EPA Region 5 Records Ctr.
203964

DRAFT

MPCA

Limited Remedial Investigation - Waite Park

1 Introduction

The purpose of the Remedial Investigation in Waite Park, Minnesota is to provide a work product which will:

1. Provide additional definition of the subsurface geology in the study area.

2. Provide additional definition of the hydrology of the study area.

3. Define the extent and magnitude of ground water contamination.

4. Apportion responsibility for the contamination to a source(s).

5. Provide limited support to the Feasibility Study being conducted by Reike-Carroll-Muller Associates, Inc.

2 Background Information

2.1 Site Location and Topography

Waite Park is located in central Minnesota in Stearns County. The population is approximately 3,500. The city is adjacent to the city of St. Cloud on the east and north, unincorporated land to the south and southwest, and the Sauk River on the west (see Figure 1).

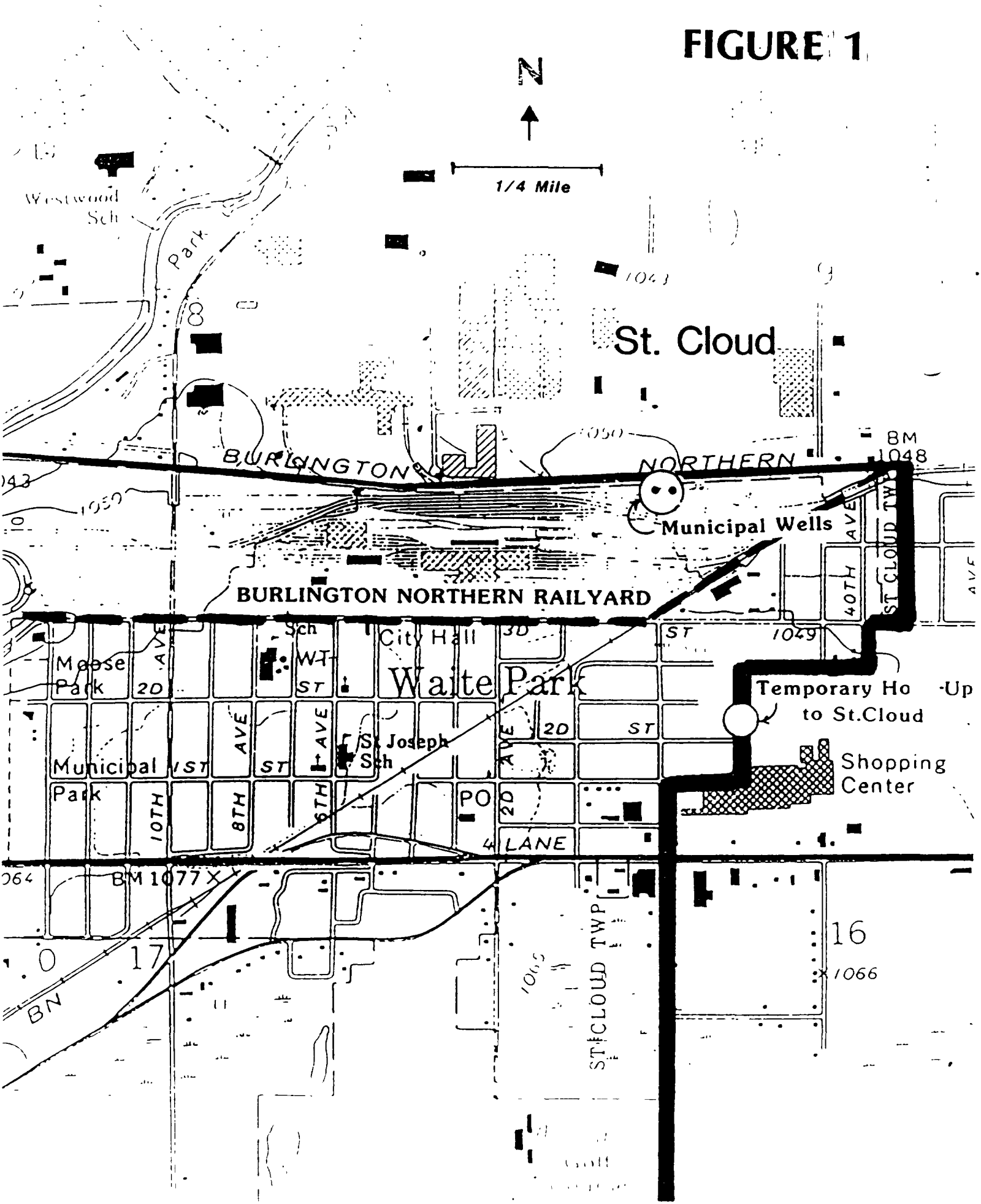
The study area is quite flat with a total relief in the city of 40 feet sloping gradually from south to north from 1080 feet to 1040 feet above mean sea level.

2.2 Site Geology

There are no detailed geologic investigations over the entire study area. The U.S. Geological Survey conducted two investigations which included the study area but were conducted on a much larger scale (Helgeson, 1970; Lindholm, 1981). Those reports provide little support for this effort. A report was prepared by Eugene A. Hickok-Consulting Hydrologist, for the city of Waite Park in 1963 detailing development of their well field which is now contaminated. A limited number of borings were conducted in the Hickok study and the area around the well field was included in a resistivity survey. The resistivity survey utilizes the electrical properties of the geologic formations present to indicate areas favorable for well installation. The existing well field was located near the most favorable location as determined by Hickok.

Glacial deposits (drift) found in the study area include clay till and sandy to gravelly outwash which all overlay granitic bedrock. The drift is absent in the extreme southern limits of Waite Park, and averages 30 feet to 50 feet thick in the central portion of the city and increases to 80 feet to 100 feet along the northern and northeastern portion of the city.

FIGURE 1


N
1/4 Mile
Westwood Sch
Park
St. Cloud
BURLINGTON NORTHERN
BM 1048
Municipal Wells
BURLINGTON NORTHERN RAILYARD
40TH AVE
ST CLOUD TWP
City Hall
Moose Park
Waite Park
Temporary Ho -Up to St.Cloud
St Joseph Sch
Shopping Center
Municipal Park
10TH AVE
8TH AVE
6TH AVE
2D AVE
PO
4 LANE
BM 1077
ST CLOUD TWP
16
17
1066
BN

The drift is comprised of gray and brown tills (clay) deposited by the Superior Lobe during the Wisconsonian Period of glaciation, and sands and gravels deposited by outwash derived from both the Superior and Grantsburg Lobes. Near the western and northern portions of Waite Park portions of the surficial sands were probably deposited by alluvial processes associated with the nearby Sauk River. The cross section shown in Figure 2 is in the vicinity of the Waite Park well field and the BN Rail Yard. The section indicates brown sands and gravels from the surface to approximately 20 feet. The surficial sands are underlain by a gray till unit with some boulders and is generally 25 feet to 30 feet thick in the area. Logs from the area show that this till unit may thin to two feet indicating that large variations may be possible over relatively short distances.

The till unit is underlain by a sand and gravel unit that is up to 50 feet thick in the area near the city well field. This lower sand and gravel unit is comprised of both brown and gray sands indicating deposition of materials by outwash from both the Superior and Grantsburg ice lobes respectively. The well logs available for the area indicate some clay or "hard pan" units varying in thickness and up to five feet thick contained within the lower sand and gravel. It is uncertain whether these thin clay units are a result of ice sheet advances producing thin till units or whether the clay units are a result of lucustrine or alluvial deposition of fine grain sediments.

In the central portion of the city where the drift thickness is 30 to 50 feet thick the upper 20 to 25 feet are sands and gravels. This surficial sand unit serves as the source of water for almost all residential wells in the city. This sand unit is usually underlain by a clay till unit and then granite.

The granite underlaying the entire area is of variable composition due to various batholithic relationships in the area. The granite typically seen in much of the area is a fine to medium crystal size, gray plagioclase granite. The granite is fractured with fractures being of a very narrow aperture. Basalt dikes and pegmatitic intrusions of fractures are common. The bedrock surface is irregular with large variations possible over short distances.

2.3 Site Hydrogeology

The city can be divided into two distinct regions based on hydrologic characteristics (Figure 3). The southern 2/3 of the city has only a thin (10 to 20 feet) surficial sand aquifer overlaying till and granite. The northern 1/3 of the city, which is occupied predominantly by the Burlington Northern Railyards, has both the surifical aquifer described above and a deeper alluvial aquifer shown in the cross section presented in Figure 2.

The shallow alluvial aquifer is used in all parts of the city for low volume residential and commercial usage. Ground water flow in the

shallow alluvium is generally thought to be north-northeast. Hydraulic gradients and conductivities have not been determined in this unit throughout the city.

Beneath the shallow alluvial aquifer is the till unit described in Section 2.3. This till unit is thought to be an aquitard where it is present. The high clay content and high density would restrict movement of water or contaminants vertically. If the till was fractured or absent in areas the vertical permeability would be higher. The city municipal wells are completed below this unit (see Figure 2).

The lower alluvium is believed to exist only in the northern 1/3 of the city. It is characterized by predominantly gray sands and gravels with some brown sands and minor clay layers less than five feet thick. The thickness of the lower alluvium ranges from 30 feet to 50 feet in thickness in available well logs from this area.

The stratigraphy varies from that presented above in an area trending North-South near monitoring well 5. The soil boring at well 5 indicated a gray till to at least 110 feet with 2 minor sand lenses. The very low permeability of these materials would tend to separate flow systems of the aquifers. South of well 5, ¼ mile near the BN wood work shop a test hole drilled in 1957 encountered the shallow alluvial aquifer to a depth of 32 feet and till materials from 32 feet to 180 feet where granite was encountered. It appears that the lower alluvial aquifer may be discontinuous from east to west, and further field work is required in this area.

The best estimate of the hydraulic characteristics of this unit can be obtained from the specific capacity data of the Waite Park municipal wells. At pumping rates of approximately 500 gallons per minute (gpm) the wells had a drawdown of approximately seven feet resulting in a specific capacity of approximately 71 gpm/foot of drawdown. A pumping test on the eight inch observation well presented in the Hickok report obtained a hydraulic conductivity (K) of approximately 290 feet/day (1×10^{-1} cm/sec) and a specific capacity of 23 gpm/foot drawdown. The specific capacity of the production wells is three times higher than that obtained by Hickok indicating K values greater than the 290 feet/day obtained by Hickok. Reasons for the higher results may be that: Hickok did not correct the data for partial penetration; the well efficiency for the test well is not as high as that for the city wells; and/or the portions of the formation screened by the wells have different hydraulic characteristics.

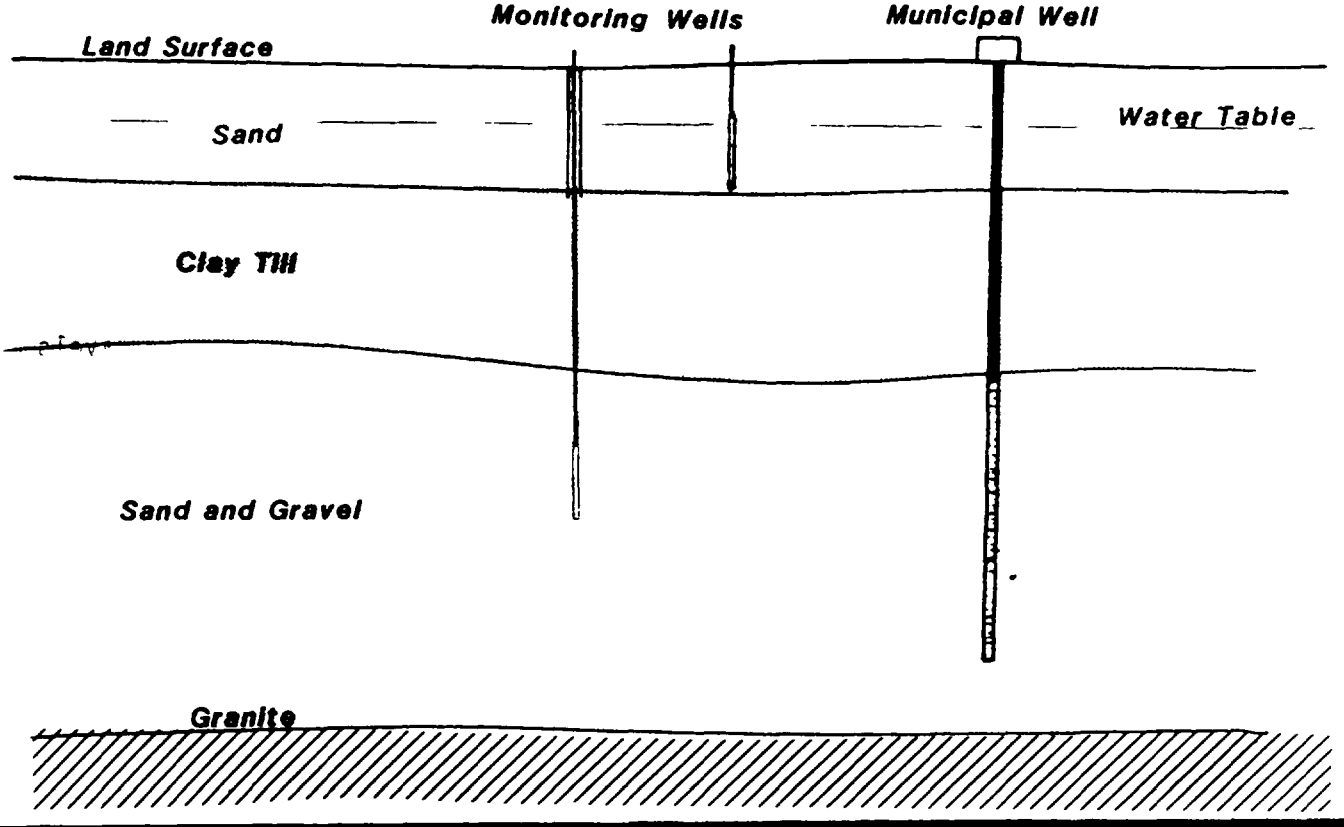
3 Work Plan

3.1 Description of Current Situation

On January 28, 1985, the MDH advised Waite Park residents and businesses to discontinue use of their water for drinking and food

FIGURE 2

Cross Section Near Waite Park Well F Wellfield



Cross Section Near Residential Area – Southern Waite Park

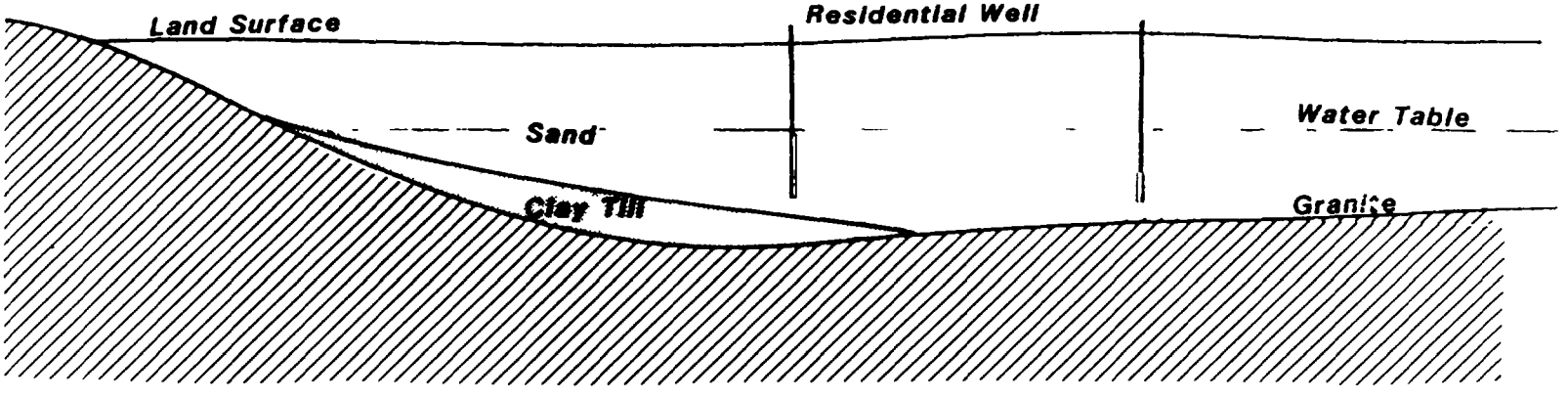
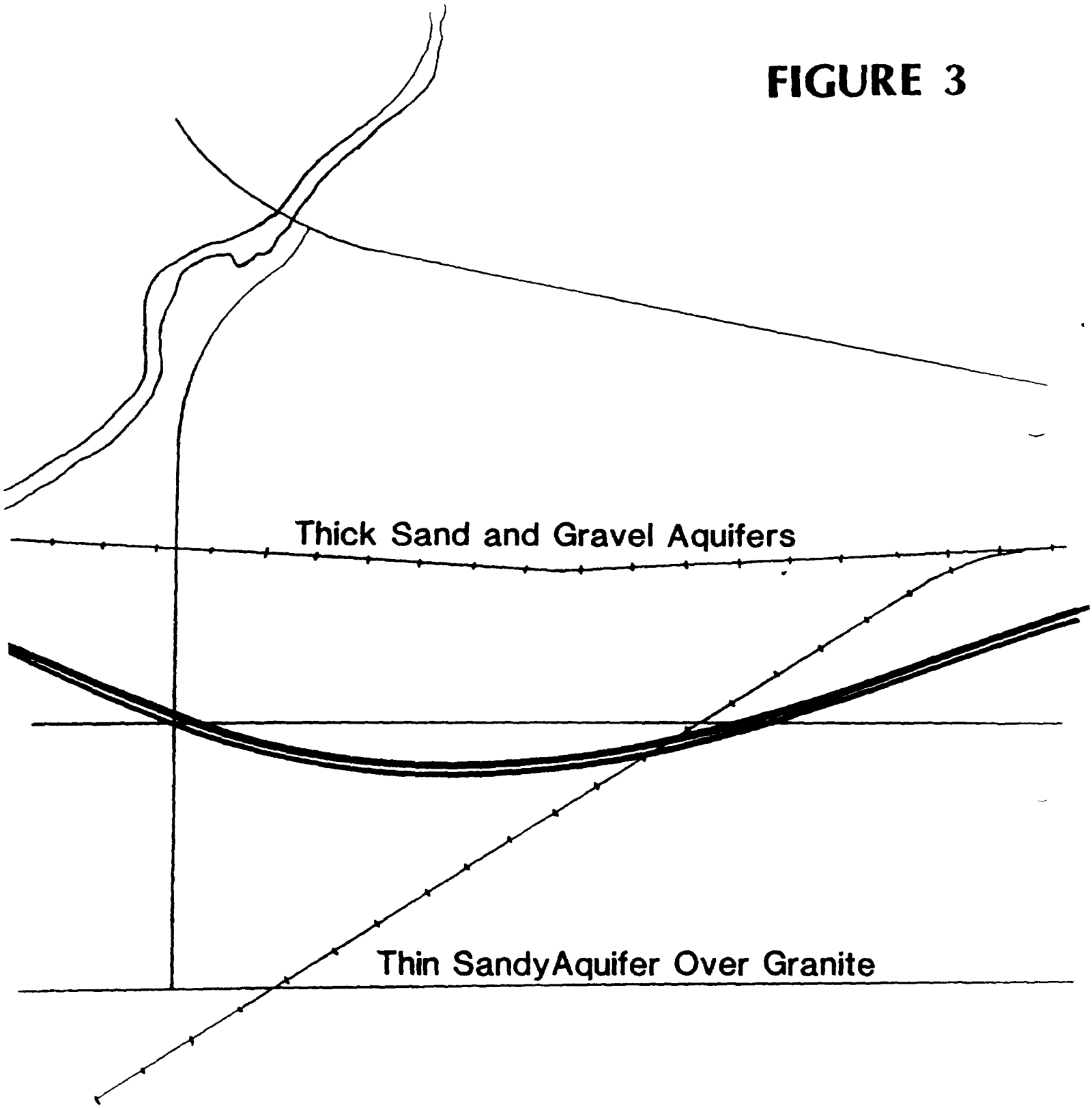


FIGURE 3


Thick Sand and Gravel Aquifers
Thin SandyAquifer Over Granite

preparation as soon as alternative water supplies were made available. The MPCA staff were notified of the contamination at the same time as the Waite Park residents. The MDH based their advisory on the results of the sampling and analysis of the two municipal wells serving Waite Park. The MDH found both wells to be contaminated by several volatile organic hydrocarbons (1,1-dichloroethylene, 1,1,2,2-tetrachloroethylene; 1,1,2-trichloroethylene, 1,1-dichloroethane, and cis 1,2-dichloroethylene). The concentrations of two of the contaminants (1,1-dichloroethylene and 1,1,2,2-tetrachloroethylene) were above MDH drinking water guidelines.

Given the nature of the contamination problem, the MPCA Director issued a Determination of Emergency on January 28, 1985 to allow use of State Superfund money to finance immediate provision for safe drinking water. The MPCA staff and city officials reviewed several alternatives for supply of safe drinking water and determined that emergency hookup to the St. Cloud water supply system was the most appropriate solution. Due to the physical limitations of the St. Cloud water supply system this hookup is temporary and efforts to find a permanent solution are needed. Immediate arrangements were also made for Waite Park residents to obtain safe drinking water at J.C. Penney's, Hardee's, Pizza Hut, and Wendy's at the nearby Crossroads Shopping Center in St. Cloud, while awaiting completion of the hookup to the St. Cloud water supply system.

On January 29, 1985 the MPCA staff and city began efforts to hookup the Waite Park water distribution system to the St. Cloud water supply system. The connection was completed on February 3, 1985. After flushing residual contaminated water from the Waite Park water supply system the contamination levels dropped below drinking water guidelines on February 5, 1985.

On February 5, 1985 the MPCA staff, MDH and city conducted a public meeting in Waite Park to summarize facts and answer any questions that the public and news media had regarding the contamination problem. During the meeting the MDH notified the public that the Waite Park water was again safe to drink.

3.2 Study Health and Safety Plan

The purpose of this plan is to provide safety protection requirements and procedures for site field crews and subcontractors.

The conditions expected during soil borings and well installations were not anticipated to yield any at-risk situations.

The appropriate exposure guidelines for the compounds detected to date are as follows:

Tetrachloroethylene:

Time-weighted Average (8 hour)	-	50 ppm
Short-term Exposure Limit (15 min.)	-	(-)
Permissible Exposure Limit	-	100 ppm
Immediate Danger to Life and Health	-	500 ppm
Protection to 500 ppm	-	Full-face respirator with organic vapor cartridge
Escape Protection	-	Self-contained breathing apparatus

Trichloroethylene:

Time-weighted Average	-	50 ppm
Short-term Exposure Limit	-	150 ppm
Permissible Exposure Limit	-	100 ppm
Immediate Danger to Life and Health	-	1000 ppm
Protection to 500 ppm	-	Respirator with organic vapor cartridge
Protection to 1000 ppm	-	Full-face respirator with organic vapor cartridge
Escape Protection	-	Self-contained breathing apparatus

Cis-1, 2-Dichloroethylene:

Time-weighted Average	-	200 ppm
Short-term Exposure Limit	-	250 ppm
Permissible Exposure Limit	-	200 ppm
Immediate Danger to Life and Health	-	4000 ppm
Protection to 1000 ppm	-	Full-face respirator with organic vapor cartridge
Protection to 4000 ppm	-	Self-contained breathing apparatus
Escape Protection	-	Self-contained breathing apparatus

The exposure guidelines are much higher than any volatilization from even the most heavily contaminated ground water sampled reported to date (300 ppb tetrachloroethylene). No special skin warnings were noted. This factor, when combined with the fact that the drilling sites were well-ventilated (outdoors), indicate that respiratory/skin protection was not necessary. As a precautionary measure, we monitored selected drilling sites with a HNu system photoionizer. The HNu is relatively sensitive (sensitivity of 5-9) to chlorinated solvents so that we could obtain representative readings.

The work tasks conducted in this investigation in the field included soil borings, well installation, and monitoring well sampling. These

tasks were aimed at collecting geologic, hydrologic, and contaminant information, they are not meant to be investigations into disposal pits. As previously stated if conditions were encountered that would have required respiratory protection (HNu readings approaching 50 ppm) operations would have been stopped and the borehole or other operation abandoned.

MPCA staff performed monitoring in the working zone. The MPCA representative on site functioned as site safety officer. MPCA staff also placed samples for chemical analyses into sample containers.

Personnel handling contaminated drilling, or sampling equipment wore latex gloves under nitrile gloves, and splash resistant overalls (tyvek type). The protective clothing was available at all drill sites.

General Safety Practices

The following personnel safety precautions were followed:

1. Eating, drinking, chewing gum or tabacco, smoking, or any practice that increases that probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated contaminated.

2. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

3. No excessive facial hair, which interferes with a satisfactory fit of the mask-to-face seal, is allowed on personnel required to wear respiratory protective equipment.

4. Contact with contaminated surfaces or with surfaces suspected of being contaminated should be avoided. Whenever possible, one should not walk through puddles, mud, and other discolored surfaces; kneel on ground; lean, sit, or place equipment on drums, containers, vehicles, or the ground.

5. Medicine and alcohol can potentiate the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel on response operations if there is a likelihood of such potentiation.

6. Personnel and equipment in contaminated areas should be minimized, consistent with effective site operations.

7. Procedures for leaving a contaminated area must be planned and implemented prior to going to the site. Work areas and decontamination procedures must be established on the basis of prevailing site conditions.

8. Storing utensils, food or food containers while on-site is expressly forbidden.

9. Ignition of flammable liquids within, on, or through improvised heating devices (barrels, etc.) or space heaters is prohibited.

10. Approach or entry into areas or spaces where toxic or explosive concentrations of gases or dust may exist without proper equipment available to enable safe entry is forbidden.

3.3 Site Quality Assurance Project Plan

Sample collection was conducted following the procedures outlined in Section 4.1 and 4.3.

After samples were collected and labeled they were stored in a cooler with the temperature maintained as close as possible to 4 centigrade until received by laboratory personnel.

Water samples were analyzed for halogenated and nonhalogenated volatile organic hydrocarbons. The analyses were conducted by the Minnesota Health Department, Section of Analytical Services using their code 465 analysis which is EPA Method 502.1.

All MDH methods, procedures, and protocols are referenced in:

Quality Assurance Document
Section of Analytical Services
Division of Environmental Health
Minnesota Department of Health
July 1, 1983

4 Remedial Investigation

4.1 Soil Borings

Soil borings were conducted primarily to define conditions in advance of well installation. Some soil borings were conducted to obtain geologic information in support of the feasibility study for an alternate water supply for the City of Waite Park.

The standard penetration test borings were conducted with a truck-mounted drill rig utilizing a combination of hollow-stem auger and rotary wash drilling procedures. All sampling was in accordance with ASTM procedures with soil samples being obtained at 5 foot increments. The soil borings typically encountered outwash sands beneath the surficial topsoils underlain by silty clayey sand or lean clay till. In most of the borings the till layer was penetrated with outwash sands being encountered below the till unit. However, borings ST-5, ST-6B, ST-6C and ST-7 were terminated either within the till unit or, in the case of boring ST-7, on what most likely was the top of the granite bedrock. Boring ST-9, which was conducted near a

City Park in the south end of Waite Park was also terminated in the till unit at the 50 foot depth.

The soil boring logs are included in Appendix A. No obviously contaminated materials were encountered during soil boring operations. Fill materials were encountered in soil boring ST-6, and well boring 11-S.

4.2 Monitoring Well Installation

Monitoring wells were installed in Waite Park and the adjoining area of St. Cloud north of the BN Rail Yard. The wells were installed to gain information on contaminant distribution and the area ground water flow direction in both shallow and deep alluvial aquifers.

Eleven of the 15 wells placed to monitor the shallow aquifer were two inches in diameter. The remaining four shallow wells are four inches in diameter. The eight wells completed into the lower alluvial aquifer are four inches in diameter with an eight inch outer casing seated and grouted into the till unit.

The wells placed into the shallow alluvial aquifer during the first phase of field work in April 1984 were placed by hollow stem auger methods. These wells were constructed of two inch galvanized steel risers with 10 foot stainless steel screens. Four inch lockings protective casings were placed and grouted over all two inch wells.

During the second phase of drilling in June 1985 three of the shallow alluvial wells installed were two inches in diameter and were installed with hollow them auger as described above. Four other shallow alluvial wells (11S, 12S, 13S, 14S) installed in June 1985 were four inches in diameter and were installed by the well drilling contractor using mud rotary techniques. The shallow four inch wells were constructed of black steel risers and four foot stainless steel screens.

The wells placed into the deep alluvial aquifer were all completed using mud-rotary drilling techniques with the exception of well 2D which was completed using cable tool methods.

The general construction specifications of both the shallow and deep alluvial monitoring wells are shown in Figure 4. The locations of monitoring wells are shown in Figure 5 and 6. All well materials were steam cleaned and wrapped in aluminum foil prior to transport to the site. All wells were constructed in accordance with the Minnesota Department of Health Well Code.

Natural sands were allowed to collapse around well screens after installation. All wells were developed in an attempt to remove fine materials from around the well screen. The deep alluvial wells were developed by airlifting water out of the casing. The shallow alluvial wells were developed by bailing and pumping.

FIGURE 4

WELL CONSTRUCTION DETAILS

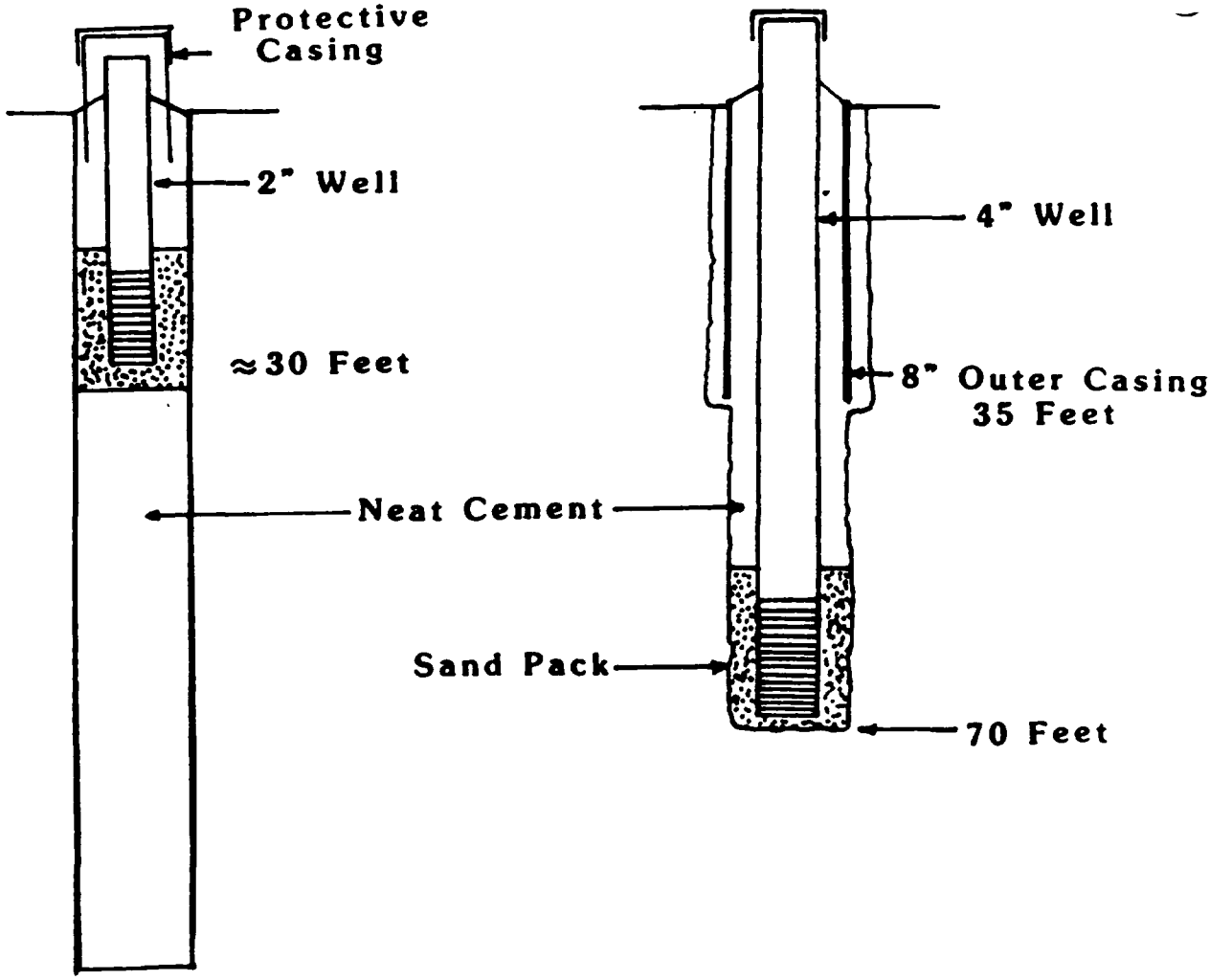


FIGURE 5

Shallow Well Locations

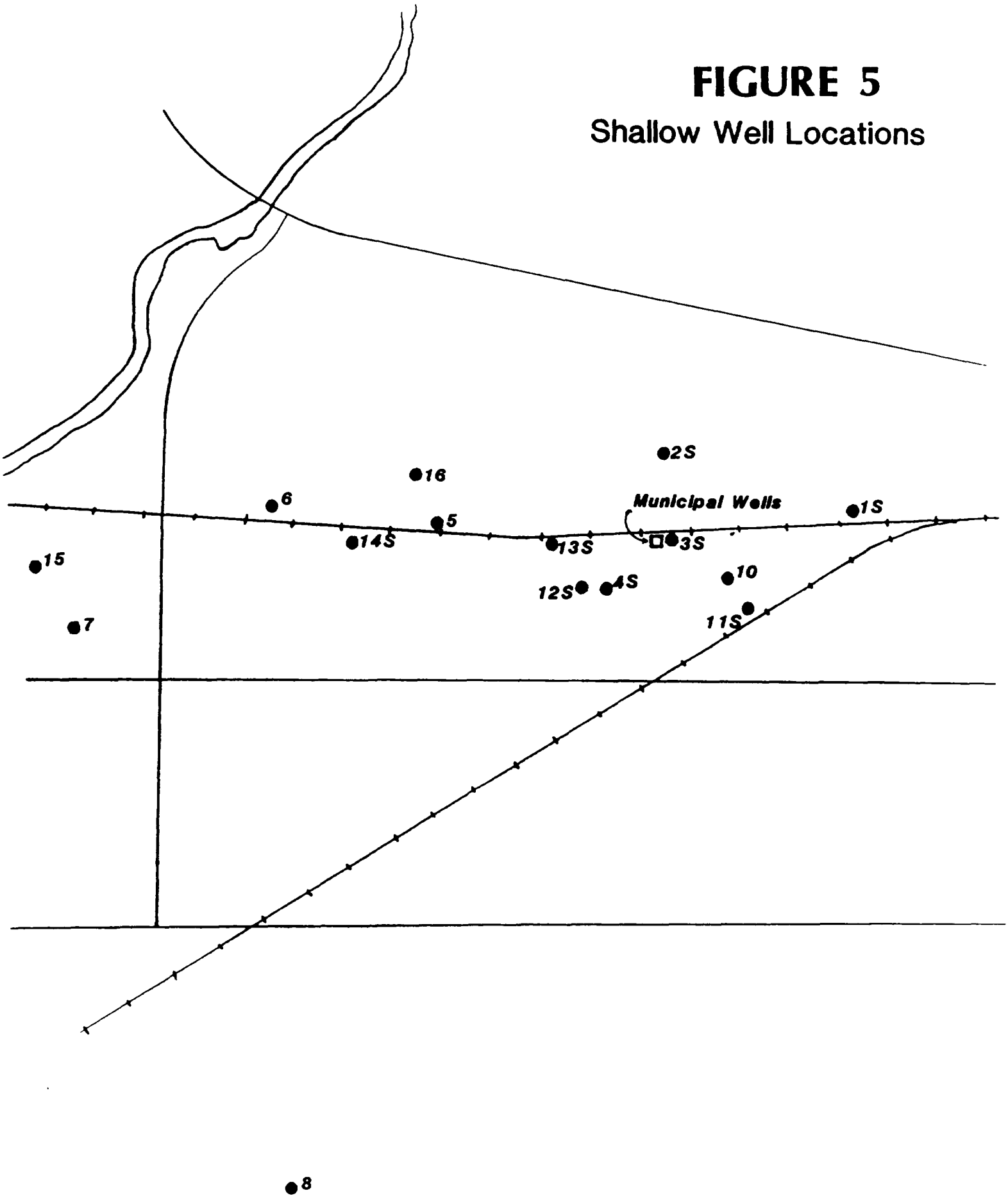
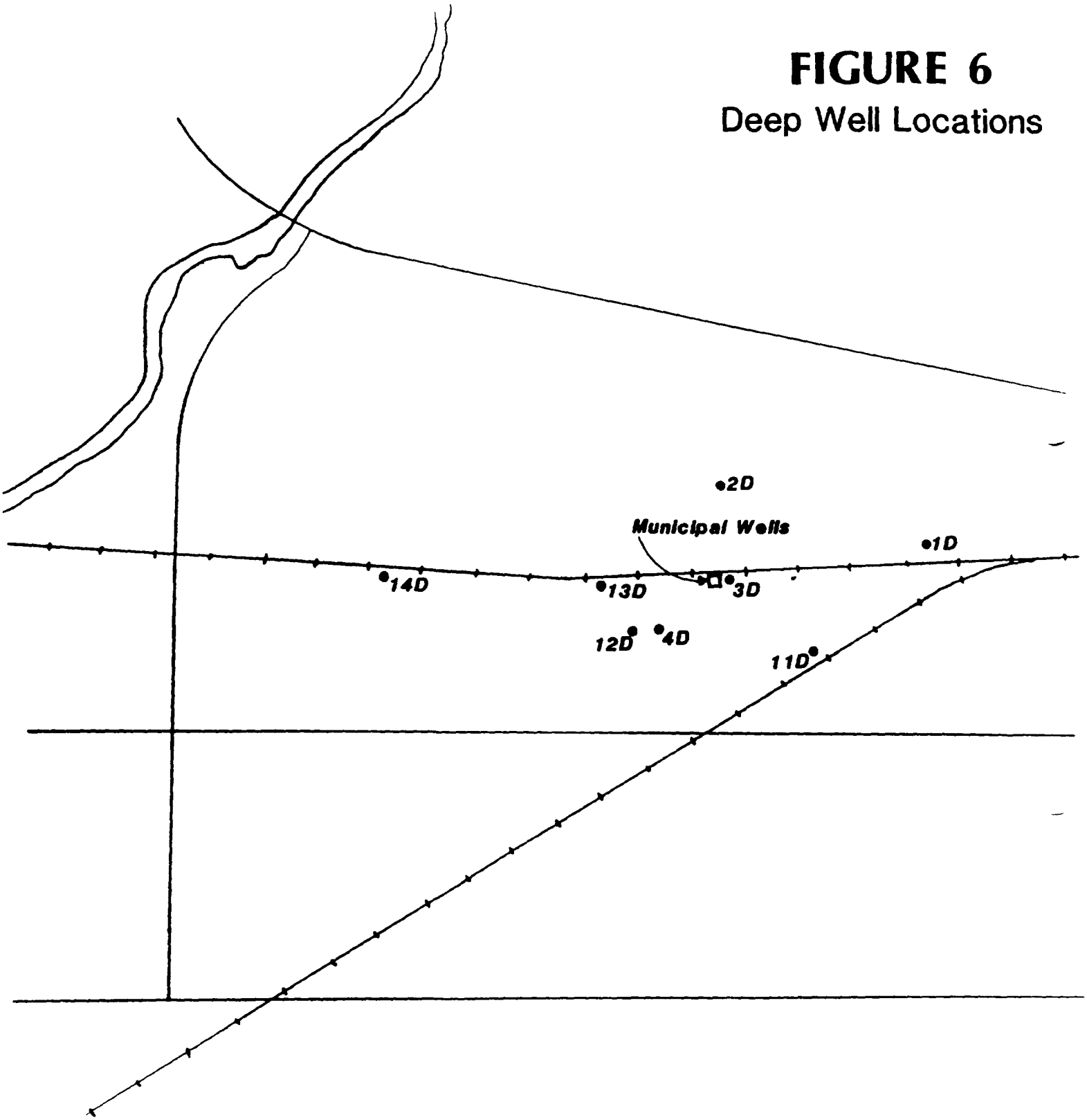


FIGURE 6

Deep Well Locations



After well development the wells were fitted with protective caps and locked. Protective posts were installed around all well installations. Well logs and construction information are presented in Appendix B.

