

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: March 25, 1999

BRRTS #02-37-000008

TO: Secretary Meyer, AD/5

FID #737088330

Marathon County

CC: Bill Evans, WCR

FROM: Wendy Anderson, West Central Region WCA

SUBJECT: Written Decision and Remedial Action Options Report for Soil and Groundwater Restoration at the Weisenberger Tie & Lumber Wood Treatment Site in Marathon City, Wisconsin

Secretary Meyer:

Enclosed is a copy of the Remedial Action Options Report and the Public Notice for the Weisenberger Tie and Lumber Site. I am requesting that you approve the Remedial Action for this site. The signature block is on page 4 of the Report. Once the Remedial Action has been approved, I will publish the Public Notice and proceed with the dismantling of the bio-pile, covering the bio-pile soils and remaining site soil, and continue groundwater monitoring. Please note that the public notice is written to satisfy both the Department-funded remedial action as well as the performance standard proposal. The notice will be published in the Wausau Daily Herald and the Wisconsin State Journal.

BACKGROUND

In May 1993, Delta Environmental Consultants (Delta) concluded an Existing Conditions Report for this site. The report revealed significant Pentachlorophenol (PCP) and Dioxin/Furan contamination. As a result, the Department took an immediate action to fence and secure the site to address direct contact concerns associated with the PCP and dioxin/furan soil contamination. The Department also installed and operated a groundwater pump and treat system in an attempt to contain the groundwater contamination on-site. This action took place in 1995 and the system continued to operate until Spring of 1998.

In the summer of 1997, the Department constructed a bio-pile for the treatment of PCP contaminated soil generated from the historic spills of used PCP at the site. On March 27, 1997, the Department's Northern Region issued a variance for on-site storage and treatment of the site soils. The variance was issued to the Western Region of the Department. The construction of the bio-pile consisted of the excavation of an above-ground debris pile and the area previously identified as the dip tank area and drying area. The excavation was targeted at removal of all PCP-impacted soils above 200 mg/kg of PCP. This number was generated from a SESOIL model per NR 720.19 to address protection of groundwater. The total amount of excavated PCP-impacted soil was 3,000 yd³. The total volume of material placed within the bio-pile was 4,250 yd³. The additional volume included aeration tubing, rock to support the tubing, coarse wood chips, and sawdust. The final height of the pile was 25 feet. Today, the pile stands at about 18-20 feet high. Following construction, the bio-pile was covered and monitored. Monitoring data from September 1997 to the present indicates on-going bio-degradation within the bio-pile.

Condition 10 of the Hazardous Waste Variance required soil samples from the bio-pile be collected and analyzed not less than once a year for PCP and dioxin/furans. According to the variance, treatment of the soils shall be considered adequate for closure [*of the bio-pile*] when analytical soil sample results indicate soils have been successfully treated to below characteristic hazardous waste levels for all contaminants of



concern and to below site specific soil cleanup standard for PCP [200 mg/kg established by Wis. Adm. Code NR 720.19(4), (groundwater protection level) and 720.19(5), (human health direct contact levels)]. Dioxin/furan site specific soil cleanup levels will be established consistent with NR 720.19(5) (human health direct contact levels). The soil sampling results are discussed below.

SOIL SAMPLING

Soil samples were collected during many phases of remediation at this site. Tables of analytical results and a site map are attached to this document. The following table is presented as a means of summarizing the primary contaminant standards and exposure route.

<u>Standards</u>	<u>PCP (mg/kg)</u>	<u>2,3,7,8-TCDD TEQ (ng/kg)</u>
Industrial Soil Ingestion Level ¹	48	40
Residential Soil Ingestion Level ¹	5.3	4
EPA Recommended Industrial Cleanup Level ²	--- ⁸	5-20 ug/kg
EPA Recommended Residential Cleanup Level ²	--- ⁸	1 ug/kg
WI Div. of Health Recommend Industrial Cleanup Level ³	--- ⁸	250 - 1000
WI Div. of Health Industrial Direct Contact Level ⁴	--- ⁸	20
Soil Screening Level for Transfer from Soil to Water ¹	0.2	--- ⁸
Site Specific Level ⁵	200	--- ⁸
TCLP ⁶	100 mg/l	--- ⁸
Land Disposal Restrictions F027 ⁷	7.4	1 ug/kg

A. Remaining In-Situ Soil

Soil sampling completed during construction indicates that the site specific RCL of 200 mg/kg for PCP has been met for the soils that remained in place following excavation. In addition, soil sampling in the area on which the bio-pile was constructed indicates that the PCP levels are generally below the site-specific RCL. In this area, the average level of PCP is 26 mg/kg, with a range of 0.15 to 61 mg/kg (Table 2). Based on the results of the existing conditions report, the remaining surface soils throughout the site contain PCP at levels ranging from <2.0 mg/kg to 41 mg/kg (Table 6).

¹EPA Region III Risk Based Concentrations: R.L. Smith (January 31, 1995).

²OSWER Directive 9200.4-26, April 13, 1998. Approach for Addressing Dioxin in Soil at CERCLA and RCRA Sites. This directive provides a recommended preliminary remediation goal based on and increased cancer risk in the range of five in ten thousand.

³April 20, 1995 memo from Chuck Warzecha, Division of Public Health to Scott Watson, WDNR. Memo indicates that for an industrial site, the estimated one in one million increased cancer risk standard associated with ingestion of soils contaminated with dioxin is 250 ng/kg. DHSS acknowledges that this is a conservative number and likely results in a lower theoretical risk.

⁴February 17, 1999 memo from Chuck Warzecha, Division of Public Health to Wendy Anderson, WDNR. Memo outlines the NR 720.19 analysis for direct contact at an industrial site and explains the deviation from the 1995 memo.

⁵Calculated by Delta and Associates under Contract with the WDNR, March 14, 1996.

⁶Table 1, s. NR 605.08, Wisconsin Administrative Code.

⁷Section NR 675.20, Wisconsin Administrative Code.

⁸No Standard Available.

Two dioxin samples were collected during construction from the north and south sidewalls of the dip tank excavation at a depth of four feet. The dip tank samples represent material that remained in place and were not incorporated into the bio-pile. These samples indicate residual dioxin/furan soil contamination in the dip tank area of 30 ng/kg and 72 ng/kg. Two dioxin samples were also collected during construction from the base of the debris pile, after the pile was removed and are now considered surface soil results. These sample results are 106 ng/kg and 188 ng/kg (Table 3).

Surface soil sampling of the site conducted at the time of the Existing Conditions Report in 1993 indicates dioxin/furan contaminant levels in the upper one-half foot of the soil surface range from 0 to 8564 ng/kg (Table 8).

B. Bio-Pile Soil

On September 30, 1998, the Department's O&M contractor, for the site, collected five soil samples for PCP from the bio-pile. Two samples were collected at 10 feet of depth from the crest of the pile and three samples were collected at 15 feet of depth from the crest of the pile. The samples were spread along the crestline. In addition, a composite sample was collected from the five locations and analyzed for dioxin and furans. The results are as follows:

<u>September 1998 Sample Results</u>	<u>PCP (mg/kg)</u>	<u>2,3,7,8-TCDD TEQ (ng/kg)</u>
S-1	2.47	
S-2	5.18	
S-3	2.95	
S-4	2.11	
S-5	1.81	
Composite		764

EVALUATION OF THE SOIL RESULTS

A. Remaining In-Situ Soils

The remaining site soils were evaluated at the time of the existing conditions report in 1993 and to some extent during construction of the bio-pile. The results indicate that the remaining subsurface soils were excavated until the Site Specific Soil level of 200 mg/kg for PCP was met. Analysis of the surface soils, outside the excavation area, for PCP indicates that surface soils are below the direct contact level for PCP at an industrial site.

With respect to dioxin/furan, sampling to date indicates that the existing surface soils, outside the excavation area, contain levels well above direct contact levels for industrial sites.

B. Bio-Pile Soil

The O&M contract originally required semi-annual soil sampling of the bio-pile soils to evaluate reductions in concentration of PCP. The Department eliminated the second sampling event based on the results of the first round and Department Hazardous Waste and Division of Health staff concurrence that additional sampling was not necessary. The sample locations were selected to represent the worst-case scenario. The construction of the bio-pile was such that the highly contaminated soils were placed first. The later layers consisted primarily of the soils that were generated from overburden and later expansions of the dip tank excavation. **The sampling performed was NOT random.**

The results of the PCP sampling show that the soil at these depths within the pile is relatively uniform, and as such, the dioxin/furan levels in each sample should also be very similar, confirming that the composite sample is again representative of the worst-case soils within the bio-pile.

