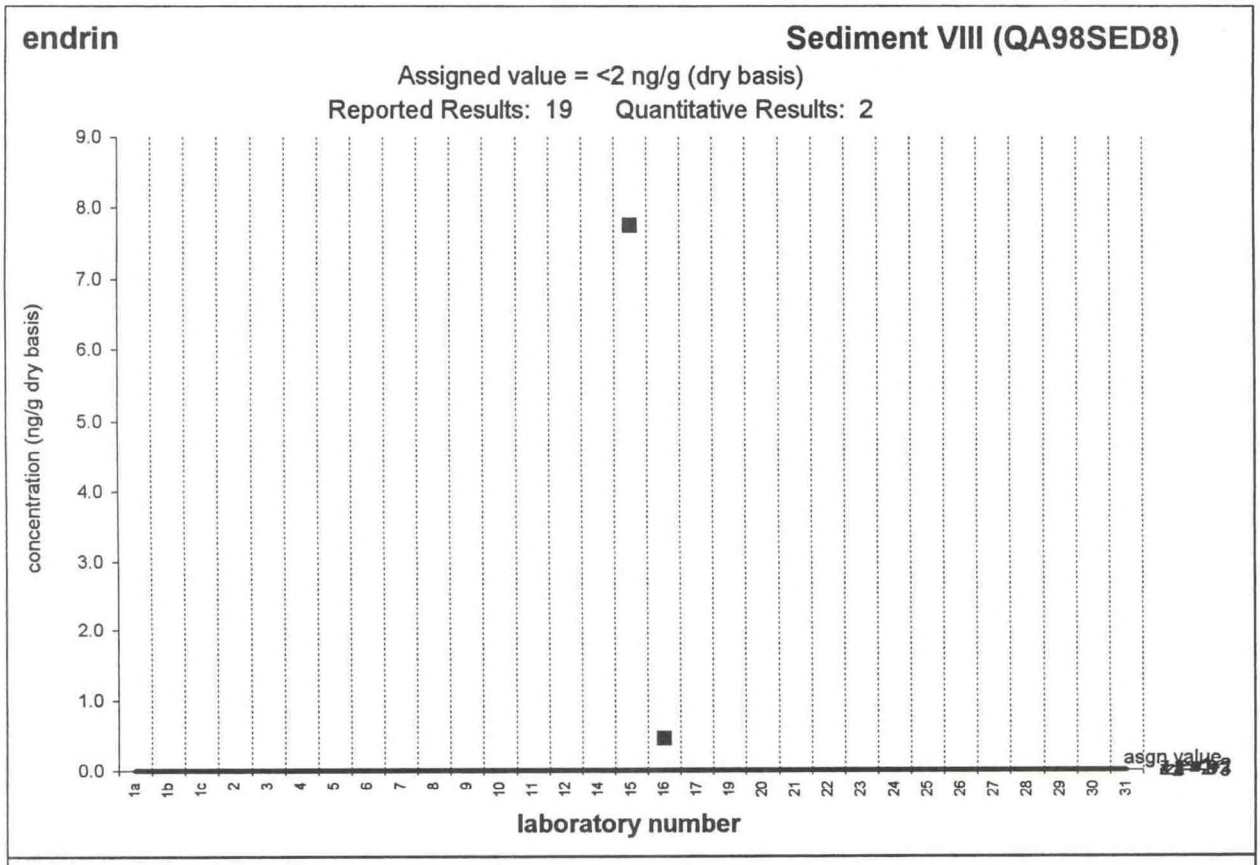


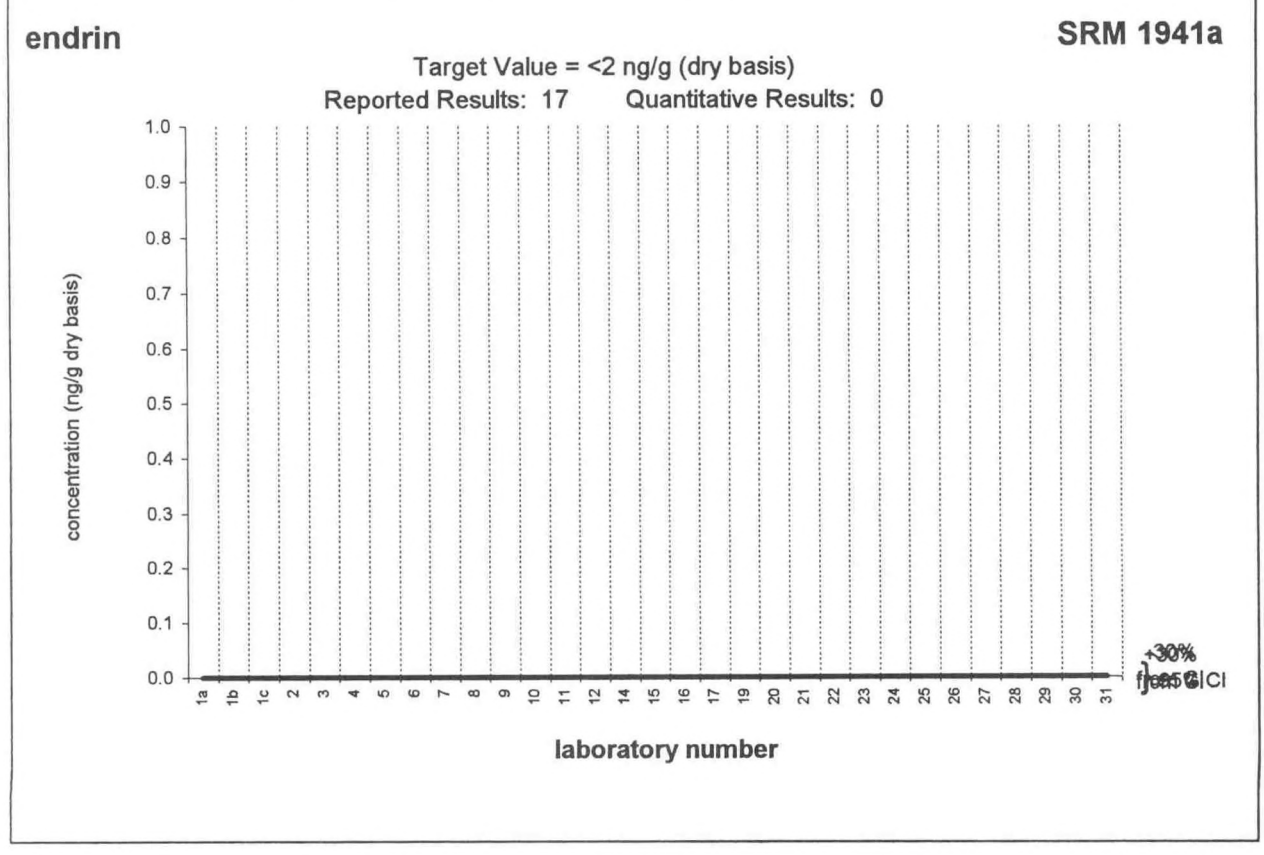
2,4'-DDD — SRM 1941a

Target Value = <2 ng/g (dry basis)

Reported Results: 18 Quantitative Results: 8



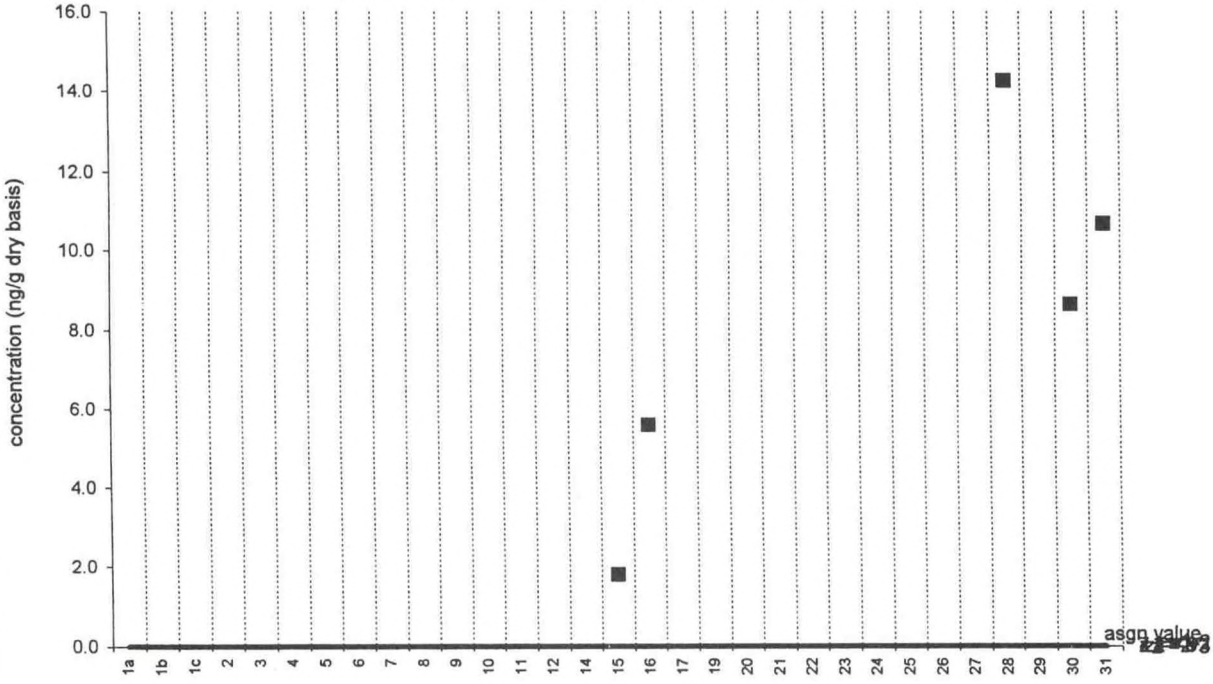

endrin
Sediment VIII (QA98SED8)
Assigned value = <2 ng/g (dry basis)
Reported Results: 19 Quantitative Results: 2
concentration (ng/g dry basis)
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
asgn value
laboratory number


endrin
SRM 1941a
Target Value = <2 ng/g (dry basis)
Reported Results: 17 Quantitative Results: 0
concentration (ng/g dry basis)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
+30%
laboratory number

endosulfan II **Sediment VIII (QA98SED8)**

Assigned value = <2 ng/g (dry basis)

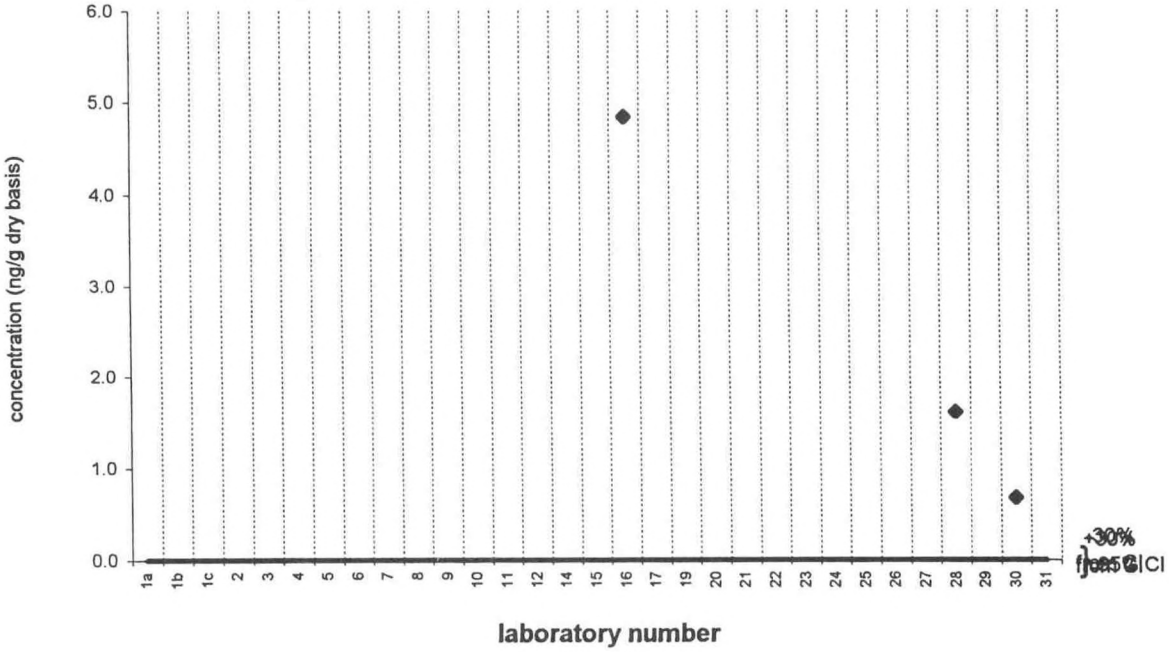
Reported Results: 16 Quantitative Results: 5

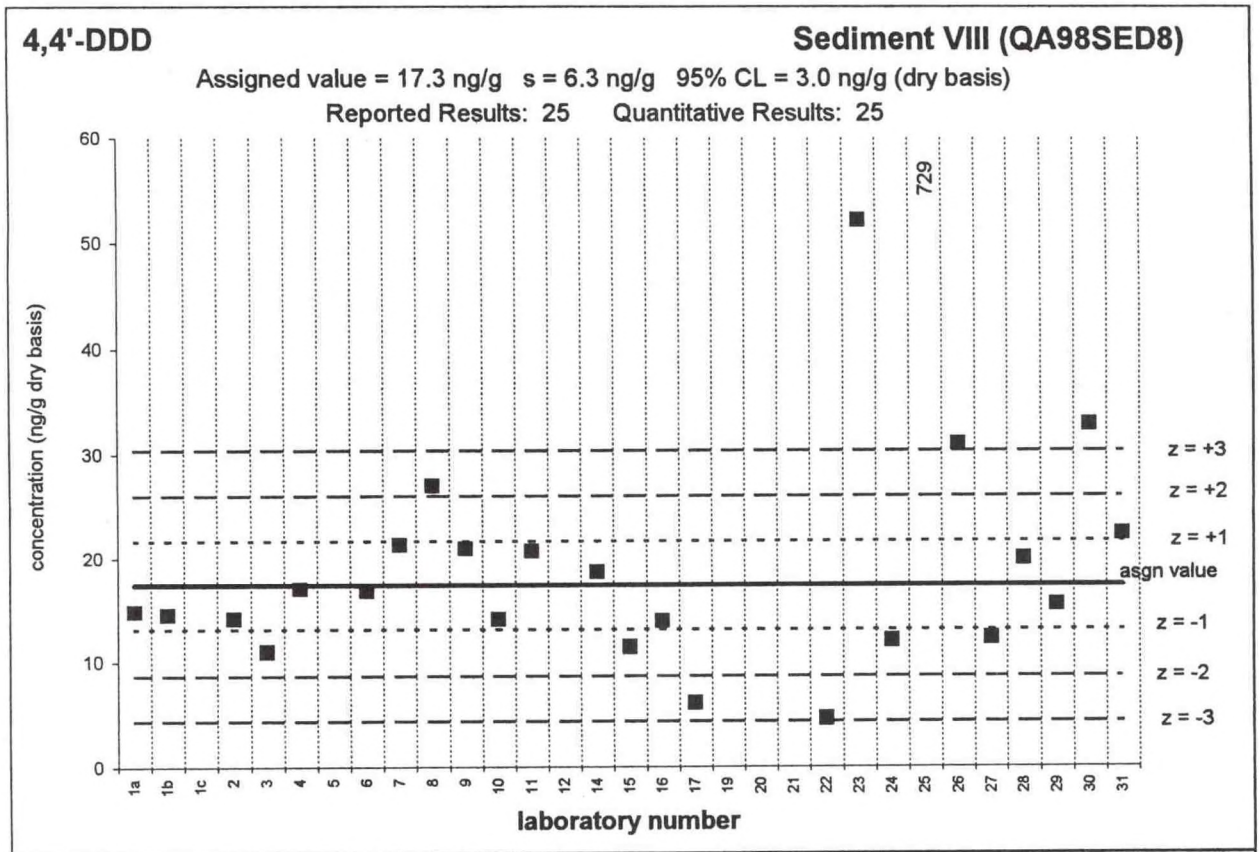


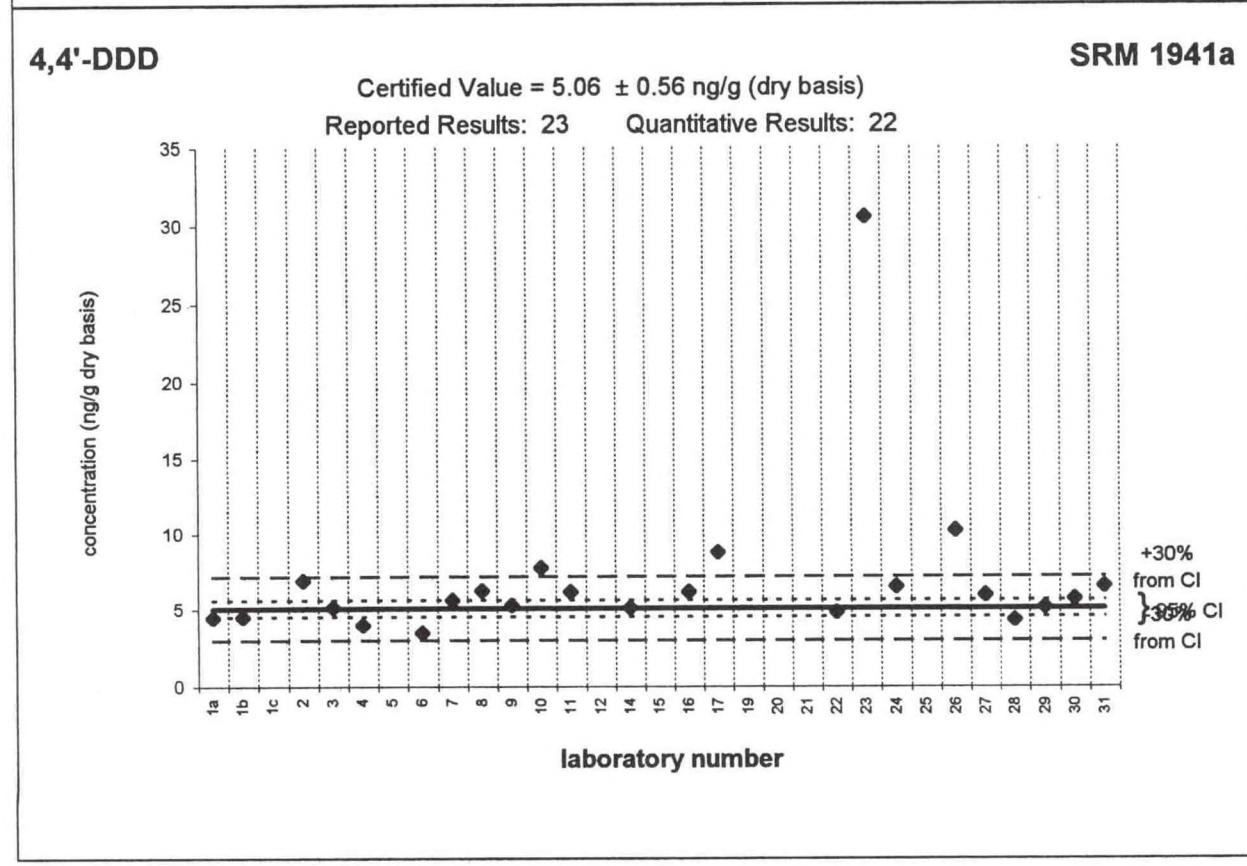
endosulfan II **SRM 1941a**

Target Value = <2 ng/g (dry basis)