4.3 Ground Water Sampling

Prior to sampling wells were purged prior to sampling by one of three different pumping methods. Wells 1D, 3D, 4D, 10, 11S, 11D, 12S, 12D, 13S, 13D and 15 were pumped using a centrifugal pump at the land surface with a one inch drop line. Wells 2D and 14D were pumped using a 4 inch submersible pump. All remaining wells were pumped using a hand operated low volume displacement pump. The objective in pumping the wells prior to sampling was to remove at least three well volumes from each well prior to sampling to insure representative samples from the aquifer.

After pumping the wells were sampled using stainless steel bailers lowered on nylon rope. New rope was used for each well. The bailers were cleaned between wells and rinsed with distilled water. During the April sampling event the bailers were cleaned with acetone and then rinsed with distilled water. Acetone was detected during analysis of some of the samples. The bailer cleaning was accomplished with hexane during the next sampling event in July to eliminate the detection of acetone in the samples.

Samples were poured from the bailers into 40ml vails with Teflon lined caps. The samples were accompanied by a sample blank and were transported to the MDH laboratory by MPCA staff. BN personnel split samples with MPCA staff. The laboratory reports are presented in Appendix C of this report. The results of the sampling are discussed in section 5.

4.4 Surveying

All wells were surveyed to U.S.G.S. benchmarks by Braun Engineering Personnel and/or by MPCA staff. The elevations from the measuring points where water levels are monitored are given in Table 1.

5 Remedial Investigation Results

The results of the investigations, soil borings, well installations, ground water measurements, and sampling indicate:

1. There are three general areas of ground water contamination by organic chemicals in the Waite Park area.

2. The three areas of contamination appear to be caused by separate sources.

3. The hydrology and geology of the three areas appear to be different.

4. Two areas of disposal have been confirmed and the presence of at least 3 others have been determined.

5. The contamination of the Waite Park municipal wells is caused by a source of chlorinated organic chemicals on Burlington Northern property.

The three areas of ground water contamination identified in the limited remedial investigation are shown on Figure 7.

5.1 Residential Area

The contaminated area south of 3rd Street is in a residential area with a few small businesses interspersed in the area. As previously described in sections 2.3 and 2.4 the wells in this area are shallow, usually less than 30 feet and obtain their water from shallow alluvial sand units. These shallow sand units have been contaminated since the mid to early 1960's by wastes from domestic septic systems which were abandoned in the latter 1960's. None of the wells in the residential area are contaminated above health criteria. The low levels of contaminants may be from the usage of septic tank cleaners, and there is some evidence that gasoline contamination may be the cause. Benzene was seen in one sample, ethyl ether in another and the ethane solvents used as lead scavengers in all but one sample. Municipal drinking water is available to all residences. The very low levels and dispersed nature of contamination make source investigations very difficult for this area of contamination. No existing or proposed municipal water supply wells are in this area.

5.2 BN/Municipal Well Area

Contamination is seen in the shallow and deep alluvial aquifers on the Burlington Northern property north of 3rd street. The contaminants in this area have been found to be a source of the contamination affecting the Waite Park municipal wells. Monitoring of ground water upgradient of this area has not detected any contamination. Ground water flow in the lower aquifer during pumping conditions is shown in Figure 8. The municipal wells may have been limiting movement of contamination off of Burlington Northern property.

Monitoring at wells 3D, 4S, 4D, 12D, 13D, and municipal well #1 has shown contamination by 1,1-Dichlorethane, 1,1-Dichlorethylene, Tetrachloroethylene, Trichloroethylene, and 1,2-Dichloroethylene. The contaminant levels in these wells are represented in Figure 9. These well nests are all on BN property. Well 4S is a shallow well in the upper alluvial aquifer, and the other wells are in the deeper alluvial aquifer. The till unit between these alluvial aquifers thins to 6 feet in the vicinity of well nest 4 (Well installation log 4D and soil boring ST-12, Appendix A).

Since similar contamination exists in both the shallow and deep aquifers at well nest 4 where the till unit is relatively thin it is possible that the contamination is moving from the shallow aquifer to the deeper aquifer in this vicinity. The water level difference between the shallow and deep aquifers has been 5 to 6 feet during the period of record, the shallow aquifer being higher. This hydraulic inbalance is a large driving force which also indicates that is possible that the contaminants could be moving

Table 1

Waite Park WELL ELEVATION WELL N	WATER LEVELS--MAR 25,1985 TAPE/ RISER	H2O/ TAPE	WATER DEPTH	WATER ELEV	WATER LEVELS-MAR 29,1985 TAPE/ RISER	H2O/ TAPE	WATER DEPTH	WATER ELEV	WATER LEVELS-APR 3,1985 TAPE/ RISER	H2O/ TAPE	WATER DEPTH	WATER ELEV	WATER LEVELS-APR 24-25,1985 TAPE/ RISER	H2O/ TAPE	WATER DEPTH	WATER ELEV	WATER LEVELS-JUN TAPE/ RISER	H2O/ TAPE	WATER DEPTH
[illegible]	1049.44	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	[illegible]	0.00	11.42	[illegible]	10.9[illegible]		
	1049.59	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	15.30		15.30	1034.29	[illegible]	0.00	13.75	1035.84	14.20	0.00	14.20
[illegible]	1054.54	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	15.23	0.00	15.23	1039.31	17.00	0.00	17 [illegible]
[illegible]	1054.6	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	18.90		18.90	1035.70	[illegible]	0.00	[illegible]	1038.53	[illegible]	0.00	[illegible]
	1050.47	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	10.33	0.00	10.33	1040.14	[illegible]	0.00	[illegible]
	1050.68	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	16.29	0.00	16.29	1034.39	16.08	0.00	16.[illegible]
4	1051.2	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	10.92	0.00	10.92	1040.28	10.21	0.00	10.21 1040
4	1051.6	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	17.20		17.20	1034.4	16.63	0.00	16.63	1035.03	[illegible]	0.00	16.[illegible]
[illegible]	1049.06	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	14.00	0.00	14.00	1035.06	[illegible]	0.00	13.[illegible]
	1044.[illegible]	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	[illegible]	0.00	[illegible]	1035.23	[illegible]	[illegible]	[illegible]
	1043.[illegible]	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	[illegible]	0.00	11.36	1037.57	[illegible]	[illegible]	[illegible]
	68 [illegible]	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	[illegible]	0.00	4.36	1014.[illegible]	NOT MES		#[illegible]
	1050.1	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#[illegible]
	1050.[illegible]	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#[illegible]
[illegible]	1051.87	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VA[illegible]
[illegible]	1051.17	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VAL[illegible]
[illegible]	1050.2	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VA[illegible]
	1049.15	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VA[illegible]
	1048.87	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VA[illegible]
	1047.7	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE#VALUE
14[illegible]	1048.20	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE#VALUE
15	1049.06	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE#VALUE
16	1047	NOT MES	#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE#VALUE
BBC	1051.65	NOT MES	#VALUE#	VALUE	11.70		11.70	1039.95	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE#VALUE
7-UP	1047.32	NOT MES	#VALUE#	VALUE	13.20		13.20	1034.12	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE#VALUE
2W	1051.12	17.25	17.25	1033.87	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE#VALUE
2E	1050.03	16.10	16.10	1033.93	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE#VALUE
8E	1049.26	15.04	15.04	1034.22	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE#	VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE#VALUE

		WATER LEVELS JUL 1-3,1985				WATER LEVELS-AUG 22, 1985				WATER LEVEL-SEP 18, 1985			
		TAPE RISE	H2O TAPE	WATER DEPTH	WATER ELEV	TAPE RISE	H2O TAPE	WATER DEPTH	WATER ELEV	TAPE RISE	H2O TAPE	WATER DEPTH	WATER ELEV
		[illegible]		[illegible]	[illegible]	10						[illegible]	[illegible]
		[illegible]		60	1035.99	15.00		4.0[illegible]	[illegible]	[illegible]	[illegible]	12.9[illegible]	1036.[illegible]
		[illegible]		4.[illegible]5	1040.39	16.00	[illegible]	14.4[illegible]	[illegible]	16.00	3.00	13.00	1041.54
		[illegible]		4.92	1039.68	17.00	[illegible]	15.1[illegible]	[illegible]	[illegible]	0.9[illegible]	14.0[illegible]	1040.59
		[illegible]	[illegible]	[illegible].17	1042.[illegible]	11.00	2.8[illegible]	8.[illegible]3	1042.[illegible]	[illegible]	[illegible]	6.20	1044.2[illegible]
		15.04	0.[illegible]0	[illegible].04	1035.64	16.00	0.43	15.57	1035.[illegible]	1[illegible].0	1.70	14.30	1036.38
		[illegible]	[illegible]	8.56	1042.64	10.00	1.37	8.0[illegible]	1042.5[illegible]	8.00	0.98	7.02	1044.18
		[illegible]	[illegible]	[illegible]	1036.[illegible]	[illegible].00	1.10	15.90	1035.7[illegible]	15.00	0.39	14.61	1037.0[illegible]
		NOT MES		#VALUE	#VALUE	15.00	.88	1[illegible].12	1035.9[illegible]	[illegible]	6.22	[illegible].68	1037.38
		8.96	.00	8.96	1036.[illegible]	10.00	0.1[illegible]	[illegible]	[illegible]	10.00	1.69	8.31	1036.68
		10.65	.00	10.65	1038.28	14.0[illegible]	[illegible]	[illegible].4	1036.[illegible]	13.00	2.2[illegible]	[illegible].77	1038.1[illegible]
		NOT MES		#VALUE	#VALUE	NOT MES		#VALUE	#VALUE	5.00	1.[illegible]	3.99	1064.6[illegible]
		7.81	0.[illegible]	7.81	1042.30	10.00	2.14	[illegible]8	1042.2[illegible]	7.00	0.[illegible]3	6.07	1044.04
		9.19	0.[illegible]	9.19	1041.73	[illegible]	0.92		[illegible].74	9.00	0.6[illegible]	7.36	1043.56
		[illegible]	0.[illegible]	1[illegible]	1040.74	17.[illegible]	0.30	16.64	1035.[illegible]	17.00	1.35	15.65	1036.2[illegible]
		[illegible].54	0.00	8.54	1042.[illegible]	10.00	1.40	9.60	1042.57	8.00	1.0[illegible]	6.98	1044.19
		16.1[illegible]	0.[illegible]	16.1[illegible]	1036.[illegible]	20.00	[illegible].39	[illegible]	1035.[illegible]	17.00	1.64	15.36	1036.84
		5.1[illegible]	[illegible]	5.19	1042.[illegible]	7.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.14	1044.[illegible]
		[illegible]	[illegible]	[illegible].04	1032.[illegible]	15[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.7[illegible]	13.27	1035.[illegible]
		[illegible]	0.00	8.1[illegible]	1039.[illegible]	11.[illegible]	[illegible]	9.24	1[illegible]	[illegible]	[illegible]	7.37	1040.3[illegible]
	[illegible].26	[illegible].58	0.00	10.58	1037.[illegible]	12.00	0.57	1[illegible].4[illegible]	1036.[illegible]	11.00	1.05	9.95	1038.31
	1049.06	10.90	0.00	10.90	1038.16	15.00	1.50	13.50	1035.56	NOT MES		#VALUE	#VALUE
	1047	10.38	0.00	10.38	1036.62	13.00	1.92	11.08	1035.92	12.00	2.41	9.59	1037.41
[illegible]	1051.65	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE	#VALUE
[illegible] UP	1047.32	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE	#VALUE	NOT MES		#VALUE	#VALUE
[illegible]W	1051.12	NOT MES		#VALUE	#VALUE	17.00	1.15	15.85	1035.27	NOT MES		#VALUE	#VALUE
2E	1050.03	NOT MES		#VALUE	#VALUE	17.00	2.44	14.56	1035.47	NOT MES		#VALUE	#VALUE
[illegible]	1049.26	NOT MES		#VALUE	#VALUE	15.00	0.96	14.04	1035.22	NOT MES		#VALUE	#VALUE

FIGURE 7

Three Areas of Contamination

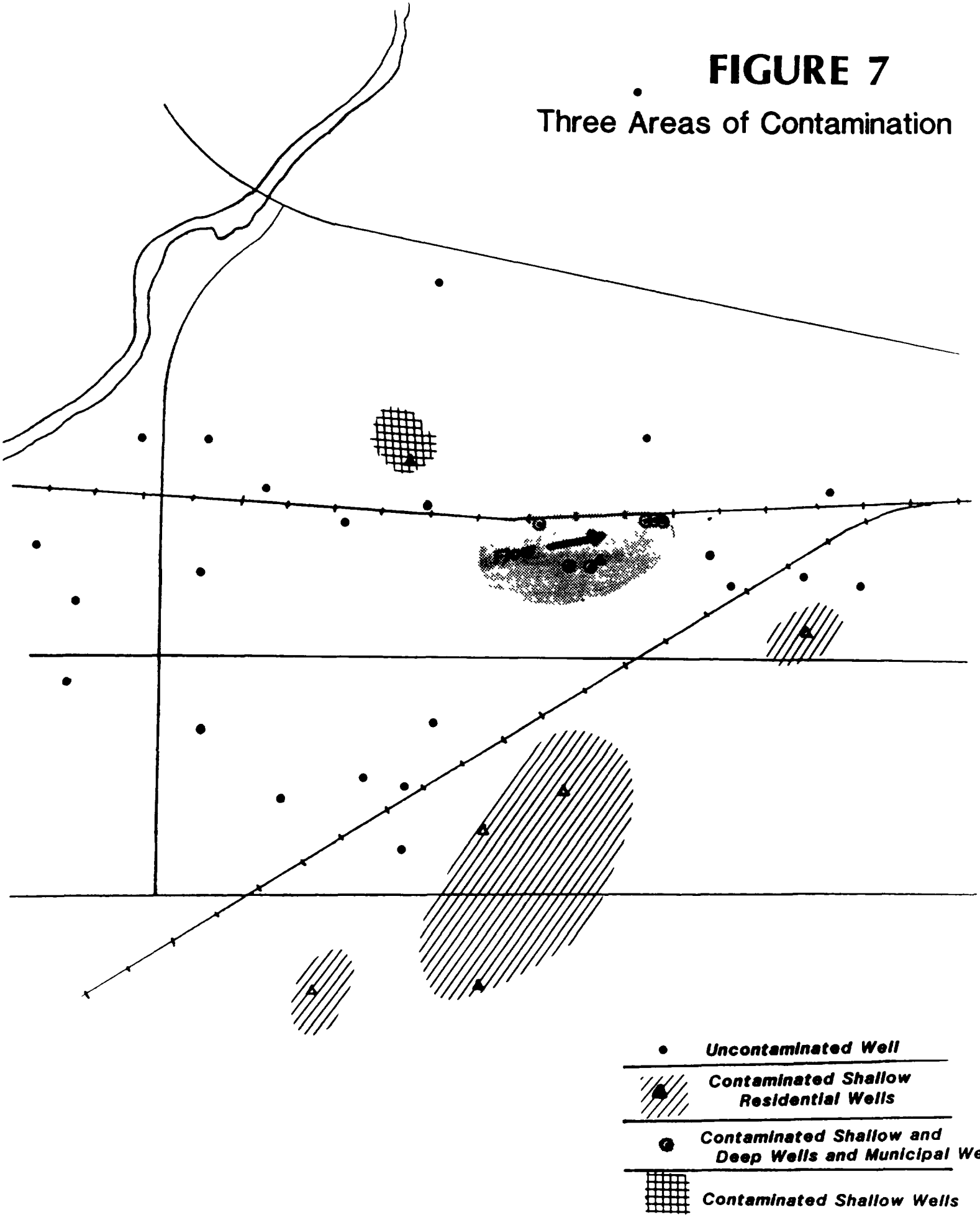


FIGURE 8

Ground Water Flow with Municipal Wells in Operation

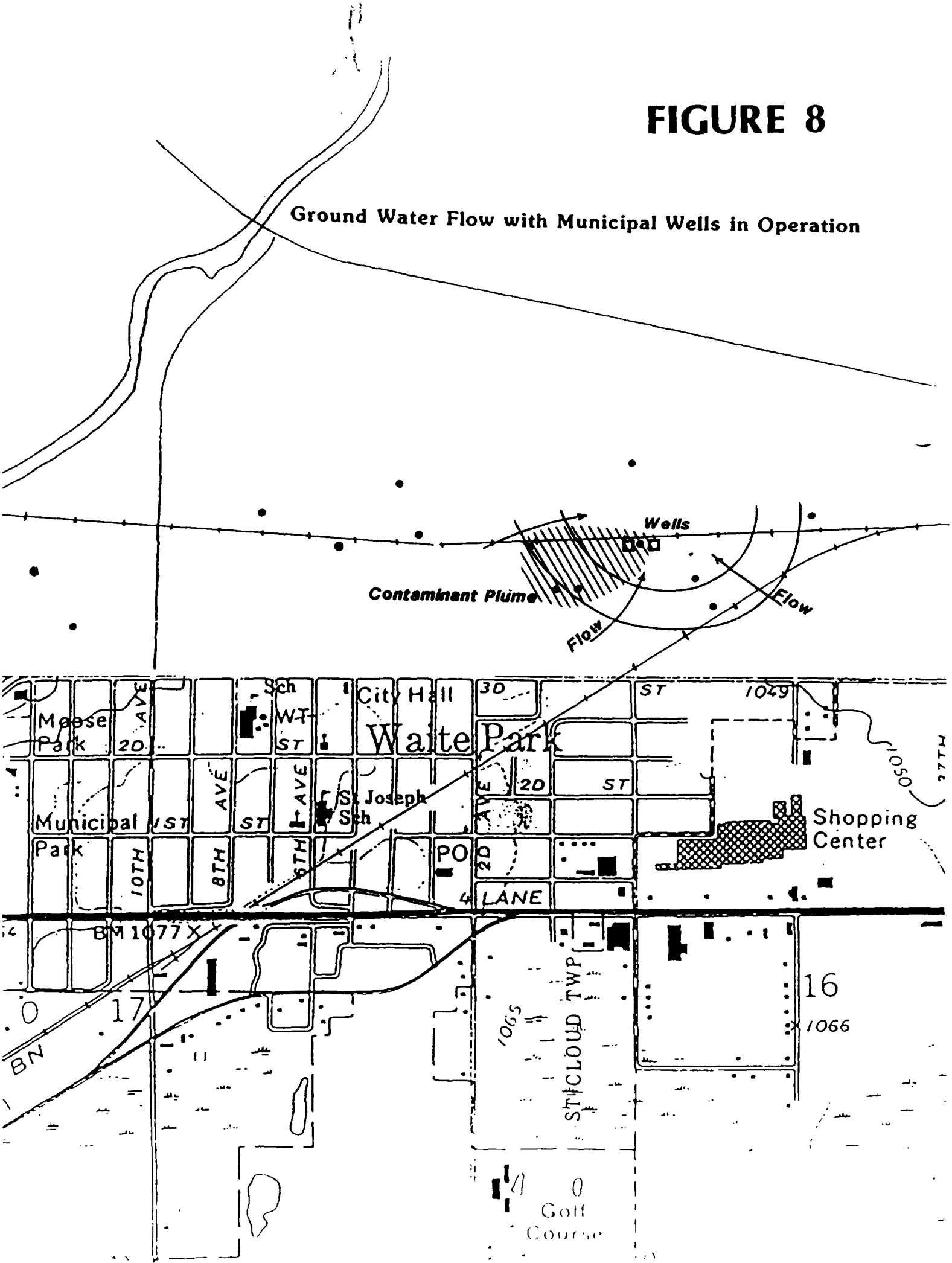
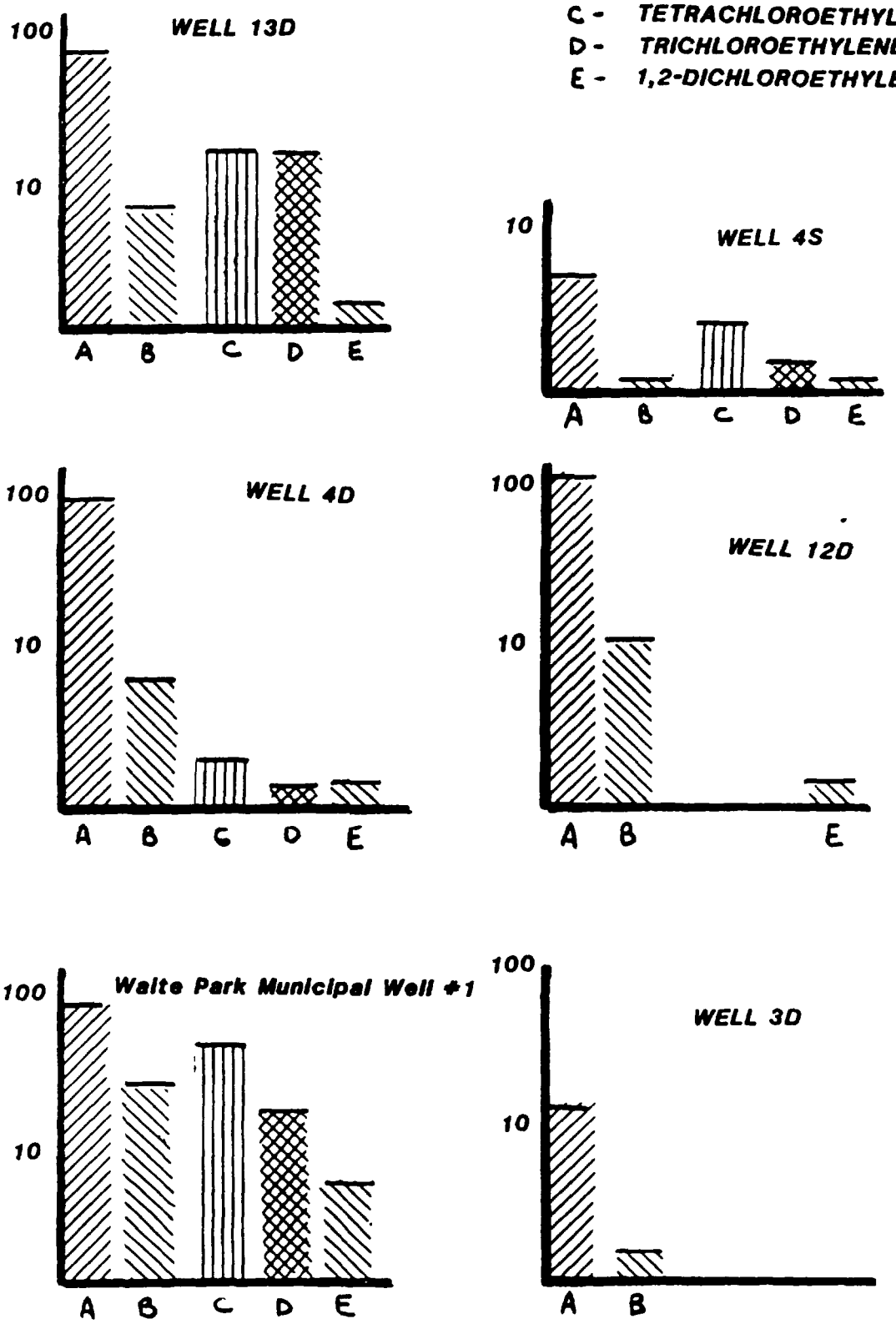


FIGURE 9

A - 1,1-DICHLOROETHANE
B - 1,1-DICHLOROETHYLENE
C - TETRACHLOROETHYLDENE
D - TRICHLOROETHYLENE
E - 1,2-DICHLOROETHYLENE (TOTAL)



All Levels are Parts per Billion

into the lower aquifer near well nest 4. Contaminants and water cannot move from the lower aquifer upward toward the shallower aquifer because the hydraulic gradient is in the downward direction throughout the area.

In summary, the same set of contaminants present in the Waite Park municipal wells are present in the Burlington Northern railyard wells in both the shallow and deep alluvial aquifers. The contaminant patterns and ground water flow patterns indicate that a source of these contaminants is present on the Burlington Northern railyard.

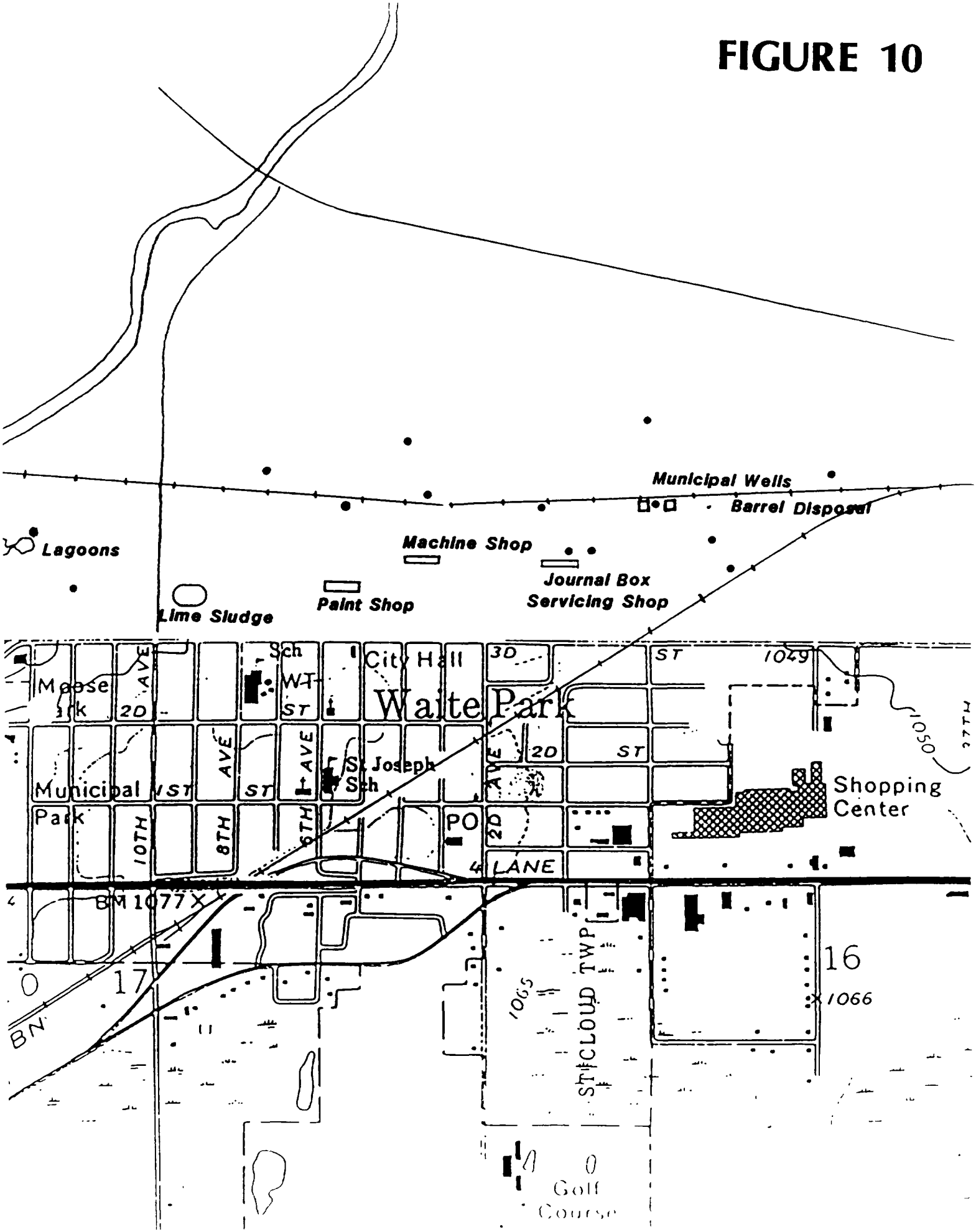
There are at least 4 areas of potential waste disposal on the Burlington Northern railyard in Waite Park (figure 10). They are the waste lagoons west of 10th Avenue, calcium carbide (lime sludge) disposal east of 10th Avenue, disposal near areas of solvent and oil usage-specifically the journal box servicing building, and the burial of barrels of paint wastes on the far east end of the railyard. In June 1981 Burlington Northern notified the U.S.EPA that 10,000 gallons of solvents were disposed of annually at the Waite Park facility. They also reported the disposal of "lime" (by-product of acetylene production), paint waste, various oils, and some "molasses waste".

The waste lagoons west of 10th Avenue are the most easily verified disposal area on the Burlington Northern facility. They are easily identifiable from aerial photographs taken in 1974. The lagoons were filled and mounded with soil in the late 1970's. Seeps of black viscous liquids have been observed by MPCA staff coming out of the mounded areas and pooling around the base of the mounds. Well 15 was placed on the northeast edge of the easternmost lagoon during the MPCA remedial investigation. This well was sampled only for volatile organics. None were detected. Additional wells should be installed around both lagoons and they should be sampled for a complete list of priority pollutants.

The "lime sludge" disposal area on the east edge of 10th Avenue is also present in 1974 aerial photography. Currently grasses and weeds are present over much of the area. The lime sludge can be uncovered by shallow digging in this area. Ground water in this area was not investigated in the MPCA remedial investigation since it was not suspected of being a source of chlorinated solvent contamination.

A complaint received by MPCA staff indicated that at the "dope house" (journal box servicing building) it was a common practice for workers to dump wastes outside the building. The journal box servicing building was the facility where the journal boxes containing bearing journal lubricants for railcar wheels were reconditioned. The complainant stated that solvents were used in the cleaning out pads which were a component-of the journal boxes. The solvents were dumped outside the building. Well nests 4 and 12 are located northeast of the journal box servicing building in the direction ground water flows while moving toward the municipal wells. Both well nests exhibit contamination similar to the municipal well contamination as discussed previously. Underground tanks are still present adjacent to the facility. The contents and past usage of the underground tanks is unknown at this time.

FIGURE 10



Municipal Wells
Barrel Disposal
Lagoons
Machine Shop
Journal Box
Servicing Shop
Paint Shop
Lime Sludge
Sch
City Hall
3D
ST
1049
Moose
Park
2D
WT
ST
Waite Park
1050
AVE
AVE
AVE
St Joseph
Sch
2D
ST
Shopping
Center
Municipal
Park
1ST
ST
10TH
8TH
6TH
PO
2D
4 LANE
BM 1077
17
16
1066
1065
ST CLOUD TWP
BN
Golf
Course

Two complaints received by MPCA staff indicated that barrelled waste from the paint shop at the site were buried in the far eastern end of the yard. The location of the disposal was not able to be determined precisely from the complaints. The two independent complaints indicated that the disposal included paint solids and that several railcars were rolled on a siding up to a trench that had been dug along the siding. The barrels were then placed in the trench and the trench was then backfilled immediately. The complainants indicated that the disposal took place in the 1960's. The barrel disposal area needs to be located and any wastes should be identified and disposed of properly. Soil and ground water should be analyzed in the vicinity of this disposal area.

Other areas of potential disposal or where solvents may have been used include the machine shop, the paint shop, steel car shop, materials storage areas, and underground storage tanks. There appear to be at least six abandoned wells at the site that should be investigated and properly abandoned.