1. Pentachlorophenol Analysis

The level of PCP within the bio-pile soils is below all standards for placement on an industrial site. Considering PCP alone, the soils may be spread on-site with no additional action necessary.

2. Dioxin Analysis

The results of the dioxin/furan analysis indicate that the level of 764 ng/kg of 2,3,7,8 TCDD TEQ, exceeds the direct contact standards for an industrial site. Considering the results of the dioxin/furan sampling, Chuck Warzecha of the Department of Public Health has recommended that, "A vegetative soil cover can effectively prevent direct contact with dioxins as they bind tightly to soil particles and have limited mobility." Mr. Warzecha also states that, "The cover material and thickness should be a site-specific decision based on the intended future use of the surface and the likelihood of erosion."¹

It should again be noted that the sampling that was completed does not represent a random sampling event. The samples were collected from areas within the bio-pile known to be the worst-contaminated soils. Random sampling of the bio-pile may show that the average dioxin/furan levels within the pile are below the standards. However, due to the cost of the analysis and the overall need to cover the existing surface soils at the site, additional sampling will not be performed.

CONCLUSIONS

Considering evaluation of the soil results and review of the applicable code requirements, the Department has concluded that the soil contained within the bio-pile may be replaced, regulated under the NR 700 series of the Wisconsin Administrative Code. Section NR 718.11(b)(4), Wis. Adm. Code, addresses replacement of contaminated soil on the property from which it was excavated for disposal. As discussed in the purpose section of chapter NR 718, this chapter exempts responsible parties, the Department in this case, from obtaining site-specific approvals from the state's solid waste program. This also extends to licensing.

Because the bio-pile soils exceed industrial direct contact levels, the soil will need to be covered following placement back on the site. This same action is necessary for the site as a whole, due to the dioxin levels in the surface soils on-site. In compliance with s. NR 720.19, Wis. Adm. Code, and to address the concerns of the Division of Health, the Department proposes a remedial design to include: dismantle the bio-pile, grade the site to reduce erosion potential, replace the bio-pile soils on the site, cover the entire site with no less than one foot of soil as the barrier layer, six inches of topsoil, fertilize, seed, mulch to establish a sound vegetative cover, and continue long-term groundwater monitoring. The soil barrier material will be a material that should be unsuitable for biota, such as the rotten granite material, native to the area. By covering with such a material, the remedy will also be more protective of ecological health as well. In addition, the DNR will be working with the Department of Justice to ensure that a deed affidavit is placed on the property. The affidavit will include the following: a groundwater use restriction, a requirement to maintain the property for industrial use only, and a prohibition on interference with the drainage, soil topography and cover thickness and limits in the designated area.

¹February 17, 1999 memo from Chuck Warzecha, Division of Public Health to Wendy Anderson, WDNR. Memo outlines the NR 720.19 analysis for direct contact at an industrial site and explains the deviation from the 1995 memo.

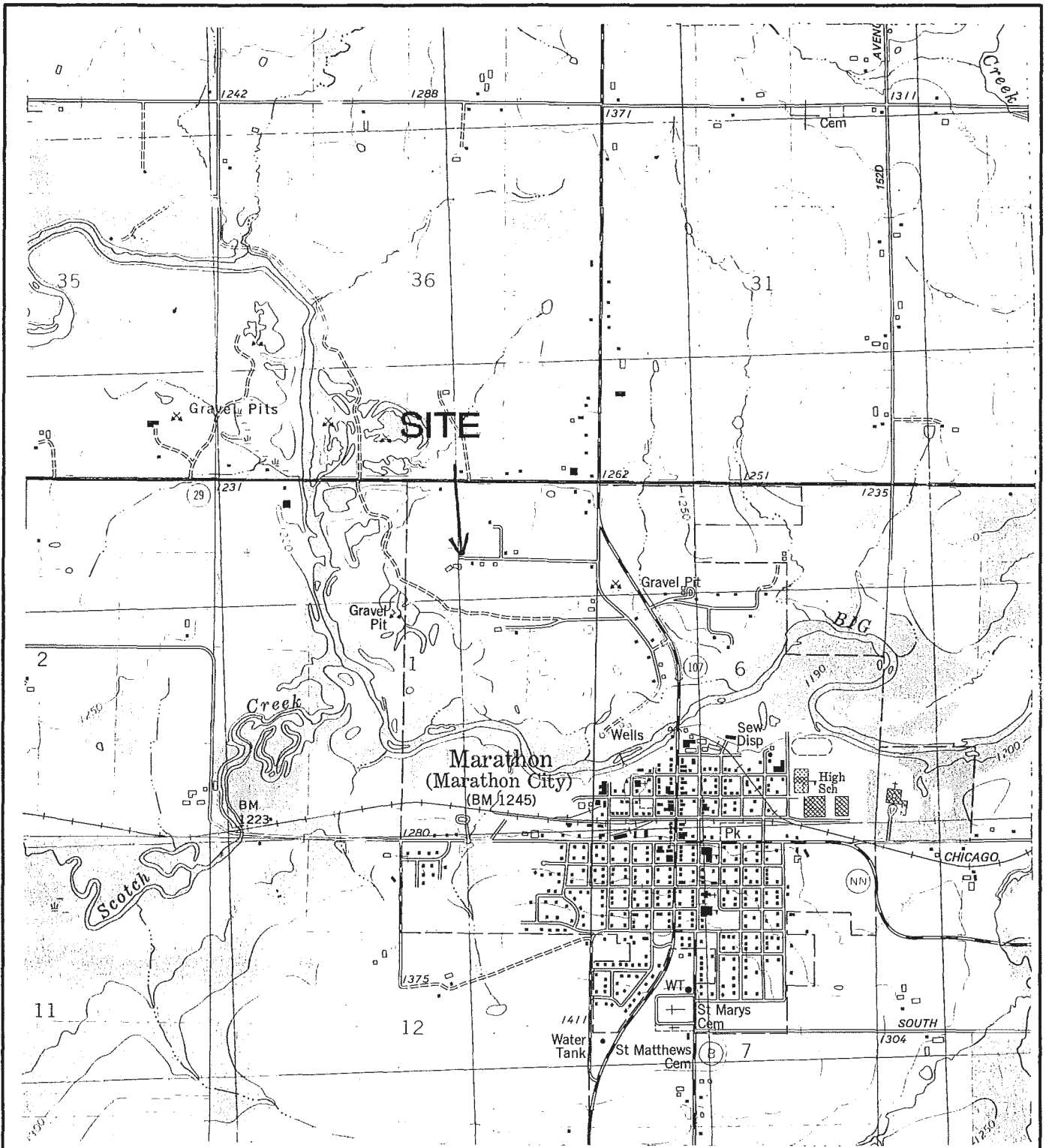
The Department has determined that an engineered cap is not necessary for this site due to the immobility of the contaminants of concern. Following the treatment of the PCP contaminated soil, this site represents a dioxin direct contact threat only. The Department has historically and routinely addressed non-mobile constituents such as PCBs, lead, and certain PAHs through the use of a soil cover and institutional controls. As such, the Department feels that the proposed remedy is justified given the site specifics.

Noted: 
Scott Humrickhouse, Regional Director, West Central Region

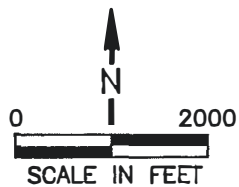
Noted: 
Mark Giesfeldt, Director, Bureau of Remediation and Redevelopment

Note: The Department acknowledges the difference in the recommendations from the Division of Health with respect to the evaluation of dioxin levels. The purpose of the memo from the Division of Health dated 1995, was to provide the Department with dioxin numbers as a general target. The direct contact levels were presented as a range from 250 to 1000 ng/kg and was based on EPA's acceptable risk ranges. The later memo dated 1999 is very clearly based on s. NR 720.19(5)(c)(2)(a), Wis. Adm. Code. This section contains assumptions that are generally more conservative than those presented in the 1995 memo. In addition, the 1999 evaluation presents the direct contact number of a one in one million increased cancer risk, rather than a risk range.

Note: All references to dioxin/furans represent the equivalent toxicity as 2,3,7,8,-TCDD.



