

Final Report

To:



HARTLEY DODGE MEMORIAL
BOROUGH OF MADISON
MADISON, NEW JERSEY

For:

Underground Storage Tank Removal Project

Submitted:

May, 1991

By:

 **Killam**
Associates ▢ Consulting Engineers

UPDATED AND REPLACED
IN JULY 1991

UST 0010 - Madison Water and Light Plant

UST 0010 was used for the storage of fuel oil with a total capacity of 1,000 gallons. The UST was approximately 10 feet long and 4 feet in diameter. Soil/water agitation testing procedures detected no contamination, however, laboratory analysis revealed elevated concentrations of PHC existing on all walls of the excavation. Two of these samples were also analyzed for Base Neutral compounds and both revealed elevated levels of these compounds. The tank was in good overall condition with no apparent failures in tank integrity. Eight hundred one gallons of liquid product were removed from the tank. This tank was excavated and cleaned on February 5, 1991.

UST 0013 - Madison Police Department

UST 0013 was used for the storage of gasoline and had a total capacity of 550 gallons. The UST was approximately 6 feet long and 4 feet in diameter. Soil/water agitation testing procedures detected free product contamination in the soil around the tank. Due to extraordinary excavating conditions (granite blocks and 8 inches of steel reinforced concrete on top of the UST), all free product contaminated soil could not be removed. Laboratory analyses of site assessment soil samples revealed elevated concentrations of Volatile Organic Compounds in the soil. Approximately three cubic yards of contaminated soil were removed from the excavation and stockpiled for future disposal. The tank was in poor overall condition with numerous holes on the north end of tank. Three hundred gallons of liquid product were removed from the tank. This tank was excavated and cleaned on February 20, 1991. The release of gasoline was reported to the NJDEP on February 20, 1991 and was assigned case number 91-2-20-1657-19 for the release.

UST 0015 - Madison Fire Department

UST 0015 was used for the storage of gasoline and had a total capacity of 550 gallons. The UST was approximately 6 feet long and 4 feet in diameter. The UST had been abandoned approximately 10 years ago. Soil/water agitation testing procedures detected free product contamination in the excavation. Laboratory analyses of site assessment samples revealed elevated levels of Volatile Organic Compounds along the bottom and south wall of the excavation. Eight cubic yards of contaminated soil were removed from this excavation and stockpiled for future removal and disposal. This tank was noted to have 3 or 4 small holes in the bottom of the tank. Because the tank was previously abandoned, there was no liquid product removed. This tank was excavated and cleaned on February 19, 1991. A release of gasoline from UST 0015 was reported to the NJDEP on February 19, 1991 and was assigned case number 91-2-19-1336-50 for the release.

UST 0016 - Health Center

UST 0016 was used for the storage of fuel oil and had a total capacity of 550 gallons. The UST was approximately 5.6 feet long and 4.2 feet in diameter. Soil/water agitation testing procedures detected free product contamination around the tank. Laboratory analyses of site assessment soil samples revealed elevated levels of Petroleum Hydrocarbon readings and elevated levels of Base Neutral Compounds throughout the excavation. Twenty yards of contaminated soil were removed from the excavation and stockpiled for future removal and disposal. This tank was in poor condition with extensive deterioration on the top of the tank and a minimum of 13 holes from 1 to 0.25 inches in diameter along the tank invert. One hundred eighty

TABLE 2
GROUNDWATER SAMPLING RESULTS

<u>Well</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Xylene</u>
MW-1 Water & Light Plant (UST 0008)	ND	6	ND	ND
MW-1 Paint Shed (UST 0007)	ND	57	ND	ND
MW-1 Well C (UST 0020)	ND	ND	ND	ND
MW-2 Well C (UST 0021)	ND	ND	ND	1
MW-1 Sewer Pumping Station (UST 0018)	ND	ND	ND	ND
MW-1 Police Dept. (UST 0013)	350	1,600	1,400	5,600
MW-1 Fire Dept. (UST 0015)	Not sampled due to insufficient water in well			
MW-1 Well E (UST 0024)	Not sampled due to insufficient water in well			

Notes:

(1) ND - Not Detected

(2) All results in ug/l

Monitoring wells were installed adjacent to the eight gasoline USTs. Wells were installed according to NJDEP specifications for overburden wells. Laboratory analyses revealed all groundwater samples to be clean except for well MW-1 located at the Police Department site (tank number 0013). The groundwater sample obtained from MW-1 at the Police Department site had concentrations of Benzene, Ethylbenzene and Xylene above the NJDEP and EPA Maximum Contaminant Levels (MCL's) for safe drinking water. Groundwater sample results are summarized in Table 2.

