STODDARD SOLVENT UNDERGROUND STORAGE TANK SITE INVESTIGATION PROGRESS REPORT

TECUMSEH PRODUCTS COMPANY GRAFTON, WISCONSIN

PREPARED FOR:

TECUMSEH PRODUCTS COMPANY GRAFTON, WISCONSIN

NOV 2 0 1992

SUBMITTED BY:

FOX ENVIRONMENTAL SERVICES, INC. MILWAUKEE, WISCONSIN

PROJECT: F-92513

OCTOBER, 1992

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Foster Johnston, REP, CHCM

SITE INVESTIGATION Stoddard Solvent Tank

Tecumseh Products Company Grafton, Wisconsin

Project No. F - 92513

INTRODUCTION

This is a progress report to summarize the site investigation activities completed by Fox Environmental Services, Inc. (FOX) at Tecumseh Products Company, 900 North Street in Grafton, Wisconsin (Figure 1). The site investigation was in response to a leak from a stoddard solvent underground storage tank (UST).

BACKGROUND

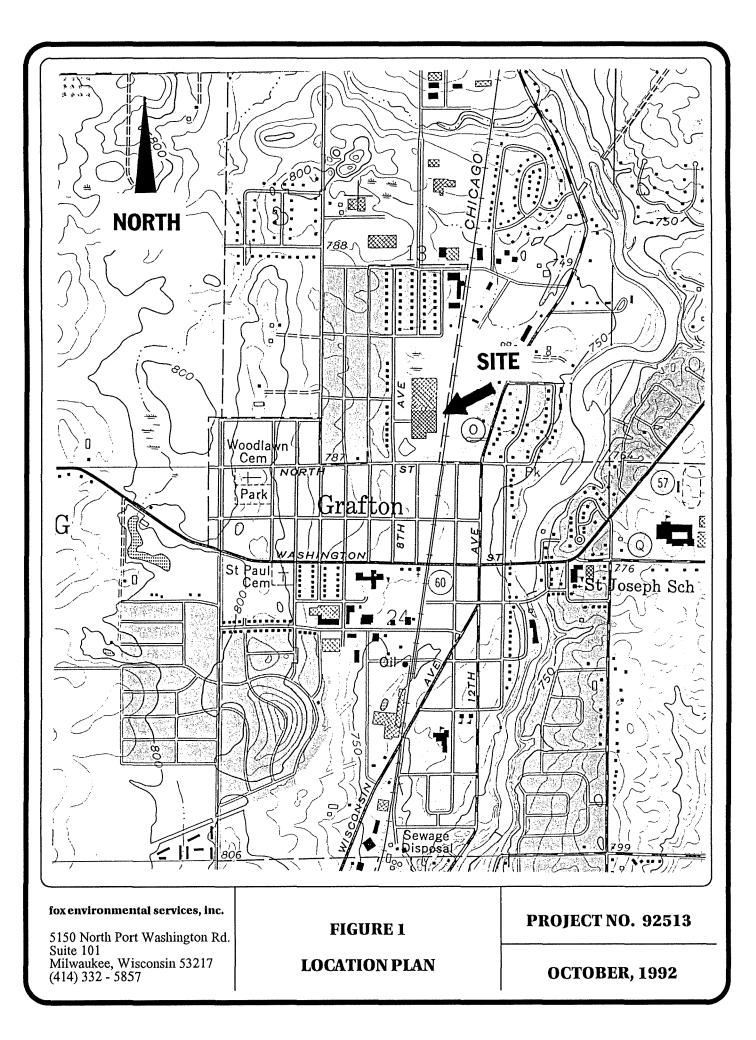
On June 16 & 17, 1992, E&K Hazardous Waste Services, Inc. (E&K) removed a 350 gallon stoddard solvent UST and the associated piping, and performed a tank closure assessment. At two locations within the tank excavation soil contamination was detected (11 & 15 parts per million) by the analytical laboratory. For details of the closure assessment, refer to the report titled "Site Assessment and Tank Closure Report"; Tecumseh Products Company; Grafton, Wisconsin; E&K No. 152922, dated August 18, 1992.

