

MASTER 201
COPY 33419

Battle Creek Groundwater Survey

March 1982

ecology and environment, inc.

International Specialists in the Environmental Sciences

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Battle Creek Groundwater Survey

March 1982

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ERRATA PAGE TO BATTLE CREEK GROUNDWATER STUDY

(TDD#5-8201-1)

Please remove and insert the following pages:

1. Remove the 4th page entitled Drilling Protocol and insert the new insert page.
2. Remove the 7th page entitled Battle Creek....Field Data and insert the new insert page.
3. Insert the new title page behind 1st green sheet entitled Daily Summary CERCLA Cleanup.
4. Insert the remaining Well Survey Data for Wells 10-16 after section on Test Well Elevations - page 8.
5. Remove the page entitled Verona Pumping Station - Monday, March 1, 1982, and insert the new page. 2nd page before 2nd green divider.
6. Remove the 1st appendix title page and insert the new page Appendix A.
7. Remove the 2nd appendix title page and insert the new page Appendix B.
8. Remove the 3rd appendix title page and insert the new page Appendix C.
9. Remove the 4th appendix title page and insert the new page Appendix D.
10. Remove the 5th appendix title page and insert the new page Appendix E.
11. Remove the 6th appendix title page and insert the new page Appendix F.
12. Remove the 7th appendix title page and insert the new page Appendix G.
13. Remove the 8th appendix title page and insert the new page Appendix H.
14. Remove the 9th appendix title page and insert the new page Appendix I.
15. Add the Appendix Table before 1st green divider.

EPA PROJECT
ECOLOGY AND ENVIRONMENT, INC.
MEMORANDUM: REGION V

COST CENTER EP151-5

TO: Mr. Robert Bowden

FROM: Technical Assistance Team

VIA: Mr. Scott McCone

SUBJECT: Battle Creek Groundwater Study (TDD# 5-8201-1)

DATE: March 29, 1982

COMMENTS:

In September of 1981 the Michigan Department of Public Health detected the presence of chlorinated hydrocarbons in residential wells in Battle Creek, Michigan. The chlorinated hydrocarbons were also traced to the municipal well field at the Verona Pumping Station. Chemicals found in the municipal wells included:

- 1). Trichloroethane - Up to 99 ppb.
- 2). CIS 1,2-dichloroethane - Up to 77 ppb.
- 3). Trichloroethene - Up to 34 ppb.
- 4). Perchloroethane - Up to 44 ppb.
- 5). 1,1-Dichloroethane - Up to 12 ppb.
- 6). 1,2-Dichloroethane - Up to 3 ppb.
- 7). 1,1-Dichloroethane - Up to 5 ppb.

Several private and industrial wells up gradient from the Verona Pumping Station are contaminated (see map) indicating a large area of contamination.

The City of Battle Creek Verona Pumping Station has thirty wells. Ten of these wells are no longer in service because of contamination. The population served by this field is approximately 40,000.

In January 1982, the U.S. EPA requested assistance from the TAT. The TAT prepared a Groundwater Study to identify potential sources of contamination. A subcontractor was hired to install 16 monitoring wells. Samples were collected from the wells and shipped to a U.S. EPA contract lab.

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Between the period of February 21, 1982 through March 17, 1982 members of the TAT monitored the daily drilling activities conducted by Soil Testing Services of Michigan (See Daily CERCELA Summaries). During this period, the TAT coordinated the drilling activities, worked in conjunction with MDNR and MDPH personnel in determining the location of the monitoring wells (see map). The TAT collected, shipped and insured chain of custody for the water samples.

In addition soil samples were collected and shipped to contract labs. Water levels, temperature, and conductivity measurements were made at each well site.

Additional TAT personnel inspected industrial facilities in a effort to determine the potential source of contamination. TAT members reviewed citizen complaints and analyzed aerial photographs to determine the location of several old dump sites.

The groundwater and soil results will be forward to the U.S. EPA and the MDNR. The suspected sources and past well contamination information have been plotted in the enclosed report. Together, the analytical results and the industrial background information will provide the appropriate agencies with sufficient information to eliminate a number of the suspected sources.

RECOMMENDATIONS

- 1). MDPH should continue to sample wells to further define the contaminated area. Depths of the well should be included.
- 2). MDNR should obtain samples of the surface water and sediments of the Lagoon in the Grand Trunk Railyard. Samples of the surface water from the drainage area that flows through Grand Trunk property should be taken.
- 3). MDNR should pursue inspections of local industrial facilities to identify users of chlorinated hydrocarbons.
- 4). A groundwater model of the Battle Creek area should be developed to determine the movement of the groundwater. The USGS has proposed a groundwater survey of the area.

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5). Different methods of treatment of the contaminated ground-water should be studied, to determine the most cost effective method of treatment.

Tom DeFouw

John Dourjalian

Scott McCone

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DRILLING PROTOCOL

The following procedure was used by Soil Testing Service (STS) personnel to install monitoring wells in Battle Creek, Michigan.

- A). All equipment was washed using soap and water. Then rinsed with water, the final rinse was a Methanol rinse.
- B). A solid stem Auger was used to open hole to 40'. Auger was put on in 5' sections.
- C). The Auger was removed and casing was drove down to bedrock.
- D). A drill with bit was used in side casing to drill down to 40'. A water wash was used to remove coarse, medium and fine particles.
- E). Galvanized well casing washed and rinse with Methanol then attached to a 5' Johnson screen.
- F). The well was put into casing.
- G). 4 feet of pea gravel was added between well and casing.
- H). 2 feet of Bentinite pellets were added between casing and well.
- I). The casing was removed.
- J). The drill hole was back filled with cement grout.
- K). The well caps and protective casing were installed.
- L). The well was developed at least 1½ hours using a surge pump.
- M). The surge pump was removed.
- N). The protective cap was screwed on and locked.

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DRILLING PROTOCOL

The following procedure was used by Soil Testing Service (STS) personnel to install monitoring wells in Battle Creek, Michigan.

- A). All equipment was washed using soap and water. Then rinsed with water, the final rinse was a Methanol rinse.
- B). A solid stem Auger was used to open hole to 40'. Auger was put on in 40' sections.
- C). The Auger was removed and casing was drove down to bedrock.
- D). A drill with bit was used in side casing to drill down to 40'. A water wash was used to remove coarse, medium and fine particles.
- E). Galvanized well casing washed and rinse with Methanol than attached to a 5' Johnson screen.
- F). The well was put into casing.
- G). 4 feet of pea gravel was added between well and casing.
- H). 2 feet of Bentinite pellets were added between casing and well.
- I). The casing was removed.
- J). The drill hole was back filled with cement grout.
- K). The well caps and protective casing was installed.
- L). The well was developed at least 1½ hours using a surge pump.
- M). The surge pump was removed.
- N). The protective cap was screwed on and locked.

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GROUNDWATER STUDY
BATTLE CREEK, MICHIGAN

Alleged
Sources of Contamination:

- 1). Thomas Solvents - (See Product List)
Southeast corner of Raymond Road and Emmet Street
1-A). Old storage tanks
1-B). Facility
1-C). Possible facility
- 2). Grand Trunk Western Railroad Company - Raymond Road
2-A). West yard - storage tank
2-B). East yard
2-C). Old round house area
2-D). Treatment Lagoon
2-E). Old dump site
2-F). Old car cleaning area
- 3). Rieth Riley Construction Company - Raymond Road
A). Cleaning Pit
- 4). Lewis Welded Rail Plant
- 5). Old Dump Site with Drums - Along Jameison Road
- 6). Kelloggs Company
A). Old dump site on Edison Street
B). Old dump site under Kell-Pack facility
- 7). Quad-L-Corporation - (Metal Fabrication) - MDNR Investigation
Two buried tanks from old facility
Dry cleaning facility - floor drains
- 8). Polymer Tech - Polyurethane Foam
Solvents flush after product mix
Waste hauled by hauler
- 9). Raymond Road Landfill - MDNR Investigation
- 10). Battle Creek Foundary Company - Raymond Road and Jameison Road
- 11). Anderson Oil Company - Pickford Street

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(12). Consumers Power Company - Edison Street

13). Grand Trunk Western Railroad Credit Union - Raymond Road

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Battle Creek, Michigan Groundwater Survey
Field Data

Well No.	Date	WL	Conductivity	pH	Temperature
1	2/25/82	21'.7"	530	7.0	9°C
2	3/1/82	13'.10"	260	7.1	7°C
3	3/3/82	10'.11"	900	7.05	10°C
4	2/26/82	11'.6"	575	6.2	NR*
5	3/1/82	18'.8"	600	NR*	9°C
6	3/2/82	19'.2½"	328	7.8	8°C
7	2/22/82	24'.4"	348	6.9	10°C
8	2/23/82	23'.7"	600	7.0	6°C
9	2/24/82	23'.2"	570	6.2	7°C
10	3/8/82	21'.7"	500	7.5	10°C
11	3/15/82	20'.4"	375	NR*	9°C
12	3/15/82	11'.6"	325	NR*	NR*
13	3/8/82	13'.1"	550	7.2	6°C
14	3/12/82	18'.2"	625	7.2	9°C
15	3/11/82	5'.4"***	375	NR*	8°C
16	3/7/82	13'.1"	550	7.0	7°C

*NR - Not Recorded

**Well #15 was clogged the water level reading is questionable

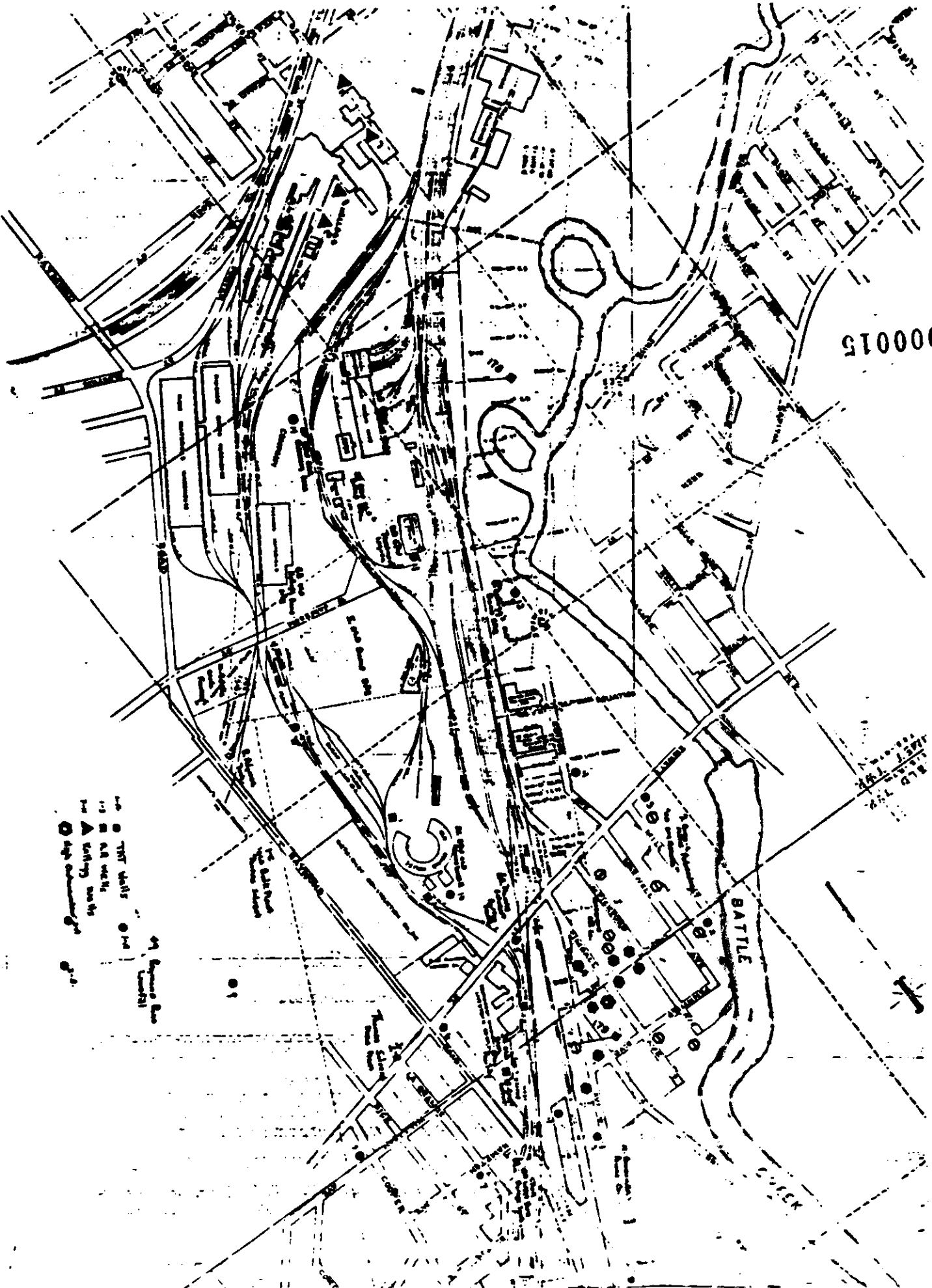
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Battle Creek, Michigan Groundwater Survey
Field Data

Well No.	Date	WL	Conductivity	pH	Temperature
1	2/25/82	21' .7"	470	NR*	10°C
2	3/1/82	13' .10"	260	7.1	7°C
3	3/3/82	10' .11"	900	7.05	16°C
4	2/26/82	11' .6"	600	6.8	12°C
5	3/1/82	18' .8"	NR*	NR*	9°C
6	3/2/82	19' .2½"	530	7.0	9°C
7	2/22/82	24' .4½"	348	6.9	10°C
8	2/23/82	23' .7 ¾"	600	7.0	6°C
9	2/24/82	23' .2"	570	6.2	7°C
10	3/8/82	21' .7"	500	7.5	10°C
11	3/15/82	20' .4"	375	NR*	9°C
12	3/15/82	11' .6"	325	NR*	12°C
13	3/8/82	13' .1"	550	7.2	6°C
14	3/12/82	18' .2"	700	7.2	13°C
15	3/11/82	5' .4"	375	NR*	8°C
16	3/7/82	13' .1"	550	7.0	17°C
*NR-Not Recorded					

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BATTLE CREEK
CALHOUN COUNTY, MICHIGAN



- TNT shells
- air tanking
- high concentration



TEST WELL ELEVATIONS
CITY OF BATTLE CREEK, MICHIGAN

Well No 1 E. SIDE OF N. EDISON @ POWER STATION	Top 4" Casing - 845.41 Top 2" Pipe - 845.40 Ground Elev. - 842.85
Well No 2 N. END OF MILL ST. E. SIDE OF ROAD	Top 4" Casing - 838.78 Top 2" Pipe - 838.69 Ground Elev. - 836.38
Well No 3 N. SIDE OF EMMETT ST., JUST WEST OF MILL ST.	Top 4" Casing - 836.33 Top 2" Pipe - 836.30 Ground Elev. - 833.43
Well No 4 W. SIDE OF SOUTH EDISON @ END	Top 4" Casing - 838.32 Top 2" Pipe - 838.34 Ground Elev. - 835.47
Well No 5 N. SIDE OF EMMETT ST @ THREE.	Top 4" Casing - 845.83 Top 2" Pipe - 845.73 Ground Elev. - 843.28
Well No 6 W. SIDE OF KATHLEEN AVE, JUST N. OF EMMETT	Top 4" Casing - 848.67 Top 2" Pipe - 848.62 Ground Elev. - 846.45
Well No 7 NE CORNER LA GRANGE AVE. & HAMPTON AVENUE	Top 4" Casing - 847.74 Top 2" Pipe - 847.84 Ground Elev. - 845.84

Franklin B. Brown

Top 4" Casing - 857.71
Top 2" Pipe - 857.63
Ground Elev. - 855.02

Top 4" Casing - 853.75
Top 2" Pipe - 853.65
Ground Elev - 851.78

Well No 9
NE CORNER CLIBBETSON
& HATES BLVD.

