Final Report on the

Investigation of PCBs in the

Sheboygan River System

July 12, 1978

Prepared By:

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Introduction

The Department of Natural Resources monitored Lake Michigan fish near Sheboygan in 1975 and 1977, and monitored Sheboygan Harbor fish in 1976 (Appendix 1). The average PCB levels found in these samples were similar to PCB levels found in Lake Michigan fish sampled at other locations along the coast. In March, 1978, the Department tested fish from the Sheboygan River (three miles upstream from Sheboygan Harbor) and found high levels of PCBs.

A Summary of Events leading to and following the discovery of high levels of PCBs in Sheboygan River fish is as follows:

1. On September 9, 1977 fish samples were collected for the first time in the Sheboygan River at Kiwanis Park in the City of Sheboygan. This new location was one of the 29 stations which comprise Wisconsin's share of the New National Water Quality Monitoring Network. Water samples are to be taken from the 29 stations each month and fish samples are to be collected and analyzed for contaminants annually.

2. During March of 1978 these fish samples were routinely analyzed at the State Laboratory of Hygiene. The test results for whole fish samples were as follows:

Species & Length	PCB ug/g (ppm)	Fat* (%)
5 Carp (12-23")	750	24.0
5 Northern Pike (18-25")	55	3.7
5 White Sucker (10-14.5")	26	3.4

Because these levels were well in excess of the U.S. Food and Drug Administration tolerance level of 5 ppm (for fish sold in Interstate Commerce), we requested that the location be sampled again and the high test values confirmed.

*PCBs are fat-soluble and tend to accumulate in the lipid portion of fish tissue. A positive correlation exists between PCB burdens and fat concentrations in fish tissue. Because different species of fish differ markedly in fat content, it is more meaningful to include fat percentages with PCB concentrations.

3. On March 31, 1978 fish samples were again collected from the Sheboygan River at Kiwanis Park. The test results for whole fish samples were reported by the laboratory on April 18, 1978 as follows:

Species & Length	PCB ug/g (ppm)	Fat (%)
17 Black Bullheads (3.5-9")	41.8	7.0
12 Black Bullheads (4-9")	34.3	5.2
1 Rock Bass (8")	10.0	1.9
2 Common Shiners (4")	49.8	2.3
1 Coho Salmon (23")	8.3	0.5
2 Walleye (17")	241.5	8.9
3 Carp (10-18.5")	180.0	5.4
4 Carp (23-24")	158.4	8.7
5 Suckers (12-21")	30.0	5.4
4 Northern Pike (21-27")	62.6	4.0

The test results confirmed the elevated PCB levels in fish at this location. The values ranged from 8.3 ppm for a Coho Salmon which may have just entered the river to 241.5 ppm for 2 walleyes which probably lived in the lower river most of the year.

4. On April 20, 1978 a telephone conference call was held between the Central Office, the Southeast District Office and the Plymouth Office to discuss the situation. Following the conference call, the data were reviewed with the Department of Health and Social Services and a joint press release (Appendix 2) was prepared and mailed announcing the findings and recommending that the public not eat fish caught in the following waters until further notice:

Sheboygan River - from the Sheboygan Marsh Dam to the Coast Guard Station in Sheboygan.

Mullet River - from the lower mill pond dam, Plymouth, to the junction with the Sheboygan River.

Onion River - from the Waldo mill pond dam to the junction with the Sheboygan River.

Signs providing this information were posted on the rivers on April 21, 1978 (Appendix 3).

The Natural Resources Board was appraised of the Sheboygan River PCB situation at its April 26, 1978 meeting, after which Secretary Earl appointed the technical committee to coordinate the Sheboygan River PCB Investigation (Appendix 4). The investigation included the collection and testing of many samples from the drainage basin including fish, river bottom sediment, municipal/industrial effluents, and river water. This report summarizes the findings of the Sheboygan River Investigation.

PCB Data on Sheboygan River Fish Samples

The levels of PCBs found in fish collected at 11 locations in the drainage basin (Fig. 1.) are listed in Table 1. Forty samples of fish taken from the Sheboygan River below the Sheboygan Falls Dam to the confluence with Lake Michigan, including the Weeden's Creek and Greendale Creek tributaries, averaged 155 ppm PCBs. Thirty-eight samples of fish from the Sheboygan River upstream from the Sheboygan Falls Dam, the Mullet River, and the Onion River were found to contain levels below the FDA tolerance of 5 ppm.

A collaborative study was conducted by the State Laboratory of Hygiene and the State Department of Agriculture, Trade and Consumer Protection, Bureau of Laboratory Services, to confirm the accuracy of PCB analyses in fish samples. Appendix 5 contains the results of the study. The independent analyses of split fish samples closely agreed.

PCB Data on Sheboygan River Bottom Sediment Samples

Table 2 lists the levels of PCBs found in bottom sediment samples collected at 13 locations in the drainage basin. The highest concentration of PCBs was detected immediately downstream from the Tecumseh Products Die-Casting Plant in Sheboygan Falls. Lower but significant amounts of PCB were detected farther downstream in the reach from Sheboygan Falls to Sheboygan. Low levels of PCB were found in the Sheboygan River upstream from the Sheboygan Falls Dam, the Mullet River, and the Onion River.

Municipal/Industrial PCB Point Source Samples

Table 3 lists the concentrations of PCBs found in municipal and industrial effluents collected from facilities in the drainage basin. Also listed are the concentrations of PCBs found in river water, and hydraulic fluid taken from 3 aluminum die-casting plants. No significant PCB point source to the Sheboygan River was detected by monitoring these municipal and industrial discharges.

PCB Analysis of Soil Samples From The Tecumseh Products Company At Sheboygan Falls

Table 4 lists the levels of PCBs found in soil samples collected on the Tecumseh property (Fig. 2) in Sheboygan Falls. Granular oil absorbent material deposited on the property contained up to 120,000 ug/g (ppm) PCB (12%).

This PCB-contaminated waste deposited on the dike bordering the Sheboygan River is a significant source of PCBs to the lower Sheboygan River. During periods of high water the Sheboygan River flows along the dike and is in direct contact with highly contaminated fill materials. During rains PCBs in the dike are subject to washing into the stream. PCBs at other locations on the plant property are likely to soak into the ground and reach the river via ground water discharge. The area is subject to periodic flooding which occurred as recently as May, 1978.

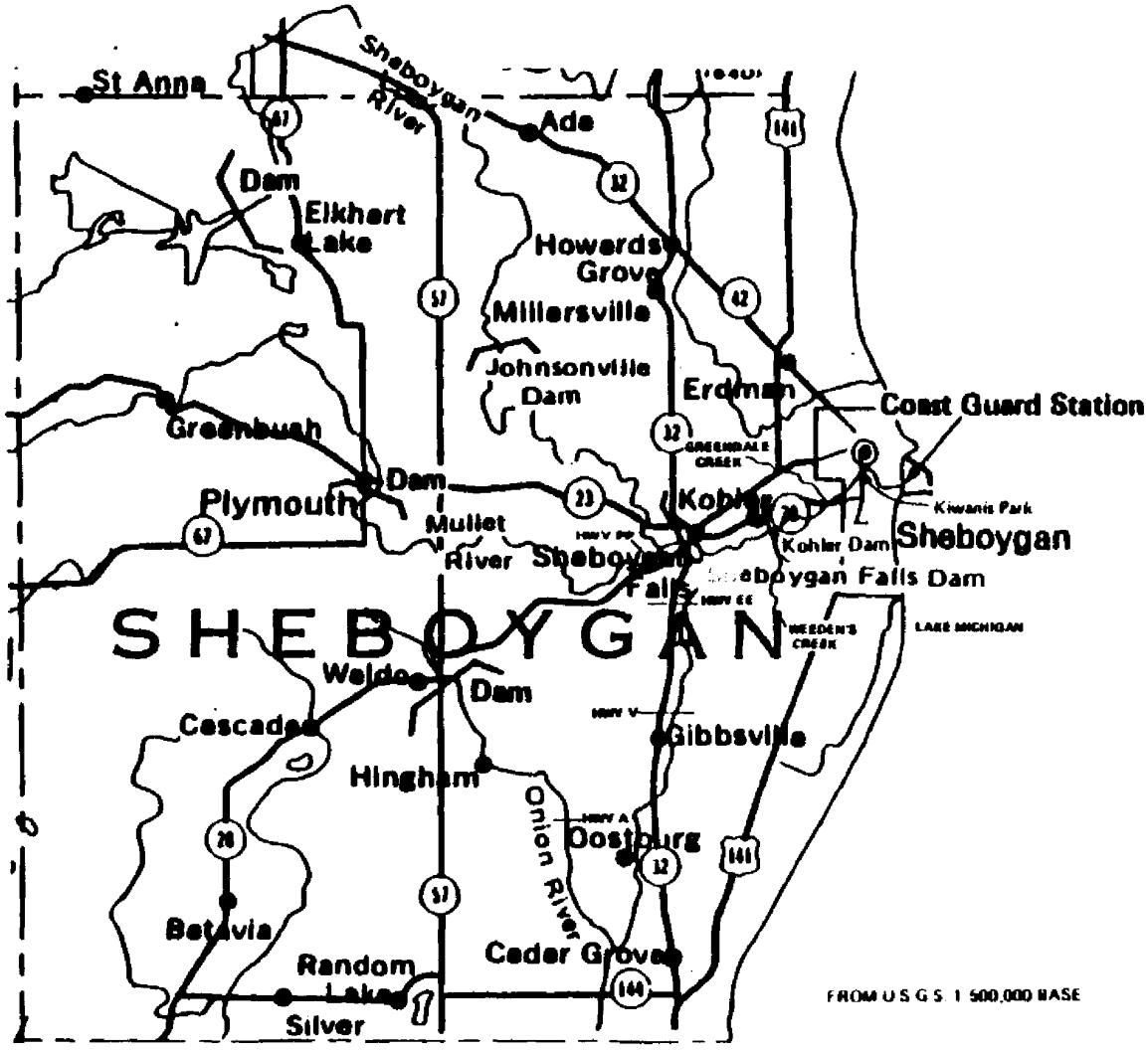

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Figure 1. Sheboygan River Drainage Basin (PCB Investigation Area).