Reported Results: 15 Quantitative Results: 3



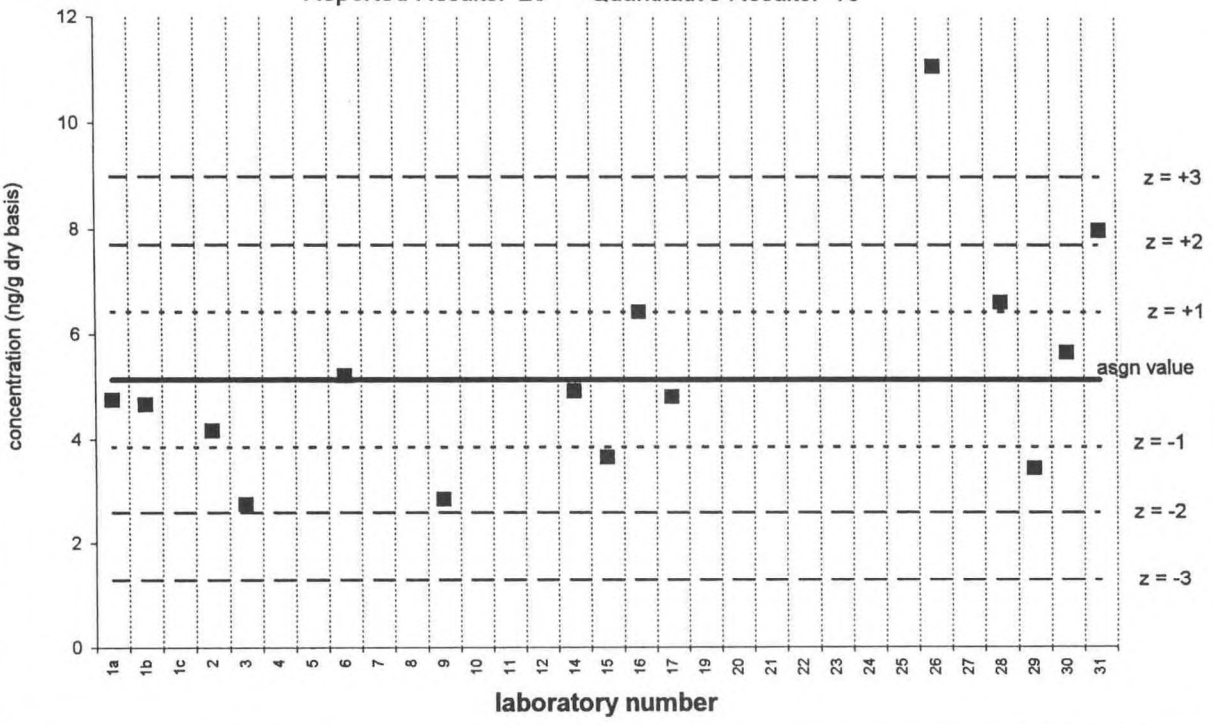

4,4'-DDD
Sediment VIII (QA98SED8)
Assigned value = 17.3 ng/g s = 6.3 ng/g 95% CL = 3.0 ng/g (dry basis)
Reported Results: 25 Quantitative Results: 25
729
concentration (ng/g dry basis)
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3
laboratory number


4,4'-DDD
SRM 1941a
Certified Value = 5.06 ± 0.56 ng/g (dry basis)
Reported Results: 23 Quantitative Results: 22
concentration (ng/g dry basis)
+30%
from CI
-35%
from CI
laboratory number

2,4'-DDT — Sediment VIII (QA98SED8)

Assigned value = 5.14 ng/g s = 1.49 ng/g 95% CL = 1.00 ng/g (dry basis)

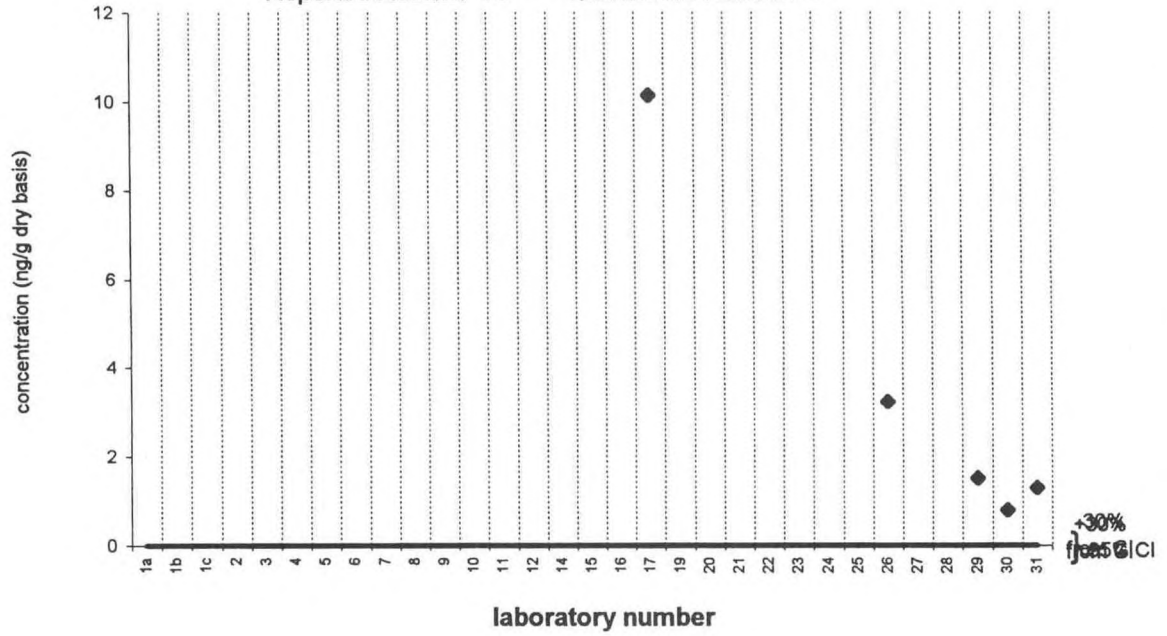
Reported Results: 20 Quantitative Results: 15



2,4'-DDT — SRM 1941a

Target Value = <2 ng/g (dry basis)

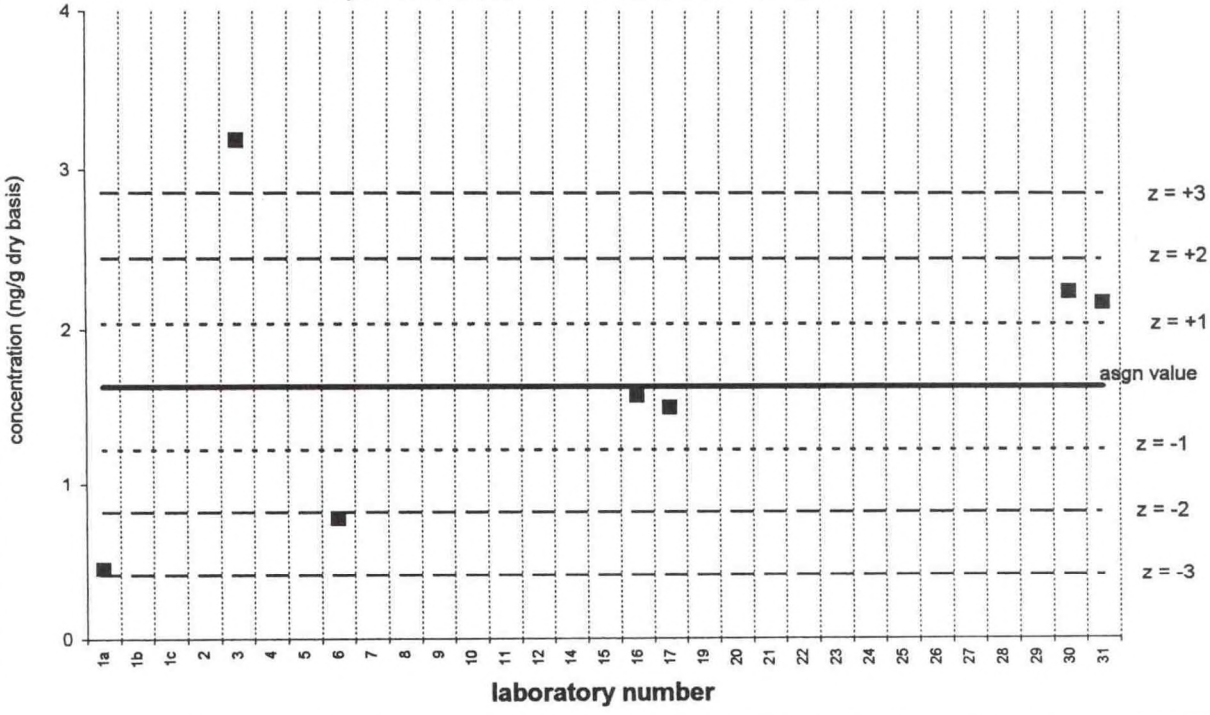
Reported Results: 18 Quantitative Results: 4



cis-nonachlor **Sediment VIII (QA98SED8)**

Assigned value = 1.63 ng/g s = 1.01 ng/g 95% CL = 1.07 ng/g (dry basis)

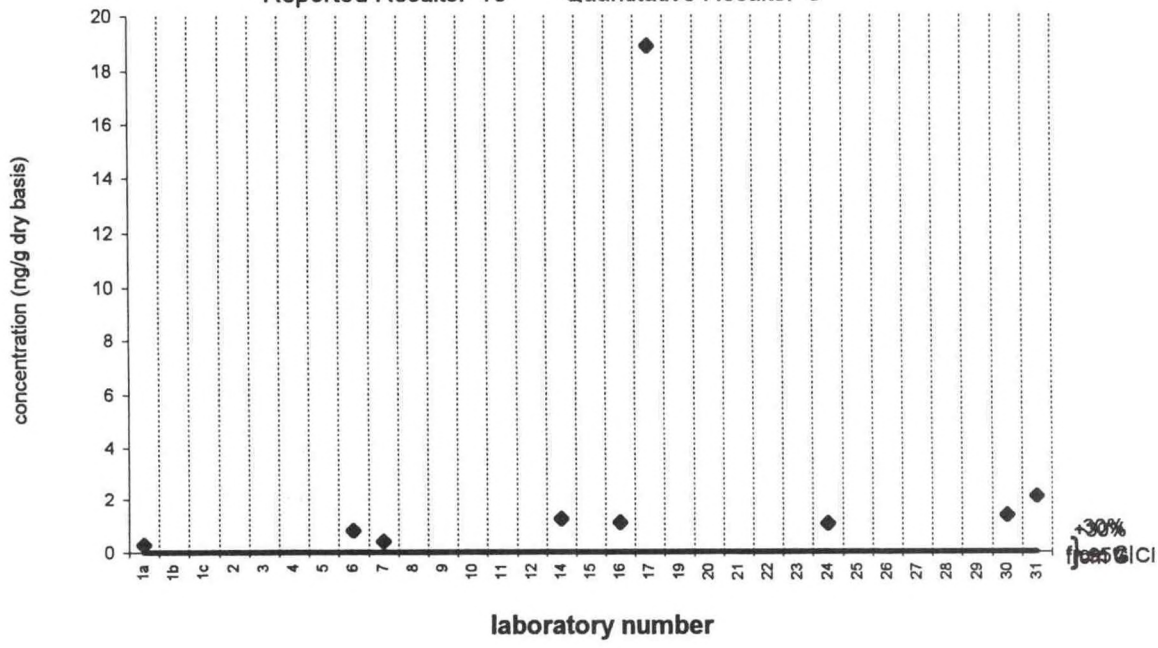
Reported Results: 16 Quantitative Results: 7



cis-nonachlor **SRM 1941a**

Target Value = <2 ng/g (dry basis)

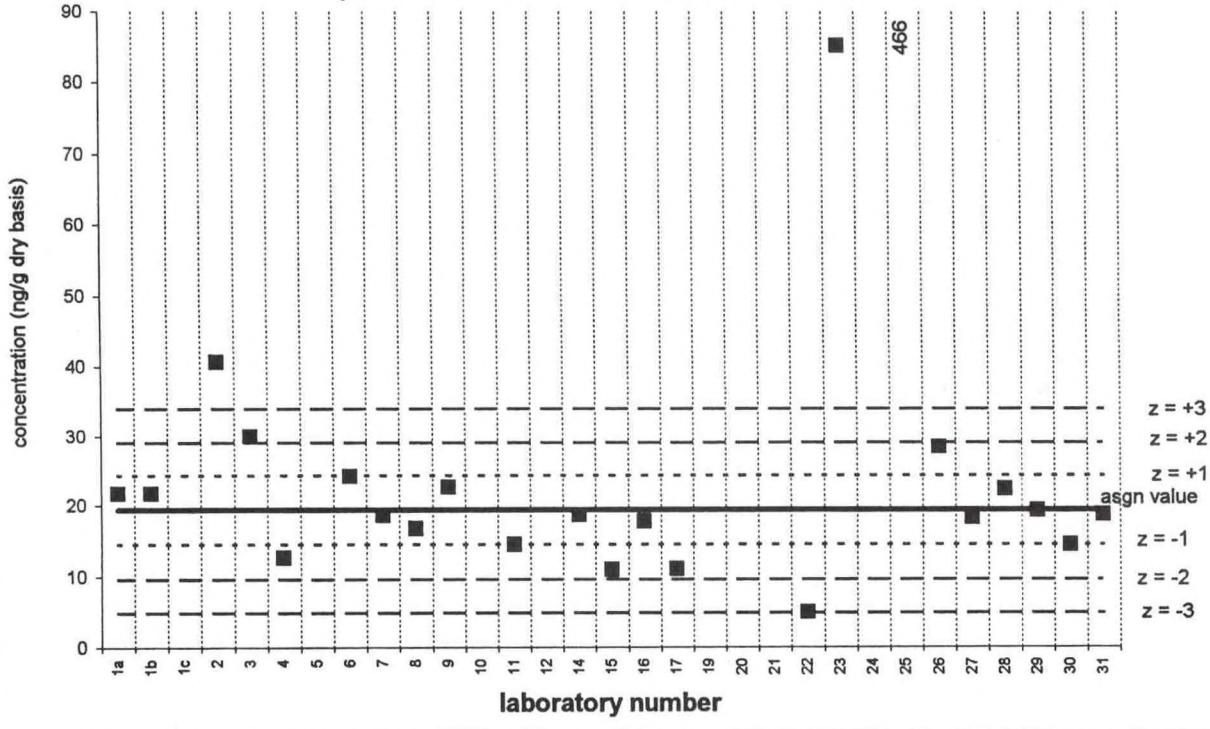
Reported Results: 15 Quantitative Results: 8



4,4'-DDT **Sediment VIII (QA98SED8)**

Assigned value = 19.4 ng/g s = 4.3 ng/g 95% CL = 2.6 ng/g (dry basis)

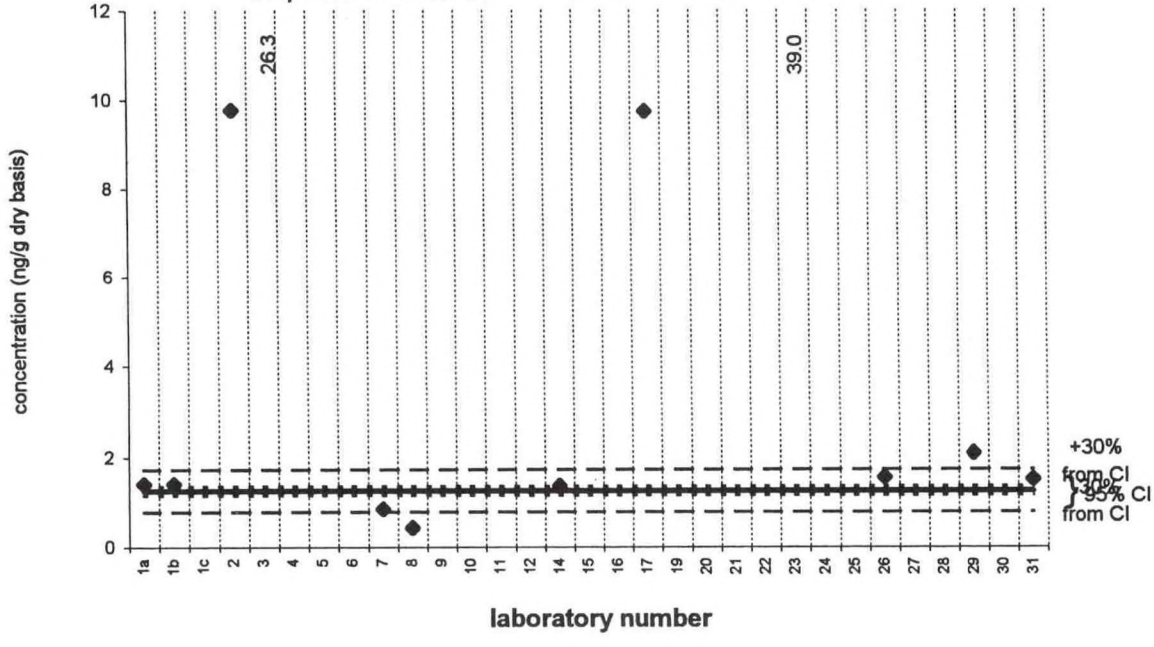
Reported Results: 25 Quantitative Results: 23

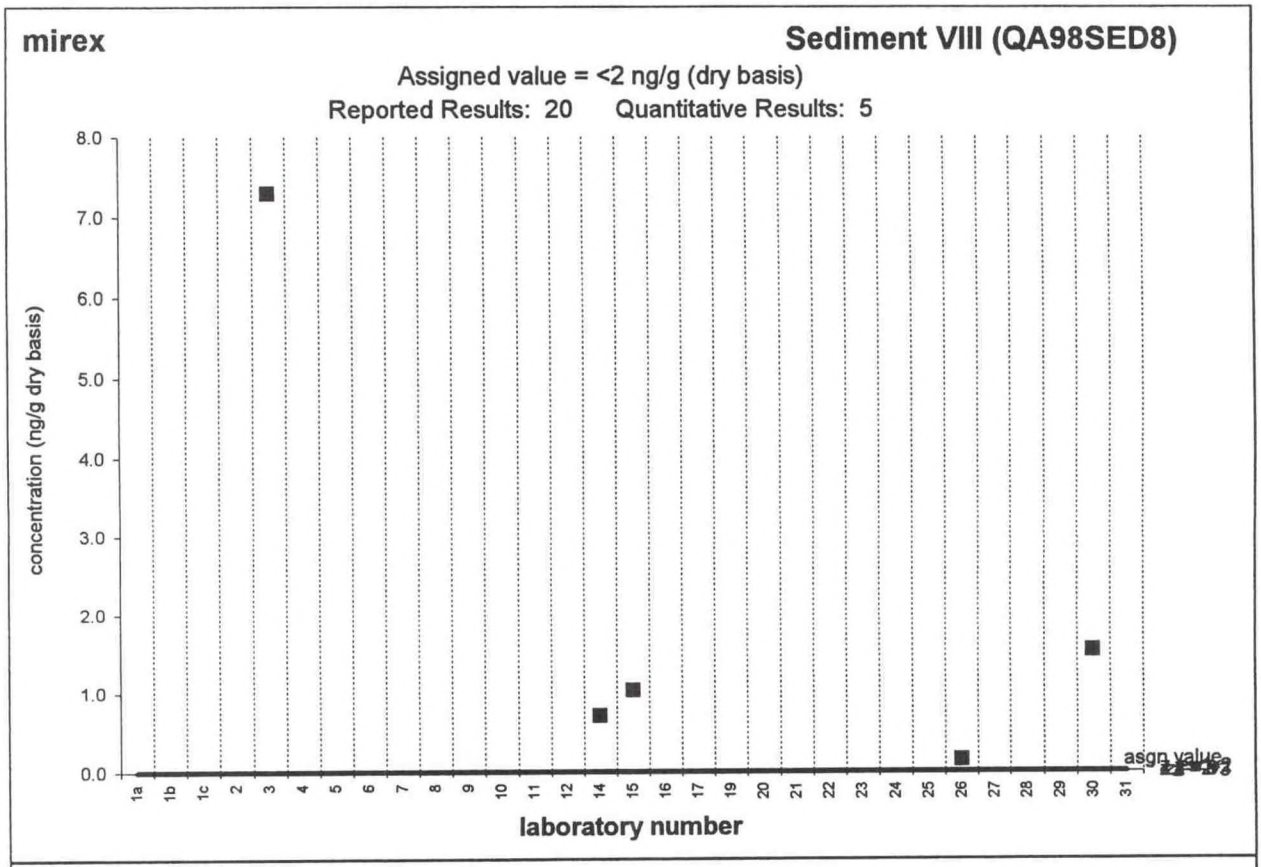


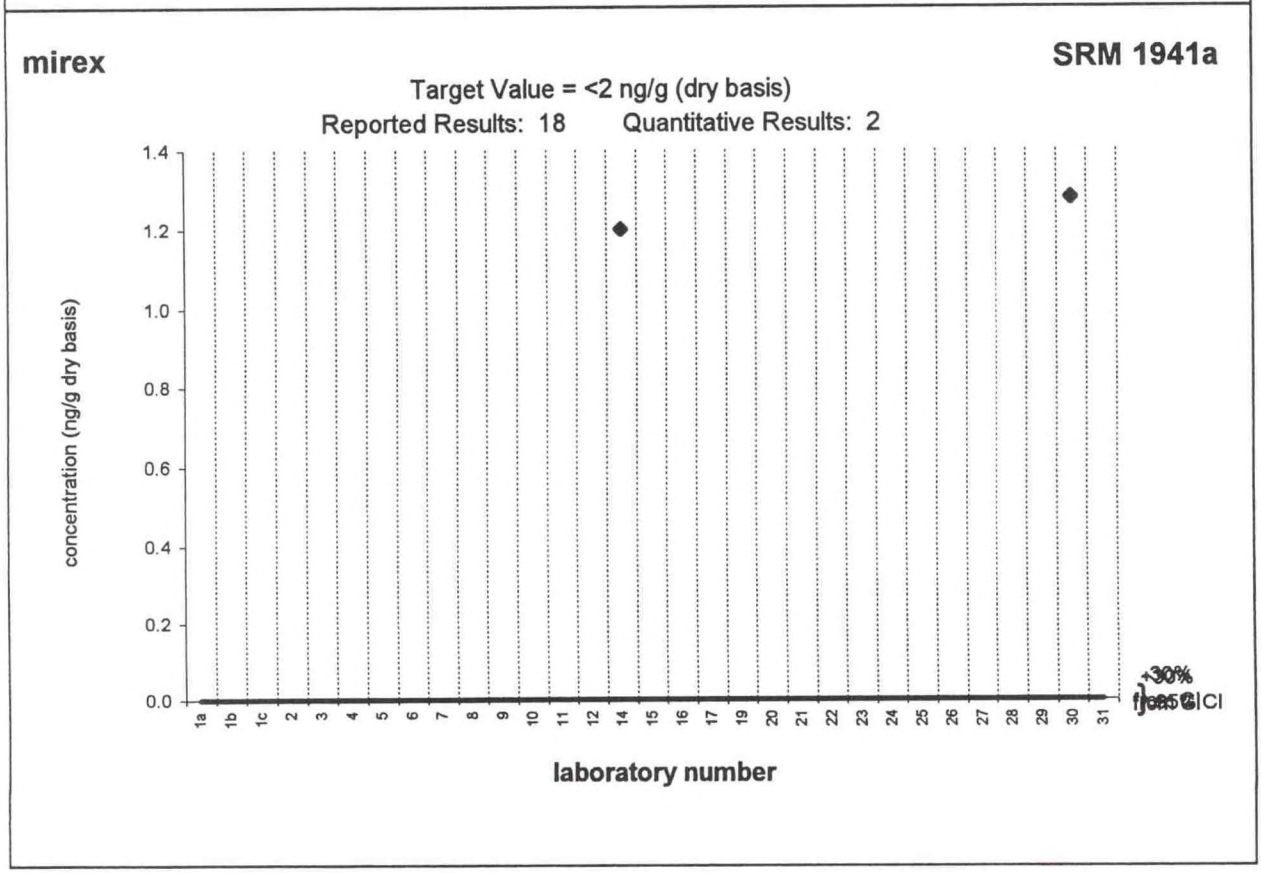
4,4'-DDT **SRM 1941a**

Information Value = 1.25 ± 0.10 ng/g (dry basis)