Well MW-1 located at the Fire Department site and well MW-1 at the Municipal Well E site were not sampled due to insufficient water entering the well. The Fire Department well is located at a site awaiting DICAR work and future groundwater samples will be obtained for purposes of studying potential adverse impacts to groundwater. The well located at Municipal Well E was also found not to contain sufficient water for sampling. The soil samples obtained from the excavation of this UST and soil screening procedures utilized in the installation of the well revealed no evidence of soil contamination. Even though no water sample was analyzed, the analytical results of the soil samples obtained from the excavation indicate that no release has occurred at the Municipal Well E location.

Results of the laboratory analyses of the site assessment soil samples obtained from the excavations around tanks 0009 and 0010 indicated TPHC concentrations slightly in excess of 100,000 ug/kg. Tanks 0016 and 0022 had TPHC concentrations significantly above 100,000 ug/kg and were reported as leaking to the NJDEP-BUST and assigned case number 91-2-13-1549-36.

Results of the laboratory analyses of the site assessment soil samples obtained from the excavations around tanks 0013, 0015, and 0018 indicated elevated levels of volatile organic compounds in the soil. These three tanks were reported as leaking to the NJDEP-BUST and were assigned case

 Killam

numbers 91-2-20-1657-19, 91-2-19-1336-50, and 91-2-13-1549-36 respectively. Due to the release from tank number 0013, groundwater contamination apparently exists in the shallow on-site aquifer around the Hartley Dodge Memorial Building. This is the only site within the Borough that has been identified as having contaminated groundwater.

A Discharge Investigation and Corrective Action Report (DICAR) will be required for each of the four sites which have been assigned NJDEP case numbers.

PROJECT

MADISON FIRE DEPARTMENT

PROJECT NO:

199900

SHEET 1 OF 2

	SCREEN	RISER	SAND PACK
TYPE	PVC	PVC	
DIAMETER	4 Inch	4 Inch	
LENGTH	20 Feet	20 Feet	
SLOT SIZE	0.020		

DATE COMPLETED March 9, 1991

GROUND SURFACE ELEV _____

CASING ELEV _____ DATUM MSL

DRILLER Tim Westover, Lutz Environmental

KILLAM GEOLOGIST Jonathan Seckinger

PERMIT NO. 25-38277-2

COMMENTS _____

GROUNDWATER DATA

DEPTH	DATE	TIME	REFERENCE PT.
			TOC

WELL CONSTRUCTION	DEPTH (FT)	STRATIGRAPHY	UNIFIED SOIL CLASSIFICATION	BLOW COUNTS	DESCRIPTION/SOIL CLASSIFICATION	REMARKS	
	-0-		CL		<u>Brown CLAY</u>	Boulders wet	
	-1-						
	-2-						
	-3-						
	-4-						
	-5-						Br C t.\$
	-6-						
	-7-						Br C t.\$
	-8-						
	-9-						
	-10-						
	-11-						
	-12-						
	-13-						
	-14-						
	-15-						
	-16-						Br C t.\$
	-17-						
	-18-						
	-19-						
	-20-						
	-21-						
-22-							

PROJECT **MADISON-FIRE DEPT.**

PROJECT NO: **199900**

SHEET 2 OF 2

WELL CONSTRUCTION	DEPTH (FT)	STRATIGRAPHY	UNIFIED SOIL CLASSIFICATION	BLOW COUNTS	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
	-23-		<p>CL</p>		<p><u>Brown CLAY</u></p>	<p>wet</p>
	-24-					
	-25-					
	-26-					
	-27-					
	-28-					
	-29-					
	-30-					
	-31-					
	-32-					
	-33-					
	-34-					
	-35-					
	-36-					
	-37-					
	-38-					
	-39-					
	-40-				end of well at 40 feet	
-41-						
-42-						
-43-						
-44-						
-45-						
-46-						
-47-						
-48-						
-49-						
-50-						
-51-						
-52-						
-53-						
-54-						
-55-						
-56-						