Well No 3
SE CORNER COOPER
& WILLISON

CITIZEN CONTACTS

PROPERTY OWNERS

February 22, 1982 Roger Golyar (616)963-0184
238 and 240 LaGrange Road and Hampton
Complained of property damage.

February 23, 1982 Beverly Rash (616)965-6623
12 Cooper Street
Complained about snow removal

*Both property owners informed TAT members that they were not notified by Penfield Township officials about the drilling.

February 24, 1982 W.A. Lahn (Bill) (616)962-9345/965-6202
46 Corcoran Street
Talked about property and contaminated wells.

February 24, 1982 Russell E. Keyes
114 Culbertson
Wanted Wells tested.
Trouble with oil in water.

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WELL KEYS

The keys to the protective caps on the Battle Creek wells were distributed to the following people: Bill Iverson MDNR

Garth Alaskson - MDNR

Roger Jones - MDNR

Tom DeFouw - EPA Region V TAT

John Dourjalian - EPA Region V TAT

Steve Ostrodka - EPA Region V

Ross Powers - EPA Region V

Roger Rotzenberg - Soil Testing Service, Lansing

The key number is 3386.

0000017

DAILY SUMMARY CERCLA CLEANUP

0000018

DAILY SUMMARY CERCLA CLEANUP

Weather: Clear Sky, 38°F

Date: February 22, 1984 Time Commenced Work 0800 Time Completed Work 1730

Facility: Battle Creek Groundwater Study

Contractor(s): Soil Testing Service of Michigan, Inc. (517)321-4964

3340 Ranger Road, Lansing, Michigan 48906

Type of Personnel: 0800 - 1730 - (2) Drillers, (1) Supervisor, (Subcontractor)

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 2-Trucks, 40' Auger,

40' Casing, 40' Drill Stem, Wash Tank, Steel Horses, Stainless Steel Well Casing-
and Screen, Pea Gravel, Bentonite Pellets, Cement, and Lock. Contractor provided
sample bottles labels, and locks

Slope of Work Completed: Steam cleaning rig. Completed drilling of Hole #7.

All well sites are staked and cleared for drilling.

Comments: Work progressed faster than expected. Good cooperation with drillers
and city officials for site preparation and crowd control. Drilling tractor
makes a large track on site possible damaging property. Property owners complained
City officials stated they would handle problems. Photographers from Enquirer
and Channel 3 at Site.

Future Plans: Finish sampling of Hole #7, start drilling hole #8.

0000019

DAILY SUMMARY CERCLA CLEANUP

Date: February 23, 1982 Time Commenced Work 0730 Weather: Cloudy skies, 40°F.
Time Completed Work 1700

Facility: Battle Creek Groundwater Study

Contractor(s): Soil Testing Service of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517-321-4694)

Type of Personnel: 0730 - 1700 - (2) Drillers

Equipment Utilized: (1) Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck, 40' Auger,
40' Casing, Wash Tank, Steel Hoses, Stainless Steel Well Casing and Screens,
Pea Gravel, Bentonite, Pellets and Cement Lock, Surge Ball.

Scope of Work Completed: Developed and sampled well #7, completed drilling
Hole #8. Samples were placed in Verona Pumping Station refrigerator. A custody seal
was placed on refrigerator. Groundwater temperature, pH, and Conductivity were
measured in field.

Comments: Work progressed as well as expected. Some difficulty installing Well #8,
hole kept collapsing. Drillers used a small amount of Benteinite clay to keep
hole to reinforce well sides and prevent hole callapsing. Mr. Turner from Raymond
Road Landfill informed us of possible TCE sources. Channel 41 TV crew at site.

Future Plans: Finish sampling well #8 and start drilling Hole #9. Developing
of Well #8 will take a longer time to wash bentenite out of hole. Possible
on site visit to Raymond Road Landfill.

0000020

DAILY SUMMARY CERCLA CLEANUP

Date: February 24, 1982 Time Commenced Work 0730 Weather: Lite snow, 27° F
Time Completed Work 1730

Facility: Battle Creek, Michigan Groundwater Study

Contractor(s): Soil Testing Service of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)373-8147

Type of Personnel: 0730 - 1730 (2) Drillers

Equipment Utilized: 1-Drill Rig, 40' Casing, 40' Drill, 40' Auger, 40' of Stainless Steel Casing, 5' Screen, 1-Truck, Tractor and LowBoy, Pea Gravel, Bentonite, Surge Ball, Wash Tank.

Scope of Work Completed: Developed and sampled Well #8, Installed Well #9, Developed and sampled Well #9, started installation of Well #1. All samples stored in Verona Pumping Station refrigerator.

Comments: Crew work extremely well considering cold weather. Well #9 was installed quickly. No callapse of side walls. Began augering at Well #1. Several citizens informed TAT members of well problems and possible sources in area. Channel 41 was on scene filming drilling. Mr. Steve Ostrodka was on site.

Future Plans: Finish installing Well #1, develop and sample start installing Well #4.

0000021

DAILY SUMMARY CERCLA CLEANUP

Weather: No clouds, 40°F

Date: February 25, 1982 Time Commenced Work 0730 Time Completed Work 1700

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road - Lansing, Michigan 48906 (517) 321-4964

Type of Personnel: 0730 - 1700 - (2) Drillers

Equipment Utilized: Same equipment as on February 23, 1982.

Scope of Work Completed: Developed and sampled Well #1. Started installation of Well #4. Samples were stored in Verona Pumping Station refrigerator. 3 VOA samples were frozen #1001, 1003 from Wells #7, 8 and 9 respectively. Samples were shipped via Federal Express to Accurex Corp.

Comments: Well#4 was developed for 3 hours. The last hour of developing the well the well color remained a cloudy white. Installation of Well #4 was in a medium traffic area. Samples were shipped to Accurex, Corporation/Ecology and Environment Division, 405 Clyde Avenue, Mounhainview, CA 94042. Soil Testing Service will pay for shipping. VIAR CASE # 891.

Future Plans: Continue installation of Well #4, develop and sample #4. Clean all equipment for Monday, March 1, 1982. Sample #1000 was a blank sample prepared from distilled water at the Verona Pumping Station.

000022

DAILY SUMMARY CERCLA CLEANUP

Date: February 26, 1982 Time Commenced Work 0730 weather 20° F. clear skies
Time Completed Work 1700

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1700 (2) Drillers

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck, 40' Auger,
40' Casing, 40' Drill Stem, Wash Tank, Steel Horses, Galvanized Well Casing,
5' Stainless Steel Screen, Pea Gravel, Bentonite Pellets, Cement Grout,
Protective Casing, Locks.

Scope of Work Completed: Completed drilling Well #4, developed and sampled well.
Sample #4 was stored in the Verona Pumping Station refrigerator. The refrigerator
was sealed with custody tags.

Comments: Work progressed at expected rate. The well is in a medium traffic
area and has barricades around it.

Future Plans: Start drilling on Monday, March 1, 1982 with Well #2.

0000023

DAILY SUMMARY CERCLA CLEANUP

Date: March 1, 1982 Time Commenced Work 0730 Weather: Partly cloudy, 15°F
Time Completed Work 1700

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1700 2-Drillers

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck, 40' Auger, 40' Casing, 40' Drill Stem, Wash tank, Steel Horses, Galvanized Well Casing, 5' Stainless Steel - Screen, Pea Gravel, Bentonite Pellets, Cement Grout, Protective Casing Locks

Scope of Work Completed: Completed drilling of well site #2. Moved to well site #5. A meeting was held at Verona Pumping Station to discuss project.

Samples were not to be obtained with surge block. TAT members used bailers.

Mr. Dourjalian decided not to sample wells until remaining TAT members arrived.

Comments: Work progressed at expected rate. Drillers were very cooperative.

Move well site #2 on private property. Drillers lost 15' of Auger. No samples were taken because of a difference of opinion on sampling procedures.

Future Plans: Start drilling of well site #5 on Tuesday. Samples would be obtained with copper bailer as directed by MDNR rather than by surge pump.

0000024

DAILY SUMMARY CERCLA CLEANUP

Date: March 2, 1982 Time Commenced Work 0730 Weather: Cloudy skies, 25°F
Time Completed Work 1830

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1830 - 2-DRILLERS

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck, 40' Augar, 40'
Casing, Wash Tank, Steel Horses, Galvanized Well Casing, 5' Stainless Steel Screen (2),
Pea Gravel, Bentonite Pellets, Cement Grout.

Scope of Work Completed: Completed well #5 and 6. Drillers moved to Well site
#3. No samples were collected. Mr. Dourjalian picked up Mr. DeFouw at Airport.

Comments: Work progressed faster than expected. Drillers were very cooperative.
No samples were taken.

Future Plans: Start drilling well site #3 on Wednesday.

0000025

DAILY SUMMARY CERCLA CLEANUP

Date: March 3, 1982 Time Commenced Work 0730 Weather: Clear skies, 25^oF.
Time Completed Work 1/30

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1730 - 2-Drillers

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck, 40' Auger, Wash
Tank, Steel Horses, 1-5' Stainless Steel Screen, Pea Gravel, Bentonite Pellets,
Cement Grout

Scope of Work Completed: Completed Well #3. MDNR called Mr. DeFouw requesting
an additional installation of four wells. The project total will be 16 wells.
MDNR requested 3 additional soil samples. SPCC inspection of Grand Trunk Western
Railroad was completed.

Comments: Mr. Powers of U.S. EPA arrived on scene to assist in investigation.
Mr. DeFouw made preparations for funding of additional wells.

Future Plans: Start drilling at Well #16 Thursday. TAT members will conduct
industrial inspections to determine sources of contamination.

0000026

DAILY SUMMARY CERCLA CLEANUP

Date: March 4, 1982 Time Commenced Work 0730 Weather: Ice and snow, 20°F
Time Completed Work 1830

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1830 - 2-Drillers

Equipment Utilized: None/Snow Day

Scope of Work Completed: Snow Day; TAT members and driller checked locations of additional wells. Mr. Dourjalian obtained copper bailer form STS in Lansing, Michigan.

Comments: TAT charged 1 hour of downtime. TAT members received 1954 aerial photographs of Battle Creek.

Future Plans: Start Drilling at Well #16.

0000027

DAILY SUMMARY CERCLA CLEANUP

Date: March 5, 1982 Time Commenced Work 0730 weather 30° F. Clear skies
Time Completed Work 1630

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517) 321-4964

Type of Personnel: 0730 - 1630 - 2-Driller

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck, 40' Augar,

40' Casing, Wash Tank, Steel Horses, Galvanized Well Casing, 1-5' Stainless Steel

Screen, Pea Gravel, Bentonite Pellets, Cement Grout.

Scope of Work Completed: Completed Well #16. Project meeting was held at
Verona Pumping Station. Final well locations were identified (see list of
attendees).

Comments: Work progressed as expected. Drillers were cooperative. MDNR located
sites for additonal wells.

Future Plans: Move to Well #10 to set-up drilling

DAILY SUMMARY CERCLA CLEANUP

Date: March 8, 1982 Time Commenced Work 0730 Weather: Clear skies, 15°F.
Time Completed Work 1900

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1900 - 2-Drillers

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck, 40' Auger, 40' -
Casing, Wash Tank, Steel Horses, 2-5' Stainless Steel Screens, Pea Gravel,
Bentonite Pellets, Cement

Scope of Work Completed: Completed Well #10 and #13. Water samples were collected
using copper bailer at Well #'s 2, 3, 10, and 6. All samples were stored at the
Verona Pumping Station Refrigerator

Comments: Work progressed as expected. Bailer was lost in Well #2 but was
retrieved by drillers. TAT members rebailed all wells to compare with previous
samples.

Future Plans: Move to Well #15.

000029

DAILY SUMMARY CERCLA CLEANUP

Date: March 9, 1982 Time Commenced Work 0730 weather 15° F. clear skies
Time Completed Work 1730

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964.

Type of Personnel: 0730 - 1730 - 2-Drillers.

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 40' Auger, 1-Truck,

40' Casing, Wash tank, 1-Stainless Steel Screen, Steel Horses, Pea Gravel,

Bentonite Pellets, Cement.