Reported Results: 22 Quantitative Results: 11



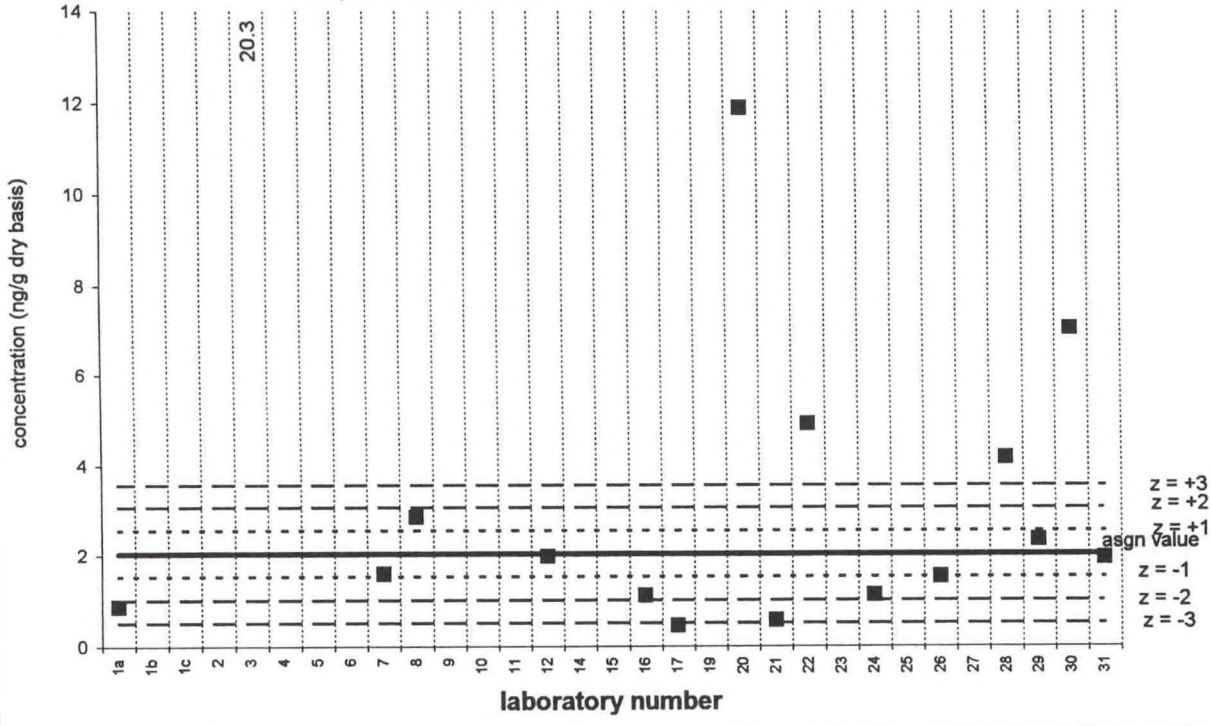

mirex
Sediment VIII (QA98SED8)
Assigned value = <2 ng/g (dry basis)
Reported Results: 20 Quantitative Results: 5
concentration (ng/g dry basis)
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
asgn value
laboratory number


mirex
SRM 1941a
Target Value = <2 ng/g (dry basis)
Reported Results: 18 Quantitative Results: 2
concentration (ng/g dry basis)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number

PCB 8 **Sediment VIII (QA98SED8)**

Assigned value = 2.04 ng/g s = 1.51 ng/g 95% CL = 1.39 ng/g (dry basis)

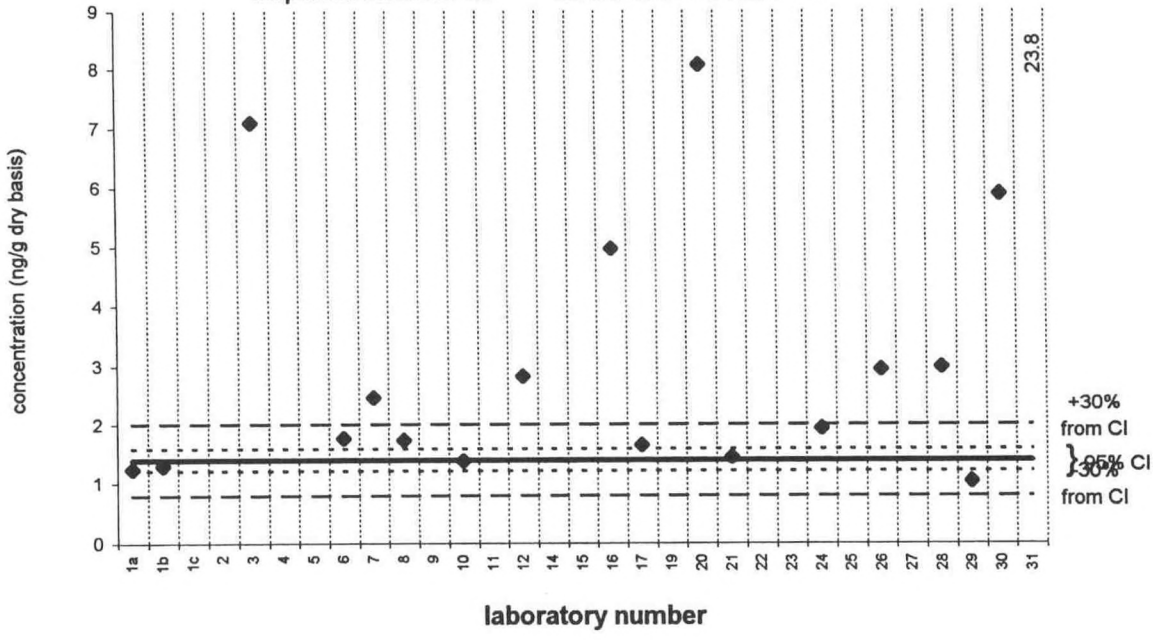
Reported Results: 21 Quantitative Results: 16



PCB 8 **SRM 1941a**

Information Value = 1.39 ± 0.19 ng/g (dry basis)

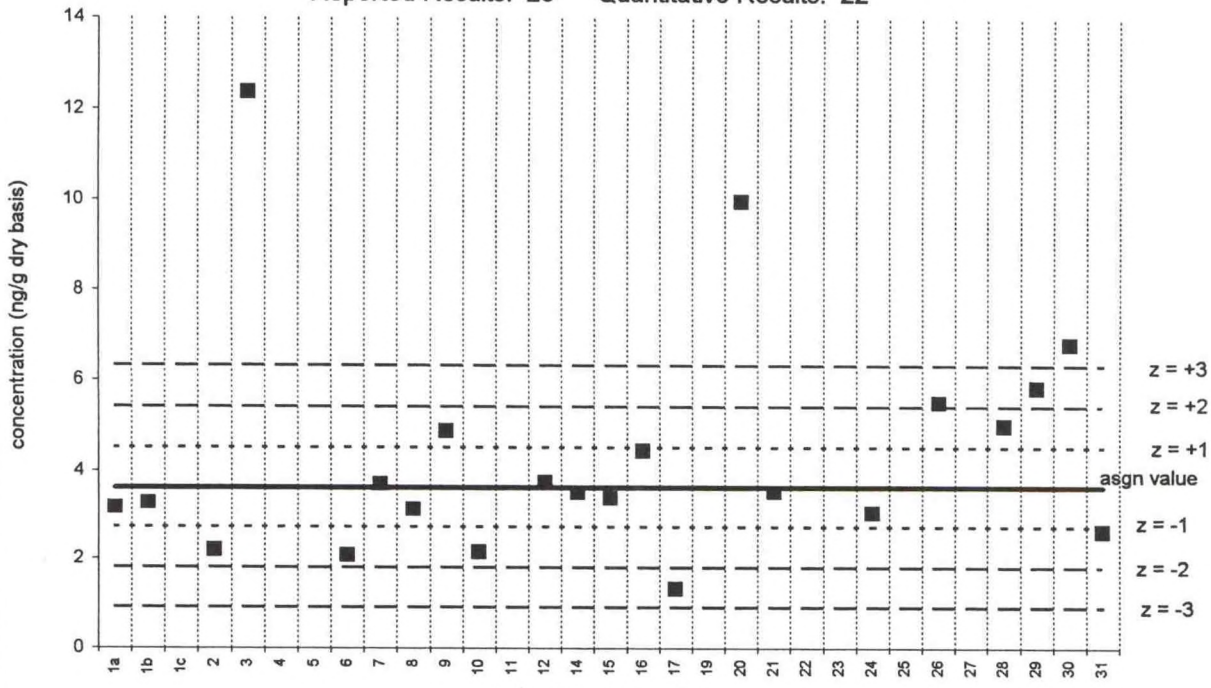
Reported Results: 20 Quantitative Results: 17



PCB 18 **Sediment VIII (QA98SED8)**

Assigned value = 3.61 ng/g s = 1.42 ng/g 95% CL = 0.68 ng/g (dry basis)

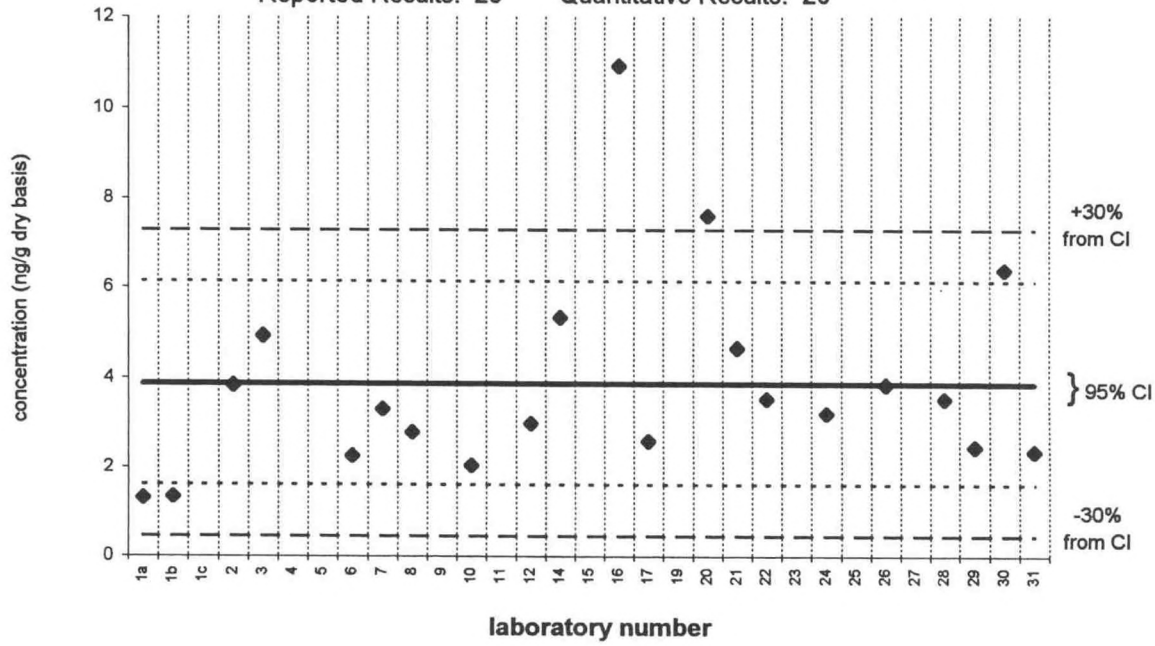
Reported Results: 25 Quantitative Results: 22



PCB 18 **SRM 1941a**

Target Value = 3.86 ± 2.25 ng/g (dry basis)

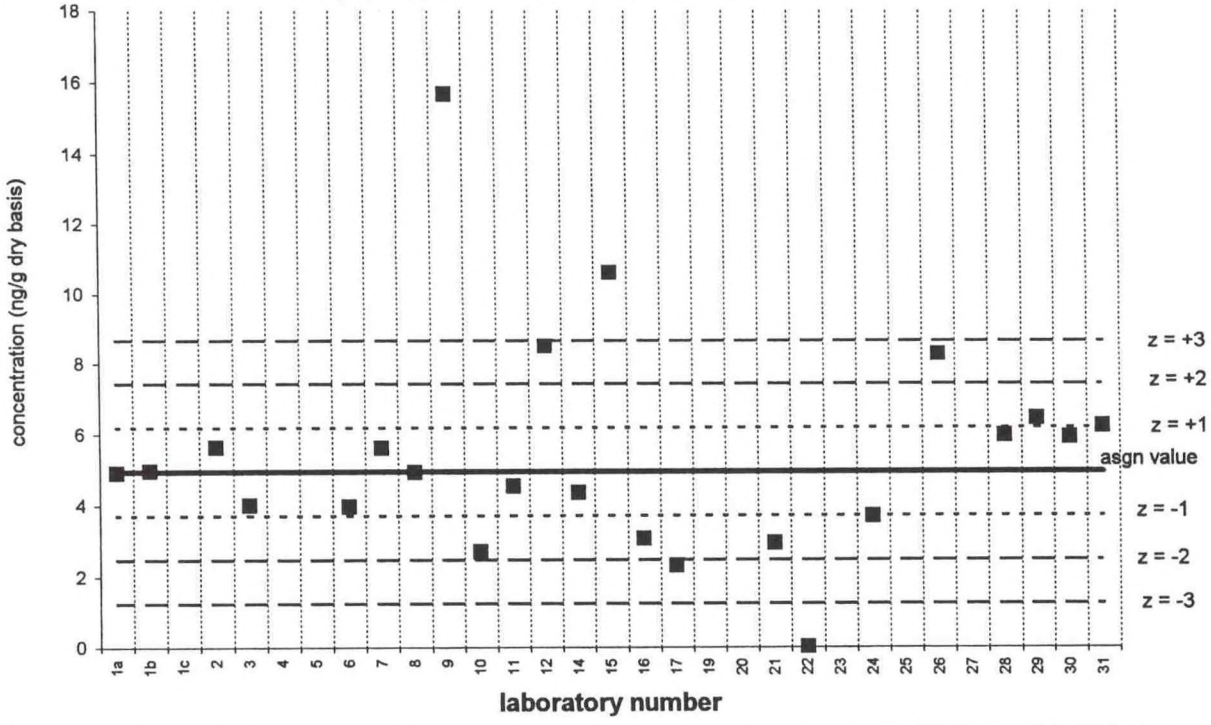
Reported Results: 23 Quantitative Results: 20



PCB 28 **Sediment VIII (QA98SED8)**

Assigned value = 4.95 ng/g s = 1.68 ng/g 95% CL = 0.79 ng/g (dry basis)

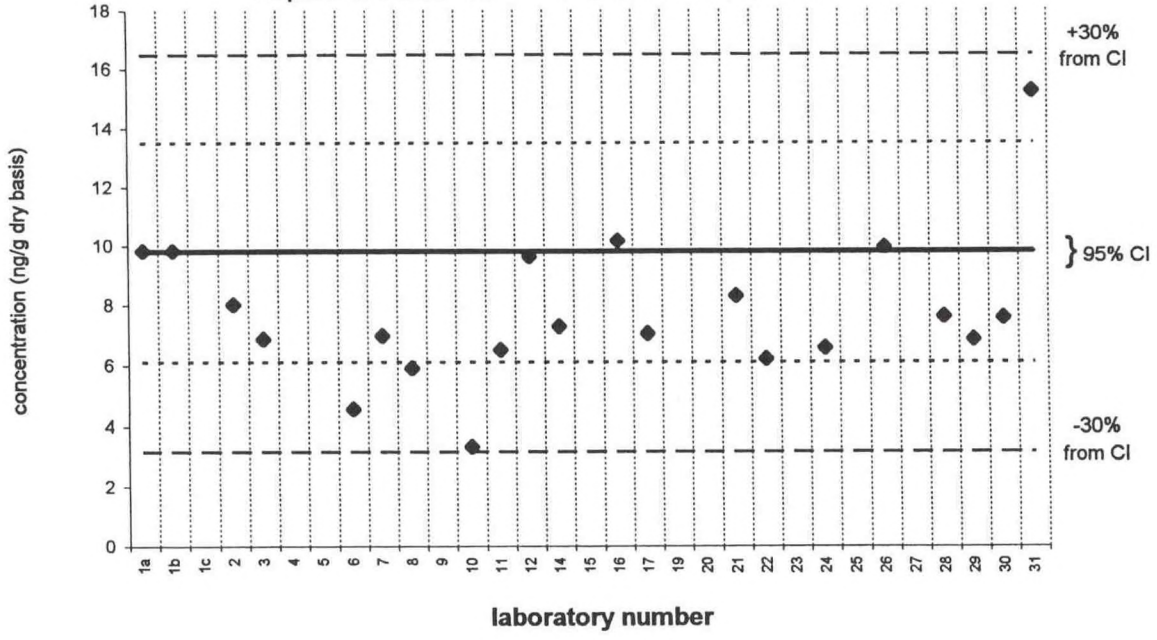
Reported Results: 22 Quantitative Results: 22



PCB 28 **SRM 1941a**

Information Value = 9.8 ± 3.7 ng/g (dry basis)

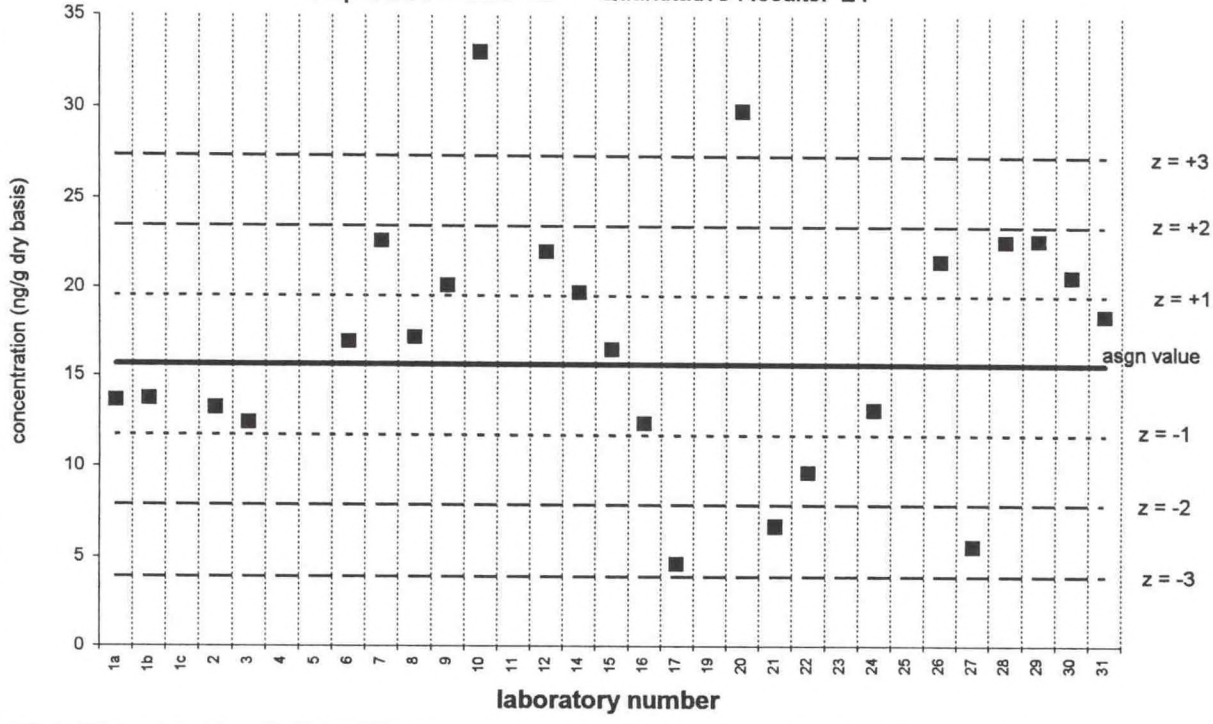
Reported Results: 21 Quantitative Results: 20