TABLE 1. PCB DATA ON SHEBOYGAN RIVER FISH SAMPLES

Kivanis Park Samples

Drainage Area	Sample Location	Collection Date	No. / Species	Type of Sample	Average Total Length	PCB ug/g (ppm)	Fat (%)
Lk. Michigan	Kivanis Pk.-Sheboygan	5-16-78	1 Carp	F*	27"	15.3	9.5
Lk. Michigan	Kivanis Pk.-Sheboygan	5-16-78	1 Carp	F	23"	17.0	10.7
Lk. Michigan	Kivanis Pk.-Sheboygan	5-16-78	1 Carp	F	22"	12.1	15.4
Lk. Michigan	Kivanis Pk.-Sheboygan	5-16-78	1 Carp	F	25"	2.0	11.2
Lk. Michigan	Kivanis Pk.-Sheboygan	5-16-78	1 Carp	F	23.5"	333.0	9.5
Lk. Michigan	Kivanis Pk.-Sheboygan	5-16-78	1 Carp	F	24.5"	970.0	16.3
Lk. Michigan	Kivanis Pk.-Sheboygan	5-16-78	4 W. Suckers	** WF	14"	23.9	4.7

GREENDALE & WEEDEN'S CREEK SAMPLES

Drainage Area	Sample Location	Collection Date	No./Species	Type of Sample	Average Total Length	PCB ug/g (ppm)	Fat (%)
Lk. Michigan	Greendale Creek	4-28-78	1 N. Pike	WF	15.0"	169	3.0
"	"	"	8 Minnows	WF	6.0"	5.9	4.1
"	"	"	17 Minnows	WF	4.5"	14.0	2.8
"	Weeden's Creek	4-28-78	1 C. Salmon	WF	14.5"	0.9	.5
"	"	"	6 Creek Chubs	WF	6.0"	150.0	3.9
"	"	"	18 Minnows	WF	5.0"	61.0	2.1

* F indicates boneless fillet sample
** WF indicates whole fish sample

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TABLE 1. (Con't.)

Kohler Dam Samples

Drainage Area	Sample Location	Collection Date	No./Species	Type of Sample	Average Total Length	PCB ug/g (ppm)	Fat (%)
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	1 Carp	F	25"	240.0	9.3
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	1 Carp	F	25"	180.0	3.8
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	1 Carp	F	22"	150.0	6.4
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	1 Carp	F	25"	250.0	5.6
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	3 Carp	WF	22-25"	350.0	11.6
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	1 Carp	F	27"	250.0	12.2
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	5 Carp	WF	18.5-20"	460.0	11.7
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	3 Carp	WF	21.5-22"	320.0	9.0
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	5 Suckers	F	12.5-13"	88.0	.7
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	5 Suckers	WF	9-10.5"	130.0	2.5
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	5 Suckers	WF	10.5-11"	39.0	.9
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	5 Suckers	F	10-11"	40.0	.5
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	5 Rock Bass	WF	4.5-7.5"	190.0	3.1
Lk. Michigan	Above Kohler Dam-Kohler	4-26-78	12 Common Shiners	WF	5"	100.0	2.5

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TABLE 1. (Con't.)

** Sheboygan Lagoon Samples (Above Sheyboygan Falls)

Drainage Area	Sample Location	Collection Date	No./Species	Type of Sample	Average total length	PCB ug/g (ppm)	Fat (%)
Lk. Michigan	Above Sheb. Falls Dam (Sheb. Lagoon)	4-27-78	38 Bluegills	WF	3.5"	< 5.0	1.0
"	"	"	10 Redhorse	WF	8.0"	< .5	2.2
"	"	"	2 Crappies	WF	6.5"	< 2.0	1.1
"	"	"	6 Rock Bass	WF	8.0"	< 2.0	.9
"	"	"	4 N. Pike	F	16.0"	< 1.0	.4
"	"	"	7 Redhorse	F	15.0"	< 1.0	1.5
"	"	"	1 Carp	F	25.5"	< 1.0	.5
"	"	"	1 Carp	F	23.5"	< .8	1.0
"	"	"	4 Carp	F	17.0"	< 1.0	1.6
"	"	"	5 Carp	WF	17.0"	< 3.0	3.4
"	"	"	5 Carp	WF	16.0"	< 4.0	4.9
"	"	"	8 Carp	WF	15.0"	< 2.0	7.1
"	"	"	8 Carp	WF	14.0"	< 2.0	3.7

** There is Chlordane interference in fish samples from Sheboygan Lagoon, making it difficult to quantify an exact PCB number. Therefore these values are listed as 'less than' the given number. In most cases, the real PCB level in the sample would be less than the given number.

JOHNSONVILLE DAM SAMPLES

Drainage Area	Sample Location	Collection Date	No./Species	Type of Sample	Average Total Length	PCB ug/g (ppm)	Fat (%)
Lk. Michigan	Above Johnsonville Dam	4-28-78	4 Carp	WF	20"	.8	3.3
"	"	"	4 Carp	WF	17"	.8	5.1
"	"	"	1 Carp	F	21.5"	.4	1.4
"	"	"	1 Carp	F	23.5"	.6	2.2
"	"	"	14 Suckers	WF	10.0"	.2	2.3
"	"	"	9 Rock Bass	WF	6.5"	.5	2.4
"	"	"	3 Crappies	WF	6.0"	< .5	.4
"	"	"	1 L.M. Bass	WF	9.5"	.7	1.6
"	"	"	14 Stonecats	WF	5.0"	< .4	1.1
"	"	"	60 Minnows	WF	3.0"	< .4	2.3

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TABLE 1. (Con't.)

** MULLET RIVER SAMPLES

Drainage Area	Sample Location	Collection Date	No./Species	Type of Sample	Average Total Length	PCB ug/g (ppm)	Fat (%)
Lk. Michigan	2 Miles Upstream From Plymouth	5-4-78	5 Carp	WF	13.0"	<.2	1.2
"	"	"	5 Carp	WF	12.5"	< .2	2.2
"	"	"	1 W. Sucker	WF	10.5"	< .2	.6
"	"	"	10 W. Suckers	WF	7.5"	<1.0	2.1
"	"	"	14 Bullheads	WF	6.5"	< 3.0	1.6
"	"	"	9 Creek Chubs	WF	5"	< .2	3.2
"	2 Miles Downstream From Plymouth STP	"	5 Carp	WF	15.5"	< 5.0	3.7
"	"	"	5 Carp	WF	12.5"	< 5.0	4.1

**There is Chlordane interference in fish samples from below the Plymouth STP, making it difficult to quantify an exact PCB number. Therefore these values are listed as 'less than' the given number. In most cases, the real PCB level in the sample would be less than the given number.

ONION RIVER SAMPLES

Drainage Area	Sample Location	Collection Date	No./Species	Type of Sample	Average Total Length	PCB ug/g (ppm)	Fat (%)
Lk. Michigan	At Hwy. V	4-28-78	5 Rock Bass	WF	6.5"	.2	2.0
"	At Hwy. A	4-28-78	3 Carp	WF	13.0"	.4	1.8
"	"	"	5 Carp	WF	15.0"	.2	2.2
"	Below Waldo	4-28-78	1 N. Pike	F	20.5"	<.2	.5
"	"	"	5 Carp	WF	13.0"	.2	2.0
"	"	"	5 Carp	WF	18.0"	<.2	1.3
"	"	"	3 Carp	F	24.0"	<.2	.4

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TABLE 2. PCB CONCENTRATIONS IN SHEBOYGAN RIVER WATERSHED BOTTOM SEDIMENTS*

Name	Date of Collection	Date of Analysis	Type of Sample(time)	PCB ug/g (ppm)	Water depth
Sheboygan River Kiwanis Park	5-9-78	6-7-78	Grab (11:00)	9.6	2.5'
Sheboygan River Between 8th & 14th St., Sheboygan	4-27-78	6-7-78	Grab (10:30)	3.6	7-11'
Sheboygan River Upstream From USGS Gauging Station	4-27-78	5-10-78	Grab (13:45)	2.4	4'
Kohler Landfill	4-27-78	5-15-78	Grab (13:15)	1.3	
Kohler Landfill	5-9-78	6-7-78	Grab(12:30)	< .2	NA
Sheboygan River Upstream From Kohler Dam	4-27-78	5-10-78	Grab (14:30)	52	2'
Sheboygan River Upstream From Kohler Dam	4-27-78	5-10-78	Grab (14:30)	81	2'
Sheboygan River Upstream From Kohler Dam	5-9-78	6-7-78	Grab (11:50)	27	2'
Sheboygan River 100 feet Downstream From Tecumseh	5-9-78	6-7-78	Grab (14:00)	190	1"
Sheboygan River 70 yards Upstream From Tecumseh	5-9-78	6-7-78	Grab (13:00)	2.4	6"
Upstream From Sheboygan Falls Dam	4-27-78	6-7-78	Grab (15:15)	< .2	4'
Upstream From Johnsonville Dam	4-27-78	6-7-78	Grab (19:30)	< .2	2'
Mullet River Hwy. PP	4-27-78	6-7-78	Grab (16:30)	3.4	
Mullet River - Hwy. PP	5-9-78	6-7-78	Grab (15:00)	< .2	2'
Mullet River Upstream from Plymouth	4-27-78	6-7-78	Composite(17:45)	< .2	3'
Mullet River Below Plymouth STP	4-27-78	6-7-78	Grab (17:00)	< .1	2'
Onion River at Hwy. EE	4-27-78	6-7-78	Grab (15:45)	< .1	3'

* A complete sample description is provided in Appendix 6

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TABLE 3. PCB CONCENTRATIONS IN MUNICIPAL AND INDUSTRIAL POINT SOURCES, RIVER WATERS, AND HYDRAULIC FLUIDS

Municipal Sewage Treatment Plants

Name	Collection Date	Date of Analysis	PCB ug/l (ppm)	Comments
Sheboygan STP*	3-31-78	4-14-78	<.4	Final Effluent
Sheboygan Falls STP	3-31-78	4-12-78	<1.0	Final Effluent
Kohler STP	3-31-78	4-14-78	< .2	Final Effluent
Plymouth STP	4-4-78	4-11-78	9.0	Final Effluent (Flood Stage)
Plymouth STP	4-27-78	5-15-78	<.2	Final Effluent (Normal)
Belgium STP	4-21-78	5-8-78	<2.0	Final Effluent
Kiel STP	4-24-78	5-8-78	<1.0	Final Effluent
Sheboygan Incinerator	4-21-78	5-8-78	<1.0	Final Effluent

* STP means Sewage Treatment Plant

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TABLE 3. (Con't.)

Industrial Effluents

Name	Collection Date	Date of Analysis	Type of Sample (time)	PCB ug/l (ppb)	Comments
J.L. French Co. (S)*	4-4-78	4-14-78	Grab	21	Effluent to STP
Thomas Industries (S)	4-4-78	4-7-78	Grab	140	Effluent to STP
Thomas Industries	5-3-78	5-23-78	Grab (11:00)	.2	Surface water Discharge
Tecumseh Prod. (SF)**	4-4-78	4-20-78	Grab	2.2	Effluent to STP
Tecumseh Prod. (SF)	4-4-78	4-11-78	Grab	<.4	Effluent to Surface Waters
Kohler Co.	4-6-78	4-13-78	Grab	<.2	Effluent to Surface Waters
Kohler Landfill	4-21-78	5-8-78	Grab (09:30)	<1.0	Effluent to Surface Waters
Gilson Co. (P)***	4-21-78	5-8-78	Grab	<.5	Effluent to STP
Ametek (S)	4-24-78	5-8-78	Grab (11:00)	<2.0	Effluent to Surface Waters
Bemis Mfg. (SF)	4-24-78	5-8-78	Grab (14:00)	<.3	Effluent to Surface Waters
Schrier Malting (S)	4-24-78	5-8-78	Grab (10:00)	<1.0	Effluent to Surface Waters
Vollrath Inc. (S)	4-24-78	5-8-78	Grab (11:30)	<.3	Effluent to Surface Waters
Plastic Engineering (S)	4-24-78	5-8-78	Grab (13:00)	<.3	Effluent to Surface Waters
Plastic Engineering (15th Avenue) (S)	4-24-78	5-8-78	Grab (13:30)	<1.0	Effluent to Lake Michigan

* Sheboygan
** Sheboygan Falls
*** Plymouth

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TABLE 3. (Con't.)