Scope of Work Completed: Rig broke down while developing Well #15. Well #15 did
not develop properly. Mr. McCone of TAT in Chicago arrived in Battle Creek for
inspections. Mr. McCone helped bail wells. Sampling of wells #'s 1, 5, 7, 9,
and 8 wer sampled and shipped with remaining samples to contract lab.

Comments: Rig broke dwon. Development of well was slow, not developing properly.
At 13:30 Drill Rig became inoperable. TAT did not pay for downtime.

Future Plans: Complete Well #15. Finish sampling and industrial inspections

0000030

DAILY SUMMARY CERCLA CLEANUP

WATER 10°F (100)

Date: March 10, 1982 Time Commenced Work 0730 Time Completed Work 1430

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 2-Drillers

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck

"Rig is still inopertatable".

Scope of Work Completed: Repair Drill Rig. TAT members attended Kellogg meeting and received facility map of Grand Trunk Railyard. All samples were shipped via Federal Express to contract Labs.

Comments: TAT not being charged.

Future Plans: Complete Well #15.

0000031

DAILY SUMMARY CERCLA CLEANUP

Date: March 11, 1982 Time Commenced Work 0430 Weather: Clear skies, 20°F
Time Completed Work 1630

Facility: Battle Creek, Michigan, - Groundwater Study

Contractor(s): Soil Testing Service of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1630 - 2-Drillers

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck, 40' of Auger,
40' of Casing, 40' of Drill Stem, Wash Tank, Steel Horses, Stainless Steel
Well Casing and Screen, Pea Gravel, Bentonite Pellets, Cement, Protective Casing
and Lock.

Scope of Work Completed: Drillers completed repair work on Rig. Drillers
finished developing Well #15. The well did not develop properly.

Comments: IAT was not charged for downtime due to Drill Rig breakdown. Sampling
should be completed by March 15, 1982.

Future Plans: Finish remaining wells.

0000032

DAILY SUMMARY CERCLA CLEANUP

Weather: Partly cloudy, temperature 15°F

Date: March 12, 1982 Time Commenced Work 0730 Time Completed Work 1630

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, - Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1600 - 2-Drillers

Equipment Utilized: 1-Drill Rig, 1-LowBoy, 1-Tractor, 1-Truck, 40' Auger,

40' Casing, Wash Tank, Steel Horses, Galvanized Well Casing, 1-5' Stainless

Steel Screen, Pea Gravel, Bentonite Pellets, Cement.

Scope of Work Completed: Moved from Well #15 to Well #14. Well #15 was not

developing properly. Completed Well #14 drilling. Sample was placed in

Verona Pumping Station refrigerator.

Comments: Work progressed as expected.

Future Plans: Move to Well #12 on Monday.

0000033

DAILY SUMMARY CERCLA CLEANUP

weather 30° F. partly cloud:

Date: March 15, 1982 Time Commenced Work 0730 Time Completed Work 1900

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, - Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1900 - 2-Drillers

Equipment Utilized: 1-Drill Rig, 1-Lowboy, 1-Tractor, 1-Truck, 40' Augar,
40' Casing, Wash Tank, Steel Horses, Galvanized Well Casing, 2-Stainless Steel
Screens, Pea Gravel, Bentonite Pellets, Cement.

Scope of Work Completed: Completed wells #13 and #13. Soil samples were taken
from Wells #13, #11, and #6. TAT received samples from Roger Jones taken from
the Raymond Road Landfill. Well #15 was clogged and a city pump was used to
clear well screen.

Comments: Work progress faster than expected. Drillers were very cooperative.
Maybe problems with future sampling of Well #15.

Future Plans: Complete Well #11. Clean equipment.

DAILY SUMMARY CERCLA CLEANUP

weather 35° F. cloudy

Date: March 16, 1982 Time Commenced Work 0730 Time Completed Work 1300

Facility: Battle Creek, Michigan - Groundwater Study

Contractor(s): Soil Testing Services of Michigan, Inc.

3340 Ranger Road, Lansing, Michigan 48906 (517)321-4964

Type of Personnel: 0730 - 1300 - 2-Drillers

Equipment Utilized: See March 15 equipment.

Scope of Work Completed: Development of Well #11. Steam cleaning of Rig.

Obtained water samples from Well #12, Well #11, and Well #15. took water levels of all wells.

Comments: Work completed as expected. Samples brought back to Chicago to be shipped out Federal Express on Wednesday March 17, 1982, in the morning.

Future Plans: City should go back and get well elevations for Wells # 10 - 16.

0000035

VERONA PUMPING STATION

Monday - March 1, 1982

<u>NAME</u>	<u>ORGANIZATION</u>	<u>PHONE</u>
Joe Lovato	Groundwater Quality - MDPH	(517) 373-8147
Russell Schueler	City of Battle Creek	(616) 966-3407
Laverne Serne	City of Battle Creek	(616) 966-3407
John Heppard	Calhoun County Health Dept.	()
Don Keech	Groundwater Quality - MDPH	(517) 373-8147
Rick Wirsing	Water Supply - MDPH	(517) 373-1376
Larry A. Osborne	City of Battle Creek	(616) 966-3421
Claudia Weaver	MDNR	()
William M. Iverson	Groundwater Quality - MDNR	(517) 373-8147
Garth Aslakson	Groundwater Quality - MDNR	(517) 373-8147
Dan Boone	City of Battle Creek	(616) 966-3494
John Dourjalian	U. S. EPA/TAT	(312) 663-9415
Roger Jones	District II WQD-DNR	(517) 322-1688

000036

VERONA PUMPING STATION

Monday - March 1, 1982

<u>NAME</u>	<u>ORGANIZATION</u>	<u>PHONE</u>
Garth Astakson	Groundwater Quality MDNR	(517) 373-8147
Bill Iverson	Groundwater Quality MDNR	(517) 373-8147
John Dourjalian	U.S. EPA / TAT	(312) 663-9415
Larry Osborne	City of Battle Creek	(616) 966-3421
Roger Jones	District II WQD DNR	(517) 322-1688
Rick Wirsing	Water Supply Division MDPH	(517) 373-1376
Laucine Serne	City of Battle Creek	(616) 966-3407
Don Ltereir	MDPH	(517) 373-1376
Dan Boone	City of Battle Creek	(616) 966-3494

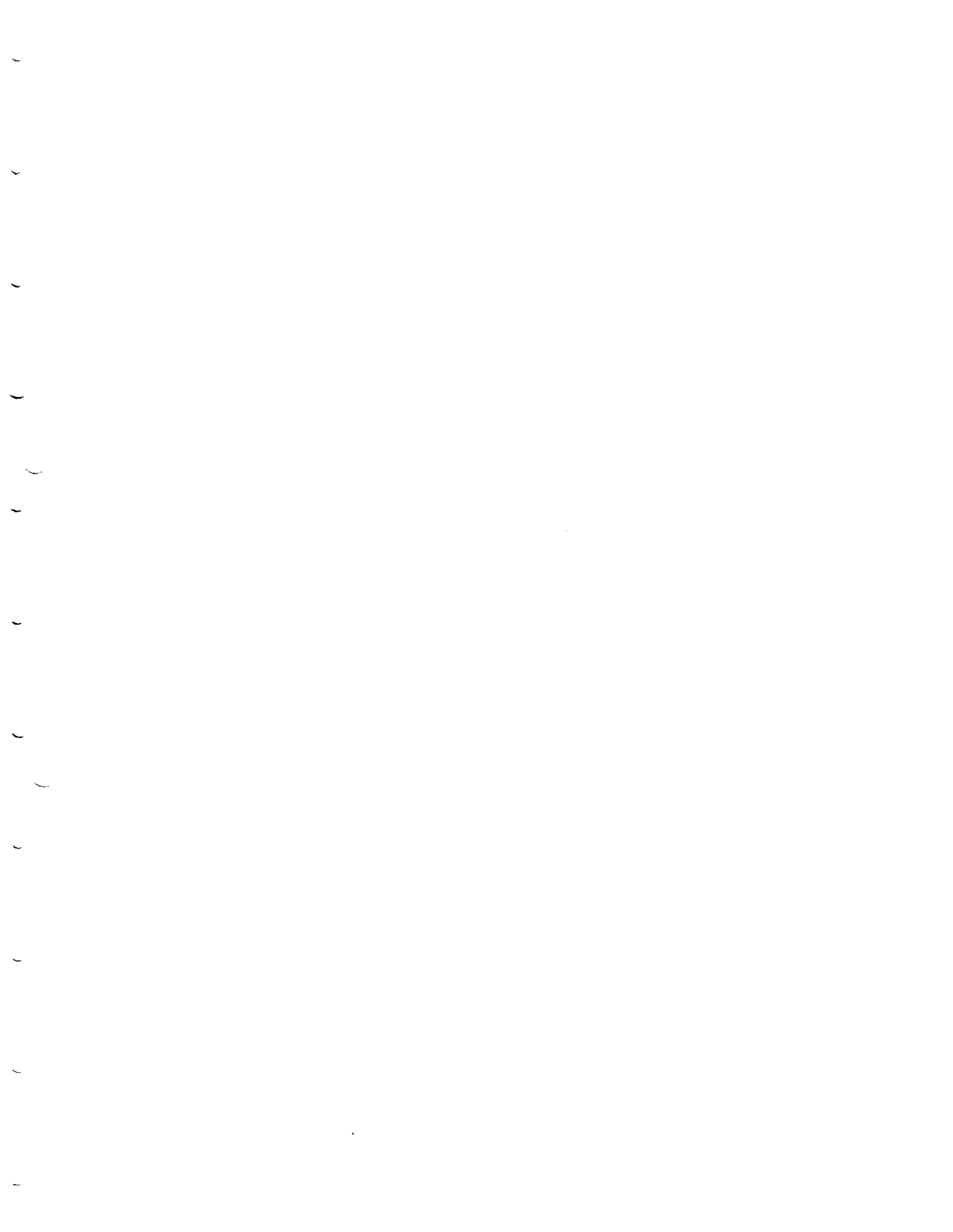
0000037

VERONA PUMPING STATION

Friday - March 5, 1982

<u>NAME</u>	<u>ORGANIZATION</u>	<u>PHONE</u>
Tom DeFouw	U.S. EPA/TAT	(312) 663-9415
Joe Lovato	Groundwater Quality (MDPH)	(517) 373-1376
Garth Aslakson	Groundwater Quality (WQD)	(517) 373-8147
Bill Iverson	Groundwater Quality (DNR)	(517) 373-8147
Rick Wirsing	Water Supply Division (MDPH)	(517) 373-1376
Laurene Serne	City of Battle Creek	(616) 966-3407
Ray Cummings	U.S. Geological Survey	(517) 377-1608
Floyd Twenter	U.S. Geological Survey	(517) 377-1608
Ross Powers	U.S. EPA	(313) 676-6500
Roger Jones	District II, WQD, DNR	(517) 322-1688
Thomas A. Newell	District II Engineer WQD, DNR	(517) 322-1607
Larry A. Osborn	City of Battle Creek	(616) 966-3421
John A. Heppard	Calhoun County Health Dept.	(616) 966-1241
Russell Schueler	City of Battle Creek	

0000038



APPENDICES

0000039

Appendices

Appendix

- A). Sample Information
- B). Drilling Permission
- C). Well Logs
- D). Spills
- E). Well Installation
- F). Industrial Inspections
- G). Future U.S.G.S. Groundwater Model
- H). Background Information
- I). Emergency Action Plan

0000040

Appendix A
Sample Information

0000041

Appendix **A**

Sample Information

0000042

891 WELL SAMPLES

Well No.	Location	CRL No.	Sample No.	Sample Tag No.	Case No.
0	Blank	82WTO8S01	E-1000	12513-12513-22	891
1	Edison Street	82WTO8S05	E-1004	12526-12529	891
7	Hampton and Grange	82WTO8S02	E-1001	12523-12525	891
8	Cooper and Willison Avenue	82WT08S03	E-1002	12516-12518	891
9	Culbertson and Dick	82WT) 8S04	E-1003	12519-12521	891

0000043

902 WELL SAMPLES

Well No.	Location	CRL No.	Sample No.	Sample Tag No.	Case No.
1	North Edison St. near Electric Co.	82WTO8S16	E-1018	12546-12549	902
2	End of Mill St.	82WTO8S09	E-0959	12530-12533	902
3	Mill Street and Emmett Avenue	82WTO8S07	E-0958	12557-12560	902
4	Edison St. Edison St.	82WTO8S18	E-1020 E-0961	12616-12619 12538-12541	902
5	GTWRR Tracks - Emmett Road	82WTO8S15	E-1017	12542-12545	902
6	Raymond Road - Emmett Road	82WTO8S08	E-0957	12552-12556	902
7	Hampton and Grange Avenue	82WTO8S14	E-1016	12550-125601-3	902
8	Copper and - Willison	82WTO8S13	E-1015	12604-12607	902
9	Culbertson Hayes Place	82WTO8S12	E-0806	12608-12611	902
10	Verona Pumping Station/SE	82WTO8S06	E-0807	5-12510-12 12551	902
11	GTW Railroad	82WTO8S20	E-1006	12547-12548 12564-12565	902
12	Kellog Property Edison Street	82WTO8S19	E-1005	12520 - 12561-12563	902
13	GTW Railroad Lagoon	82WTO8S10	E-0960	12534-12537	902
14	Kelpack Property Off Jamieson Rd.	82WTO8S22	E-1008	12625-12628	902
15	GTW of Jamieson- Road	82WTO8S21	E-1007	12621-12624	902
16	GTW Railyard - near old Roundhouse	82WTO8S17	E-1019	12612-12615	902
17	Raymond Road - Landfill	82WTO8S23	E-1009	12566-12568	902

0000044

901 SOIL SAMPLES

CASE NUMBER 901 - WELL NO. 12

Sample-Location No.	Depth	CRL No.	Sample No.	Sample Tag No.
At Well No. - 12	0 Ft.	82WTO8S11	E-1014	12632
At Well No. - 12	5 Ft.	82WTO8S10	E-1520	12633
At Well No. - 12	15 Ft.	82WTO8S09	E-1521	12634
At Well No. - 12	10 Ft.	82WTO8S08	E-1522	12635

WELL NO. 11

At Well No. - 11	10 Ft.	82WTO8S05	E-1525	12638
At Well No. - 11	5 Ft.	82WTO8S06	E-1524	12637
At Well No. - 11	0 Ft.	82WTO8S07	E-1523	12636

WELL NO. 6

At Well No. - 6	15 Ft.	82WTO8S01	E-1529	12642
At Well No. - 6	10 Ft.	82WTO8S02	E-1528	12641
At Well No. - 6	5 Ft.	82WTO8S03	E-1527	12646
At Well No. - 6	0 Ft.	82WTO8S04	E-1526	12639

0000045

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
TRANSMITTAL OF EVIDENCE AND LABORATORY ANALYSIS

To: John W. Dourjulan, Ecology and Environment Inc. CASE NUMBER
223 West Jackson Blvd., Chicago, Illinois 60606 Phone 312-663-9415
Location:
 Michigan State Police Crime Laboratory
 Michigan Dept. of Public Health
 DNR Pathologist
 DNR Environmental Laboratory

From: Roger Jones Water Quality Div. (District II) Mich. DNR
Box 30028, Lansing, Michigan 48904 517-322-7888
Supervision Officer
Address & Phone No.