PCB 52 **Sediment VIII (QA98SED8)**

Assigned value = 15.6 ng/g s = 6.3 ng/g 95% CL = 3.4 ng/g (dry basis)

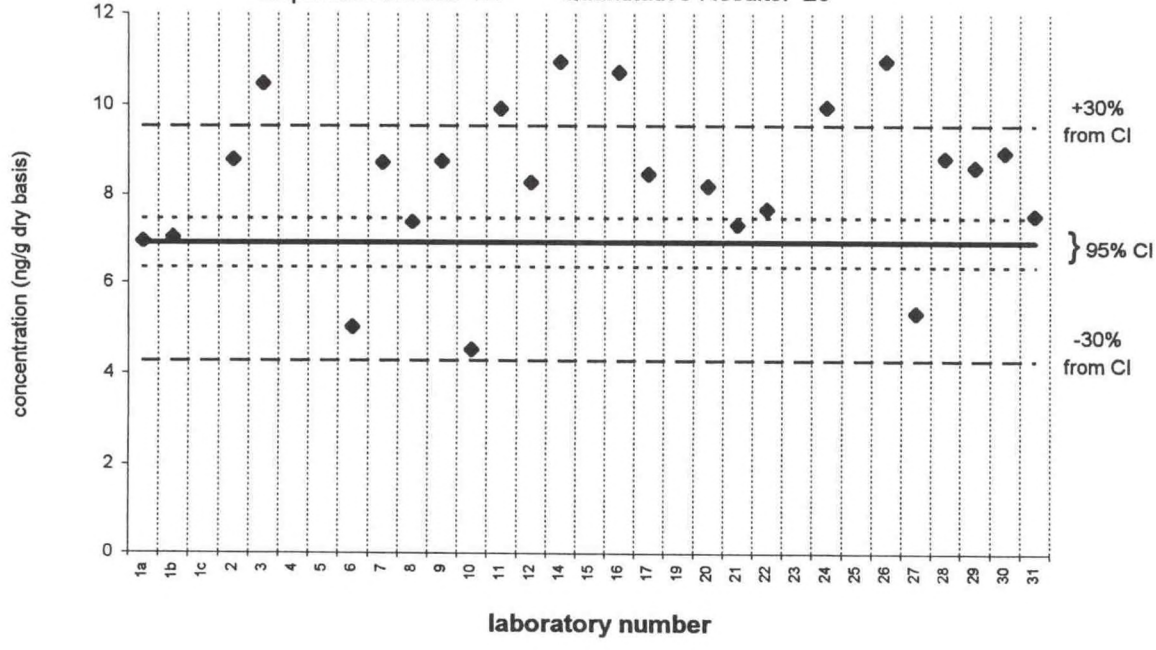
Reported Results: 25 Quantitative Results: 24



PCB 52 **SRM 1941a**

Certified Value = 6.89 ± 0.56 ng/g (dry basis)

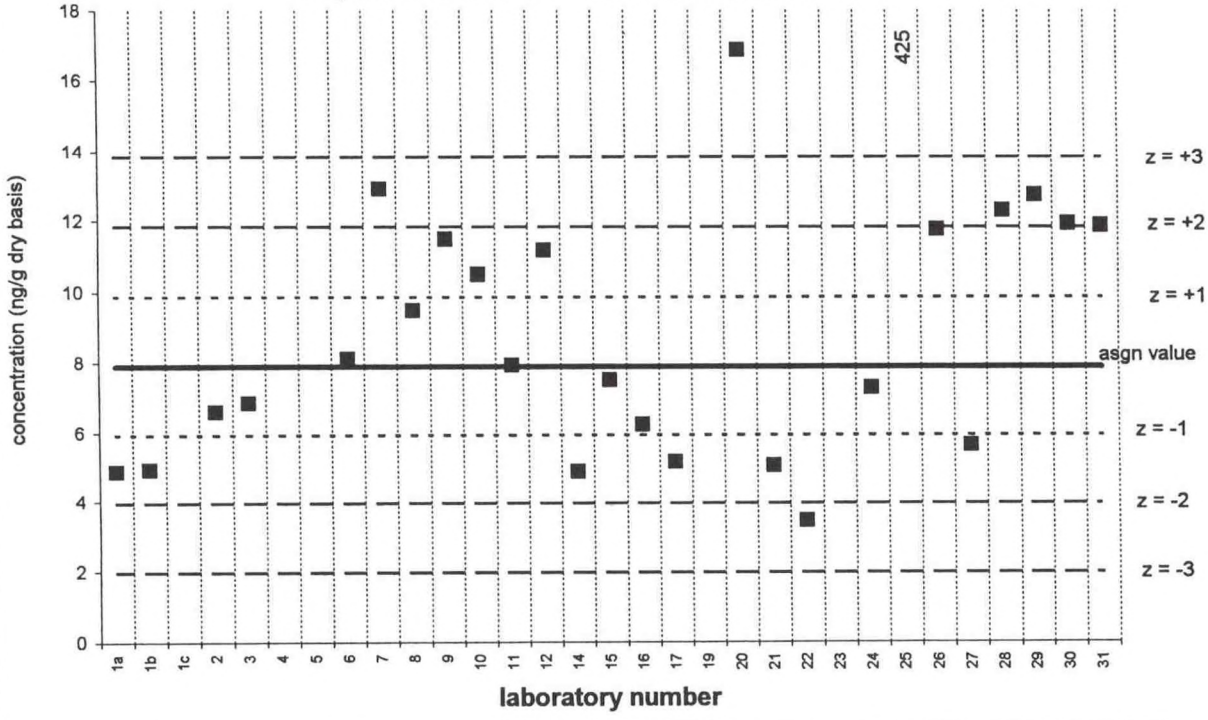
Reported Results: 24 Quantitative Results: 23



PCB 44 **Sediment VIII (QA98SED8)**

Assigned value = 7.90 ng/g s = 3.04 ng/g 95% CL = 1.42 ng/g (dry basis)

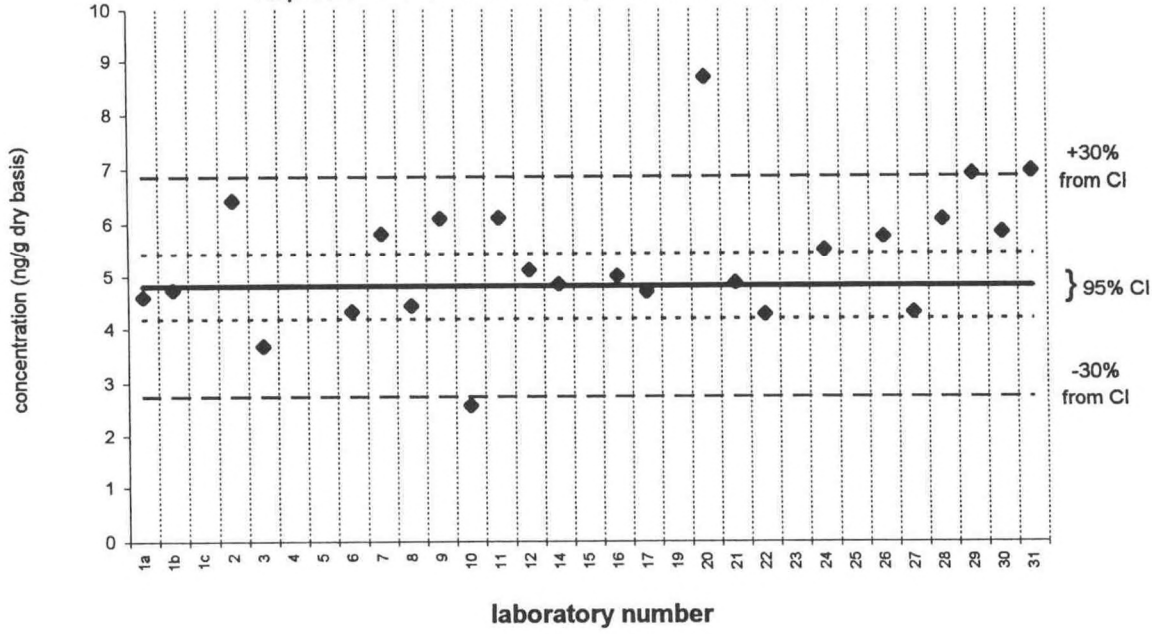
Reported Results: 26 Quantitative Results: 26



PCB 44 **SRM 1941a**

Certified Value = 4.80 ± 0.62 ng/g (dry basis)

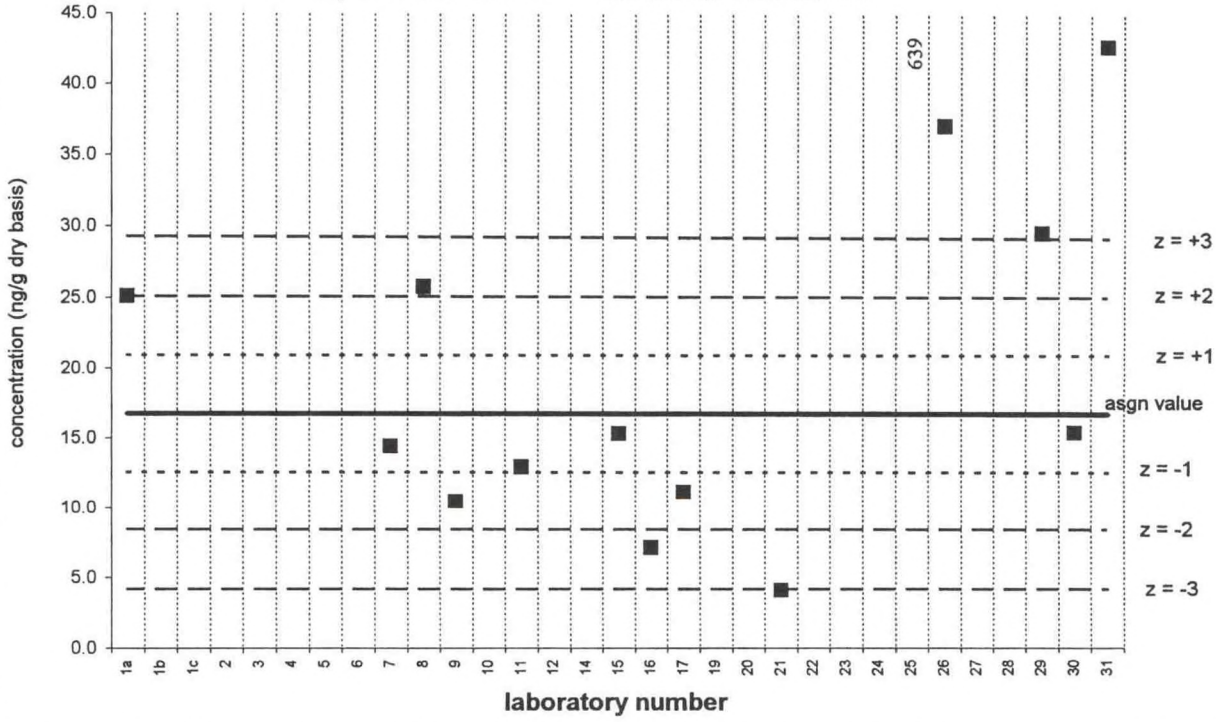
Reported Results: 24 Quantitative Results: 23



PCB 66/95 **Sediment VIII (QA98SED8)**

Assigned value = 16.7 ng/g s = 10.5 ng/g 95% CL = 7.5 ng/g (dry basis)

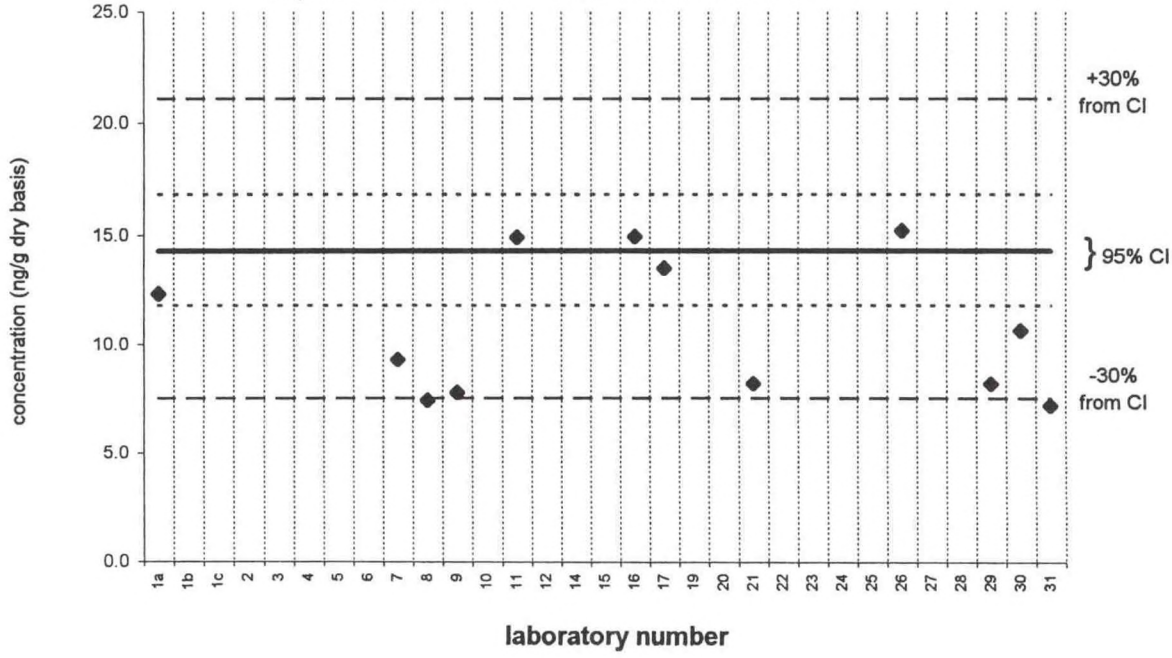
Reported Results: 14 Quantitative Results: 14



PCB 66/95 **SRM 1941a**

Certified Value = 14.3 ± 2.5 ng/g (dry basis)

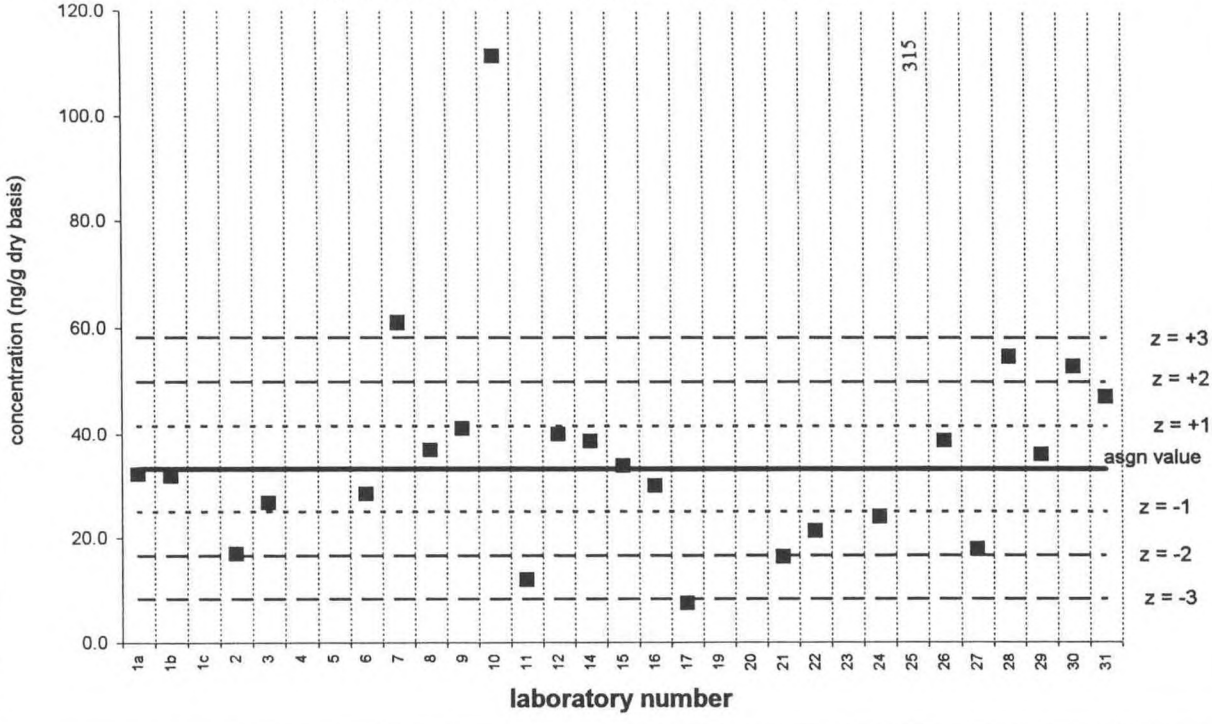
Reported Results: 13 Quantitative Results: 11



PCB 101/90 **Sediment VIII (QA98SED8)**

Assigned value = 33.3 ng/g s = 13.6 ng/g 95% CL = 6.4 ng/g (dry basis)

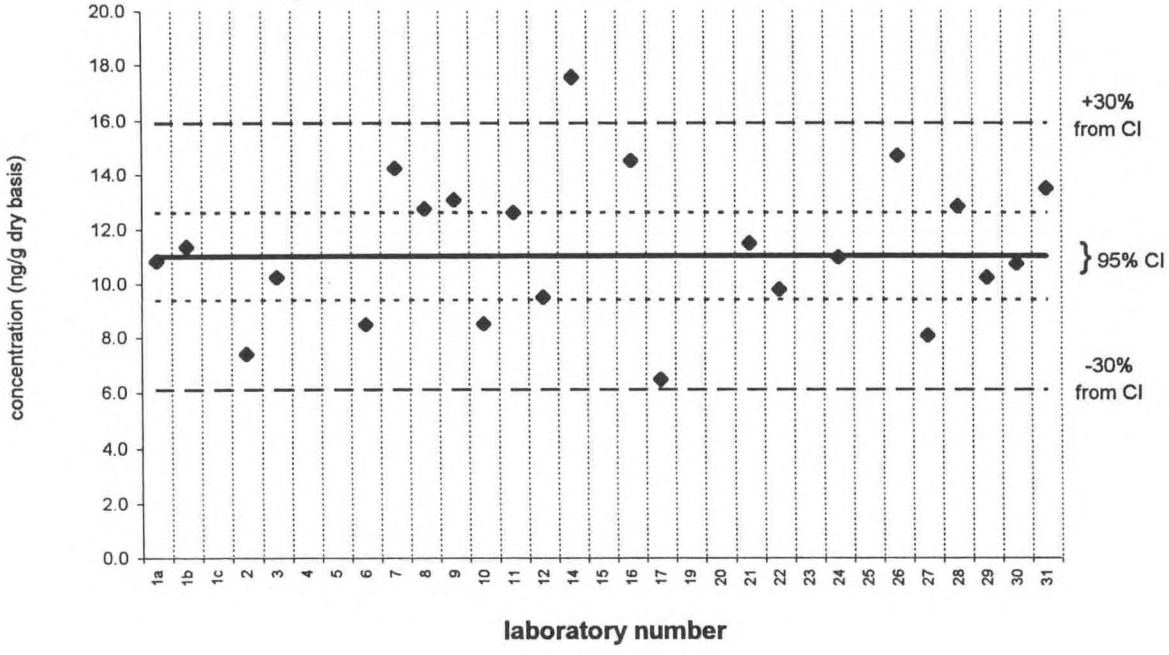
Reported Results: 25 Quantitative Results: 25