MARATHON QUADRANGLE
WISCONSIN
7.5 MINUTE SERIES (TOPOGRAPHIC)



Existing Conditions Report, May 1993
Delta

FIGURE 1
SITE LOCATION MAP
WEISENBERGER TIE & LUMBER COMPANY
MARATHON, WISCONSIN

PROJECT NO.
15-91-032

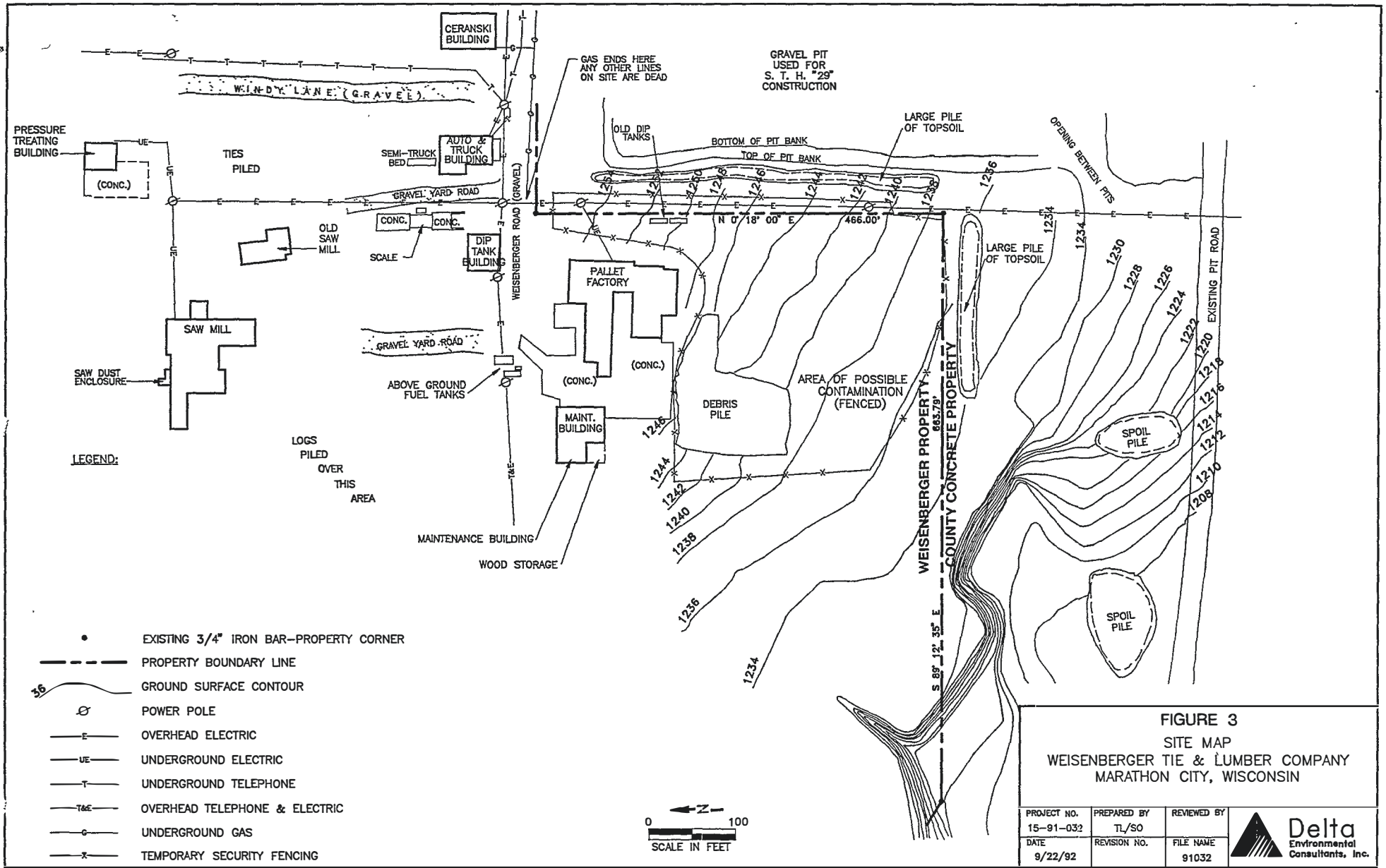
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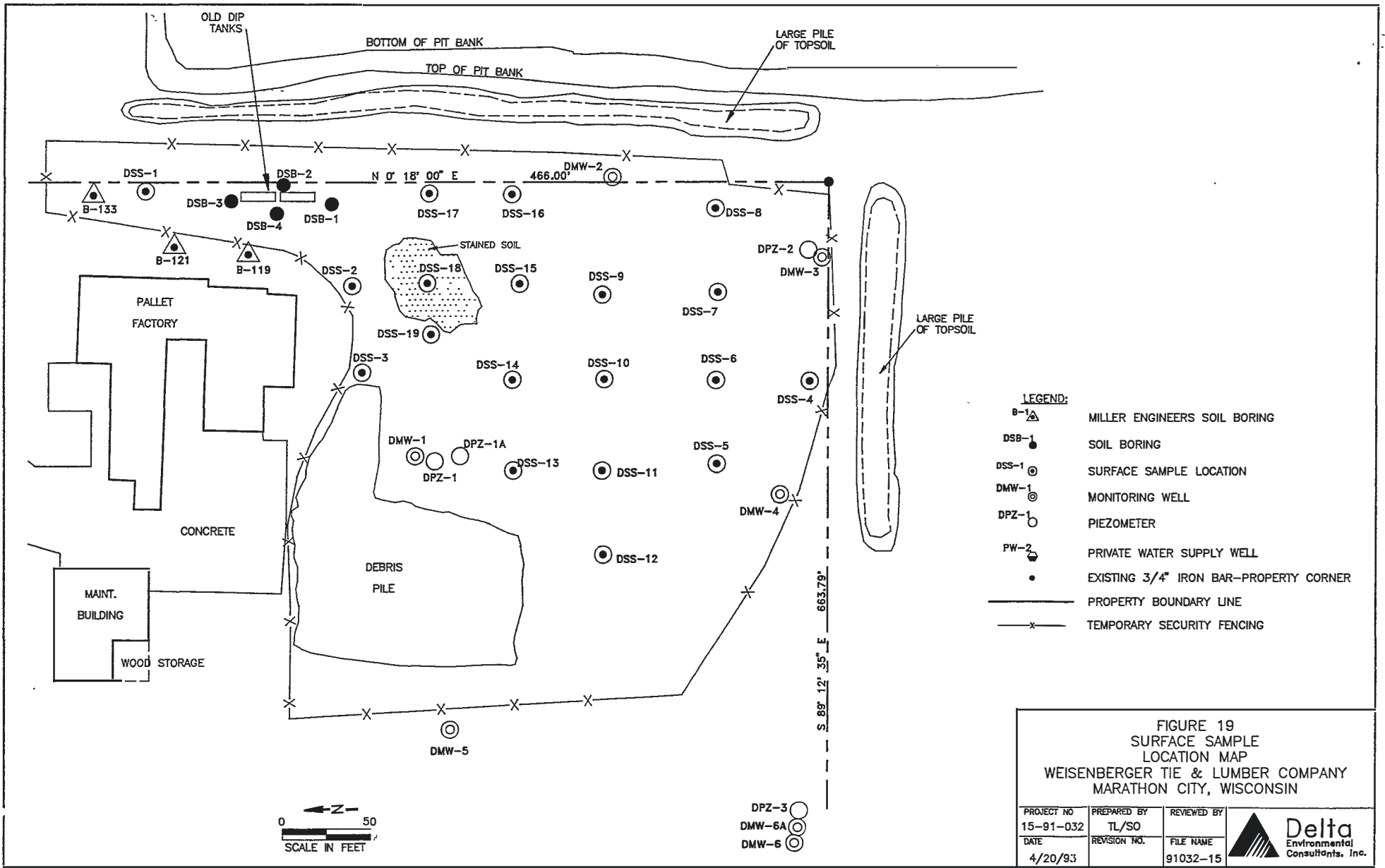
REVIEWED BY



Delta
Environmental
Consultants, Inc.



Copied from the Existing Conditions Report dated May 4, 1993 and prepared by Delta Environmental Consultants, Inc.



Copied from the Existing Conditions Report, dated May 4, 1993 and prepared by Delta Environmental Consultants, Inc.