5.3 Electric Machinery Area

The third area of ground water contamination by organic chemicals is in the vicinity of a manufacturing facility in the St. Cloud Industrial Park just north of Waite Park (figure 11). During the period of active disposal the facility was owned by Electric Machinery (EM) and Turobodyne corporation. It is currently an inactive facility and is owned by Brown Bovevi Corporation (BBC).

MPCA staff received three hotline complaints indicating that solvents from the paint booth area were dumped on a regular basis from 1970 to 1977 at two lociations on the EM site (figure 12). Based on information from BBC's hazardous waste disclosures the solvent wastes at ths site were both halogenated and non-halogenated hydrocarbons including ethyl benzene, xylene, toluene, 1,1,1-trichlorethane, tetrachloroethylene, trichlorethylene, and methyl ethyl ketone. The disposal was reoported to be open dumping from 55 gallon barrels near the southwest corner of the property and possibly discharge from a pipe to the land surface near the building.

As shown on figure 9 there have been five wells installed on or near the site and 10 soil borings have been completed on or near the site. The results of the soil borings indicated that the geology in the southern portion of the property varied from that encountered elsewhere in the area. The soil boring at site 5 found clay till to a depth of 110 feet with two minor sand lenses at 27 and 55 feet. The soil boring at site 14 encountered silty sands and till. The lower permeability of these materials appears to separate the flow in the shallow alluvial aquifer to the north.

The geology near the building and north of the building appears to be more similar to other areas nearby. A sandy alluvial aquifer is present from the surface to approximately 35 feet, a clay till unit from 35 to 71 feet and a deeper alluvial aquifer below 71 feet.

Wells 5, 6, and 16 have exhibited low levels of contaminants (see appendix B) with the highest being well 16 having 20 parts per billion of tetrach-

FIGURE 11

Electric Machinery Site

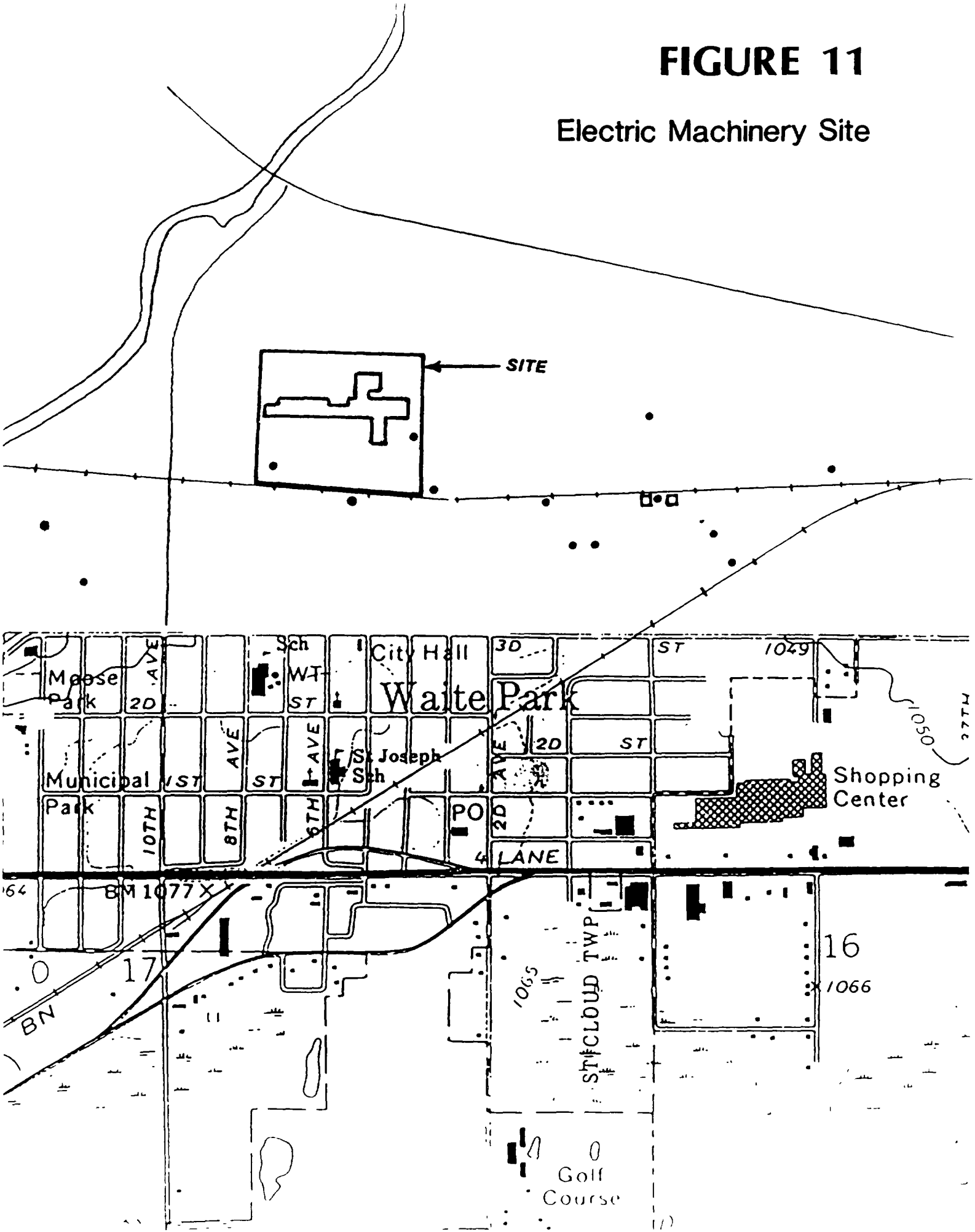
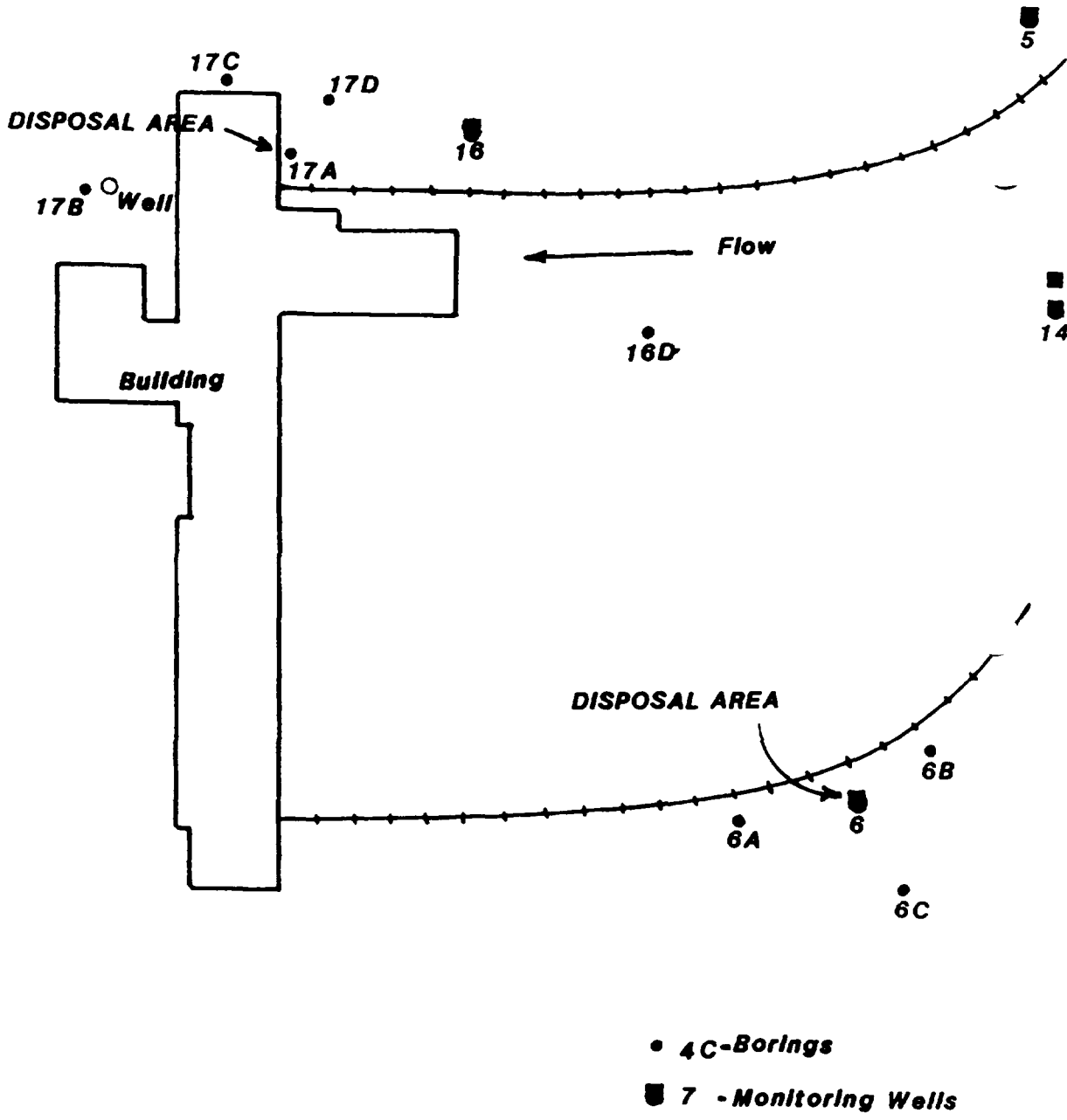


Figure 12

EM Disposal Areas



loroethylene on the July 3, 1985 sampling event. Soil borings 6A, 6B, 6C, and 6D exhibited no evidence of disposal. Soil borings were conducted by MPCA staff on October 9, 1985 and soil boring 17A encountered heavy contamination in the groundwater at 12 feet. Preliminary labratory results indicate that the contaminants are 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, 1,1 - dichloroethylene, and 1,1,2 - trichlorotrifluoroethane.

Based on the water level elevations in the wells on site and the low level of contaminaiton in the wells to the south (5, 6, 145, 16) it appears that the contaminated ground water is moving to the north. Additional wells and soil borings are needed to define source areas at the EM site and the movement of contaminated water from the source areas.

TABLE #2

STATISTICAL ANALYSIS

RECEIVED
DEC 3
U.S. EPA
WASTE MANAGEMENT DIVISION
HAZARDOUS WASTE CONTROL

SAMPLE IDENTIFICATION:

TCT #6995 Site #3, Deep
TCT #6996 Site #4, Shallow

Compound	#6995 #1 (ug/L)	#6995 #2 (ug/L)	#6995 Mean (ug/L)	#6996 #1 (ug/L)	#6996 #2 (ug/L)	#6996 Mean (ug/L)	Lower Detectable Limit (ug/L)
Chloromethane	ND	ND	ND	ND	ND	ND	5
Bromomethane	ND	ND	ND	ND	ND	ND	1
Dichlorodifluoromethane][1] Vinyl Chloride]	ND	ND	ND	ND	ND	ND	1
Chloroethane	ND	ND	ND	ND	ND	ND	1
Methylene Chloride	ND	ND	ND	12	11	12	1
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	1
1,1-Dichloroethylene	ND	ND	ND	9	4	6	1
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	1
Trans 1,2-Dichloroethylene	17	20	18	77	71	74	1
Chloroform	ND	ND	ND	ND	ND	ND	1
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	1
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	1
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	1
Bromodichloromethane	ND	ND	ND	ND	ND	ND	2
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	1
Trans 1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	1
Trichloroethylene	ND	ND	ND	ND	ND	ND	1
Dibromochloromethane][1] Cis 1,3-Dichloropropylene]	ND	ND	ND	ND	ND	ND	1
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	1
Benzene	ND	ND	ND	ND	ND	ND	1
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	1
Bromoform	ND	ND	ND	ND	ND	ND	2
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	1
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	1
Toluene	ND	ND	ND	ND	ND	ND	1
Chlorobenzene	ND	ND	ND	ND	ND	ND	1
Ethyl Benzene	11	8	10	ND	ND	ND	1
Xylenes	4	4	4	ND	ND	ND	1
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1

For the purpose of this report:
ug/L = ppb
ND = Not Detected
[1] Compounds are not separated by this method.

TABLE #1 (CONT)

VOLATILE ANALYSIS

SAMPLE IDENTIFICATION:

TCT #7006 - Site #14, Shallow
TCT #7007 - Site #14, Deep
TCT #7008 - Site #15

Compound	#7006 #14, S (ug/L)	#7007 #14,D (ug/L)	#7008 #15 (ug/L)	Lower Detectable Limit (ug/L)
Chloromethane	ND	ND	ND	5
Bromomethane	ND	ND	ND	1
Dichlorodifluoromethane][1] Vinyl Chloride]	ND	ND	ND	1
Chloroethane	ND	ND	ND	1
Methylene Chloride	ND	3	ND	1
Trichlorofluoromethane	ND	ND	ND	1
1,1-Dichloroethylene	ND	ND	ND	1
1,1-Dichloroethane	ND	ND	ND	1
Trans 1,2-Dichloroethylene	ND	ND	ND	1
Chloroform	12	ND	ND	1
1,2-Dichloroethane	ND	ND	ND	1
1,1,1-Trichloroethane	ND	ND	ND	1
Carbon Tetrachloride	ND	ND	ND	1
Bromodichloromethane	ND	ND	ND	2
1,2-Dichloropropane	ND	ND	ND	1
Trans 1,3-Dichloropropylene	ND	ND	ND	1
Trichloroethylene	ND	ND	ND	1
Dibromochloromethane][1] Cis 1,3-Dichloropropylene]	ND	ND	ND	2
1,1,2-Trichloroethane	ND	ND	ND	1
Benzene	ND	ND	ND	1
2-Chloroethylvinyl ether	ND	ND	ND	1
Bromoform	ND	ND	ND	2
1,1,2,2-Tetrachloroethane	ND	ND	ND	1
Tetrachloroethylene	ND	ND	ND	1
Toluene	ND	ND	ND	1
Chlorobenzene	ND	ND	ND	1
Ethyl Benzene	ND	ND	ND	1
Xylenes	ND	ND	ND	1
1,3-Dichlorobenzene	ND	ND	ND	1
1,2-Dichlorobenzene	ND	ND	ND	1
1,4-Dichlorobenzene	ND	ND	ND	1

For the purpose of this report:
ug/L = ppb
ND = Not Detected
BDL = Detected but below quantifiable level
[1] Compounds are not separated by this method.

TABLE # (CONT)

VOLATILE ANALYSIS

SAMPLE IDENTIFICATION:

TCT #7000 - Site #11, Shallow
TCT #7001 - Site #11 Deep
TCT #7002 - Site #12 Shallow
TCT #7003 - Site #12 Deep
TCT #7004 - Site #13 Shallow
TCT #7005 - Site Deep

Compound	#7000 #11,S (ug/L)	#7001 #11,D (ug/L)	#7002 #12,S (ug/L)	#7003 #12,D (ug/L)	#7004 #13,S (ug/L)	#7005 #13,D (ug/L)	Lower Detectable Limit (ug/L)
Chloromethane	ND	ND	ND	ND	ND	ND	5
Bromomethane	ND	ND	ND	ND	ND	ND	1
Dichlorodifluoromethane][1]	ND	ND	ND	ND	ND	ND	1
Vinyl Chloride]							
Chloroethane	ND	ND	ND	ND	ND	6	1
Methylene Chloride	ND	ND	ND	8	ND	ND	1
Trichlorofluoromethane	ND	ND	ND	ND	ND	5	1
1,1-Dichloroethylene	ND	ND	ND	10	ND	ND	1
1,1-Dichloroethane	ND	ND	ND	ND	ND	59	1
Trans 1,2-Dichloroethylene][1]	ND	ND	ND	150	ND	ND	1
Chloroform]	ND	ND	6	ND	ND	ND	1
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	1
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	1
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	1
Bromodichloromethane	ND	ND	ND	ND	ND	ND	2
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	1
Trans 1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	1
Trichloroethylene	ND	ND	ND	ND	ND	ND	1
Dibromochloromethane][1]	ND	ND	ND	ND	ND	ND	1
Cis 1,3-Dichloropropylene]							
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	1
Benzene	ND	ND	ND	ND	ND	ND	1
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	1
Bromoform	ND	ND	ND	ND	ND	ND	2
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	1
Tetrachloroethylene	ND	ND	ND	ND	ND	12	1
Toluene	ND	ND	ND	ND	ND	ND	1
Chlorobenzene	ND	ND	ND	ND	ND	ND	1
Ethyl Benzene	ND	ND	ND	ND	ND	ND	1
Xylenes	ND	ND	ND	ND	ND	ND	1
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1

For the purpose of this report:
ug/L = ppb
ND = Not Detected
BDL = Detected but below quantifiable level
[1] Compounds are not separated by this method.

TABLE #1

VOLATILE ANALYSIS

SAMPLE IDENTIFICATION:

TCT #6994 - Site #3, Shallow
TCT #6995 - Site #3, Deep
TCT #6996 - Site #4, Shallow
TCT #6997 - Site #4, Deep
TCT #6998 - Site #7, Softball field
TCT #6999 - Site #10, 2" Well Central East End

Compound	#6994 #3,S (ug/L)	#6995 #3,D (ug/L)	#6996 #4,S (ug/L)	#6997 #4,D (ug/L)	#6998 #7,S (ug/L)	#6999 #10, (ug/L)	Lower Detectable Limit (ug/L)
Chloromethane	ND	ND	ND	ND	ND	ND	5
Bromomethane	ND	ND	ND	ND	ND	ND	1
Dichlorodifluoromethane][1] Vinyl Chloride]	ND	ND	ND	ND	ND	ND	1
Chloroethane	ND	ND	ND	ND	ND	ND	1
Methylene Chloride	ND	ND	12	ND	ND	ND	1
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	1
1,1-Dichloroethylene	ND	ND	6	ND	ND	ND	1
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	1
Trans 1,2-Dichloroethylene	ND	18	74	ND	ND	ND	1
Chloroform	ND	ND	ND	17	ND	ND	1
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	1
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	BDL	1
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	2
Bromodichloromethane	ND	ND	ND	ND	ND	ND	1
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	1
Trans 1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	1
Trichloroethylene	ND	ND	ND	ND	ND	ND	1
Dibromochloromethane][1] Cis 1,3-Dichloropropylene]	ND	ND	ND	ND	ND	ND	1
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	1
Benzene	ND	ND	ND	ND	ND	ND	1
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	1
Bromoform	ND	ND	ND	ND	ND	ND	2
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	1
Tetrachloroethylene	ND	ND	ND	7	ND	ND	1
Toluene	ND	ND	ND	ND	ND	ND	1
Chlorobenzene	ND	ND	ND	ND	ND	ND	1
Ethyl Benzene	ND	10	ND	ND	ND	ND	1
Xylenes	ND	4	ND	ND	ND	ND	1
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1

For the purpose of this report:
ug/L = ppb
ND = Not Detected
BDL = Detected but below quantifiable level.
[1] Compounds are not separated by this method.

twin city testing
and engineering laboratory, inc.
662 CROMWELL AVENUE
ST PAUL MN 55114
PHONE 612 645 3601

REPORT OF: CHEMICAL ANALYSIS

DATE: July 29, 1985

LABORATORY No. 4416 86-612

REMARKS: (CONT)

#7003	RT=349		
#7004	RT=1929	RT=2040	RT=2153
#7005	RT=103	RT=355	
#7006	RT=1929	RT=2105	
#7007	RT=971	RT=1931	RT=2107
#7008	RT=1931	RT=2216	

The samples were consumed in the analysis.

TWIN CITY TESTING AND
ENGINEERING LABORATORY INC

Harold D Fisher
Chromatography Group Leader

William F Welbes
Manager-Organic Chemistry

HDF/WFW/sa

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ST PAUL MN 55114
PHONE 612/645 3601

RECEIVED
AUG 9 1985
MINN. POLLUTION CONTROL AGENCY

REPORT OF: CHEMICAL ANALYSIS

PROJECT: WAITE PARK

REPORTED TO: Burlington Northern Railroad
Attn: Tom Patnode
176 E 5th St, 11th Floor
St Paul, MN 55101

DATE: July 29, 1985

FURNISHED BY:

COPIES TO:

LABORATORY No. 4416 86-612

INTRODUCTION:

This report presents the results of our analysis of water samples for volatiles. The samples were received on July 11,1985. The scope of our work was limited to analyzing the sample for the presence of volatile halocarbons and aromatic hydrocarbons using gas chromatographic techniques.

SAMPLE IDENTIFICATION:

Waite Park

TCT #6994 - Site #3, Shallow
TCT #6995 - Site #3, Deep
TCT #6996 - Site #4, Shallow
TCT #6997 - Site #4, Deep
TCT #6998 - Site #7, Softball Fields
TCT #6999 - Site #10 2" Well Cental East End
TCT #7000 - Site #11, Shallow SE End farthest East
TCT #7001 - Site #11, Deep SE End
TCT #7002 - Site #12, Shallow
TCT #7003 - Site #12, Deep
TCT #7004 - Site #13, Shallow
TCT #7005 - Site #13, Deep
TCT #7006 - Site #14, Shallow
TCT #7007 - Site #14, Deep
TCT #7008 - Site #15

METHODOLOGY:

These samples were analyzed using a Tekmar LSC-2 Liquid Sample Concentrator linked to a Perkin-Elmer Sigma 300 Gas Chromatograph with FID on a six-foot stainless steel column packed with SP-1000 100/120 mesh packing. Xylene, benzene, and toluene were identified by retention time and quantified by comparison with known standards using a SP-4000 data system. We calculated gasoline concentration by ratioing total peak area to a gasoline standard total peak area.

RESULTS:

The results are listed in Table 1 attached.

REMARKS:

The following samples contained unidentified components listed with retention times (RT=) as follows:

#6994	RT=786	RT=2140	RT=2630		
#6995	RT=2215				
#6996	RT=347	RT=347	RT=1928	RT=2134	RT=2241
#6997	RT=2219	RT=2138			
#6998	RT=1930	RT=2107			
#6999	RT=2105				
#7001	RT=2216				

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TABLE 1

Volatile Analysis

SAMPLE IDENTIFICATION

TCT Number 4028 - Well #3, 2" Well
TCT Number 4029 - Site #3, 4" Well
TCT Number 4030 - Site #4, 2" Well
TCT Number 4031 - Site #4, 2" Well (Duplicate)
TCT Number 4032 - Site #4, 4" Well
TCT Number 4033 - Site #7, 2" Well

Compound	#4028 #3, 2" (ug/L)	#4029 #3, 4" (ug/L)	#4030 #4, 2" (ug/L)	(Dup) #4031 #4, 2" (ug/L)	#4032 #4, 4" (ug/L)	#4033 #7, 2" (ug/L)	Lower Detectable Limit(ug/L)
Chloromethane	ND	ND	ND	ND	ND	ND	5
Bromomethane	ND	ND	ND	ND	ND	ND	1
Dichlorodifluoromethane][1]	ND	ND	ND	ND	ND	ND	1
Vinyl Chloride]							1
Chloroethane	ND	ND	ND	ND	ND	ND	1
Methylene Chloride	9	2	ND	BDL	1	ND	1
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	1
1,1-Dichloroethylene	ND	ND	103	ND	4	ND	1
1,1-Dichloroethane	1	270	ND	5	280		1
Trans 1,2-Dichloroethylene	1	ND	3	ND	ND	ND	1
Chloroform	7	ND	ND	ND	ND	ND	1
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	1
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	1
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	1
Bromodichloromethane	ND	ND	ND	ND	ND	ND	2
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	1
Trans 1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	1
Trichloroethylene	ND	ND	ND	5	ND	ND	1
ibromochloromethane][1]	ND	ND	ND	ND	ND	ND	1
Cis 1,3-Dichloropropylene]							1
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	1
Benzene	ND	1	ND	BDL	BDL	ND	1
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	1
Bromoform	ND	ND	ND	ND	ND	ND	2
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	1
Tetrachloroethylene	ND	ND	ND	10	ND	ND	1
Toluene	ND	1	ND	BDL	1	ND	1
Chlorobenzene	ND	ND	ND	ND	ND	ND	1
Ethyl Benzene	ND	2	ND	ND	BDL	ND	1
Xylenes	ND	15	ND	ND	3	ND	1
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	1
Acetone	14	6700	ND	530	1250	ND	5

For the purpose of this report:
ug/L = ppb
ND = Not Detected
BDL = Detected but below quantifiable level.
1 - Compounds are not separated by this method

twin city testing
and engineering laboratory, inc.
662 CROMWELL AVENUE
ST PAUL MN 55114
PHONE 612 645 1601

REPORT OF: CHEMICAL ANALYSIS

DATE: June 6, 1985

LABORATORY No. 4416 86-158.90

PAGE: 2

REMARKS

The samples were consumed in the analysis.

TWIN CITY TESTING AND
ENGINEERING LABORATORY INC

Harold D Fisher
Chromatography Group Leader

William F Welbes
Manager, Organic Chemistry

HDF/WFW/ms

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MINN. POLLUTION CONTROL AGENCY

REPORT OF: CHEMICAL ANALYSIS

PROJECT: WAITE PARK

DATE: June 6, 1985

REPORTED TO: Burlington Northern Railroad
Attn: Tom Patnode
176 E 5th St, 11th Floor
St Paul, MN 55101

FURNISHED BY:

COPIES TO:

LABORATORY No. 4416 86-158.90

INTRODUCTION

This report presents the results of our analysis of water samples for volatiles. The samples were received on April 25, 1985. The scope of our work was limited to analyzing the sample for the presence of volatile halocarbons and aromatic hydrocarbons using gas chromatographic techniques.

SAMPLE IDENTIFICATION

Waite Park

TCT Number 4028 - Well #3, 2" Well
TCT Number 4029 - Site #3, 4" Well
TCT Number 4030 - Site #4, 2" Well
TCT Number 4031 - Site #4, 2" Well (Duplicate)
TCT Number 4032 - Site #4, 4" Well
TCT Number 4033 - Site #7, 2" Well

METHODOLOGY

These samples were analyzed using a Tekmar LSC-2 liquid sample concentrator linked to a Perkin-Elmer Sigma 300 Gas Chromatograph with FID on a six-foot stainless steel column packed with SP-1000 100/120 mesh packing. Halocarbons and aromatic hydrocarbons were identified by retention time and quantified by comparison with known standards using a SP-4000 data system.

RESULTS

The results are summarized in Table 1.

REMARKS

Sample from #3, 2" Well contains an unidentified compound at RT=285.

For sample from Site #4, 2" Well (TCT Number 4030) a variation in composition between vials in the same P & T kit was noted. Results are a composite of both vials.

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MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

PLE NUMBER: 132481
LD BLANK #: 132458

8E

MPCA-32 S&HW SITE RESPONSE

DATE SAMPLED: 07/03/85
DATE ANALYZED: 07/23/85
DATE PRINTED: 09/13/85

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AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

CETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
THYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
ENZENE		9.5	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
OLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
UMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

HLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
INYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
HLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
ETHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
LLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
IS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
ROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
LORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
S-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
NTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
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MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

5

PLE NUMBER: 132480
LD BLANK #: 132458

DATE SAMPLED: 07/03/85
DATE ANALYZED: 07/23/85
DATE PRINTED: 08/13/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

NON-HALOGENATED (CODE 462)

CETONE		22.	UG/L	TETRAHYDROFURAN		15.	UG/L
ETHER	<	1.0	UG/L	METHYL ETHYL KETONE		7.2	UG/L
NE		1.1	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
UENE		1.6	UG/L	* ETHYL BENZENE	<	0.50	UG/L
UMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

HLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
INYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
HLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
ETHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
LLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
IS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
ROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
·1,2-TRICHLOROETHYLENE		0.32	UG/L	1,3-DICHLOROPROPANE	NQ		
ILORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
S-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
NTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

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MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 132479
ELD BLANK #: 132458

2D

MPCA-32 S&HW SITE RESPONSE

DATE SAMPLED: 07/03/85
DATE ANALYZED: 07/24/85
DATE PRINTED: 08/13/85

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
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MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 132478
ELD BLANK #: 132458

DATE SAMPLED: 07/03/85
DATE ANALYZED: 07/22/85
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MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ. WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE		12.	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

HLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
INYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
HLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
ETHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
LLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
,1-DICHLOROETHANE	P<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
IS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
ROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
HLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
IS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
ENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"
P< "PEAK DETECTED BELOW 'LESS THAN' VALUE"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 152477
ELD BLANK #: 152458

DATE SAMPLED: 07/03/85
DATE ANALYZED: 07/22/85
DATE PRINTED: 08/13/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
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MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE		2.1	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	P<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
HLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
IS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
ENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"
P< "PEAK DETECTED LOW 'LESS THAN' VALUE"

SAMPLE NO. 132476

NBS LIBRARY SEARCH REPORT

SCAN	NAME	ESTIMATED AMOUNT UG/L	FIT	PURITY
229	CARBON DISULFIDE	4.1	999	986

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WASTE DIVISION

SAMPLE NO 132476

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** NON PRIORITY POLLUTANTS ***		
1,1,2-TRICHLOROTRIFLUOROETHANE	....	< 0 2
CIS-1,2-DICHLOROETHENE. . .	.....	< 0.1
ALLYL CHLORIDE..... ..	.....	< 0.5
1,1-DICHLOROPROPENE..... .	.....	< 0.1
2,3-DICHLOROPROPENE.....	.....	< 0.1
DIBROMOMETHANE.....	.....	< 0.2
1,2-DIBROMOETHANE..... . ..	.....	< 0.2
1,3-DICHLOROPROPANE	.....	< 2
1,2,3-TRICHLOROPROPANE.....	.....	< 0.5
1,1,1,2-TETRACHLOROETHANE.....	.....	< 0.2
PENTACHLOROETHANE..... ...	.....	< 0.5
BROMOBENZENE.....	.....	< 0.1
O-CHLOROTOLUENE.....	.....	< 0.1
M-CHLOROTOLUENE.....	.....	< 0.1
P-CHLOROTOLUENE.....	.....	< 0.1

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MPCA, SOLID & HAZ.
WASTE DIVISION

SAMPLE NO 132476

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** NON PRIORITY POLLUTANTS ***		
ACETONE		< 2
METHYL ETHYL KETONE		< 1
DIETHYL ETHER		< 0.2
P-DIOXANE		< ***
ETHYL ACETATE		< 0.2
TETRAHYDROFURAN		< 1
METHYL ISOBUTYL KETONE		< 1
DIISOPROPYL ETHER		< 0.1
DICHLOROACETONITRILE		< 2
PENTANE		< 0.1
2,3-DIMETHYLBUTANE		< 0.2
2-METHYLPENTANE		< 0.1
3-METHYLPENTANE		< 0.1
HEXANE		< 0.1
2,4-DIMETHYLPENTANE		< 0.1
2-METHYLHEXANE		< 0.1
3-METHYLHEXANE		< 0.1
OCTANE		< 0.1
METHYLCYCLOPENTANE		< 0.1
CYCLOHEXANE		< 0.1
METHYLCYCLOHEXANE		< 0.1
CUMENE		< 0.1
M-XYLENE AND P-XYLENE		< 0.1
O-XYLENE		< 0.1
BUTYLBENZENE		< 0.2
SEC-BUTYLBENZENE		< 0.1
1,3,5-TRIMETHYLBENZENE		< 0.1
1,2,4-TRIMETHYLBENZENE		< 0.1
1,2,3-TRIMETHYLBENZENE		< 0.1
INDENE		< 0.2
TETRAHYDRONAPHTHALENE		< 0.1

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

*** QUANITATION STANDARD NOT AVAILABLE
""" COMPOUND DETECTED BELOW QUAN LIMIT

SAMPLE NO: 132476

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** VOLATILE PRIORITY POLLUTANTS ***		
CHLOROFORM		< 0.1
BROMOFORM		< 0.5
BROMODICHLOROMETHANE		< 0.1
CHLORODIBROMOMETHANE		< 0.5
CARBON TETRACHLORIDE		< 0.1
METHYLENE CHLORIDE		< 0.2
TRICHLOROFLUOROMETHANE		< 0.2
CHLOROETHANE		< ***
1,1-DICHLOROETHANE		< 0.1
1,2-DICHLOROETHANE		< 0.1
1,1,1-TRICHLOROETHANE		< 0.1
1,1,2-TRICHLOROETHANE		< 0.1
1,1,2,2-TETRACHLOROETHANE		< 0.2
1,2-DICHLOROPROPANE		< 0.1
1,1-DICHLOROETHENE		< 0.2
TRANS-1,2-DICHLOROETHENE		< 0.1
TRICHLOROETHENE		< 0.1
TETRACHLOROETHENE	32.	< 0.1
CIS-1,3-DICHLOROPROPENE		< 0.5
TRANS-1,3-DICHLOROPROPENE		< 0.2
BENZENE		< 0.1
TOLUENE		< 0.1
CHLOROBENZENE		< 0.1
ETHYLBENZENE		< 0.1
*** SEMI-VOLATILE PRIORITY POLLUTANTS ***		
1,3-DICHLOROBENZENE		< 0.1
1,4-DICHLOROBENZENE		< 0.1
1,2-DICHLOROBENZENE		< 0.1
1,2,4-TRICHLOROBENZENE		< 0.2
DECANE		< 0.5
STYRENE		< 0.1
P-CYMENE		< 0.1
HEXACHLOROBUTADIENE		< 0.2
NAPHTHALENE		< 0.2
ACENAPHTHYLENE		< 2
ACENAPHTHENE		< 2
FLUORENE		< 5

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WASTE DIVISION

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF ANALYTICAL SERVICES

GC/MS PURGEABLES IN WATER

SAMPLE NO. 132476, WAITE PARK, WELL #16. (20 ML)

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

DATE COLLECTED: 7/ 2/85
DATE RECEIVED: 7/ 3/85
DATE ANALYZED: 7/29/85

BLANK NO: 132458

20 ML OF SAMPLE WAS ANALYZED BY PURGE AND TRAP ON A FINNIGAN MODEL 4000 GAS CHROMATOGRAPH / MASS SPECTROMETER SYSTEM. THE ANALYSIS WAS CARRIED OUT IN ACCORDANCE WITH EPA METHOD 624.

PAGES 2 THRU 4 LIST COMPOUNDS FOUND IN THE SAMPLE BY REVERSE LIBRARY SEARCH USING A COMPUTERIZED DATA SYSTEM. THE AMOUNT FOUND COLUMN LISTS THOSE COMPOUNDS THAT WERE MATCHED BY BOTH GC RETENTION TIME AND MASS-SPECTRAL COMPARISON. A BLANK SPACE IN THE AMOUNT FOUND COLUMN INDICATES THE COMPOUND WAS BELOW THE QUANTIFICATION LIMIT. THE QUANTIFICATION LIMIT COLUMN LISTS THE DETECTION LIMIT OF THE SYSTEM FOR EACH OF THE COMPOUNDS.

PAGE 5 LISTS THOSE COMPOUNDS THAT WERE TENTATIVELY IDENTIFIED BY COMPARISON TO THE NATIONAL BUREAU OF STANDARDS MASS-SPECTRAL LIBRARY. STANDARDS FOR THESE COMPOUNDS ARE NOT CURRENTLY AVAILABLE FOR CONFIRMATION AND QUANTITATION. THE ESTIMATED AMOUNTS LISTED AFTER THE COMPOUND NAMES WERE CALCULATED BY ASSUMING THE SAME RESPONSE AS THE INTERNAL STANDARD AND ARE ONLY ROUGH APPROXIMATIONS.