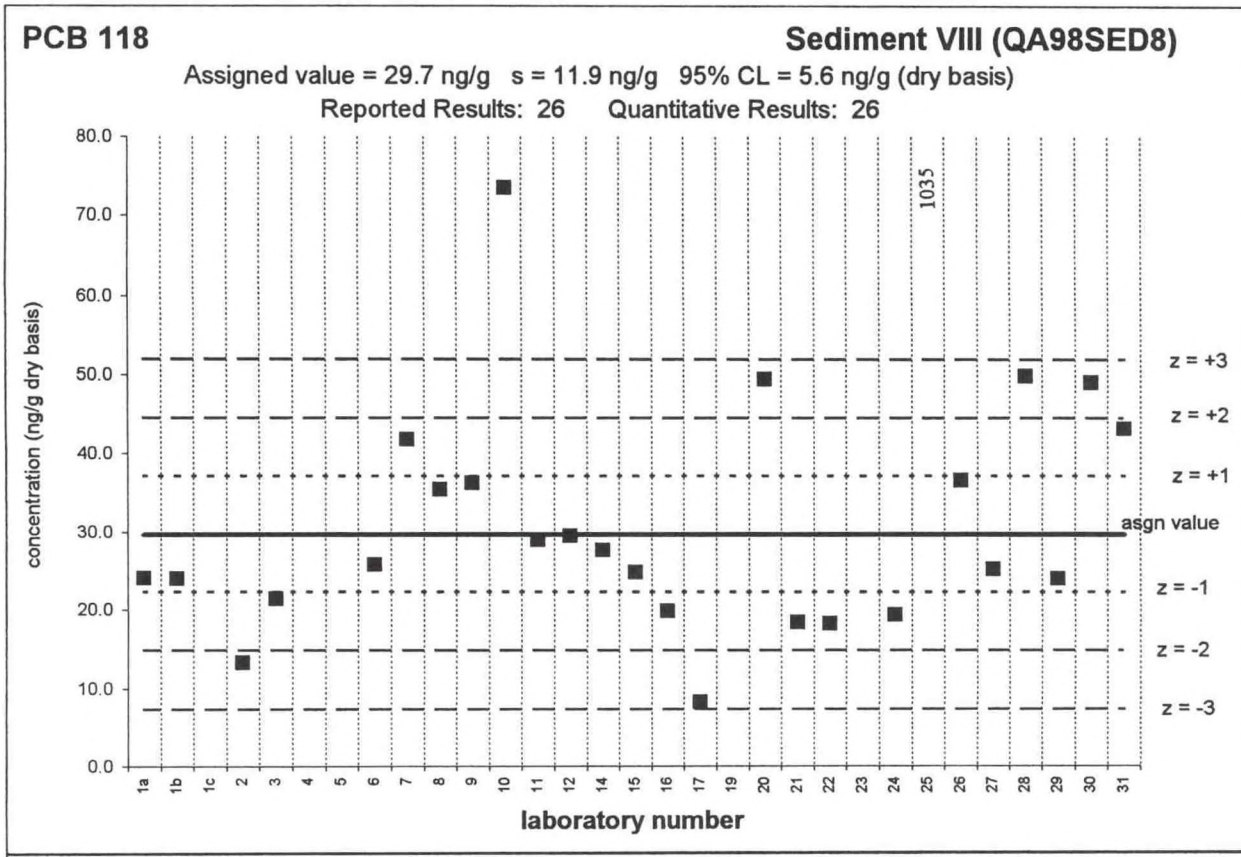


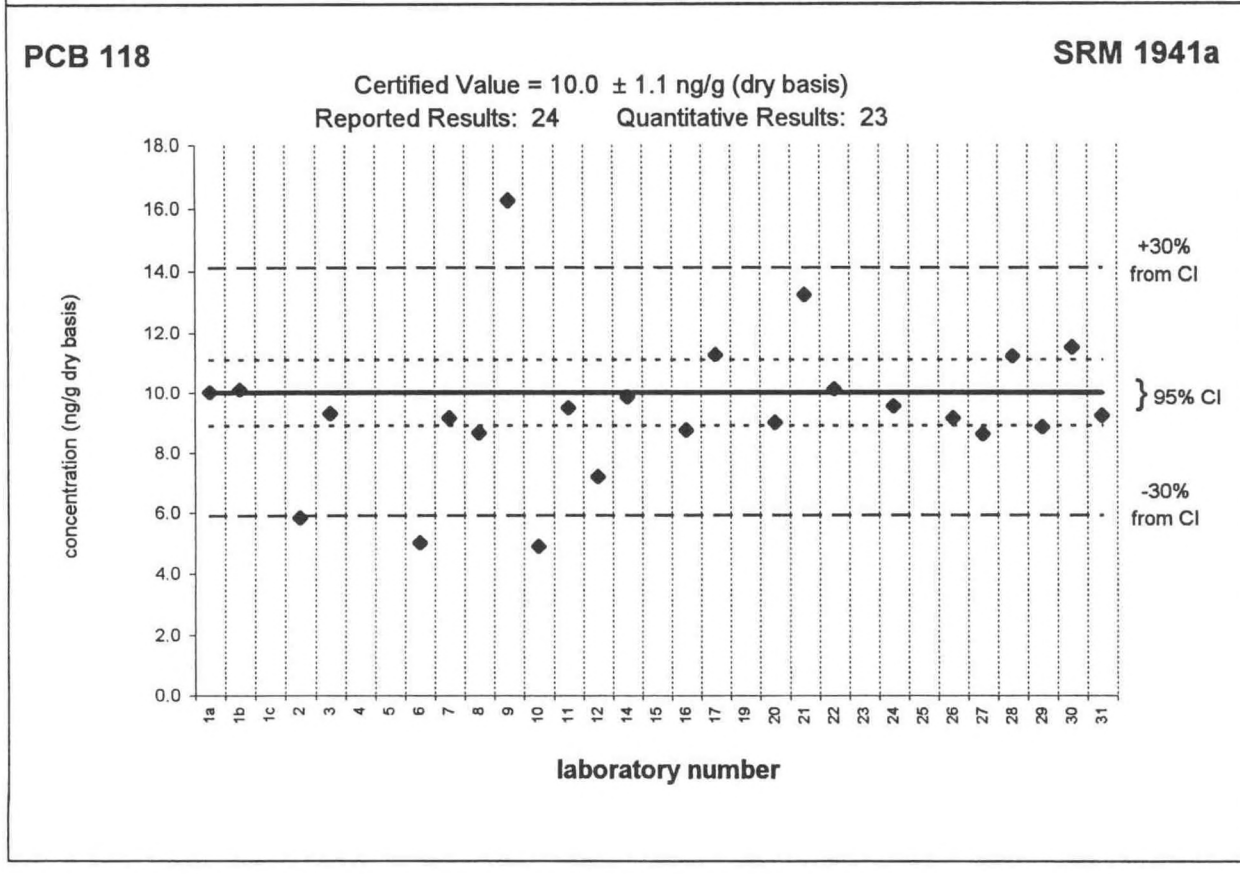
PCB 101/90 **SRM 1941a**

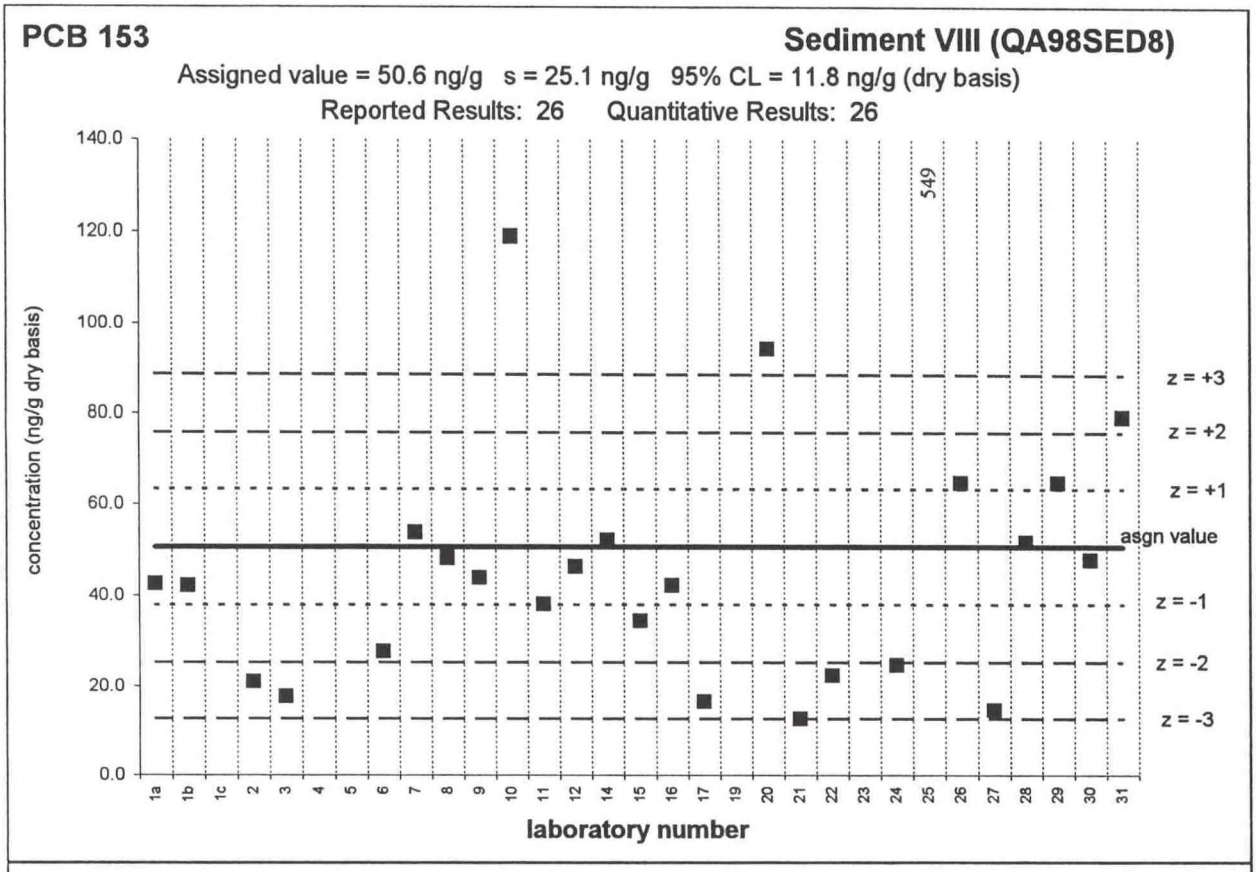
Certified Value = 11.0 ± 1.6 ng/g (dry basis)

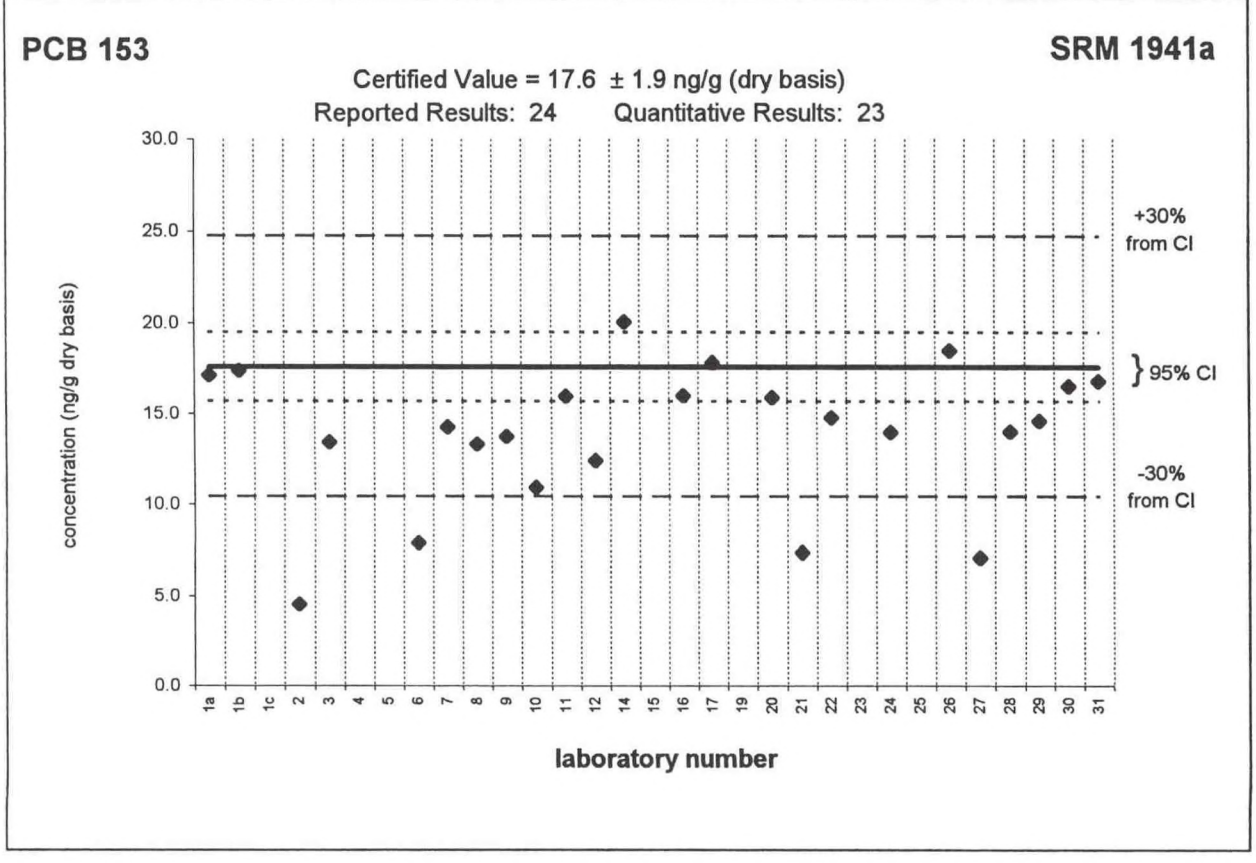
Reported Results: 23 Quantitative Results: 22




PCB 118
Sediment VIII (QA98SED8)
Assigned value = 29.7 ng/g s = 11.9 ng/g 95% CL = 5.6 ng/g (dry basis)
Reported Results: 26 Quantitative Results: 26
concentration (ng/g dry basis)
laboratory number
1035
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3


PCB 118
SRM 1941a
Certified Value = 10.0 ± 1.1 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 23
concentration (ng/g dry basis)
laboratory number
+30% from CI
95% CI
-30% from CI

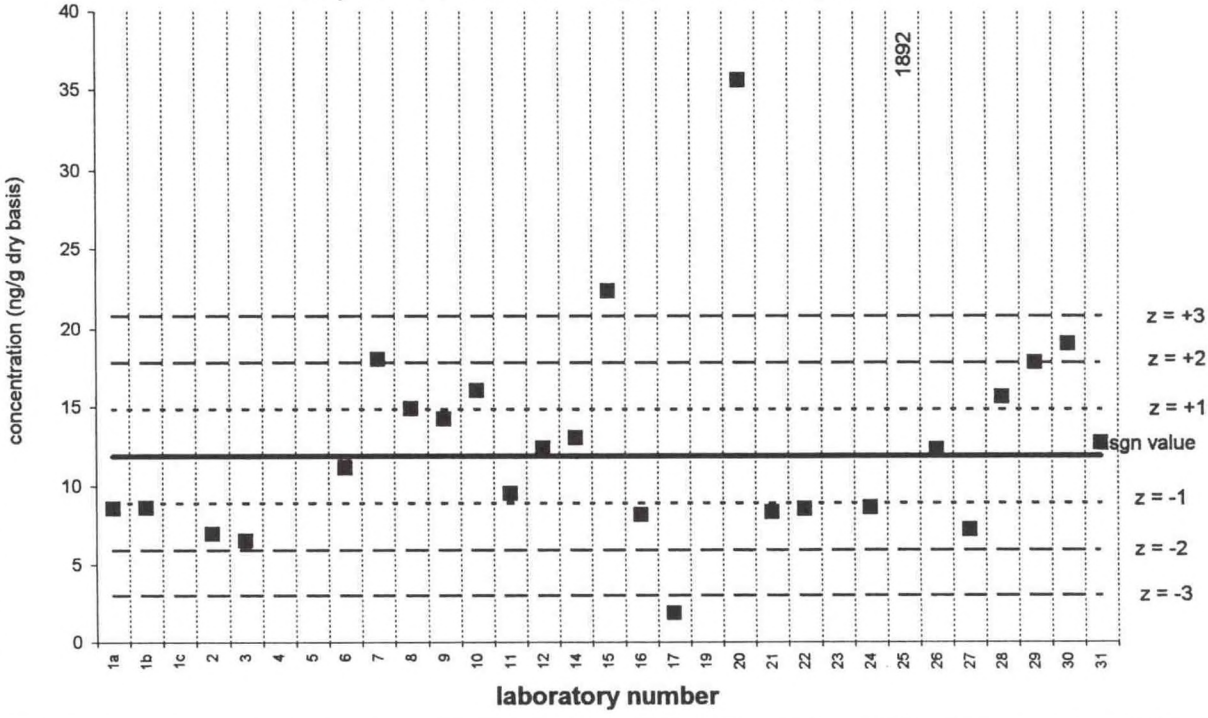

PCB 153
Sediment VIII (QA98SED8)
Assigned value = 50.6 ng/g s = 25.1 ng/g 95% CL = 11.8 ng/g (dry basis)
Reported Results: 26 Quantitative Results: 26
549
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3
concentration (ng/g dry basis)
laboratory number


PCB 153
SRM 1941a
Certified Value = 17.6 ± 1.9 ng/g (dry basis)
Reported Results: 24 Quantitative Results: 23
+30% from CI
95% CI
-30% from CI
concentration (ng/g dry basis)
laboratory number

PCB 105 **Sediment VIII (QA98SED8)**

Assigned value = 11.9 ng/g s = 3.9 ng/g 95% CL = 1.9 ng/g (dry basis)

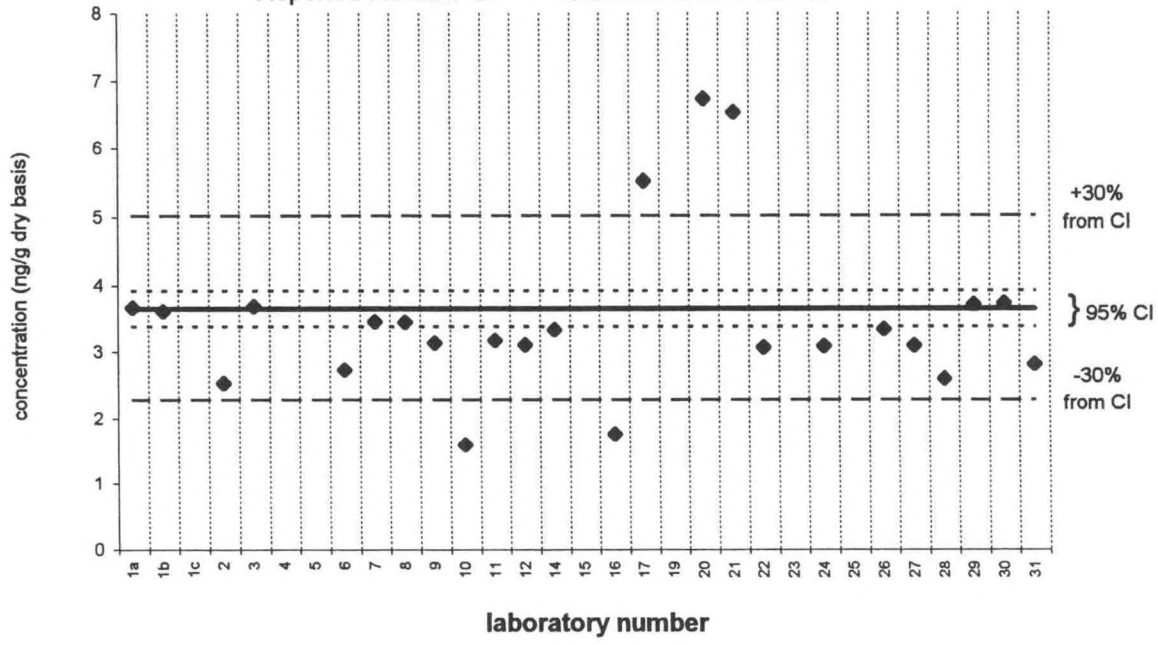
Reported Results: 26 Quantitative Results: 26



PCB 105 **SRM 1941a**

Certified Value = 3.65 ± 0.27 ng/g (dry basis)