TABLE 2
Summary of Pentachlorophenol (PCP)
Concentrations in Collected Soil Samples
Weisenberger Tie and Lumber Company
Marathon City, Wisconsin
WDNR No. 97SWSS

Sample Identification	Sample Location	Date Sampled	PCP Concentration (ug/kg)
S.S. #1	Debris Pile / SC Area C Pad Base	06/13/97	150
S.S. #2	Debris Pile / SC Area C Pad Base	06/13/97	54,000
S.S. #3	Debris Pile / SC Area C Pad Base	06/13/97	15,000
S.S. #4	Debris Pile / SC Area C Pad Base	06/13/97	18,000
S.S. #5	Debris Pile / SC Area C Pad Base	06/13/97	61,000
S.S. #1	Dip Tank Excavation - East Wall 3' bgs	06/17/97	1,400
S.S. #2	Dip Tank Excavation - East Wall 5' bgs	06/17/97	150
S.S. #3	Dip Tank Excavation - East Wall 8' bgs	06/17/97	1,300,000
S.S. #4	Dip Tank Excavation - South Wall 4' bgs	06/17/97	5,600
S.S. #5	Dip Tank Excavation - West Wall 3' bgs	06/17/97	200,000
S.S. #6	Dip Tank Excavation - West Wall 5' bgs	06/17/97	1,200
S.S. #7	Dip Tank Excavation - West Wall 8' bgs	06/17/97	750,000
S.S. #8	Dip Tank Excavation - North Wall 4' bgs	06/17/97	5,100
S.S. #11	Dip Tank Excavation - West Wall 8' bgs	06/25/97	<96
S.S. #12	Dip Tank Excavation - East Wall 8' bgs	06/25/97	<91
SC Area A	Stormwater Retention Swale (water)	07/10/97	770*
Biopile Baseline Composite	3 Representative Locations in Biopile	08/29/97	4,200
Biopile Sump	Biopile Sump (water)	09/18/97	290*

* Note: The samples collected from SC Area A and the Biopile Sump were water samples with laboratory results reported in micrograms per liter (ug/L).

Soil remedial target level (RTL) for PCP established at 200 mg/kg or 200,000 ug/kg.

ug/kg = micrograms per kilogram, parts per billion

mg/kg = milligrams per kilogram, parts per million

Copied from the Construction Documentation Report for Soil Bio-Pile Treatment System prepared by Delta Environmental Consultants, Inc., and dated May 8, 1998.

TABLE 5
Summary - VOC Detects in Soil Samples
Weisenberger Tie & Lumber Company
Marathon City, Wisconsin
Delta No. 15-91-032

Sample Location	Sample Depth (Ft)	Ethylbenzene (ug/kg)	Xylenes (ug/kg)	n-Propylbenzene (ug/kg)	1,3,5 Trimethylbenzene (ug/kg)	1,2,4 Trimethylbenzene (ug/kg)	sec-Butylbenzene (ug/kg)	p-Isopropyltoluene (ug/kg)	n-Butylbenzene (ug/kg)	Naphthalene (ug/kg)
DSB-1	0-2	340	660	<130	5800	600	200	1100	25000	<1300
	2-4	140	990	230	990	2800	250	140	4500	<1200
	4-5	330	2100	1000	1800	6600	550	370	8200	1500
DSB-2	0-2	<1100	<3400	<1100	2300	4200	<1100	<1100	9000	<11000
	2-4	<1100	8900	<1100	6800	26000	1300	<1100	30000	<11000
	4-6	<1200	<11000	1500	4900	19000	<1200	<1200	1800	<25000
DSB-3	0-2	<1.1	<3.4	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<11
	2-4	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
	4-6	<1.2	<3.6	<1.2	<1.2	3.1F	<1.2	<1.2	13F	<12F
DSB-4	0-2	<110	<320	<110	490	280	110	<110	2800	<1100
	2-4	<1200	<3500	<1200	3800	11000	<1200	<1200	15000	<12000
DSB-9	4-6	<1.1	<3.3	NA	<1.1	<1.1	NA	NA	NA	NA
	6-8	<1.2	<3.6	NA	<1.2	<1.2	NA	NA	NA	NA
DSB-10	2-4	<1.2	<3.6	NA	<1.2	<1.2	NA	NA	NA	NA
	6-8	<1.2	<3.6	NA	<1.2	<1.2	NA	NA	NA	NA
DSB-11	4-6	<1.2	<3.6	NA	<1.2	<1.2	NA	NA	NA	NA
	6-8	<1.2	<3.6	NA	<1.2	<1.2	NA	NA	NA	NA
DSB-12	2-4	<1.1	<3.3	NA	<1.1	<1.1	NA	NA	NA	NA
	8-10	<1.3	<3.9	NA	<1.3	<1.3	NA	NA	NA	NA
DMW-1	0-2	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
DMW-2	0-2	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
DMW-3	0-2	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
DMW-4	0-2	<1.2F	<3.7F	<1.2F	<1.2F	<1.2F	<1.2F	<1.2F	<1.2F	<12F
DMW-5	0-2	<1.3F	<3.8F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<13F
DMW-6	0-2	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
DMW-10	4-6	<1.2	<3.6	NA	<1.2	<1.2	NA	NA	NA	NA
DMW-10	8-10	<1.3	<3.9	NA	<1.3	<1.3	NA	NA	NA	NA
DSS-1	0-0.5	<1.1F	<3.3F	<1.1F	<1.1F	<1.1F	<1.1F	<1.1F	<1.1F	<11F
DSS-2	0-0.5	<1.1	<3.3	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<11
DSS-3	0-0.5	<2.0F	<6.0F	<2.0F	<2.0F	<2.0F	<2.0F	<2.0F	<2.0F	<20F
DSS-4	0-0.5	<1.6F	<4.6F	<1.6F	<1.6F	<1.6F	<1.6F	<1.6F	<1.6F	<16F
DSS-5	0-0.5	<1.3	<3.9	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<13
DSS-5	2-2.5	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
DSS-6	0-0.5	<1.2F	<3.6F	<1.2F	<1.2F	<1.2F	<1.2F	<1.2F	<1.2F	<12F
DSS-7	0-0.5	<1.3F	<3.9F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<13F
DSS-8	0-0.5	1.2F	<3.8F	<1.2F	<1.2F	<1.2F	<1.2F	<1.2F	<1.2F	<12F
DSS-9	0-0.5	<1.3F	<3.9F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<13F
DSS-9	2-2.5	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
DSS-10	0-0.5	<1.1	<3.3	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<11
DSS-10	0-0.5 dup	<1.3F	<3.4F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<13F
DSS-11	0-0.5	<1.3F	<3.9F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<1.3F	<13F
DSS-11	2-2.5	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
DSS-12	0-0.5	<1.4F	<4.2F	<1.4F	<1.4F	<1.4F	<1.4F	<1.4F	<1.4F	<14F
DSS-13	0-0.5	<1.2	<3.8	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
DSS-14	0-0.5	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12
DSS-15	0-0.5	<1.2	<3.3	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<11
DSS-16	0-0.5	<1.1	<3.3	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<11
DSS-17	0-0.5	<1.1F	<3.2F	<1.1F	<1.1F	<1.1F	<1.1F	<1.1F	<1.1F	<11F
DSS-18	0-0.5	<130	<380	<130	1600	4700	<130	<130	1400	<1300
DSS-18	0-0.5 dup	<130	<400	<130	1000	2700	<130	<130	3500	<1300
DSS-19	0-0.5	<1.2	<3.6	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<12

Concentrations reported in ug/kg.

F - Surrogate Recoveries Below Acceptable Ranges.

DSB-1 - Refers to Sampling Location

0-2 - Refers to Sampling Interval in Feet Below Ground Surface.

DSB-1 through DSB-4 and DSS-18 were incorporated into the bio-pile in 1997.

Copied from the Existing Conditions Report, dated May 4, 1993, and prepared by Delta Environmental Consultants, Inc.