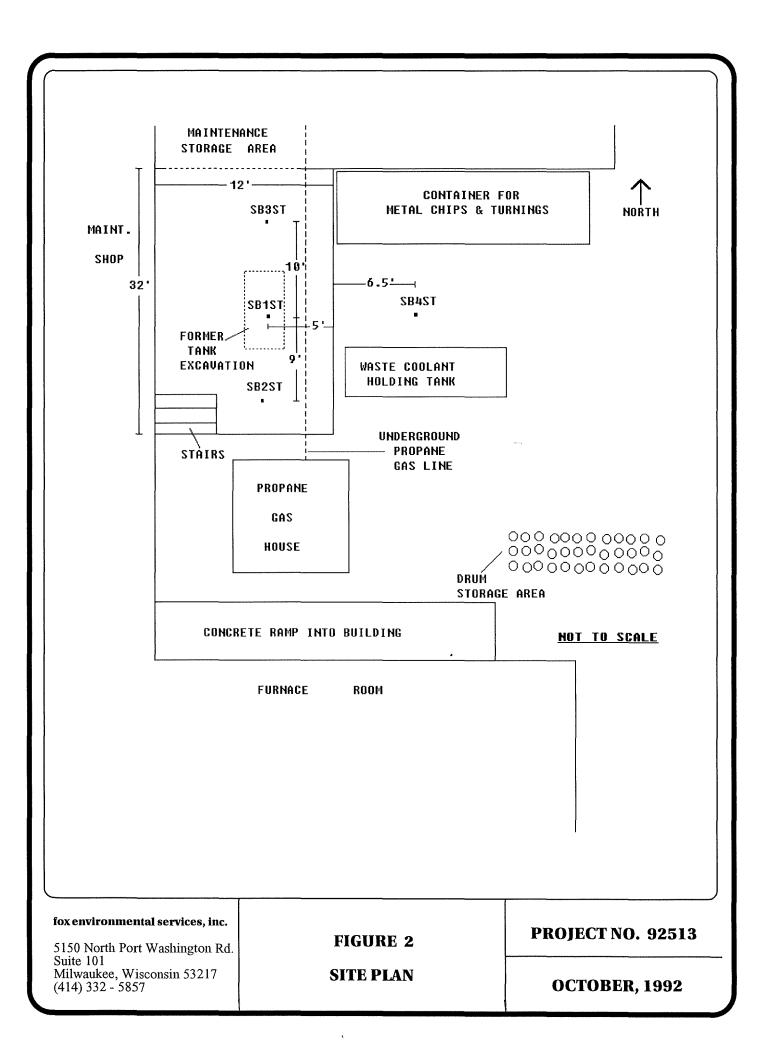
SITE INVESTIGATION

On September 14 and 15, 1992, four soil borings were placed in and around the excavation backfill for the stoddard solvent tank which was beneath the trash dock on the east side of the building. The location of the borings are identified in **Figure 2**. Using a General 550 drill rig soil samples were collected with a six (6) inch shelby tube every two (2) feet and screened in the field with a Thermo Electron, Model 580, photoionization detector (PID). The soil was classified and entered on boring logs along with the results of the screened samples (**Appendix A**). The soils were a light to medium brown clay down to about 12 feet with medium brown to gray sand to about 18 feet. The depth of the borings ranged from twelve (12) to eighteen (18) feet and water was encountered from eight (8) to eighteen (18) feet. A total of nine soil samples were submitted to Precision Analytical Laboratory (PAL) for gasoline range organics (GRO) and petroleum volatile organic compounds (PVOC) analysis. The boreholes were properly abandoned and later abandonment forms were completed and sent to the Wisconsin Department of Natural Resources (WDNR). Copies of the forms are in **Appendix B**.

RESULTS

The results of the laboratory analysis are summarized in **Table 1** and a copy of the lab report is in **Appendix C**. Concentrations of GRO were detected in all nine samples ranging from 34 to 1,100 parts per million (ppm). Five of the samples (SB1ST 16' - 16.5', SB2ST 18' - 18.5', SB3ST 12' - 12.5', SB3ST 16' - 16.5', and SB4ST 12' - 12.5') were collected at depths where water was encountered.





Concentrations of PVOC were detected in all nine samples ranging from 970 to 37,000 parts per billion (ppb). Field screening of the samples detected volatile contamination in all of the samples.

SUMMARY AND RECOMMENDATIONS

The results of the field screening and the laboratory analysis detected concentrations of GRO in all four soil borings. Groundwater or perched groundwater was encountered at various depths and contamination was also detected in these zones. FOX recommends the following actions:

- Notify the WDNR on the new status of the release involving the groundwater.
- Evaluate the data and the site with a hydrogeologist from FOX, and develop and implement a work plan for the placement of groundwater monitoring wells.
- Continue to determine the extent of the contamination with soil borings radially outward, primarily from SB4ST. If a more powerful drill rig can be mobilized into the maintenance storage area, soil borings should be placed north of SB3ST

	SB1ST	SB1ST	SB1ST	SB2ST	SB2ST	SB3ST	SB3ST	SB4ST	SB4ST
	10' - 10.5'	14' - 14.5'	16' - 16.5'	8' - 8.5'	18' - 18.5'	12' - 12.5'	16' - 16.5'	8' - 8.5'	12' - 12.5'
GRO (in parts per million)	580	970	660	1,100	14	410	34	160	520
PVOC (in parts per billion)									
BENZENE	<500	<500	<210	<510	<100	<540	<100	<500	<500
ETHYLBENZENE	<500	4,500	2,700	6,100	<100	<540	<100	<500	<500
METHYL-T-BUTYLETHER	<500	<500	<210	<510	<100	<540	<100	<500	<500
TOLUENE	1,300	1,400	<210	970	<100	<540	<100	2,600	2,900
1,2,4-TRIMETHYLBENZENE	15,000	35,000	22,000	37,000	150	11,000	590	3,400	16,000
1,2,5-TRIMETHYLBENZENE	11,000	19,000	13,000	20,000	<100	6,300	330	1,400	8,100
TOTAL XYLENES	9,400	20,000	11,000	21,000	<100	4,700	160	2,800	11,000

TABLE 1 STODDARD SOLVENT TANK

APPENDIX A

Soil Boring Logs

BORING/WE	LL SB1S	Τ	PROJEC	CT/NO. <u>Tecumseh Products Co #92513</u> PAGE <u>1</u> OF <u>1</u>
SITE LOCAT	101 <u>900 No</u>	orth Street	DRILLIN	ing started <u>9:45 AM</u> drilling completed <u>11:40 AM</u> date <u>9/14/92</u>
TOTAL DEPT	H DRILLED	<u>16</u> fe	eet HOLE DIA	AMETER <u>4</u> inches TYPE OF SAMPLE/CORING DEVICE <u>Shelby Tube</u>
LENGTH AN	D DIAMETER O	F CORING DEV	vice <u>6"</u>	x 1.5" SAMPLING INTERVAL 2.0 feet
LAND SURF	ACE ELEVATIO	N		feet SURVEYEDESTIMATED DATUM
DRILLING FI	LUID USED <u>1</u>	None		DRILLING METHOD Solid Stem Auger
DRILLING C	ONTRACTOR	Giles Eng	ineering	driller Roley Helper Chris
PREPARED F	wJulie Ei	rato	H	HAMMER WEIGHT NA HAMMER DROP NA inche
Sample Core I (feet below lat	Depth nd surface)	Core Recovery	OVA Meter Reading	r
FROM	TO	(feet)	(Units)	Sample/Core Description
2	2.5	0.5	138	Medium to course sand & gravel backfill; some medium to dark brown clay
4	4.5	0.5	322	Medium to dark brown clay with some pebbles
6	6.5	0.5	221	Medium to dark brown clay with some sand
8	8.5	0.5	521	Medium to dark brown clay
10	10.5	0.5	263	Medium to dark brown clay
12	12.5	0.5	540	Medium to dark brown clay top 3 "; medium to fine sand 3"
14	14.5	0.5	487	Medium brown very sandy clay with seams of medium to fine sand; moist
16	16.5	0.5	374	Medium brown - gray medium-course sand; very wet
4//ca/1940/ca/1940/				
<i>b</i>				