River Water Samples

Name	Date of Sample Collection	Date of Analysis	Type of Sample (time)	PCB ug/l (ppm)	Comments
Junction of Hwy. 28 & Sheboygan River	4-4-78	4-12-78	Grab	3.0	Flood Stage
Sheboygan River above Sheboygan Falls Dam	4-4-78	4-6-78	Grab	<.5	Flood Stage
Sheboygan River above Sheboygan Falls Dam	4-27-78	5-15-78	Grab (15:15)	< .3	
Sheboygan River above Kohler Dam	4-27-78	5-15-78	Grab (13:25)	< .2	
Sheboygan River below Johnsonville Dam	4-27-78	5-15-78	Grab (19:30)	< .2	
Onion River at Hwy. EE	4-27-78	5-15-78	Grab (15:46)	<.2	
Kohler Landfill	4-27-78	5-15-78	Grab (13:10)	< .3	Leachate
Mullet River above Plymouth Dam	4-27-78	5-15-78	Grab (18:00)	<.2	
Sheboygan River ½ mile upstream from USGS gaging station	4-27-78	5-15-78	Grab (13:30)	.3	
Sheboygan River & 14th St in Sheboygan	4-27-78	5-15-78	Grab (21:00)	.3	
Sheboygan River immediately downstream from Tecumseh Products	5-10-78	6-7-78	Grab (01:15)	<.4	
Sheboygan River immediately upstream from Tecumseh Products	5-10-78	6-16-78	Grab (01:15)	<.2	

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TABLE 3. (Con't.)

Hydraulic Fluids

Name	Collection Date	Date of Analysis	Type of Sample (time)	PCB ug/g (ppm)	Comments
J.L. French Co. (Sheboygan)	8-26-76	9-16-76	Grabs	10, 42, 104, 175, 21, 94, 72, 19, 12, 19, 14, 10	Hydraulic Fluids were obtained from cmeline aluminum die-cast machines
Thomas Industries (Sheboygan)	4-4-76	4-19-76	Grabs	.8, 3.3, 3.0	"
Tecumseh Products (Sheboygan Falls)	4-4-76	4-19-76	Grabs	6.0, 2.5, 7.0	"

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TABLE 4. TECUMSEH PRODUCTS SOIL SAMPLES*

Location	Sample Description	Sample Depth	Collection Date Collector	PCB ug/g (ppm)
S-18	8' from east fence, dark oily spot on ground. Pic. 1	topsoil - surface to 2" deep	5-11-78 Sheffy	390.0
S-19	5' from south fence, granular oil absorbent material, alum. bits. Pic. 2	6" deep	5-11-78 Sheffy	120,000.0
S-20	10' from bldg., sandy soil, oil dump area only soil. Pic. 3	surface to 3" deep	5-11-78 Sheffy	2,300.0
S-21	10' from bldg., sandy gravelly soil, oil dump area oily sample. Pic. 4	surface to 3" deep	5-11-78 Sheffy	660.0
S-22	3' from bldg., between oil sep. & bldg., black tarry soil sample, oil dump area. Pic. 5	surface to 3" deep	5-11-78 Sheffy	380.0
S-23	3' from south fence, low area below rubble pile, topsoil sample. Pic. 6	topsoil - surface to 4" deep	5-11-78 Sheffy	1,500.0
S-24	Granular oil absorbent material, alum. bits, outside of south fence on dike. Pic. 7	4-8" deep	5-11-78 Sheffy	120,000.0
S-25	Granular oil absorbent material, alum. bits, 2' outside of south fence. Pic. 8	4-8" deep	5-11-78 Sheffy	78,500.0
S-26	Granular oil absorbent material & alum. bits on river side of dike. Pic. 9	4-8" deep	5-11-78 Sheffy	54,000.0
S-27	Granular oil absorbent material Alum. bits, hydraulic hose on river side of dike. Pic 10	4-8" deep	5-11-78 Sheffy	43,800.0

*Laboratory analysis for these samples was performed by soaking .5-20 grams of sample in acetone for 1-8 hours. The extract was then injected directly into the gas chromatograph. This procedure is a more rapid procedure for detecting high levels of PCB than the standard column elution method.

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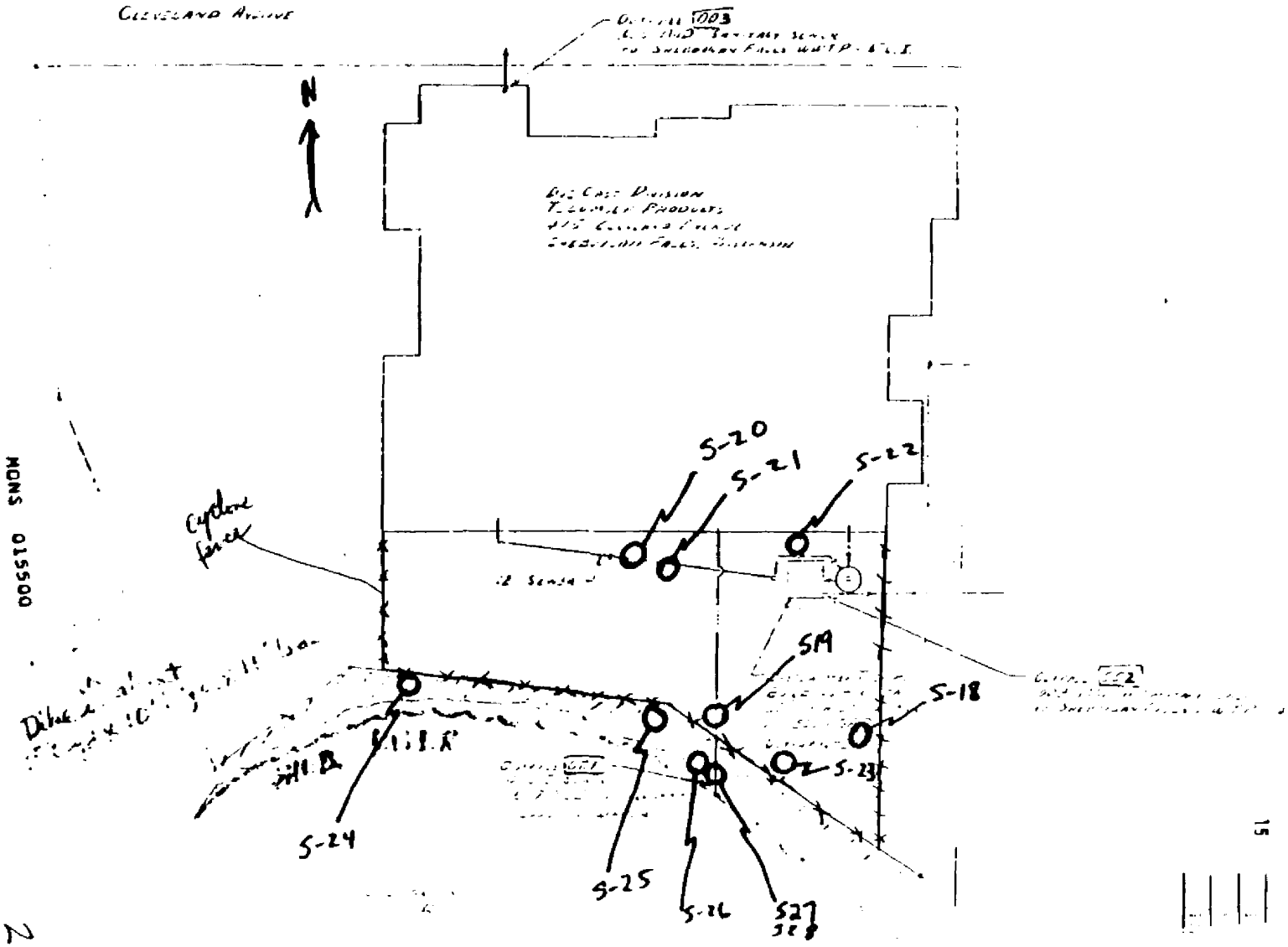
Figure 2.
SOIL SAMPLE LOCATIONS AT TECUMSEH PRODUCTS COMPANY



Subsequent to the discovery of highly contaminated PCB waste deposits at the Tecumseh Products site, the Department of Natural Resources issued an order on May 12, 1978 banning further disposal of solid waste on Tecumseh property (Appendix 7). On June 21, 1978 the Department issued a second order requiring the excavation, collection and proper storage of all materials likely to contain PCBs from the dike on the Sheboygan River behind the Tecumseh Plant. PCB-containing materials include oil absorbent material, scrap pressure hose, and oil soaked debris (Appendix 8).

On June 21, 1978 the Department together with the Department of Health and Social Services lifted the warning against fish consumption in the following sections of the river basin: the Sheboygan River from the Sheboygan Marsh to the Sheboygan Falls Dam, the Mullet River from Plymouth to the junction with the Sheboygan River at Sheboygan Falls and the Onion River from Waldo to Gibbsville. (Appendix 9).

However, the PCB warning will continue in the Onion River from Gibbsville to Sheboygan Falls, on the Sheboygan River from the Sheboygan Falls dam to the Coast Guard Station at Lake Michigan and on two tributaries of the Sheboygan--Weeden's Creek and Greendale Creek. The Onion, Weeden's Creek and Greendale Creek were included because they are accessible to migrating main channel fish.

Conclusions

1. Fish sampled in the Sheboygan River (and its tributaries, Weeden's Creek and Greendale Creek) downstream from the Sheboygan Falls dam, to its confluence with Lake Michigan are contaminated with PCBs well in excess of the FDA standard of 5 ppm. Fish in the Sheboygan River above the Sheboygan Falls dam, the Mullet River, and the Onion River are below the FDA tolerance level for PCBs.

2. Sheboygan River bottom sediment is contaminated with PCBs from the Sheboygan Falls dam downstream to its confluence with Lake Michigan. Bottom sediment from the Sheboygan River above the Sheboygan Falls dam, the Mullet River, and the Onion River contains low levels of PCB.

3. A survey of municipal and industrial PCB point sources indicates no significant PCB concentrations in effluent discharges to the drainage basin.

4. A survey of soil from the Tecumseh Products Aluminum Die-Cast property at Sheboygan Falls revealed a significant source of PCBs to the Sheboygan River. This source is highly contaminated solid waste deposited adjacent to the Sheboygan River.

5. The highest levels of PCB detected in fish and river bottom sediments in the Sheboygan River System occur in the reach from the Tecumseh property downstream to Lake Michigan.

