



Versar inc.

Superfund Records Center
DATE: *New Bedford*
BREAK: *3.2*
OTHER: *57876*

February 8, 1982
717.8-E-231

Mr. Jim Okun
U.S. Environmental Protection Agency
Enforcement Division
John F. Kennedy Building
Boston, Massachusetts 02203

Reference: Contract No. 68-01-6291, Task 1V2-81-02-06

Subject: Submittal of PCB Analytical Report

Dear Jim:

Enclosed is one (1) copy of a PCB Analytical Report for twenty-seven (27) samples received by Versar from Region I on November 17, 1981. As the report shows, three samples were found to be free of PCBs at the 1 ppm detection limit. Of the remaining 24 samples, six were below 50 ppm, two between 50 ppm and 500 ppm, and the last 16 samples were above 500 ppm.

Please contact Susan Nohr or Jon Byroade at (703) 750-3000 if you have any questions regarding this report. The analyses of these 27 samples completes this task, therefore, no more work efforts are anticipated.

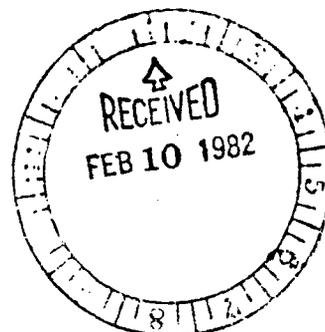
Sincerely yours,

James J. Kenyon
Compliance Assistance Operation

JJK:ysb

Enclosure

cc: Ms. Rose Burgess (EN-342)
U.S. Environmental Protection Agency
Compliance Monitoring Branch/PTSED
401 M. Street, S.W.
Washington, D.C. 20460



EPA COMPLIANCE MONITORING PROGRAM

Submitted to:

US EPA Region I
John F. Kennedy Building
Boston, Massachusetts 02203

EPA No. 68-01-6251
Versar No. 717.8

Submitted by:

Versar Inc.
6621 Electronic Drive
Springfield, Virginia 22151

February 3, 1982

INTRODUCTION

Versar received 27 samples from US EPA, Region I, on November 17, 1981, for PCB analysis. All samples were collected by Region I personnel and sent to Versar via Delta Airlines. All analytical work was performed in accordance with the written work plan for Task IV2-81-02-06.

The methodology for the analysis is outlined below. The Standard Versar Quality Control Program (SVQCP) was followed, and the results discussed in the Quality Control Summary Section. A description of the SVQCP is enclosed for your convenience. Appendix I contains copies of field and laboratory Chain-of-Custody forms.

RESULTS

The results for the analysis of 27 soil and sludge samples are tabulated in Table 1. Three samples were found to be free of PCBs at the 1 ppm detection limit. Out of the remaining samples, 6 were quantitated between 1 ppm and 50 ppm, 2 between 50 ppm and 500 ppm, and the last 16 substantially higher than 500 ppm.

METHODOLOGY*Soil:*¹

Ten grams of soil were extracted with three 50 ml portions 1:1 acetone/hexane. The extracts were passed through a Na₂SO₄ column and collected in a 250 ml Kuderna-Danish. After the extract was concentrated to below 50 ml, it was transferred to a 100 ml volumetric flask and diluted to the mark with hexane.

At this point 5 ml of extract were pipetted on top of a 20 gram packed florisil column. The aliquot was eluted with 200 ml petroleum ether and concentrated to 5 ml. One ml was vialled for injection (2 µl) into a gas chromatograph equipped with an electron capture detector.

¹Method for Organochlorine and Organophosphorous Pesticide in Soil, EPA/Pesticide Monitoring Laboratory (PML), Building 1105, NSTL/NASA, Bay St. Louis, Mississippi.



PCB ANALYTICAL REPORT

PREPARED FOR: US EPA Region I

REF. # 717.8

TABLE 1

SAMPLE No.	LAB No.	CONCENTRATION PARTS/MILLION	AROCLOR	COMMENTS
74172	7364	<1	—	Sludge
74173	7365	<1	—	Soil
74174	7366	2	1254	Sludge
74175	7367	4	1254	Sludge
74176	7368	2	1254	Soil
74177	7369	3	1254	Sludge
74178	7370	<1	—	Sludge
74179	7371	20,000	Mix	Sludge
74180	7372	21,000	Mix	Sludge
74181	7373	4900	1242	Sludge
74182	7374	370	1242	Sludge
74183	7375	3200	1242	Sludge
74184	7376	3200	Mix	Sludge
74185	7377	5000	Mix	Sludge
74186	7378	5800	Mix	Sludge
74187	7379	2400	Mix	Sludge
74188	7380	6500	Mix	Sludge
74189	7381	3400	Mix	Sludge
74190	7382	6000	Mix	Sludge