NOTES

1	BORING/WELI	<u>SB2S'</u>	Τ	PROJEC	TTNO. Tecumseh Products Co. / #92513 PAGE 1_OF 1_					
5	SITE LOCATIC	м <u>900 Nc</u>	orth Street	DRILLING	g started <u>1:05 PM</u> drilling completed <u>3:50 PM</u> date <u>9/14/</u>	<u>92</u>				
	TOTAL DEPTH DRILLED <u>18</u> feet HOLE DIAMETER <u>4</u> inches TYPE OF SAMPLE/CORING DEVICE <u>Shelby Tube</u>									
1	LENGTH AND DIAMETER OF CORING DEVICE <u>6" x 1.5"</u> SAMPLING INTERVAL <u>2.0 or 4.0</u> fee									
]	LAND SURFACE ELEVATION feet SURVEYEDESTIMATED DATUM									
1	ORILLING FLU	JID USED	None		DRILLING METHOD Solid Stem Auger					
]	ORILLING CO	NTRACTOR	Giles Eng	ineering	DRILLER_RoleyHELPER_Chris					
]	PREPARED BY	Julie Er	ato	H/	AMMER WEIGHT NA HAMMER DROP NA	inches				
	Sample Core De feet below land		Core Recovery	OVA Meter Reading						
	FROM	ТО	(feet)	(Units)	Sample/Core Description					
	2	2.5	0.5	75	Medium brown clay					
	4	4.5	0.5	202	Light to medium brown clay					
and a set in the set of the	6	6.5	0.5	297	Light brown clay;					
1										
100,000 million	8	8.5	0.5	404	Light brown clay;					
No.										
addamment .	10	10.5	0.5	348	Light brown clay;					
A DOLLARS										
etholds	14	14.5	0.5	278	Fine to medium sand with trace clay; moist to wet					
niniariinna.com										
2016	18	16.5	0.5	14	Light brown fine to medium sand; very wet;					
101112022021021028										
101										
200mmmund										
1000										
Value Sciences										
40522										
SUMMIZICO (D)										
67446										

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BO	ORING/WELI	<u>SB3S</u>	Τ	PROJEC	CT/NO. Tecumseh Products Co #92513 PAGE 1 OF 1	_
SI	TE LOCATIO	м <u>900 Nc</u>	orth Street	DRILLIN	ng started <u>9:35 AM</u> drilling completed <u>11:10 AM</u> date <u>9/1</u> :	<u>5/92</u>
т	DTAL DEPTH	DRILLED	fe	et HOLE DIA	AMETER <u>4</u> inches TYPE OF SAMPLE/CORING DEVICE <u>Shelby Tube</u>	
Lł	ENGTH AND	DIAMETER O	F CORING DEV	/ice <u>6"</u> 2	x 1.5"SAMPLING INTERVALfeet	
L	AND SURFAC	CE ELEVATIO	N	48444 Innuran	feet_SURVEYEDESTIMATED DATUM	
D	RILLING FLU	UID USED <u>1</u>	None		DRILLING METHOD Solid Stem Auger	
D	RILLING CO	NTRACTOR	Giles Eng	ineering	driller Roley helper Chris	
PI	REPARED BY	Julie Ei	rato	H	AMMER WEIGHT NA HAMMER DROP NA	inches
	mple Core De eet below land	surface)	Core Recovery	Reading		
Г	FROM 4	<u>то</u> 4.5	(feet) 0.5	(Units) 158	Sample/Core Description Medium brown clay; very strong organic decay odor;	
┢		ч.5	0.5	150	Health brown enzy, very strong organic decay outr,	
	8	8.5	0.5	238	Gray clay; very wet; very strong organic decay odor;	
	12	12.5	0.5	180	Small amount of brown clay - mostly gray sand; very wet; very strong organic decay odor;	
	16	16.5	0.5	54	Gray sand; very wet; very strong organic decay odor;	
_ L_			1	J		