Description of Evidence — Describe Fully: Manufacturer's Model No., Serial No., Officer's Marks, Tag or Seal Numbers

Three water samples from monitoring well #1 (any number) collected at Raymond Road landfill, Battle Creek, Mich. Collected on 3/15/82 at 1400 Hrs by Roger Jones.

#1. One Gallon Brown Jug
#2. One 40 ml. Volatile Hydrocarbon Bottle
#3. One 40 ml. Volatile Hydrocarbon Bottle

Type of Analysis Requested:

Total Organics

Name and Address of Person(s) From Whom Property Seized: (If Known)

Received By: Signature	Date	Time	Received by: Signature	Date	Time
<i>John Dourjulan</i>	3/16/82	1410			

Final Disposition of Property: To Accrex Corp, Mountainview, Ca. (Contracted by USEPA) out 3/17/82 Date
Received By: (Signature of Owner)
Confiscated By: (Signature and Badge No.)
Destroyed By: Witnessed:
How Destroyed:



Sample Number
E 01013

ORGANICS TRAFFIC REPORT

① Case Number:
701

Sample Site Name/Code:
Port + 66 Creek MI
Ground Water Study
82 W T O 8 S 12
Soil # 2 R

② SAMPLE CONCENTRATION
(Check One)
 Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)
 Water
 Soil/Sediment

④ Ship To:
Mead Tech. Inc
57 Triangle Dr
Research Park NC 2770

Attn: Kevin Mc Connally

Transfer
Ship To:

⑤ Regional Office: 5

Sampling Personnel:
Tom Pefano
(Name)
312 663-9915
(Phone)

Sampling Date:
9/10/82
Begin (End)

⑥ For each sample collected specify number of containers used and mark volume on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	1 - 8 c2	for
Water (Ext/VOA)		
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

3/17/82
Date Shipped:

76885552
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

CTW Rail yard
82 W T O 8 S 12

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000047



ORGANICS TRAFFIC REPORT

<p>① Case Number: <u>901</u></p> <hr/> <p>Sample Site Name/Code: <u>Dart Creek Mi</u> <u>Ground Water Survey</u> <u>82 W 08 S 13</u> <u>soil # 2A</u></p>	<p>② SAMPLE CONCENTRATION (Check One)</p> <p><input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration</p> <p>③ SAMPLE MATRIX (Check One)</p> <p><input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil/Sediment</p>	<p>④ Ship To: <u>Alcoa Tech INC.</u> <u>5 Triangles Dr</u> <u>Research Park NC 277</u></p> <p>Attn: <u>Kevin McConnaugh</u></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Transfer Ship To:</p>
---	---	--

<p>⑤ Regional Office: _____</p> <p>Sampling Personnel: <u>Tom DeFoua</u> (Name) <u>31: 663 9415</u> (Phone)</p> <p>Sampling Date: <u>3/10/82</u> (Begin) (End)</p>	<p>⑥ For each sample collected specify number of containers used and mark volume on each bottle.</p> <table border="1"> <thead> <tr> <th></th> <th>Number of Containers</th> <th>Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (Extractable)</td> <td></td> <td></td> </tr> <tr> <td>Water (VOA)</td> <td></td> <td></td> </tr> <tr> <td>Soil/Sediment</td> <td><u>1-8 c2</u></td> <td><u>8 c2</u></td> </tr> <tr> <td>Water (Ext/VOA)</td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment	<u>1-8 c2</u>	<u>8 c2</u>	Water (Ext/VOA)			Other								
	Number of Containers	Approximate Total Volume																							
Water (Extractable)																									
Water (VOA)																									
Soil/Sediment	<u>1-8 c2</u>	<u>8 c2</u>																							
Water (Ext/VOA)																									
Other																									
<p>⑦ Shipping Information</p> <p><u>Federal Express</u> Name of Carrier</p> <p><u>3/17/82</u> Date Shipped:</p> <p><u>768857552</u> Airbill Number:</p>																									

<p>⑧ Sample Description</p> <p><input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media <input type="checkbox"/> Ground Water <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____</p>	<p>⑨ Sample Location</p> <p><u>AT W Railway</u> <u>82 W 08 S 13</u></p>
---	---

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)



ORGANICS TRAFFIC REPORT

① Case Number:
901

Sample Site Name/Code:
Rattle Creek Mi
Ground Water Study
8211708514
Soil # 1B

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:

Head Tech Inc
5 Triangle Drive
Research Park NC 2770

Attn: Kevin McConaughy

Transfer
Ship To:

⑤ Regional Office: _____

Sampling Personnel:
Tom DeFourn
(Name)
312 663-9415
(Phone)

Sampling Date:
3/10/82
(Begin) (End)

⑥ For each sample collected specify num of containers used and mark volume lev on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	<u>1-802</u>	<u>802</u>
Water (Ext/VOA)		
Other		

Shipping Information

Federal Express

Name of Carrier
3/17/82
768857552

Date Shipped:

768857552

Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

8211708514
CFW RAIL YARD

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000049



ORGANICS TRAFFIC REPORT

① Case Number:
901

Sample Site Name/Code:
24th & Creek Hi
Ground Water Survey
82 W TOY S 25
Soil # 1A

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
McAd Tech Inc
5 Triangle Dr
Research Triangle Park
Attn: Kevin Mc Connally

Transfer
Ship To:

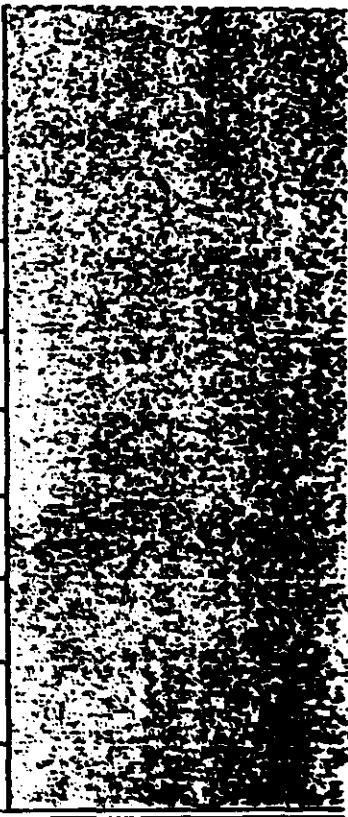
⑤ Regional Office: _____

Sampling Personnel:
Jon Defouw
(Name)
312 663-9415
(Phone)

Sampling Date:
3/10/82
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	<u>1-8 62</u>	<u>47802</u>
Water (Ext/VOA)		
Other		



⑦ Shipping Information

Federal Express
Name of Carrier

3/17/82
Date Shipped:

768857552
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82 W TOY S 25
CFW Rail YARD

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000050

7688 5722 ←

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	REMARKS					
401		Bottle Creek Ground Water										
SAMPLERS: (Signature) [Signature]												
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION							
12	3/1	1000		✓	GTW Parkway 2B	1						A-4118513 3/1/82 7:11 12643
13	3/10	1000		✓	GTW Parkway 2A	1						A-4118513 3/10/82 10:11 12644
14	3/1	1000		✓	GTW Parkway 1B	1						A-4118514 3/1/82 7:47 12645
15	3/10	1000		✓	GTW Parkway 1A	1						A-4118514 3/10/82 11:11 12645
Relinquished by: (Signature) [Signature]		Date / Time 3/17/82 10:56		Received by: (Signature) [Signature] F.E.C.		Relinquished by: (Signature)		Date / Time		Received by: (Signature)		
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)		
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks				

0000051

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

5-3514



ORGANICS TRAFFIC REPORT

① Case Number: 902

Sample Site Name/Code:
Betty & Creek Mi
Groundwater Survey
FLINTOCK S23
Well Raymond Road Landfill

② SAMPLE CONCENTRATION (Check One)
 Low Concentration
 Medium Concentration

③ SAMPLE MATRIX (Check One)
 Water
 Soil/Sediment

④ Ship To:
ACCUREX CORP
ENERGY AND ENVIRONMENT
405 CNDE AVE.
HOUSTON TX 77056
Attn: LINDA BISHOP

Transfer
Ship To:

⑤ Regional Office: _____
Sampling Personnel:
Roger / Jones Jr
(Name)
912
(Phone)
Sampling Date: 3/15/82
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	1 - gal	1 gal
Water (VOA)	1 - 40 ml	40 ml
Soil/Sediment		
Water (Ext/VOA)	1 - 40 ml	40 ml
Other		

Shipping Information
Federal Express
Name of Carrier
3/17/82
Date Shipped:
768857596
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location
Raymond Road Landfill
82 W. Flintock S23

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

000052

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	REMARKS																
702		Bingo Creek Hi Ground Water																					
SAMPLERS: (Signature)		Roger J. Jones Jr. WAD, Mich. DNR																					
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION																		
17	3/16	1410		✓	Amesbury Road Landfill	3																	
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)													
Roger J. Jones Jr.		3/16/82 1410		[Signature]		[Signature]		3/17 2045		[Signature]													
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)													
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks															

0000053

Disposition: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME					NO. OF CONTAINERS	REMARKS										0000051			
901		Kata & Creek Groundwater																			
SAMPLERS: (Signature) Pat Dijk																					
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION																
502	3/15	1400		U	Well # 6 A+ 5 feet		1														82 W 708 S 02 E 1529 10/14 12642
503	3/15	1400		U	Well # 6 A+ 10 feet		1														82 W 708 S 02 E 1528 10/14 12641
504	3/15	1400		U	Well # 6 A+ 0 feet		1														82 W 708 S 02 E 1527 10/14 12640
505	3/15	1400		U	Well # 6 A+ 0 feet		1														82 W 708 S 04 E 1526 10/14 12639
506	3/15	1600		U	Well # 11 A+ 15 feet		1														82 W 708 S 05 E 1525 10/14 12638
507	3/15	1600		U	Well # 11 A+ 5 feet		1														82 W 708 S 06 E 1524 10/14 12637
508	3/15	1600		U	Well # 11 A+ 0 feet		1														82 W 708 S 07 E 1523 10/14 12636
509	3/15	1000		U	Well # 12 A+ 15 feet		1														82 W 708 S 08 E 1521 10/14 12635
510	3/15	1000		U	Well # 12 A+ 5 feet		1														82 W 708 S 09 E 1522 10/14 12634
511	3/15	1000		U	Well # 12 A+ 0 feet		1														82 W 708 S 10 E 1520 10/14 12633
512	3/15	1000		U	Well # 12 A+ 0 feet		1														82 W 708 S 11 E 1014 10/14 12632

Relinquished by: (Signature) Pat Dijk	Date / Time 3/15/82 1050	Received by: (Signature) Joseph Canup / FEC.	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Disposition: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File



ORGANICS TRAFFIC REPORT

① Case Number:
901

Sample Site Name/Code:
Battler Creek Mi
Ground Water Survey
82 WT08508
At Well #12 10 feet

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
Mecl Tech Inc
5 Triangle Dr
Research Triangle Park NC
2770
Attn: Kevin McConaughy

Transfer
Ship To:

⑤ Regional Office:
Sampling Personnel:
John Dowdall
(Name)
312 663-9415
(Phone)

Sampling Date:
3/15/82
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	1 - 8 02	802
Water (Ext/VOA)		
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

3/17/82
Date Shipped:

7658 57552
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82 WT08508

At Well #12 15 feet

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)



ORGANICS TRACKING REPORT

<p>① Case Number: <u>901</u></p> <p>Sample Site Name/Code: <u>Battle Creek Mi</u> <u>Ground Water Survey</u> <u>82WT08509</u> <u>A Well # 12 10 feet</u></p>	<p>② SAMPLE CONCENTRATION (Check One)</p> <p><input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration</p> <p>③ SAMPLE MATRIX (Check One)</p> <p><input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil/Sediment</p>	<p>④ Ship To: <u>Mead Tech Inc</u> <u>5 Triangle Dr</u> <u>Research Triangle Park NC</u> <u>2770</u></p> <p>Attn: <u>KEVIN Mc CONNAUGH</u></p> <p>Transfer Ship To:</p>
--	---	---