DATE: February 3, 1983

Mark T. Carhuff
MARK T. CARHUFF, CHEMIST
APPLIED CHEMISTRY DIVISION



PCB ANALYTICAL REPORT

PREPARED FOR: US EPA Region I

REF. # 717.8

TABLE 1
Page 2

SAMPLE No.	LAB No.	CONCENTRATION PARTS/MILLION	AROCLOR	COMMENTS
74191	7383	13,000	Mix	Sludge
74192	7384	220	Mix	Sludge
74193	7385	10,000	Mix	Sludge
74194	7386	190,000	Mix	Sludge
74195	7387	6500	Mix	Sludge
74196	7388	16,000	Mix	Sludge
74197	7389	15	Mix	Sludge
74198	7390	20	1242	Sludge

DATE: February 3, 1982

Mark T. Carkhuff
MARK T. CARHUFF, CHEMIST
APPLIED CHEMISTRY DIVISION



QUALITY CONTROL SUMMARY

The full Standard Versar Quality Control Program was run with the sample batch. Precision data is not available because of the absence of PCBs in the sample used. Recovery data was obtained and indicates that the method used is sufficient for PCB analysis. The Quality Control data is presented in Table 2 and summarized on the Quality Control summary sheet.

TABLE 2
Quality Control Data

<u>Matrix</u>	<u>Audit</u>	<u>Amount Found ($\mu\text{g/g}$)</u>	<u>Amount Spiked ($\mu\text{g/g}$)</u>
Soil	Reagent Blank	<1	*N.A.
	Method Standard	51	50
	7365X (sample)	<1	N.A.
	7365Y (duplicate)	<1	N.A.
	7365Z (spiked sample)	55.5	50

*Not Applicable

QUALITY CONTROL SUMMARY

DATE: November 23, 1981 MATRIX: Soil

SPIKE: 1 ml Aroclor 1254 500 ppm

Precision	_____	Duplicate Sample	<u>*N.A.</u>	_____
Recovery Accuracy	_____	Spiked Sample	<u>111%</u>	_____
	_____	Method Standard	<u>110%</u>	_____

*N.A. - Not Available

DATE: _____ MATRIX: _____

SPIKE: _____

Precision	_____	Duplicate Sample	_____	_____
Recovery Accuracy	_____	Spiked Sample	_____	_____
	_____	Method Standard	_____	_____



STANDARD VERSAR
QUALITY CONTROL PROGRAM

The Standard Versar Quality Control Program is included with each batch of samples. A batch is a suitable number of samples to be analyzed at one time. The program consists of four QC audits which are treated with the same conditions as the samples. The QC audits represent from 20-400% of the total number analyzed, depending on the number of samples per batch. The audits are:

- (1) Duplicate
- (2) Spiked Matrix
- (3) Method Standard
- (4) Method Blank

A sample is chosen randomly from the batch and split three ways, labelled x, y and z. The x and y aliquots are analyzed as duplicates (QC Audit 1). The z aliquot and a blank sample (QC audits 2 and 3) are spiked with the parameter of interest at the concentration of interest. The fourth QC audit is simply a blank treated as a sample.

Versar calculates its laboratory precision and recovery as follows:

Precision - calculated from the duplicate sample and presented as the relative percent difference

$$\frac{a - b}{(a + b)/2} \times 100$$

Recovery - calculated from the spiked sample and the method standard and presented as the percent recovered

$$\frac{c}{d} \times 100$$

Where: a - first value from sample "x"
b - second value from sample "y"
c - amount calculated
d - amount spiked

Method blanks are calculated from the values obtained from instrument background and method interferences detected during analysis. A value reported does not mean the parameter of interest was detected but it does reflect the lower limits of detection.

APPENDIX I
Field and Laboratory
Chain-of-Custody

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	REMARKS														
SAMPLERS: (Signature)																					
Daniel J. Drury B. CLEAVER																					
STA. NO.	DATE	TIME	COMPI	GRAB	STATION LOCATION																
FAIRO1	11/12/81	1100		X	# 74172 FARMER WTP	1															
PLAY01	11/12/81	1155		X	# 74173 PLAY GROUND	1															
PLAY02	11/12/81	1157		X	# 74174 "	1															
PLAY03	11/12/81	1159		X	# 74175 "	1															
PLAY04	11/12/81	1145		X	# 74176 "	1															
PLAY05	11/12/81	1207		X	# 74177 "	1															
PLAY06	11/12/81	1207		X	# 74178 "	1															
AERO01	11/12/81	1345		X	# 74179 AERODUX SEDIMENT	1															
AERO1B	11/12/81	1350		X	# 74180 "	1															
AERO02	11/12/81	1355		X	# 74181 "	1															
AERO2B	11/12/81	1400		X	# 74182 "	1															
AERO03	11/12/81	1405		X	# 74183 "	1															
AERO3B	11/12/81	1410		X	# 74184 "	1															
AERO04	11/12/81	1415		X	# 74185 "	1															
AERO4B	11/12/81	1420		X	# 74186 "	1															
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)											
Daniel J. Drury		11/16/81 10:00 AM		DELTA AIRLINES		DELTA AIRLINES															
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)											
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks													
				VERSAR INC Sueley Hutchins		11/17/81 3:00		No EPA seals													

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

