Monsanto

FROM (NAME & LOCATION): H. Campbell - WGK

DATE: July 6, 1972

SUBJECT: PCB Residues, Determination in Miss. River Fish

REFERENCE:

cc: A. E. Leisy
C. F. Buckley
H. J. Horner

TO: E. E. Stewart

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The results of our determination of PCB residues in fish taken from the Mississippi River south of the Plant are attached. Several samples were ran in replicate to provide some idea of the repeatability of the analysis. At our present level of experience, the analytical time per sample is about eight hours.

L. M. Briggs

K. L. Schutzenhofer

H. L. Campbell

dy
attach.

MONS 098759

Fish - Mississippi River - South of Plant Outfall (6/19/70)

Fish / Type	Wet Weight (lbs)	PPM of PCB in Fillet (Edible Portion)
A. Carp		
No. F9	4.1	5.07
No. F4	2.8	4.54, 4.67, 4.98 ; 4.73 Avg.
B. Bullhead (catfish)		
No. F5	3.9	28.6, 38.7 ; 33.6 Avg.
No. F6	2.1	6.53
C. Channel (catfish)		
No. F7	3.3	9.38
No. F8	0.9	4.71
D. Perch		
No. F1	1.6	12.0
No. F2	0.9	3.23

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trace 635

Nov 69
June 74 PCB levels generally range from 1 to 18 ppm from 117 from B Anthropotomic area
1969 Some fish at 47 of 50 sampling stations <0.1 to 14.8 ppm
1970 1 of 40 samples < 1 ppm
20 averaged 36 ppm 96 to 213 ppm
4 from Ohio area 80 ppm
1 from Hudson @ 213

Feeding catfish 958 ppm from 13 ppb
312 ppm 4 ppb
Bluegill 312 ppm 5
87 ppm 7

Catfish from commercial fish farm @ 3 ppm

	1221	1248	1260	TOTAL	1221	Mem
F1	2.50	7.41	2.05	11.96	9.46	9
F2	1.57	1.26	0.40	3.23	1.66	2
F3	3.03	1.43	0.61	5.07	2.04	2
F4	1.46	2.47	0.81	4.74	3.28	3
F5	3.57	16.60	8.39	28.56	24.99	25
F6	2.81	2.37	1.15	6.33	3.52	4
F7	2.76	4.60	2.02	9.38	6.62	7
F8	1.82	1.83	1.06	4.71	2.89	3

PCB ANALYSIS - CALCULATION SHEET

SAMPLE	GC COLUMN	PEAK HEIGHT IN MM	Ng PCB FROM CURVE	÷ SAMPLE IN µl	= Ng/µl OR µg/ml	x TOTAL DILUTION, MLS	= TOTAL µg	÷ SAMPLE WEIGHT, g	= PPM PCB	TYPE PCB
[illegible]	B	2.5 3.0 —	0.07 0.10 0.00	5		5	0.07 0.10 0.00			[illegible]
[illegible]	B	9.0 31.0 14.5	0.20 0.80 0.60	1	0.20 0.80 0.60	[illegible]	125.0-0.07 [illegible]-0.10 [illegible]	20	6.25 25.00 [illegible] 50.00	
[illegible]	B	14.0 22.0 6.0	0.30 0.57 0.75	3	0.10 0.19 0.083	[illegible]	12.5-0.07 [illegible]-0.10 10.375	20	0.62 1.49 0.52 [illegible]	
[illegible]	B	18.5 75.5 34.0	0.42 1.93 1.37	3	0.14 0.64 0.46	625		20	4.37 [illegible] 14.[illegible] [illegible]	
[illegible]	B	2.5 2.5 2.0	0.07 0.07 0.08	5		5	.07 .07 .08	—		[illegible]
F-4 #1	B	47.5 78.0 18.5	1.02 1.98 0.75	5	.204 .396 .150	125	25.5-.07 49.5-.07 18.75-.08	20	1.27 2.47 0.[illegible] 4.67	[illegible]
F-4 #2	B	52.0 82.5 18.5	1.12 2.12 0.75	5	.224 .424 .150	125	28.0-.07 53.0-.07 18.75-.08	20	1.40 2.65 0.93 4.98	[illegible]
					[illegible]				4.73	

MONS 098763

PCB ANALYSIS - CALCULATION SHEET

A-3

(6-20-72 curve) FISH SAMPLES

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SAMPLE	G-C COLUMN	PEAK HEIGHT IN MM	Hg PCB FROM CURVE	÷ SAMPLE IN µl	= Hg/µl OR µg/ml	× TOTAL DILUTION, mls	= TOTAL µg	÷ SAMPLE WEIGHT, g	= PPM PCB	TYPE PCB
6-20-72 FISH BLANK	B	4.0 3.0 1.5	0.10 0.10 0.07	5.0	0.02	5	0.10 0.10 0.07	—	—	1248 1221 1260
(1) PERCH 717g	B	9.0 29.5 6.5	0.28 0.83 0.23	2.0	0.14 0.415 0.115	25X25 625	87.5-0.70 259.38-2.08 71.88-0.57	35.0g	2.50 7.41 2.05 11.96	1221 1248 1260
(3) CARP 1856g	B	29.0 14.5 4.5	0.85 0.40 0.17	5.0	0.17 0.09 0.034	25X25 625	106.25-0.85 56.25-0.45 21.25-0.17	35.0g	3.03 1.43 0.61 5.07	1221 1248 1260
6-21-72 FISH BLANK	B	3.5 4.0 2.0	0.10 0.13 0.08	5.0		5	0.10 0.13 0.09	—	—	1248 1221 1260
(5) PERCH 414g	B	43.0 36.0 8.5	1.26 1.01 0.32	5.0	0.252 0.202 0.064	5X25 125	31.5-0.13 25.25-0.10 8.0-0.04	20.0g	1.57 1.26 0.40 3.23	1221 1248 1260
(4) CARP 1274g	B	40.0 70.0 17.5	1.17 1.98 0.65	5.0	0.234 0.396 0.130	5x25 125	29.25-0.12 49.50-0.20 16.25-0.07	20.0g	1.46 2.47 0.81 4.74	1221 1248 1260
(2) FLATHEAD 1782g	B	4.0 36.5 11.5	0.20 (6-21 curve) 0.93 0.47	2.0	0.10 0.465 0.235	5X25X10 1250	125-0.12 581.25-0.56	35.0g	3.57 16.60 8.39 28.56	1221 1248 1260
(6) FLATHEAD 968g	B	30.5 27.0 10.0	0.90 0.76 0.37	2.0	0.45 0.38 0.185	5X25= 125	56.25-0.13=56.12 47.50-0.10=47.40 23.125-0.06=23.06	20.0g	2.81 2.37 1.15 6.33	1221 1248 1260
(7) CHANNEL CAT 1497g	B	21.0 40.0 11.0	0.62 (6-20 curve) 1.03 0.45	4.0	0.155 0.258 0.113	5X25X5 625	96.88-0.12 161.25-0.12 —	35.0g	2.76 4.60 2.02 9.38	1221 1248 1260
(8) CHANNEL CAT 423g	B	68.5 57.5 20.5	1.46 1.17 0.85	5.0	0.292 0.234 0.17	5X25 125	36.50-0.17 30.75-0.14 21.25-0	20.0g	1.83 1.54 1.06 4.43	1221 1248 1260
		4.0 2.5	0.12 0.12	5.0		5.0	0.12 0.12			1221 1248