<p>⑤ Regional Office: _____</p> <p>Sampling Personnel: <u>John Durjahn</u> (Name) <u>312 663-7415</u> (Phone)</p> <p>Sampling Date: <u>3/15/82</u> (Begin) (End)</p>	<p>⑥ For each sample collected specify number of containers used and mark volume level on each bottle.</p>																											
<p>Shipping Information</p> <p><u>Federal Express</u> Name of Carrier</p> <p><u>3/17/82</u> Date Shipped:</p> <p><u>768857552</u> Airbill Number:</p>	<table border="1"> <thead> <tr> <th></th> <th>Number of Containers</th> <th>Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (Extractable)</td> <td></td> <td></td> </tr> <tr> <td>Water (VOA)</td> <td></td> <td></td> </tr> <tr> <td>Soil/Sediment</td> <td><u>1-802</u></td> <td><u>8 c2</u></td> </tr> <tr> <td>Water (Ext/VOA)</td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Number of Containers		Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment	<u>1-802</u>	<u>8 c2</u>	Water (Ext/VOA)			Other										
	Number of Containers	Approximate Total Volume																										
Water (Extractable)																												
Water (VOA)																												
Soil/Sediment	<u>1-802</u>	<u>8 c2</u>																										
Water (Ext/VOA)																												
Other																												

<p>⑧ Sample Description</p> <p><input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media</p> <p><input type="checkbox"/> Ground Water <input checked="" type="checkbox"/> Solids</p> <p><input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____</p>	<p>⑨ Sample Location</p> <p><u>82 WT08509</u></p> <p><u>A Well # 12 10 feet</u></p>
---	---

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000056



ORGANICS TRAFFIC REPORT

① Case Number: 901

Sample Site Name/Code:
Battub Creek MI
Ground Water Survey
82 WT 085 S0

② SAMPLE CONCENTRATION (Check One)
 Low Concentration
 Medium Concentration

③ SAMPLE MATRIX (Check One)
 Water
 Soil/Sediment

④ Ship To:
Mead Tech Inc
5 Triangle Park Dr
Research Triangle Park, NC
27709
Attn: Kevin Mc Conway

Transfer
Ship To:

At Well #12 5 feet

⑤ Regional Office: _____
Sampling Personnel:
John Downallan
(Name)
312 CC 39415
(Phone)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	<u>1-802</u>	<u>802</u>
Water (Ext/VOA)		
Other		

Shipping Information
Federal Express
Name of Carrier
3/17/82
Date Shipped:
765857552
Airbill Number:

⑦ Sampling Date:
3/15/82
(Begin) (End)

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location
82 WT 085 S10
At Well #12 5 feet

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000057



ORGANICS TRAFFIC REPORT

<p>① Case Number: <u>901</u></p> <p>Sample Site Name/Code: <u>Bentley Creek Mⁿ</u> <u>Ground Water Survey</u> <u>82 W 08 5 11</u> <u>B1 Well # 12 0 feet</u></p>	<p>② SAMPLE CONCENTRATION (Check One)</p> <p><input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration</p> <p>③ SAMPLE MATRIX (Check One)</p> <p><input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil/Sediment</p>	<p>④ Ship To: <u>Mead Corp Tech Inc</u> <u>5 Triangle Dr</u> <u>Research Park NC</u> <u>27709</u> <u>Attn: Kevin Mc Connugh</u></p> <p>Transfer</p> <p>Ship To:</p>
---	---	---

<p>⑤ Regional Office: _____</p> <p>Sampling Personnel: <u>John Doucillon</u> (Name) <u>312 603 9415</u> (Phone)</p> <p>Sampling Date: <u>9/15/82</u> (Begin) (End)</p>	<p>⑥ For each sample collected specify number of containers used and mark volume level on each bottle.</p> <table border="1"> <thead> <tr> <th></th> <th>Number of Containers</th> <th>Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (Extractable)</td> <td></td> <td></td> </tr> <tr> <td>Water (VOA)</td> <td></td> <td></td> </tr> <tr> <td>Soil/Sediment</td> <td><u>1-8 oz</u></td> <td><u>8 oz</u></td> </tr> <tr> <td>Water (Ext/VOA)</td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment	<u>1-8 oz</u>	<u>8 oz</u>	Water (Ext/VOA)			Other									
	Number of Containers	Approximate Total Volume																								
Water (Extractable)																										
Water (VOA)																										
Soil/Sediment	<u>1-8 oz</u>	<u>8 oz</u>																								
Water (Ext/VOA)																										
Other																										
<p>⑦ Shipping Information</p> <p><u>Federal Express</u> Name of Carrier</p> <p><u>9/17/82</u> Date Shipped:</p> <p><u>768857552</u> Airbill Number:</p>																										

<p>⑧ Sample Description</p> <p><input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media</p> <p><input type="checkbox"/> Ground Water <input checked="" type="checkbox"/> Solids</p> <p><input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____</p>	<p>⑨ Sample Location</p> <p><u>82 W 08 5 11</u></p> <p><u>A1 Well # 12 0 feet</u></p>
---	---

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)



ORGANICS TRAINING REPORT

E 1525

① Case Number:
901

Sample Site Name/Code:
Batt & Creek Mi
Ground Water Survey
82 WT08505
At well # 11 10 feet

② SAMPLE CONCENTRATION
 (Check One)
 Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
 (Check One)
 Water
 Soil/Sediment

④ Ship To:
Head Tech INC
5 Triangle Dr
Research Triangle Park NC
27709

Attn: Kevin McConaughy

Transfer
 Ship To:

⑤ Regional Office: _____
 Sampling Personnel:
John Douralion
 (Name)
312 663-9415
 (Phone)

Sampling Date:
3/15/82
 (Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	1 8-02	8 02
Water (Ext/VOA)		
Other		

Shipping Information

Federal Express
 Name of Carrier

3/17/82
 Date Shipped:

768657552
 Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82 WT08505

At well # 11 15 feet

⑩ Special Handling Instructions:
 (e.g., safety precautions, hazardous nature)



ORGANICS TRACING REPORT

SAMPLE NUMBER

E 1524

① Case Number:
901
 Sample Site Name/Code:
Perry's Creek Mi
Ground Water Survey
E2 W7086
At Well # 11 5 feet

② SAMPLE CONCENTRATION
 (Check One)
 Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
 (Check One)
 Water
 Soil/Sediment

④ Ship To:
 Mead Tech IN
 5 Triangle Dr
 Research Triangle Park NC
 277
 Attn: KEVIN Mc CONNAUGHY

 Transfer
 Ship To:

⑤ Regional Office: _____
 Sampling Personnel:
John Deutsalian
 (Name)
 (Phone)
 Sampling Date:
3/15/82
 (Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	1 - 802	8 02
Water (Ext/VOA)		
Other		

Shipping Information
Federal Express
 Name of Carrier
3/17/82
 Date Shipped:
768457552
 Airbill Number:

⑧ Sample Description
 Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location
E2 W7085 OF
At Well # 11 5 feet

⑩ Special Handling Instructions:
 (e.g., safety precautions, hazardous nature)

0000060



U.S. ENVIRONMENTAL PROTECTION AGENCY
 Organic Traffic Report
ORGANICS TRAFFIC REPORT

Sample Number
E 1523

① Case Number:
901
 Sample Site Name/Code:
Petula Creek Mi
82 WTC8507
A Well # 11 0 feet

② SAMPLE CONCENTRATION
 (Check One)
 Low Concentration
 Medium Concentration
 ③ SAMPLE MATRIX
 (Check One)
 Water
 Soil/Sediment

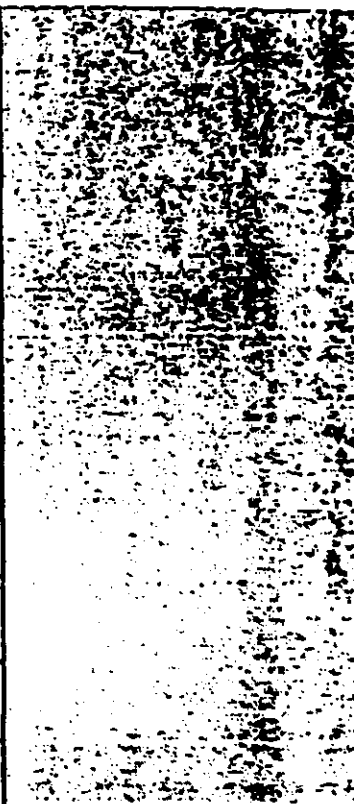
④ Ship To:
Mead Tech Inc
5 Pringle Dr
Research Pringle Park
Attn: Kevin Mc CONNAUGHY
 Transfer
 Ship To:

⑤ Regional Office: _____
 Sampling Personnel:
John DONTZALLO
 (Name)
312 663-9415
 (Phone)
 Sampling Date:
3/15/82
 (Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	1-8 62	802
Water (Ext/VOA)		
Other		

⑦ Shipping Information
Federal Express
 Name of Carrier
3/17/82
 Date Shipped:
768857552
 Airbill Number:



⑧ Sample Description
 Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location
82 WTC8507
A Well # 11 0 feet

⑩ Special Handling Instructions:
 (e.g., safety precautions, hazardous nature)

0000061



ORGANICS TRAFFIC REPORT

<p>① Case Number: <u>901</u></p> <p>Sample Site Name/Code: <u>Batt Creek M1</u> <u>Ground Water Survey</u> <u>82W70850</u> <u>A+ Well # 6 15 feet</u></p>	<p>② SAMPLE CONCENTRATION (Check One)</p> <p><input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration</p> <p>③ SAMPLE MATRIX (Check One)</p> <p><input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil/Sediment</p>	<p>④ Ship To: <u>Macl Tech Inc</u> <u>5 Triangle Dr</u> <u>Research Triangle Park NC 27709</u> Attn: <u>EVIN MC CONNAUGHY</u></p> <p>Transfer Ship To:</p>
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<p>⑤ Regional Office: _____</p> <p>Sampling Personnel: <u>John Dounahan</u> (Name) <u>312-663-9415</u> (Phone)</p> <p>Sampling Date: <u>3/15/82</u> (Begin) (End)</p>	<p>⑥ For each sample collected specify number of containers used and mark volume level on each bottle.</p> <table border="1"> <thead> <tr> <th></th> <th>Number of Containers</th> <th>Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (Extractable)</td> <td></td> <td></td> </tr> <tr> <td>Water (VOA)</td> <td></td> <td></td> </tr> <tr> <td>Soil/Sediment</td> <td>1-802</td> <td>802</td> </tr> <tr> <td>Water (Ext/VOA)</td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> </tbody> </table>		Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment	1-802	802	Water (Ext/VOA)			Other		
	Number of Containers	Approximate Total Volume																	
Water (Extractable)																			
Water (VOA)																			
Soil/Sediment	1-802	802																	
Water (Ext/VOA)																			
Other																			

<p>⑦ Shipping Information</p> <p><u>Federal Express</u> Name of Carrier</p> <p><u>3/17/82</u> Date Shipped:</p> <p><u>768857552</u> Airbill Number:</p>	<table border="1"> <thead> <tr> <th></th> <th>Number of Containers</th> <th>Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (Extractable)</td> <td></td> <td></td> </tr> <tr> <td>Water (VOA)</td> <td></td> <td></td> </tr> <tr> <td>Soil/Sediment</td> <td>1-802</td> <td>802</td> </tr> <tr> <td>Water (Ext/VOA)</td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> </tbody> </table>		Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment	1-802	802	Water (Ext/VOA)			Other		
	Number of Containers	Approximate Total Volume																	
Water (Extractable)																			
Water (VOA)																			
Soil/Sediment	1-802	802																	
Water (Ext/VOA)																			
Other																			

<p>⑧ Sample Description</p> <p><input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media</p> <p><input type="checkbox"/> Ground Water <input checked="" type="checkbox"/> Solids</p> <p><input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____</p>	<p>⑨ Sample Location</p> <p><u>82W708501</u></p> <p><u>A+ Well # 6 15 feet</u></p>
---	--

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000062



ORGANICS TRAFFIC REPORT

E 1528

① Case Number:
901

Sample Site Name/Code:
From Crk & Mi
Ground Water Survey
82 W708502
A+ Well # 6 10 ft

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
Mead Tech Inc
5 Triangle Dr.
Research Triangle Park NC
27706

Attn: Kevin McConaughy

Transfer
Ship To:

⑤ Regional Office: _____

Sampling Personnel:
John Dourjalin
(Name)
312 (63-9415
(Phone)

Sampling Date:
3/15/82
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	1-802	802
Water (Ext/VOA)		
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

3/17/82
Date Shipped:

766257552
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media

Ground Water Solids

Leachate Other (specify) _____

⑨ Sample Location

82 W708502

A+ Well # 6 10 ft

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000063



ORGANICS TRAFFIC REPORT

① Case Number:
901

Sample Site Name/Code:
Butter Creek Mi

Ground Water Survey:
12 WT08503

At Well #6 5 feet

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
Mead Tech INC
5 Triangle Dr
Research Triangle Park NC
27709

Attn: E. V. Mc Carthy

Transfer

Ship To:

⑤ Regional Office:
Sampling Personnel:
John Dourahou
(Name)
72 602-9415
(Phone)

Sampling Date:
3/15/82
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment	1-802	8 02
Water (Ext/VOA)		
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

3/17/82
Date Shipped:

76 8 857552
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

12 WT08503

At Well #6 5 feet

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)



ORGANICS TRAFFIC REPORT

① Case Number: 901

Sample Site Name/Code:
Perdue Creek MI
Ground Water Survey
82 WTC504

A well # 6 0 feet

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
Meach Tech Inc
5 Triangle Dr
Research Park NC 27709
TRIANGLE

Attn: KEVIN Mc CONNAUGHY

Transfer

Ship To:

⑤ Regional Office: _____

Sampling Personnel:
John Dourjalian
(Name)
312 CC 3 - 9415
(Phone)

Sampling Date:
3/15/82
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		

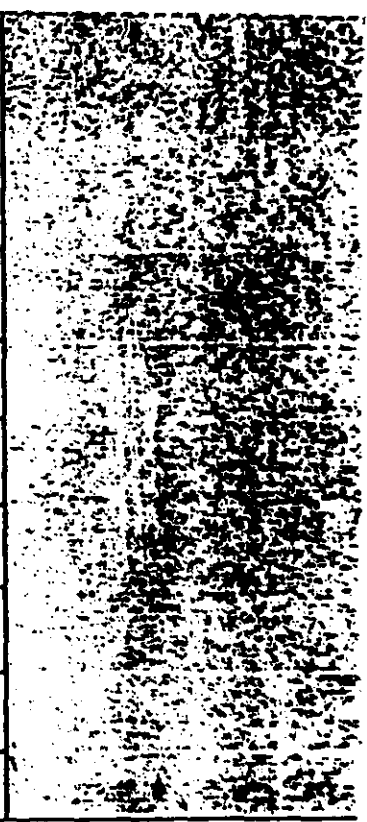
⑦ Shipping Information

Federal Express
Name of Carrier

3/17/82
Date Shipped:

765857552
Airbill Number:

Soil/Sediment	<u>1-802</u>	<u>802</u>
Water (Ext/VOA)		
Other		



⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82 WTC504

A well # 6 0 feet

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		REMARKS	
891		BATILE Creek Mi. <i>GROUND Water SHUM</i>		<i>Organic 12517 Inorganic 12518 12519</i>		0000066	
SAMPLERS: (Signature) <i>Thomas H. H. H.</i>							
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION		
8	2/24	0905		✓	Well #8	3	POW108 S03 F. 1002 (12517, 12518, 12519) 12518 UGA
9	2/24	15:10		✓	Well #9	3	POW108 S04 F. 1003 12519 12520 12521 VVA
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)	
<i>Tom H. H.</i>		2/25/82 1900		<i>H. H. H.</i>			
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)	
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time	
						Remarks	

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File



ORGANICS TRAFFIC REPORT

Sample Number

E 01002

① Case Number: 891

Sample Site Name/Code: BATTLE-Creek MI
GROUND-WATER SMOY
82WTC8 S03

② SAMPLE CONCENTRATION (Check One)
 Low Concentration
 Medium Concentration

③ SAMPLE MATRIX (Check One)
 Water
 Soil/Sediment

④ Ship To:
ACCUREX Corp.
Energy and Environment
405 CRYOE AVE
MOUNTAIN VIEW, CALIF. 9404
Attn: LINDA BURNANAS.