PROJECT **MADISON POLICE DEPARTMENT**

PROJECT NO: **199900**

SHEET 1 OF 1

	SCREEN	RISER	SAND PACK
TYPE	PVC	PVC	
DIAMETER	4 Inch	4 Inch	
LENGTH	10 Feet	2 Feet	
SLOT SIZE	0.020		

DATE COMPLETED March 9, 1991
 GROUND SURFACE ELEV _____
 CASING ELEV _____ DATUM MSL
 DRILLER Tim Westover, Lutz Environmental
 KILLAM GEOLOGIST Jonathan Seckinger
 PERMIT NO. 25-38276-4
 COMMENTS _____

GROUNDWATER DATA

DEPTH	DATE	TIME	REFERENCE PT.
3.43'	4/3/91	14:55	TOC

WELL CONSTRUCTION	DEPTH (FT)	STRATIGRAPHY	UNIFIED SOIL CLASSIFICATION	BLOW COUNTS	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
	0		SP		Br f.-m. S l. \$ l.G <u>Brown SAND</u>	strong PHC odor wet
	-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7			CH		Br C s.\$ <u>Brown CLAY</u>
	-8					
	-9					
	-10					
	-11					
-12						
-13					end of well @ 12'	
-14						
-15						
-16						
-17						
-18						
-19						
-20						
-21						
-22						



27 Bleeker Street
 Millburn, NJ 07041-1008
 Tel.: 201-379-3400
 Fax: 201-376-1072

Chain of Custody

Site Name: Madison Zoo Lab. Work Order ID No.: 9102052
 Street Address: _____ Project No.: 199900
 City/State: Madison NJ Project Manager: Dave Simpson
 Collected by: Print Jon Seckinger Signature Jon Seckinger
 Sample Containers Prepared By: Killam Lab
 Preservative Added: To Empty Sample Containers _____ On Site X In Lab X
 Preserved By: JIS

Lab No.	Sample Number	Sample Location	Collected		Y/N	Analyses										Comments/Additional Analyses	
			Date	Time													
01	1999-0018-S1	Sewer Pumping	2-20-91	1100	X												
02	1999-0018-S2	Station		1101	X												
03	1999-0018-S3	Shampille		1103	X												
04	1999-0018-S4				1104	X											
05	1999-0018-S1		1600	1600	X												
06	1999-0013-S2	Belice	1601	1601	X												
07	1999-0013-S3	Drott		1602	X												
08	1999-0013-S4				1603	X											
09	1999-0020-TR			0500	X												
10	1999-0220-F13			1355	X												

Reporting Format Required: Results Only _____ IA _____ IB _____ IIA _____ IIB X DMR _____ Other _____
 Quality Assurance Reporting: Not Required _____ Job Specific _____ Run Specific X

**QA samples required by laboratory to fulfill internal QC requirements: _____

Turnaround time required: normal 4 weeks

Additional Comments: _____

Samples Relinquished By:	Samples Received By:	Date/Time
<u>Jonathan B Seckinger</u>	<u>James Johnson</u>	<u>02/21/91 9:43</u>

* All field data must be recorded (pH, conductivity, etc.)
 * Methods must be specified for all organic analyses (i.e. GC/MS 624, GC 601, GC/MS 503.1)

VOLATILE DATA SUMMARY SHEET, SOIL (ug/Kg)