Recommendations of the Technical Committee

Based on available data, the Technical Committee for the Sheboygan River PCB Investigation recommends:

1. The PCB consumption advisory of April 21, 1978 should continue on the Onion River from Gibbsville to Sheboygan Falls, on the Sheboygan River from the Sheboygan Falls dam to the Coast Guard Station at Lake Michigan, and on two tributaries of the Sheboygan--Weeden's Creek and Grasndale Creek. This recommendation was implemented on June 21, 1978.

2. The Department of H&SS and DNR should lift the fish consumption advisory of April 21, 1978, on the Mullet River, the Onion River from Waldo to Gibbsville, and on the Sheboygan River above the Sheboygan Falls Dam because fish from these locations are below the 5 ppm tolerance level for PCBs established by FDA. This recommendation was implemented on June 21, 1978.

3. The Department of Natural Resources should expand its monitoring studies to include the following:

   A. Salmon and other migratory fish that enter the Sheboygan River should be tested for PCBs, and the results should be reported promptly to keep fishermen informed.

   B. A thorough and systematic river bottom sediment study should be conducted on the Sheboygan River from Sheboygan Falls to Sheboygan Harbor to estimate the amounts of PCBs in river sediments.

   C. Monitoring studies for PCBs and other Toxic Substances should be continued on other river systems of the State, particularly the streams passing through industrial areas.

   A special budget appropriation of $34,100 has been made by the Joint Finance Committee of the legislature to implement these expanded studies. The appropriated funds will cover the cost of these studies through July 1, 1979.

4. A Formal Proposal should be written and submitted in the DNR budget to provide continued support for item 3 after the 1 year appropriation runs out. The total cost of implementing the three studies in item 3 will be approximately $78,000 for fiscal year 1980, and $82,000 for fiscal year 1981. It is essential that this program be budgeted on a continuing basis beyond the 1978 special appropriation.

5. The Tecumseh Products Company and the City of Sheboygan Falls should expediously remove PCB wastes from their property along the bank of the Sheboygan River. An immediate clean up of the entire property should proceed and contaminated wastes properly stored until an approved suitable disposal site becomes available. The U.S. EPA has licensed only one PCB disposal site in the U.S. as required by the February 17, 1978 Federal Register. This site is located in Alabama. The Committee recommends that Secretary Earl assign the Bureau of Solid Waste Management the responsibility of coordinating with EPA to ensure that additional disposal sites for PCBs be licensed to handle the PCB wastes which will be generated in Wisconsin and other states.

   At this time Tecumseh is proceeding with the clean-up as specified in the Department's Order of June 21, 1978. Contaminated wastes from the dike are being placed in sealed drums and stored according to State and Federal regulations until a suitable disposal site becomes available.

PCB ANALYSIS ON LAKE MICHIGAN FISH
COLLECTED OFFSHORE FROM SHEBOYGAN

Lake Michigan Samples

											PPM - %	
										length	PCB	FAT
290	60	LK MICH	SHEBOYGAN#1502	05/14/75	HYG*	70169	BROWN TROUT		F	13.4	.003	04.0
290	60	LK MICH	SHEB BEACH STH	07/24/75	HYG	56367	BROWN TROUT		F	19.6	05.1	12.2
290	60	LK MICH	SHEBOYGAN#1502	05/15/75	HYG	70168	BROWN TROUT		F	24.4	03.4	0015
290	60	LK MICH	SHEBOYGAN#1502	05/14/75	HYG	70159	LAKE TROUT		F	12.2	0.50	01.1
290	60	LK MICH	SHEBOYGAN#1502	05/14/75	HYG	70160	LAKE TROUT		F	16.7	02.4	04.3
290	60	LK MICH	SHEBOYGAN#1502	05/14/75	HYG	70146	LAKE TROUT		F	19.5	01.8	06.0
290	60	LK MICH	SHEBOYGAN#1502	05/14/75	HYG	70147	LAKE TROUT		F	20.0	0.09	05.3
290	60	LK MICH	SHEBOYGAN#1502	05/25/75	HYG	70165	LAKE TROUT		F	20.4	09.0	12.1
290	60	LK MICH	SHEBOYGAN#1502	05/15/75	AG**	13944	LAKE TROUT		F	21.8	04.4	10.0
290	60	LK MICH	SHEBOYGAN#1502	05/15/75	AG	13945	LAKE TROUT		F	25.9	10.6	17.4
290	60	LK MICH	SHEBOYGAN#1502	05/14/75	AG	13946	LAKE TROUT		F	28.7	18.2	21.0
290	60	LK MICH	SHEB BEACH	07/24/75	HYG	56368	CARP		F	23.8	02.8	09.5
290	60	LK MICH	SHEB BEACH NTH	07/22/75	HYG	57166	CARP		F	24.2	28.0	08.0
290	60	LK MICH	SHEB BEACH NTH	07/22/75	HYG	57170	CARP		F	30.5	12.0	22.0
290	60	LK MICH	SHEBOYGAN#1503	05/14/75	HYG	70154	BLOATER CHUB		F	10.7	0.25	04.5
								AVERAGE			6.57	10.6
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05533	5 ALEWIFES		EP		03.4	04.0
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05534	3 W SUCKER		F	14.7	22.0	02.4
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05536	3 WHITEFISH		F	17.0	07.7	05.4
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05535	BROOK TROUT		F	12.5	07.8	04.8
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05540	K TROUT		F	17.8	05.4	10.1
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05542	2 BR TROUT		F	18.3	06.3	12.6
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05543	2 BR TROUT		F	19.7	05.1	15.3
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05541	BROWN TROUT		F	29.0	12.0	12.0
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05539	LAKE TROUT		F	22.7	07.9	12.2
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05538	LAKE TROUT		F	31.0	25.0	12.1
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05532	COHO SALMON		F	18.4	26.0	05.7
290	60	LK MICH	SHEBOYGAN HARB	06/24/76	HYG	05537	CHINOOK		F	34.5	11.0	02.4
								AVERAGE			11.6	8.26
290		LK MICH	10 MI SE SHEB	04/19/77	HYG	67539	5 CHUBS		WF	08.7	02.0	04.9
290		LK MICH	10 MI SE SHEB	04/19/77	HYG	67538	5 CHUBS		WF	09.5	01.8	07.3
290		LK MICH	10 MI SE SHEB	04/19/77	HYG	67536	5 CHUBS		WF	10.0	01.5	11.5
290		LK MICH	10 MI SE SHEB	04/19/77	HYG	67535	5 CHUBS		WF	10.3	02.6	13.3
290		LK MICH	10 MI SE SHEB	04/19/77	HYG	67534	5 CHUBS		WF	11.1	01.7	15.5
290		LK MICH	10 MI SE SHEB	04/19/77	HYG	67537	5 CHUBS		WF	12.0	02.3	13.3
								AVERAGE			1.98	10.9

*State Laboratory of Hygiene
**State Department of Agriculture Laboratory

APPENDIX 1

MQNS 015503

INFORMATION

DEPARTMENT OF NATURAL RESOURCES
Box 7921 Madison, WI 53707

MADISON, WI--No fish taken from the lower Sheboygan River watershed should be eaten until further notice because of "extremely high" PCB contamination Department of Health and Social Services (HSS) and Department of Natural Resources (DNR) officials warned today.

In a joint release today HSS Secretary Donald Percy and DNR Secretary Anthony S. Earl warned the public to stop eating fish taken from the Sheboygan River between Sheboygan Marsh Dam and the coast guard station at Lake Michigan, the Onion River from Waldo Dam to its junction with the Sheboygan River, and the Mullet River between lower Mill Pond Dam at Plymouth and its junction with the Sheboygan, until additional test results explain the PCB contamination. Approximately 129 river miles are included in the warning.

The levels of polychlorinated biphenyls (PCBs) discovered through routine fish testing "are greater than anything we've discovered before," according to Stanton Kleinert, who directs DNR's hazardous substance surveillance.

Health officials said that they are concerned about long-lasting, lifetime exposures to PCBs rather than any short term exposure.

An annual warning in Wisconsin's fishing regulations asks the public to eat only one meal a week (1/2 pound) of fish from certain waters, including Lake Michigan, because of high PCB content. This advisory further recommends that lactating mothers, expectant mothers, females who anticipate bearing children, and children less than six-years-old not eat these fish. Federal regulations prohibit the sale of fish with higher than 5 parts per million (ppm) PCB concentration.

In testing on the lower Sheboygan River at Kiwanis Park, however, DNR found an average of 126 ppm PCBs in 13 fish samples. Researchers found an average of 59 ppm in northern pike, 28 ppm in suckers, 241 ppm in walleye, 38 ppm in bullheads, 8.3 ppm in coho salmon, and one catch of carp containing 750 ppm PCBs. The levels are the highest recorded in live fish sampled in Wisconsin.

(more)

Kleinert said the DNR was initiating an investigation to determine the source of the contamination but, at present, "there are few leads," Kleinert said.

"We are not certain where the pollution is coming from," the official said. "Several weeks will be required to complete our investigation. We will be concentrating our efforts on testing river waters and river sediments to pin down the source or sources of contamination. We will also be testing many fish samples from various locations in the river system."

DNR Secretary Anthony Earl ordered reassignment of toxic investigators and fish management specialists onto the case, saying "this effort demands the prompt attention of personnel with diverse skills whose cooperation is essential to protect the public health and natural resource."

Earl notified HSS Secretary Donald Percy of the discovery, which came about through a routine, cooperative program between the DNR's fish management and water quality personnel.

The DNR Secretary also ordered notification of local officials, sportsmen's organizations, local news media and others of the existing problem. Affected areas will be posted with health warnings until the problem is resolved.

Elevated PCB levels were first detected by routine test results in March. DNR toxic substances specialists ordered immediate additional testing at several sites to verify the PCB problem.

More testing for PCB concentrations and the source or sources of the contaminant will have to wait at least one week according to Kleinert. He said previous rains will probably keep the river at flood stage at least that long.

"Flood waters make it difficult to trace down PCBs because we can't easily sample fish and the diluted water makes it tougher to track down the source," he said.

DNR researchers face a tough job in locating the source of the PCB buildup, he said. The toxin could be buried in riverbed sediments or seeping in from neighboring industries, or landfills, which will require extreme checking.

(more)

Researchers will test sediment core samples, water, land sites, and fish to try and pinpoint the PCB problem. Four sewage treatment plants and four industries have already been tested with inconclusive results. Many more sites along the river will be tested.

PCBs concentrate in fatty tissues of fish which are exposed to the pollutant over a long time period.

"Smelt and stream trout which many anglers are now fishing probably won't contain high concentration of PCBs," Kleinert said, "but why take the chance until we know more from our testing. We hope this is a localized problem confined to fish which live the entire year in the lower Sheboygan River system. We have not seen these excessive levels in lake-run fish which don't live in the river for long periods of time."

Tests show that large, fatty fish like carp, salmon, and lake trout concentrate more PCBs than leaner fish like stream trout and smelt. In previous studies, Lake Superior smelt measured 0.3 ppm PCBs, Green Bay smelt had 3 ppm PCBs and Lake Michigan smelt contained 0.6 ppm PCBs. Experienced anglers know that careful trimming of back, belly, and side fat can remove some of the PCBs from infected fish.