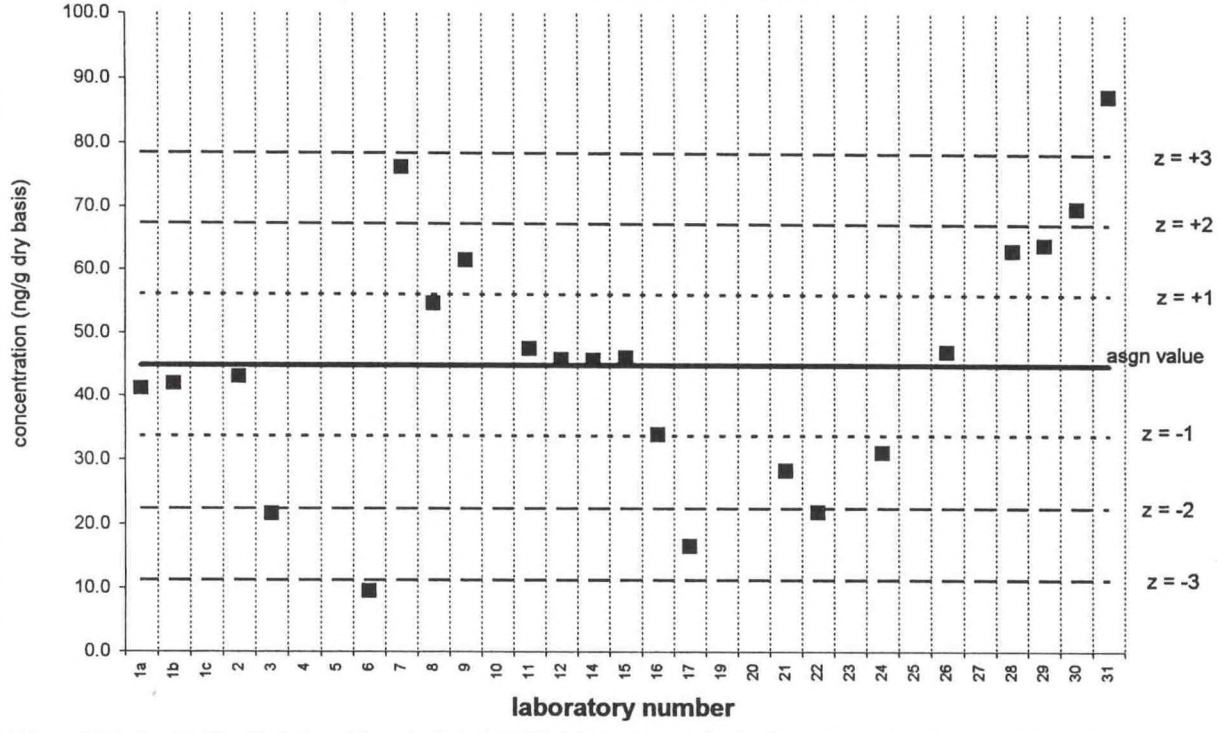
Reported Results: 24 Quantitative Results: 23



PCB 138/163/164 **Sediment VIII (QA98SED8)**

Assigned value = 44.9 ng/g s = 17.5 ng/g 95% CL = 8.7 ng/g (dry basis)

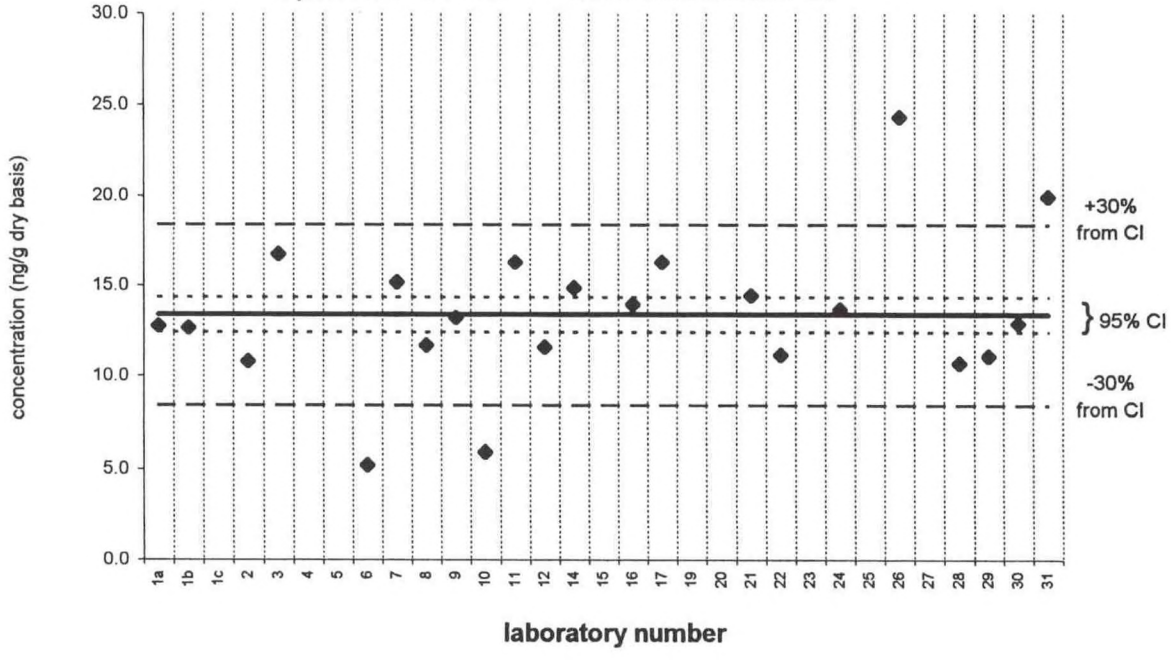
Reported Results: 24 Quantitative Results: 22



PCB 138/163/164 **SRM 1941a**

Certified Value = 13.4 ± 1.0 ng/g (dry basis)

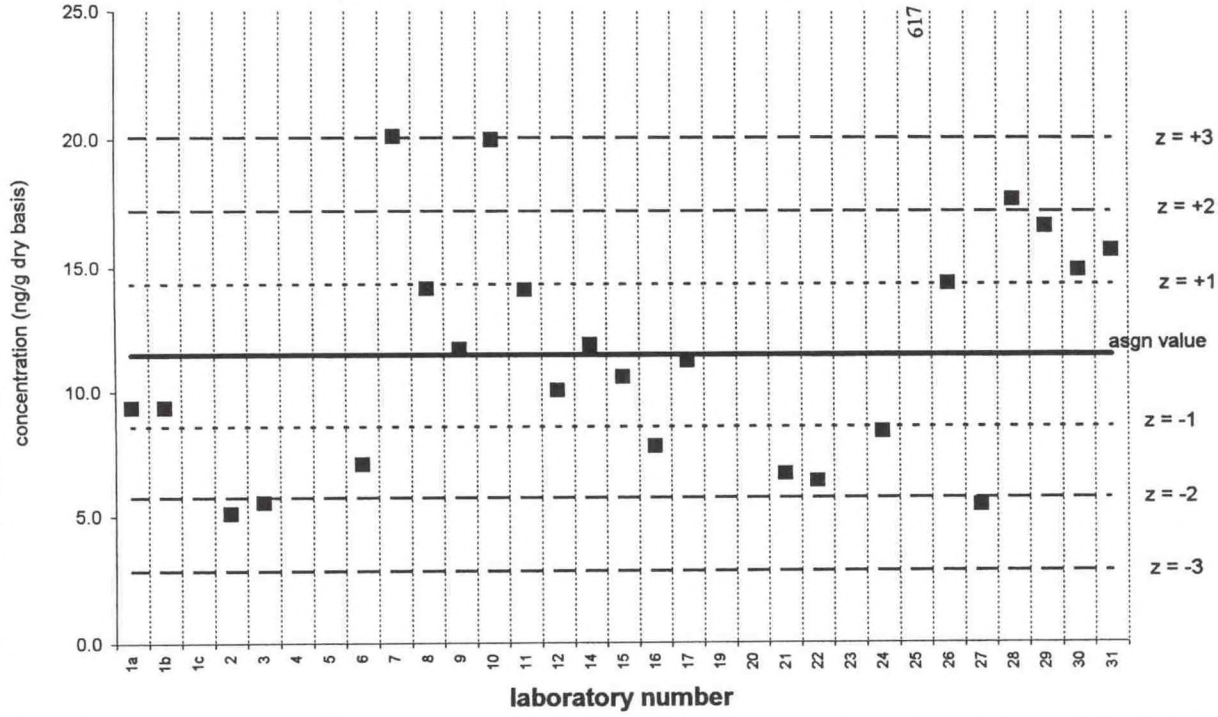
Reported Results: 23 Quantitative Results: 21



PCB 187/182 **Sediment VIII (QA98SED8)**

Assigned value = 11.5 ng/g s = 4.9 ng/g 95% CL = 2.2 ng/g (dry basis)

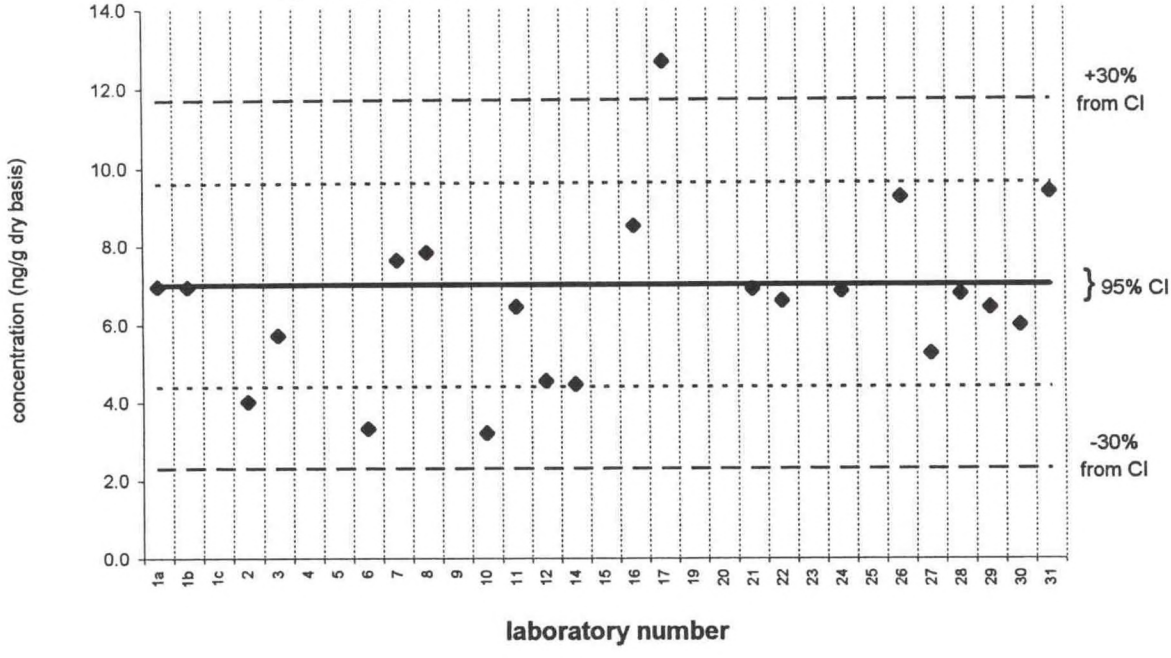
Reported Results: 25 Quantitative Results: 25



PCB 187/182 **SRM 1941a**

Information Value = 7.0 ± 2.6 ng/g (dry basis)

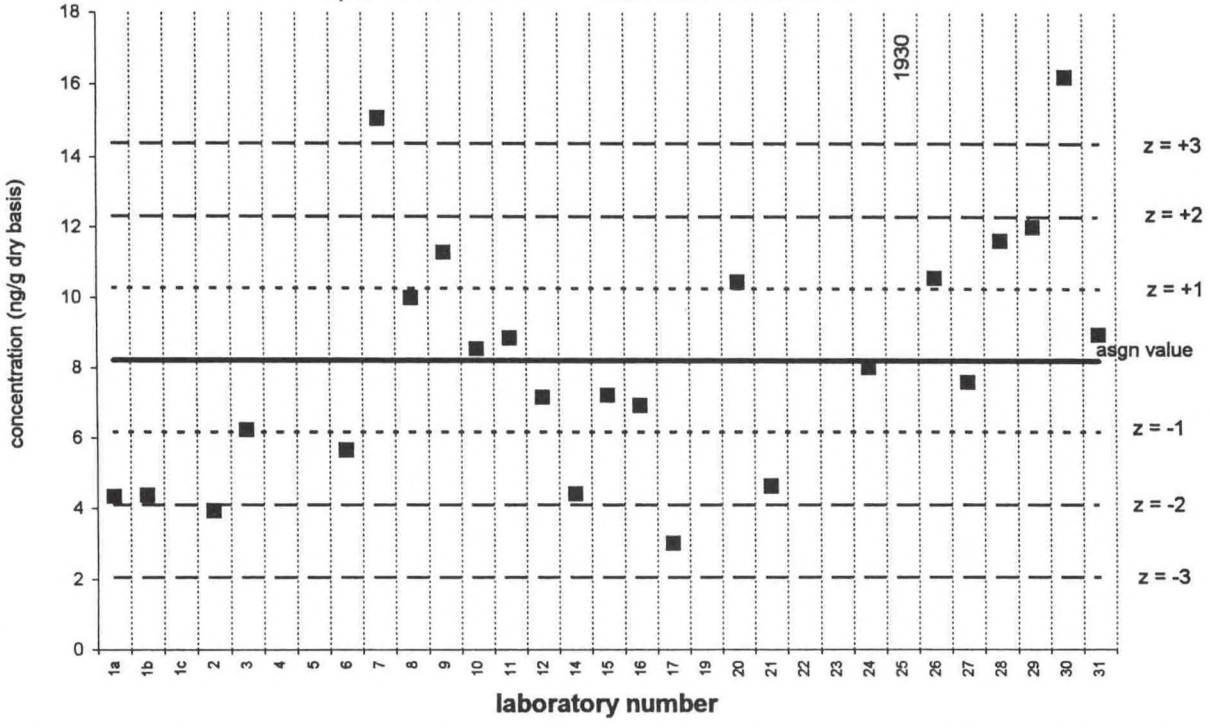
Reported Results: 22 Quantitative Results: 21



PCB 128 **Sediment VIII (QA98SED8)**

Assigned value = 8.22 ng/g s = 3.20 ng/g 95% CL = 1.54 ng/g (dry basis)

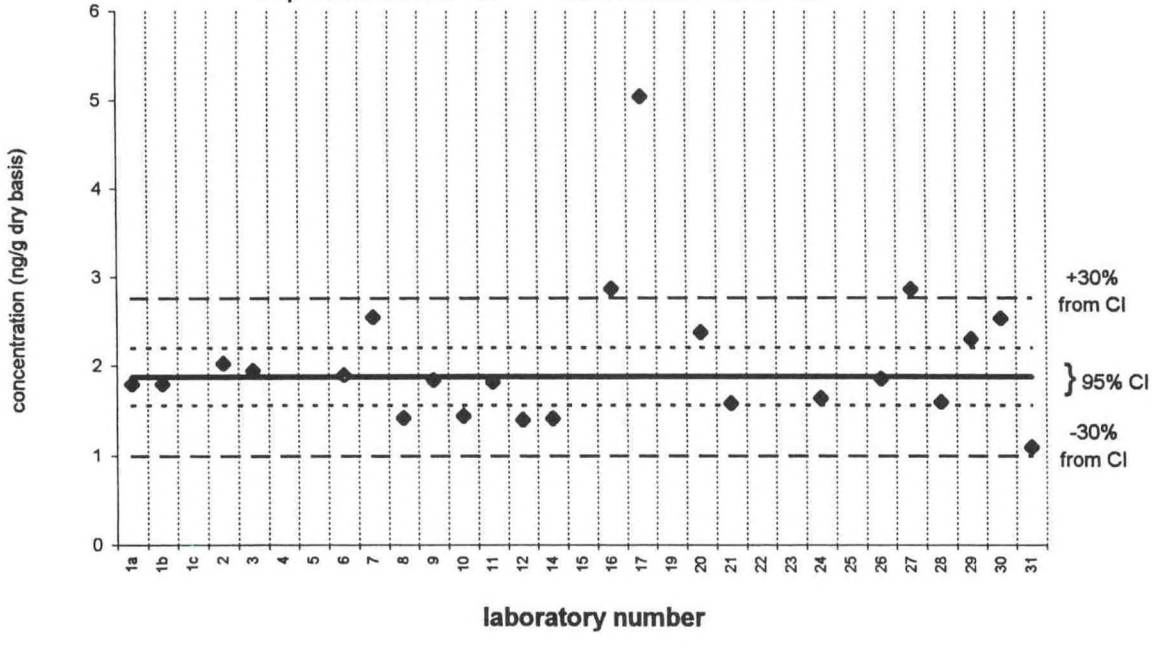
Reported Results: 25 Quantitative Results: 25



PCB 128 **SRM 1941a**

Certified Value = 1.87 ± 0.32 ng/g (dry basis)

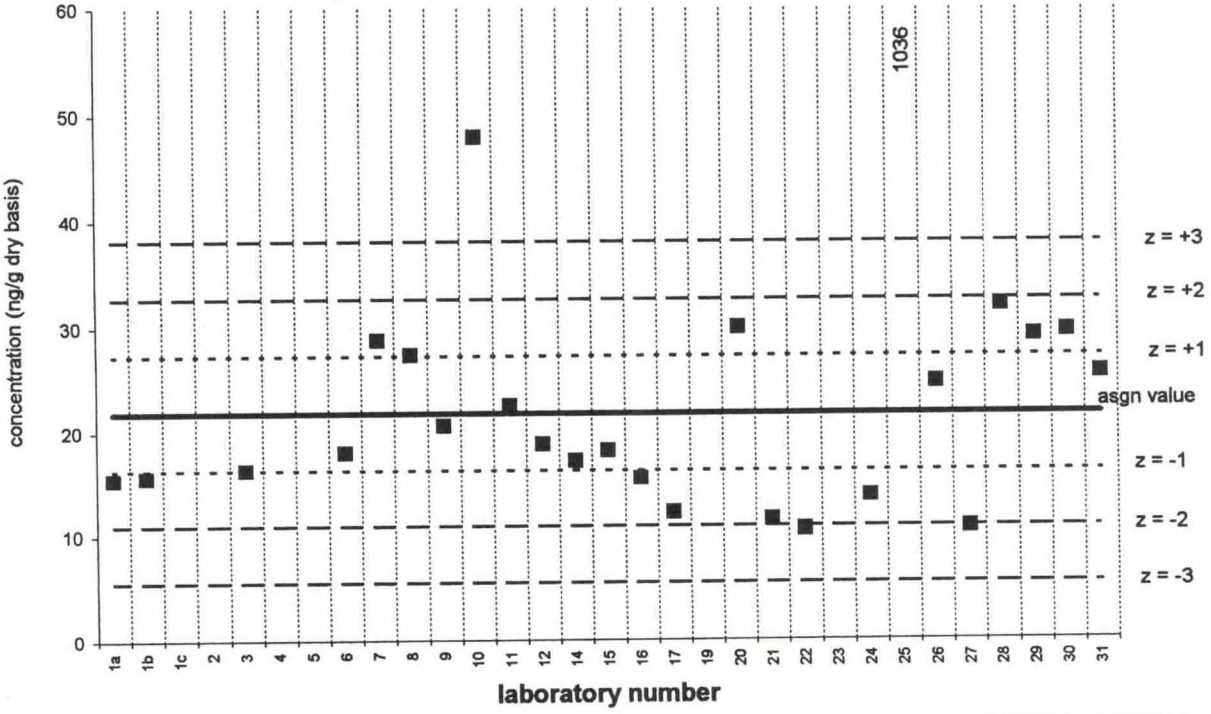
Reported Results: 23 Quantitative Results: 22



PCB 180 **Sediment VIII (QA98SED8)**

Assigned value = 21.7 ng/g s = 11.1 ng/g 95% CL = 8.6 ng/g (dry basis)