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 132476 /6
ELD BLANK #: 132453

DATE SAMPLED: 07/03/85
DATE ANALYZED: 07/22/85
DATE PRINTED: 08/12/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE		5.9	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
LUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE		0.35	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE		20.	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

SAMPLE NO 132475

NBS LIBRARY SEARCH REPORT

SCAN	NAME	ESTIMATED AMOUNT UG/L	FIT	PURITY
228	CARBON DISULFIDE	2.4	998	964

RECEIVED
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MPCA, SOLID & HAZ.
WASTE DIVISION

SAMPLE NO 132475

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** NON PRIORITY POLLUTANTS ***		
1,1,2-TRICHLOROTRIFLUOROETHANE		< 1
CIS-1,2-DICHLOROETHENE	0 5	< 0 5
ALLYL CHLORIDE		< 2
1,1-DICHLOROPROPENE		< 0 5
2,3-DICHLOROPROPENE		< 0.5
DIBROMOMETHANE		< 1
1,2-DIBROMOETHANE		< 1
1,3-DICHLOROPROPANE		< 10
1,2,3-TRICHLOROPROPANE		< 2
1,1,1,2-TETRACHLOROETHANE		< 1
PENTACHLOROETHANE		< 2
BROMOBENZENE		< 0.5
O-CHLOROTOLUENE		< 0.5
M-CHLOROTOLUENE		< 0.5
P-CHLOROTOLUENE		< 0.5

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

SAMPLE NO 132475

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** NON PRIORITY POLLUTANTS ***		
ACETONE		< 10
METHYL ETHYL KETONE		< 5
DIETHYL ETHER		< 1
P-DIOXANE.		< ***
ETHYL ACETATE		< 1
TETRAHYDROFURAN		< 5
METHYL ISOBUTYL KETONE		< 5
DIISOPROPYL ETHER		< 0 5
DICHLOROACETONITRILE		< 10
PENTANE.		< 0. 5
2, 3-DIMETHYLBUTANE.		< 1
2-METHYLPENTANE.		< 0. 5
3-METHYLPENTANE.		< 0. 5
HEXANE.		< 0. 5
2, 4-DIMETHYLPENTANE.		< 0. 5
2-METHYLHEXANE.		< 0. 5
3-METHYLHEXANE.		< 0 5
OCTANE.		< 0. 5
METHYLCYCLOPENTANE.	2. 6	< 0. 5
CYCLOHEXANE.		< 0 5
METHYLCYCLOHEXANE.		< 0 5
CUMENE.		< 0 5
M-XYLENE AND P-XYLENE.		< 0. 5
O-XYLENE.		< 0. 5
BUTYLBENZENE		< 1
SEC-BUTYLBENZENE.		< 0. 5
1, 3, 5-TRIMETHYLBENZENE.		< 0. 5
1, 2, 4-TRIMETHYLBENZENE.		< 0 5
1, 2, 3-TRIMETHYLBENZENE.		< 0. 5
INDENE.		< 1
TETRAHYDRONAPHTHALENE.		< 0. 5

*** QUANITATION STANDARD NOT AVAILABLE
""" COMPOUND DETECTED BELOW QUAN LIMIT

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

SAMPLE NO: 132475

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** VOLATILE PRIORITY POLLUTANTS ***		
CHLOROFORM		< 0.5
BROMOFORM		< 2
BROMODICHLOROMETHANE		< 0.5
CHLORODIBROMOMETHANE		< 2
CARBON TETRACHLORIDE		< 0.5
METHYLENE CHLORIDE		< 1
TRICHLOROFLUOROMETHANE		< 1
CHLOROETHANE		< ***
1,1-DICHLOROETHANE	74.	< 0.5
1,2-DICHLOROETHANE		< 0.5
1,1,1-TRICHLOROETHANE		< 0.5
1,1,2-TRICHLOROETHANE		< 0.5
1,1,2,2-TETRACHLOROETHANE		< 1
1,2-DICHLOROPROPANE		< 0.5
1,1-DICHLOROETHENE	5.9	< 1
TRANS-1,2-DICHLOROETHENE		< 0.5
TRICHLOROETHENE		< 0.5
TETRACHLOROETHENE		< 0.5
CIS-1,3-DICHLOROPROPENE		< 2
TRANS-1,3-DICHLOROPROPENE		< 1
BENZENE	1.2	< 0.5
TOLUENE		< 0.5
CHLOROBENZENE		< 0.5
ETHYLBENZENE		< 0.5
*** SEMI-VOLATILE PRIORITY POLLUTANTS ***		
1,3-DICHLOROBENZENE		< 0.5
1,4-DICHLOROBENZENE		< 0.5
1,2-DICHLOROBENZENE		< 0.5
1,2,4-TRICHLOROBENZENE		< 1
DECANE		< 2
STYRENE		< 0.5
P-CYMENE		< 0.5
HEXACHLOROBUTADIENE		< 1
NAPHTHALENE		< 1
ACENAPHTHYLENE		< 10
ACENAPHTHENE		< 10
FLUORENE		< 20

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF ANALYTICAL SERVICES

GC/MS PURGEABLES IN WATER

SAMPLE NO: 132475, WAITE PARK, WELL #4D. (5 ML).

DATE COLLECTED: 7/ 2/85
DATE RECEIVED: 7/ 3/85
DATE ANALYZED: 7/29/85

BLANK NO: 132458

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

5 ML OF SAMPLE WAS ANALYZED BY PURGE AND TRAP ON A FINNIGAN MODEL 4000 GAS CHROMATOGRAPH / MASS SPECTROMETER SYSTEM. THE ANALYSIS WAS CARRIED OUT IN ACCORDANCE WITH EPA METHOD 624.

PAGES 2 THRU 4 LIST COMPOUNDS FOUND IN THE SAMPLE BY REVERSE LIBRARY SEARCH USING A COMPUTERIZED DATA SYSTEM. THE AMOUNT FOUND COLUMN LISTS THOSE COMPOUNDS THAT WERE MATCHED BY BOTH GC RETENTION TIME AND MASS-SPECTRAL COMPARISON. A BLANK SPACE IN THE AMOUNT FOUND COLUMN INDICATES THE COMPOUND WAS BELOW THE QUANTIFICATION LIMIT. THE QUANTIFICATION LIMIT COLUMN LISTS THE DETECTION LIMIT OF THE SYSTEM FOR EACH OF THE COMPOUNDS.

PAGE 5 LISTS THOSE COMPOUNDS THAT WERE TENTATIVELY IDENTIFIED BY COMPARISON TO THE NATIONAL BUREAU OF STANDARDS MASS-SPECTRAL LIBRARY. STANDARDS FOR THESE COMPOUNDS ARE NOT CURRENTLY AVAILABLE FOR CONFIRMATION AND QUANTITATION. THE ESTIMATED AMOUNTS LISTED AFTER THE COMPOUND NAMES WERE CALCULATED BY ASSUMING THE SAME RESPONSE AS THE INTERNAL STANDARD AND ARE ONLY ROUGH APPROXIMATIONS.

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 12475
FIELD BLANK #: 132455

DATE SAMPLED: 07/03/85
DATE ANALYZED: 07/26/85
DATE PRINTED: 0 /16/85

MPCA-SOLID WASTE SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ. WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE		52.	UG/L	TETRAHYDROFURAN		12.	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE		1.6	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE		7.0	UG/L
1,1-DICHLOROETHANE		26.	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE		1.1	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE		0.51	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
1,2-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
TRICHLOROETHYL VINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"

< "LESS THAN"

SAMPLE NO. 132474

NBS LIBRARY SEARCH REPORT

SCAN	NAME	ESTIMATED AMOUNT UG/L	FIT	PURITY
221	CARBONDISULFIDE	4.1	1000	988

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

SAMPLE NO: 132474

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** NON PRIORITY POLLUTANTS ***		
1,1,2-TRICHLOROTRIFLUOROETHANE		< 0.2
CIS-1,2-DICHLOROETHENE	0.3	< 0.1
ALLYL CHLORIDE		< 0.5
1,1-DICHLOROPROPENE		< 0.1
2,3-DICHLOROPROPENE		< 0.1
DIBROMOMETHANE		< 0.2
1,2-DIBROMOETHANE		< 0.2
1,3-DICHLOROPROPANE		< 2
1,2,3-TRICHLOROPROPANE		< 0.5
1,1,1,2-TETRACHLOROETHANE		< 0.2
PENTACHLOROETHANE		< 0.5
BROMOBENZENE		< 0.1
O-CHLOROTOLUENE		< 0.1
M-CHLOROTOLUENE		< 0.1
P-CHLOROTOLUENE		< 0.1

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WASTE DIVISION

SAMPLE NO. 132474

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** NON PRIORITY POLLUTANTS ***		
ACETONE		< 2
METHYL ETHYL KETONE		< 1
DIETHYL ETHER		< 0.2
P-DIOXANE		< ***
ETHYL ACETATE		< 0.2
TETRAHYDROFURAN		< 1
METHYL ISOBUTYL KETONE		< 1
DIISOPROPYL ETHER		< 0.1
DICHLOROACETONITRILE		< 2
PENTANE		< 0.1
2,3-DIMETHYLBUTANE		< 0.2
2-METHYLPENTANE		< 0.1
3-METHYLPENTANE	0.2	< 0.1
HEXANE	0.4	< 0.1
2,4-DIMETHYLPENTANE		< 0.1
2-METHYLHEXANE		< 0.1
3-METHYLHEXANE		< 0.1
OCTANE		< 0.1
METHYLCYCLOPENTANE	1.3	< 0.1
CYCLOHEXANE		< 0.1
METHYLCYCLOHEXANE		< 0.1
MENE		< 0.1
M-XYLENE AND P-XYLENE		< 0.1
O-XYLENE		< 0.1
BUTYLBENZENE		< 0.2
SEC-BUTYLBENZENE		< 0.1
1,3,5-TRIMETHYLBENZENE		< 0.1
1,2,4-TRIMETHYLBENZENE		< 0.1
1,2,3-TRIMETHYLBENZENE		< 0.1
INDENE		< 0.2
TETRAHYDRONAPHTHALENE		< 0.1

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MPCA, SOLID & HAZ.
WASTE DIVISION

*** QUANITATION STANDARD NOT AVAILABLE
""" COMPOUND DETECTED BELOW QUAN LIMIT

SAMPLE NO: 132474

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** VOLATILE PRIORITY POLLUTANTS ***		
CHLOROFORM	0.6	< 0.1
BROMOFORM		< 0.5
BROMODICHLOROMETHANE		< 0.1
CHLORODIBROMOMETHANE		< 0.5
CARBON TETRACHLORIDE		< 0.1
METHYLENE CHLORIDE		< 0.2
TRICHLOROFLUOROMETHANE		< 0.2
CHLOROETHANE		< ***
1,1-DICHLOROETHANE	7.1	< 0.1
1,2-DICHLOROETHANE		< 0.1
1,1,1-TRICHLOROETHANE		< 0.1
1,1,2-TRICHLOROETHANE		< 0.1
1,1,2,2-TETRACHLOROETHANE		< 0.2
1,2-DICHLOROPROPANE		< 0.1
1,1-DICHLOROETHENE	0.4	< 0.2
TRANS-1,2-DICHLOROETHENE		< 0.1
TRICHLOROETHENE	1.7	< 0.1
TETRACHLOROETHENE	4.8	< 0.1
CIS-1,3-DICHLOROPROPENE		< 0.5
TRANS-1,3-DICHLOROPROPENE		< 0.2
BENZENE		< 0.1
TOLUENE		< 0.1
CHLOROBENZENE		< 0.1
ETHYLBENZENE		< 0.1
*** SEMI-VOLATILE PRIORITY POLLUTANTS ***		
1,3-DICHLOROBENZENE		< 0.1
1,4-DICHLOROBENZENE		< 0.1
1,2-DICHLOROBENZENE		< 0.1
1,2,4-TRICHLOROBENZENE		< 0.2
DECANE		< 0.5
STYRENE		< 0.1
P-CYMENE		< 0.1
HEXACHLOROBUTADIENE		< 0.2
NAPHTHALENE		< 0.2
ACENAPHTHYLENE		< 2
ACENAPHTHENE		< 2
FLUORENE		< 5

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF ANALYTICAL SERVICES

GC/MS PURGEABLES IN WATER

SAMPLE NO: 132474, WAITE PARK, WELL #4S. (20 ML).

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

DATE COLLECTED: 7/ 2/85
DATE RECEIVED: 7/ 3/85
DATE ANALYZED: 7/29/85

BLANK NO: 132458

20 ML OF SAMPLE WAS ANALYZED BY PURGE AND TRAP ON A FINNIGAN MODEL 4000 GAS CHROMATOGRAPH / MASS SPECTROMETER SYSTEM. THE ANALYSIS WAS CARRIED OUT IN ACCORDANCE WITH EPA METHOD 624.

PAGES 2 THRU 4 LIST COMPOUNDS FOUND IN THE SAMPLE BY REVERSE LIBRARY SEARCH USING A COMPUTERIZED DATA SYSTEM. THE AMOUNT FOUND COLUMN LISTS THOSE COMPOUNDS THAT WERE MATCHED BY BOTH GC RETENTION TIME AND MASS-SPECTRAL COMPARISON. A BLANK SPACE IN THE AMOUNT FOUND COLUMN INDICATES THE COMPOUND WAS BELOW THE QUANTIFICATION LIMIT. THE 'ANTIFICATION LIMIT COLUMN LISTS THE DETECTION LIMIT OF THE SYSTEM FOR EACH OF THE COMPOUNDS.

PAGE 5 LISTS THOSE COMPOUNDS THAT WERE TENTATIVELY IDENTIFIED BY COMPARISON TO THE NATIONAL BUREAU OF STANDARDS MASS-SPECTRAL LIBRARY. STANDARDS FOR THESE COMPOUNDS ARE NOT CURRENTLY AVAILABLE FOR CONFIRMATION AND QUANTITATION. THE ESTIMATED AMOUNTS LISTED AFTER THE COMPOUND NAMES WERE CALCULATED BY ASSUMING THE SAME RESPONSE AS THE INTERNAL STANDARD AND ARE ONLY ROUGH APPROXIMATIONS.

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 132474 45
ELD BLANK #: 132458

DATE SAMPLED: 07/03/85
DATE ANALYZED: 07/22/85
DATE PRINTED: 08/13/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE		23.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
ENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
OLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
UPENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

HLOROETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
HLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
ETHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE		0.29	UG/L
1,1-DICHLOROETHANE		6.9	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
IS-1,2-DICHLOROETHYLENE		0.35	UG/L	* CHLOROFORM		0.69	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
ROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE		1.7	UG/L	1,3-DICHLOROPROPANE	NQ		
HLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
IS-1,3-DICHLORO-1-PROPEN	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	1.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE		3.9	UG/L
ENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
2-DICHLOROPROPANE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

SAMPLE NO 132473

NBS LIBRARY SEARCH REPORT

SCAN	NAME	ESTIMATED AMOUNT UG/L	FIT	PURITY
235	CARBON DISULFIDE	2.8	994	909

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

SAMPLE NO: 132473

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** NON PRIORITY POLLUTANTS ***		
1,1,2-TRICHLOROTRIFLUOROETHANE		< 1
CIS-1,2-DICHLOROETHENE		< 0.5
ALLYL CHLORIDE		< 2
1,1-DICHLOROPROPENE		< 0.5
2,3-DICHLOROPROPENE		< 0.5
DIBROMOMETHANE		< 1
1,2-DIBROMOETHANE		< 1
1,3-DICHLOROPROPANE		< 10
1,2,3-TRICHLOROPROPANE		< 2
1,1,1,2-TETRACHLOROETHANE		< 1
PENTACHLOROETHANE		< 2
BROMOBENZENE		< 0.5
O-CHLOROTOLUENE		< 0.5
M-CHLOROTOLUENE		< 0.5
P-CHLOROTOLUENE		< 0.5

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WASTE DIVISION

SAMPLE NO 132473

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** NON PRIORITY POLLUTANTS ***		
ACETONE		< 10
METHYL ETHYL KETONE		< 5
DIETHYL ETHER		< 1
P-DIOXANE		< ***
ETHYL ACETATE		< 1
TETRAHYDROFURAN		< 5
METHYL ISOBUTYL KETONE		< 5
DIISOPROPYL ETHER		< 0.5
DICHLOROACETONITRILE		< 10
PENTANE		< 0.5
2,3-DIMETHYLBUTANE		< 1
2-METHYLPENTANE		< 0.5
3-METHYLPENTANE		< 0.5
HEXANE		< 0.5
2,4-DIMETHYLPENTANE		< 0.5
2-METHYLHEXANE		< 0.5
3-METHYLHEXANE		< 0.5
OCTANE		< 0.5
METHYLCYCLOPENTANE		< 0.5
CYCLOHEXANE		< 0.5
METHYLCYCLOHEXANE		< 0.5
JMENE		< 0.5
M-XYLENE AND P-XYLENE		< 0.5
O-XYLENE		< 0.5
BUTYLBENZENE		< 1
SEC-BUTYLBENZENE		< 0.5
1,3,5-TRIMETHYLBENZENE		< 0.5
1,2,4-TRIMETHYLBENZENE		< 0.5
1,2,3-TRIMETHYLBENZENE		< 0.5
INDENE		< 1
TETRAHYDRONAPHTHALENE		< 0.5

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

*** QUANITATION STANDARD NOT AVAILABLE
""" COMPOUND DETECTED BELOW QUAN LIMIT

SAMPLE NO 132473

NAME	AMOUNT FOUND UG/L	QUANTIFICATION LIMIT UG/L
*** VOLATILE PRIORITY POLLUTANTS ***		
CHLOROFORM		< 0 5
BROMOFORM		< 2
BROMODICHLOROMETHANE.		< 0 5
CHLORODIBROMOMETHANE.		< 2
CARBON TETRACHLORIDE.		< 0 5
METHYLENE CHLORIDE.		< 1
TRICHLOROFLUOROMETHANE		< 1
CHLOROETHANE.		< ***
1,1-DICHLOROETHANE.	71.	< 0.5
1,2-DICHLOROETHANE.		< 0.5
1,1,1-TRICHLOROETHANE.		< 0.5
1,1,2-TRICHLOROETHANE.		< 0.5
1,1,2,2-TETRACHLOROETHANE.		< 1
1,2-DICHLOROPROPANE.		< 0.5
1,1-DICHLOROETHENE.	4.7	< 1
TRANS-1,2-DICHLOROETHENE.		< 0.5
TRICHLOROETHENE.	0.9	< 0.5
TETRACHLOROETHENE.	1.2	< 0.5
CIS-1,3-DICHLOROPROPENE.		< 2
TRANS-1,3-DICHLOROPROPENE.		< 1
BENZENE.		< 0.5
TOLUENE.		< 0.5
CHLOROBENZENE.		< 0.5
ETHYLBENZENE.		< 0.5
*** SEMI-VOLATILE PRIORITY POLLUTANTS ***		
1,3-DICHLOROBENZENE.		< 0.5
1,4-DICHLOROBENZENE.		< 0.5
1,2-DICHLOROBENZENE.		< 0.5
1,2,4-TRICHLOROBENZENE.		< 1
DECANE.		< 2
STYRENE.		< 0.5
P-CYMENE.		< 0.5
HEXACHLOROBUTADIENE.		< 1
NAPHTHALENE.		< 1
ACENAPHTHYLENE.		< 10
ACENAPHTHENE.		< 10
FLUORENE		< 20

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132205
FIELD BLANK #: 132193

DATE SAMPLED: 04/25/85
DATE ANALYZED: 05/11/85
DATE CONFIRMED: 05/22/85
DATE PRINTED: 05/24/85

MPCA-52 SKHW SITE RESPONSE

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 46[illegible])

ACETONE	<	1[illegible] UG/L	TETRAHYDROFURAN	<	5.0 UG/L
ETHYL ETHE	<	1.0 UG/L	METHYL ETHYL KETONE	<	5.0 UG/L
* BENZENE	<	0.50 UG/L	METHYL ISO UTYL KETONE	<	1.0 UG/L
* TOLUENE	<	0.50 UG/L	* ETHYL BENZENE	<	0.50 UG/L
CUMENE	<	[illegible] UG/L	O-XYLENE	<	0.50 UG/L
M-XYLENE	<	0.50 UG/L	P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

* CHLOROMETHANE	NQ		* DICHLOROFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	<	1.0 UG/L	* TRICHLOROFLUOROMETHANE	<	0.20 UG/L
ALLYLCHLORIDE	<	0.50 UG/L	* 1,1-DICHLOROETHYLENE	<	0.20 UG/L
* 1,1-DICHLOROETHANE		0.[illegible] UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	* CHLOROFORM		28. UG/L
* 1,2-DICHLOROETHANE	<	[illegible] UG/L	DIBROMOMETHANE	<	1.0 UG/L
* 1,1,1-TRICHLOROETHANE	<	[illegible] UG/L	* CARBON TETRACHLORIDE	<	0.20 UG/L
* BROMODICHLOROMETHANE		[illegible] UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	<	[illegible] UG/L	* 1,2-DICHLOROPROPANE	<	0.20 UG/L
1,1-DICHLORO-1-PROPENE	<	[illegible] UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
* 1,1,2-TRICHLOROETHYLENE	<	[illegible] UG/L	1,3-DICHLOROPROPANE	NQ	
* CHLORODIBROMOMETHANE	<	1.[illegible] UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20 UG/L
* CIS-1,3-DICHLORO-1-PROPENE	<	[illegible] UG/L	1,2-DIBROMOETHANE	<	0.50 UG/L
* 2-CHLOROETHYLVINYL ETHER			* BROMOFORM	<	1.0 UG/L
1,1,1,2-TETRACHLOROETHANE	<	[illegible] UG/L	1,2,3-TRICHLOROPROPANE	NQ	
1,1,2,2-TETRACHLOROETHANE	<	[illegible] UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	[illegible] UG/L
[illegible]	<	[illegible] UG/L	* CHLOROBENZENE	<	[illegible] UG/L
[illegible]	<	[illegible] UG/L	* 1,2-DICHLOROBENZENE	<	1.[illegible] UG/L
[illegible]	<	1.[illegible] UG/L	* 1,3-DICHLOROBENZENE	<	1.[illegible] UG/L

[illegible] "[illegible]" < "[illegible] THAN"
[illegible] * "[illegible]ITY POLLUTANT"

MINN. STATE DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132206
FIELD BLANK #: 132193

DATE SAMPLED: 04/2[illegible]/[illegible]
DATE ANALYZED: 05/11/85
DATE PRINTED: 05/24/85

MPCA-[illegible] S.HW SITE RESPONSE

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

ACETONE	4000.	UG/L	TETRAHYDROFURAN	< 5.0	UG/L
ETHYL ETHER	< 1.0	UG/L	METHYL ETHYL KETONE	< 5.0	UG/L
* BENZENE	< 0.50	UG/L	METHYL ISOBUTYL KETONE	< 1.0	UG/L
* TOLUENE	< 0.50	UG/L	* ETHYL BENZENE	< 0.50	UG/L
CUMENE	< 0.50	UG/L	O-XYLENE	< 0.50	UG/L
M-XYLENE	< 0.50	UG/L	P-XYLENE	< 0.50	UG/L

HALOGENATED (CODE 464)

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	< 1.0	UG/L	* TRICHLOROFLUOROMETHANE	< 0.20	UG/L
ALLYLCHLORIDE	< 0.50	UG/L	* 1,1-DICHLOROETHYLENE	< 0.20	UG/L
* 1,1-DICHLOROETHANE	0.40	UG/L	* TRANS-1,2-DICHLOROETHYLENE	< 0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	P< 0.20	UG/L	* CHLOROFORM	< 0.20	UG/L
* 1,2-DICHLOROETHANE	< 0.20	UG/L	DIBROMOMETHANE	< 1.0	UG/L
* 1,1,1-TRICHLOROETHANE	< 0.20	UG/L	* CARBON TETRACHLORIDE	< 0.20	UG/L
* BROMODICHLOROMETHANE	< 0.50	UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	< 0.20	UG/L	* 1,2-DICHLOROPROPANE	< 0.20	UG/L
1,1-DICHLORO-1-PROPENE	< 0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L
* 1,1,2-TRICHLOROETHYLENE	< 0.20	UG/L	1,3-DICHLOROPROPANE	NQ	
CHLORODIBROMOMETHANE	< 1.0	UG/L	* 1,1,2-TRICHLOROETHANE	< 0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L	1,2-DIBROMOETHANE	< 0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ		* BROMOFORM	< 1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	< 0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ	
1,1,2,2-TETRACHLOROETHANE	< 0.20	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	< 0.20	UG/L
PENTACHLOROETHANE	< [illegible]	UG/L	* CHLOROBENZENE	< 0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	< [illegible]	UG/L	* 1,2-DICHLOROBENZENE	< 1.0	UG/L
1,2-DICHLOROBENZENE	< 1.[illegible]	UG/L	* 1,3-DICHLOROBENZENE	< 1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
P< "PEAK DETECTED [illegible] "LESS THAN" VALUE"
< "LESS THAN"
* "PRIORITY POLLUTANT"

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No 032

c

Date Collected 7/2/85

ORGANIC CHEMISTRY UNIT

Collected By Gawrys/Harts

WATER ANALYSES ONLY

Date Received 7/3/85

Report To Aho

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132458	a		Field Blank	40ml/3
132459	b	1	Pine Trees 2" Site 2	40ml/4
32460	c	2	County Garage 4" Deep Site 1	"
132461	d	3	Softball Field 2' Site 7	"
132462	e	4	BN#11S	"

This Line for LAB SAMPLE NUMBER ONLY.		132458 a	132459 b	132460 c	132461 d	132462 e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #:						

COMPLETED
AUG 19 1985
ENVIRONMENTAL LAB

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No 032

Date Collected 7/2/85

ORGANIC CHEMISTRY UNIT

Collected By Gowrys/Karls

WATER ANALYSES ONLY

Date Received 7/3/85

Report To Alb

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132463	a	5	BN #11 D Deep	40ml/4
132464	b	6	BN #10	"
132465	c	7	BN # 14S Shallow	"
132466	d	8	BN # 14D Deep	"
132467	e	9	BN # 13D	

This Line for LAB SAMPLE NUMBER ONLY.		132463 a	132464 b	132465 c	132466 d	132467 e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #:						

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WASTE DIVISION

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No 032

Date Collected 7/2/85

ORGANIC CHEMISTRY UNIT

Collected By Gawrys/Karls

WATER ANALYSES ONLY

Date Received 7/3/85

Report To Aho

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132468	a	10	BN #13S	40ml/4
132469	b	11	Waite Park 3S 2"	"
132470	c	12	Waite Park 3D 4"	"
132471	d	13	Waite Park 12D 4"	/3
132472	e	14	Waite Park 12S 4"	/3

This Line for LAB SAMPLE NUMBER ONLY.		132468 a	132469 b	132470 c	132471 d	132472 e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #:						

COMPLETED
AUG 19 1985
ENVIRONMENTAL LAB

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AUG 21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No. 032

e

Date Collected 7/3/85

ORGANIC CHEMISTRY UNIT

Collected By Gowrys/Kerls

WATER ANALYSES ONLY

Date Received 7/3/85

Report To Aho

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132473	a	15	Waite Park ~~2E~~ 2W	40ml/3
132474	b	16	Waite Park 4S	40ml/4
132475	c	17	Waite Park 4D	40ml/3
132476	d	18	Waite Park 16	40ml/4
132477	e	19	Waite Park 15	40ml/4

This Line for LAB SAMPLE NUMBER ONLY.		132473 a	132474 b	132475 c	132476 d	132477 e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #:						

COMPLETED
AUG 19 1985
ENVIRONMENTAL LAB

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No 032

Date Collected 7/3/85

ORGANIC CHEMISTRY UNIT

Collected By Schroeer Klark

WATER ANALYSES ONLY

Date Received 7/3/85

Report To Alco

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers Type and Number
132478	a	20	Waite Park #6	40ml/4
132479	b	21	Waite Park #2D	40ml/4
132480	c	22	Waite Park #5	40ml/4
132481	d	23	Waite Park #8E	40ml/4
	e			

This Line for LAB SAMPLE NUMBER ONLY.		132478 a	132479 b	132480 c	132481 d	e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #:						

COMPLETED
AUG 19 1985
ENVIRONMENTAL LAB

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AUG 21 1985
MPCA, SOLID & HAZ WASTE DIVISION

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 132458
ELD BLANK #: 132458

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/17/85
DATE PRINTED: 03/12/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETH	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM		0.22	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA D. RTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 132459
ELD BLANK #: 132458 25

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/17/85
DATE PRINTED: 08/12/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

AMPLE NUMBER: 132460 /D
IELD BLANK #: 132450

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/17/85
DATE PRINTED: 08/12/85

MPCA-32 SOHW SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ. WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132461 7
FIELD BLANK #: 132455

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/19/85
DATE PRINTED: 08/12/85

MPCA-32 SOMA SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ. WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	< 10. UG/L		TETRAHYDROFURAN	< 5.0 UG/L
ETHYL ETHER	< 1.0 UG/L		METHYL ETHYL KETONE	< 5.0 UG/L
BENZENE	< 0.50 UG/L		METHYL ISOBUTYL KETONE	< 1.0 UG/L
TOLUENE	< 0.50 UG/L	*	ETHYL BENZENE	< 0.50 UG/L
CUMENE	< 0.50 UG/L		O-XYLENE	< 0.50 UG/L
M-XYLENE	< 0.50 UG/L		P-XYLENE	< 0.50 UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ	*	DICHLORODIFLUOROMETHANE	NQ	
VINYL CHLORIDE	NQ	*	BROMOMETHANE	NQ	
CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
METHYLENE CHLORIDE	< 1.0 UG/L	*	TRICHLOROFLUOROMETHANE	< 0.20 UG/L	
ALLYLCHLORIDE	< 0.50 UG/L	*	1,1-DICHLOROETHYLENE	< 0.20 UG/L	
1,1-DICHLOROETHANE	< 0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	< 0.20 UG/L	
CIS-1,2-DICHLOROETHYLENE	< 0.20 UG/L	*	CHLOROFORM	< 0.20 UG/L	
1,2-DICHLOROETHANE	< 0.20 UG/L		DIBROMOMETHANE	< 1.0 UG/L	
1,1,1-TRICHLOROETHANE	< 0.20 UG/L	*	CARBON TETRACHLORIDE	< 0.20 UG/L	
BROMODICHLOROMETHANE	< 0.50 UG/L		DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	< 0.20 UG/L	*	1,2-DICHLOROPROPANE	< 0.20 UG/L	
1,1-DICHLORO-1-PROPENE	< 0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	< 0.20 UG/L	
1,1,2-TRICHLOROETHYLENE	< 0.20 UG/L		1,3-DICHLOROPROPANE	NQ	
CHLORODIBROMOMETHANE	< 1.0 UG/L	*	1,1,2-TRICHLOROETHANE	< 0.20 UG/L	
CIS-1,3-DICHLORO-1-PROPENE	< 0.20 UG/L		1,2-DIBROMOETHANE	< 0.50 UG/L	
2-CHLOROETHYLVINYL ETHER	NQ	*	BROMOFORM	< 1.0 UG/L	
1,1,1,2-TETRACHLOROETHANE	< 0.20 UG/L		1,2,3-TRICHLOROPROPANE	NQ	
1,1,2,2-TETRACHLOROETHANE	< 2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	< 2.0 UG/L	
PENTACHLOROETHANE	< 2.0 UG/L	*	CHLOROBENZENE	< 0.50 UG/L	
1,1,2-TRICHLOROTRIFLUOROETHANE	< 0.50 UG/L	*	1,3-DICHLOROBENZENE	< 1.0 UG/L	
1,2-DICHLOROBENZENE	< 1.0 UG/L	*	1,4-DICHLOROBENZENE	< 1.0 UG/L	

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 132462 115
ELD BLANK #: 132456

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/17/85
DATE PRINTED: 08/12/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE		25.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	P<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM		0.87	UG/L
1,2-DICHLOROETHANE		1.9	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	P<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
B-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"
P< "PEAK DETECTED BELOW 'LESS THAN' VALUE"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

11D

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132463
FIELD BLANK #: 132458

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/17/85
DATE PRINTED: 08/12/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHAN	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

10

VOLATILE HYDROCARBONS IN WATER

AMPLE NUMBER: 132464
IELD CLAM #: 132458

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/17/85
DATE PRINTED: 08/12/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
*METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM		0.20	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"

< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132465 143
FIELD BLANK #: 132458

DATE SAMPLED: 07/22/85
DATE ANALYZED: 07/17/85
DATE PRINTED: 08/12/85

MPCA-32 SGHW SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE		1.1	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM		18.	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLORO/ACETONITRILE	NQ		
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE		0.36	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SPLE NUMBER: 132465 14D
FIELD BLANK #: 132455

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/24/85
DATE PRINTED: 08/12/85

MPCA-32 SOHW SITE RESPONSE

NON-HALOGENATED (CODE 462)

ACETONE		10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE		5.0	UG/L
BENZENE		1.3	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ. WASTE DIVISION

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM		4.9	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ ?		
1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132467 13D
FIELD BLANK #: 132456

DATE SAMPLED: 07/03/85
DATE ANALYZED: 07/18/85
DATE CONFIRMED: 07/24/85
DATE PRINTED: 08/12/85

MPCA-SOLID WASTE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE		19.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE		6.6	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE		7.4	UG/L
1,1-DICHLOROETHANE		73.	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE		1.9	UG/L	* CHLOROFORM		0.86	UG/L
1,2-DICHLOROETHANE		0.51	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ ?		
1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	P<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE		13.	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"
P< "PEAK DETECTED BELOW 'LESS THAN' VALUE"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132468 135
FIELD BLANK #: 132450

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/15/85
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MPCA-32 SMHW SITE RESPONSE

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10. UG/L	TETRAHYDROFURAN	<	5.0 UG/L
ETHYL ETHER	<	1.0 UG/L	METHYL ETHYL KETONE	<	5.0 UG/L
BENZENE	<	0.50 UG/L	METHYL ISOBUTYL KETONE	<	1.0 UG/L
TOLUENE	<	0.50 UG/L	* ETHYL BENZENE	<	0.50 UG/L
CUMENE	<	0.50 UG/L	O-XYLENE	<	0.50 UG/L
M-XYLENE	<	0.50 UG/L	P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
METHYLENE CHLORIDE	P<	1.0 UG/L	* TRICHLOROFLUOROMETHANE	<	0.20 UG/L
ALLYLCHLORIDE	<	0.50 UG/L	* 1,1-DICHLOROETHYLENE	<	0.20 UG/L
1,1-DICHLOROETHANE		0.79 UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	* CHLOROFORM		7.4 UG/L
1,2-DICHLOROETHANE	<	0.20 UG/L	DIBROMOMETHANE	<	1.0 UG/L
1,1,1-TRICHLOROETHANE	<	0.20 UG/L	* CARBON TETRACHLORIDE	<	0.20 UG/L
BROMODICHLOROMETHANE	<	0.50 UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	* 1,2-DICHLOROPROPANE	<	0.20 UG/L
1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L	1,3-DICHLOROPROPANE	NQ	
CHLORODIBROMOMETHANE	<	1.0 UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20 UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L	1,2-DIBROMOETHANE	<	0.50 UG/L
2-CHLOROETHYLVINYL ETHER	NQ		* BROMOFORM	<	1.0 UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L	1,2,3-TRICHLOROPROPANE	NQ	
1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	1.0 UG/L
PENTACHLOROETHANE	<	2.0 UG/L	* CHLOROBENZENE	<	0.50 UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	* 1,3-DICHLOROBENZENE	<	1.0 UG/L
1,2-DICHLOROBENZENE	<	1.0 UG/L	* 1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"
P< "PEAK DETECTED BELOW 'LESS THAN' VALUE"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132469
BLD BLANK #: 132456

35

MPCA-32 SBHW SITE RESPONSE

DATE SAMPLED: 07/22/85
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RECEIVED
AUG21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHAN	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 102470
ELD BLANK #: 102456 3D

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/15/85
DATE PRINTED: 08/12/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE		34.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE + P-XYLENE		0.59	UG/L
M-XYLENE		0.62	UG/L				

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE		1.5	UG/L
1,1-DICHLOROETHANE		19.	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
ENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 102471
FIELD BLANK #: 102458 12D

MPCA-32 S&HW SITE RESPONSE

DATE SAMPLED: 07/02/85
DATE ANALYZED: 07/18/85
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MPCA, SOLID & HAZ. WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10. UG/L		TETRAHYDROFURAN		14. UG/L
ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.0 UG/L
TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
VINYL CHLORIDE	PP		*	BROMOMETHANE	NQ	
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE		12. UG/L
1,1-DICHLOROETHANE		150. UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
CIS-1,2-DICHLOROETHYLENE		1.5 UG/L	*	CHLOROFORM	<	0.20 UG/L
1,2-DICHLOROETHANE		0.55 UG/L		DIBROMOMETHANE	<	1.0 UG/L
1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	NQ	
CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
2-CHLOROETHYLVINYL ETHER	NQ		*	BROMOFORM	<	1.0 UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	NQ	
1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"
PP "PEAK PRESENT"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

MPLE NUMBER: 132472
ELD BLANK #: 132453

125

MPCA-32 S&HW SITE RESPONSE

DATE SAMPLED: 07/02/85
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AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	P<	0.20	UG/L
1,1-DICHLOROETHANE		1.9	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM		0.1	UG/L
1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ ?		
1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE		0.43	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"
P< "PEAK DETECTED LOW 'LESS THAN' VALUE"

MINNESOTA D ARTMENT OF HEALTH

VOLATILE HYDROCARBONS IN WATER

****
* NOTE: BUBBLES IN VIALS *
* PREVENT CERTAINTY ABOUT *
* RESULTS. *
****

SAMPLE NUMBER: 102473 ZW
BLD BLANK #: 102456

DATE SAMPLED: 07/01/85
DATE ANALYZED: 07/22/85
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MPCA-32 SGH. SITE RESPONSE

RECEIVED
AUG21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

NON-HALOGENATED (CODE 462)

ACETONE		73.	UG/L	TETRAHYDROFURAN		12.	UG/L
VINYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0	UG/L
TOLUENE		5.4	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE		5.5	UG/L
1,1-DICHLOROETHANE		37.	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
1,2-DICHLOROETHANE		0.22	UG/L	DIBROMOMETHANE	<	1.0	UG/L
1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
1,1,2-TRICHLOROETHYLENE		0.64	UG/L	1,3-DICHLOROPROPANE	NQ		
CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	P<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	P<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.	UG/L
1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.	UG/L

** "QUALITATIVE ANALYSIS ONLY"
* "PURITY QUESTIONABLE"
< "LESS THAN"
P< "PEAK DETECTED BELOW 'LESS THAN' VALUE"

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF ANALYTICAL SERVICES

GC/MS PURGEABLES IN WATER

SAMPLE NO: 132473, WAITE PARK, WELL #2W (5 ML)

RECEIVED
AUG 21 1985
MPCA, SOLID & HAZ.
WASTE DIVISION

DATE COLLECTED: 7/ 2/85
DATE RECEIVED: 7/ 3/85
DATE ANALYZED: 7/29/85

BLANK NO: 132458

5 ML OF SAMPLE WAS ANALYZED BY PURGE AND TRAP ON A FINNIGAN MODEL 4000 GAS CHROMATOGRAPH / MASS SPECTROMETER SYSTEM. THE ANALYSIS WAS CARRIED OUT IN ACCORDANCE WITH EPA METHOD 624.