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Accounting and a second

LLOT:	BORING/WELI	SB4S	Т	PROJEC	T/NO. Tecumseh Products Co #92513 PAGE 1 OF 1	
PERSONAL AND A CONTRACTOR	SITE LOCATIC	on <u>900 N</u> a	orth Street	DRILI	ling started <u>12:40 PM</u> drilling completed <u>1:30 PM</u> date <u>9/15/</u>	<u>/92</u>
Commission 12	TOTAL DEPTH	I DRILLED	12 1	eet HOLE DIA	METER <u>4</u> inches TYPE OF SAMPLE/CORING DEVICE <u>Shelby Tube</u>	
1000z,	LENGTH AND	DIAMETER C	OF CORING DE	vice <u>6"</u> >	x 1.5" SAMPLING INTERVAL 4.0 feet	
	LAND SURFAC	CE ELEVATIC	DN	· · · · · · · · · · · · · · · · · · ·	feet_SURVEYEDESTIMATED DATUM	
a distance in the second s	DRILLING FLU	JID USED]	None		DRILLING METHOD Solid Stem Auger	
-	DRILLING CO	NTRACTOR_	Giles Eng	gineering	DRILLER_RoleyHELPER_Chris	·····
And and the second seco	PREPARED BY	Julie E	rato	HA	AMMER WEIGHT NA HAMMER DROP NA	_inches
	Sample Core De (feet below land		Core Recovery	y OVA Meter Reading		
	FROM	ТО	(feet)	(units)	Sample/Core Description	
	4	4.5	0.5	278	Dark brown clay with small pockets of oily-looking brown/black viscous material; very strong organic decay odor;	
					viscous material, very strong organic decay outri,	
	8	8.5	0.5	130	Medium brown clay; very strong organic decay odor;	
patientersteringen gehannen besternen.	12	12.5	0.5	321	Medium brown fine to medium sand; wet; very strong organic decay odor;	
1.000000000000000000000000000000000000						
A COLONNA SCHOOL						
randika.						
				·		
and a second second						
-iiiiiiiiiiiii-						
current strategy						
,	NOTES					

APPENDIX B

Borehole Abandonment Forms

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATIO	ON	(2) FACIL	TY NAME		
Well/Drillhole/Borehole)	County	Original	l Well Owner		
Location	OZAUKEE		mseh	Products	Company
5W 1/4 of $5W$ 1/4 of Sec	. <u>13; t. 10</u> N.R. <u>ZI</u>		Well Owner	Products	Company
(If applicable)	. Kao sistema international de la const	Street or	r Route	·. · · ·	
Grid Location Gov't Lot	Grid Number	TO D City St	Nov 1 late, Zip Code	Listreet	
ft. 🔲 N. 🔲	S., ft. [] E. [] W.	· · ·	Him	WI	and the second sec
Civil Town Name		an na sa sa sa sa sa sa		/or Name (If Applicable)	WI Unique Well No.
Street Address of Well		SB-	1 - 5 T For Abandon	mont	
	reet	Bare	hole -	A. 1	nerder
City, Village		Date of	Abandonmen	t i	
not tar-)		9-1	4-92	• *	an an tha an an an an an an an An an tha an
WELL/DRILLHOLE/BOREHO (3) Original Well/Drillhole/Boreho		(4) Depth to	Water (Feet) 15	с
(Date)			Piping Rem		No X Not Applicable
		Liner(s)	Removed?		No 🔀 Not Applicable
Monitoring Well	Construction Report Available?	and for the	Removed? Left in Place?		No Not Applicable
Water Well Drillhole			xplain Be		No CASING
Borehole					,
, , , , , , , , , , , , , , , , , , ,			-	Below Surface?	Yes No
Construction Type:	iven (Sandpoint) Dug		•	Rise to Surface?	Yes 🔲 No Yes 🥅 No
Other (Specify)	iven (Sandpoint) L Dug		, Was Hole R		Yes No
		(5) Required	d Method of P	Placing Sealing Material	
Formation Type:	Bedrock	Cond	luctor Pipe-G		or Pipe-Pumped
		Dum			xplain) Poured Dr
Total Well Depth (ft.) <u>N/A</u> (From groundsurface)	Casing Diameter (ins.) $\frac{N/A}{2}$		Materials Cement Gro		nonitoring wells and toring well boreholes only
(110m Browners)		the second second		ncrete) Grout	toring wen coronoles only
Casing Depth (ft.) N/r	<u>\</u>				entonite Pellets
Was Well Annular Space Grou	ted? 🗌 Yes 🕅 No 🔲 Unknown		-Sand Slurry onite-Sand Sl	·	ranular Bentonite entonite - Cement Grout
If Yes, To What Depth?	N/A Feet		ped Bentonite		entonne - Cement Grout
$\overline{\mathcal{O}}$			1	No. Yards, (Ci-a)	Mix Ratio
Sealing M	laterial Used	From (Ft.)	To (Ft.)	Sacks Sealant (Circle or Volume One)	or Mud Weight
Enviroplury		Surface	16	6 SACKS	Dry
		a ta sa			
					
(8) Comments:		L	L	1	
	· · ·				······································
(9) Name of Person or Firm Doing		(10)		DNR OR COUNT	
Signature of Person Doing Wor	ntal SERVICES Inc. k Date Signed	Date	Received/Insp	Dected	istrict/County
X takt	$\begin{array}{c} \text{Date Signed} \\ 9 - 28 - 92 \end{array}$	Revi	ewer/Inspecto	r l	Complying Work
Street or Route SISS N.	Telephone Number		•		Noncomplying Work
FI. WAChington Kd	1 (4111)332-5857	Follo	w-up Necess	ary	
City, State, Zip Code M. WAUKCE	WI 53217				
1 HIM MILLE		L			