TABLE 6
Summary - Semi-Volatiles Detects in Soil Samples
Weisenberger Tie & Lumber Company
Marathon City, Wisconsin
Delta No. 15-91-032

Sample Location	Sample Depth (ft)	Naphthalene (ug/kg)	Acenaphthene (ug/kg)	Fluorene (ug/kg)	Pentachlorophenol (ug/kg)	Phenanthrene (ug/kg)	Fluoranthene (ug/kg)	Pyrene (ug/kg)
DSB-1	0-2	ND	ND	ND	1,300,000	32,000 Q	ND	ND
	2-4	ND	ND	5,200 Q	120,000	14,000	1,900 Q	21,000 Q
	4-5	ND	5,400 Q	ND	190,000	16,000 Q	2,300 Q	4,000 Q
DSB-2	0-2	ND	28,000 Q	54,000 Q	1,300,000	120,000	ND	ND
	2-4	ND	49,000 Q	69,000 Q	1,300,000	150,000	ND	ND
	4-6	12,000	12,000	16,000	410,000	33,000	ND	3,200 Q
DSB-3	0-2	ND	ND	ND	2,500	ND	ND	ND
	2-4	ND	ND	ND	830	ND	ND	ND
	4-6	ND	ND	ND	13,000	ND	190 Q	240 Q
DSB-3	0-2 dup	ND	ND	ND	21,000	ND	ND	ND
DSB-4	0-2	ND	22,000 Q	45,000 Q	1,300,000	110,000	20,000 Q	24,000 Q
	2-4	ND	24,000 Q	44,000 Q	680,000 Q	110,000	ND	ND
DSB-9	4-6	ND	ND	ND	ND	ND	ND	ND
	6-8	ND	ND	ND	ND	ND	ND	ND
DSB-10	2-4	ND	ND	ND	ND	ND	ND	ND
	6-8	ND	ND	ND	ND	ND	ND	ND
DSB-11	4-6	ND	ND	ND	ND	ND	ND	ND
	6-8	ND	ND	ND	ND	ND	ND	ND
DSB-12	2-4	ND	ND	ND	ND	ND	ND	ND
	8-10	ND	ND	ND	ND	ND	ND	ND
DMW-1	0-2	ND	ND	ND	ND	ND	ND	ND
DMW-2	0-2	ND	ND	ND	ND	ND	ND	ND
DMW-3	0-2	ND	ND	ND	ND	ND	ND	ND
DMW-4	0-2	ND	ND	ND	ND	ND	ND	ND
DMW-5	0-2	ND	ND	ND	ND	ND	ND	ND
DMW-6	0-2	ND	ND	ND	ND	ND	ND	ND
DMW-10	4-6	ND	ND	ND	ND	ND	ND	ND
DMW-10	8-10	ND	ND	ND	ND	ND	ND	ND
DSS-1	0-0.5	ND	ND	ND	41,000	ND	ND	2,100
DSS-2	0-0.5	ND	ND	ND	ND	ND	ND	ND
DSS-3	0-0.5	ND	ND	ND	ND	ND	ND	ND
DSS-4	0-0.5	ND	ND	ND	7,900 Q	ND	ND	ND
DSS-5	0-0.5	ND	ND	ND	3,900	ND	ND	ND
DSS-5	2-2.5	ND	ND	ND	ND	ND	ND	ND
DSS-6	0-0.5	ND	ND	ND	740 Q	ND	ND	ND
DSS-7	0-0.5	ND	ND	ND	ND	ND	ND	ND
DSS-8	0-0.5	ND	ND	ND	ND	ND	ND	ND
DSS-9	0-0.5	ND	ND	ND	1,400 Q	ND	ND	ND
DSS-9	2	ND	ND	ND	470 Q	ND	ND	ND
DSS-10	0-0.5	ND	ND	ND	410 Q	ND	ND	ND
DSS-10	0-0.5 dup	ND	ND	ND	420 Q	ND	ND	ND
DSS-11	0-0.5	ND	ND	ND	650 Q	ND	ND	ND
DSS-11	2-2.5	ND	ND	ND	ND	ND	ND	ND
DSS-12	0-0.5	ND	ND	ND	ND	ND	ND	ND
DSS-13	0-0.5	ND	ND	ND	ND	ND	ND	ND
DSS-14	0-0.5	ND	ND	ND	ND	ND	ND	ND
DSS-15	0-0.5	ND	ND	ND	ND	ND	ND	ND
DSS-16	0-0.5	ND	ND	ND	ND	ND	ND	ND
DSS-17	0-0.5	ND	ND	ND	5,800	ND	ND	ND
DSS-18	0-0.5	ND	22,000 Q	26,000	2,900,000	66,000	20,000	95
DSS-18	0-0.5 dup	ND	20,000 Q	24,000 Q	2,800,000	62,000	17,000 Q	26,000 Q
DSS-19	0-0.5	ND	ND	ND	990 Q	ND	ND	ND

Concentrations Reported in ug/kg

Q - Qualitative mass spectral evidence of analyte present; concentration less than the reporting limit.

0-2 - Refers to Sampling Interval in Feet Below Ground Surface.

DSB-1 through DSB-4 and DSS-18 were incorporated into the bio-pile in 1997.

Copied from the Existing Conditions Report, dated May 4, 1993, and prepared by Delta Environmental Consultants, Inc.

TABLE 8
Summary - Dioxins and Furans in Soil Samples
Weisenberger Tie & Lumber Company
Marathon City, Wisconsin
Delta No. 15-91-032

Analyte	DSB-1 (0-2 ft)	DSB-1 (2-4 ft)	DSB-1 (4-5 ft)	DSB-2 (0-2 ft)	DSB-2 (2-4 ft)	DSB-2 (4-6 ft)	DSB-3 (0-2 ft)	DSB-3 (2-4 ft)	DSB-3 (4-6 ft)	DSB-4 (0-2 ft)	DSB-4 (2-4 ft)	DMW-1 (0-2 ft)	DMW-2 (0-2 ft)	DMW-3 (0-2 ft)	DMW-4 (0-2 ft)	DMW-5 (0-2 ft)
* 2,3,7,8 TCDD	ND	ND	ND	ND	ND	ND	ND	ND	ND	7	ND	ND	ND	ND	ND	15.3
1,2,3,7,8 PeCDD	99.3	5	11.5	32.6	43.5	18.6	7.8	ND	ND	180	49	1	ND	0.96	ND	107
1,2,3,4,7,8 HxCDD	480	30.7	67.8	ND	ND	ND	47.5	ND	ND	22.7	354	4.2	ND	3.2	ND	509
1,2,3,6,7,8 HxCDD	10110 S	1160	2260	7250	16950	6700	762	1.2	588	153	8800	6	0.59	13.7	8.3	647
1,2,3,7,8,9 HxCDD	1620	73.3	253	18650	2800	625	131	ND	45.3	912	1590	10.6	0.73	7.6	3.3	1020
1,2,3,4,6,7,8 HpCDD	33970 SB	7030 SB	11970 SB	221190 SB	123640 SB	44060 BS	17830 B	34.5 B	9700 B	502800 B	116920 SB	110 B	13.4 B	265 B	162 B	11300 SB
OCDD	31480 SB	20960 SB	22080 SB	192710 SB	101410 SB	30810 BS	68980 SB	418 B	43690 B	453390 SB	117420 SB	351 B	61 B	1200 B	932 B	20490 SB
Total TCDD	24.8	3.1	1.2	25.8	26.3	7.7	ND	ND	ND	64.4	16.3	1	0.47	ND	ND	194
Total PeCDD	238.0	5.9	33.1	52.9	87.3	67.5	19.9	ND	ND	249	131	6.7	ND	0.96	ND	814
Total HxCDD	31560 S	3020	6290	271260	80490	17920 S	2350	4.8	1620	7410	37170	60.1	5.2	59.7	22.3	8580
Total HpCDD	51980 S	12160 S	20430	437590 S	226050 S	81770 S	26640	57.2	15350	91503	209930 SB	182	22.7	405	259	22630 S
2,3,7,8 TCDF	202	13.2	30.1	177	172	90.8	8.4	ND	11.8	348	145	3	0.49	ND	ND	ND
1,2,3,7,8 PeCDF	778	42.4	95.4	563	573	333	35.2	ND	34.7	1180	470	1.4	ND	0.53	ND	5
2,3,4,7,8 PeCDF	724	38.3	84.7	591	724	ND	25.9	ND	28.3	934	345	3.8	ND	0.95	ND	5.7
1,2,3,4,7,8 HxCDF	3010	331	594	6230	2840	860	149	ND	237	2530	1730	8.6	0.48	3	5	48.4
1,2,3,6,7,8 HxCDF	757	56.5	119	570	719	319	38.5	ND	60.6	534	455	3.1	ND	2	3.1	21.6
2,3,4,6,7,8 HxCDF	1070	70.3	135	227800	31220	248	171	ND	144	139120	3470	9	1	6	3.5	108
1,2,3,7,8,9 HxCDF	ND	19.4	44.7	34920	5280	92.1	93.6	ND	14.9	20590	877	4.4	ND	1.8	ND	52.3
1,2,3,4,6,7,8 HpCDF	11800 S	1910 S	3530	ND	53140	8970 S	1970	7.9	873	9710	24180	25.4	14.1	62.5	39.8	950
1,2,3,4,7,8,9 HpCDF	7010	901	1370	ND	80900	4170	245	ND	55.2	15520	7380	3.1	0.42	4.2	4.2	88.8
OCDF	14690 SB	10940 SB	10690 SB	8740	37440 S	38300 S	18300	44.2	575	12880	35710	32.3 B	109 B	235 B	152	2480
Total TCDF	817	41.8	113	421	521	341	15	ND	11.8	809	367	9.1	2.3	7.6	ND	53.8
Total PeCDF	6530	869	1780	3240	4370	3230	279	ND	404	4260	2620	22.7	0.8	29.6	3.7	394
Total HxCDF	10940 S	2380 S	5190	298320	141710	2070 S	2930	7.9	2780	254790	48200	46	5.1	72.1	17.1	1690
Total HpCDF	45260 S	7050 S	13070	ND	890100 S	33020 S	12750	27.1	2630	25620	231810	59.5	39.5	213	144	4170
TEQ	5808.60	961.20	1682.00	52220.10	20273.80	5525.80	2051.1	4.10	1147.60	68022.10	14123.30	19.00	2.00	33.30	20.00	1475.70

B - Analyte Detected in Laboratory Method Blank.