Human health effects from PCB exposure, especially long term, low level exposures from eating infected fish, are not clearly understood. U.S. workers who received long term occupational exposures to PCBs developed skin rashes. Similar long term tests in rats and monkeys produced liver tumors, skin lesions, and reproductive impairment. That's why the Food and Drug Administration considers continual exposure to PCBs a health risk.

PCBs were manufactured in the U.S. from 1929 to 1966 before any deliterious effects were noticed. The compounds are highly stable -- nonflammable; resistant to heat, acids, and bases - therefore, they had many industrial uses. PCBs have been used as dielectric fluids in transformers and capacitors, electrical wiring insulation, plasticizers, hydraulic fluids, lubricants, sealants, molding waxes, epoxy paints, and in many other

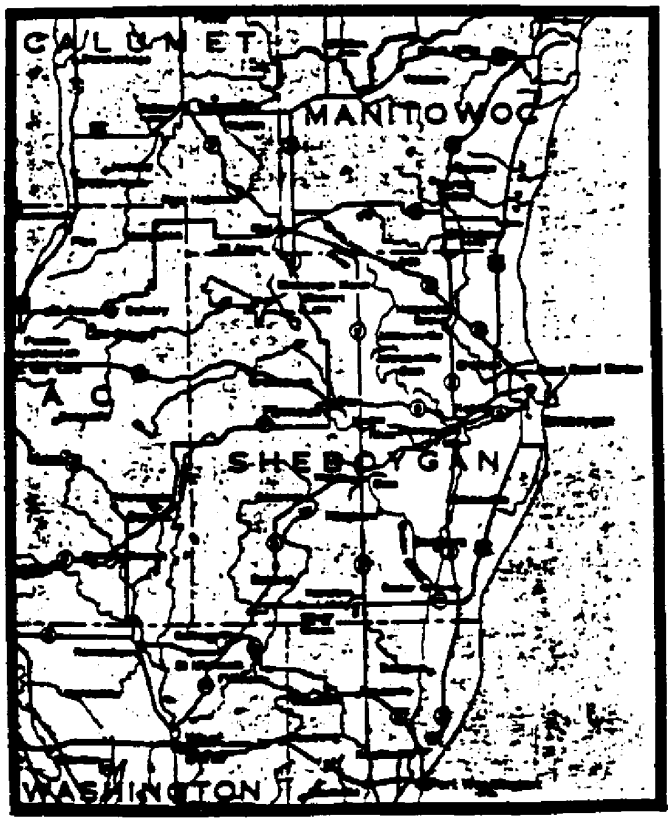
(more)

products. The chemical can enter the water from fallout, by vaporizing, through incineration, leaching from landfills, sludge disposal, treated sewage effluent, and accidental spills.

"It takes a continuing, careful monitoring effort throughout the state to discover toxic concentration like this in areas where we have not expected to find these problems," Kleinert said. The DNR provides its fish testing data to the Department of Health and Social Services which reviews the data and makes public health recommendations on PCB-contaminated fish. PCB warnings for some fish in specified Wisconsin locations are listed on page 22 of the 1978 fishing regulations.

Contact: Stan Kleinert, DNR Director of Surveillance
(608) 266-7721

Ivan Lum, Acting Director, HSS Bureau of Prevention
(608) 266-2348



APPENDIX 2 (Cont)

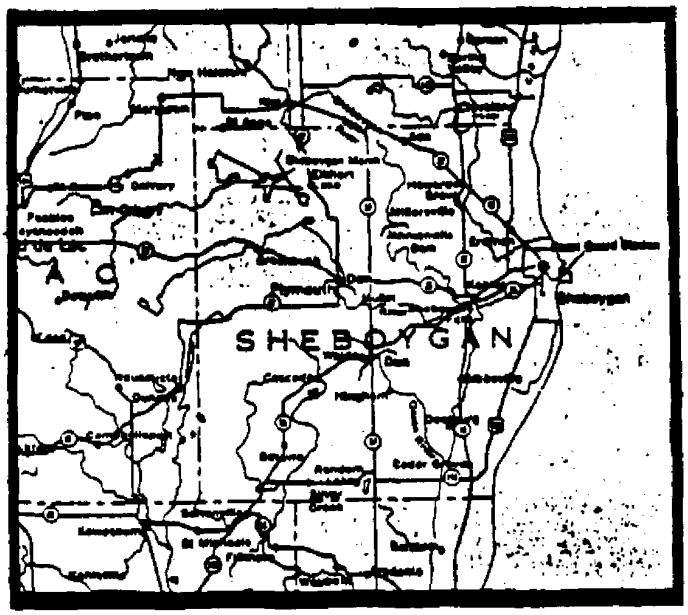
WARNING

Wisconsin Department of Natural Resources water quality sampling has identified PCB's (polychlorinated biphenyls) in fish in this area. Based on this information, the Wisconsin Department of Health and Social Services recommends that the public not eat fish caught in the following waters until further notice:

Sheboygan River—From the Sheboygan Marsh Dam to the Coast Guard Station in Sheboygan.

Mullet River—From the lower mill pond dam, Plymouth, to the junction with the Sheboygan River.

Onion River— From the Waldo mill pond dam to the junction with the Sheboygan River in Sheboygan Falls.



Anthony S. Earl,
Secretary
Department of
Natural Resources

April 21, 1978

APPENDIX 3

MONS 015508

2

CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

Date: May 4, 1978

File Ref: 3210-3

To: Stan Kleinert - 10
Tom Sheffy - 10
Jim Addis - 6
Lloyd Lueschow - 14
Jeff Bode - SE Dist.
Paul Shultz - SE Dist.
Joe Delfino - Lab. of Hygiene

From: Anthony S. Earl

Subject: Technical Committee for the Sheboygan River PCB Investigation

I am requesting your participation on a technical committee to review the data that is being gathered in the Sheboygan River Investigation. By copy of this letter, I am also asking that Dr. Delfino of the Laboratory of Hygiene be a member of the committee.

Stan Kleinert will act as the committee chairman and the first meeting will be held in Room 1306 of the Pyare Square Building at 9:30 a.m., on Monday, May 22, 1978. If you are unable to attend, please send an alternate.

The Surveillance Section will be responsible for assembling the investigation findings into a report. Each of you as members of the technical committee will be requested to review the report prior to its release by the Department. We hope this investigation will proceed as swiftly as possible and the report can be issued by the target date of July 1, 1978.

SJK:km

APPENDIX 4

MONS 015509

AO-75

COLLABORATIVE STUDY OF PCB IN FISH

Wisconsin State Laboratory of Hygiene

Wisconsin Department of ATCP
Bureau of Laboratory Services

May 1978

Laboratory Number SLH	ATCP	PCB, concentration (ug/g) SLH	ATCP 1	ATCP 2	Fat, percent SLH	ATCP
71105	6805	333	335	306	9.5	10
71106	6806	970	848	839	16.3	16.9
71107	6807	2	2.5	2.1	11.2	10.8
68119	6810	15	10.3	9.1	9.5	9.4
68120	6811	17	16	13.8	10.7	10.9
68121	6812	16.5	16.6	13.3	15.4	15.2

METHODS

STATE LABORATORY OF HYGIENE	Handbook of Procedures for Pesticide Residue Analysis, US Dept of Interior, Fish and Wildlife Service, August 1972.
Dept. of ATCP 1	Pesticide Analytical Manual (PAM) 211.13 F, JAOC (Vol. 56, No. 4, 1973), Bulletin of Environmental Contamination and Toxicology, Vol. 7, No. 2, 1972.
Dept. of ATCP 2	PAM 211.13 F, 211.14 A, 211.14 D, 211.15 D, 330

MDNS 015510

Appendix 5

SHEBOYGAN RIVER

Table 1: Sediment Sampling Locations

Sample Number	Sample Location	Sample Site Access	Reach	Sample Type	Sample Taken
SHE 1	Upstream Johnsonville Dam	STH 23 to CTH M to CTH JM	D	Composite	Grab
SHE 2	Upstream Sheboygan Falls Dam	STH 28 to STH 32	D-C	Composite	Composite
SHE 3	Upstream Kohler Dam	STH 28	C-B	Composite	Grab
SHE 4	Upstream U.S.G.S. Station	STH 28 & U.S. 141	B-A	Grab	Grab
SHE 5	Downstream 14th St. to 8th St., Sheboygan	STH 28 to N. 14th to 8th St.	A	Composite	Composite Start Sampling at Penn Ave.
SHE 6	Onion River above Confluence with Sheboygan River	STH 28 to CTH EE	Trib.	Grab	Grab
SHE 7	Mullet River above Confluence with Sheboygan River	CTH PP to Willow Road	Trib.	Grab	Grab
SHE 8	Mullet River below Plymouth STP	CTH PP to CTH AC	Trib.	Composite	Composite
SHE 9	Mullet River upstream Plymouth Dam	CTH AC to STH 23	Trib.	Composite	Composite
SHE 10	Kohler Landfill Point Source Composite	STH 28 at U.S. Geological Survey	Point Source	Composite	Composite

Appendix 6

SHEBOYGAN RIVER
Sediment Survey - April 27, 1978
Field Data

Sample Time	Sample Type (Grab or Composite)	Sample Site	Sampling Depth Approx. Feet	Sample Color	Sample Texture	Sample Odor	Type of Benthic Organisms Present	Other Remarks
Sampling Site 1								
19:30	Sediment grab	10 ft. from left bank, 30 yds. upstream of dam	2 ft.	Black	Mucky, very wet sample	Septic-type smell	None	Lots of detritus in sediment-Rt. bank gravel
21:00	Water sample grab		Surface					
Sampling Site 2								
15:15	Sediment grab	100 yds. upstream of dam, rt. bank #2, 1	4 ft.	Brown & grey	Muck & fine sand	Natural decaying smell	None	Oil present in sediment sample
15:25	"	250 yds. upstream of dam, rt. bank #2, 2	3 ft.	"	" "	" "	"	Detritus in sample
15:30	Water sample grab	100 yds. upstream of dam	Surface					
Sampling Site 3								
14:25	Grab sediment	7 ft. from rt. bank	2 ft.	Grey & brown	Sandy, some muck, medium coarseness	Organic odor	None	Detritus, oil in sediments
14:35	Grab sediment	" "	"	"				
14:40	Water sample grab	Mid-stream	Surface					Water turbid, high in suspended solids

Appendix 6 (con't)