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(I) G	ENERAL INFORMATION		(2) FACILI	TY NAME		
Ņ	Vell/Drillhole/Borehole	County		Well Owner	(If Known)	<u>^</u>
L	ocation	Ozpukee		mseh	Products	CompAny
<u>5 M</u>		<u>3; t. 10</u> N; R. <u>21</u> W		WellOwner	Products	CompAny
(1	f applicable) Gov't Lot	Grid Number	Street or	North	h Street	
G	rid Location			ate, Zip Code		,
<u> </u>	ft. N. S., Ivil Town Name				or Name (If Applicable)	WI Unique Well No.
Ū	n a o gestatutetetetetetetetetetetetetetetetetete	g gebun bésérék erénérék beres A an an ang ang agan an ang a		2 - ST	· · · · · · · · · · · · · · · · · · ·	in chique inchine.
_	treet Address of Well	1		For Abandon	1 I I	
	00 North Str ity, Village	i z est logo acgaigeurg velo se i se		hole - Abandonment		reederl
(GRAFton	a goard states and a second states and a second states of the second states and the second states and the second states are second states and the second states are second s		14-92		
	L/DRILLHOLE/BOREHOLI					
(3) 0	riginal Well/Drillhole/Borehole)	Construction Completed On		Water (Feet		
(I	Date)			Piping Remo Removed?		No 🔀 Not Applicable
Г	Monitoring Well	Construction Report Available?	No. Contraction of the second s	lemoved?	أسسا اسسا	No X Not Applicable No X Not Applicable
Ē] Water Well	Yes X No		Left in Place?		No .
Ē] Drillhole	41.1	If No, E	xplain <u>B</u>	ovehote - n	U CASING
لار	Borehole		Was Ca	sing Cut Off I	Below Surface?	Yes No
С	onstruction Type:		1	-	Rise to Surface?	Yes \square No
Ď		(Sandpoint) Dug	Did Mat	erial Settle A	fter 24 Hours?	Yes 🔲 No
Ĺ	Other (Specify)		If Yes	, Was Hole R	etopped?	Yes 🔲 No
E,	ormation Type:		(5) Required	l Method of P	lacing Sealing Material	
	_	Bedrock		luctor Pipe-G	ravity Conductor	Pipe-Pumped
1	otal Well Depth (ft.) <u>NA</u>	Casing Diameter (ins.) N. A		p Bailer Materials		plain) burnd dru onitoring wells and
	From groundsurface)		-	Cement Grou		oring well boreholes only
•		$\eta_{i} = 2 - 2$		-Cement (Cor		
С	asing Depth (ft.) <u>NA</u>					ntonite Pellets
NI.	as Well Annular Space Grouted?	Yes X No 🗌 Unknown		-Sand Slurry onite-Sand Sl		anular Bentonite
~	If Yes, To What Depth?	NA Feet		ped Bentonite	•	ntonite - Cement Grout
(7)			<u> </u>	Γ	No Yards	Mix Ratio
	Sealing Mater	rial Used	From (Ft.)	To (Ft.)	Sacks Sealant (Circle or Volume One)	or Mud Weight
	ENVIVOPLAG		Surface	18	TSACKS	NYU
	- www.oping-					
	ан со	·				
						
(8) C	omments:					
(9) N	ame of Person or Firm Doing Sez	ling Work	(10)	TOD	DNR OR COUNTY	HERONIN
	ox Environment		A STATE OF A STATE	Received/Insp		strict/County
8	ignature of Person Doing Work	Date Signed				
4	at Arth	9-28-92	Revi	ewer/Inspecto		Complying Work
় ত	treet or Route 5150 N.	Telephone Number (111) 332-5857	E.V.			Noncomplying Work
r a	ity, State, Zip Code,		Follo	w-up Necess:	ny	
		NI SJAIT				

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION	(2) FACILITY NAME
Well/Drillhole/Borehole County	Original Well Owner (If Known)
Location OTAUKE	
5 W 1/4 of $5 W$ 1/4 of Sec. 13 ; T. 10 N; R. 21 W	Present Well Owner Technisch Products Company
(If applicable)	Street or Route
Gov't Lot Grid Number	900 North Street
Grid Location	City, State, Zip Code
ftNS.,ftEW.	GRN4 ton WI Facility Well No. and/or Name (If Applicable) WI Unique Well No.
shi ok za ta shi anga ta shi aka shi a	123 - 3 - 5T with the analysis in the first Applicable is with onique well No.
Street Address of Well	Reason For Abandonment
<u>100 North Strept</u>	Borehule - No longer needed
	Date of Abandonment
(-RAJON WELL/DRILLHOLE/BOREHOLE INFORMATION	30. 9-15-92
(3) Original Well/Drillhole/Borehole Construction Completed On	(4) Depth to Water (Feet) 1 5
(Date) 9-15-92	Pump & Piping Removed? Yes No X Not Applicable
	Liner(s) Removed? Yes No X Not Applicable
Monitoring Well Construction Report Available?	Screen Removed? Yes No X Not Applicable
U Water Well Ves X No	Casing Left in Place? Yes X No If No, Explain Rove hole no CASING,
Borehole	
	Was Casing Cut Off Below Surface? Yes No
Construction Type:	Did Sealing Material Rise to Surface? Yes No
Drilled Driven (Sandpoint) Dug	Did Material Settle After 24 Hours? Yes No If Yes, Was Hole Retopped? Yes No
Formation Type:	(5) Required Method of Placing Sealing Material Conductor Pipe-Gravity Conductor Pipe-Pumped
Unconsolidated Formation 🛛 Bedrock	$\Box Dump Bailer$ $\Box Other (Explain) = Ouvre of ouvre ouvre ouvre ouvre of ouvre ouvr$
Total Well Depth (ft.) <u>NA</u> Casing Diameter (ins.) <u>NA</u>	(6) Sealing Materials For monitoring wells and
(From groundsurface)	Image: Neat Cement Grout monitoring well boreholes only
Contract (A) N A	Sand-Cement (Concrete) Grout
Casing Depth (ft.) <u>NA</u>	Clay-Sand Slurry Granular Bentonite
Was Well Annular Space Grouted? 🔲 Yes 🖾 No 🗌 Unknown	
If Yes, To What Depth? NA Feet	Chipped Bentonite
(7) Soution Metadel Used	From (Ft.) To (Ft.) Sacks Sealant (Circle Mix Ratio or Mud Weight
Sealing Material Used	From (Ft.) To (Ft.) To (Ft.) Sacks Sealant One) Or Mud Weight
	Surface 16 6 SARKS Dry
ENVIVOPING	Surface 16 6 SACKE Dry
(8) Comments:	
(9) Name of Person or Firm Doing Sealing Work	(10) FOR DNR OR COUNTY USE ONLY
Fox Environmental SERVICES Inc	Date Received/Inspected District/County
Signature of Person Doing Work Date Signed + 28-92	Reviewer/Inspector Complying Work
Street or Roule SISO N. Telephone Number	Noncomplying Work
Part. Washington Rd (414) 332-5857	Follow-up Necessary
City, State, Zip Code Milionaker WI 53217	
Milwaukere WI 53017]