S - Concentration Exceeds Normal Calibration Range. Reported Analyte Concentration is a Minimum Estimate.

TEQ - Toxicity Equivalency as Related to 2,3,7,8 TCDD using I-TEF/89 Method.

Note: All units are in parts per trillion (ppt)

DSB-1 through DSB-4 and DSB-18 were incorporated into the bio-pile in 1997.

Copied from the Existing Conditions Report, dated May 4, 1993, and prepared by Delta Environmental Consultants, Inc.

TABLE 8
Summary - Dioxins and Furans in Soil Samples
Weisenberger Tie & Lumber Company
Marathon City, Wisconsin
Delta No. 15-91-032
(continued)

Analyte	DMW-6 (0-2 ft)	Dup. DSB-3 (0-2 ft)	Dup DMW-6 (0-2 ft)	DSS-1 (0-0.5 ft)	DSS-2 (0-0.5 ft)	DSS-3 (0-0.5 ft)	DSS-4 (0-0.5 ft)	DSS-4 2 ft.	DSS-5 (0-0.5 ft)	DSS-6 (0-0.5 ft)	DSS-7 (0-0.5 ft)	DSS-8 (0-0.5 ft)	DSS-9 (0-0.5 ft)	DSS-9 2 ft.	DSS-10 (0-0.5 ft)
2,3,7,8 TCDD	ND	ND	ND	5	ND	7.3	5.9	ND	4.9	ND	ND	ND	0.66	ND	ND
1,2,3,7,8 PeCDD	ND	27.1	ND	122	4.4	119	210	2.9	90.7	30.1	ND	ND	19.2	3	3.8
1,2,3,4,7,8 HxCDD	ND	114	ND	578	27.5	408	714	13.3	424	92.1	ND	ND	80.5	9	18.9
1,2,3,6,7,8 HxCDD	ND	1150	1.3	4040	147	1380	4690	82.8	2120	542	ND	ND	384	74.7	78.2
1,2,3,7,8,9 HxCDD	ND	287	1	1240	45.1	854	1550	26.2	830	213	ND	ND	126	20.4	33.6
1,2,3,4,6,7,8 HpCDD	15.7	28090 B	10.7	72790 SB	3830 B	38480 SB	77200 SB	2080	54420 SB	16600 B	10.6 B	ND	16750	1880	2040
OCDD	120	152830 B	95.7	150960 SB	24510 B	91040 SB	173000 S	14600	124380 SB	93030 SB	97.4 B	352 B	83460 SB	15130	14410 B
Total TCDD	0.8	8.3	0.25	22.5	ND	42.6	20.5	ND	4.9	ND	ND	ND	3.1	ND	ND
Total PeCDD	ND	58.9	0.92	320	4.4	460	576	3.7	254	109	ND	ND	64	3	6.6
Total HxCDD	17.1	4060	25.4	13690	570	6810	17050	298	8070	2110	ND	ND	1520	255	333
Total HpCDD	27.1	43990	18	126470 S	6300	65360 S	135650 S	3300	91940 S	27000	17.7	ND	24880	2980	3260
2,3,7,8 TCDF	ND	11.3	ND	36.5	ND	14.2	44.5	ND	14.8	7.5	ND	ND	2.4	ND	1.1
1,2,3,7,8 PeCDF	ND	53.4	ND	171	7	45.1	222	ND	65.1	19.9	ND	ND	11.5	ND	4
2,3,4,7,8 PeCDF	ND	38.2	ND	125	6.1	42.9	175	2.8	57.9	28.7	ND	ND	9.2	2.5	3.3
1,2,3,4,7,8 HxCDF	ND	197	ND	843	33	344	1270	16.3	680	203	ND	ND	77.9	13.3	14.6
1,2,3,6,7,8 HxCDF	ND	61.9	ND	282	24.9	190	621	7.6	279	51.8	ND	ND	29.9	6.6	6.4
2,3,4,6,7,8 HxCDF	ND	83.8	0.69	669 B	31.9	388 B	1130 B	14.9	663 B	205 B	ND	ND	72.7	14.6	16.5
1,2,3,7,8,9 HxCDF	ND	ND	2.9	ND	ND	ND	ND	7.5	ND	ND	ND	ND	1.7	6.3	ND
1,2,3,4,6,7,8 HpCDF	1.6	2960	1.1	14020	1450	7110	21240	258	13020	2220	8.5	27	1960	368	238
1,2,3,4,7,8,9 HpCDF	1	364	ND	1650	74.4	685	2060	23.6	1610	249	ND	ND	189	30.2	17.9
OCDF	8.6	18520	7.5	71840 SB	5500 B	27450 B	69930 SB	1860	44930 SB	9740 B	57.2 B	72.9 B	20960	2430	1180
Total TCDF	ND	33.5	ND	90.5	ND	144	122	11.4	75.9	41	ND	ND	16.1	10.7	6.3
Total PeCDF	ND	416	ND	2630	92.8	1320	4520	99.2	982	478	ND	ND	632	54.2	53.2
Total HxCDF	ND	4920	1.3	23050	1480	9700	33490	454	14870	3350	ND	ND	2410	425	390
Total HpCDF	27.9	18000	6.9	60750 S	4990	29820 S	74270 S	1320	51370 S	10390	21.5	59.6	10370	1860	970
TEQ	1.72	3239.40	1.80	8564.40	464.79	4492.77	9407.38	246.99	6341.15	1949.30	0.00	0.42	1893.86	226.78	242.83

B - Analyte Detected in Laboratory Method Blank.

S - Concentration Exceeds Normal Calibration Range. Reported Analyte Concentration is a Minimum Estimate.

TEQ - Toxicity Equivalency as Related to 2,3,7,8 TCDD using I-TEF/89 Method.

Note: All units are in parts per trillion (ppt)

Copied from the Existing Conditions Report, dated May 4, 1993, and prepared by Delta Environmental Consultants, Inc.

TABLE 8
Summary - Dioxins and Furans in Soil Samples
Weisenberger Tie & Lumber Company
Marathon City, Wisconsin
Delta No. 15-91-032
(continued)