PAGES 2 THRU 4 LIST COMPOUNDS FOUND IN THE SAMPLE BY REVERSE LIBRARY SEARCH USING A COMPUTERIZED DATA SYSTEM. THE AMOUNT FOUND COLUMN LISTS THOSE COMPOUNDS THAT WERE MATCHED BY BOTH GC RETENTION TIME AND MASS-SPECTRAL COMPARISON. A BLANK SPACE IN THE AMOUNT FOUND COLUMN INDICATES THE COMPOUND WAS BELOW THE QUANTIFICATION LIMIT. THE QUANTIFICATION LIMIT COLUMN LISTS THE DETECTION LIMIT OF THE SYSTEM FOR EACH OF THE COMPOUNDS.

PAGE 5 LISTS THOSE COMPOUNDS THAT WERE TENTATIVELY IDENTIFIED BY COMPARISON TO THE NATIONAL BUREAU OF STANDARDS MASS-SPECTRAL LIBRARY. STANDARDS FOR THESE COMPOUNDS ARE NOT CURRENTLY AVAILABLE FOR CONFIRMATION AND QUANTITATION. THE ESTIMATED AMOUNTS LISTED AFTER THE COMPOUND NAMES WERE CALCULATED BY ASSUMING THE SAME RESPONSE AS THE INTERNAL STANDARD AND ARE ONLY ROUGH APPROXIMATIONS.

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132963
FIELD BLANK #: 132959

MPCA-32 S&HW SITE RESPONSE

DATE SAMPLED: 02/12/85
DATE ANALYZED: 02/14/85
DATE PRINTED: 02/19/85

RECEIVED
FEB 25 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE		0.60 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE		0.46 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE		5.1 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132964
FIELD BLANK #: 132959

DATE SAMPLED: 02/12/85
DATE ANALYZED: 02/14/85
DATE PRINTED: 02/19/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
FEB 25 1985
MINN. POLLUTION
CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY
* "PRIORITY POLLUTANT"
< "LESS THAN"

X

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No. 32

Date Collected 3/6/85

ORGANIC CHEMISTRY UNIT

Collected By Kurts Gawrys

WATER ANALYSES ONLY

Date Received 3/7/85

Report To Alto
c.f. 761 White Park

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132978	a		Field Blank	40ml / 3
132979	b	1	V.A. Hospital Well #2	40ml / 4
132980	c	2	Sell's Auto Hwy 23 West	"
132981	d	3	William Kankelfitz Hwy 23 W.	"
132982	e	4	Ray Brown 117 S. 2nd Ave	"

This Line for LAB SAMPLE NUMBER ONLY.		132978 a	132979 b	132980 c	132981 d	132982 e
Chlorophyll A	450					
Volatile Hydrocarbons	465	✓	✓	✓	✓	✓
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #: 132978						

COMPLETED
MAR 25 1985
ENVIRONMENTAL LAB

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No. 32

Date Collected 3/6/85

Collected By Karls Gravrys

Date Received 3/7/85

ORGANIC CHEMISTRY UNIT

WATER ANALYSES ONLY

Report To Aho 761 Waite Pkwy

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Type of Containers/No. of Containers
132983	a	5	Diana Christman 209 N 3rd Ave	40ml/4
132984	b	6	Frank Rechtl 150 N 5th Ave	"
132985	c	7	Anna Tambel 134-7th Ave N	"
132986	d	8	Herb Schmidt 202-9th Ave N	"
132987	e	9	Ed Heying 243-12th Ave N	"

This Line for LAB SAMPLE NUMBER ONLY		132983 a	132984 b	132985 c	132986 d	132987 e
Chlorophyll A	450					
Volatile Hydrocarbons	465	✓	✓	✓	✓	✓
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK # - 132978						

COMPLETED
MAR 25 1985
ENVIRONMENTAL LAB

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No. 32

Date Collected 3/6/85

ORGANIC CHEMISTRY UNIT

Collected By Karls Gravrys

WATER ANALYSES ONLY

Date Received 3-7-85

Report To Ahs 761 White Bear

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Type of Containers/No. of Containers
132988	a	10	Bob Kilmeyer 128-4th Ave N	40ml/4
132989	b	11	Rob. Ballmann 401-3rd Ave NE	"
132990	c	12	Matt Fischer 36-4th Ave N	"
132991	d	14	BN Communication Bldg West	"
132992	e	15	BN Yard Hand Pump East	"

This Line for LAB SAMPLE NUMBER ONLY		132988 a	132989 b	132990 c	132991 d	132992 e
Chlorophyll A	450					
Volatile Hydrocarbons	460	✓	✓	✓	✓	✓
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK # - 132978						

COMPLETED
MAR 25 1985
ENVIRONMENTAL LAB

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

MI ESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132978
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/12/85
DATE PRINTED: 03/19/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
CONTROL ACC

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
* BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.00	UG/L
* TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

* CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
* VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
* CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
* METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
* 1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
* 1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
* 1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
* BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	<	2.0	UG/L
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
* 1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	<	3.0	UG/L
* CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
* CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
* 2-CHLOROETHYLVINYL ETHER	<	1.0	UG/L	* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	<	2.0	UG/L
* 1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
* 1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBON IN WATER

AMPLE NUMBER: 132203
IELD BLANK #: 132193

MPCA-3 SKHW TTE F OPS

DATE SAMPLED: 04/25/85
DATE ANALYZED: 05/11/85
DATE CONFIRMED: 05/1[illegible]/85
DATE PRINTED: 05/24/85

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 4[illegible])

ACETONE	[illegible]	UG/L	TETRAHYDROFURAN	<	5.0 UG/L
ETHYL ETHER	< 1.0	UG/L	METHYL ETHYL KETONE	<	5.0 UG/L
* BENZENE	< 0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.0 UG/L
* TOLUENE	< 0.50	UG/L	* ETHYL BENZENE	<	0.50 UG/L
CUMENE	< 0.50	UG/L	O-XYLENE	<	0.50 UG/L
M-XYLENE	< 0.50	UG/L	P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 4[illegible])

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	< 1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20 UG/L
ALLYLCHLORIDE	< 0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20 UG/L
* 1,1-DICHLOROETHANE	< 0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
CIS-1,2-DICHLOROETHYLENE	0.40	UG/L	* CHLOROFORM	<	0.20 UG/L
* 1,2-DICHLOROETHANE	< 0.20	UG/L	DIBROMOMETHANE	<	1.0 UG/L
1,1,1-TRICHLOROETHANE	F< 0.[illegible]	UG/L	* CARBON TETRACHLORIDE	<	0.20 UG/L
* BROMODICHLOROMETHANE	< [illegible]	UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	< [illegible]	UG/L	* 1,2-DICHLOROPROPANE	<	0.20 UG/L
1,1-DICHLORO-1-PROPENE	< [illegible]	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
* 1,1,2-TRICHLOROETHYL	< [illegible]	UG/L	1,3-DICHLOROPROPANE	NQ	
CHLORODIBROMOMETHANE	< 1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20 UG/L
* CIS-1,3-DICHLORO-1-PROPENE	< [illegible]	UG/L	1,2-DIBROMOETHANE	<	0.50 UG/L
2-CHLOROETHYLVINYL ETHER	NQ		* BROMOFORM	<	1.0 UG/L
1,1,1,2-TETRACHLOROETHANE	< [illegible]	UG/L	1,2,3-TRICHLOROPROPANE	NQ	
1,1,2,2-TETRACHLOROETHANE	< [illegible]	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	[illegible] UG/L
PENTACHLOROETHANE	< [illegible]	UG/L	* CHLOROBENZENE	<	[illegible] UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	< [illegible]	UG/L	* 1,2-DICHLOROBENZENE	<	1.[illegible] UG/L
1,3-DICHLOROBENZENE	< 1.[illegible]	UG/L	* 1,3-DICHLOROBENZENE	<	1.[illegible] UG/L

[illegible] "QUALITATIVE [illegible]" [illegible] "LESS THAN."
[illegible] "[illegible]" [illegible] "[illegible]" [illegible] "[illegible] SOLUTANT"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132204
FIELD BLANK #: 132193

MPCA-SL SHW ITE REPORT

DATE SAMPLED: 04/25/85
DATE ANALYZED: 05/11/85
DATE CONFIRMED: 05/16/85
DATE PRINTED: 05/24/85

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE		300.	UG/L	TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50	UG/L	METHYL ISO BUTYL KETONE	<	1.0 UG/L
*	TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
*	VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
*	METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
	ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE		23.	UG/L
*	1,1-DICHLOROETHANE		74.	UG/L	* TRANS-1,2-DICHLOROETHYLENE	PQ<	0.20	UG/L
	CIS-1,2-DICHLOROETHYLENE		5.9	UG/L	* CHLOROFORM		19.	UG/L
*	1,2-DICHLOROETHANE		0.60	UG/L	DIBROMOMETHANE	<	1.0	UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
*	BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	NQ		
	2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
*	1,1,2-TRICHLOROETHYLENE		11.	UG/L	1,3-DICHLOROPROPANE	NQ		
*	CHLORODIBROMOMETHANE	<	1.	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
	2-CHLOROETHYLVINYL ETHER	NQ			* BROMOFORM	<	1.0	UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ		
*	1,1,2,2-TETRACHLOROETHANE	<	0.20	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE		42.	UG/L
	TETRACHLOROETHANE	<	0.20	UG/L	* CHLOROBENZENE	<	0.50	UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.20	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
*	1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

" QUALITATIVE ANALYSIS ONLY"
" PARAMETER NOT " " NOT " " VALID "
< "LESS THAN"
* "PRIORITY POLLUTANT"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132202
FIELD BLANK #: 132193

DATE SAMPLED: 04/25/85
DATE ANALYZED: 05/1[illegible]/85
DATE PRINTED: 05/24/85

MPCA- [illegible] HW [illegible] PON [illegible]

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

ACETONE	11000.	UG/L	TETRAHYDROFURAN	< 5.0	UG/L
ETHYL ETHER	< 1.0	UG/L	METHYL ETHYL KETONE	< 5.0	UG/L
* BENZENE	< 0.50	UG/L	METHYL ISO UTYL KETONE	< 1.0	UG/L
* TOLUENE	1.6	UG/L	* ETHYL BENZENE	< 0.50	UG/L
CUMENE	< 0.50	UG/L	O-XYLENE	< 0.50	UG/L
M-XYLENE	< 0.50	UG/L	P-XYLENE	< 0.50	UG/L

HALOGENATED (CODE 464)

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	< 1.0	UG/L	* TRICHLOROFLUOROMETHANE	< 0.20	UG/L
ALLYLCHLORIDE	< 0.50	UG/L	* 1,1-DICHLOROETHYLENE	< 0.20	UG/L
* 1,1-DICHLOROETHANE	< [illegible]	UG/L	* TRANS-1,2-DICHLOROETHYLENE	< 0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	< [illegible]	UG/L	* CHLOROFORM	< 0.20	UG/L
* 1,2-DICHLOROETHANE	< [illegible]	UG/L	DIBROMOMETHANE	< 1.0	UG/L
* 1,1,1-TRICHLOROETHANE	< [illegible]	UG/L	* CARBON TETRACHLORIDE	< 0.20	UG/L
* BROMODICHLOROMETHANE	< 0.50	UG/L	DICHLOROACETONITRILE	NQ	
1,2-DICHLORO-1-PROPENE	< [illegible]	UG/L	* 1,2-DICHLOROPROPANE	< 0.20	UG/L
1,1-DICHLORO-1-PROPENE	< [illegible]	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L
1,1,2-TRICHLOROETHYLENE	< [illegible]	UG/L	1,3-DICHLOROPROPANE	NQ	
CHLORODIBROMOMETHANE	< 1.	UG/L	* 1,1,2-TRICHLOROETHANE	< 0.20	UG/L
* CIS-1,3-DICHLORO-1-PROPENE	< [illegible]	UG/L	1,2-DIBROMOETHANE	< 0.50	UG/L
* 2-CHLOROETHYLVINYL ETHER	[illegible]		* BROMOFORM	< 1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	< [illegible]	UG/L	1,2,3-TRICHLOROPROPANE	NQ	
* 1,1,2,2-TETRACHLOROETHANE	< [illegible]	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	< [illegible]	UG/L
PENTACHLOROETHANE	< [illegible]	UG/L	* [illegible]	< [illegible]	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	< [illegible]	UG/L	* 1,3-DICHLOROPROPANE	< 1.[illegible]	UG/L
* 1,2-DICHLOROPROPANE	< 1.	UG/L	* 1,4-DICHLOROPROPANE	< 1.[illegible]	UG/L

[illegible] "CALITATIVE [illegible]"
[illegible] "[illegible]"

< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132201
FIELD BLANK #: 132193

DATE SAMPLED: 04/25/85
DATE ANALYZED: 05/10/85
DATE PRINTED: 05/24/85

MECA-32 SWHN SITE RESS NO

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 4 2)

ACETONE	1700.	UG/L	TETRAHYDROFURAN	< 5.0	UG/L
ETHYL ET	< 1.0	UG/L	METHYL ETHYL KETON	< 5.0	UG/L
* BENZENE	0.[illegible]	UG/L	METHYL ISOBUTYL KETONE	< 1.0	UG/L
* TOLUENE	1.[illegible]	UG/L	* ETHYL BENZENE	< 0.50	UG/L
CUMENE	< 0.50	UG/L	O-XYLENE	< 0.50	UG/L
M-XYLENE	< 0.[illegible]	UG/L	P-XYLENE	< 0.50	UG/L

HALOGENATED (CODE 4 4)

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	< 1.[illegible]	UG/L	* TRICHLOROFLUOROMETHANE	< 0.20	UG/L
ALLYLCHLORIDE	< [illegible]	UG/L	* 1,1-DICHLOROETHYLENE	< 0.20	UG/L
* 1,1-DICHLOROETHANE	< 0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	< 0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	< 0.20	UG/L	* CHLOROFORM	< 0.20	UG/L
* 1,2-DICHLOROETHANE	< 0.[illegible]	UG/L	DIBROMOMETHANE	< 1.0	UG/L
* 1,1,1-TRICHLOROETHANE	< 0.20	UG/L	* CARBON TETRACHLORIDE	< 0.20	UG/L
* BROMODICHLOROMETHANE	< 0.[illegible]	UG/L	DICHLOROACETONITRILE	NQ	
1,3-DICHLORO-1-PROPENE	< 0.[illegible]	UG/L	* 1,2-DICHLOROPROPANE	< 0.20	UG/L
1,1-DICHLORO-1-PROPENE	< 0.[illegible]	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L
* 1,1,2-TRICHLOROETHYLENE	< 0.[illegible]	UG/L	1,[illegible]-DICHLOROPROPANE	NQ	
* CHLORODIBROMOMETHANE	< 1.[illegible]	UG/L	* 1,1,2-TRICHLOROETHANE	< 0.20	UG/L
* CIS-1,3-DICHLORO-1-PROPENE	< [illegible]	UG/L	1,[illegible]-DICHLOROETHANE	< 0.50	UG/L
* 2-CHLOROETHYLVINYL ETHER	NQ		* BROMOFORM	< 1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	< [illegible]	UG/L	1,2,3-TRICHLOROPROPANE	NQ	
* 1,1,2,2-TETRACHLOROETHANE	< 0.[illegible]	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	< 2.[illegible]	UG/L
PENTACHLOROETHANE	< [illegible]	UG/L	* CHLOROBENZENE	< 0.[illegible]	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	< [illegible]	UG/L	* 1,3-DICHLOROBENZENE	< 1.[illegible]	UG/L
* 1,2-DICHLOROBENZENE	< 1.[illegible]	UG/L	* 1,4-DICHLOROBENZENE	< 1.[illegible]	UG/L

NQ "QUALITATIVE [illegible]" < "[illegible] THAN"
* "[illegible]"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132200
FIELD BLANK #: 132193

DATE SAMPLED: 04/25/85
DATE ANALYZED: 05/10/85
DATE PRINTED: 05/24/85

MPCA-[illegible] SITE RESPONSE

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 4[illegible]2)

ACETONE	170.	UG/L	TETRAHYDROFURAN	< 5.0	UG/L
ETHYL ETHE	< 1.0	UG/L	METHYL ETHYL KETONE	< 5.0	UG/L
* BENZENE	< 0.50	UG/L	METHYL ISOBUTYL KETONE	< 1.0	UG/L
* TOLUENE	< 0.50	UG/L	* ETHYL BENZENE	< 0.50	UG/L
CUMENE	< 0.50	UG/L	O-XYLENE	< 0.50	UG/L
M-XYLENE	< 0.50	UG/L	P-XYLENE	< 0.50	UG/L

HALOGENATED (CODE 4[illegible]4)

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	< 1.0	UG/L	* TRICHLOROFLUOROMETHANE	< 0.20	UG/L
ALLYLCHLORIDE	< 0.50	UG/L	* 1,1-DICHLOROETHYLENE	< 0.20	UG/L
* 1,1-DICHLOROETHANE	< 0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	< 0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	< 0.20	UG/L	* CHLOROFORM	< 0.20	UG/L
* 1,2-DICHLOROETHANE	< 0.20	UG/L	DIBROMOMETHANE	< 1.0	UG/L
* 1,1,1-TRICHLOROETHANE	< 0.20	UG/L	* CARBON TETRACHLORIDE	< 0.20	UG/L
* BROMODICHLOROMETHANE	< 0.50	UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	< 0.20	UG/L	* 1,2-DICHLOROPROPANE	< 0.20	UG/L
1,1-DICHLORO-1-PROPENE	< 0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L
* 1,1,2-TRICHLOROETHYLENE	< 0.20	UG/L	1,3-DICHLOROPROPANE	NQ	
* CHLORODIBROMOMETHANE	< 1.0	UG/L	* 1,1,2-TRICHLOROETHANE	< 0.20	UG/L
* CIS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L	1,2-DIBROMOETHANE	< 0.50	UG/L
* 2-CHLOROETHYLVINYL ETHER	NQ		* BROMOFORM	< 1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	< [illegible]	UG/L	1,2,3-TRICHLOROPROPANE	NQ	
* 1,1,2,2-TETRACHLOROETHANE	< [illegible]	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	< 2.0	UG/L
PENTACHLOROETHANE	< [illegible]	UG/L	* CHLOROBENZENE	< 0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	< [illegible]	UG/L	* 1,2-DICHLOROBENZENE	< 1.0	UG/L
* 1,2-DICHLOROBENZENE	< 1.	UG/L	* 1,4-DICHLOROBENZENE	< 1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY [illegible]"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132199
FIELD BLANK #: 132193

DATE SAMPLED: 04/25/85
DATE ANALYZED: 05/11/85
DATE CONFIRMED: 05/23/85
DATE PRINTED: 05/24/85

MPCA-52 SUHA SITE RESPONSE

RECEIVED
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MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

ACETONE	270.	UG/L	TETRAHYDROFURAN	< 5.0	UG/L
ETHYL ETHER	< 1.0	UG/L	METHYL ETHYL KETONE	< 5.0	UG/L
* BENZENE	1.0	UG/L	METHYL ISOBUTYL KETONE	< 1.0	UG/L
* TOLUENE	< 0.50	UG/L	* ETHYL BENZENE	< 0.50	UG/L
CUMENE	< 0.50	UG/L	O-XYLENE	< 0.50	UG/L
M-XYLENE	< 0.50	UG/L	P-XYLENE	< 0.50	UG/L

HALOGENATED (CODE 474)

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	< 1.0	UG/L	* TRICHLOROFLUOROMETHANE	< 0.20	UG/L
ALLYLCHLORIDE	< 0.50	UG/L	* 1,1-DICHLOROETHYLENE	0.90	UG/L
* 1,1-DICHLOROETHANE	4.5	UG/L	* TRANS-1,2-DICHLOROETHYLENE	< 0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	0.40	UG/L	* CHLOROFORM	< 0.20	UG/L
* 1,2-DICHLOROETHANE	< 0.20	UG/L	DIBROMOMETHANE	< 1.0	UG/L
* 1,1,1-TRICHLOROETHANE	< 0.20	UG/L	* CARBON TETRACHLORIDE	< 0.20	UG/L
* BROMODICHLOROMETHANE	< 0.50	UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	< 0.20	UG/L	* 1,2-DICHLOROPROPANE	< 0.20	UG/L
1,1-DICHLORO-1-PROPENE	< [illegible]	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L
* 1,1,2-TRICHLOROETHYLENE	1.7	UG/L	1,3-DICHLOROPROPANE	NQ	
* CHLORODIBROMOMETHANE	< 1.0	UG/L	* 1,1,2-TRICHLOROETHANE	< 0.20	UG/L
* CIS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L	1,2-DIBROMOETHANE	< 0.50	UG/L
* 2-CHLOROETHYLVINYL ETHER	NQ		* BROMOFORM	< 1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	< [illegible]	UG/L	1,2,3-TRICHLOROPROPANE	NQ	
* 1,1,2,2-TETRACHLOROETHANE	< [illegible]	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	2.4	UG/L
PENTACHLOROETHANE	< [illegible]	UG/L	* CHLOROBENZENE	< [illegible]	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	< [illegible]	UG/L	* 1,3-DICHLOROBENZENE	< 1.[illegible]	UG/L
* 1,2-DICHLOROBENZENE	< 1.[illegible]	UG/L	* 1,4-DICHLOROBENZENE	< 1.[illegible]	UG/L

NQ "QUALITATIVE ANALYTICAL ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132198
FIELD BLANK #: 132193

MPCA-22 SHAW SITE RESPONSE

DATE SAMPLED: 04/25/85
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RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

ACETONE		43. UG/L	TETRAHYDROFURAN	<	5.0 UG/L
ETHYL ETHER	<	1.0 UG/L	METHYL ETHYL KETONE	<	5.0 UG/L
BENZENE	<	0.50 UG/L	METHYL ISOBUTYL KETONE	<	1.0 UG/L
TOLUENE	<	0.50 UG/L	* ETHYL BENZENE	<	0.50 UG/L
CUMENE	<	0.50 UG/L	O-XYLENE	<	0.50 UG/L
M-XYLENE	<	0.50 UG/L	P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	<	1.0 UG/L	* TRICHLOROFLUOROMETHANE	<	0.20 UG/L
ALLYLCHLORIDE	<	0.50 UG/L	* 1,1-DICHLOROETHYLENE	<	0.20 UG/L
* 1,1-DICHLOROETHANE	<	0.20 UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	* CHLOROFORM	<	0.20 UG/L
* 1,2-DICHLOROETHANE	<	0.20 UG/L	DIBROMOMETHANE	<	1.0 UG/L
* 1,1,1-TRICHLOROETHANE	<	0.20 UG/L	* CARBON TETRACHLORIDE	<	0.20 UG/L
* BROMODICHLOROMETHANE	<	0.50 UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	* 1,2-DICHLOROPROPANE	<	0.20 UG/L
1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
* 1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L	1,3-DICHLOROPROPANE	NQ	
* CHLORODIBROMOMETHANE	<	1.0 UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20 UG/L
* CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L	1,2-DIBROMOETHANE	<	0.50 UG/L
2-CHLOROETHYLVINYL ETHER	NQ		* BROMOFORM	<	1.0 UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L	1,2,3-TRICHLOROPROPANE	NQ	
1,1,2,2-TETRACHLOROETHANE	<	0.20 UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	0.20 UG/L
PENTACHLOROETHANE	<	0.20 UG/L	* [illegible]	<	0.50 UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.20 UG/L	* 1,3-DICHLOROBENZENE	<	1.0 UG/L
1,2-DICHLOROBENZENE		1. UG/L	* 1,4-DICHLOROBENZENE	<	1.0 UG/L

* "QUALITATIVE [illegible]"
* "PRIORITY [illegible]"

< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132197
FIELD BLANK #: 132193

DATE SAMPLED: 04/24/85
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MEGA-BORE CAPILLARY RESPONSE

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

ACETONE	< 10.	UG/L	TETRAHYDROFURAN	< 5.0	UG/L
ETHYL ETHER	< 1.0	UG/L	METHYL ETHYL KETONE	< 5.0	UG/L
* BENZENE	< 0.50	UG/L	METHYL ISOBUTYL KETONE	< 1.0	UG/L
* TOLUENE	< 0.50	UG/L	* ETHYL BENZENE	< 0.50	UG/L
CUMENE	< 0.50	UG/L	O-XYLENE	< 0.50	UG/L
M-XYLENE	< 0.50	UG/L	P-XYLENE	< 0.50	UG/L

HALOGENATED (CODE 464)

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	< 1.0	UG/L	* TRICHLOROFLUOROMETHANE	< 0.20	UG/L
ALLYLCHLORIDE	< 0.50	UG/L	* 1,1-DICHLOROETHYLENE	< 0.20	UG/L
* 1,1-DICHLOROETHANE	< 0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	< 0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	< 0.20	UG/L	* CHLOROFORM	< 0.20	UG/L
* 1,2-DICHLOROETHANE	< 0.20	UG/L	DIBROMOMETHANE	< 1.0	UG/L
* 1,1,1-TRICHLOROETHANE	< 0.20	UG/L	* CARBON TETRACHLORIDE	< 0.20	UG/L
* BROMODICHLOROMETHANE	< 0.50	UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	< 0.20	UG/L	* 1,2-DICHLOROPROPANE	< 0.20	UG/L
1,1-DICHLORO-1-PROPENE	< 0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L
* 1,1,2-TRICHLOROETHYLENE	< 0.20	UG/L	1,3-DICHLOROPROPANE	NQ	
* CHLORODIBROMOMETHANE	< 1.0	UG/L	* 1,1,2-TRICHLOROETHANE	< 0.20	UG/L
* CIS-1,3-DICHLORO-1-PROPENE	< 0.50	UG/L	1,2-DIBROMOETHANE	< 0.50	UG/L
* 2-CHLOROETHYLVINYL ETHER	NQ		* BROMOFORM	< 1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	< 0.20	UG/L	1,2,3-TRICHLOROPROPANE	NQ	
* 1,1,2,2-TETRACHLOROETHANE	< 0.20	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	< 0.20	UG/L
PENTACHLOROETHANE	< 0.20	UG/L	* CHLOROBENZENE	< 0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	< 0.20	UG/L	* 1,3-DICHLOROBENZENE	< 1.0	UG/L
* 1,2-DICHLOROBENZENE	< 1.0	UG/L	* 1,4-DICHLOROBENZENE	< 1.0	UG/L

* = "QUALITATIVE ANALYSIS ONLY" < = "LESS THAN"
• = "PRELIMINARY DATA"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

AMPLE NUMBER: 132196
IELD BLANK #: 132193

DATE SAMPLED: 04/24/85
DATE ANALYZED: 05/11/85
DATE PRINTED: 05/24/85

MPCA-[illegible] SOIL RESPONSE

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 4[illegible])

ACETONE	7600.	UG/L	TETRAHYDROFURAN	< 5.0	UG/L
ETHYL ETHER	< 1.0	UG/L	METHYL ETHYL KETONE	< 5.0	UG/L
BENZENE	< 0.50	UG/L	METHYL ISOBUTYL KETONE	< 1.0	UG/L
TOLUENE	< 0.[illegible]	UG/L	* ETHYL BENZENE	< 0.50	UG/L
CUMENE	< 0.50	UG/L	O-XYLENE AND P-XYLENE	1.5	UG/L
M-XYLENE	1.7	UG/L			

HALOGENATED (CODE 4[illegible])

CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
VINYL CHLORIDE	N		* BROMOMETHANE	NQ	
CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
METHYLENE CHLORIDE	< 1.[illegible]	UG/L	* TRICHLOROFLUOROMETHANE	< 0.20	UG/L
ALLYLCHLORIDE	< [illegible]	UG/L	* 1,1-DICHLOROETHYLENE	< 0.20	UG/L
1,1-DICHLOROETHANE	[illegible]	UG/L	* TRANS-1,2-DICHLOROETHYLENE	< 0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	< [illegible]	UG/L	* CHLOROFORM	< 0.20	UG/L
1,2-DICHLOROETHANE	< [illegible]	UG/L	DIBROMOMETHANE	< 1.0	UG/L
1,1,1-TRICHLOROETHANE	< [illegible]	UG/L	* CARBON TETRACHLORIDE	< 0.20	UG/L
BROMODICHLOROMETHANE	< [illegible]	UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	< [illegible]	UG/L	* 1,2-DICHLOROPROPANE	< 0.20	UG/L
1,1-DICHLORO-1-PROPENE	< [illegible]	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	< 0.20	UG/L
1,1,2-TRICHLOROETHYLENE	< [illegible]	UG/L	1,3-DICHLOROPROPANE	NQ	
CHLORODIBROMOMETHANE	< 1.[illegible]	UG/L	* 1,1,2-TRICHLOROETHANE	< 0.20	UG/L
CIS-1,3-DICHLORO-1-PROPENE	< [illegible]	UG/L	1,2-DIBROMOETHANE	< 0.50	UG/L
2-CHLOROETHYLVINYL ETHER	N		* [illegible]	< 1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	< [illegible]	UG/L	1,2,3-TRICHLOROPROPANE	NQ	
1,1,2,2-TETRACHLOROETHANE	< [illegible]	UG/L	* 1,1,2,3-TETRACHLOROETHYLENE	< [illegible]	UG/L
PENTACHLOROETHANE	< [illegible]	UG/L	* CHLOROBENZENE	< [illegible]	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	< [illegible]	UG/L	* 1,2-DICHLOROBENZENE	< 1.[illegible]	UG/L
1,2-DICHLOROBENZENE	< 1.[illegible]	UG/L	* 1,4-DICHLOROBENZENE	< 1.[illegible]	UG/L

N "QUALITATIVE ANALYSIS"   < "LESS THAN"
* "[illegible]"

MINN SOTA D PARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132195
FIELD BLANK #: 132193

MPCA-32 [illegible] SITE RESPONSE

DATE SAMPLED: 04/24/85
DATE ANALYZED: 05/11/85
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DATE PRINTED: 05/24/85

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 467)

ACETONE	3300.	UG/L	TETRAHYDROFURAN	< 5.0	UG/L
ETHYL ETHER	< 1.0	UG/L	METHYL ETHYL KETONE	< 5.0	UG/L
* BENZENE	P< 0.50	UG/L	METHYL ISOBUTYL KETONE	< 1.0	UG/L
* TOLUENE	P< 0.50	UG/L	* ETHYL BENZENE	< 0.50	UG/L
CUMENE	< 0.50	UG/L	O-XYLENE AND P-XYLENE	1.0	UG/L
M-XYLENE	0.50	UG/L			

HALOGENATED (CODE 4[illegible])

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* [illegible]ETHAN	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	< 1.0	UG/L	* TRICHLOROFLUOROMETHANE	< 0.20	UG/L
ALLYLCHLORIDE	< 0.50	UG/L	* 1,1-DICHLOROETHYLENE	< 0.20	UG/L
* 1,1-DICHLOROETHANE	7.5	UG/L	* TRANS-1,2-DICHLOROETHYLENE	< 0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	0.70	UG/L	* CHLOROFORM	< 0.20	UG/L
* 1,2-DICHLOROETHANE	< [illegible]	UG/L	DI[illegible]OMOMETHAN	< 1.0	UG/L
* 1,1,1-TRICHLOROETHANE	< 0.[illegible]	UG/L	* CARBON TETRACHLORIDE	< 0.20	UG/L
* BROMODICHLOROMETHANE	< 0.[illegible]	UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPEN	< [illegible]	UG/L	* 1,2-DICHLOROPROPANE	< 0.20	UG/L
1,1-DICHLORO-1-PROPENE	< [illegible]	UG/L	* TRANS-1,[illegible]-DICHLORO-1-PROPENE	< 0.20	UG/L
* 1,1,2-TRICHLOROETHYLENE	< [illegible]	UG/L	1,3-DICHLOROPROPANE	NQ	
* CHLORODIBROMOMETHANE	< 1.[illegible]	UG/L	* 1,1,2-TRICHLOROETHANE	< 0.20	UG/L
* CIS-1,3-DICHLORO-1-PROPEN	< [illegible]	UG/L	1,2-DIBROMOETHANE	< 0.50	UG/L
* 2-CHLOROETHYLVINYL ETHER	[illegible]		* [illegible]	< 1.0	UG/L
1,1,1,2-TETRACHLOROETHAN	< [illegible]	UG/L	1,[illegible],3-TRICHLOROPROPAN	NQ	
* 1,1,2,2-TETRACHLOROETHAN	< [illegible]	UG/L	* 1,1,[illegible],2-TETRACHLOROETHYLEN	< [illegible]	UG/L
PENTACHLOROETHAN	< [illegible]	UG/L	* CHLOROBENZEN	< 0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHAN	< [illegible]	UG/L	* 1,3-DICHLOROBENZEN	< 1.0	UG/L
* 1,2-DICHLOROBENZEN	< 1.[illegible]	UG/L	* 1,4-DICHLOROBENZEN	< 1.[illegible]	UG/L

* "QUALITATIVE ANALYSIS ONLY"
* "[illegible]"
< "LESS THAN"
* "[illegible] POLLUTANT"

MINNESOT DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132988
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
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DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
* BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.00	UG/L
* TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

* CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
* VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
* CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
* METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
* 1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
* 1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
* 1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
* BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	<	2.0	UG/L
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
* 1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	<	3.0	UG/L
* CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
* CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
* 2-CHLOROETHYLVINYL ETHER	<	1.0	UG/L	* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	<	2.0	UG/L
* 1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
* 1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132987
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/12/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132986
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/12/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132985
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/12/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"

< "LESS THAN"

MINNESO DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132984
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/12/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132983
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/13/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

ACETONE	<	10.	UG/L	TETRAHYDROFURAN	<	5.0	UG/L
ETHYL ETHER	<	1.0	UG/L	METHYL ETHYL KETONE	<	5.0	UG/L
* BENZENE	<	0.50	UG/L	METHYL ISOBUTYL KETONE	<	1.00	UG/L
* TOLUENE	<	0.50	UG/L	* ETHYL BENZENE	<	0.50	UG/L
CUMENE	<	0.50	UG/L	O-XYLENE	<	0.50	UG/L
M-XYLENE	<	0.50	UG/L	P-XYLENE	<	0.50	UG/L

HALOGENATED (CODE 464)

* CHLOROMETHANE	NQ			* DICHLORODIFLUOROMETHANE	NQ		
* VINYL CHLORIDE	NQ			* BROMOMETHANE	NQ		
* CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ		
* METHYLENE CHLORIDE	<	1.0	UG/L	* TRICHLOROFLUOROMETHANE	<	0.20	UG/L
ALLYLCHLORIDE	<	0.50	UG/L	* 1,1-DICHLOROETHYLENE	<	0.20	UG/L
* 1,1-DICHLOROETHANE	<	0.20	UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20	UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20	UG/L	* CHLOROFORM	<	0.20	UG/L
* 1,2-DICHLOROETHANE	<	0.20	UG/L	DIBROMOMETHANE	<	1.0	UG/L
* 1,1,1-TRICHLOROETHANE	<	0.20	UG/L	* CARBON TETRACHLORIDE	<	0.20	UG/L
* BROMODICHLOROMETHANE	<	0.50	UG/L	DICHLOROACETONITRILE	<	2.0	UG/L
2,3-DICHLORO-1-PROPENE	<	0.20	UG/L	* 1,2-DICHLOROPROPANE	<	0.20	UG/L
1,1-DICHLORO-1-PROPENE	<	0.20	UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L
* 1,1,2-TRICHLOROETHYLENE	<	0.20	UG/L	1,3-DICHLOROPROPANE	<	3.0	UG/L
* CHLORODIBROMOMETHANE	<	1.0	UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20	UG/L
* CIS-1,3-DICHLORO-1-PROPENE	<	0.20	UG/L	1,2-DIBROMOETHANE	<	0.50	UG/L
* 2-CHLOROETHYLVINYL ETHER	<	1.0	UG/L	* BROMOFORM	<	1.0	UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20	UG/L	1,2,3-TRICHLOROPROPANE	<	2.0	UG/L
* 1,1,2,2-TETRACHLOROETHANE	<	2.0	UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0	UG/L
PENTACHLOROETHANE	<	2.0	UG/L	* CHLOROBENZENE	<	0.50	UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50	UG/L	* 1,3-DICHLOROBENZENE	<	1.0	UG/L
* 1,2-DICHLOROBENZENE	<	1.0	UG/L	* 1,4-DICHLOROBENZENE	<	1.0	UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESO DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132982
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/12/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE		1.3 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132981
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/13/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER		4.2 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"

< "LESS THAN"

MINN. [illegible] DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132194
FIELD BLANK #: 132193

DATE SAMPLED: 04/24/85
DATE ANALYZED: 05/1[illegible]/85
DATE PRINTED: 05/24/85

MPCA-[illegible] [illegible] SITE [illegible]

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 4[illegible])

ACETONE		10. UG/L	TETRAHYDROFURAN	<	5.0 UG/L
ETHYL ETHER	<	1.0 UG/L	METHYL ETHYL KETONE	<	5.0 UG/L
* BENZENE	P<	0.50 UG/L	METHYL ISOBUTYL KETONE	<	1.0 UG/L
* TOLUENE	<	0.50 UG/L	* ETHYL BENZENE	<	0.50 UG/L
CUMENE	<	0.50 UG/L	O-XYLENE	<	0.50 UG/L
M-XYLENE	<	0.50 UG/L	P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	<	1.0 UG/L	* TRICHLOROFLUOROMETHANE	<	0.20 UG/L
ALLYLCHLORIDE	<	0.50 UG/L	* 1,1-DICHLOROETHYLENE	<	0.20 UG/L
* 1,1-DICHLOROETHANE	<	0.20 UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	* CHLOROFORM	<	0.20 UG/L
* 1,2-DICHLOROETHANE	<	0.20 UG/L	DIBROMOMETHANE	<	1.0 UG/L
* 1,1,1-TRICHLOROETHANE	<	0.20 UG/L	* CARBON TETRACHLORIDE	<	0.20 UG/L
* BROMODICHLOROMETHANE	<	0.50 UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	<	[illegible] UG/L	* 1,2-DICHLOROPROPANE	<	0.20 UG/L
1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
* 1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L	1,3-DICHLOROPROPANE	NQ	
* CHLORODIBROMOMETHANE	<	1.0 UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20 UG/L
* CIS-1,3-DICHLORO-1-PROPENE	<	[illegible] UG/L	1,2-DIBROMOETHANE	<	0.50 UG/L
* 2-CHLOROETHYLVINYL ETHER	[illegible]		* [illegible]	<	1.0 UG/L
1,1,1,2-TETRACHLOROETHANE	<	[illegible] UG/L	1,2,3-TRICHLOROPROPANE	NQ	
* 1,1,2,2-TETRACHLOROETHANE	<	[illegible] UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	0.0 UG/L
PENTACHLOROETHANE	<	[illegible] UG/L	* [illegible]	<	0.50 UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	[illegible] UG/L	* 1,2-DICHLOROETHANE	<	1.0 UG/L
* 1,2-DICHLOROBENZENE	<	1.[illegible] UG/L	* 1,4-DICHLOROBENZENE	<	1.0 UG/L

" [illegible] "
" [illegible] "

MINN SOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132193
FIELD BLANK #: 132193

DATE SAMPLED: 04/24/85
DATE ANALYZED: 05/10/85
DATE PRINTED: 05/24/85

MECA-[illegible] SITE RESPONSE

RECEIVED
JUN 06 19[illegible]
MINN. POLLUTI
CONTROL AC[illegible]

NON-HALOGENATED (CODE 4[illegible])

ACETONE	<	10. UG/L	TETRAHYDROFURAN	<	5.0 UG/L
ETHYL ETHER	<	1.0 UG/L	METHYL ETHYL KETONE	<	5.0 UG/L
* BENZENE	<	0.50 UG/L	METHYL ISOBUTYL KETONE	<	1.0 UG/L
* TOLUENE	<	0.[illegible] UG/L	* ETHYL BENZENE	<	0.50 UG/L
CUMENE	<	0.50 UG/L	O-XYLENE	<	0.50 UG/L
M-XYLENE	<	0.50 UG/L	P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 4[illegible]4)

* CHLOROMETHANE	NQ		* DICHLORODIFLUOROMETHANE	NQ	
* VINYL CHLORIDE	NQ		* BROMOMETHANE	NQ	
* CHLOROETHANE	NQ		DICHLOROFLUOROMETHANE	NQ	
* METHYLENE CHLORIDE	<	1.[illegible] UG/L	* TRICHLOROFLUOROMETHANE	<	0.20 UG/L
ALLYLCHLORIDE	<	0.50 UG/L	* 1,1-DICHLOROETHYLENE	<	0.20 UG/L
* 1,1-DICHLOROETHANE	<	0.20 UG/L	* TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	* CHLOROFORM	<	0.20 UG/L
* 1,2-DICHLOROETHANE	<	0.[illegible] UG/L	DIBROMOMETHANE	<	1.0 UG/L
* 1,1,1-TRICHLOROETHANE	<	0.20 UG/L	* CARBON TETRACHLORIDE	<	0.20 UG/L
* BROMODICHLOROMETHANE	<	0.[illegible] UG/L	DICHLOROACETONITRILE	NQ	
2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	* 1,2-DICHLOROPROPANE	<	0.20 UG/L
1,1-DICHLORO-1-PROPENE	<	0.[illegible] UG/L	* TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
* 1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L	1,3-DICHLOROPROPANE	NQ	
* CHLORODIBROMOMETHANE	<	1.[illegible] UG/L	* 1,1,2-TRICHLOROETHANE	<	0.20 UG/L
* CIS-1,3-DICHLORO-1-PROPENE	<	0.[illegible] UG/L	1,[illegible]-DIBROMOETHANE	<	0.50 UG/L
* 2-CHLOROETHYLVINYL ETHER	NQ		* BROMOFORM	<	1.0 UG/L
1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L	1,2,3-TRICHLOROPROPANE	NQ	
* 1,1,2,2-TETRACHLOROETHANE	<	[illegible] UG/L	* 1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
PENTACHLOROETHANE	<	[illegible] UG/L	* CHLOROBENZENE	<	0.50 UG/L
1,1,2-TRICHLOROTRIFLUOROETHANE	<	[illegible] UG/L	* 1,3-DICHLOROBENZENE	<	1.0 UG/L
* 1,2-DICHLOROBENZENE	<	1.[illegible] UG/L	* 1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
[illegible] "PRIORITY [illegible]"

< "LESS THAN"

ACT

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No. 032
CC 761

Date Collected 4/25/85

ORGANIC CHEMISTRY UNIT

Collected By Gaw rys/Karls

WATER ANALYSES ONLY

Date Received 4-26-85

Report To Aho
Richfield

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132203	a	10	Waite Park site 8 city garage 2"	3-40 mL
132204	b	11	Waite Park #1 well of city	3-40 mL
132205	c	12	Waite Park #3 city well	3-40 mL
132206	d	13	Waite Park site #6 BBT 2"	3-40 mL
	e			

This Line for LAB SAMPLE NUMBER ONLY.		a 132203	b 132204	c 132205	d 132206	e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #: 132193						

COMPLETED
JUN 04 1985
ENVIRONMENTAL LAB

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

sample 13 - odor in well

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No. 032
CC 761
e

Date Collected Gawrys/Karls

ORGANIC CHEMISTRY UNIT

Collected By 4/25/85

WATER ANALYSES ONLY

Date Received

Report To Alo
Richfield

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132198	a	5	Waite Park Site #3S 2"	4-40 ml
132199	b	6	Waite Park Site #4 2" well BN Dopehouse	4-40 ml
132200	c	7	Waite Park Site 7 softball fields	4-40 ml
132201	d	8	Waite Park Site #1 Stearns Co Garage 2" well	4-40 ml
132202	e	9	Waite Park Site 6 Anderson Ave 2" well	2-40 ml

This Line for LAB SAMPLE NUMBER ONLY.		132198 a	132199 b	132200 c	132201 d	132202 e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #: 132193						

COMPLETED
JUN 04 1985
ENVIRONMENTAL LAB

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

ACG

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No. 032
CC 761
R

Date Collected Gawrys / Karls

ORGANIC CHEMISTRY UNIT

Collected By 4/24/85

WATER ANALYSES ONLY

Date Received 4-26-85

Report To Aho
Richfield

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132193	a		field blank	3-40 ml
132194	b	1	Waite Park site 1 Stearn Co. Garage 4"	4-40 ml
132195	c	2	Waite Park site #4 BN 4" well, Yard East	4-40 ml
132196	d	3	Waite Park site 3D W.P. wells 4"	4-40 ml
132197	e	4	Waite Park Haggerty's	4-40 ml

This Line for LAB SAMPLE NUMBER ONLY.		132193 a	132194 b	132195 c	132196 d	132197 e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #: 132193						

COMPLETED
JUN 04 1985
ENVIRONMENTAL LAB

RECEIVED
JUN 06 1985
MINN. POLLUTION CONTROL AGENCY

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132992
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/13/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE		0.70 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE		2.2 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE		3.5 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132991
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/15/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"

< "LESS THAN"

MINNESOT DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132980
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/12/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION
CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132979
FIELD BLANK #: 132978

MPCA-32 S&HW SITE RESPONSE

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/12/85
DATE PRINTED: 03/19/85

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132990
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/15/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132989
FIELD BLANK #: 132978

DATE SAMPLED: 03/06/85
DATE ANALYZED: 03/14/85
DATE PRINTED: 03/20/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
MAR 27 1985
MINN POLLUTION
CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

Appendix A

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-1

LOCATION: As determined by client

DATE: 3-26-85 **SCALE:** 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	0					Page 1 of 3
	1	SC-SM	SILTY CLAYEY SAND, fine-grained, with a trace of gravel, black, moist (Topsoil)			
	9.5	SP	SAND, fine to medium-grained, with some gravel, light brown, moist to weaterbearing at the 9½' depth (Outwash)	48		
	20	SP	SAND, medium to coarse-grained, with some gravel, light brown to brown, medium dense to very dense (Outwash)	30 159		
	23	CL	LEAN CLAY, with a trace of gravel, gray, wet, very stiff (Till) Note: Layer of fine-grained, SAND (SP),*	23		* light brown, waterbearing, encountered at 20' depth
	27	SC-SM	SILTY CLAYEY SAND, fine-grained, with a trace of gravel, grayish brown, wet, stiff (Till)	15		
	30	SM	SILTY SAND, fine-grained, with a trace of gravel, gray, wet, dense (Till)	34		
			Continued on page 2 of 3			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: S1-1 continued

LOCATION:

DATE: 3-27-85

SCALE: 1"=4'

Elev.	Depth 30	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Sheet 2 of 3
		SM	SILTY SAND, fine-grained, with a trace of gravel, gray, wet, medium dense to very dense (Till)			
				35		
				30		
				20		
				23		
				74		
	57					
		SP	SAND, very fine-grained, with a trace of gravel, grayish brown, waterbearing, very dense (Coarse Alluvium)			
	60					
				51		
			Continued on sheet 3 of 3			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION Waite Park, MN	BORING: ST-1 Continued
	LOCATION:
	DATE: 3-26-85 SCALE: 1"=4'

Elev.	Depth 60	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Sheet 3 of 3
	62	SP	SAND, very fine-grained, with a trace of gravel, grayish brown, waterbearing, very dense (Coarse Alluvium)			
	65	SP	SAND, medium to coarse-grained, with some gravel, waterbearing (Outwash)			
			End of Boring			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-3

LOCATION: As determined by client

DATE: 3-29-85 **SCALE:** 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	0					Page 1 of 3
	1	SC-SM	SILTY CLAYEY SAND, fine-grained, with a trace of gravel, black, moist (Topsoil)			
	3	SM	SILTY SAND, fine to medium-grained, with some gravel, brown, moist (Outwash)			
	8	SP	SAND, fine-grained, with a little gravel, light brown, moist, dense (Outwash)	36		
	15	SP	SAND, fine to medium-grained, with a little gravel, brown, wet to waterbearing at the 9' depth± dense to very dense (Outwash)	36		
				100*		* Sampler advanced .3' after 100 blows due to cobbles or small boulders.
		SM	SILTY SAND, fine-grained, with a trace of gravel, gray, wet, very dense to dense (Till)			
				100**		**Sampler advanced .7' after 100 blows.
				100***		*** Sampler advanced .6' after 100 blows due to cobbles or small boulders.
	30			51		
			Continued on page 2 of 3			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION Waite Park, MN	BORING: ST-3 Continued
	LOCATION:
	DATE: 3-29-85 / SCALE: 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	30					Page 2 of 3
		SM	SILTY SAND, fine-grained, with a trace of gravel, gray, wet, very dense to dense (Till)			
				44		
				100*		* Sampler advanced .8' after 100 blows.
				100**		** Sampler advanced .7' after 100 blows
			Note: Layer OF SAND (SP), fine-grained, gray, waterbearing, noted at the 50' depth	56		
	52					
		SP	SAND, very fine-grained, gray, waterbearing, very dense (Coarse Alluvium)			
				100+		+ Sampler advanced .4' after 100 blows.
	58					
		SP	SAND, fine to medium-grained, with a little gravel, gray to brown at the 85' depth, waterbearing, very dense (Outwash)			
	60			100++		++ Sampler advanced [illegible]" after 100 blows.
			Continued on sheet 3 of 3			

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: S1-3 Continued

LOCATION:

DATE: 3-26-85

SCALE: 1" = 4'

Elev.	Depth 60	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Page 3 of 3
			SAND, fine to medium-grained, with a little gravel, gray to yellowish brown at 85' depth, waterbearing, very dense (Outwash)			
				100*		* Sampler advanced .5' after 100 blows.
				100**		** Sampler advanced .4' after 100 blows.
				100***		*** Sampler advanced .8' after 100 blows.
	85.5			90		
			End of Boring			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-5

LOCATION: As determined by client

DATE: 3-27-85 **SCALE:** 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	0					Page 1 of 4
		SM	SILTY SAND, fine to medium-grained, with a little gravel, dark brown to brown, moist, dense (Possible Fill)	40		
	8					
		SM	SILTY SAND, fine-grained, with a trace of gravel, brown to gray at the 15' depth, moist, very dense (Till)	69		
				72		
				91		
	23					
		SP-SM	SAND, SLIGHTLY SILTY, very fine-grained, with a trace of gravel, grayish brown, waterbearing, dense (Coarse Alluvium) Note Layer of SAND (SP), fine to medium-grained, with a trace of gravel, gray, waterbearing encountered at the 27' depth	43		Jetting water used to clear the auger between the 25 and 50 foot depths
	28					
	30	SM	SILTY SAND, very fine grained, with a trace of gravel, gray, wet, very dense to dense (Till)	56		
			Continued on sheet 2 of 4			

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: S1-5 Continued

LOCATION:

DATE: 3-26-85 **SCALE:** 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth 30	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Page 2 of 4
		SM	SILTY SAND, very fine-grained, with a trace of gravel, gray, wet, very dense to dense (Till)			
				62		
				63		
				48		
				42		
			Note: Layer of SAND (SP), fine-grained, gray, waterbearing, encountered at the 55' depth.			
				37		
	58					
		CL	LEAN CLAY, fine-grained, with a trace of gravel, gray, wet, very dense to dense (Till)			
	60			54		
			Continued on sheet 3 of 4			

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-5 Contined

LOCATION:

DATE: 3-26-85

SCALE: 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth 60	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Page 3 of 4
			LEAN CLAY, with a trace of gravel, gray, wet, hard (lin,			
				49		
				47		
				46		
			Note: Trace of wood encountered at the 80' depth.	48		
				40		
	90					
			Continued on sheet 4 of 4	67		

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION Waite Park, MN	BORING: S1-5 Continued
	LOCATION:
	DATE: 3-26-85 / SCALE: 1"=4'

Elev.	Depth 90	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Page 4 of 4
			LEAN CLAY, with a trace of gravel, gray, wet, hard (Till)			
				32		
				61		
				57		
			Note: Trace of wood encountered at the 100, 105 and 100 foot depths.			
	110.5			68		
			End of Boring			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
W[illegible] Park, MN

BORING: ST-6A

LOCATION: As determined by client

DATE: 4-2-85

SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	0					Page 1 of 2
		SM	SILTY SAND, fine to medium-grained, with a trace of gravel, dark brown, moist (Possibly Fill)			
	3					
		SC-SM	SILTY CLAYEY SAND, fine to medium-grained, with a trace of gravel and roots, black, moist, loose (Possibly Fill)	7		
	9					
		SM	SILTY SAND, fine-grained, with a trace of gravel, brown, moist, with a layer of SAND (SP), fine to medium-grained, brown, waterbearing, medium dense (Till)	24		
	12.5					
		SM	SILTY SAND, fine-grained, with a trace of gravel, gray, moist, very dense (Till)			
				100*		* Sampler advanced .6' after 100 blows
				100**		** Sampler advanced .7' after 100 blows.
	23.5					
			SAND, fine-grained, with a trace of gravel, gray, waterbearing, (Coarse Alluvium)			Jetting water used to clear the auger between the 25 and 50' depths
	30					
			Continued on page 2 of 2	100**		** Sampler advanced .4' after 100 blows

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-6A Continued

LOCATION:

DATE: 3-26-85 **SCALE:** 1 =4

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	30					Page 2 of .
	32		SAND, fine-grained, with a trace of gravel, gray, waterbearing (Coarse Alluvium)			
	38	SP	SAND, fine to medium-grained, with a little gravel, gray, waterbearing, very dense (Outwash)	100*		
	43	SM	SILTY SAND, fine-grained, with a trace of gravel and wood, gray, moist, very dense (Till)	100**		
	48	SP	SAND, fine to medium-grained, with a trace of gravel, gray, waterbearing, very dense (Coarse Alluvium) Note 2" layer of SILTY SAND, (SM), fine-grained, with a trace of gravel at the 44½' depth	100**		**
	55.5	SP	SAND, fine-grained, with a trace of gravel, gray, waterbearing, very dense (Coarse Alluvium)	70 100***		*** Sampler advanced 4 after 100 bl s
			End of Boring			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-68

LOCATION: As determined by client

DATE: 3-26-85

SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	0		Fill, consisting primarily of SILTY SAND, (SM), with a trace of gravel and concrete rubble, black, moist, loose	8		
	8		SILTY SAND, fine-grained, with a trace of gravel, brown to gray at the 10' depth, moist, dense to very dense (Till)	43		
				100*		* Sampler advanced 7' after 100 blows.
				100**		** Sampler advanced .6' after 100 blows.
	25.5			100***		*** Sampler advanced .4' after 100 blows.
			End of Boring			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION Waite Park, MN	BORING: ST-6C
	LOCATION: As determined by client
	DATE: 4-3-85 SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	0		Fill, consisting primarily of SLIGHTLY SILTY SANDS (SP-SM), fine to medium-grained, with a trace of gravel, brown, moist, loose	6		
	8.5	SP	SAND, fine to medium-grained, with a trace of gravel, brown, waterbearing, dense (Coarse Alluvium)	47		
	12	SM	SILTY SAND, fine-grained, with a trace of gravel, brown, moist, very dense (Till)	98		
	15.5		End of Boring			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-6D

LOCATION: As determined by client

DATE: 4-3-85 **SCALE:** 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	0 .8	SM	SILTY SAND, fine-grained, with a trace of gravel, black, moist (Topsoil)			*
	7.5	SP	SAND, fine-grained, with a trace of gravel, light brown, moist, medium dense (Coarse Alluvium)	13		
	18	SP	SAND, medium-grained, with a little gravel, light brown, wet to waterbearing, medium dense to dense (Outwash) Note: Met auger refusal at the 18' depth.	26 40		
			End of Boring			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: S1-7 Continued

LOCATION:

DATE: 4-3-85

SCALE: 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	30					Page 2 of 4
	32		SILTY SAND, very fine-grained, gray, wet, very dense (Coarse Alluvium)			
		SP	SAND, fine-grained, with a trace of gravel, gray, waterbearing, very dense (Coarse Alluvium)	83		
	40			65		
		SP	SAND, fine to medium-grained, with a trace of gravel, gray, waterbearing, very dense (Outwash)	57		
				100*		* Sampler advanced .9' after 100 blows.
			Note: Layer of SILTY CLAYEY SAND (SC-SM), fine-grained, gray, encountered at the 54½ depth	61		
	60			79		
			Continued on page 3 of 4			

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION Waite Park, MN	BORING: ST-7 Continued LOCATION:
	DATE: 4-3-85 SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	60					Page 3 of 4
	62	SP	SAND, fine to medium-grained, with a trace of gravel, gray, waterbearing, very dense (Outwash)			
		CL-ML	SILTY CLAY WITH SAND, with a trace of gravel, gray, wet, hard (Till)	42		* Could not jet auger clean due to blow up. No samples 70-95' depth
			Note: Drilling was hard to easy indicating layers of SAND through the till			
	90					
			Continued on page 4 of 4			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION Waite Park, MN	BORING: S1-7 Continued
	LOCATION:
	DATE: 4-3-85 / SCALE: 1"=4'

Elev.	Depth 90	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Page 4 of 4
	95	CL-ML	SILTY CLAY with SAND, with a trace of gravel, gray, wet, hard (Till)			
			Auger met refusal at the 95' depth.			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-7

LOCATION: As determined by client

DATE: 4-3-85 **SCALE:** 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	0	SM	SILTY SAND, fine-grained, with a trace of gravel, black, moist (Topsoil)			Page 1 of 4
	1.5	SP	SAND, fine to medium-grained, with a trace of gravel, light brown, moist, dense (Outwash)	35		
	8.5	SP	SAND, medium to coarse-grained, with a little gravel, light brown to gray at the 25' depth, waterbearing, medium dense to very dense (Outwash)	18		
				14*		* Jetting water used to clear the auger between the 15 and 70' depths.
			Note: Layer of SILTY SAND (SM), fine-grained, with a trace of gravel, gray, encountered at the 20' depth	65		
				100**		** Sampler advanced .9' after 100 blows.
	28		SILTY SAND, very fine-grained, gray, wet, very dense (Coarse Alluvium)	65		
	30		Continued on Page 2 of 4			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: St-9

LOCATION: As determined by client

DATE: 4-3-85 **SCALE:** 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	0					Page 1 of 2
	1	SM	SILTY SAND, fine-grained, with a trace of gravel, black, moist (Topsoil)			
	3.5	SC-SM	SILTY CLAYEY SAND, fine-grained, with a trace of gravel, brown to dark brown, moist (Coarse Alluvium)			
			SAND, fine to medium-grained, with a trace to some gravel, brown to gray at the 15' depth, wet to waterbearing, loose to medium dense (Outwash)	13		
				5		
				13*		* Jetting water used to clear the auger between the 15 and 45' depths.
				15		
				10		
	30			11		
			Continued on page 2 of 2			

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-9 Continued

LOCATION:

DATE: 4-4-85 **SCALE:** 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	30		SAND, fine to medium-grained, with a trace to some gravel, gray, moist to waterbearing, medium dense (Outwash)	14		Page 2 of 2
	40			24		
	43	CL-ML	SILTY CLAY, WITH SAND, with a trace of gravel, brown, wet, very stiff (Till)			
	52.5	SC-SM	SILTY CLAYEY SAND, fine-grained, with a trace of gravel, gray, wet to moist, medium dense to very dense (Till)	29 69		
			Auger met refusal at the 52½' depth.			

(See Report and Standard Plates for evaluation and descriptive terminology.)

BRAUN ENGINEERING TESTING Incorporated

Services Since 1957

MINNESOTA: Minneapolis, Hibbing, St. Cloud, Rochester, St. Paul
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C G KRUSE P E
D R HAUSLER P E
G D KLUEMPKE P E
DALE R ALLEN P E
JAMES J CRAIG Jr P E

Reply To:

P.O. Box 189
St. Cloud, MN 5630
(612) 253-9940

RECEIVED
JUN 28 1985
MINN. POLLUTION CONTROL AGENCY

June 25, 1985

Minnesota Pollution Control Agency
1935 W Co. Rd. B-2
Roseville, MN 55113

Attn: Mr. Bob Karls

RE: C85-26 MONITORING WELL INSTALLATION
State Contract Bid #9325
Waite Park, MN

Mr. Karls:

Please find attached copies of the standard penetration test borings and well installation diagrams for both the 2 inch and 4 inch diameter wells recently installed at the above referenced project.

The location of the additional borings and their depths were directed by your office. It is our understanding that the surface elevations of the riser pipes for both the 2 and 4 inch diameter wells will be determined by your office.

The additional borings and wells encountered soil conditions very similar to those encountered in our previous borings. The penetration test borings were conducted utilizing 3¼ inch hollow-stem auger to advance the bore holes. The two inch diameter wells were installed utilizing 6 inch diameter hollow-stem auger. Installation of the 4 inch wells was by Donabauer Well & Pump Co. using procedures similar to those used on the prior wells.

If you have any questions regarding the soil borings or well installations completed to date, please contact us at your convience.

Very truly yours,

BRAUN ENGINEERING TESTING, INC.

George D. Kluempke, P.E.
Area Engineer/Associate

cc: Braun - Mpls.

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST- 10A

LOCATION: As staked by MPCA

DATE: 6-12-85

SCALE: 1"=4'

Elev. N.A.	Depth 0	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	2.5	CL	LEAN CLAY, with a trace of gravel, black, wet (Topsoil)			
	7.5	SP	POORLY GRADED SAND with GRAVEL, fine to medium-grained, brown, moist to wet, dense (Outwash)	39	▼	
	15.5	SP	POORLY GRADED SAND, fine-grained, with a trace of gravel, light brown, waterbearing, medium dense (Outwash)	26 17		
			Water level down 6.8' with 15' of hollow-stem auger in ground. Water level not encountered to cave-in depth of 4.8' immediately after withdrawal of auger. Boring Backfilled			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: SI-11

LOCATION: As staked by MPCA

DATE: 6-7-85

SCALE: 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev. N.A.	Depth 0	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
						Page 1 of 2
	2.5	SC-SM	SILTY CLAYEY SAND, fine-grained, with a trace of gravel, dark brown, wet (Topsoil)			
	13	SP	POORLY GRADED SAND with GRAVEL, fine to medium to medium-grained, light brown, moist to waterbearing at the 9'± depth, dense (Outwash)	44 43		
	17.5	SP	POORLY GRADED SAND, fine to medium-grained, with a trace of gravel, light brown, waterbearing, medium dense (Outwash)	15		
	27	SP	POORLY GRADED SAND with GRAVEL, medium-grained, light brown, waterbearing, dense to very dense (Outwash)	32 50/*		* Sampler advanced 0.2' after 50 blows due to cobble or boulder.
	30	SM	SILTY SAND, fine-grained, with a trace of gravel, gray, wet to moist, very dense (Till)	100/**		** Sampler advanced 0.2' after 100 blows.

Continued on page 2 of 2

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION Waite Park, MN	BORING: ST-11 Continued
	LOCATION: As staked by MPCA
	DATE: 6-7-85 SCALE: 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	30					Page 2 of 2
		SM	SILTY SAND, fine-grained, with a trace of gravel, gray, wet to moist, very dense (Till)			
				100/*		* Sampler advanced 0.4 and 0.7' after 100 blows.
				100/*		
	43					
		SP	POORLY GRADED SAND with GRAVEL, fine to medium-grained, grayish brown, water-bearing, very dense (Outwash)	53		
	50.5			100/*		
			Boring terminated upon refusal of auger of 50.5' depth.			
			Boring Backfilled			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-12

LOCATION: As staked by MPCA

DATE: 6-10-85 **SCALE:** 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev. N.A.	Depth 0	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Page 1 of 3
	1	SM	SILTY SAND, fine-grained, with a trace of gravel, dark brown, moist (Topsoil)			
		SP	POORLY GRADED SAND, fine to medium-grained, with a trace of gravel, light brown, moist to waterbearing at the 10'± depth, medium dense (Outwash)	24		
				16		
				11		
				19		Jetting water used to clear the auger between the 15 and 55 foot depth. * Sampler advanced 0.9' after 100 blows.
	24					
		SM	SILTY SAND, fine-grained, with a trace of gravel, gray, wet to moist, very dense (Till)	100/*		
	28					
		SP	POORLY GRADED SAND, medium-grained, with a trace of gravel, light brown, moist, medium dense (Outwash)	11		
	30		Continued on page 2 of 3			

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-12 Continued

LOCATION: As staked by MPCA

DATE: 6-10-85 **SCALE:** 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	30					Page 2 of 3
	34	SP	POORLY GRADED SAND, medium-grained, with a trace of gravel, light brown, moist medium dense (Outwash)			
	40	SM	SILTY SAND, fine-grained, with a trace of gravel, brown, wet, dense to very dense (Till)	100/*		* Sampler advanced 0.7' after 100 blows.
	49.5	SP	POORLY GRADED SAND, fine to medium-grained, with a trace of gravel, grayish brown, waterbearing, dense to very dense (Outwash)	33 79		
	59	SP	POORLY GRADED SAND, very fine-grained, gray, waterbearing, very dense (Coarse Alluvium)	100/** 53		** Sampler advanced 0.9' after 100 blows.
	60	SP	POORLY GRADED SAND, fine to medium-grained, with a trace of gravel, gray,+	85		+ waterbearing, very dense (Outwash)

Continued on page 3 of 3

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION Waite Park, MN	BORING: ST-12 Continued LOCATION: As staked by MPCA DATE: 6-10-85 SCALE: 1"=4'

Elev.	Depth 60	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Page 3 of 3
			POORLY GRADED SAND, fine to medium to medium-grained, with a trace of gravel, gray, waterbearing, very dense (Outwash)	100/*		* Sampler advanced 0.5' after 100 blows.
	75		No sample obtained between the 65 and 75' depth. Boring Backfilled			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-14

LOCATION:
As staked by MPCA

DATE: 6-10-85 **SCALE:** 1"=4'

(See Report and Standard Plates for evaluation and descriptive terminology.)

Elev. N.A.	Depth 0	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes Page 1 of 3
	3	SC-SM	SILTY CLAYEY SAND, fine-grained, with a trace of gravel, black, moist (Topsoil)			
	9	SP	POORLY GRADED SAND, fine-grained, with a trace of gravel, light brown, moist, loose (Outwash)	7		
	13	SP-SM	POORLY GRADED SAND with SILT and GRAVEL, fine to medium-grained, brown, water-bearing, medium dense (Outwash)	27		
		SM	SILTY SAND, fine-grained, with a trace of gravel, brown, with layers of LEAN CLAY (CL) and POORLY GRADED SAND (SP), moist, dense to very dense (Till)	100/*		* Sampler advanced 0.8' after 100 blows.
				100/**		** Sampler advanced 0.9' after 100 blows.
						Jetting water used to clear the auger between the 30 and 65' depths.
				34		
	30			61		

Continued on page 2 of 3

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-14 Continued

LOCATION: As staked by MPCA

DATE: 6-10-85 **SCALE:** 1"=4'

Elev.	Depth	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
	30					Page 2 of 3
		SM	SILTY SAND, fine-grained, with a trace of gravel, brown, with layers of LEAN CLAY (CL), and POORLY GRADED SAND (SP), moist, dense to very dense (Till)			
				100/*		* Sampler advanced 0.9' after 100 blows.
				79		
				38		
				64		
				34		
	56					
		SP	POORLY GRADED SAND, fine-grained, gray, waterbearing, dense (Coarse Alluvium)			
	60			63		
			Continued on page 3 of 3			

(See Report and Standard Plates for evaluation and descriptive terminology.)

LOG OF BORING

BRAUN ENGINEERING TESTING

PROJECT: C85-26 MONITORING WELL INSTALLATION
Waite Park, MN

BORING: ST-14 Continued

LOCATION: As staked by MPCA

DATE: 6-10-85

SCALE: 1"=4'

Elev.	Depth 60	ASTM D2487 Symbol	Description of Materials (ASTM D2488)	BPF	WL	Tests or Notes
		SP	POORLY GRADED SAND, fine-grained, gray, waterbearing, dense (Coarse Alluvium)			
	64.5					
	65.5	SC-SM	SILTY CLAYEY SAND, fine-grained, with a trace of gravel and wood, gray, wet *	34		* dense (Till)
			Boring Backfilled			

(See Report and Standard Plates for evaluation and descriptive terminology.)