Transfer
Ship To:

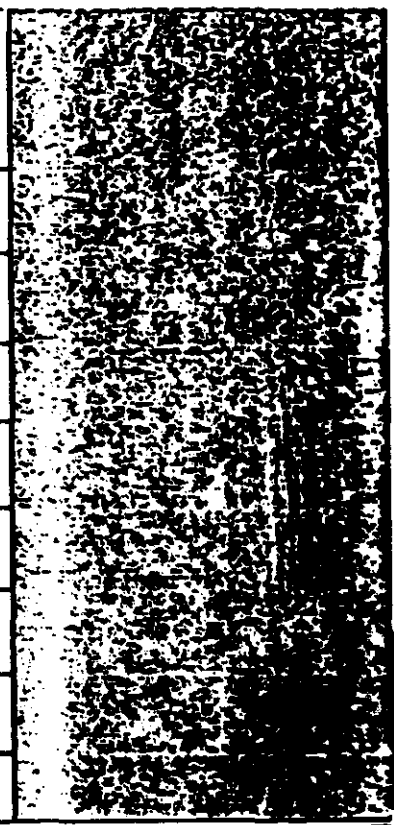
⑤ Regional Office: 5

Sampling Personnel:
THOMAS H. DeFouw
(Name)
312-6623-9415
(Phone)

Sampling Date:
2/24
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2 1/2 gal	1 gal
Water (VOA)	1	40ml
Soil/Sediment		
Water (Ext/VOA)	None in Storage	
Other		



⑦ Shipping Information

FEDERAL EXPRESS
Name of Carrier

2/25/82
Date Shipped:

76885536
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82WTC8 S03
well #8
Cooper & Willison Ave

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000067



ORGANICS TRAINING REPORT

① Case Number:
891

Sample Site Name/Code:
BATTLE Creek MI
Grains-Water Study
92 WTCB S04

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
Accutest Corp
ENERGY + ENVIRONMENT
405 CLYDE AVE.
MOUNTAINVIEW, CALIF. 9404

Attn: LINDA BOHANNAS.

Transfer
Ship To:

⑤ Regional Office: 5

Sampling Personnel:
Thomas DeFruin
(Name)
312 613-9415
(Phone)

Sampling Date:
2/24
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume let on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2 1/2 gal	1 gal
Water (VOA)	1	40ml
Soil/Sediment		
Water (Ext/VOA)	Broken in Storage	
Other		

⑦ Shipping Information

FEDERAL EXPRESS
Name of Carrier

2/25/82
Date Shipped:

7689 5536
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

92 WTCB S04
Well #9
Culbertson & Park Street

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS	REMARKS									
591		BATTLE CREEK MI. GROUND WATER SURVEY			<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">C.R. 10/11/82</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">VIA</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">VIA</div> </div>									
STA. NO.	DATE	TIME	COMP.	GRAB										
1	2/25/82	16:00		✓	BLANK From Pumping Station					82 WTUB SD1 E1000				
1	2/25/82	13:50		✓	WELL #1					82 WTUB SD5 E1004				
7	2/24/82	08:45		✓	WELL #7					82 WTUB SD2 E1001				
										TALS (12514, 12519) via VIA → 12513, 12522				
										TALS (12524, 12529) via VIA 12526, 12527				
										TALS (12524, 12525) via VIA 12525				
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)				
<i>[Signature]</i>		2/25/82 19:00		<i>[Signature]</i>										
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)				
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks						

0000069

Disposition: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File



ORGANICS TRAFFIC REPORT

E 01004

① Case Number:
891

Sample Site Name/Code:
Battle Creek Mi
Ground Water Study
82WTCB SOS

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
ACLUCK CORP.
ENERGY + ENVIRONMENT
405 CHOE AVE
MOUNTAIN VIEW, CALIF 9
Attn: LINDA BOHANNAS

Transfer
Ship To:

⑤ Regional Office:
Sampling Personnel:
Thomas H. DeFuria
(Name)
312 663-9415
(Phone)

Sampling Date:
2/25
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	1 1/2 gal	1 gal
Water (VOA)	1	40 ml
Soil/Sediment		
Water (Ext/VOA)	1	40 ml
Other		

⑦ Shipping Information

FEDERAL EXPRESS
Name of Carrier
2/25/82
TR. 76885536
Date Shipped:
76885536
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location
82WTCB SOS
Well #1
Edison Ave by Amer. Co.

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)



ORGANICS TRAFFIC REPORT

E 01001

① Case Number:
891

Sample Site Name/Code:
BATTLE Creek, Mi
GRAND WALK STUDY
82WTOB SO2.

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
ACCUREX CORP.
Energy AND Environment
405 CLYDE AVE
MOUNTAIN VIEW, CALIF.
Attn: LINDA BOHANNAS.

Transfer
Ship To:

⑤ Regional Office: S

Sampling Personnel:
THOMAS DeFouw
(Name)
312-663-9415
(Phone)

Sampling Date:
2/22/82
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2 1/2 gal	1 gal
Water (VOA)	1	40ml
Soil/Sediment		
Water (Ext/VOA)	VIA BUKE IN STORAGE	
Other		

Shipping Information

FEDERAL EXPRESS
Name of Carrier

2/25/82
Date Shipped:

768855636
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82WTOB SO2.
WELL #7
HAMPDEN AND HUNGRIDGE RD

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)



ORGANICS TRAFFIC REPORT

E 01000

<p>① Case Number: <u>891</u></p> <p>Sample Site Name/Code: <u>BATTLE Creek Mi</u> <u>Ground Water Study</u> <u>82 WTCB SOL</u></p>	<p>② SAMPLE CONCENTRATION (Check One)</p> <p><input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration</p> <p>③ SAMPLE MATRIX (Check One)</p> <p><input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment</p>	<p>④ Ship To: ACCUREX Corp Energy Environment & 405 CLYDE AVE MOUNTAIN VIEW, CALIF. 94 Attn: <u>LINDA B. HANNAS</u></p> <p>Transfer Ship To:</p>
--	---	--

<p>⑤ Regional Office: <u>5</u></p> <p>Sampling Personnel: <u>THOMAS H. DEFOUR</u> (Name) <u>(312) 2603-9415</u> (Phone)</p> <p>Sampling Date: <u>2/22/82</u> (Begin) (End)</p>	<p>⑥ For each sample collected specify number of containers used and mark volume level on each bottle.</p> <table border="1"> <thead> <tr> <th></th> <th>Number of Containers</th> <th>Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (Extractable)</td> <td><u>2 1/2 gal</u></td> <td><u>1 gal</u></td> </tr> <tr> <td>Water (VOA)</td> <td><u>1</u></td> <td><u>40 ml</u></td> </tr> <tr> <td>Soil/Sediment</td> <td></td> <td></td> </tr> <tr> <td>Water (Ext/VOA)</td> <td><u>1</u></td> <td><u>40 - VOA</u></td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Number of Containers	Approximate Total Volume	Water (Extractable)	<u>2 1/2 gal</u>	<u>1 gal</u>	Water (VOA)	<u>1</u>	<u>40 ml</u>	Soil/Sediment			Water (Ext/VOA)	<u>1</u>	<u>40 - VOA</u>	Other												
	Number of Containers	Approximate Total Volume																											
Water (Extractable)	<u>2 1/2 gal</u>	<u>1 gal</u>																											
Water (VOA)	<u>1</u>	<u>40 ml</u>																											
Soil/Sediment																													
Water (Ext/VOA)	<u>1</u>	<u>40 - VOA</u>																											
Other																													
<p>Shipping Information</p> <p><u>FEDERAL EXPRESS</u> Name of Carrier</p> <p><u>2/25/82</u> Date Shipped:</p> <p><u>768855636</u> Airbill Number:</p>																													

<p>⑧ Sample Description</p> <p><input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media</p> <p><input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Solids</p> <p><input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____</p>	<p>⑨ Sample Location</p> <p><u>82 WTCB SOL</u> <u>BLANK</u></p> <p><u>Distilled H₂O</u> <u>From pumping station LAB.</u></p>
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⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

NONE

0000072

SMOOPY

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	REMARKS						
460		BATTLE CREEK, MI. GROUND WATER STUDY											
AMPLERS: (Signature)													
<i>Tom H. ...</i>													
TA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION								
05	3/8	11:00		✓	Well # 2	4	✓					82WT08509 E. 959 TAG NO. 12531 - 12533	
10	3/8	1800		✓	Well # 13	4	✓					82WT08510 E. 960 TAG NO. 12534 - 12537	
11	2/26	11:30		✓	Well # 4	4	✓					82WT08511 E. 961 TAG NO. 12538 - 12541	
Relinquished by: (Signature)						Date / Time		Received by: (Signature)		Date / Time		Received by: (Signature)	
<i>Tom H. ...</i>						3/10/87 12:50		<i>Jerry Garcia</i>					
Relinquished by: (Signature)						Date / Time		Received by: (Signature)		Date / Time		Received by: (Signature)	
Relinquished by: (Signature)						Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks	

0000073

12531
12532
12533
12534
12535

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File



ORGANICS TRAFFIC REPORT

100959

① Case Number:
902

Sample Site Name/Code:
Battle Creek, MI
Ground Water Survey
B2WTOB S09
Well #2

② Sample Type: (Check One)
 Run Off
 Well low Conc
 Receiving Water ENV Samples
 Leachate
 Effluent
 Other (specify) _____

③ Ship To:
Allurek Corp
Energy and Environmental
405 CLYDE AVE
Mountain View, CA 94042
Attn:
KINDA SCHANNAS

④ Regional Office:
Sampling Personnel:
THOMAS H. DeFouw
(Name)
312 663 4415
(Phone)
Sampling Date:
3/8
(Begin) (End)

⑤ Mark Volume Level on Sample Bottle		Date Sampled
Extractable	1/2 gal	3/8 82
Extractable	1/2 gal	3/8 82
Extractable		
Extractable		
VOA Unpreserved	40ml	3/8/82
VOA Unpreserved (Duplicate)	40ml	3/8/82

⑥ Shipping Information
FEDERAL EXPRESS
Name of Shipper:
3/8/82
Date Shipped:
0886 57541
Airbill Number:

⑦ Description of Sample Location:
B2WTOB S09
Well #2
END of Mill Street

⑧ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000074



ORGANICS TRAFFIC REPORT

Sample Number
E0960

① Case Number:
902

Sample Site Name/Code:
BATTLE CREEK, MI
GROUND WATER SHOW
82 WT 08 S10
Well #13

② Sample Type: (Check One)

Run Off

Well bot Conc

Receiving Water ENV. SAMPLE

Leachate

Effluent

Other (specify) _____

③ Ship To:

ACCURIX CORP
ENV. & ENVIRONMENT
405 CLYDE AVE
MOUNTAIN VIEW, CALIF
94092

Attn:
LIND BOHANNAS

④ Regional Office:
Sampling Personnel

Tom DeFouw
(Name)
312 663-9415
(Phone)

Sampling Date:
3/8
(Begin) (End)

⑤ Mark Volume Level on Sample Bottle

		Date Sampled
Extractable	<u>1/29A</u>	<u>3/8</u>
Extractable	<u>1/29A</u>	<u>3/8</u>
Extractable		
Extractable		
VOA Unpreserved	<u>40ml</u>	<u>3/8</u>
VOA Unpreserved (Duplicate)	<u>40ml</u>	<u>3/8</u>



⑥ Shipping Information

FEDERAL EXPRESS
Name of Shipper:

3/9/87
Date Shipped:

68857541
Airbill Number:

⑦ Description of Sample Location:

82 WT 08 S10
well #13
By Rail Road Lagoon

⑧ Special Handling Instructions
(e.g., safety precautions, hazardous nature)



ORGANICS TRAFFIC REPORT

EC 061

① Case Number:
902

Sample Site Name/Code:
Battle Creek, MI
89WEDB S10
Ground Water Survey
Well #4

② Sample Type: (Check One)

Run Off

Well low conc

Receiving Water

Leachate few samples

Effluent

Other (specify) _____

③ Ship To:

Accuex Corp
Energy and Environment
405 Clyde Ave
Mountain View, CA 94042

Attr:
Alvina Bohman

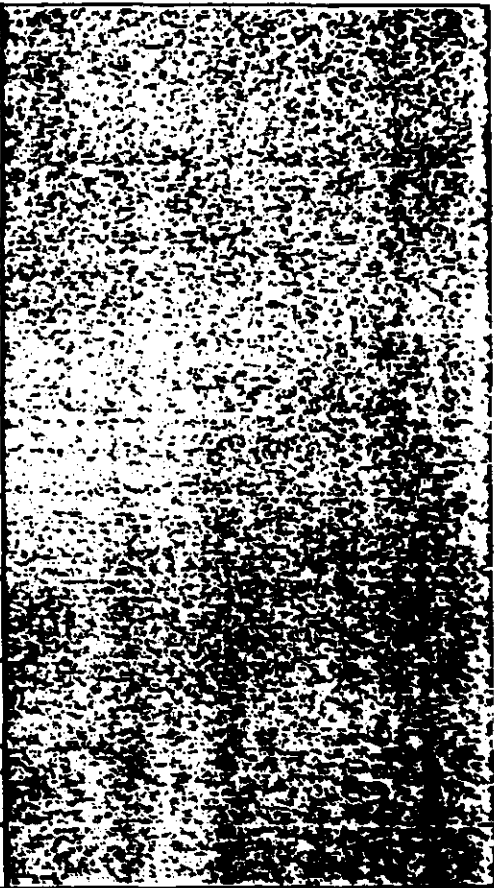
④ Regional Office:
Sampling Personnel:

Tom Orfan
(Name)
312 663-9415
(Phone)

Sampling Date:
2/26
(Begin) (End)

⑤ Mark Volume Level on Sample Bottle

		Date Sampled
Extractable	<u>1/29 A</u>	<u>3/8</u>
Extractable	<u>1/29 A</u>	<u>3/8</u>
Extractable		
Extractable		
VOA Unpreserved	<u>40</u>	<u>3/8</u>
VOA Unpreserved (Duplicate)	<u>40</u>	<u>3/8</u>



⑥ Shipping Information

FEDERAL EXPRESS
Name of Shipper:

3/9/82
Date Shipped:

888 85754
Airbill Number:

⑦ Description of Sample Location:

89WTOB S11
Well #4
EDISON ST

⑧ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000076

CHAIN OF CUSTODY RECORD

0000077

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	REMARKS									
102		CATTLE Creek, Mi Ground v. AHL														
SAMPLERS: (Signature)																
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION											
12	3/19	17:30		✓	well # 4	4	12509 511 1016									
13	3/19	17:50		✓	well # 4	4	12509 511 1015									
	4/9	17:10		✓	well # 5	4	12509 511 1017									

Relinquished by: (Signature) <i>[Signature]</i>	Date / Time 3/19/02 17:50	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File



ORGANICS TRAFFIC REPORT

FD 806

① Case Number: 630 902

Sample Site Name/Code:
Battle Creek, Mi.
Ground water survey
82WTCBS12
well #9.

② Sample Type: (Check One)

Run Off

Well

Receiving Water

Leachate

Effluent

Other (specify) _____

③ Ship To:

ACUREX Corp
Energy and Environment
405 CLYDE AVE
MOUNTAIN VIEW, CALIF.
Attn: - 94042
LINDA BOHANNAS

④ Regional Office: 5

Sampling Personnel:
John Dourjalian
(Name)
312 663-9415
(Phone)

Sampling Date:
3/9
(Begin) (End)

⑤ Mark Volume Level on Sample Bottle

		Date Sampled
Extractable	1/2 gal	3/9
Extractable	1/2 gal	3/9
Extractable		
Extractable		
VOA Unpreserved		
VOA Unpreserved (Duplicate)		

⑥ Shipping Information

FEDERAL EXPRESS
Name of Shipper:

3/10/92
Date Shipped:

768857541
Airbill Number:

⑦ Description of Sample Location:
82WTCBS12
From Well #9
Culbertson + Hayes Place

⑧ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000078



ORGANICS TRAFFIC REPORT

Sample Number
E 01015

① Case Number:
902

Sample Site Name/Code:
BATTLE CREEK, MI
GROUND WATER SURVEY
82WT08S13
Well #8

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:

ACCUREX, Corp.
Energy and Environment
405 CLYDE AVE
MOUNTAIN VIEW, CALIF. 94042
Attn: LINDA BOHANNON

Transfer
Ship To:

⑤ Regional Office: 5

Sampling Personnel:
John Dourgalian
(Name)
312 663-9415
(Phone)

Sampling Date:
3/9
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume in on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2 - 1/2 gal	1 gal
Water (VOA)	2 - 40ml	80ml
Soil/Sediment		
Water (Ext/VOA)		
Other		

Shipping Information

FEDERAL Express
Name of Carrier

3/10/82
Date Shipped:

768859541
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82WT08S13
Well #8
Cooper & Willison Av

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000079



ORGANICS TRAFFIC REPORT

E 01017

① Case Number:
902

Sample Site Name/Code:
Battle Creek, Mi
Ground Water Study
B2WTOB SIS
Well #5

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
Accurex Corp
Energy and Environment
405 Clyde Ave
Mountain View, Calif. 94042

Attn: Linda Buchanan

Transfer
Ship To:

⑤ Regional Office: _____

Sampling Personnel:
John Dourjalian
(Name)
312 663 9415
(Phone)

Sampling Date:
3/9
(Begin) (End)

⑥ For each sample collected specify num of containers used and mark volume let on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2 1/2 gal	1 gal
Water (VOA)	40 ml	40 ml
Soil/Sediment		
Water (Ext/VOA)	40 ml	40 ml
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

3/10/82
Date Shipped:

768857541
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

B2WTOB SIS
Well #5

Emmett Road - GTWRR Trk

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000050

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	REMARKS				
010		WHITE CREEK, MI GROUNDWATER STUDY									
SAMPLERS: (Signature)											
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION						
	3/1/92	1300		✓	Well # 10	4					Bottom sub. EU907 Tags 5-12550-12551
	3/1/92	11:3		✓	Well # 3	4	✓	✓	✓	✓	Bottom sub EU958 Tags 5-12557-12560
	3/1/92	1500		✓	Well # 6	4	✓	✓	✓	✓	Bottom sub EU950 Tags 5-12552-12556

Relinquished by: (Signature) <i>[Signature]</i>	Date / Time 3/14/92 1755	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

1800000

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File



Sample Number
EU 807

ORGANICS TRAFFIC REPORT

<p>① Case Number: <u>600 902</u></p> <p>Sample Site Name/Code: <u>Battle Creek, ^{mi} Groundwater</u> <u>Ground Water Study</u> <u>82WTOB 506</u> <u>Well # 10</u></p>	<p>② Sample Type: (Check One)</p> <p><input type="checkbox"/> Run Off</p> <p><input checked="" type="checkbox"/> Well LOW CONC.</p> <p><input type="checkbox"/> Receiving Water ENV. Sample.</p> <p><input type="checkbox"/> Leachate</p> <p><input type="checkbox"/> Effluent</p> <p><input type="checkbox"/> Other (specify) _____</p>	<p>③ Ship To:</p> <p>ACCUREX Corp. Energy and Environment 405 CLYDE AVE Mountain View, Calif 94042</p> <p>Attn: LINDA BOHANNAS</p>
--	--	--

<p>④ Regional Office: Sampling Personnel: <u>Tom DeFouw</u> (Name) <u>312 663-9415</u> (Phone)</p> <p>Sampling Date: <u>3/7</u> (Begin) (End)</p>	<p>⑤ Mark Volume Level on Sample Bottle</p> <table border="1"> <thead> <tr> <th></th> <th>Date Sampled</th> </tr> </thead> <tbody> <tr> <td>Extractable <u>2/ 1/2 gal</u></td> <td><u>3/8</u></td> </tr> <tr> <td>Extractable</td> <td><u>3/8</u></td> </tr> <tr> <td>Extractable</td> <td></td> </tr> <tr> <td>Extractable</td> <td></td> </tr> <tr> <td>VOA Unpreserved</td> <td><u>3/8</u></td> </tr> <tr> <td>VOA Unpreserved (Duplicate)</td> <td><u>3/8</u></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Date Sampled	Extractable <u>2/ 1/2 gal</u>	<u>3/8</u>	Extractable	<u>3/8</u>	Extractable		Extractable		VOA Unpreserved	<u>3/8</u>	VOA Unpreserved (Duplicate)	<u>3/8</u>					
	Date Sampled																			
Extractable <u>2/ 1/2 gal</u>	<u>3/8</u>																			
Extractable	<u>3/8</u>																			
Extractable																				
Extractable																				
VOA Unpreserved	<u>3/8</u>																			
VOA Unpreserved (Duplicate)	<u>3/8</u>																			
<p>Shipping Information</p> <p><u>FEDERAL EXPRESS</u> Name of Shipper:</p> <p><u>3/9/82</u> Date Shipped:</p> <p><u>768857541</u> Airbill Number:</p>																				

⑦ Description of Sample Location: **GROUND WATER SAMPLE.**
82WTOB 506
Well #10
Verona Pumping Station SE corner.

⑧ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000082



ORGANICS TRAFFIC REPORT

EC 957

① Case Number: 902

Sample Site Name/Code:
Battle Creek, Mi
GROUND WATER STUDY
82WT08507
Well #3

② Sample Type: (Check One)
 Run Off
 Well low CONC.
 Receiving Water ENV. SAMPLE
 Leachate
 Effluent
 Other (specify) _____

③ Ship To:
ACCURER CORP
ENERGY AND ENVIRONMENT
405 CLYDE AVE
MOUNTAIN VIEW, CALIF.
Attn: 94042
LINDA BOHANNAS

④ Regional Office:
Sampling Personnel:
Tom DeFouw
(Name)
312 663-9415
(Phone)

Sampling Date:
3/7
(Begin) (End)

⑤ Mark Volume Level on Sample Bottle

		Date Sampled
Extractable	<u>1/2 gal</u>	<u>3/8</u>
Extractable	<u>1/2 gal</u>	<u>3/8</u>
Extractable		
Extractable		
VOA Unpreserved	<u>40 ml</u>	<u>3/8</u>
VOA Unpreserved (Duplicate)	<u>40 ml</u>	<u>3/8</u>

⑥ Shipping Information
FEDERAL EXPRESS
Name of Shipper:
3/9/82
Date Shipped:
768857541
Airbill Number:

⑦ Description of Sample Location: GROUND WATER SAMPLE
- 82WT08507
Well #3
MILL STREET AND EMMET.

⑧ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)



ORGANICS TRAFFIC REPORT

① Case Number:
902

Sample Site Name/Code:
Battle Creek, Mi
GROUND WATER STUDY
82 WT 08 S08
Well #6

② Sample Type: (Check One)

Run Off

Well Low Conc

Receiving Water ENVIRON

Leachate

Effluent

Other (specify) _____

③ Ship To:

Accurex Corp
Heavy + Environment
405 CLYDE AVE
Mountain View, Calif
94042

Attn:
L. NOA BOHANNAS

④ Regional Office:
Sampling Personnel:

Tom DeFuria
(Name)
312 663-9415
(Phone)

Sampling Date:
3/8
(Begin) (End)

⑤ Mark Volume Level on Sample Bottle

		Date Sampled
Extractable	<u>1/2 GA</u>	<u>3/8</u>
Extractable	<u>1/2 GA</u>	<u>3/8</u>
Extractable		
Extractable		
VOA Unpreserved		
VOA Unpreserved (Duplicate)		

⑥ Shipping Information

FEDERAL EXPRESS
Name of Shipper:

3/9/82
Date Shipped:

768857541
Airbill Number:

⑦ Description of Sample Location: GROUND WATER SAMPLE
82 WT 08 S08
Well #6 RAYMOND Rd & Emmet

⑧ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000084

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	REMARKS			
SAMPLERS: (Signature)										
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	DI	SI	VA	VA	
102	Battle Creek Mi Groundwater District					0000085				
PK Doyle										
7	3/3	1600		✓	well # 16					82WT08517 E 1019 TAG 40 1261-15
18	3/10	1530		✓	well # 4					82WT08518 E 1020 TAG 40 12616-19
16	3/9	1645		✓	well # 1					82WT08516 E 1018 TAG # 12546-49
14	3/9	1725		✓	well # 7					82WT08514 E 1016 TAG 40 12550 12601-03

Relinquished by: (Signature) PK Doyle	Date / Time 3/14/86 1800	Received by: (Signature) Jenny G...	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File



ORGANICS TRAFFIC REPORT

E 01020

① Case Number:
902

Sample Site Name/Code:
Battle Creek Mi
Ground Water Survey
82 W T O B S 18
Well # 4

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
Accurex Corp
Energy And Environment
405 Clyde Ave
Mountain View CA 94042
Attn: Linda Bohannas

Transfer
Ship To:

⑤ Regional Office: _____
Sampling Personnel:
John DourJalian
(Name)
(312) 663-9415
(Phone)

Sampling Date:
3/10
(Begin) (End)

⑥ For each sample collected specify num of containers used and mark volume lev on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2-1/2 gal	1 gal
Water (VOA)	1-40 ml	40 ml
Soil/Sediment		
Water (Ext/VOA)	1-40 ml	40 ml
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

3/10/82
Date Shipped:

768857541
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82 W T O B S 18

Edison Street

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)



ORGANICS TRAFFIC REPORT

Sample Number
E 01019

① Case Number:
902

Sample Site Name/Code:
Battle Creek Mi
GROUND WATER SURVEY
82 WT 08 517
Well #16

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
Accurex Corp
Energy and Environment
405 Clyde Ave
Mountain View, CA 94042
Attn: LINDA BOHANNAS

Transfer
Ship To:

⑤ Regional Office: _____

Sampling Personnel:
John Dourjaliev
(Name)
(312) 663-9415
(Phone)

Sampling Date:
3/10
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume in on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2-1/2 gal	1 gal
Water (VOA)	1-40 ml	1-40 ml
Soil/Sediment		
Water (Ext/VOA)	1-40 ml	40 ml
Other		