Analyte	DSS-10 Dup (0-0.5 ft)	DSS-11 (0-0.5 ft)	DSS-11 (2 ft)	DSS-12 (0-0.5 ft)	DSS-13 (0-0.5 ft)	DSS-14 (0-0.5 ft)	DSS-15 (0-0.5 ft)	DSS-16 (0-0.5 ft)	DSS-17 (0-0.5 ft)	DSS-18 (0-0.5 ft)	DSS-18 Dup	DSS-19 (0-0.5 ft)	Pond Sed.	Pond Sed.	Pond Sed.
2,3,7,8 TCDD	ND	4.1	ND	ND	ND	3.4	0.61	ND	ND	ND	ND	1.6	ND	ND	ND
1,2,3,7,8 PeCDD	15	95.1	ND	13.4	8.2	87.8	21.5	ND	3.9	337	189	53.9	ND	ND	ND
1,2,3,4,7,8 HxCDD	60.9	381	2.7	46.6	34.2	337	90.8	4.3	15.4	2970	1180	250	ND	ND	ND
1,2,3,6,7,8 HxCDD	264	1480	21.5	258	143	1930	790	18.8	202	30410	18230	1810	ND	ND	ND
1,2,3,7,8,9 HxCDD	111	664	5.3	97.6	60.6	637	164	7.7	34.5	5750	8220	451	ND	ND	ND
1,2,3,4,6,7,8 HpCDD	8310 B	25840 S	420	5240	3220	23630 S	14100	464	6600	516590 S	652300 B	25810 S	1.4 B	1.0 B	ND
OCDD	53430 B	58870 SB	2380	27310 B	19690 B	73070 SB	68140 SB	3230 B	49060 B	1012190 SB	2291580 SB	108170 SB	29.7 B	23.4 B	18 B
Total TCDD	ND	18.4	ND	3.7	0.77	13.3	1.3	ND	1.1	89.5	68.2	3.8	ND	ND	ND
Total PeCDD	27.6	225	ND	24.2	28.5	278	42.8	ND	6	761	274	123	ND	ND	ND
Total HxCDD	1150	6390	74.1	1100	628	7360	2620	74.4	624	93370	112490	5820	ND	ND	ND
Total HpCDD	13660	45230 S	682	8560	5140	41160 S	22370	732	9680	889340 S	1149360	42890	2.5	1.0	ND
2,3,7,8 TCDF	2.2	12.3	ND	4.9	2.1	28.2	10.9	ND	3	285	200	21	ND	ND	ND
1,2,3,7,8 PeCDF	12.2	61.5	ND	16.2	8.2	128	48.7	ND	10.7	1250	795	107	ND	ND	ND
2,3,4,7,8 PeCDF	12.1	53.1	ND	13.5	5.6	96.2	37.5	ND	9.5	955	949	81.4	ND	ND	ND
1,2,3,4,7,8 HxCDF	55.3	313	4	44.9	27.6	341	147	4.1	39.5	6110	3480	391	ND	ND	ND
1,2,3,6,7,8 HxCDF	33.2	144	1.8	20.8	11.9	164	59.4	2	19.3	1520	945	199	ND	ND	ND
2,3,4,6,7,8 HxCDF	66.7 B	349	5	45.8	28.4	357	140	6.4	43.7	4620	9760 B	424	ND	ND	ND
1,2,3,7,8,9 HxCDF	ND	9.1	1.6	2.3	1.1	19.9	40.1	ND	ND	2140	688	18.6	ND	ND	ND
1,2,3,4,6,7,8 HpCDF	1380	6030	74.9	466	351	3680	1430	83	805	110560	80400	5900	ND	ND	ND
1,2,3,4,7,8,9 HpCDF	69.3	506	5.7	31.8	29.3	302	118	4.7	62.4	11960	17360	533	ND	ND	ND
OCDF	5520 B	26150 S	456	1880	1860	15900	6950	263	2770	344580	130140 B	40330	ND	ND	ND
Total TCDF	10.9	103	1.4	29.3	6.4	99.4	18.6	ND	4.1	1380	356	55.8	ND	ND	ND
Total PeCDF	458	1840	14.6	444	190	1960	926	34.2	476	15580	4620	2070	ND	ND	ND
Total HxCDF	1810	9430	122	1220	732	8690	3480	70.1	1040	174950	129920	11260	ND	ND	ND
Total HpCDF	4950	21790 S	361	1920	1530	14520	5760	296	3470	533440 S	655270	22430	ND	ND	ND
TEQ	977.93	3150.90	49.83	624.52	385.55	2975.00	1677.34	55.10	763.48	7658.78	5986.79	3096.72	0.17	0.12	0.02

B - Analyte Detected in Laboratory Method Blank.

S - Concentration Exceeds Normal Calibration Range. Reported Analyte Concentration is a Minimum Estimate.

TEQ - Toxicity Equivalency as Related to 2,3,7,8 TCDD using I-TEF/89 Method.

Note: All units are in parts per trillion (ppt).

DSS-18 samples were incorporated into the bio-pile in 1997.

Copied from the Existing Conditions Report, dated May 4, 1993, and prepared by Delta Environmental Consultants, Inc.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

Notice of
Weisenberger Tie & Lumber Remediation Project

The Wisconsin Department of Natural Resources (WDNR) proposes to take remedial action, using an estimated \$150,000, including design and construction from the State Environmental Fund, to remediate the soil at the Weisenberger Tie & Lumber property in Marathon County, Wisconsin. The purpose of this project is to abandon the on-site bio-pile of treated pentachlorophenol-contaminated soil, regrade the site and cover the remainder of the surface soil with a barrier layer to address dioxin-contaminated soil that remains on the site above the direct contact levels for an industrial site.

The Department has prepared a written decision that contains a summary of the facts the Department has relied upon in selecting the proposed remedial action. A copy of this written decision may be obtained from: Ms. Wendy Anderson, Engineer, DNR West Central Region Headquarters, 1300 West Clairemont Avenue, Eau Claire, WI 54701. You may call Ms. Anderson at (715)839-1604 to request a copy of the Department's written decision. If you have comments on the proposed remedial action, you should mail them to Ms. Anderson within 30 days of the date this notice is published.

In accordance with ch. NR 714 of the Wisconsin Administrative Code entitled, "Public Information and Participation", the Department shall publish a public notice as a class 1 notice under ch. 985, Stats., upon selection of a proposed remedial action in accordance with ch. NR 722 for sites or facilities where a Department-funded remedial action is proposed pursuant to s. 292.32(3)(f) or 292.11. This notice also serves to show compliance with ch. NR 714.07(5) and NR 722.09(2)(a)2., Wis. Adm. Code, which requires responsible parties to publish a class 1 public notice under ch. 985, Wis. Stats., whenever a performance standard is proposed to be selected for a soil remedial action.

Section 292.31(3)(f), Wisconsin Statutes, provides that if any person demands a hearing, within 30 days after this notice is published, for the purpose of determining whether the proposed remedial action and any expenditures that are proposed are within the scope of s. 292.31, Stats., and are reasonable in relation to the cost of obtaining similar materials and services, the Department must hold a public informational hearing.

Written demands for a hearing must be filed with the Department by delivery to the Office of the Secretary of the Department of Natural Resources at 101 S. Webster Street, Madison, Wisconsin or by certified mail addressed to: Secretary George E. Meyer, Department of Natural Resources, 101 South Webster Street, P.O. Box 7921, Madison, WI 53707. If a hearing is requested, within 30 days, for either of the purposes set forth in s. 292.31(3)(f), Stats., the Department will hold an informational hearing after publishing notice of the hearing. Section 292.31(3)(f), State Statutes, provides that such a hearing shall not be conducted as a contested case hearing, notwithstanding the provisions of s. 227.42, Stats.

After the Department makes a final decision on the proposed remedial action, that decision is subject to judicial review under s. 227.42, Stats. If you have any questions regarding this matter, please direct them to Ms. Wendy Anderson at DNR West Central Region Headquarters, 1300 West Clairemont Avenue, Eau Claire, WI 54701.

REMEDIAL ACTION OPTIONS REPORT

1. SITE DESCRIPTION

Name: Weisenberger Tie and Lumber Site

Location: Weisenberger Road, Marathon City, Marathon County
NW ¼ of the NE ¼ of Section 1, Township 28 North, Range 5 East

Background information:

The project area is approximately 29.5 acres. The facility is a pallet factory, lumber mill and was previously a wood treating facility. Historically, the source of the contamination was located on the southern 2 acres of the portion of the Weisenberger Tie and Lumber property. In this area, wood was treated by dipping wood in concrete vaults (with metal tanks that fit inside the vaults) which contained a mixture of approximately 5 percent Pentachlorophenol (PCP) and diesel fuel. The treated wood was then placed on the ground south and west of the tanks where it was allowed to dry by allowing any excess PCP solution to drip onto the ground. In addition, sludge from the vaults was periodically emptied onto sawdust piles (debris pile) adjacent to the dip tank area.

Soil and groundwater became contaminated with dioxin, PCP, and petroleum constituents and groundwater was documented as flowing to the south/southwest, the direction of the Village of Marathon City's well field. Because neither PCP nor dioxins are very soluble in water, they are not very mobile in soil. However, groundwater contamination resulted because these compounds are soluble in fuel oil and, as such, were able to more readily migrate through the soil column to groundwater. To immediately address the groundwater contamination, an Interim Groundwater Remedial Action was designed in 1994 and constructed in 1995. This action consisted of a groundwater capture and treatment system. The system operated until early 1998, when it was shut down to evaluate the effects of natural attenuation. Groundwater monitoring continues. The removal/degradation of the petroleum carrier results in the dioxins being left in place in an immobile condition.

In 1997, to address the soil contamination and continued leaching of PCP into groundwater, the dip tank area, drying area and debris pile were excavated and a bio-pile was constructed from this material. By removing the source, the levels of remaining PCP and dioxin within these areas no longer pose a threat to groundwater. However, in the areas beyond the dip tank, debris pile and primary drying areas, the top one-half foot of surface soils still contain levels of dioxin above the direct contact level for an industrial site.