MONS 015512

2

SHEBOYGAN RIVER
Sediment Survey - April 27, 1978
Field Data

Sample Time	Sample Type (Grab or Composite)	Sample Site	Sampling Depth Approx. Feet	Sample Color	Sample Texture	Sample Odor	Type of Benthic Organisms Present	Other Remarks
Sampling Site 4								
13:25	Sediment grab	5 ft. from right bank, 1/4 mi. upstream of U.S.G.S. gaging station at Hwy. 28	4 ft.	Grey & brown	Sandy, medium coarseness, detritus	Natural decaying odor	No benthic organisms present	Observed several dying bullheads
13:30	Water grab	10 ft. from left bank, 1/4 mi. upstream of U.S.G.S. gaging station at Hwy. 28	Surface					Water turbid, high in suspended solids
13:45	Water grab	At U.S.G.S. gaging station	Surface					Water turbid, high in suspended solids
Sampling Site 5								
10:15	Sediment grab	30 ft. from left bank, Site #5, 1	7 ft.	Greyish brown	Mucky, some sand, fine detritus	Natural decaying odor	No benthic organisms	Used rubber gloves to handle sample oil in sample (1/10th of total sample)
10:30	Sediment grab	50 ft. from rt. bank, Site #5, 2	11 ft.	Greyish brown	Muck, 50% sand Detritus	Natural odor	Few Oligochaetes present	Some oil in sample
10:35	Sediment Grab	30 ft. from left bank, Site #5, 3	8 ft.	Greyish brown	Muck Fine sand 50%	Fishy odor	No Oligochaetes	Water turbid
10:45	Sediment Grab	45 ft. from left bank, Site #5, 4	8 ft.	Greyish brown	Muck sand	Fishy odor	Few Oligochaetes	Granular or more coarse type sand

MCNS 01513

SHEBOYGAN RIVER
Sediment Survey - April 27, 1978
Field Data

Sample Time	Sample Type (Grab or Composite)	Sample Site	Sampling Depth Approx. Feet	Sample Color	Sample Texture	Sample Odor	Type of Benthic Organisms Present	Other Remarks
Sampling Site 6 - Onion River								
15:45	Sediment grab	50 ft. upstream of CTH EE, 5 ft. from left bank	3 ft.	Light brown	Wet, clayey	Fishy odor	None	High amount of clay, bank erosion, right bank sandy bottom
	Water sample grab	Mid-stream	Surface					Water turbid
Sampling Site 7 - Mullet River								
16:30	Grab Sediment	50 ft. downstream from CTH FF, 5 ft. from left bank	3 ft.	Light brown	Muck sand	Decaying odor		Sandy bottom in most of stream
16:20	Grab water sample		Surface					Dead algae on water surface (mats), water turbid, Richardsons Furniture factory upstream
Sampling Site 8 - Plymouth WWTP								
16:45	Sediment grab	Mullet River below Plymouth WWTP 25 ft. upstream from CTH AC bridge, 3 ft. from left bank. Sample #8, 1	2.5 ft.	Light brown	Very sandy, muck	Natural odor	None	Floating dead algae mats, frog
17:00	Sediment grab	60 ft. upstream from bridge, 1.5 ft. from left bank. Sample #8, 2	1.5 ft.	Light brown	Very sandy, muck	Natural odor	None	Water not very turbid, sandy bottom

MONS 015514

Appendix 6 (con't)

2

SHEBOYGAN RIVER
Sediment Survey - April 27, 1978
Field Data

Sample Time	Sample Type (Grab or Composite)	Sample Site	Sampling Depth Approx. Feet	Sample Color	Sample Texture	Sample Odor	Type of Benthic Organisms Present	Other Remarks
17:00	Water sample grab	Plymouth Wastewater Treatment Plant Outfall						Sample taken at Plymouth WWTP Water clear
Sampling Site 9								
17:45	Sediment composite	All sediment samples taken 100 yd. upstream of Plymouth Dam	3 ft.	Black	Fine muck	Organic odor	None	Pond algae floating on surface
		1st sample 20 ft. off rt. bank Sample #9, 1	3 ft.	Black	Fine muck	Organic odor	None	Very turbid water, fish jumping out of water
		2nd sample 50 ft. off left bank Sample #9, 2	3 ft.	Black	Fine muck	Organic odor	None	
18:00	Water sample grab	Taken at water surface at dam spillway						Some oil observed in water sample
Sampling Site 10 Kohler Landfill Point Sources								
13:00	Shovel grab sediment and grab water sample	KLF-1 ≈ 50 ft. upstream U.S. Geological Survey Gaging Station (USGS)	1 in.	Brown	Wet, muck sand	None	None	Point source, 20% of water sample taken here
13:05	Shovel grab sediment	KLF-3 ≈ 500 ft. upstream of USGS, at dead tree	1/2-1 in.	Dark brown	Dry soil; i.e. top soil	None	None	Point source

Appendix 6 (cont.)

MONS 015515

SHEBOYGAN RIVER
Sediment Survey - April 27, 1978
Field Data

Sample Time	Sample Type (Grab or Composite)	Sample Site	Sampling Depth Approx. Feet	Sample Color	Sample Texture	Sample Odor	Type of Benthic Organisms Present	Other Remarks
13:10	Shovel grab sediment	KLF-4 Opening in berm to stream, ≃ 800 ft. upstream USGS, landfill culverts drain to area behind berm	1/4 in.	Light brown surface, reddish brown below surface	Dry mud surface, below surface 75% sandy	None	None	Point source
13:15	Shovel grab sediment	KLF-5 - Opening in berm, ≃ 900 ft. upstream USGS, drains landfill culvert and pond	1/2 in.	Brown	Wet muck, sand	None	None	Point source, 80% of water sampled here

NONS 01551b

Appendix 6 (con't.)

2

Sheboygan River Sediment Survey
April 27, 1978
Supplemental Field Information

Sediment sampling survey conducted on the Sheboygan River April 27, 1978; had mild weather condition with temperatures ranging in mid fifties. Cloud cover was 0% with sunny skies. Winds were out of the northeast at 0-5 mph. These conditions prevailed throughout the duration of the sampling period.

Sampling Site 1: Johnsonville Meats - landfill material encroaching on stream bank at the Johnsonville Meat Store on the Sheboygan River; odor coming from Johnsonville Meats.

Sampling Site 2: Sample #2, 1 taken 100 yards upstream of Sheboygan Falls dam at Highway 32, 10 ft. from right bank. Sample #2, 2 taken 250 yards upstream of dam, 10 ft. from right bank. Samples #2, 1 and #2, 2 composited to make one sediment sample (50%) each. Left side of river mostly gravel and stone.

Sampling Site 3: River bed almost entirely gravel and rock, water turbid, weather conditions same as Site 5. Site 3 located ≈ 1/2 mile upstream of Kohler dam.

Sampling Site 4: Stream reach from Esslingen Park to the USGS gauging station at Hwy. 28 was all rubble and gravel bottom. Current too swift for boat and engine to go upstream. No samples taken. Sediment sample taken 1/4 mi. upstream of USGS gauging station, 5 ft. from left bank. Several dying bullheads seen in water. Water very turbid.

Sampling Site #5: Weather conditions, sunny; 0% cloud cover; winds 0-5 mph NE.

Sampling Site #5, 1: Taken 30 ft. off of left bank, approximately 150 feet downstream of Pennsylvania Avenue Bridge in City of Sheboygan.

Sampling Site #5, 2: Taken 50 ft. off of right bank, 300 yards downstream of Pennsylvania Avenue Bridge, midway between blue boat house.

Sampling Site #5, 3: Taken 30 ft. from left bank, 350 yards downstream of Pennsylvania Avenue Bridge.

Sampling Site #5, 4: Taken 45 feet from left bank, 450 yards downstream of Pennsylvania Avenue Bridge.

Samples taken at Site 5 were composited to make 1 sediment sample; Sample #5-1, 10% of total sample; Sample #5-2, 25% of total sample; Sample #5-3, 55% of total sample; and Sample 5-4, 20% of total sample. Sampling ended at the 8th Street Bridge, where an oil film was observed floating on the water.

Sampling Site 8: Sample #8, 1 taken 25 ft. upstream of bridge at CTH AC. Sample #8, 2 taken 60 ft. upstream of bridge at CTH AC. These 2 samples were combined to make 1 sediment sample (50% each).

Sampling Site 9: Samples #9, 1 and #9, 2 at Plymouth Dam were composited to make 1 sediment sample (50% each). Sediment here was a very fine organic silt or muck.

Sampling Site 10: Water samples only taken at Sites #10-1 and #10-5; other sites did not have flowing water.

SHEBOYGAN RIVER

Table 2: Sediment Sampling Locations II

Sample Number	Sample Location	Sample Site Access	Sample Taken
SHE 11	Kiwanis Park from boat launch pier.	Kiwanis Park Ave. in City of Sheboygan	Grab
SHE 12	Kohler landfill upstream of U.S.G.S. Station.	STH 28 & U.S. 141	Composite made up of 4 grabs
Site 13	50 yds. upstream of Kohler Dam	STH 28	Grab
Site 14,15,16,17	Tecumseeh Products Co., Sheboygan Falls	Cleveland Ave.	Grabs

Appendix 6 (con't)

MONS 015519

SHEBOYGAN RIVER
Sediment Survey II - May 9, 1978
Field Data

Sample Time	Sample Type (Grab or Composite)	Sample Site	Sampling Depth Approx. Feet	Sample Color	Sample Texture	Sample Odor	Type of Benthic Organisms Present	Other Remarks
Site 11								
11:00	Sediment grab	Kiwanis Park boat launch on Kiwanis Park Ave. Sample taken at end of pier about 25 feet from lt. bank	2.5 ft.	Grayish Brown	Silty with fine sand	Organic decaying odor some oily smell	Oligochaete present	Some oil in sample. Drizzling rain - water turbid
Site 12 Kohler Landfill								
11:35	Shovel grabs of sediment leachate to make 1 sediment composite	KLF about 500 ft. upstream of U.S.G.S. at dead tree	1/2"-1"	Reddish Brown, Gray-Brown, Gray-Black	Fine soil sand & silt	Septic odor some oily smell	None	Kohler landfill 4 samples 25% each to make 1 composite sample U.S.G.S. reading 3.79
Site 13								
11:50	Sediment grab	40 yds. upstream of Kohler Dam 2-1/2 ft. off of lt. bank	1-1/2 ft.	Brown, Gray-Black	Silt & muck, some fine sand	Very organic decaying odor	None observed	Some oil in sample, water turbid
Site 14 at Tecumseh Products								
12:00	Shovel grab from berm	Behind Tecumseh Product on Cleveland Ave., Sheboygan Falls berm between river & building-20 ft. from river mid-length of building	Surface to 6" below surface	Brown, Whitish-green	Sandy & coarse	Strong chemical odor	None	Chemical odor - oxidizing material in sample oil dry or speedy dry material-aluminum pieces in sample & other scraps

MONS 015520

SHEBOYGAN RIVER
Sediment Survey II - May 9, 1978
Field Data

Sample Time	Sample Type (Grab or Composite)	Sample Site	Sampling Depth Approx. Feet	Sample Color	Sample Texture	Sample Odor	Type of Benthic Organisms Present	Other Remarks
Site 15								
12:20	Grab sample sediment from river	70 yds. upstream of Tecumseeh Products outfall 3 ft. from lt. bank	6"	Brown & Black	Silty & muck organic detritus	Hydrogen sulfide odor	None	Water turbid-a lot of dead crayfish shells. Large amount of debris along banks
Site 16								
12:35	Shovel grab sediment	100 ft. downstream of Tecumseeh Products outfall 1 ft. from lt. bank	3"	Brown	Watery, sandy	Natural decaying odor	No benthics present	Watery sample
Site 17								
12:40	Shovel grab from berm	Behind Tecumseeh Products	Surface to 6" below surface	Brown, Whitish-green	Sandy, gravel or coarse	Chemical smell	No benthics present	Oil dry or speedy dry material present. Scrap aluminum present in sample & white crystal material

Appendix 6 (cont.)