LAB FRACTION NUMBER	01A	02A	03A	04A	05A
FIELD SAMPLE NUMBER	0018-S1 SHUN	0018-S2 SHUN	0018-S3 SHUN	0018-S4 SHUN	0013-S1 POLI
<u>COMPOUND</u>					
Chloromethane	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND
Methylene Chloride	14 B	10 B	11 B	11 B	10 B
Acetone (TCL)	49 B	ND	41 B	31 B	29 B
Carbon Disulfide (TCL)	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND
Acrolein	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND
2-Butanone (TCL)	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND
Vinyl Acetate (TCL)	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
2-Chloroethyl Vinyl Ether	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone (TCL)	ND	ND	ND	ND	ND
2-Hexanone (TCL)	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
Toluene	3 J	ND	130	19	ND
Chlorobenzene	ND	ND	ND	ND	ND
Ethylbenzene	21	ND	640	34	ND
Styrene (TCL)	ND	ND	ND	ND	ND
Xylene (Total) (TCL)	360	ND	2600	250	2 J
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
Library Search (Total)	4770 J	ND	11010 J	802 J	ND

B - Detected in method blank.
 ND - None detected.

X - Analyzed at higher dilution.
 J - Value less than detection limit or,
 for Library Search, value is estimated.

VOLATILE DATA SUMMARY SHEET, SOIL (ug/Kg)

LAB FRACTION NUMBER	06A	07A	08A
FIELD SAMPLE NUMBER	0013-S2 POLI	0013-S3 POLI	0013-S4 POLI
<u>COMPOUND</u>			
Chloromethane	ND	ND	ND
Bromomethane	ND	ND	ND
Vinyl Chloride	ND	ND	ND
Chloroethane	ND	ND	ND
Methylene Chloride	100000 B	120000 B	ND
Acetone (TCL)	190000 B	ND	ND
Carbon Disulfide (TCL)	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND
Acrolein	ND	ND	ND
Acrylonitrile	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND
Chloroform	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND
2-Butanone (TCL)	ND	ND	2400 B
1,1,1-Trichloroethane	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND
Vinyl Acetate (TCL)	ND	ND	ND
Bromodichloromethane	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND
Trichloroethene	ND	ND	10 J
Dibromochloromethane	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND
Benzene	4400 J	2800 J	ND
trans-1,3-Dichloropropene	ND	ND	ND
2-Chloroethyl Vinyl Ether	ND	ND	ND
Bromoform	ND	ND	ND
4-Methyl-2-Pentanone (TCL)	ND	ND	ND
2-Hexanone (TCL)	ND	ND	ND
Tetrachloroethene	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Toluene	350000	200000	16 J
Chlorobenzene	ND	ND	ND
Ethylbenzene	190000	100000	ND
Styrene (TCL)	ND	ND	ND
Xylene (Total) (TCL)	1100000	1100000	340
1,3-Dichlorobenzene	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND
Library Search (Total)	3840000 J	5110000 J	24240 J

B - Detected in method blank.
 ND - None detected.

X - Analyzed at higher dilution.
 J - Value less than detection limit or,
 for Library Search, value is estimated.



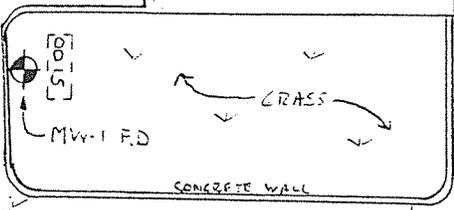
HARTLEY DODGE MEMORIAL BUILDING

MADISON FIRE DEPARTMENT

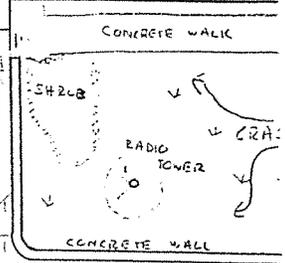
MADISON POLICE DEPARTMENT

GREEN AVE

CONCRETE SIDEWALK

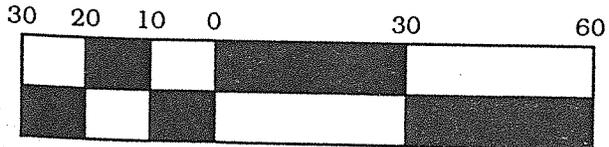


COBBLESTONE PARKING LOT



TO MAPLE AVE

TREE LINE



Approx. Scale in Feet

UST REMOVAL PROJECT
Borough of Madison
Madison, NJ

SITE PLAN
Hartley Dodge Memorial
Tanks #0013
#0015