PERSON COMPLETING ABANDONMENT

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION	(2) FACILITY NAME
Well/Drillhole/Borehole County Location	Original Well Owner (If Known)
UTRUKEE	Present Well Owner
5W 1/4 of $5W$ 1/4 of Sec. 13 ; T. 10 N; R. 21 W	Tecumseh Products CompANY
(If applicable) Gov't Lot Grid Number	Street or Route
Grid Location Give Lot	City, State, Zip Code
ft. N. S.,ft. U. W.	Grafton WI LOUGSDERS
Civil Town Name	Facility Well No. and/or Name (If Applicable) WI Unique Well No.
Street Address of Well	SB-4-ST- and the state second and
100 North Street	Reason For Abandonment prost was a sub called
City, Village	Date of Abandonment
Erntton	19-15-92 contenant is manual bouch
WELL/DRILLHOLE/BOREHOLE INFORMATION (3) Original Well/Drillhole@Borehole@Construction Completed On	(4) Depth to Water (Feet)
	Pump & Piping Removed? Yes No Not Applicable
(Date) <u>1-15-42</u>	Liner(s) Removed? \Box Yes \Box No X Not Applicable
Monitoring Well Construction Report Available?	Screen Removed?
Water Well Yes X No	Casing Left in Place? Yes X No and the second
	If No, Explain Borchole - hoconsing
Borehole	Was Casing Cut Off Below Surface? Yes No
Construction Type:	Did Sealing Material Rise to Surface? Yes No
Drilled Driven (Sandpoint) Dug	Did Material Settle After 24 Hours?
Other (Specify)	If Yes, Was Hole Retopped? Yes No
Formation Tunes	(5) Required Method of Placing Sealing Material
Formation Type:	Conductor Pipe-Gravity Conductor Pipe-Pumped
,	$\square Dump Bailer $
Total Well Depth (ft.) Casing Diameter (ins.) <u>N A</u> (From groundsurface)	(6) Sealing Materials For monitoring wells and monitoring wells only
(From groundsurface)	 Neat Cement Grout monitoring well boreholes only Sand-Cement (Concrete) Grout
Casing Depth (ft.) $N A$	Concrete
	Clay-Sand Slurry Granular Bentonite
Was Well Annular Space Grouted? Yes No Unknown	Bentonite-Sand Slurry Bentonite - Cement Grout
If Yes, To What Depth? Feet	Chipped Bentonite
(7) Sealing Material Used	From (Ft.) To (Ft.) No. Yards, (Circle Mix Ratio Sacks Sealant One) or Mud Weight
ENVIVODING	Surface 12 4 SACKS Dry
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$\overline{\mathcal{R}}^{(1)}$ is the set of th	
(8) Comments:	
(9) Name of Person or Firm Doing Sealing Work	(10) FOR DNR OR COUNTY USE ONLY
Fox Environmental SERVICES Inc.	Date Received/Inspected District/County
Signature of Person Doing Work Date Signed	
Autoration 1-28-92	Reviewer/Inspector Complying Work
Street or Route 5150 N. Telephone Number Part Washing the Wal (414)332-5857	Noncomplying Work
Port Writhington Ked (414)332-5857 City, State, Zip Code	Follow-up Necessary
Millionkee WI (3217	

APPENDIX C

Laboratory Report

PAL Pre	xision Ana	lytical Lab	oratory		Ргоје	et Ma	inager	tos	ter S	6HNS1	-0N		amenanner v						dy N	·
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Phone:									<u>ikee</u>					SP	ECIAL	INSTI	RUCTI	ONS:		,
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Fax:	(414) 27	2-6949							sch	725	15									
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Disposal	narges lister	l in fee sch	redule																	

Golden	HOG	- Customer

Precision Analytical Lab, Inc 205 West Galena Milwaukee, WI 53212



Phone: (414) 272-5222

Fox Environmental Services 5150 N. Port Washington Rd. Milwaukee, WI 53217

Attn: Lawrence L. Fox Invoice Number: 5505 Order #: 92-09-169 Date: 10/12/92 16:12 Work ID: Tecumseh 92513 Date Received: 09/15/92 Date Completed: 09/30/92 Client Code: FOX_ENVIRO

SAMPLE IDENTIFICATION

Sample	Sample	Sample		Sample
Number	Description	Number		Description
01	SB1 ST 10-10.5	04	SB2ST	8-8.5
02	SB1ST 14-14.5	05	SB2ST	18-18.5
03	SB1ST 16-16.5			

Laboratory ID Number (Wisconsin DNR): 241369260

Ву

Jeff Bushner

Order # 92-09-169 10/12/92 16:12

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Precision Analytical Lab, Inc TEST RESULTS BY SAMPLE