MCNS 015521

Sheboygan River Sediment Survey II
May 9, 1978
Supplemental Field Information

A second sediment sampling survey was conducted on the Sheboygan River on May 9, 1978. Weather conditions were moderate with temperatures ranging in the high forties to mid-fifties. A slight amount of precipitation (rain) occurred in the morning, ending by noon. Sky conditions were 100 percent overcast with winds out of the east, northeast from 15-20 miles per hour (mph), gusting to 35-40 mph. These conditions prevailed throughout the duration of the survey period.

Site 12

At Kohlers landfill, four (4) shovel grab samples were taken of landfill leachate and combined to make one sediment sample (25% of each). Samples were taken approximately 500 feet upstream of U.S.G.S. at dead tree.

Site 14, 15, 16, 17

These sampling sites were in the vicinity of the Tecumseh Products Co.

Samples 14 and 17 were samples taken from the berm built up between the river and building. Both samples had aluminum scraps in them, a whitish-green crystalline like substance, made up of speedy dry material, and had a heavy chemical odor. The berm had apparently been built from waste products of the company and used as fill material.

Samples 15 and 16 were upstream and downstream sediment samples from the river, respectively. The upstream sample was approximately 70 yards from the Tecumseh Products outfall. The downstream sample was 100 feet from the outfall.

Appendix 6 (con't)

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Anthony S. Earl
Secretary

BOX 7921
MADISON, WISCONSIN 53707

May 12, 1978

IN REPLY REFER TO: 4530

Mr. Dee Sherman, Plant Manager
Diecast Division of Tecumseh Products Company
415 Cleveland Street
Sheboygan Falls, Wisconsin 53085

Honorable Gladys Morken
Mayor of Sheboygan Falls
Municipal Building
Sheboygan Falls, Wisconsin 53085

Dear Mr. Sherman and Mayor Morken:

Enclosed is a special order issued by the Department of Natural Resources relating to operations of your solid waste management facilities.

This order is issued pursuant to Section 144.35, Wisconsin Statutes, and Chapter NR 151, Wisconsin Administrative Code. It is based on a field investigation and finding that your solid waste management operations are not in full compliance with State standards.

If a public hearing on this order is desired, written notice must be given to the Department no later than 10 days after the date the notice and order are served.

Should the order become delinquent, your attention is directed to Section 144.536 and Section 144.57, Wisconsin Statutes, which provide for enforcement of the order by the Attorney General and forfeitures of from $10 to $5,000 per day for each day of violation, failure or refusal to obey the provisions of the order.

If you have any questions with regard to this matter, please contact Mr. Kermeit Schultz, Asst. Director, Southeast District Headquarters, 9722 West Watertown Plank Road, Milwaukee, Wisconsin 53226.

Sincerely,

Andrew C. Damon
Deputy Director

Enc.
cc: Tecumseh Products Company
Tecumseh, Michigan 49286

APPENDIX 7

MONS 015523

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Anthony S. Earl
Secretary

BOX 7921
MADISON, WISCONSIN 53707

IN REPLY REFER TO: 4530

May 12, 1978

Tecumseh Products Company; and
City of Sheboygan Falls

Order Number 2A-78-1190

FINDINGS OF FACT

THE DEPARTMENT FINDS:

1. That the Diecast Division of Tecumseh Products Company, 615 Cleveland Street, Sheboygan Falls, Wisconsin operates an aluminum diecasting plant located in the NW 1/4 of the SE 1/4, Section 36, T15N, R22E, Sheboygan County, Wisconsin.

2. That a dike is located between the diecasting plant and the Sheboygan River.

3. That on information and belief the dike is owned by Tecumseh Products Company and is maintained by Tecumseh Products Company and/or the the City of Sheboygan Falls.

4. That the dike and the property between the dike and the diecasting plant are within the floodplain of the Sheboygan River.

5. That solid waste materials have been deposited on the dike and in areas directly adjacent to the plant on property owned by Tecumseh Products Company.

6. That those solid waste materials contain significant concentrations of polychlorinated biphenols.

7. That concentrations of polychlorinated biphenols have been found in fish in the Sheboygan River, well in excess of United States Food and Drug Administration tolerance levels.

8. That because of these significant concentrations of polychlorinated biphenols in fish tissue, the Department of Natural Resources in conjunction with the Department of Health and Social Services has advised consumers not to eat fish taken from the Sheboygan River until further notice.

APPENDIX 7 (Con't)

2

CONCLUSION OF LAW

1. That Section 144.44, Wisconsin Statutes, and Chapter NR 151, Wisconsin Administrative Code, prohibit disposal of solid waste except in a licensed landfill facility.

2. That Section 144.50, Wisconsin Statutes, and Chapter NR 157, Wisconsin Administrative Code, establish criteria for proper storage, transportation and disposal of polychlorinated biphenols and products containing polychlorinated biphenols.

ORDER

1. That Tecumseh Products Company discontinue any disposal of solid waste material except at a licensed solid waste disposal facility.

2. That any solid waste materials containing polychlorinated biphenols be stored, transported and disposed of in conformance with the provisions of Section 144.50, Wisconsin Statutes and Chapter NR 157, Wisconsin Administrative Code.

3. That the City of Sheboygan Falls neither construct nor maintain any dikes in the floodplain of the Sheboygan River with materials which contain polychlorinated biphenols.

Dated at Madison, Wisconsin, this 12TH day of MAY, 1978.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By Andrew C. Damon
Andrew C. Damon, Deputy Secretary

cc: Southeast District

APPENDIX 7 (Con't)



DEPARTMENT OF NATURAL RESOURCES
Box 7921 Madison, WI 53707

MADISON, WI. -- The Department of Natural Resources has ordered an immediate halt to industrial waste dumping on a Sheboygan Falls site that toxic investigators say contains "substantial amounts" of PCB contaminants. Some samples exceeded 1% or 10,000 parts per million PCBs.

Stanton Kleinert, director of DNR hazardous substance surveillance, said the order affects the Diecast Division of Tecumseh Products Co. and the City of Sheboygan Falls, which maintains a dike adjoining the firm's property on the Sheboygan River.

Kleinert said it appears that industrial wastes used as fill and dike materials deposited in the river's floodplain are "an important source" of PCB contamination.

Tecumseh is located at 415 Cleveland Ave. The firm's land extends from Cleveland Avenue toward the river. A fence and 10-foot-wide dike separate the property from the Sheboygan River.

Rains or periodic flooding could have washed the PCB materials into the river and downstream, Kleinert said. Federal and state laws regulate floodplain use to protect life and property as well as to prevent uses incompatible with periodic flooding. Kleinert said PCBs could enter the river through runoff or seepage underground.

(more)

APPENDIX 7 (Con't.)

MONS 015526

2

one add

Three weeks ago, the DNR's discovery of "extremely high" PCB levels in Sheboygan River fish triggered an intensive environmental detective effort to find possible sources of contamination. Kleinert said that investigation would continue, as would an advisory not to eat fish in 129 miles of the Sheboygan, Mullet and Onion Rivers.

Deputy DNR Secretary Andrew Damon, who signed the Tecumseh order, said the agency also was asking the Attorney General for advice on whether other legal action was warranted against the firm or any other party.

The department found that "the dike and property between the plant and river are in the river's floodplain" and that waste materials containing "significant concentrations of polychlorinated biphenyls" were deposited in the area and on the dike.

The order directed Tecumseh, whose parent offices are in Tecumseh, Michigan, to "discontinue any disposal of solid waste material except at a licensed solid waste disposal facility." It specifically directed that PCB materials be disposed of in accordance with regulations governing that kind of toxic waste.

Kleinert said the PCB contamination was found in soils and solid waste material from plant property. Until 1971, hydraulic fluids and some industrial oils were manufactured with high concentrations of PCBs, which are highly stable, nonflammable and resistant to heat.

The department was particularly concerned that PCBs were incorporated in the dike and, therefore, the city was added to the order, according to Charles Hammer, a DNR attorney.

Kleinert said tests of the hydraulic fluid now being used by Tecumseh failed to show a PCB problem. He said further analysis of the area's wastes would continue and plans for remedial actions would be investigated.

(more)

two add

Kleinert emphasized that the DNR would continue its investigation throughout the area originally posted as having a potential PCB problem. "We will continue sampling fish, water and soil within the watershed until we feel we have a full understanding of the situation," he said. "A full report outlining sampling data, PCB sources and recommendations for the Sheboygan River Watershed is planned for July release."

Test results from four recent carp samples collected between the Kohler Dam and Sheboygan Falls show that filleted fish averaged 205 parts per million (ppm) of PCBs. Filleted fish have lower levels of PCBs than whole fish because fattier portions are trimmed.

Earlier testing at Kiwanis Park in Sheboygan found an average of 126 ppm in 13 samples.

The U.S. Food and Drug Administration prohibits sale of fish with higher than 5 ppm PCBs. An April 21st advisory against eating fish from a 129-mile portion of the Sheboygan River Watershed is still in effect.

For Further Information:
Stan Kleinert
(608) 266-7721

Charles Hammer, DNR Attorney
(608) 266-0024

5-15-78
ask

APPENIX 7 (Con't)

MONS 015528

2

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Anthony S. Earl
Secretary

BOX 7921
MADISON, WISCONSIN 53707

June 21, 1978

IN REPLY REFER TO: 4530

Mr. Dee Sherman, Plant Manager
Diecast Division of Tecumseh Products Company
415 Cleveland Street
Sheboygan Falls, Wisconsin 53085

Honorable Gladys Morken
Mayor of Sheboygan Falls
Municipal Building
Sheboygan Falls, Wisconsin 53085

Dear Mr. Sherman and Mayor Morken:

Enclosed is a special order issued by the Department of Natural Resources relating to operations of your solid waste management facilities.

This order is issued pursuant to Section 144.35, Wisconsin Statutes, and Chapter NR 151, Wisconsin Administrative Code. It is based on a field investigation and finding that your solid waste management operations are not in full compliance with State standards.

If a public hearing on this order is desired, written notice must be given to the Department no later than 10 days after the date the notice and order are served.

Should the order become delinquent, your attention is directed to Section 144.536 and Section 144.57, Wisconsin Statutes, which provide for enforcement of the order by the Attorney General and forfeitures of from $10 to $5,000 per day for each day of violation, failure or refusal to obey the provisions of the order.

At this stage it appears that Chapter 30 permits are not required prior to the commencement of excavation.