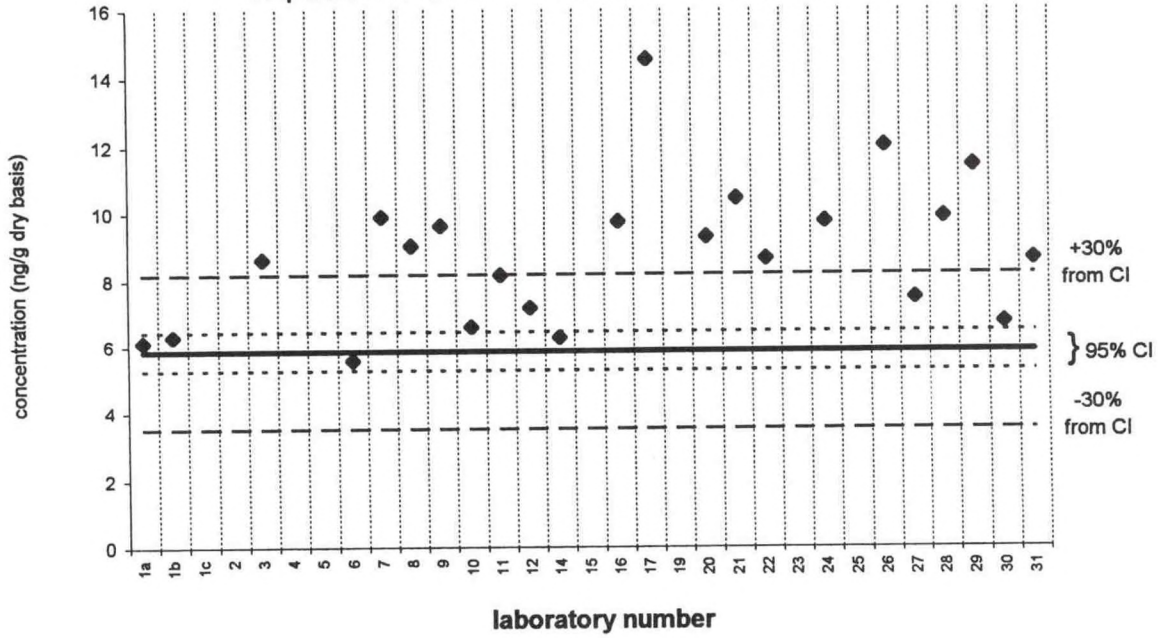
Reported Results: 26 Quantitative Results: 25



PCB 180 **SRM 1941a**

Certified Value = 5.83 ± 0.58 ng/g (dry basis)

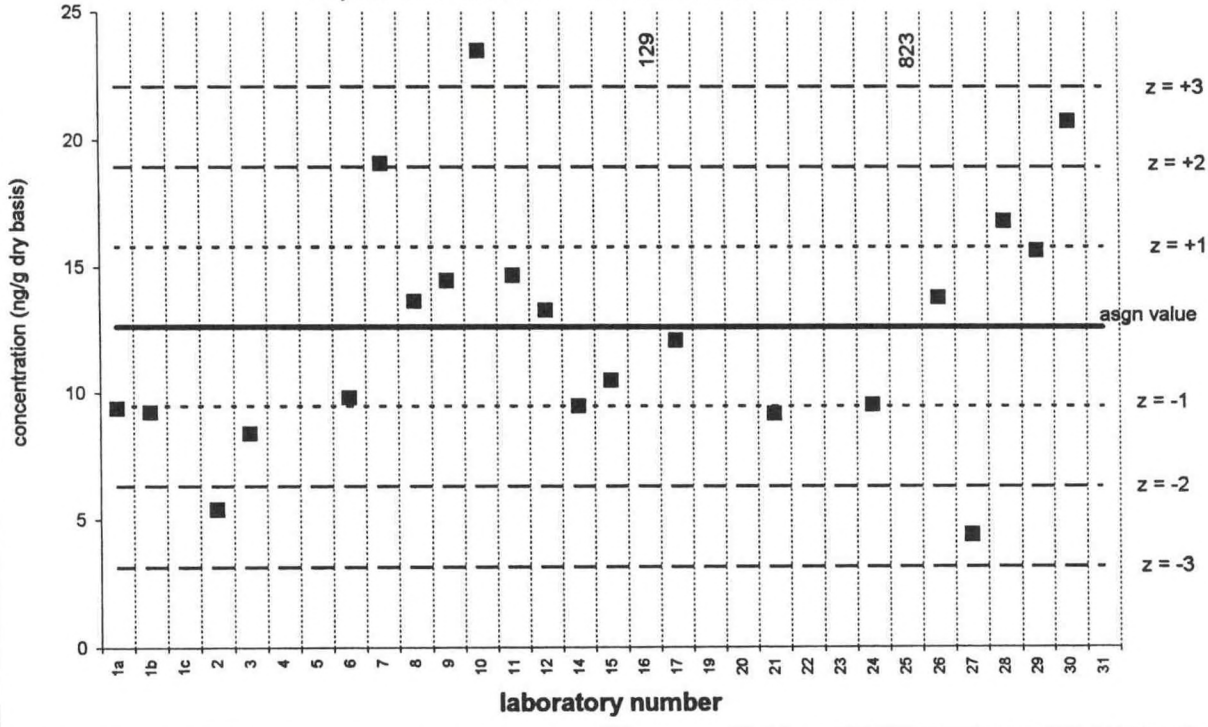
Reported Results: 24 Quantitative Results: 22



PCB 170/190 **Sediment VIII (QA98SED8)**

Assigned value = 12.6 ng/g s = 5.2 ng/g 95% CL = 3.0 ng/g (dry basis)

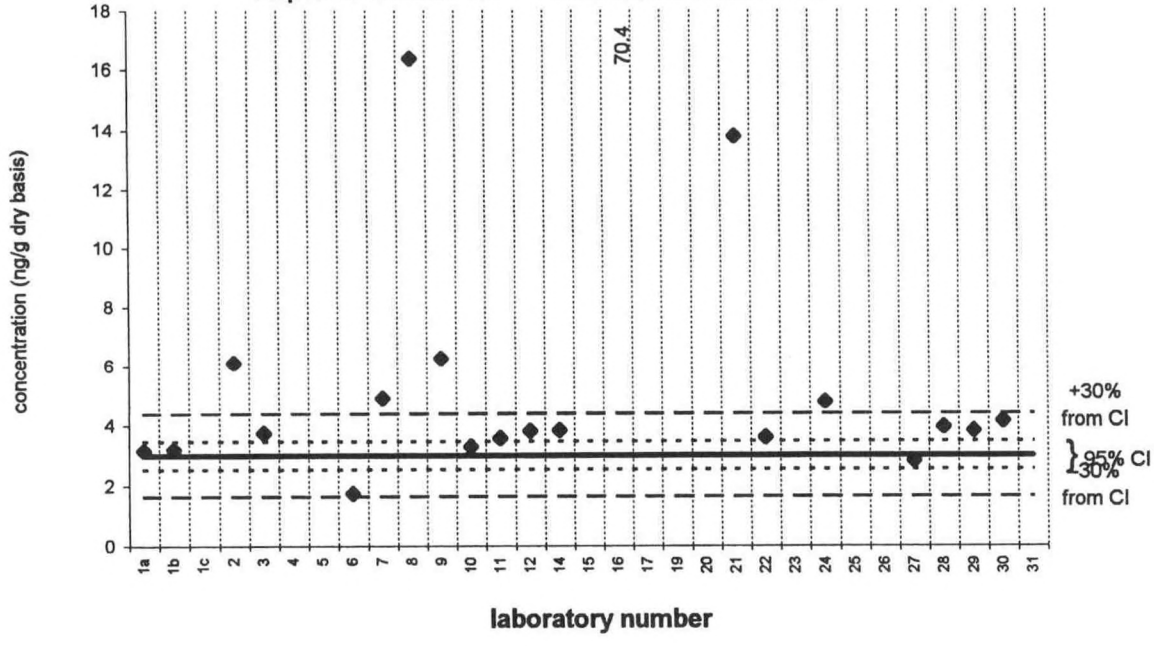
Reported Results: 24 Quantitative Results: 23



PCB 170/190 **SRM 1941a**

Certified Value = 3.00 ± 0.46 ng/g (dry basis)

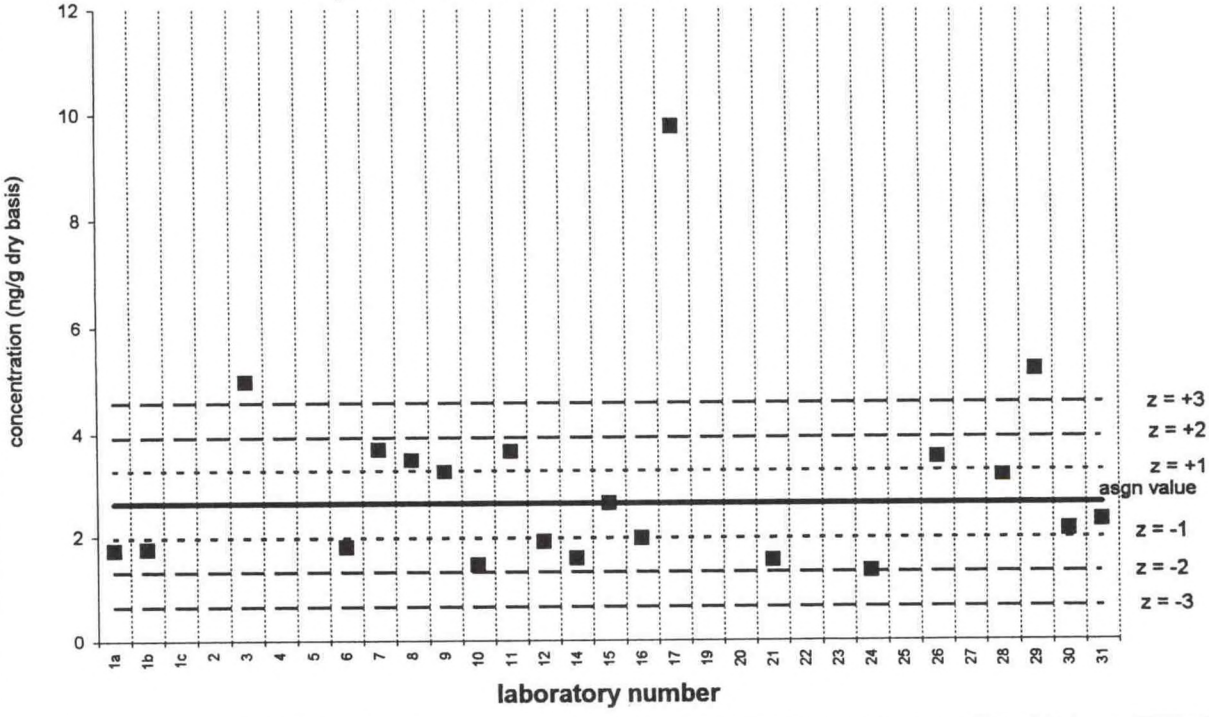
Reported Results: 22 Quantitative Results: 20



PCB 195 **Sediment VIII (QA98SED8)**

Assigned value = 2.61 ng/g s = 1.22 ng/g 95% CL = 0.61 ng/g (dry basis)

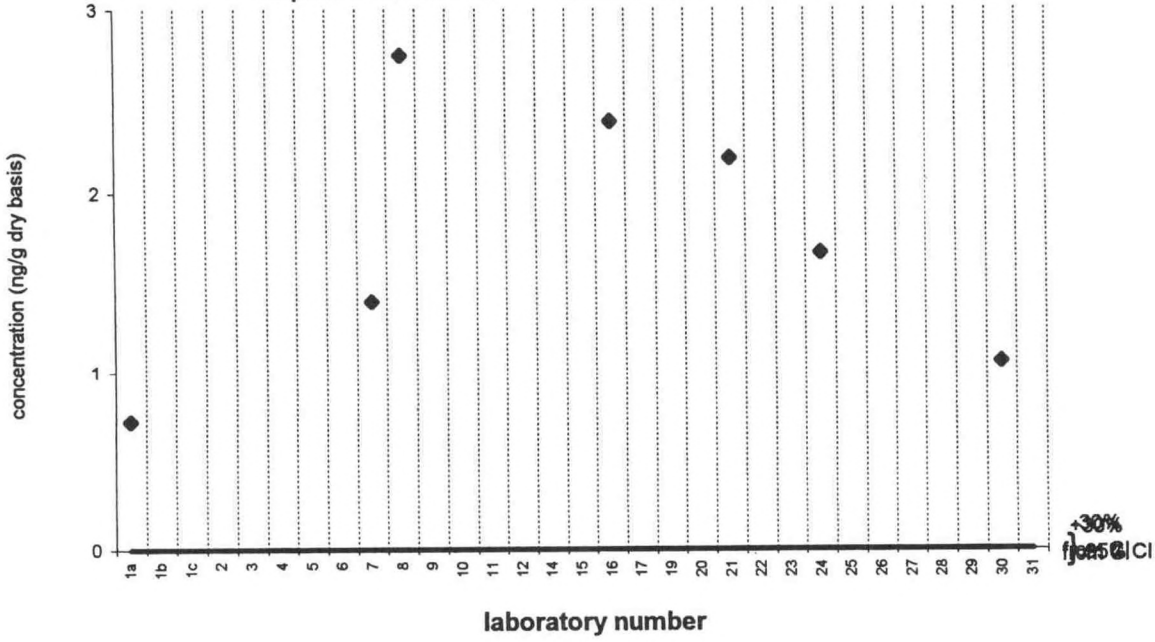
Reported Results: 22 Quantitative Results: 21



PCB 195 **SRM 1941a**

Target Value = <3 ng/g (dry basis)

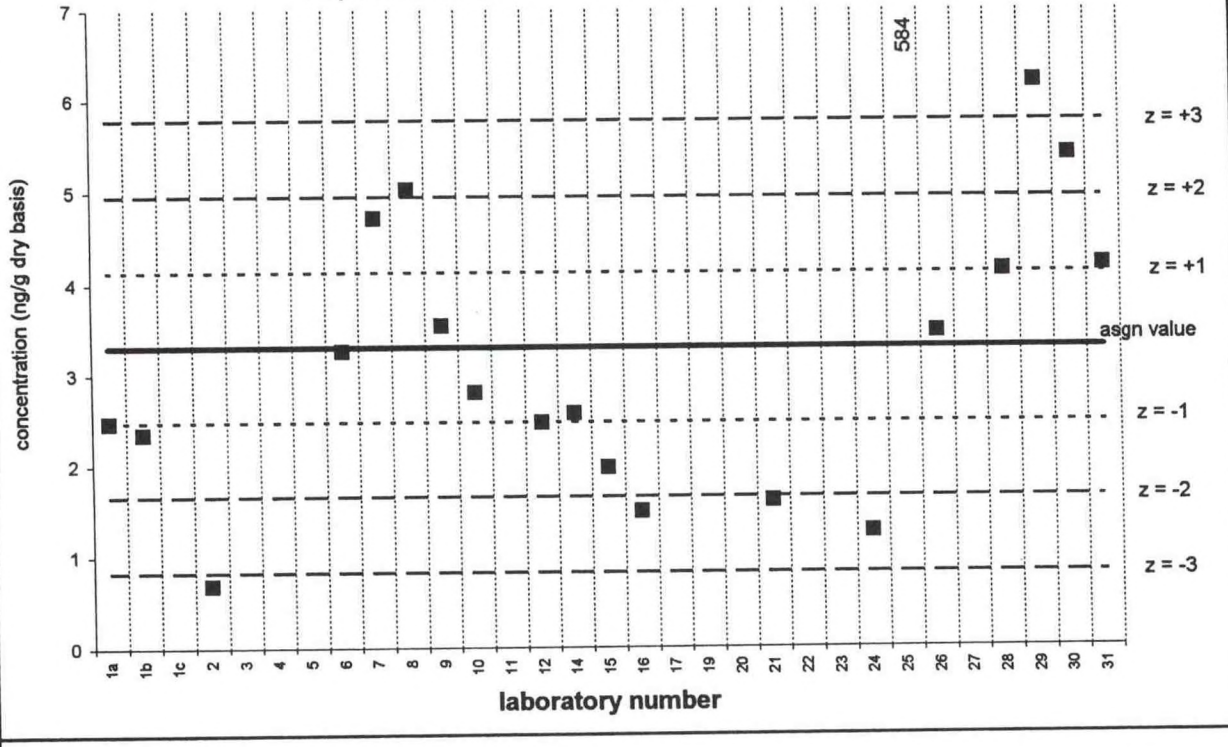
Reported Results: 20 Quantitative Results: 7



PCB 206 **Sediment VIII (QA98SED8)**

Assigned value = 3.30 ng/g s = 1.20 ng/g 95% CL = 0.67 ng/g (dry basis)

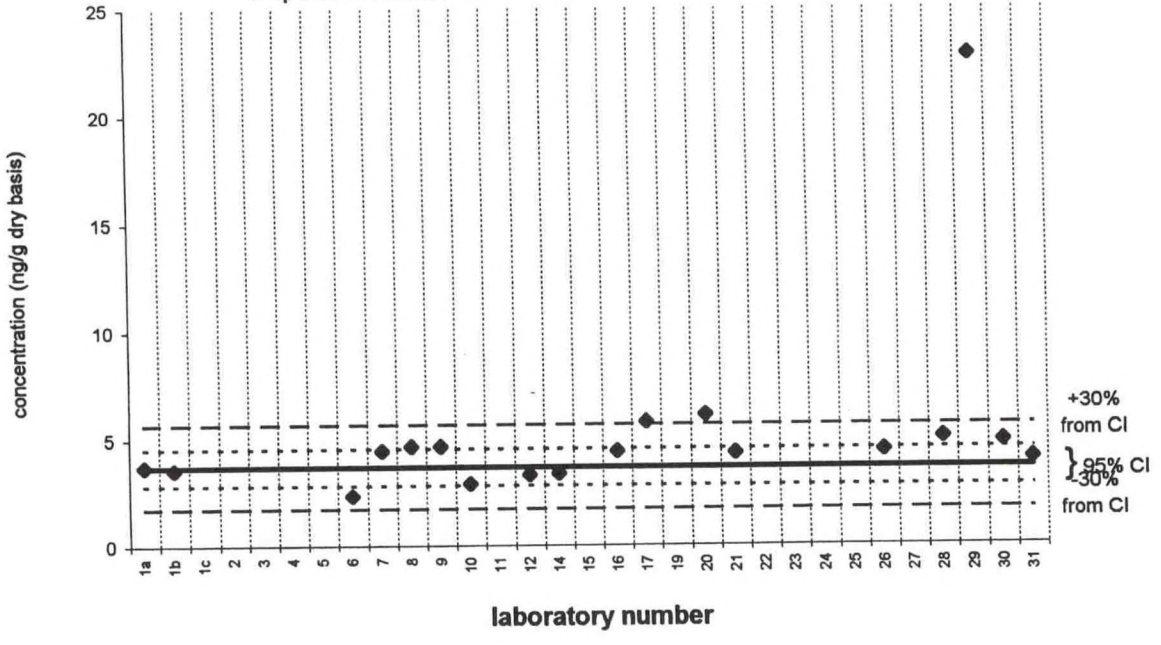
Reported Results: 22 Quantitative Results: 20



PCB 206 **SRM 1941a**

Certified Value = 3.67 ± 0.87 ng/g (dry basis)

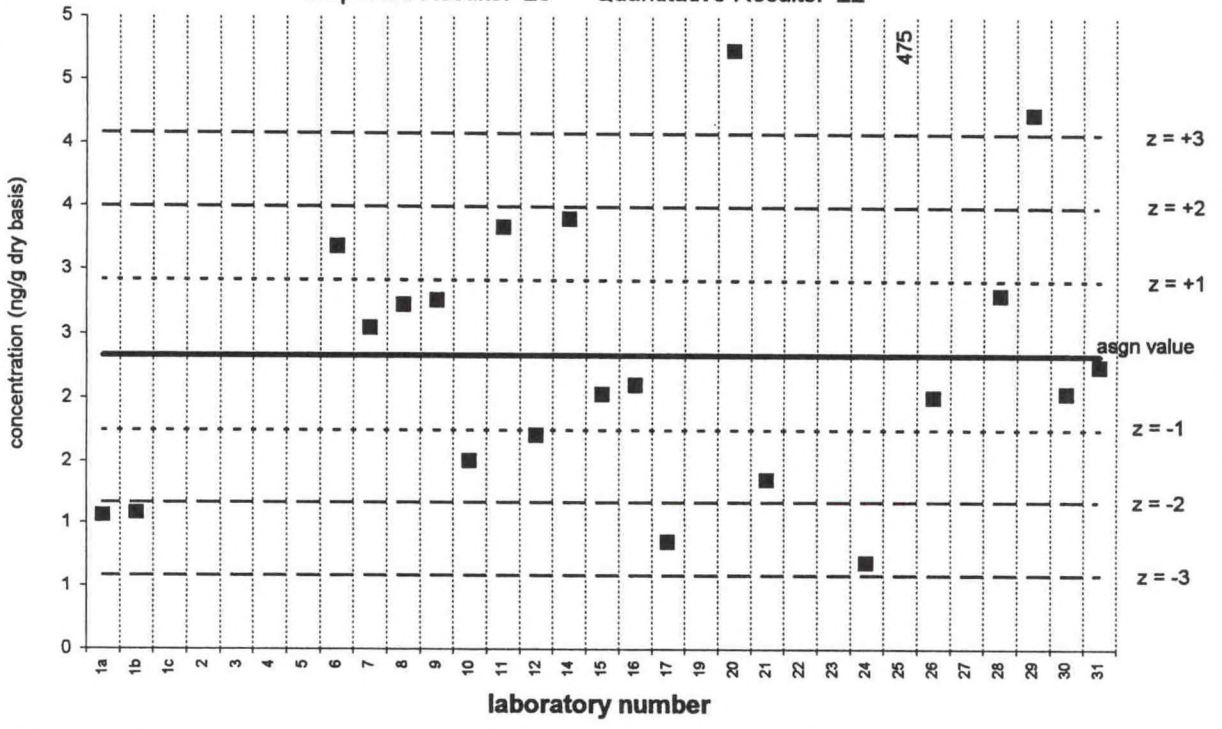
Reported Results: 21 Quantitative Results: 17