The final action proposed for this site is to dismantle the bio-pile, grade the site to reduce erosion potential, replace the bio-pile soils on the site, cover the site with no less than one foot of soil as the barrier layer, six inches of topsoil, fertilize, seed, and mulch to establish a sound vegetative cover, continue long-term groundwater monitoring, and implement a deed restriction.

Substantial danger present at the site or facility:

As a result of the interim actions taken to date, the only remaining threats to human health or the environment is the dioxin-contaminated soil direct contact exposure pathway. The groundwater monitoring has shown that the groundwater contamination has been stable since the groundwater capture system has been shut down. Groundwater will continue to be monitored until the NR 140 standards or closure criteria under NR 726 have been met. Soil sampling performed on the bio-pile has shown that the levels of PCP in the bio-pile have been reduced to below both the site-

specific residual soil standard and direct contact levels for an industrial site. Soil samples for PCP from the surface soils on the remainder of the site are also below direct contact levels for an industrial site. Dioxin levels, both within the bio-pile, and in the upper half foot of the surface soil on the remainder of the site, exceed industrial direct contact levels and an action is required to protect human health and the ecological environment.

Water quality concerns:

There are no surface water quality concerns at this site once the bio-pile pad is removed and the area is properly graded. Groundwater at the site exceeds NR 140 standards, but the plume appears to be stable or receding and groundwater monitoring to document natural attenuation is currently underway.

Wetland impacts:

There are no wetland impacts at the site.

2. REMEDIAL ALTERNATIVES SCREENING

Technical feasibility:

For each alternative reviewed, the primary focus for remediation is to provide practicable proven means to reduce contaminant movement to ground and surface waters and to address the direct contact pathway for dioxin-contaminated soils. The emphasis was placed on using technologies with a history of successful performance in similar situations.

Economic feasibility:

In reviewing each alternative for economic feasibility the primary factors considered were:

- a. Meeting technical requirements for achieving environmental stability.
- b. Maintaining an acceptable implementation time line.
- c. Short and long term costs associated with operation and maintenance activities.

3. ALTERNATIVES ANALYSIS:

It is important to note that, following unsuccessful litigation actions against the owner of the property to complete closure and cleanup of the site, the DNR has been performing various cleanup and emergency containment activities at the Weisenberger Tie and Lumber site since the early 1990's. In order to perform those activities the DNR has already expended over \$3 million to evaluate existing site conditions, develop a phased approach to containment and conduct cleanup of the site.

Alternative 1

No Action - This alternative is unacceptable. The bio-pile pad is bermed to collect contact water from rainfall events. This water currently collects in a sump and is pumped to a treatment system where it is run through activated carbon tanks. The termination of the collection and treatment of the contact water currently performed by DNR would result in the accumulation of contact water on the pad with the potential for breaching to cause erosion to the site and adjacent property. In addition, the soil is in a pile form and is covered by synthetic materials that requires on-going maintenance. The bio-pile soil needs to be stabilized by grading, covered to address dioxin direct contact concerns and seeded to support a good vegetative growth in order to be protective of human health. The remaining site soils contain dioxin levels above direct contact for industrial

site and require an action to eliminate the exposure pathway. Groundwater currently exceeds NR 140 standards.

Alternative 2

Dismantle the Bio-Pile, Regrade the Site to Reduce Erosion Potential, Replace the Bio-Pile Soils on Site, Cover the Site with a Barrier Layer, Topsoil, Fertilize, Seed, Mulch, Continue Long-Term Groundwater Monitoring, Implement a Deed Restriction which will Limit Future Use of the Property to Industrial, Restrict Interference with Drainage, Soil Topography and Cover Thickness and Limits and will Include Restrictions on Future Groundwater Use on the Property - This alternative addresses the issues of direct contact and future water use. This alternative also meets both the technical and economic criteria and is therefore acceptable.

Alternative 3

Dismantle the Bio-Pile, Dispose of Treated Soil and Existing Site Soils that Exceed Industrial Direct Contact Levels for Dioxin Off-Site at a Hazardous Waste Landfill, Conduct Long-Term Groundwater Monitoring, Record a Deed Restriction which will Include Requirements for Future Water Use on the Property - Soil sampling for PCP has shown that the levels have been reduced through treatment to levels below all exposure pathways. Considering PCP alone, off-site disposal is unnecessary. Soil sampling for dioxin/furan has shown that the levels are below the Land Disposal Restriction level for disposal in a hazardous waste landfill. Therefore, while this alternative is technically feasible, the economics favor Alternative 2. In addition, this alternative had been eliminated at the time the decision was made to treat the PCP-contaminated soil for future on-site replacement. This was to some extent decided due to the extreme cost of disposal, as well as the potential short-term impacts of moving more than 450 truckloads of dioxin-contaminated soil off-site and out of State. There is no hazardous waste landfill in the State of Wisconsin.

In addition to the above, incineration of dioxin-contaminated soil was considered, however at the present time there is no available incinerator in the country. Storage of the dioxin-contaminated soil was considered, however, without a final disposal option available, this option was not considered technically or economically feasible due to the cost of storage, which would amount to over \$2 million for one year of storage for over 1,000 drums¹. Vaulting or an engineered cap were also considered; however, review of the soil data and the limited mobility of the remaining contaminants, these options were no longer necessary to protect groundwater. Institutional controls as a stand alone option was also discarded because simply securing the site with a fence was not protective in the long-term. Long-term groundwater monitoring is the only alternative necessary at this point to address groundwater above NR 140 Enforcement Standards, and has been incorporated in the alternatives above. The previous action of the groundwater pump and treat system have controlled the migration of groundwater and a stable plume has been exhibited since the groundwater system has been shut down.

4. SELECTED ALTERNATIVE:

Based upon the preceding discussions, the most effective alternative for this site is **Alternative 2** - to dismantle the bio-pile, grade the site to reduce erosion potential, replace the bio-pile soils on the site, cover the site with no less than one foot of soil as the barrier layer, six inches of topsoil, fertilize, seed, mulch, establishing a sound vegetative barrier, continue long-term groundwater monitoring, and implement a deed restriction which will limit future use of the property to industrial, restrict interference with the drainage, soil topography, and cover thickness and limits

¹ Current contract with Waste Management Industrial Services is \$4.25 per drum per day for storage at their Controlled Waste Facility.

and will include requirements for future water use on the property (Alternative #2). Staff from the Bureaus of Waste Management and Remediation and Redevelopment have been coordinating the phased activities at this site. In addition, the staff from the Wisconsin Department of Health have reviewed soil analytical data for the site and concur that the proposed remedy is protective of human health, and staff from the Bureau of Wildlife Management concurs that the remedy is protective of ecological health as long as the barrier layer is constructed of a material considered to be unattractive to biota. The Department estimates the capital cost of this remedy to be less than \$150,000, and annual O&M costs to be less than \$40,000 (groundwater monitoring).

External partners

The owner of the Weisenberger Tie and Lumber property no longer resides on the property, however his children now live in the farmhouse nearby. The Department of Justice has been pursuing the owner to collect on an outstanding Judgement for cleanup costs. The property owner recently filed bankruptcy in Minnesota, however the Department of Justice feels that the implementation of deed restrictions for the property will not be a problem. In addition, a company that manufactures pallets currently operates their business on a large portion of the property. The property actually consists of four parcels, all of which are tax delinquent in the amount of \$38,400.

Approvals

The inclusion of the Wisconsin Department of Health and the DNR Hazardous Waste and Wildlife Management Staff in the development of the Weisenberger Tie and Lumber soil remediation project maintains consistency with health concerns as well as hazardous waste requirements under chapter NR 600, Wisconsin Administrative Code and potential ecological risk. Long-term groundwater monitoring is consistent with ch. NR 140 and the NR 700 series.

5. DECISION:

Based on the findings of facts set forth, the Department of Natural Resources has selected Alternative 2, which consists of dismantling the pentachlorophenol bio-pile for on-site replacement at the Weisenberger Tie and Lumber site, grading the site to reduce erosion potential, covering the bio-pile soils and the existing site soils with no less than one foot of soil as a barrier layer, six inches of topsoil, fertilize, seed, and mulch, establishing a sound vegetative barrier, continuing long-term groundwater monitoring and implementing a deed restriction which will limit future use of the property to industrial, restrict interference with the drainage, soil topography and cover thickness and limits, and will include requirements for future water use on the property.

Approved:

Dated this 27th day of April, 1999

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES



George E. Meyer, Secretary