Page 2

Sample: 01A SB1 ST 10-10.5	Coll	ected: 09/14/92			
Test Description	Result	<u>Limit</u>	<u>Units</u>	Analyzed	By
Mod. GRO (WDNR)	580		mg/kg	09/23/92	EMC
PVOC Soil, (WDNR) 8020					
Benzene	## < 500		ug/kg	09/23/92	EMC
Ethylbenzene	< 500		ug/kg	09/23/92	EMC
Methyl-t-butylether	< 500		ug/kg	09/23/92	EMC
Toluene	1300		ug/kg	09/23/92	EMC
1,2,4-Trimethylbenzene	15000		ug/kg	09/23/92	EMC
1,3,5-Trimethylbenzene	11000		ug/kg	09/23/92	EMC
Total Xylenes	9400		ug/kg	09/23/92	EMC
Sample: 02A SB1ST 14-14.5	Coll	ected: 09/14/92			
Test Description	Result	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	By
Mod. GRO (WDNR)	970		mg/kg	09/23/92	EMC
PVOC Soil, (WDNR) 8020					
Benzene	## < 500		ug/kg	09/23/92	EMC
Ethylbenzene	4500	ν.	ug/kg	09/23/92	EMC
Methyl-t-butylether	< 500		ug/kg	09/23/92	EMC
Toluene	1400		ug/kg	09/23/92	EMC
1,2,4-Trimethylbenzene	35000		ug/kg	09/23/92	EMC
1,3,5-Trimethylbenzene	19000		ug/kg	09/23/92	EMC
Total Xylenes	20000		ug/kg	09/23/92	EMC
Sample: 03A SB1ST 16-16.5	Coll	ected: 09/14/92			
Test Description	<u>Result</u>	<u>Limit</u>	<u>Units</u>	Analyzed	By
Mod. GRO (WDNR)	660		mg/kg	09/23/92	EMC
PVOC Soil, (WDNR) 8020					
Benzene	## < 210		ug/kg	09/23/92	EMC
Ethylbenzene	2700		ug/kg	09/23/92	EMC
Methyl-t-butylether	< 210		ug/kg	09/23/92	EMC
Toluene	< 210		ug/kg	09/23/92	EMC
1,2,4-Trimethylbenzene	22000		ug/kg	09/23/92	EMC
1,3,5-Trimethylbenzene	13000		ug/kg	09/23/92	EMC
Total Xylenes	11000		ug/kg	09/23/92	EMC
Sample: 04A SB2ST 8-8.5	Coll	ected: 09/14/92			·
Test Description	<u>Result</u>	<u>Limit</u>	<u>Units</u>	Analyzed	By
Mod. GRO (WDNR)	1100		mg/kg	09/23/92	EMC

Order # 92-09-169Precision Analytical Lab, IncPage 310/12/92 16:12TEST RESULTS BY SAMPLE

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Test Description	Result	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	By
PVOC Soil, (WDNR) 8020					
Benzene	## < 510		ug/kg	09/23/92	EMC
Ethylbenzene	6100		ug/kg	09/23/92	EMC
Methyl-t-butylether	< 510	•	ug/kg	09/23/92	EMC
Toluene	970		ug/kg	09/23/92	EMC
1,2,4-Trimethylbenzene	37000		ug/kg	09/23/92	EMC
1,3,5-Trimethylbenzene	20000		ug/kg	09/23/92	EMC
Total Xylenes	21000		ug/kg	09/23/92	EMC
		•			

Sample: 05A SB2ST 18-18.5

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Collected: 09/14/92

<u>Test Description</u> Mod. GRO (WDNR) PVOC Soil, (WDNR) 8020	Result @ 14	<u>Limit</u>	<u>Units</u> mg/kg	<u>Analyzed</u> 10/01/92	<u>Ву</u> ЕМС
Benzene	<i>##</i> @ < 100		ug/kg	10/01/92	EMC
Ethylbenzene	< 100		ug/kg	10/01/92	EMC
Methyl-t-butylether	< 100		ug/kg	10/01/92	EMC
Toluene	< 100		ug/kg	10/01/92	EMC
1,2,4-Trimethylbenzene	150		ug/kg	10/01/92	EMC
1,3,5-Trimethylbenzene	< 100		ug/kg	10/01/92	EMC
Total Xylenes	< 100		ug/kg	10/01/92	EMC

Page 4

The organic data is reported out on a dry-weight basis.

Sample was covered air tight in approved container, shipped in cooler from the source to our lab, temperature upon arrival was 4 degrees C.

The samples ordered for GRO were analyzed by the Wisconsin DNR Modified GRO method.

Elevated detection limit due to sample concentration.

The samples ordered for PVOC were analyzed according to Method 8020 (SW 846 Test Methods for Evaluating Solid Waste - Physical/ Chemical Methods)

All analysis as per approved methods found in one or more of the following:

Standard Methods for the Evaluation of Water and Wastewater, 16th Edition.

Methods for Chemical Analysis for Water and Wastes, Revised March 1983, EPA 600/4-79-020

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition 1986 EPA SW846

Analysis performed or certified by Precision Analytical Labs

@ Amended result due to autosampler error. Initial analysis was performed on 9/25/92.

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Phone: (414) 272-5222	Phone	: Ľ	414)	332 - 585-	7 Fax: ()		_						
Fax: (414) 272-6949	Projec	 	Tec	umseh	92513		_						
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Del'v : Hand Comm. Ship Cont. OK? (X) N N/A	ire		Surface Water(1), Ground Solid/Liquid Waste(4/5),	Turnaround Time			ANALYSIS	/	/	17	/.	\sim /	ervation Code
Rec'd Refrig. ? X N N/A Blank:	c	NUMBER OF	Wal	X Normal			F	/ /	/ /	7	-	_T/ /	lone B-HN03 2SO4 D-NAOH
Seals OK ? WN N/A		BER	ace id/L	Rush ** (Please	e refer to Quote/Refere	nce Number)	A/		J Ro	t the	$\tilde{1}/\tilde{2}$	~ /	CL F
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-3 1/15/12/1:05	X	5			Solvent tank		2	2	1				
-4 9/15/92 1: 50 ?	X	<			Solvent tank		5	2	1	1			
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Disposition of unused portion of sample				Relinquished By	(Signature)	Date /Time					Recei	ived By (Signature)	Λ
Laboratory Should:	D	£		4.th	oft	9/15/97	<u> </u>	3:	35		42	charl Zes	ley
Dispose *	Retain Other	10 r	day	vs Relinquished By	(Signature)	Date / Time					Recei	ived By (Signature)	
* Disposal charges listed in fee schedule	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~			Relinquished By	v (Signature)	Date / Time					Rece	ived For Laboratory I	by: (Signature)
	k - File		Gol	den Rod - Customer							F********		