BRAUN ENGINEERING TESTING

MONITORING WELL FIELD DATA SHEET

BRAUN ENVIRONMENTAL LABORATORIES

Project C85-26 Date of Installation 4-8-85 Boring MW #1

Crew JZ-MD B.M. Location USGS B.M. So. of Stearns Co. Garage Elev.(±0.01') 1048.08

Top of riser pipe (w/o cap)
Elev.(±0.01') 1049.44

Elev.(±0.01') _____

Depth to bottom of surface seal _____

Water Level Before Installation _____

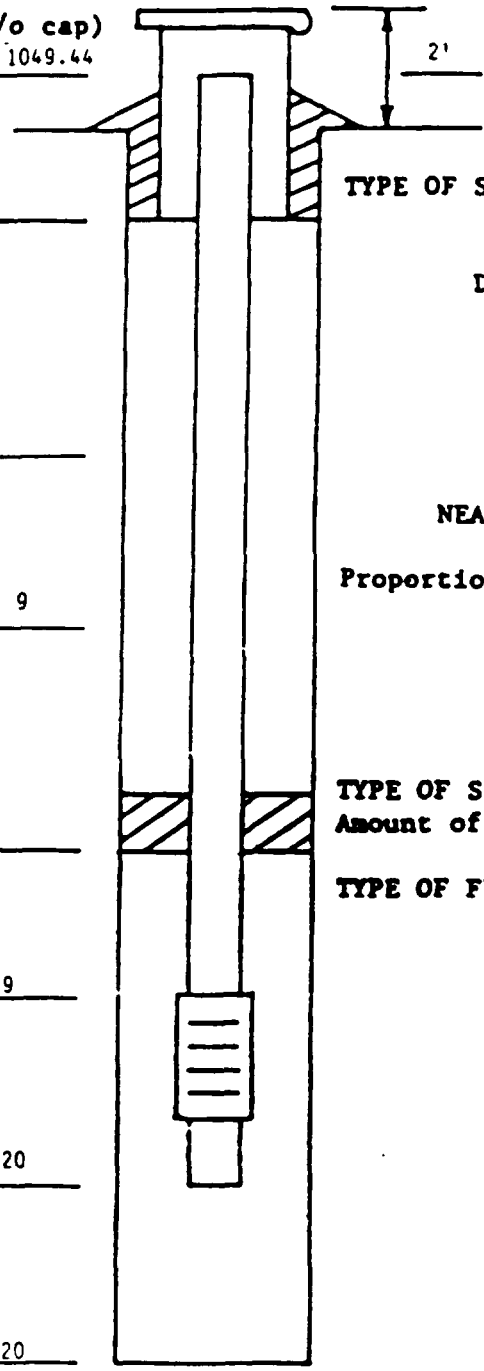
Depth to first water encountered in drilling 9

Depth to bottom of seal _____

Depth to top of screen 9

Depth to bottom of sump 20

Depth to bottom of boring 20



2' Stick up (to nearest inch)

PROTECTIVE COVER:
Type 4" Steel
Length 5'
Lock Yes MPCA

TYPE OF SEALING MATERIAL Concrete

RISER PIPE:
Diameter & Type 2" Galvanized
Total Length 12'
Sections Used 3

Couplings 2
Cap: Yes X No ____

NEAT CEMENT GROUT ABOVE SEAL

Proportions _____

TYPE OF SEALING MATERIAL _____
Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural Sands
Amount Used _____

SCREEN:
Type Stainless
Slot Size 0.010
Length 10'
Diameter 2"

Length of Sump 1'
Plug: Yes X No ____

Method of Advance:

HSA X I.D. 6¼
CASING ____ I.D. ____
TRI-CONE ____ O.D. ____

Drilling Fluid None

Method of Development: Air X
JET ____ SURGE ____ BAIL ____

REMARKS: _____

BRAUN ENGINEERING TESTING

BRAUN ENVIRONMENTAL LABORATORIES

MONITORING WELL FIELD DATA SHEET

Project C85-26 Date of Installation 4-17-85 Boring MW #2

Crew JZ/KR/JW B.M. Location USGS B.M. So. of Stearns Co. Garage Elev.(±0.01') 1048.08

Top of riser pipe (w/o cap)
Elev.(±0.01') 1054.54

Elev.(±0.01') _____

Depth to bottom of surface seal _____

Water Level Before Installation _____

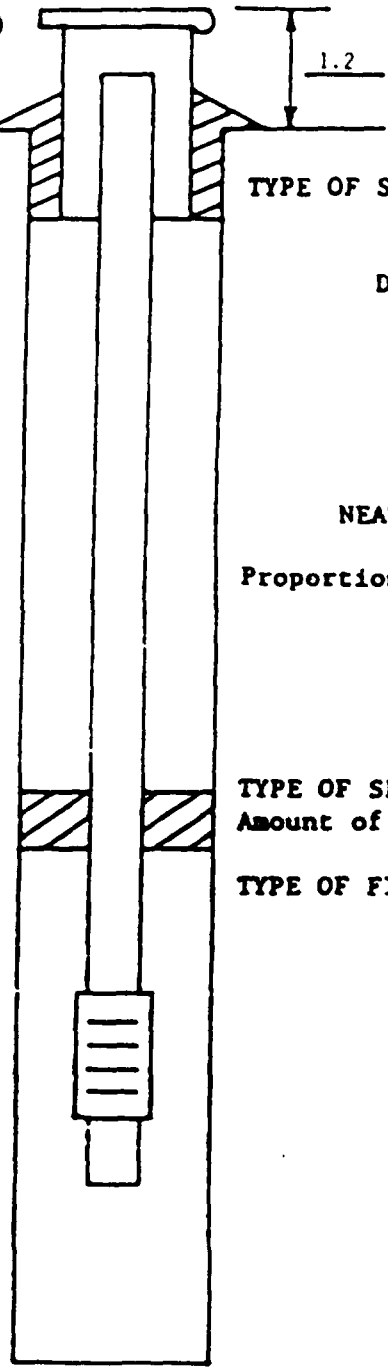
Depth to first water encountered in drilling _____

Depth to bottom of seal _____

Depth to top of screen 4.8'

Depth to bottom of sump 14.8'

Depth to bottom of boring 15'



1.2 Stick up (to nearest inch)

PROTECTIVE COVER:
Type 4" Steel
Length 5'
Lock Yes MPCA

TYPE OF SEALING MATERIAL Concrete

RISER PIPE:
Diameter & Type 2" Galvanized
Total Length 6'
Sections Used 2

Couplings 3
Cap: Yes X No ____

NEAT CEMENT GROUT ABOVE SEAL

Proportions _____

TYPE OF SEALING MATERIAL _____
Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural
Amount Used _____

SCREEN:
Type Stainless
Slot Size 0.010"
Length 10'
Diameter 2"

Length of Sump 1'
Plug: Yes X No ____

Method of Advance:

HSA X I.D. 6¼
CASING ____ I.D. ____
TRI-CONE ____ O.D. ____

Drilling Fluid _____

Method of Development: Air X
JET ____ SURGE ____ BAIL ____

REMARKS: Water level was 13.9' after installation.

BRAUN ENGINEERING TESTING

MONITORING WELL FIELD DATA SHEET

BRAUN ENVIRONMENTAL LABORATORIES

Project C85-26 Date of Installation 4-17-85 Boring MW #3

Crew JZ/KR/JW B.M. Location USGS Benchmark So. of Stearns Co. Garage Elev.(±0.01') 1048.08

Top of riser pipe (w/o cap)
Elev.(±0.01') 1050.47

Elev.(±0.01') _____

1.5' Stick up (to nearest inch)

Depth to bottom of surface seal _____

Water Level Before Installation _____

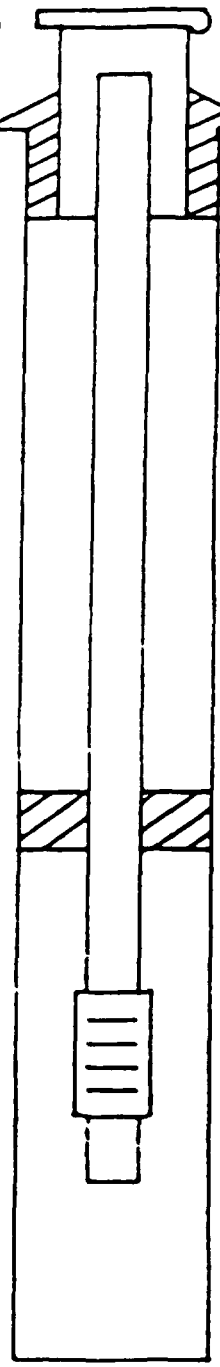
Depth to first water encountered in drilling 10'

Depth to bottom of seal _____

Depth to top of screen 4½'

Depth to bottom of sump 14½'

Depth to bottom of boring 15'



PROTECTIVE COVER:
Type 4" Steel
Length 5'
Lock Yes - MPCA

TYPE OF SEALING MATERIAL Concrete

RISER PIPE:
Diameter & Type 2" Galvanized
Total Length 6
Sections Used 2

Couplings 3
Cap: Yes X No ____

NEAT CEMENT GROUT ABOVE SEAL

Proportions _____

TYPE OF SEALING MATERIAL _____
Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural Sand
Amount Used _____

SCREEN:
Type Stainless
Slot Size 0.010
Length 10'
Diameter 2"

Length of Sump 1'
Plug: Yes X No ____

Method of Advance:

HSA X I.D. 6¼
CASING ____ I.D. ____
TRI-CONE ____ O.D. ____

Drilling Fluid _____

Method of Development: Air X
FL ____ SURGE ____ BAIL ____

REMARKS: Water level after installation was 9.7' below existing ground surface.

BRAUN ENGINEERING TESTING

MONITORING WELL FIELD DATA SHEET

BRAUN ENVIRONMENTAL LABORATORIES

Project C85-26 Date of Installation 4-17-85 Boring MW #4

Crew JZ/KR B.M. Location USGS B.M. So. of Stearns Co. Garage 304 Elev. (±0.01') 1048.08

Top of riser pipe (w/o cap)
Elev. (±0.01') 1051.20

Elev. (±0.01') _____

2.2' Stick up (to nearest inch)

Depth to bottom of surface seal _____

Water Level Before Installation _____

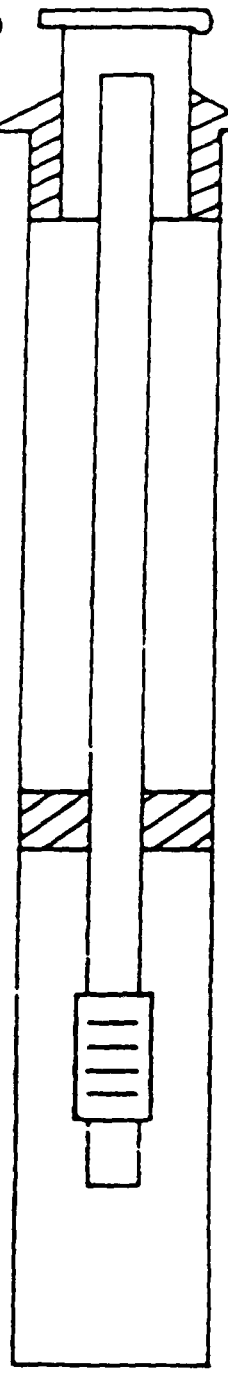
Depth to first water encountered in drilling _____

Depth to bottom of seal _____

Depth to top of screen 8.8'

Depth to bottom of sump 18.8'

Depth to bottom of boring 19'



PROTECTIVE COVER:
Type 4" Steel
Length 5'
Lock Yes - MPCA

TYPE OF SEALING MATERIAL Concrete

RISER PIPE:
Diameter & Type 2" Galvanized
Total Length 11'
Sections Used 2

Couplings 3
Cap: Yes X No _____

NEAT CEMENT GROUT ABOVE SEAL

Proportions _____

TYPE OF SEALING MATERIAL _____
Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural Sands
Amount Used _____

SCREEN:
Type Stainless
Slot Size 0.010
Length 10'
Diameter 2"

Length of Sump 1'
Plug: Yes X No _____

Method of Advance:
HSA X I.D. 6¼
CASING _____ I.D. _____
TRI-CONE _____ O.D. _____

Drilling Fluid _____

Method of Development: Air X

REMARKS: Water level after installation was 8.7' below existing ground surface.

BRAUN ENGINEERING TESTING

MONITORING WELL FIELD DATA SHEET

BRAUN ENVIRONMENTAL LABORATORIES

Project C85-26 Date of Installation 4-19-85 Boring MW #5

Crew JZ/JW B.M. Location Hydrant at 8th St. No. & Anderson Ave. Elev.(±0.01') 1047.24
City benchmark #336

Top of riser pipe (w/o cap)
Elev.(±0.01') 1050.11

Elev.(±0.01') _____

1.3' Stick up (to nearest inch)

PROTECTIVE COVER:
Type 4" Steel
Length 5'
Lock Yes - MPCA

Depth to bottom of surface seal _____

TYPE OF SEALING MATERIAL Concrete

RISER PIPE:
Diameter & Type 2" Timpco
Total Length 26'
Sections Used 5

Couplings _____
Cap: Yes X No _____

Water Level Before Installation _____

NEAT CEMENT GROUT ABOVE SEAL

Depth to first water encountered in drilling _____

Proportions _____

Depth to bottom of seal _____

TYPE OF SEALING MATERIAL _____
Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural Sands
Amount Used _____

Depth to top of screen 22.7'

SCREEN:
Type 2" Timpco
Slot Size .10
Length 5'
Diameter 2"

Depth to bottom of sump 29.7'

Length of Sump Plug: 2' Yes X No _____

Depth to bottom of Boring 30'

Method of Advance:

HSA X I.D. 6¼"
CASING _____ I.D. _____
TRI-CONE _____ O.D. _____

Drilling Fluid _____

Method of Development: Air X
SURGE BAIL

REMARKS: _____

BRAUN ENGINEERING TESTING

MONITORING WELL FIELD DATA SHEET

BRAUN ENVIRONMENTAL LABORATORIES

Project C85-26 Date of Installation 4-22-85 Boring MW #6

Crew JZ/JW B.M. Location Hydrant at 8th St. No. & Anderson Ave. City benchmark #336 Elev. (±0.01') 1047.24

Top of riser pipe (w/o cap)
Elev. (±0.01') 1046.04

Elev. (±0.01') _____

2.5' Stick up (to nearest inch)

PROTECTIVE COVER:
Type 4" Steel
Length 5'
Lock Yes - MPCA

Depth to bottom of surface seal _____

TYPE OF SEALING MATERIAL Concrete

RISER PIPE:
Diameter & Type 2" Galvanized
Total Length 26'
Sections Used 4

Couplings 4
Cap: Yes X No _____

Water Level Before Installation _____

NEAT CEMENT GROUT ABOVE SEAL

Depth to first water encountered in drilling _____

Proportions _____

Depth to bottom of seal _____

TYPE OF SEALING MATERIAL _____
Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural Sands
Amount Used _____

Depth to top of screen 22.5'

SCREEN:
Type Stainless
Slot Size 0.010"
Length 10'
Diameter 2"

Depth to bottom of sump 33.5'

Length of Sump 1'
Plug: Yes X No _____

Depth to bottom of boring 35'

Method of Advance:

HSA X I.D. 6¼"
CASING _____ I.D. _____
TRI-CONE _____ O.D. _____

Drilling Fluid _____

Method of Development: Air X
[illegible] SUPGI BAIL _____

REMARKS: _____

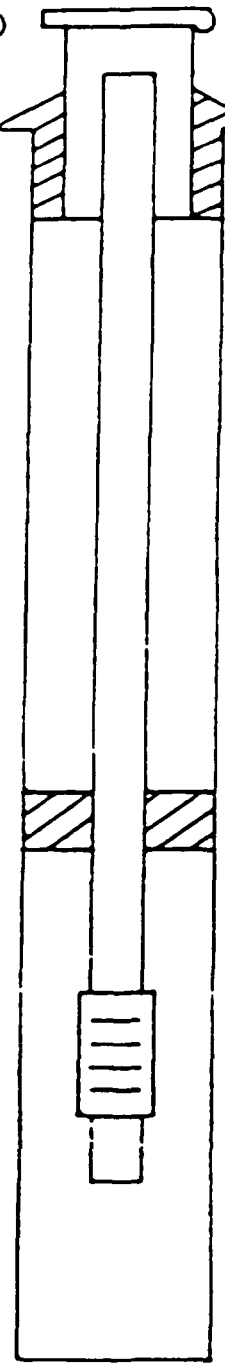
BRAUN ENGINEERING TESTING

MONITORING WELL FIELD DATA SHEET

BRAUN ENVIRONMENTAL LABORATORIES

Project C85-26 Date of Installation 4-8-85 Boring MW #7

Crew JZ/MD B.M. Location Hydrant on 54th Ave. west of DCI Elev. (±0.01') 1047.01



Top of riser pipe (w/o cap) Elev. (±0.01') 1048.93

Elev. (±0.01') _____

Depth to bottom of surface seal _____

Water Level Before Installation _____

Depth to first water encountered in drilling 8½'

Depth to bottom of seal _____

Depth to top of screen 9.2'

Depth to bottom of sump 19.2'

Depth to bottom of Boring 20'

Stick up (to nearest inch) _____

PROTECTIVE COVER:

Type 4" Steel

Length 5'

Lock Yes - MPCA

TYPE OF SEALING MATERIAL Concrete

RISER PIPE:

Diameter & Type 2" Galvanized

Total Length 11

Sections Used _____

Couplings 3

Cap: Yes X No _____

NEAT CEMENT GROUT ABOVE SEAL

Proportions _____

TYPE OF SEALING MATERIAL _____

Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural Sands

Amount Used _____

SCREEN:

Type Stainless

Slot Size 0.010"

Length 10'

Diameter 2"

Length of Sump 1'

Plug: Yes X No _____

Method of Advance:

HSA X I.D. 6¼"

CASING _____ I.D. _____

TRI-CONE _____ O.D. _____

Drilling Fluid _____

Method of Development: Air X

JET _____ SURGE BAIL _____

REMARKS: _____

BRAUN ENGINEERING TESTING

MONITORING WELL FIELD DATA SHEET

BRAUN ENVIRONMENTAL LABORATORIES

Project C85-26 Date of Installation 4-17-85 Boring M.W. #8

Crew JZ/KR/JW B.M. Location Spike in 15" tree No. of City Garage Elev. (±0.01') 1068.89
Benchmark set by City Engr.

Top of riser pipe (w/o cap)
Elev. (±0.01') 1068.68
Elev. (±0.01') _____

1.0' Stick up (to nearest inch)

Depth to bottom of surface seal _____

Water Level Before Installation _____

Depth to first water encountered in drilling 5' Approx.

Depth to bottom of seal _____

Depth to top of screen 5'

Depth to bottom of sump 15'

Depth to bottom of Boring 15'

PROTECTIVE COVER:
Type 4" Steel
Length 5'
Lock Yes - MPCA

TYPE OF SEALING MATERIAL Concrete

RISER PIPE:
Diameter & Type 2" Galvanized
Total Length 6'
Sections Used 2

Couplings 3
Cap: Yes X No _____

NEAT CEMENT GROUT ABOVE SEAL

Proportions _____

TYPE OF SEALING MATERIAL _____
Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural Sands
Amount Used _____

SCREEN:
Type Stainless
Slot Size 0.010
Length 10'
Diameter 2"

Length of Sump 1'
Plug: Yes X No _____

Method of Advance:

HSA X I.D. 6¼"
CASING _____ I.D. _____
TRI-CONE _____ O.D. _____

Drilling Fluid _____

Method of Development: Air X

REMARKS: Water level after installation was 4.6' below existing ground surface. There was gray SILTY CLAYEY SAND TILL on last 1½' of lead auger after pulling it.

BRAUN ENGINEERING TESTING

MONITORING WELL FIELD DATA SHEET

BRAUN ENVIRONMENTAL LABORATORIES

Project 85-26 Date of Installation 6-14-85 Boring Well #10

Crew JZ/MD B.M. Location N.A. Elev.(±0.01') N.A.

Top of riser pipe (w/o cap)
Elev.(±0.01') N.A.

Elev.(±0.01')

2.0' Stick up (to nearest inch)

PROTECTIVE COVER:
Type Steel
Length 5'
Lock MPCA

Depth to bottom of surface seal 2½'

TYPE OF SEALING MATERIAL CEMENT-SAKRETE

RISER PIPE:
Diameter & Type 2" Galvanized
Total Length 11'
Sections Used 2
1-1' 1-10'
Couplings
Cap: Yes X No

Water Level Before Installation

NEAT CEMENT GROUT ABOVE SEAL

Proportions Concrete Grout from 6' depth

Depth to first water encountered in drilling 8'

Depth to bottom of seal

TYPE OF SEALING MATERIAL N.A.
Amount of Material Used

TYPE OF FILTER MATERIAL Natural Sands
Amount Used

Depth to top of screen 8'

SCREEN:
Type Stainless Steel
Slot Size 0.10
Length 10'
Diameter 2"

Depth to bottom of sump 19'

Length of Sump 1'
Plug: Yes X No

Depth to bottom of boring 20'

Method of Advance:

HSA X I.D. 6"
CASING I.D.
TRI-CONE O.D.

Drilling Fluid

Method of Development: Air
JET SURGE BAIL X

REMARKS: Installed well #10 19.0' below existing ground surface with 2.0' stick up/water level after installation was 9.5' below top

BRAUN ENGINEERING TESTING

BRAUN ENVIRONMENTAL LABORATORIES

MONITORING WELL FIELD DATA SHEET

Project C85-26 Date of Installation 6-13-85 Boring Well #15

Crew JZ/MD B.M. Location _____ Elev.(±0.01') _____

Top of riser pipe (w/o cap)
Elev.(±0.01') N.A.
Elev.(±0.01') _____

1.7' Stick up (to nearest inch)

PROTECTIVE COVER:
Type Steel
Length 5'
Lock MPCA

Depth to bottom of surface seal 3'

TYPE OF SEALING MATERIAL Concrete

RISER PIPE:
Diameter & Type 2" Galvanized
Total Length 11'
Sections Used 3
1-1' 2-5'
Couplings 2
Cap: Yes X No _____

Water Level Before Installation _____

NEAT CEMENT GROUT ABOVE SEAL

Depth to first water encountered in drilling 10½'

Proportions Concrete grout from 6' depth

Depth to bottom of seal _____

TYPE OF SEALING MATERIAL _____
Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural Sands
Amount Used _____

Depth to top of screen 8.3'

SCREEN:
Type Stainless Steel
Slot Size .010
Length 10'
Diameter 2"

Depth to bottom of sump 19.3'

Length of Sump 1'
Plug: Yes X No _____

Depth to bottom of boring 20'

Method of Advance:
SA X I.D. 6"
ASING _____ I.D. _____
RI-CONE _____ O.D. _____

Drilling Fluid _____

Method of Development: Air

REMARKS: _____

BRAUN ENGINEERING TESTING

BRAUN ENVIRONMENTAL LABORATORIES

MONITORING WELL FIELD DATA SHEET

Project C85-26 Date of Installation 6-14-85 Boring Well #16

Crew JZ/MD B.M. Location _____ Elev.(±0.01') N.A.

Top of riser pipe (w/o cap)
Elev.(±0.01') N.A.
Elev.(±0.01') _____

1.7' Stick up (to nearest inch)

Depth to bottom of surface seal 3'

Water Level Before Installation _____

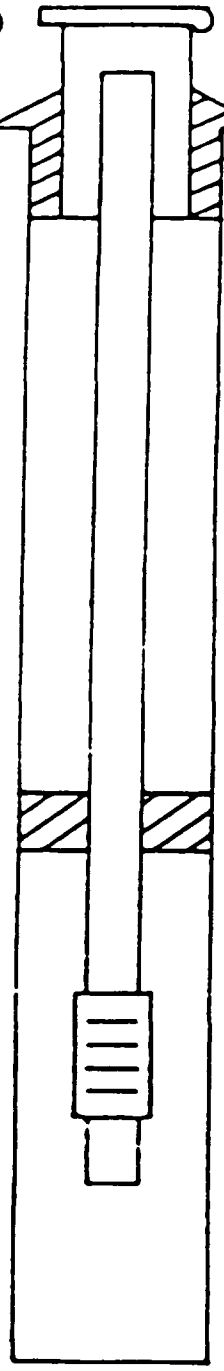
Depth to first water encountered in drilling 9'

Depth to bottom of seal _____

Depth to top of screen 8.3'

Depth to bottom of sump 19.3'

Depth to bottom of boring 20'



PROTECTIVE COVER:
Type Steel
Length 5'
Lock MPCA

TYPE OF SEALING MATERIAL Cement Sakrete

RISER PIPE:
Diameter & Type 2" Galvanized
Total Length 11'
Sections Used 3
205' 1-1'
Couplings 1
Cap: Yes X No _____

NEAT CEMENT GROUT ABOVE SEAL

Proportions Concrete grout

TYPE OF SEALING MATERIAL N.A.
Amount of Material Used _____

TYPE OF FILTER MATERIAL Natural Sands
Amount Used _____

SCREEN:
Type Stainless Steel
Slot Size .010
Length 10'
Diameter 2"

Length of Sump 1'
Plug: Yes X No _____

Method of Advance:
ISA X I.D. 6"
ASING _____ I.D. _____
RI-CONE _____ O.D. _____

rilling Fluid _____

thod of Development: Air _____
SURGE BAIL X

REMARKS: _____

WATER WELL RECORD

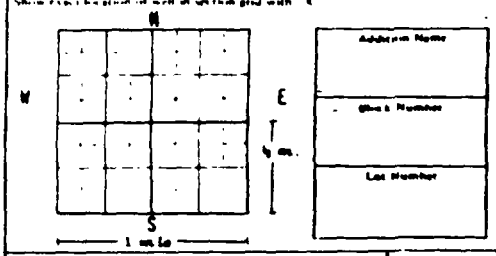
Stearns

Township Name	Township Number	Range Number	Section No.
St. Cloud	124N	28W	9

Distance and Direction from Road Intersections (Street Address and City of Well Location)

Site #1 City of Waite Park-Monitoring Wells

Show exact location of well in section grid with X



Sketch map of well location

2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Topsoil	Black	Soft	0'	1'
Clay & Sand mixed	Brown	Soft	1'	23'
Clay	Gray	Soft	23'	38'
Sand & Gravel	Brown	Soft	38'	78'

Use a second sheet if needed

15 REMARKS ELEVATION SOURCE OF DATA etc

Top of Riser Pipe = 1049.59

1 PROPERTY OWNER'S NAME

Address Braun Engineering
St. Cloud, Mn. 56301

4 WELL DEPTH (completed) 78' ft

Date of Completion 4/11/85

5 1 Cable tool 4 Reverse 7 Driven 10 Dug
2 Hollow rod 5 Air 8 Bored 11 ____
3 Rotary 6 Jetted 9 Power Auger

6 USE
1 Domestic 4 Public Supply 7 Industry
2 Irrigation 5 Municipal 8 Commercial
X Test Well 6 Air Conditioning 9

7 CASING
X Black 4 Threaded
2 Galv 5 X Welded
3 Plastic 6

HEIGHT Above/Below
Surface ____ ft
Drive Shoe* Yes ____ No ____
____ in to ____ ft Weight ____ lbs/ft
____ in to ____ ft Weight ____ lbs/ft
____ in to ____ ft Weight ____ lbs/ft

HOLE DIAM
____ in to ____ ft
____ in to ____ ft
____ in to ____ ft

8 SCREEN
Make Johnson
Or open hole from ____ ft to ____ ft
Type Stainless Steel Dia 4"
Slot/Gauze 10 Length 10'
FITTINGS
Set between 68 ft and 78 ft
____ ft and ____ ft

9 STATIC WATER LEVEL
12 ft X below land surface ☐ above Date Measured 3/29/85

10 PUMPING LEVEL (below land surface)
20 ft after 10 hrs pumping 20 g.p.m.
____ ft after ____ hrs pumping ____ g.p.m.

11 WELL HEAD COMPLETION
1 Pitless adapter manufacturer ____ model ____
2 Basement offset 3 At least 12" above grade

12 WELL GROUTED*
X Yes ☐ No
1 X Neat Cement 2 Bentonite 3 ____
Grout material Cement from 0 to 50 ft Cu Yds 3/4

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
____ feet ____ direction ____ type
Well disinfected upon completion* Yes ☐ No ☐

14 PUMP
Date installed ____ ☐ Not installed
Manufacturer's Name ____
Model Number ____ HP ____ Volts ____
Length of drop pipe ____ ft capacity ____ g.p.m.
Material of drop pipe ____
Type 1 Submersible 3 L.S. Turbine 5 Reciprocating
2 Jet 4 Centrifugal 6 ____

16 WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. 73061
Licensee Business Name License No.

Address Rte 2 St. Joseph, Mn. 56374

Signed ____ Date ____
Authorized Representative

Galen Donabauer Date 4/11/85
Name of Driller

WATER WELL RECORD

Stearns

Township Name	Township Number	Range Number	Section Number
St. Cloud	124N	28W	9

Site #2 City of Waite Park-Monitoring Wells

Show exact location of well in section grid with X

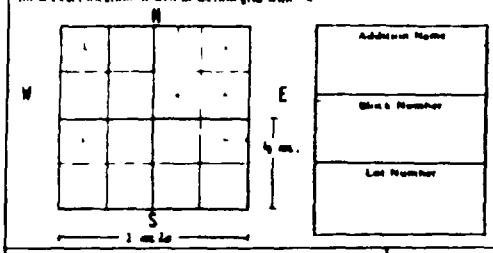
Sketch map of well location

N W E S

Addition Name

Block Number

Lot Number



2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Topsoil	Black	Soft	0'	1'
Sand	Brown	Hard	1'	19'
Hardpan	Gray	Hard	19'	54'
Sand	Gray	Hard	54'	71'
Sand	Brown	Soft	71'	73'

Use a second sheet if needed

15 REMARKS ELEVATION SOURCE OF DATA etc

Top of Riser Pipe = 1054.60

3 PROPERTY OWNER'S NAME

Address Braun Engineering
St. Cloud, Mn. 56301

4 WELL DEPTH (completed) 73' ft

Date of Completion 3/27/85

5 [X] Cable tool [ ] Reverse [ ] Driven [ ] Dug [ ] Hollow rod [ ] Air [ ] Bored [ ] [ ] Rotary [ ] Jetted [ ] Power Auger

6 USE [ ] Domestic [ ] Public Supply [ ] Industry [ ] Irrigation [ ] Municipal [ ] Commercial [X] Test Well [ ] Air Conditioning [ ]

7 CASING [X] Black [ ] Threaded [ ] Galv [ ] Welded [ ] Plastic [ ]

HEIGHT Above/Below Surface ft Drive Shoe? Yes No

HOLE DIAM

8 in to 24 ft Weight lbs/ft

4 in to 73 ft Weight lbs/ft

in to ft Weight lbs/ft

in to ft

8 SCREEN Make Johnson

Or open hole from ft to ft

Type Stainless Steel Dia 4"

Slot/Gauze 10 Length 10'

FITTINGS

Set between 63 ft and 73 ft

ft and ft

9 STATIC WATER LEVEL 14 ft [X] below land surface [ ] above Date Measured 3/27/85

10 PUMPING LEVEL (below land surface) 20 ft after 1 hrs pumping 20 g.p.m.

ft after hrs pumping g.p.m.

11 WELL HEAD COMPLETION [ ] Pitless adapter manufacturer model [ ] Basement offset [ ] At least 12" above grade

12 WELL GROUTED? [X] Yes [ ] No

[X] Neat Cement [ ] Bentonite [ ]

Grout material Cement from 1 to 50 ft Cu. Yds 3/4

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION

feet direction type

Well disinfected upon completion? Yes [ ] No [ ]

14 PUMP

Date installed [ ] Not installed

Manufacturer's Name

Model Number HP Volts

Length of drop pipe ft capacity g.p.m.

Material of drop pipe

Type [ ] Submersible [ ] U.S. Turbine [ ] Reciprocating [ ] Jet [ ] Centrifugal [ ]

16 WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. 73061

Licensee Business Name License No.

Address Rte 2 St. Joseph, Mn. 56374

Signed Date

Authorized Representative

Quentin Donabauer Date 3/27/85

Name of Driller

Stearns

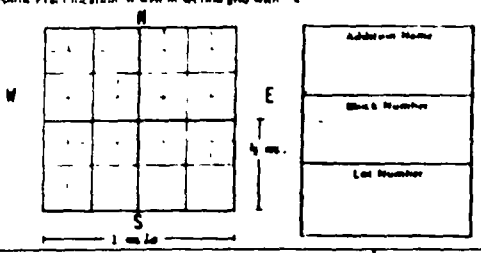
WATER WELL RECORD

County Name	Township Number	Range Number	Section
St. Cloud	124N	28W	9

Distance and Direction from Road Intersections, Street Address and City of Well Location

Site #3 City of Waite Park-Monitoring Wells

Show exact location of well in section grid with X



2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Topsoil	Black	Soft	0'	1'
Rocks, Sand & Gravel	Brown	Hard	1'	26'
Clay	Gray	Soft	26'	38'
Sand & Gravel	Brown	Soft	38'	80'

Use a second sheet if needed

15 REMARKS, ELEVATION, SOURCE OF DATA, etc.

Top of Riser Pipe = 1050.68

3 PROPERTY OWNER'S NAME

Address: Braun Engineering
St. Cloud, Mn. 56301

4 WELL DEPTH (completed): 80' ft

Date of Completion: 4/11/85

5 1 Cable tool 4 Reverse 7 Driven 10 Dug
2 Hollow rod 5 Air 8 Bored 11
3 X Rotary 6 Jetted 9 Power Auger

6 USE
1 Domestic 4 Public Supply 7 Industry
2 Irrigation 5 Municipal 8 Commercial
3 X Test Well 6 Air Conditioning 9

7 CASING
1 X Black 4 Threaded
2 Galv 5 X Welded
3 Plastic 6

HEIGHT Above/Below
Surface ft
Drive Shoe* Yes No
in to ft Weight lbs/ft
in to ft Weight lbs/ft
in to ft Weight lbs/ft

HOLE DIAM
in to ft
in to
in to ft

8 SCREEN
Make Johnson
Type Stainless Steel Dia 4"
Slot/Gauze 10 Length 10
Set between 70 ft and 80 ft
ft and ft

Or open hole from ft to ft

FITTINGS

9 STATIC WATER LEVEL
ft below land surface above Date Measured

10 PUMPING LEVEL (below land surface)
ft after hrs pumping g.p.m.
ft after hrs pumping g.p.m.

11 WELL HEAD COMPLETION
1 Pitless adapter manufacturer model
2 Basement offset 3 At least 18" above grade

12 WELL GROUTED*
X Yes No
1 X Neat Cement 2 Bentonite 3

Grout material Cement from 0 to 50 ft Cu Yds 3/4

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
feet direction type
Well disinfected upon completion* Yes No

14 PUMP
Date installed Not installed
Manufacturer's Name
Model Number HP Volts
Length of drop pipe ft capacity g.p.m.
Material of drop pipe
Type 1 Submersible 3 L.S. Turbine 5 Reciprocating
2 Jet 4 Centrifugal 6

16 WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. 73061
Licensee Business Name License No.

Address Rte 2 St. Joseph, Mn. 56374

Signed Date
Authorized Representative

Galen Donabauer Date 4/11/85
Name of Driller

WATER WELL RECORD

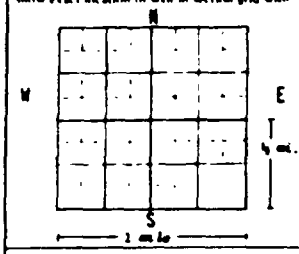
Stearns

Township Name	Township Number	Range Number	Section No.	Location
St. Cloud	124N	28W	9	

Distance and Direction from Road Intersections or Street Address and City of Well Location

Site #4 City of Waite Park-Monitoring Wells

Show exact location of well in section grid with X



Sketch map of well location

Addition Name

Block Number

Lot Number

2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Sand	Brown	Soft	0'	27'
Clay	Gray	Hard	27'	33'
Sand	Gray	Soft	33'	52'
Sand & Gravel	Brown	Soft	52'	68'

Use a second sheet if needed

15 REMARKS ELEVATION SOURCE OF DATA etc

Top of Riser Pipe = 1051.66

WORK COPY

1 PROPERTY OWNER'S NAME

Address: Braun Engineering
St. Cloud, Mn. 56301

4 WELL DEPTH (completed): 68' ft

Date of Completion: 4/2/85

5 1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☐
3☐ Rotary 6☐ Jetted 9☐ Power Auger

6 USE
1☐ Domestic 4☐ Public Supply 7☐ Industry
2☐ Irrigation 5☐ Municipal 8☐ Commercial
3☒ Test Well 6☐ Air Conditioning 9☐

7 CASING
1☒ Black 4☐ Threaded
2☐ Galv 5☐ Welded
3☐ Plastic 6☐

HEIGHT Above/Below
Surface ____ ft
Drive Shoe* Yes ____ No ____
____ in to ____ ft Weight ____ lbs/ft
____ in to ____ ft Weight ____ lbs/ft
____ in to ____ ft Weight ____ lbs/ft

HOLE DIAM
____ in to ____ ft
____ in to ____ ft
____ in to ____ ft

8 SCREEN
Make ____
Or open hole from ____ ft to ____ ft
Type ____ Dia ____
Slot/Gauze ____ Length ____
FITTINGS
Set between ____ ft and ____ ft
____ ft and ____ ft

9 STATIC WATER LEVEL
10 ft ☒ below land surface ☐ above
Date Measured 4/2/85

10 PUMPING LEVEL (below land surface)
20 ft after 1 hrs pumping 20 g.p.m.
____ ft after ____ hrs pumping ____ g.p.m.

11 WELL HEAD COMPLETION
1☐ Pitless adapter manufacturer ____ model ____
2☐ Basement offset 3☐ At least 12" above grade

12 WELL GROUTED*
☒ Yes ☐ No
1☒ Neat Cement 2☐ Bentonite 3☐
Grout material Cement from 0 to 50 ft Cu Yds 3/4

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
____ feet ____ direction ____ type
Well disinfected upon completion* Yes☐ No☐

14 PUMP
Date installed ____ ☐ Not installed
Manufacturer's Name ____
Model Number ____ HP ____ Volts ____
Length of drop pipe ____ ft capacity ____ g.p.m.
Material of drop pipe ____
Type 1☐ Submersible 3☐ L S Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐

16 WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. 73061
Licensee Business Name Licensee No.

Address Rte 2 St. Joseph, Mn. 56374

Signed ____ Date ____
Authorized Representative

Galen Donabauer Date 4/2/85
Name of Driller

County Name: Stearns

WATER WELL RECORD

Minnesota Statutes 156A.01-.10

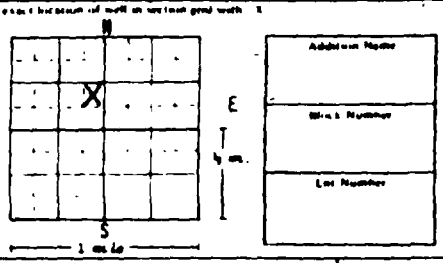
Unique Well No. for Water Sample: 4

Township Name: St. Cloud | Township Number: 124N | Range Number: 28W | Section No.: 8 | Fraction: ' ' '

Distance and Direction from Road Intersections or Street Address and City of Well Location

N. of Railway in Waite Park Site#11 Shallow Hole

Show exact location of well in section grid with X. Sketch map of well location.