If you have any questions with regard to this matter, please contact Mr. Bernard Schultz, Asst. Director, Southeast District Headquarters, 9722 West Watertown Plank Road, Milwaukee, Wisconsin 53226.

Sincerely,
Division of Enforcement

Andrew C. Damon RLP
Andrew C. Damon
Administrator

MONS 015529

Enc.
cc: Tecumseh Products Company
Mary Ann Calef, Assistant A.G.
Bureau of Legal Services
Allan Williams - Foley & Lardner
Bureau of Waste Management
Bureau of Water Quality
Southeast District

APPENDIX 8

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

June 21, 1978

Anthony S. Earl
Secretary

Tecumseh Products Company; and
City of Sheboygan Falls

BOX 7921
MADISON, WISCONSIN 53707

IN REPLY REFER TO: _____

Order Number 2A-78-1191

FINDINGS OF FACT

THE DEPARTMENT FINDS:

1. That the Diecast Division of Tecumseh Products Company, 415 Cleveland Street, Sheboygan Falls, Wisconsin operates an aluminum diecasting plant located in the NW 1/4 of the SE 1/4, Section 36, T15N, R22E, Sheboygan County, Wisconsin.

2. That a dike is located between the diecasting plant and the Sheboygan River.

3. That to the best information and belief of the department the dike is owned by Tecumseh Products Company and is maintained by Tecumseh Products Company and/or the City of Sheboygan Falls.

4. That the dike and the property between the dike and the diecasting plant are within the floodplain of the Sheboygan River.

5. That solid waste materials have been deposited on the dike and in areas directly adjacent to the plant on property owned by Tecumseh Products Company.

6. That some of these solid waste materials contain significant concentrations of polychlorinated biphenyls.

7. That concentrations of polychlorinated biphenyls have been found in fish in the Sheboygan River, well in excess of United States Food and Drug Administration tolerance levels.

8. That because of these significant concentrations of polychlorinated biphenyls in fish tissue, the Department of Natural Resources in conjunction with the Department of Health and Social Services has advised consumers not to eat fish taken from the Sheboygan River until further notice.

CONCLUSION OF LAW

1. That Section 144.44, Wisconsin Statutes, and Chapter NR 151, Wisconsin Administrative Code, prohibit disposal of solid waste except in a licensed landfill facility.

2. That Section 144.50, Wisconsin Statutes, and Chapters NR 151 and 157, Wisconsin Administrative Code, establish criteria for proper storage, transportation and disposal of polychlorinated biphenyls and products containing polychlorinated biphenyls.

ORDER

1. That the order recipients shall by July 15, 1978 excavate and collect all materials on the dike bordering the Sheboygan River, which based on visual examination would appear likely to contain PCB. These wastes include but are not limited to oil absorbent materials, scrap pressure hoses, and other oil soaked debris. The excavation of this material shall be done in such a manner so as to prevent runoff, erosion and further water quality contamination of the river.

2. That the concentrated PCB wastes shall be stored in accordance with the requirements of Chapters NR 151 and 157, Wisconsin Administrative Code and the federal regulations contained in Part V of February 17, 1978 CFR.

3. That the order recipient shall by July 30, 1978 submit to the Department a report delineating the following actions which have been taken with respect to:

A. Types and quantities of waste materials excavated and stored.

B. Types of containers used for storage.

C. Labeling of containers identifying the types of waste contained and the location from which they were excavated.

D. Plot map of the site at a scale of 1"-50' showing the following:

a. Location of the waste excavated relative to barrel identification accompanied by appropriate pictures and narrative description

b. Location of Tecumseh Products Company

c. Property lines

d. Location of Sheboygan River

e. Surface water drainage patterns

f. Ground surface elevations

g. Fence lines

h. Other prominent features

E. Map or aerial photograph of the area showing land use and zoning within 1/4 mile of the Tecumseh Products Company facility. The map or aerial photograph shall be of sufficient scale to show all homes, industrial buildings, wells, water courses, dry runs, rock outcroppings, roads, and other applicable details. All such details plus the general topography shall be identified and indicated on the map or aerial photograph.

F. Descriptions for on-site and/or off-site storage of the barrels.

Dated at Madison, Wisconsin this 21 day of June, 1978.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By Andrew C. Damon RLP
Andrew C. Damon, Deputy Secretary

cc: Tecumseh Products Company
Mary Ann Calef, Assistant Attorney General
Bureau of Waste Management
Bureau of Water Quality
Southeast District
Allen Williams, Foley and Lardner
Bureau of Legal Services

INFORMATION
DEPARTMENT OF NATURAL RESOURCES
Box 7921 Madison, WI 53707

MADISON, WI---State natural resources and health officials today reduced the area covered by a fish consumption warning following the discovery two months ago of high PCB levels in the Lower Sheboygan River.

The warning will be lifted, effective immediately, for 105 miles of Sheboygan County rivers now declared safe from PCB contamination, according to officials of the Departments of Natural Resources and Health and Social Services. The officials say investigations and tests have isolated the PCB problem in the Sheboygan Falls area and indicated about 24 miles of streams in the Lower Sheboygan River basin would be included in the revised advisory.

Stanton Kleinert, director of the DNR's hazardous substance surveillance unit, said the warning against fish consumption would be lifted in the following rivers: the Sheboygan from the Sheboygan Marsh to Sheboygan Falls dam; the Mullet from Plymouth to Sheboygan Falls and the Onion from Waldo to Gibbsville.

However, the PCB warning will continue in the Onion River from Gibbsville to Sheboygan Falls, on the Sheboygan River from the Sheboygan Falls dam to the Coast Guard Station at Lake Michigan and on two tributaries of the Sheboygan--Weeden's Creek and Greendale Creek. Kleinert said the Onion, Weeden's Creek and Greendale Creek were included because they are accessible to migrating or itinerant main channel fish.

At the same time, the DNR today ordered cleanup activities near the Tecumseh Products Company, a Sheboygan Falls aluminum die casting firm which once used PCB-containing hydraulic fluids.

DNR hazardous substance investigators discovered high levels of PCB materials in the Sheboygan River floodplain behind the Tecumseh plant and in a dike along the river near the plant. The removal order was directed to both the firm and the City of Sheboygan Falls.

(more)

APPENDIX 9

MONS 015533

Last month, DNR ordered the firm and the City to cease any disposal of PCB materials in the river area. The City was included in both orders because there is some uncertainty as to who owns and maintains portions of the dike which contained materials with a PCB concentrations up to 12 percent or 120,000 parts per million.

The new order followed a meeting among attorneys for the DNR, State Justice Department and Tecumseh. Tecumseh Products Company "fully cooperated" with DNR in devising cleanup guidelines, DNR officials said.

The order directs the excavation and collection of "all visible materials which are likely to be contaminated with PCB on the dike bordering the Sheboygan River." The wastes include, but are not limited to, "oil absorbent materials, scrap pressure hoses and other oil soaked debris," according to the order. The cleanup must be done by July 15.

The DNR said the removal of the PCB materials must be undertaken with care to prevent further runoff, erosion and "further water quality contamination." Periodic flooding apparently washed PCB materials from the firm's property and dike into the river, according to investigators.

The DNR said the PCB materials must be placed in sealed containers and properly labeled and stored. A detailed report of cleanup activities, including a listing of the volume of PCB material, site excavation charts, maps, pictures and written commentary, is due by July 30, according to the order.

"Laboratory analyses of sampled fish show that PCB contamination is confined to the segment of the Sheboygan River below the Sheboygan Falls dam," Kleinert said.

Fish samples which were analysed at the State Lab of Hygiene show that fish from outside of this restricted area contain less than five parts per million PCBs. Kleinert said DNR tests of river bottom sediments, river water and river bank soils confirm the fish sampling results. He said a full report on data, PCB sources and more complete recommendations on the Sheboygan River watershed is planned for July release.

Earlier testing on the Lower Sheboygan River found an average of 126 ppm PCBs in 13 fish samples. The levels are the highest recorded in live fish sampled in Wisconsin.

(more)

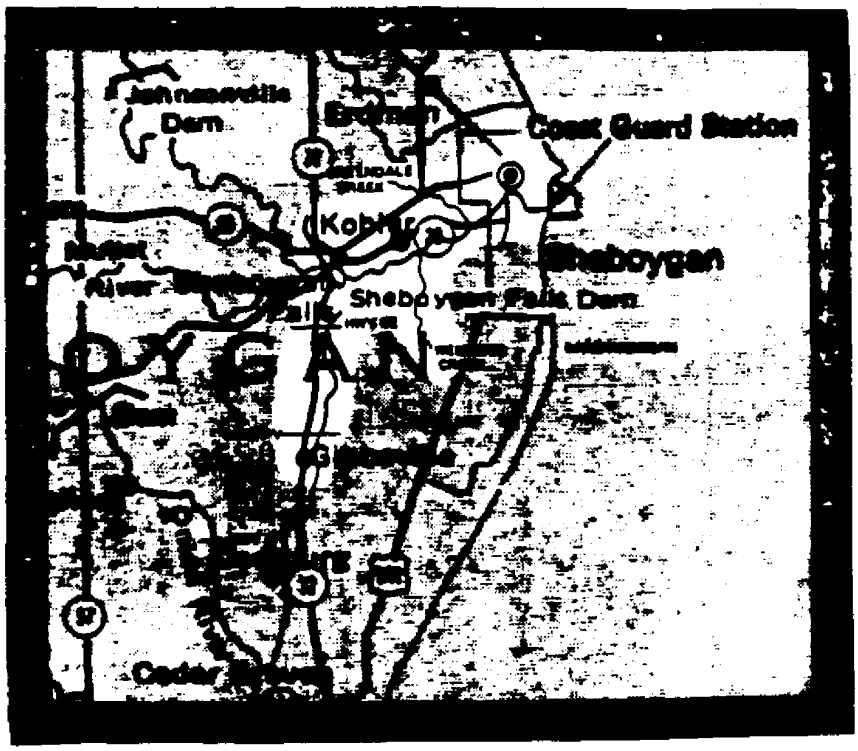
two add'

Health officials said that they are concerned about long-lasting, lifetime exposures to PCBs rather than any short term exposure. Federal regulations prohibit the sale of fish with higher than 5 parts per million (ppm) PCB concentration.

FOR MORE INFORMATION CONTACT:

Stanton Kleinert, Chief
Surveillance Section
Phone: Code 608, 266-7721

Thomas Sheffy, Chemist
Surveillance Section
Phone: Code 608, 266-8343



Acknowledgments

The Committee would like to thank the following personnel for their efforts in this study. Samples were collected by Tom Petri, John Schultz, Terry Yakich, Frank Schultz, Chris Magruder, Collin Beveridge, Brian Belonger, Dave Vetrano, Roy Kalmerton, Kent Logan and Jerry Raeder of the Southeast District. Fish samples were prepared for analysis by Mike Capps of the Surveillance Section, Madison. PCB analyses were performed at the State Laboratory of Hygiene, Madison, by Tom Gibson, Nancy Korda, Wayne Carter, Frank Priznar, Mary Ellen Ley, Paul Peterman, and Doug Dube.

MONS 015536