Precision Analytical Lab, Inc 205 West Galena Milwaukee, WI 53212

Phone: (414) 272-5222

Fox Environmental Services 5150 N. Port Washington Rd. Milwaukee, WI 53217

Attn: Lawrence L. Fox Invoice Number: Order #: 92-09-180 Date: 10/07/92 09:06 Work ID: Techumseh 92513 Date Received: 09/15/92 Date Completed: 10/06/92 Client Code: FOX_ENVIRO

SAMPLE IDENTIFICATION

Sample		Sample	Sample		Sample
Number		Description	Number		Description
01	SB3ST	12-12.5	04	SB4ST	12-12.5
02	SB3ST	16-16.5	05	OTIE	
03	SB4ST	8-8.5	06	OT2W	

Laboratory ID Number (Wisconsin DNR): 241369260

d By

Jeff Bushner

Order # 92-09-180 10/07/92 09:06

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Precision Analytical Lab, Inc TEST RESULTS BY SAMPLE

Page 2

Sample: 01A SB3ST 12-12.5	Coll	ected: 09/15/92			
Test_Description	Result	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	By
Mod. GRO (WDNR)	410		mg/kg	09/23/92	EM
PVOC Soil, (WDNR) 8020	•				
Benzene	# # < 540		ug/kg	09/23/92	EM
Ethylbenzene	< 540		ug/kg	09/23/92	EM
Methyl-t-butylether	< 540		ug/kg	09/23/92	EM
Toluene	< 540		ug/kg	09/23/92	EM
1,2,4-Trimethylbenzene	11000		ug/kg	09/23/92	EM
1,3,5-Trimethylbenzene	6300		ug/kg	09/23/92	EM
Total Xylenes	4700		ug/kg	09/23/92	EM
Sample: 02A SB3ST 16-16.5	Coll	ected: 09/15/92			
Test Description	<u>Result</u>	Limit	<u>Units</u>	Analyzed	By
Mod. GRO (WDNR)	34		mg/kg	10/01/92	EM
PVOC Soil, (WDNR) 8020					
Benzene	<i>##</i> < 100		ug/kg	10/01/92	EM
Ethylbenzene	< 100		ug/kg	10/01/92	EM
Methyl-t-butylether	< 100		ug/kg	10/01/92	EM
Toluene	< 100		ug/kg	10/01/92	EM
1,2,4-Trimethylbenzene	590		ug/kg	10/01/92	EM
1,3,5-Trimethylbenzene	330		ug/kg	10/01/92	EM
Total Xylenes	160		ug/kg	10/01/92	EM
Sample: 03A SB4ST 8-8.5	Coll	lected: 09/15/92			
Test Description	Result	<u>Limit</u>	<u>Units</u>	Analyzed	<u>By</u>
Mod. GRO (WDNR)	160		mg/kg	09/23/92	EM
PVOC Soil, (WDNR) 8020					
Benzene	## [`] < 500		ug/kg	09/23/92	EM
Ethylbenzene	< 500		ug/kg	09/23/92	EM
Methyl-t-butylether	< 500		ug/kg	09/23/92	EM
Toluene	2600		ug/kg	09/23/92	EM
1,2,4-Trimethylbenzene	3400		ug/kg	09/23/92	EM
1,3,5-Trimethylbenzene	1400			09/23/92	
Total Xylenes	2800			09/23/92	
Sample: 04A SB4ST 12-12.5	Coll	lected: 09/15/92			
Test Description	Result	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
Mod. GRO (WDNR)	520		ma/ka	09/23/92	EM

Order # 92-09-180 10/07/92 09:06 Precision Analytical Lab, Inc TEST RESULTS BY SAMPLE

Test Description	Result	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
PVOC Soil, (WDNR) 8020					
Benzene	## < 500		ug/kg	09/23/92	EMC
Ethylbenzene	< 500		ug/kg	09/23/92	EMC
Methyl-t-butylether	< 500		ug/kg	09/23/92	EMC
Toluene	2900		ug/kg	09/23/92	EMC
1,2,4-Trimethylbenzene	16000		ug/kg	09/23/92	EMC
1,3,5-Trimethylbenzene	8100		ug/kg	09/23/92	EMC
Total Xylenes	11000		ug/kg	09/23/92	EMC

The organic data is reported out on a dry-weight basis.

Sample was covered air tight in approved container, shipped in cooler from the source to our lab, temperature upon arrival was 4 degrees C.

The samples ordered for TRPH were analyzed by Modified EPA Method 9073.

Elevated detection limit due to sample concentration.

The samples ordered for PVOC were analyzed according to Method 8020 (SW 846 Test Methods for Evaluating Solid Waste - Physical/ Chemical Methods)

The samples ordered for GRO were analyzed by the Wisconsin DNR Modified GRO method.

All analysis as per approved methods found in one or more of the following: Standard Methods for the Evaluation of Water and Wastewater, 16th Edition.

Methods for Chemical Analysis for Water and Wastes, Revised March 1983, EPA 600/4-79-020

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition 1986 EPA SW846

Analysis performed or certified by Precision Analytical Labs