2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Sand & Gravel	Brown	Soft	0'	25'

Use a second sheet if needed

15 REMARKS ELEVATION SOURCE OF DATA etc

3 PROPERTY OWNER'S NAME: Braun Engineering

Address: 1520 24th Ave. N.
St. Cloud, Mn. 56301

4 WELL DEPTH (completed): 25' ft | Date of Completion: 6/17/85

5 [1] Cable tool [2] Hollow rod [3] X Rotary [4] Reverse [5] Air [6] Jetted [7] Driven [8] Bored [9] Power Auger [10] Dug [11]

6 USE: [1] Domestic [2] Irrigation [3] X Test Well [4] Public Supply [5] Municipal [6] Air Conditioning [7] Industry [8] Commercial [9]

7 CASING: [1] X Black [2] Galv. [3] Plastic [4] Threaded [5] X Welded [6]

HEIGHT Above/Below: Surface ____ ft; Drive Shoe? Yes ____ No ____

____ in. to ____ ft Weight ____ lbs/ft

____ in. to ____ ft Weight ____ lbs/ft

____ in. to ____ ft Weight ____ lbs/ft

HOLE DIAM: ____ in. to ____ ft; ____ in. to ____ ft; ____ in. to ____ ft

8 SCREEN: Make Johnson; Type Stainless Steel; Dia 4"; Slot/Gauze 10; Length 5'; Set between 21 ft and 25 ft; ____ ft and ____ ft

Or open hole from ____ ft to ____ ft

FITTINGS

9 STATIC WATER LEVEL: ____ ft [below] [above] land surface; Date Measured ____

10 PUMPING LEVEL (below land surface): ____ ft after ____ hrs pumping 5 g.p.m.; ____ ft after ____ hrs pumping ____ g.p.m.

11 WELL HEAD COMPLETION: [1] Pitless adapter manufacturer ____ model ____; [2] Basement offset; [3] At least 12" above grade

12 WELL GROUTED: [Yes] [X No]; [1] Neat Cement [2] Bentonite [3]; Grout material ____ from ____ to ____ ft. Cu. Yds. ____

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION: ____ feet ____ direction ____ type

Well disinfected upon completion? Yes [ ] No [ ]

14 PUMP: Date installed ____ [Not installed]

Manufacturer's Name ____

Model Number ____ HP ____ Volts ____

Length of drop pipe ____ ft capacity ____ g.p.m.

Material of drop pipe ____

Type: [1] Submersible [2] L. S. Turbine [3] Reciprocating [4] Jet [5] Centrifugal [6]

16 WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Dinabauer Well & Pump Co. — License Business Name — License No. 73061

Address: Rte 2 St. Joseph, Mn. 56374

Signed ____ Date ____
Authorized Representative

WATER WELL RECORD

Minnesota Statutes 1964 [illegible]

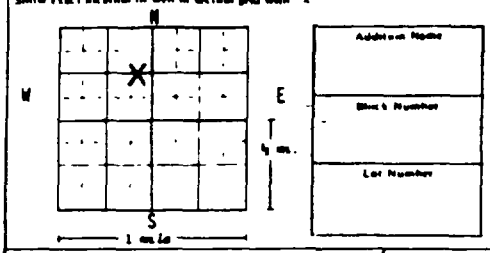
for Water Sample

County Name: Stearns

Township Name	Township Number	Range Number	Section No.	Fraction
St. Cloud	124N	28W	8	

Distance and Direction from Road Intersections or Street Address and City of Well Location: North of Railway in Waite Park Site #11 Deep Hole

Show exact location of well in section grid with X — Sketch map of well location



2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Sand & Gravel	Brown	Soft	0'	27'
Clay	Gray	Soft	27'	45'
Sand & Gravel	Brown	Hard	45'	56'

Use a second sheet if needed

3 PROPERTY OWNER'S NAME

Address: Braun Engineering
1520 24th Ave. N
St. Cloud, Mn. 56301

4 WELL DEPTH (completed): 56' ft — Date of Completion: 6/17/85

5 1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☒ Air 8☐ Bored 11☐
☒ Rotary 6☐ Jetted 9☐ Power Auger

6 USE
1☐ Domestic 4☐ Public Supply 7☐ Industry
2☐ Irrigation 5☐ Municipal 8☐ Commercial
☒ Test Well 6☐ Air Conditioning 9☐

7 CASING
☒ Black 4☐ Threaded
2☐ Galv ☒ Welded
3☐ Plastic 6☐

HEIGHT Above/Below: Surface 1' Above ft — Drive Shoe? Yes ☐ No X

HOLE DIAM

X in to ___ ft Weight ___ lbs/ft — ___ in to 56 ft
8 in to 27 ft Weight ___ lbs/ft — ___ in to ___ ft
4 in to 56 ft Weight 11 lbs/ft — ___ in to ___ ft

8 SCREEN
Make: Johnson — Or open hole from ___ ft to ___ ft
Type: Stainless Steel — Dia: 4"
Slot/Gauze: 10 — Length: 10'
Set between 46 ft and 56 ft — FITTINGS
___ ft and ___ ft

9 STATIC WATER LEVEL
___ ft ☐ below ☐ above land surface — Date Measured ___

10 PUMPING LEVEL (below land surface)
___ ft after ___ hrs pumping 20 g.p.m.
___ ft after ___ hrs pumping ___ g.p.m.

11 WELL HEAD COMPLETION
1☐ Pitless adapter manufacturer ___ model ___
2☐ Basement offset 3☒ At least 12" above grade

12 WELL GROUTED?
☒ Yes ☐ No
1☐ Neat Cement 2☐ Bentonite 3☐ ___
Grout material: Cement from 0 to 50 ft Cu Yds 1

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
___ feet ___ direction ___ type
Well disinfected upon completion? Yes☐ No☐

14 PUMP
Date installed ___ ☐ Not installed
Manufacturer's Name ___
Model Number ___ HP ___ Volts ___
Length of drop pipe ___ ft capacity ___ g.p.m.
Material of drop pipe ___
Type 1☐ Submersible 3☐ L.S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐ ___

15 REMARKS ELEVATION SOURCE OF DATA etc

16 WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. — 73061
Licensee Business Name — License No.

Address: Route 2 St. Joseph, Mn. 56374

Signed ___ Date ___
Authorized Representative

Galen Donabauer — Date 6/17/85
Name of Driller

IMPORTANT
FILE WITH DEED WELL OWNER COPY

WATER WELL RECORD

Minnesota Statutes 1964, 11, 105

MINNESOTA UNIQUE WELL NO. 41[illegible]

for Water Sample

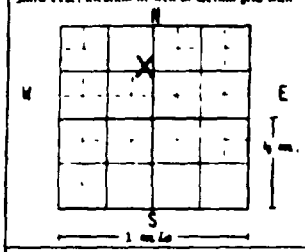
County Name: Stearns

Township Name	Township Number	Range Number	Section No.	Fraction
St. Cloud	124N	28W	8	

Distance and Direction from Road Intersections or Street Address and City of Well Location: Waite Park Site #12 Shallow Hole

Show exact location of well in section grid with X

Sketch map of well location



Addition Name

Block Number

Lot Number

2. FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Sand & Gravel	Brown	Soft	0'	24'

Use a second sheet if needed

15. REMARKS, ELEVATION, SOURCE OF DATA, etc.

IMPORTANT

3. PROPERTY OWNER'S NAME

Address: Braun Engineering
1520 24th Ave. N.
St. Cloud, Mn. 56301

4. WELL DEPTH (completed): 24' ft

Date of Completion: 6/17/85

5. 1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☐ _____
X Rotary 6☐ Jetted 9☐ Power Auger

6. USE
1☐ Domestic 4☐ Public Supply 7☐ Industry
2☐ Irrigation 5☐ Municipal 8☐ Commercial
X Test Well 6☐ Air Conditioning 9☐

7. CASING
X Black 4☐ Threaded
2☐ Galv. X Welded
3☐ Plastic 6☐

HEIGHT Above/Below
Surface 1' Above ft
Drive Shoe? Yes ___ No X

HOLE DIAM.

___ in. to ___ ft Weight ___ lbs./ft
___ in. to ___ ft Weight ___ lbs./ft
___ in. to ___ ft Weight ___ lbs./ft

___ in. to ___ ft
___ in. to ___ ft
___ in. to ___ ft

8. SCREEN
Make Johnson
Type Stainless Steel Dia. 4"
Slot/Gauze 10 Length 5' FITTINGS
Set between 19 ft and 24 ft
___ ft and ___ ft

Or open hole from ___ ft to ___ ft

9. STATIC WATER LEVEL
___ ft ☐ below land surface ☐ above Date Measured ___

10. PUMPING LEVEL (below land surface)
___ ft after ___ hrs. pumping 10 g.p.m.
___ ft after ___ hrs. pumping ___ g.p.m.

11. WELL HEAD COMPLETION
1☐ Pitless adapter manufacturer ___ model ___
2☐ Basement offset 3☐ At least 12" above grade

12. WELL GROUTED?
☐ Yes X No
1☐ Neat Cement 2☐ Bentonite 3☐ _____
Grout material ___ from ___ to ___ ft. Cu. Yds. ___

13. NEAREST SOURCES OF POSSIBLE CONTAMINATION
___ feet ___ direction ___ type
Well disinfected upon completion? Yes☐ No☐

14. PUMP
Date installed ___ ☐ Not installed
Manufacturer's Name ___
Model Number ___ HP ___ Volts ___
Length of drop pipe ___ ft. capacity ___ g.p.m.
Material of drop pipe ___
Type 1☐ Submersible 3☐ L. S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐ _____

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Donabauer Well & Pump Co. 73061
Licensee Business Name License No.

Address: Route 2 St. Joseph, Mn. 56374

Signed ___ Date ___
Authorized Representative

Galen Donabauer Date 6/17/85
Name of Driller

County Name: Stearns

WATER WELL RECORD

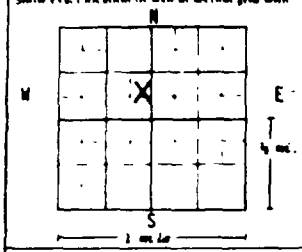
Minnesota Statutes 1964 [illegible]

MISS [illegible] SIGNIFY WELL NO. for Water Sample: 4[illegible]

Township Name	Township Number	Range Number	Section No.	Fraction
St. Cloud	124N	28W	8	

Distance and Direction from Road Intersections or Street Address and City of Well Location: Waite Park, Mn. Site #12 Deep Hole

Show exact location of well in section grid with X



Sketch map of well location

Addition Name
Block Number
Lot Number

2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Sand & Gravel	Brown	Soft	0'	24'
Sandy Clay	Gray	Soft	24'	40'
Sand & Gravel	Brown	Soft	40'	75'

Use a second sheet, if needed

3 PROPERTY OWNER'S NAME

Address: Braun Engineering
1520 24th Ave. N.
St. Cloud, Mn. 56301

4 WELL DEPTH (completed): 75' ft

Date of Completion: 6/18/85

5 1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☐
3☒ Rotary 6☐ Jetted 9☐ Power Auger

6 USE
1☐ Domestic 4☐ Public Supply 7☐ Industry
2☐ Irrigation 5☐ Municipal 8☐ Commercial
3☒ Test Well 6☐ Air Conditioning 9☐

7 CASING
1☒ Black 4☐ Threaded
2☐ Galv 5☐ Welded
3☐ Plastic 6☐

HEIGHT Above/Below
Surface ____ ft
Drive Shoe* Yes ___ No X

HOLE DIAM
___ in to ___ ft
___ in to ___ ft
___ in to ___ ft

8 SCREEN
Make Johnson
Type Stainless Steel
Dia 4"
Slot/Gauze 10
Length 10' FITTINGS
Set between 65 ft and 75 ft
___ ft and ___ ft

Or open hole from ___ ft to ___ ft

9 STATIC WATER LEVEL
___ ft ☐ below ☐ above land surface
Date Measured ___

10 PUMPING LEVEL (below land surface)
___ ft after ___ hrs pumping 20 g.p.m.
___ ft after ___ hrs pumping ___ g.p.m.

11 WELL HEAD COMPLETION
1☐ Pitless adapter manufacturer ___ model ___
2☐ Basement offset 3☐ At least 12" above grade

12 WELL GROUTED*
☒ Yes ☐ No
1☒ Neat Cement 2☐ Bentonite 3☐
Grout material Cement from 60 to 50' ft Cu Yds

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
___ feet ___ direction ___ type
Well disinfected upon completion* Yes☐ No☐

14 PUMP
Date installed ___ ☐ Not installed
Manufacturer's Name ___
Model Number ___ HP ___ Volts ___
Length of drop pipe ___ ft capacity ___ g.p.m.
Material of drop pipe ___
Type 1☐ Submersible 3☐ L. S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐

15 REMARKS ELEVATION SOURCE OF DATA etc

16 WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. 73061
Licensee Business Name License No.

Address: Route 2 St. Joseph, Mn. 56374

Signed ___ Date ___
Authorized Representative

Galen Donabauer Date 6/18/85
Name of Driller

IMPORTANT:

WATER WELL RECORD

Minnesota Statutes 1984, 1985

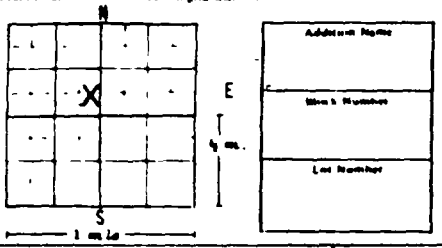
Unit Name: Stearns

Township Name	Township Number	Range Number	Section No.	Fraction
St. Cloud	124N	28W	8	

Distance and Direction from Road Intersections or Street Address and City of Well Location: Waite Park, Mn. Site#13 Shallow Hole

Show exact location of well in section grid with X

Sketch map of well location



N / W / E / S — 1 mile

Addition Name

Block Number

Lot Number

2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Sand & Gravel	Brown	Soft	0'	18'

Use a second sheet if needed

15 REMARKS ELEVATION SOURCE OF DATA etc

1 PROPERTY OWNER'S NAME

Address: Braun Engineering
1520 24th Ave. N.
St. Cloud, Mn. 56301

4 WELL DEPTH (completed): 18' ft

Date of Completion: 6/19/85

5 1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☐
3☒ Rotary 6☐ Jetted 9☐ Power Auger

6 USE
1☐ Domestic 4☐ Public Supply 7☐ Industry
2☐ Irrigation 5☐ Municipal 8☐ Commercial
3☒ Test Well 6☐ Air Conditioning 9☐

7 CASING
1☒ Black 4☐ Threaded
2☐ Galv 5☒ Welded
3☐ Plastic 6☐

HEIGHT Above/Below
Surface ____ ft
Drive Shoe? Yes ____ No ____
____ in to ____ ft Weight ____ lbs/ft
____ in to ____ ft Weight ____ lbs/ft
____ in to ____ ft Weight ____ lbs/ft

HOLE DIAM
____ in to ____
____ in to ____ ft
____ in to ____ ft

8 SCREEN
Make: Johnson
Or open hole from ____ ft to ____ ft
Type: Stainless Steel Dia: 4"
Slot/Gauze: 10 Length: 5' FITTINGS
Set between 14 ft and 18 ft
____ ft and ____ ft

9 STATIC WATER LEVEL
____ ft ☐ below ☐ above land surface Date Measured ____

10 PUMPING LEVEL (below land surface)
____ ft after ____ hrs pumping 5 g.p.m.
____ ft after ____ hrs pumping ____ g.p.m.

11 WELL HEAD COMPLETION
1☐ Pitless adapter manufacturer ____ model ____
2☐ Basement offset 3☐ At least 12 above grade

12 WELL GROUTED?
☐ Yes ☒ No
1☐ Neat Cement 2☐ Bentonite 3☐
Grout material ____ from ____ to ____ ft. Yes ____

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
____ feet ____ direction ____ type
Well disinfected upon completion? Yes☐ No☐

14 PUMP
Date installed ____ ☐ Not installed
Manufacturer's Name ____
Model Number ____ HP ____ Volts ____
Length of drop pipe ____ ft capacity ____ g.p.m.
Material of drop pipe ____
Type 1☐ Submersible 3☐ L.S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐

16 WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. 73061
Licensee Business Name (Licence No.)

Address: Rte 2 St. Joseph, Mn. 56374

Signed ____ Date ____
Authorized Representative

Galen Donabauer 6/19/85

Stearns

WATER WELL RECORD

Minnesota Statutes Chapter 105

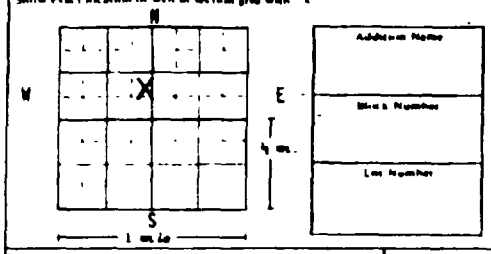
for Water Sample

Township Name	Township Number	Range Number	Section No.	Fraction
St. Cloud	124N	28W	8	

Distance and Direction from Road Intersections or Street Address and City of Well Location

Waite Park, Mn. Site #13 Deep Hole

Show exact location of well in section grid with X



Sketch map of well location

2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Sand & Gravel	Brown	Soft	0'	18'
Clay & Sand	Gray	Soft	18'	55'
Sand & Gravel	Brown	Soft	55'	65'

Use a second sheet if needed

15 REMARKS ELEVATION SOURCE OF DATA etc

IMPORTANT:

3 PROPERTY OWNER'S NAME

Braun Engineering

Address 1520 24th Ave. N.

St. Cloud, Mn. 56301

4 WELL DEPTH (completed) 65' ft

Date of Completion 6/19/85

5 1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☐
3☒ Rotary 6☐ Jetted 9☐ Power Auger

6 USE
1☐ Domestic 4☐ Public Supply 7☐ Industry
2☐ Irrigation 5☐ Municipal 8☐ Commercial
3☒ Test Well 6☐ Air Conditioning 9☐

7 CASING
1☐ Black 4☐ Threaded
2☐ Galv 5☒ Welded
3☐ Plastic 6☐

HEIGHT Above/Below
Surface ft
Drive Shoe* Yes No X

HOLE DIAM
in to ft
in to ft
in to ft

8 SCREEN
Make Johnson
Type Stainless Steel Dia 4"
Slot/Gauze 10 Length 10'
Set between 55 ft and 65 ft
ft and ft

Or open hole from ft to ft

FITTINGS

9 STATIC WATER LEVEL
12' ft below land surface X ☐ above Date Measured 6/19/85

10 PUMPING LEVEL (below land surface)
ft after hrs pumping 20 g.p.m.
ft after hrs pumping g.p.m.

11 WELL HEAD COMPLETION
1☐ Pitless adapter manufacturer model
2☐ Basement offset 3☐ At least 12" above grade

12 WELL GROUTED*
☒ Yes ☐ No
1☒ Neat Cement 2☐ Bentonite 3☐
Grout material Cement from 50 to 50 ft Cu Yds 1

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
feet direction type
Well disinfected upon completion* Yes☐ No☐

14 PUMP
Date installed ☐ Not installed
Manufacturer's Name
Model Number HP Volts
Length of drop pipe ft capacity g.p.m.
Material of drop pipe
Type 1☐ Submersible 3☐ L.S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐

16 WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. 73061

Licensee Business Name License No.

Address Route 2 St. Joseph, Mn. 56374

Signed Date

Authorized Representative

Galen Donabauer Date 6/19/85

WATER WELL RECORD

Minnesota Statutes (1964) 19

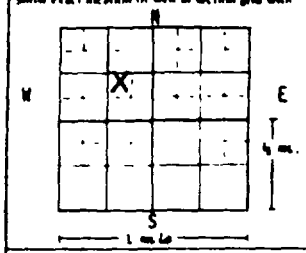
MINNESOTA UNIQUE WELL NO. for Water Sample: 413510

Count Name: Stearns

Township Name	Township Number	Range Number	Section No.	Fraction
St. Cloud	124N	28W	8	

Distance and Direction from Road Intersections or Street Address and City of Well Location: Waite Park, Mn. Site#14 Shallow Hole

Show exact location of well in section grid with X



Sketch map of well location

Addition Name

Block Number

Lot Number

2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Topsoil	Black	Soft	0'	1'
Sand & Rocks	Brown	Hard	1'	10'
Sand & Gravel	Brown	Soft	10'	14'

Use a second sheet, if needed

3 PROPERTY OWNER'S NAME: Braun Engineering

Address: 1520 24th Ave. N.
St. Cloud, Mn. 56301

4 WELL DEPTH (completed): 14' ft

Date of Completion: 6/20/85

5 1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☐
3☒ Rotary 6☐ Jetted 9☐ Power Auger

6 USE
1☐ Domestic 4☐ Public Supply 7☐ Industry
3☐ Irrigation 5☐ Municipal 8☐ Commercial
5☒ Test Well 6☐ Air Conditioning 9☐

7 CASING
1☒ Black 4☐ Threaded
2☐ Galv 5☐ Welded
3☐ Plastic 6☐

HEIGHT Above/Below
Surface ____ ft
Drive Shoe* Yes ____ No X

____ in to ____ ft Weight ____ lbs/ft
____ in to ____ ft Weight ____ lbs/ft
____ in to ____ ft Weight ____ lbs/ft

HOLE DIAM
____ in to ____
____ in to ____
____ in to ____ ft

8 SCREEN
Make: Johnson
Or open hole from ____ ft to ____ ft
Type: Stainless Steel Dia: 4"
Slot/Gauze: 10 Length: 5'
FITTINGS
Set between 10 ft and 14 ft
____ ft and ____ ft

9 STATIC WATER LEVEL
____ ft ☐ below land surface ☐ above Date Measured ____

10 PUMPING LEVEL (below land surface)
____ ft after ____ hrs pumping ____ g.p.m.
____ ft after ____ hrs pumping ____ g.p.m.

11 WELL HEAD COMPLETION
1☐ Pitless adapter manufacturer ____ model ____
2☐ Basement offset 3☐ At least 12" above grade

12 WELL GROUTED*
☐ Yes ☒ No
1☐ Neat Cement 2☐ Bentonite 3☐ ____
Grout material ____ from ____ to ____ ft Cu Yds ____

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
____ feet ____ direction ____ type
Well disinfected upon completion* Yes☐ No☐

14 PUMP
Date installed ____ ☐ Not installed
Manufacturer's Name ____
Model Number ____ HP ____ Volts ____
Length of drop pipe ____ ft capacity ____ g.p.m.
Material of drop pipe ____
Type 1☐ Submersible 3☐ L. S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐ ____

15 REMARKS ELEVATION SOURCE OF DATA etc

16 WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. 73061
Licensee Business Name License No.

Address: Rte 2 St. Joseph, Mn. 56374

Signed ____ Date ____
Authorized Representative

Galen Donabauer Date 6/20/85
Name of Driller

IMPORTANT

WATER WELL RECORD

Minnesota Statutes 1984 (11-08)

for Water Sample

415609

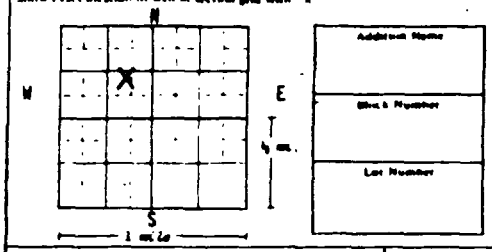
County Name: Stearns

Township Name	Township Number	Range Number	Section No.	Fraction
St. Cloud	124N	28W	8	

Distance and Direction from Road Intersections or Street Address and City of Well Location: Waite Park, Mn. Site #14 Deep Hole

Show exact location of well in section grid with X

Sketch map of well location



2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Topsoil	Black	Soft	0'	1'
Sand & Rocks	Brown	Soft	1'	10'
~~Clay~~ Sand & Gravel	Gray	Soft	10'	14'
~~Sand~~ Clay	Gray	Soft	14'	45'
Sand	Gray	Soft	45'	52'
Clay & Sand	Gray	Soft	52'	63'

Use a second sheet if needed

15 REMARKS ELEVATION SOURCE OF DATA, etc

3 PROPERTY OWNER'S NAME

Address: Braun Engineering
1520 24th Ave. N.
St. Cloud, Mn. 56301

4 WELL DEPTH (completed): 63' ft

Date of Completion: 6/20/85

5 1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☐
3☒ Rotary 6☐ Jetted 9☐ Power Auger

6 USE
1☐ Domestic 4☐ Public Supply 7☐ Industry
2☐ Irrigation 5☐ Municipal 8☐ Commercial
3☒ Test Well 6☐ Air Conditioning 9☐

7 CASING
1☒ Black 4☐ Threaded
2☐ Galv 5☒ Welded
3☐ Plastic 6☐

HEIGHT Above/Below
Surface 2 ft
Drive Shoe? Yes ___ No X

HOLE DIAM

8 SCREEN
Make Johnson
Type Stainless Steel
Dia 4"
Slot/Gauze 10
Length 10' FITTINGS
Set between 53 ft and 63 ft

Or open hole from ___ ft to ___ ft

9 STATIC WATER LEVEL
ft ☐ below land surface ☐ above
Date Measured

10 PUMPING LEVEL (below land surface)
ft after hrs pumping 1 g.p.m.
ft after hrs pumping g.p.m.

11 WELL HEAD COMPLETION
1☐ Pitless adapter manufacturer model
2☐ Basement offset 3☐ At least 12" above grade

12 WELL GROUTED?
☒ Yes ☐ No
1☒ Neat Cement 2☐ Bentonite 3☐
Grout material Cement from 0 to 50 ft Cu Yds 1

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
feet direction type
Well disinfected upon completion? Yes☐ No☐

14 PUMP
Date installed ☐ Not installed
Manufacturer's Name
Model Number HP Volts
Length of drop pipe ft capacity g.p.m.
Material of drop pipe
Type 1☐ Submersible 3☐ L. S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐

16 WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Donabauer Well & Pump Co. 73061
Licensee Business Name License No.

Address Route 2 St. Joseph, Mn. 56374

Signed Date
Authorized Representative

Galen Donabauer Date 6/20/85
Name of Driller

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No. 32

Date Collected 2/12/85

ORGANIC CHEMISTRY UNIT

Collected By Karls

WATER ANALYSES ONLY

Date Received 2-13-85

Report To Aho (White Bear 760)

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132959	a	—	Field Blank	40ml / 3
132960	b	1	Robert Sauer 317-2nd W.P	40ml / 4
132961	c	2	Cliff Vorpahl 400-4th W.P	"
132962	d	3	Don Haight 123-1st W.P.	"
132963	e	4	Tom's Carpet 2nd Ave W.P.	"

This Line for LAB SAMPLE NUMBER ONLY.		132959 a	132960 b	132961 c	132962 d	132963 e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					

FIELD BLANK #: 132959

COMPLETED
FEB 21 1985
ENVIRONMENTAL LAB

RECEIVED
FEB 25 1985
MINN. POLLUTION CONTROL AGENCY

X

MINNESOTA DEPARTMENT OF HEALTH
Section of Analytical Services

Budget No. 32

Date Collected 2/12

ORGANIC CHEMISTRY UNIT

Collected By Karlo

WATER ANALYSES ONLY

Date Received 2-13-85

Report To Aho (Waite Park 760)

Sample Number		Field Number	Sample Location and/or Description (Town, County, etc.)	Containers: Type and Number
132964	a	5	Abis Namyst 605-54th St. C	40ml/4
	b			
	c			
	d			
	e			

This Line for LAB SAMPLE NUMBER ONLY.		a 132964	b	c	d	e
Chlorophyll A	450					
Volatile Hydrocarbons	465					
Purgeable Aromatics	462					
Purgeable Halogenated	464					
Gasoline/Fuel Oil	463					
PAH	470					
Phenolic Compounds	480					
Phthalate Esters	490					
PCB's	420					
Herbicides	425					
2,4-D						
2,4,5-TP (Silvex)						
2,4,5-T						
Pesticides	421					
Lindane						
Methoxychlor						
Toxaphene						
Endrin						
Other Pesticides	422					
FIELD BLANK #: 132959						

COMPLETED
FEB 21 1985
ENVIRONMENTAL LAB

RECEIVED
FEB 25 1985
MINN. POLLUTION CONTROL AGENCY

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132959
FIELD BLANK #: 132959

DATE SAMPLED: 02/12/85
DATE ANALYZED: 02/14/85
DATE PRINTED: 02/19/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
FEB 25 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132960
FIELD BLANK #: 132959

MPCA-32 S&HW SITE RESPONSE

DATE SAMPLED: 02/12/85
DATE ANALYZED: 02/15/85
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FEB 25 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	P<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	P<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE		0.40 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
P< "PEAK DETECTED BELOW THE "LESS THAN" VALUE"
< "LESS THAN"
* "PRIORITY POLLUTANT"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132961
FIELD BLANK #: 132959

DATE SAMPLED: 02/12/85
DATE ANALYZED: 02/14/85
DATE PRINTED: 02/19/85

MPCA-32 S&HW SITE RESPONSE

RECEIVED
FEB 25 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE	<	0.20 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE	<	0.20 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS O Y"
* "PRIORITY POLLUTANT"
< "LESS THAN"

MINNESOTA DEPARTMENT OF HEALTH
ENVIRONMENTAL LABORATORY

VOLATILE HYDROCARBONS IN WATER

SAMPLE NUMBER: 132962
FIELD BLANK #: 132959

DATE SAMPLED: 02/12/85
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MPCA-32 S&HW SITE RESPONSE

RECEIVED
FEB 25 1985
MINN. POLLUTION CONTROL AGENCY

NON-HALOGENATED (CODE 462)

	ACETONE	<	10. UG/L		TETRAHYDROFURAN	<	5.0 UG/L
	ETHYL ETHER	<	1.0 UG/L		METHYL ETHYL KETONE	<	5.0 UG/L
*	BENZENE	<	0.50 UG/L		METHYL ISOBUTYL KETONE	<	1.00 UG/L
*	TOLUENE	<	0.50 UG/L	*	ETHYL BENZENE	<	0.50 UG/L
	CUMENE	<	0.50 UG/L		O-XYLENE	<	0.50 UG/L
	M-XYLENE	<	0.50 UG/L		P-XYLENE	<	0.50 UG/L

HALOGENATED (CODE 464)

*	CHLOROMETHANE	NQ		*	DICHLORODIFLUOROMETHANE	NQ	
*	VINYL CHLORIDE	NQ		*	BROMOMETHANE	NQ	
*	CHLOROETHANE	NQ			DICHLOROFLUOROMETHANE	NQ	
*	METHYLENE CHLORIDE	<	1.0 UG/L	*	TRICHLOROFLUOROMETHANE	<	0.20 UG/L
	ALLYLCHLORIDE	<	0.50 UG/L	*	1,1-DICHLOROETHYLENE	<	0.20 UG/L
*	1,1-DICHLOROETHANE		0.58 UG/L	*	TRANS-1,2-DICHLOROETHYLENE	<	0.20 UG/L
	CIS-1,2-DICHLOROETHYLENE	<	0.20 UG/L	*	CHLOROFORM	<	0.20 UG/L
*	1,2-DICHLOROETHANE		0.28 UG/L		DIBROMOMETHANE	<	1.0 UG/L
*	1,1,1-TRICHLOROETHANE	<	0.20 UG/L	*	CARBON TETRACHLORIDE	<	0.20 UG/L
*	BROMODICHLOROMETHANE	<	0.50 UG/L		DICHLOROACETONITRILE	<	2.0 UG/L
	2,3-DICHLORO-1-PROPENE	<	0.20 UG/L	*	1,2-DICHLOROPROPANE	<	0.20 UG/L
	1,1-DICHLORO-1-PROPENE	<	0.20 UG/L	*	TRANS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L
*	1,1,2-TRICHLOROETHYLENE	<	0.20 UG/L		1,3-DICHLOROPROPANE	<	3.0 UG/L
*	CHLORODIBROMOMETHANE	<	1.0 UG/L	*	1,1,2-TRICHLOROETHANE	<	0.20 UG/L
*	CIS-1,3-DICHLORO-1-PROPENE	<	0.20 UG/L		1,2-DIBROMOETHANE	<	0.50 UG/L
*	2-CHLOROETHYLVINYL ETHER	<	1.0 UG/L	*	BROMOFORM	<	1.0 UG/L
	1,1,1,2-TETRACHLOROETHANE	<	0.20 UG/L		1,2,3-TRICHLOROPROPANE	<	2.0 UG/L
*	1,1,2,2-TETRACHLOROETHANE	<	2.0 UG/L	*	1,1,2,2-TETRACHLOROETHYLENE	<	2.0 UG/L
	PENTACHLOROETHANE	<	2.0 UG/L	*	CHLOROBENZENE	<	0.50 UG/L
	1,1,2-TRICHLOROTRIFLUOROETHANE	<	0.50 UG/L	*	1,3-DICHLOROBENZENE	<	1.0 UG/L
*	1,2-DICHLOROBENZENE	<	1.0 UG/L	*	1,4-DICHLOROBENZENE	<	1.0 UG/L

NQ "QUALITATIVE ANALYSIS ONLY"
* "PRIORITY POLLUTANT"
< "LESS THAN"