PCB 209 **Sediment VIII (QA98SED8)**

Assigned value = 2.33 ng/g s = 1.23 ng/g 95% CL = 0.66 ng/g (dry basis)

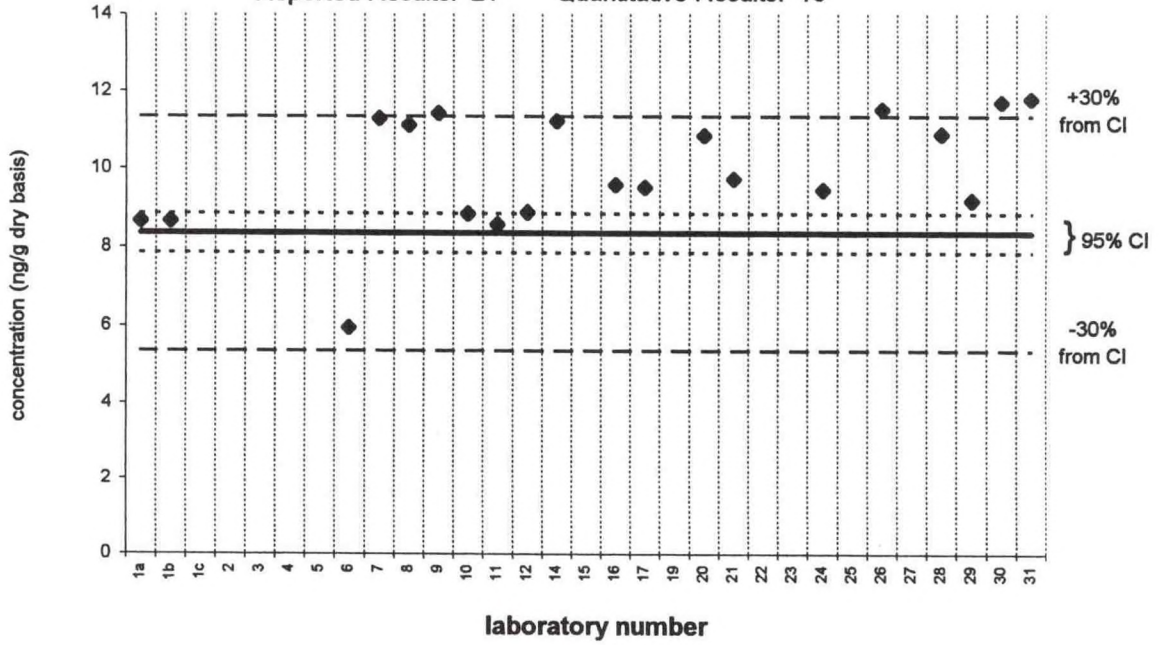
Reported Results: 23 Quantitative Results: 22



PCB 209 **SRM 1941a**

Certified Value = 8.34 ± 0.49 ng/g (dry basis)

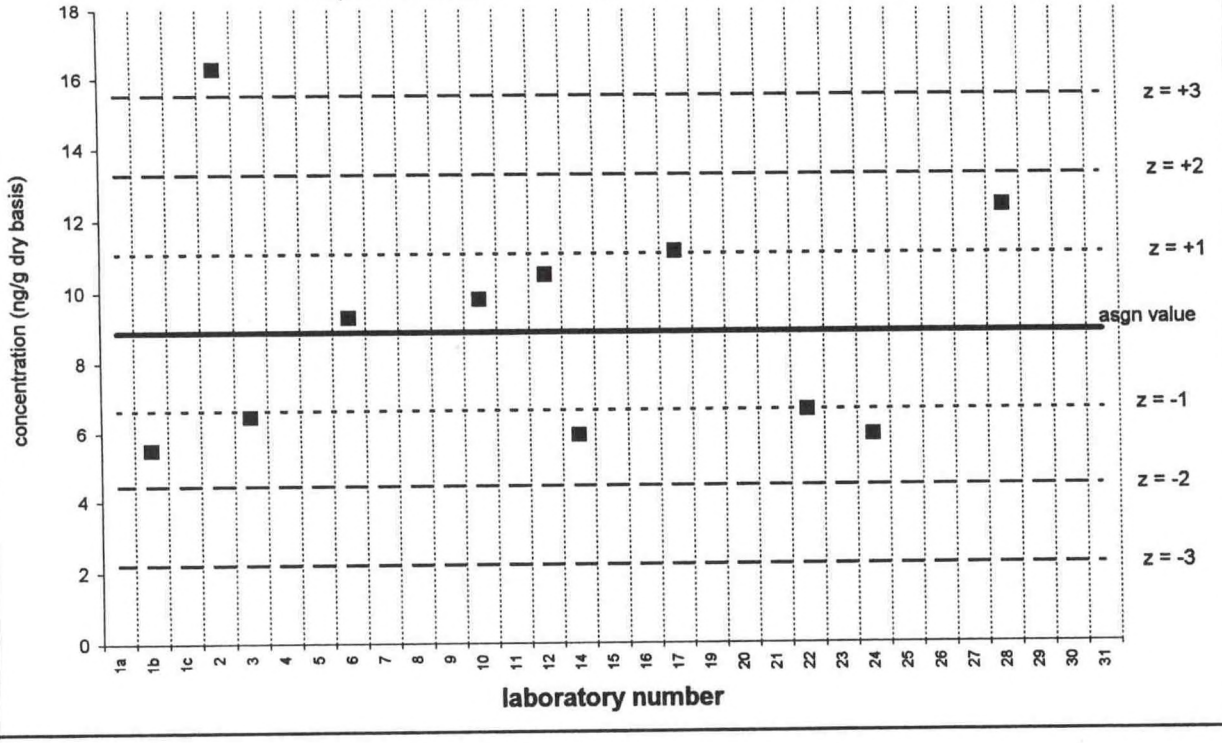
Reported Results: 21 Quantitative Results: 19



PCB 66 **Sediment VIII (QA98SED8)**

Assigned value = 8.85 ng/g s = 3.51 ng/g 95% CL = 2.51 ng/g (dry basis)

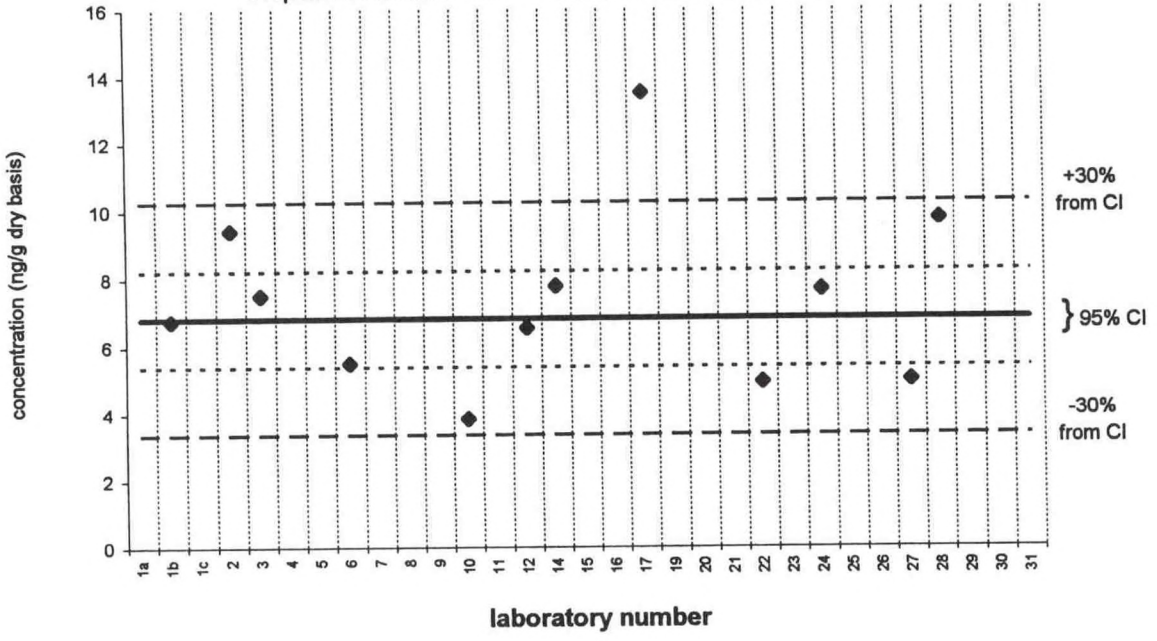
Reported Results: 13 Quantitative Results: 11

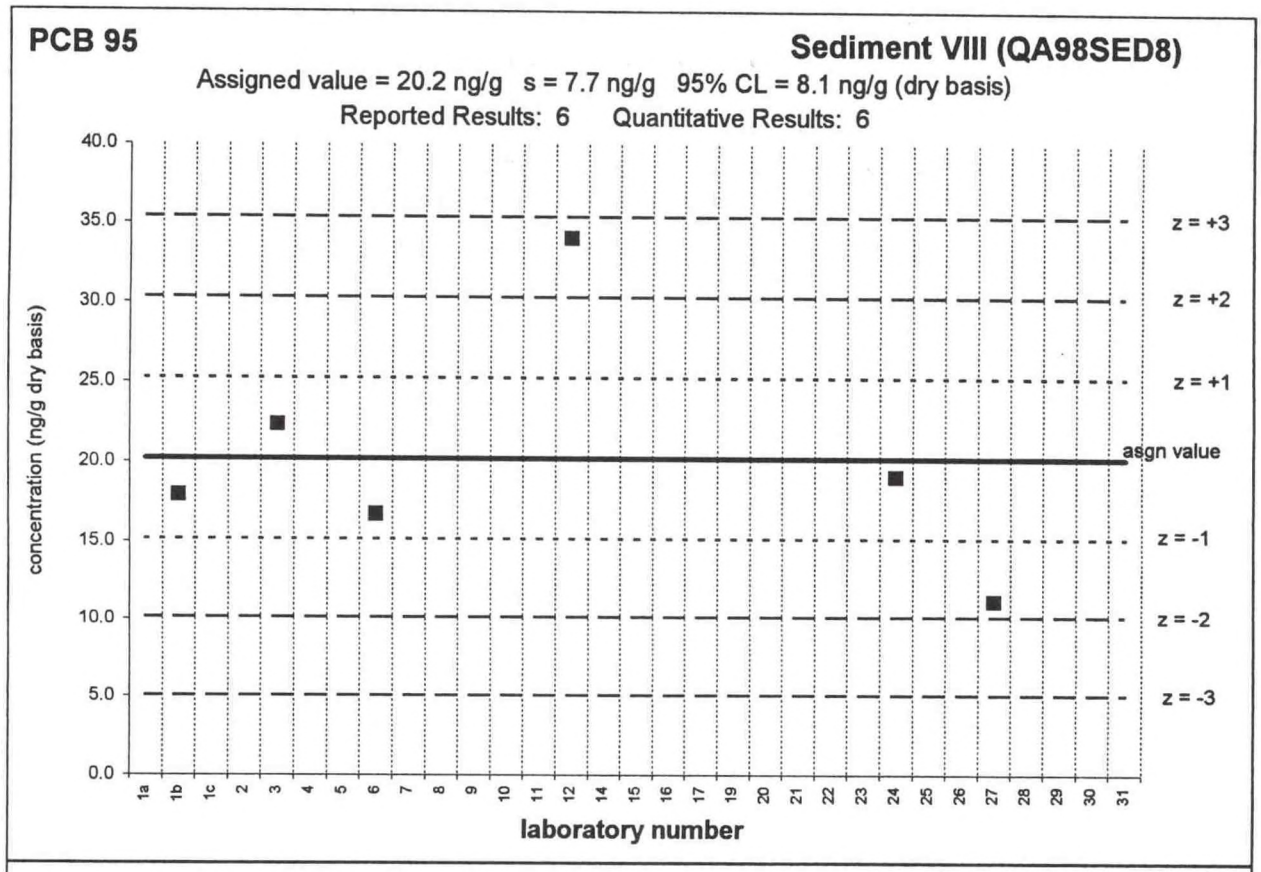


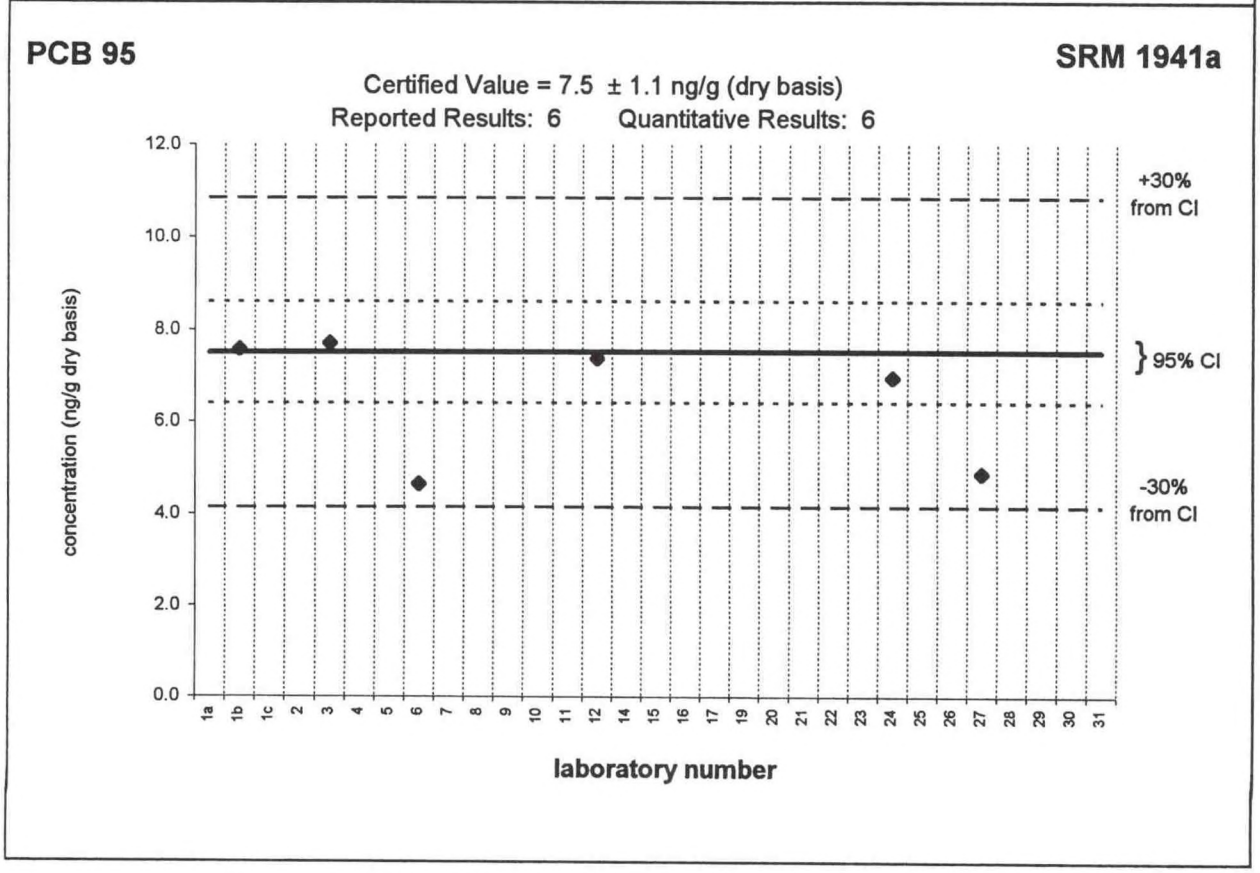
PCB 66 **SRM 1941a**

Certified Value = 6.8 ± 1.4 ng/g (dry basis)

Reported Results: 13 Quantitative Results: 12




PCB 95
Sediment VIII (QA98SED8)
Assigned value = 20.2 ng/g s = 7.7 ng/g 95% CL = 8.1 ng/g (dry basis)
Reported Results: 6 Quantitative Results: 6
concentration (ng/g dry basis)
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
z = +3
z = +2
z = +1
asgn value
z = -1
z = -2
z = -3
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number


PCB 95
SRM 1941a
Certified Value = 7.5 ± 1.1 ng/g (dry basis)
Reported Results: 6 Quantitative Results: 6
concentration (ng/g dry basis)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
+30% from CI
} 95% CI
-30% from CI
1a 1b 1c 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31
laboratory number

Appendix K: List of Laboratories Participating in 1998 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-Gaithersburg which is Laboratory #1 in this exercise. The same code was used with both exercises.)

Armed Forces Institute of Pathology
Dept. of Environ. Toxicol. Path.
Bldg. 54, 6825 16th Street, NW
Washington, DC 20306-6000
Victor Kalasinsky

Arthur D. Little, Inc.
Acorn Park
Cambridge, MA 02140-2390
John Brown

B& B Laboratories
1902A Pinon C
College Station, TX 77845
Bernie B. Bernard

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

CIEMAT
Chemistry Program
Avda. Complutense, 22
28040-Madrid
Spain
R. Perez-Pastor

City of Los Angeles
Dept. of Public Works
Environmental Monitoring Division
222 North Sepulveda, Suite 1600
El Segunda, CA 90245
Zbyslaw J. Petryka

City of San Jose
Environmental Services Department
700 Los Esteros Road
San Jose, CA 95134
Eric Papp

East Bay Municipal Utility District
EBMUD Laboratory
2020 Wake Avenue
Oakland, CA 94607
Francois Rodigari

Environmental Protection Agency (EPA)
Office of Research and Development
Environmental Research Laboratory
27 Tarzwell Drive
Narragansett, RI 02882
Joseph LiVolsi

Environment Canada
Environmental Science Center
P. O. Box 23005
Corner of Morton & Archibald Streets
Moncton, New Brunswick E1A6S8
Canada
James Doull / Mireille Abi-Khattar

Institute for Marine Bioscience
National Research Council
1411 Oxford St.
Halifax, Nova Scotia B3H 321
Canada
Jonathan Curtis / Denise Le Blanc

Institute for National Measurement Standards
M-12, National Research Council of Canada
Montreal Road
Ottawa, Ontario K1A 0R6
Canada
Cathie Fraser / Graeme Gardner

King County Environmental Laboratory
322 W. Ewing St.
Seattle, WA 98119
Michael Doubrava

MD Department of Health and Mental Hygiene
Room 6B 13
201 West Preston St.
Baltimore, MD 21201
Jonathan R. Johnston

Murray State University
Chemical Services Laboratory
Rm 439 Blackburn Science Bldg.
Murray KY 42071-3306
Bomanna G. Loganathan

MWRA Central Lab, DITP
100 Taft Ave.
Winthrop, MA 02152
Tim Beaulieu / Steve Rhode

NIST
B208, Bldg. 222
Gaithersburg, MD 20899
Michele M. Schantz

NIST
Charleston Lab
219 Fort Johnson Road
Charleston, SC 29412
John Kucklick

NOAA NMFS
Auke Bay Laboratory
P. O. Box 210155
11305 Glacier Highway
Juneau, AK 99821
Marie Larsen

NOAA NMFS
Charleston Laboratory
217 Fort Johnson Road
Charleston, SC 29412
Dan Bearden

NOAA NMFS, F/NWC6
Environmental Conservation Division
2725 Montlake Boulevard, East
Seattle, WA 98112
Donald Brown

Old Dominion University
Applied Marine Research Laboratory
1034 West 45th Street
Norfolk, VA 23529
Rob McDaniel II

SIHN Depto. Oceanografia
Av. Montes de Oca 2124 (1271)
Buenos Aires - Argentina
Lucio Jose Janiot

Skidaway Institute of Technology
10 Ocean Science Circle
Savannah , GA 31411
Keith Maruya

State of Washington
Department of Ecology
Manchester Environmental Laboratory
7411 Beach Drive East
Port Orchard, WA 98366-8204
Stuart Magoon

Texas A & M University
GERG
833 Graham Road
College Station, TX 77845
Terry Wade

University of Rhode Island
Organic Geochemistry Laboratory
Graduate School of Oceanography
Horn Bldg., South Ferry Road
Narragansett, RI 02882
James G. Quinn

U. S. Geological Survey
National Water Quality Laboratory
5293-B Ward Road
Arvada, CO 80002
Ann Watterson

Virginia Bureau of Chemistry
Div. of Consolidated Laboratories
1 North 14th Street
Div of Water Quality
Richmond, VA 23219
Gail Johnson

Woods Hole Group
375 Paramount Dr, Suite B
Raynham, MA 02767
Peter J. Kane