Shipping Information

Federal Express
Name of Carrier

3/10/82
Date Shipped:

768857541
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location
82 WT 08 517
Grand Trunk Railyard
behind Round house

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000087



ORGANICS TRAFFIC REPORT

① Case Number:
902

Sample Site Name/Code:
Battle Creek, Mi
Ground Water Survey
82WTCB S16
Well #1

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:
ACLUSET CORP.
ENERGY AND ENVIRONMENT
405 CLYDE AVE
MOUNTAINVIEW, CALIF. 94039

Attn: LINDA SCHANNK

Transfer
Ship To:

⑤ Regional Office: 5

Sampling Personnel:
John Dourjalian
(Name)
312 663-9415
(Phone)

Sampling Date:
3/9
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume in on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2 1/2 gal	1 gal
Water (VOA)	40ml	40ml
Soil/Sediment		
Water (Ext/VOA)	1-40ml	40ml
Other		

Shipping Information

FEDERAL EXPRESS
Name of Carrier

3/10/82
Date Shipped:

7688575411
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82WTCB S16
Well #1

North Edison St

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)



ORGANICS TRAFFIC REPORT

E 01016

① Case Number:
902

Sample Site Name/Code:
BATTLE Creek, MI
Ground Water Survey
B2WTCB 514
Well #7

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:

ACCUREX Corp
ENERGY AND ENVIRONMENT
405 CLYDE AVE
MOUNTAIN VIEW, CALIF.
91042
Attn: LINDA BERNHART

Transfer _____
Ship To: _____

⑤ Regional Office: 5

Sampling Personnel:
John Douglas
(Name) is
312 663-9415
(Phone)

Sampling Date:
3/9
(Begin) (End)

⑥ For each sample collected specify nu of containers used and mark volume l_{ts} on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2 1/2 GAL	1 GAL
Water (VOA)	1 40 ml	40 ml
Soil/Sediment		
Water (Ext/VOA)	1 40 ml	40 ml
Other		

⑦ Shipping Information

FEDERAL Express
Name of Carrier

3/10/82
Date Shipped:

038857541
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

B2WTCB 514
Well #7

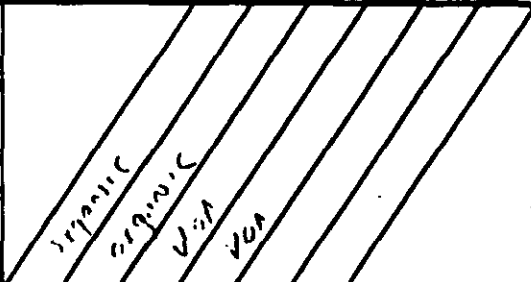
Hampton AND 6 range A

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000089

76877576

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS							REMARKS	
SAMPLERS: (Signature)														
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION									
S 19	2/15	1300		✓	Well # 12	4						E2 W708518 5105		
S 20	3/15	1400		✓	Well # 11	4						TAG # 12561-12563 4105		
												E2 W708520 E 1005		
												TAG # 12564-12565		
												TAG # 12547-12548		
Relinquished by: (Signature)			Date / Time		Received by: (Signature)			Relinquished by: (Signature)			Date / Time		Received by: (Signature)	
<i>PC Dijk</i>			2/15/2025		<i>J. Difford</i>									
Relinquished by: (Signature)			Date / Time		Received by: (Signature)			Relinquished by: (Signature)			Date / Time		Received by: (Signature)	
Relinquished by: (Signature)			Date / Time		Received for Laboratory by: (Signature)			Date / Time		Remarks				



ORGANICS TRAFFIC REPORT

E Q1005

<p>① Case Number: <u>902</u></p> <p>Sample Site Name/Code: <u>Bottle Creek Hi</u> <u>Ground Water Survey</u> <u>82 WTC 8519</u> <u>Well # 12</u></p>	<p>② SAMPLE CONCENTRATION (Check One)</p> <p><input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration</p> <p>③ SAMPLE MATRIX (Check One)</p> <p><input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment</p>	<p>④ Ship To:</p> <p><u>Accutex Corp</u> <u>Energy and Environment</u> <u>45 Clyde Ave</u> <u>Mountain View CA 9404</u> <u>Attn: Linda Bohonns</u></p> <p>Transfer Ship To:</p>
--	---	---

<p>⑤ Regional Office: _____</p> <p>Sampling Personnel: <u>John Doufalian</u> (Name) <u>(312) 663-7415</u> (Phone)</p> <p>Sampling Date: <u>3/15/82</u> (Begin) (End)</p>	<p>⑥ For each sample collected specify number of containers used and mark volume level on each bottle.</p> <table border="1"> <thead> <tr> <th></th> <th>Number of Containers</th> <th>Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (Extractable)</td> <td>2 - 1/2 gal</td> <td>1 gal</td> </tr> <tr> <td>Water (VOA)</td> <td>1 - 40 ml</td> <td>40 ml</td> </tr> <tr> <td>Soil/Sediment</td> <td></td> <td></td> </tr> <tr> <td>Water (Ext/VOA)</td> <td>1 - 4 ml</td> <td>4 ml</td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Number of Containers	Approximate Total Volume	Water (Extractable)	2 - 1/2 gal	1 gal	Water (VOA)	1 - 40 ml	40 ml	Soil/Sediment			Water (Ext/VOA)	1 - 4 ml	4 ml	Other									
	Number of Containers	Approximate Total Volume																								
Water (Extractable)	2 - 1/2 gal	1 gal																								
Water (VOA)	1 - 40 ml	40 ml																								
Soil/Sediment																										
Water (Ext/VOA)	1 - 4 ml	4 ml																								
Other																										
<p>⑦ Shipping Information</p> <p><u>Federal Express</u> Name of Carrier</p> <p><u>3/17/82</u> Date Shipped:</p> <p><u>768857596</u> Airbill Number:</p>																										

<p>⑧ Sample Description</p> <p><input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media</p> <p><input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Solids</p> <p><input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____</p>	<p>⑨ Sample Location</p> <p><u>82 WTC 8519</u></p> <p>.....</p> <p><u>Tellogg Property</u> <u>by Edison Street</u></p>
---	--

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000091



ORGANICS TRAFFIC REPORT

E 01006

① Case Number:
902

Sample Site Name/Code:
Battle Creek MI
Ground Water Survey
82 WTC 8520
Well # 11

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:

Accurex Corp
Energy and Environment
405 Clyde Ave
Mountain View CA
Attn: Linda Bohman

Transfer
Ship To:

⑤ Regional Office:
Sampling Personnel:

John Dourjian
(Name)
(312) 663-9415
(Phone)

Sampling Date:
3/16/82
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2 1/2 gal	1 gal
Water (VOA)	1-40ml	40ml
Soil/Sediment		
Water (Ext/VOA)	1-40ml	40ml
Other		

⑦ Shipping Information

Federal Express
-Name of Carrier

3/17/82
Date Shipped:

768857596
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

82 WTC 8520
Grand Trunk Railroad

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000092

76857576

CHAIN OF CUSTODY RECORD

PROJ. NO. 02	PROJECT NAME Battle Creek Mt. Groundwater	NO. OF CONTAINERS							REMARKS	000093
SAMPLERS: (Signature) i.e. Dush										

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Original	1st	Van	Van	REMARKS
1	3/16	1400		✓	Well # 15	4					82 W768 201 # 1007 TAG # 12621-12624
2	3/12	1500		✓	Well # 14	4					82 W768 52 # 1025 TAG # 12625-12628

Relinquished by: (Signature) i.e. Dush	Date / Time 3/17 2043	Received by: (Signature) J. M. Jones	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: White -- Accompanies Shipment; Pink -- Coordinator Field Files; Yellow -- Laboratory File



ORGANICS TRAFFIC REPORT

<p>① Case Number: <u>902</u></p> <p>Sample Site Name/Code: <u>Butte Creek Mi</u> <u>Ground Water Study</u> <u>82WTO8 S21</u> <u>Well # 15</u></p>	<p>② SAMPLE CONCENTRATION (Check One)</p> <p><input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration</p> <p>③ SAMPLE MATRIX (Check One)</p> <p><input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment</p>	<p>④ Ship To:</p> <p><u>ACCURET Corp</u> <u>Energy and Environment</u> <u>405 KYLE AVE</u> <u>Mountain View CA</u> <u>Attn: Linda Bahennas</u></p> <p>Transfer Ship To:</p>
---	---	---

<p>⑤ Regional Office: _____</p> <p>Sampling Personnel: <u>John Douralian</u> (Name) <u>312 663 9415</u> (Phone)</p> <p>Sampling Date: Begin) _____ (End) _____</p>	<p>⑥ For each sample collected specify number of containers used and mark volume level on each bottle.</p> <table border="1"> <thead> <tr> <th></th> <th>Number of Containers</th> <th>Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (Extractable)</td> <td><u>2-1/2 gal</u></td> <td><u>1 gal</u></td> </tr> <tr> <td>Water (VOA)</td> <td><u>1-40 ml</u></td> <td><u>40 ml</u></td> </tr> <tr> <td>Soil/Sediment</td> <td></td> <td></td> </tr> <tr> <td>Water (Ext/VOA)</td> <td><u>1-40 ml</u></td> <td><u>40 ml</u></td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Number of Containers	Approximate Total Volume	Water (Extractable)	<u>2-1/2 gal</u>	<u>1 gal</u>	Water (VOA)	<u>1-40 ml</u>	<u>40 ml</u>	Soil/Sediment			Water (Ext/VOA)	<u>1-40 ml</u>	<u>40 ml</u>	Other									
	Number of Containers	Approximate Total Volume																								
Water (Extractable)	<u>2-1/2 gal</u>	<u>1 gal</u>																								
Water (VOA)	<u>1-40 ml</u>	<u>40 ml</u>																								
Soil/Sediment																										
Water (Ext/VOA)	<u>1-40 ml</u>	<u>40 ml</u>																								
Other																										
<p>⑦ Shipping Information</p> <p><u>Federal Express</u> Name of Carrier</p> <p><u>3/17/82</u> Date Shipped:</p> <p><u>768857596</u> Airbill Number:</p>																										

<p>⑧ Sample Description</p> <p><input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media</p> <p><input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Solids</p> <p><input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____</p>	<p>⑨ Sample Location</p> <p><u>Grand Trunk Railroad</u> <u>off JOHNSON AVE</u> <u>82WTO8 S21</u></p>
---	--

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000094



ORGANICS TRAFFIC REPORT

① Case Number:
902

Sample Site Name/Code:
Pattee Creek MI
GROUND WATER STUDY
82 W T 08 22
well #14

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
 Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
 Soil/Sediment

④ Ship To:

Accurate Corp
Energy And Environment
403 C/ycle AVE
Mountain View CA
Attn: Linda Bohannan

Transfer
Ship To:

⑤ Regional Office: _____

Sampling Personnel:
John Dourston
(Name)
312 663 9415
(Phone)

Sampling Date:
9/15/82
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2- 1/2 gal	1-gal
Water (VOA)	1- 40 ml	40 ml
Soil/Sediment		
Water (Ext/VOA)	1- 40 ml	40 ml
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

9/17/82
Date Shipped:

7688 57596
Airbill Number:

⑧ Sample Description

Surface Water Mixed Media
 Ground Water Solids
 Leachate Other (specify) _____

⑨ Sample Location

Kelley Property
off Jameson Ave
well #14
82 W T 08 22

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

0000090

AIRBILL NUMBER

768857541



PLEASE COMPLETE ALL INFORMATION CAREFULLY
SEE BACK OF FORM FOR INSTRUCTIONS

YOUR FEDERAL EXPRESS ACCOUNT NUMBER

3/10/82

FROM (Sender's Name)
William Radman

TO (Recipient's Name)
Linda Bahonngs

COMPANY
Soil Testing Services Inc

COMPANY
Accura Corp

CITY/STATE ADDRESS
5340 Ranga Road Lansing MI 4

STREET ADDRESS (P.O. BOX NUMBERS ARE NOT DELIVERABLE)
405 Clyde Ave

CITY
Lansing MI 4

CITY
Mountain View CA

AIRBILL NUMBER: 768857541
ZIP CODE: 418706

IN TENDERING THIS SHIPMENT, SHIPPER AGREES THAT
F.E.C. SHALL NOT BE LIABLE FOR SPECIAL, INCIDENT
TAL OR CONFIDENTIAL DAMAGES ARISING FROM
CARRIAGE HEREOF F.E.C. IS
CLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, WITH
RESPECT TO THIS SHIPMENT THIS IS A NON-NEGOTIABLE
AIRBILL SUBJECT TO CONDITIONS OF CONTRACT SET FORTH
ON REVERSE OF SHIPPER'S COPY UNLESS YOU DECLARE A
HIGHER VALUE. THE LIABILITY OF FEDERAL EXPRESS CORP
ORATION IS LIMITED TO \$100.00

ZIP ADDRESS OF THE SHIPPER
FOR DELIVERY PURPOSES
914092

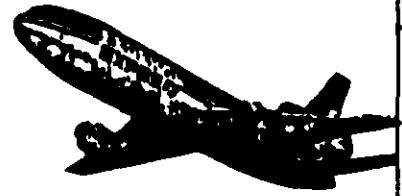
FOUR MERCHANDISE NUMBERS (FIRST 12 CHARACTERS WILL APPEAR ON BACK OF INVOICE)
PAYMENT: Bill Shipper Bill Recipient's Firm Bill 3rd Party F.E.C. Assn. Bill Credit Card
 Cash in Advance Account Number/Credit Card Number

FEDERAL EXPRESS USE
FREIGHT CHARGES
DECLARED VALUE CHARGE
OTHER

SERVICES
CHECK ONLY ONE ITEM
PRIORITY MAIL (P.M.)
OVERNIGHT LETTER
OVERNIGHT PARCEL
OVERNIGHT PARCEL
STANDARD MAIL
REGULAR MAIL

QUANTITY	WEIGHT	DECLARED VALUE	OR
1	35		
1	35		
1	33		
1	67		
TOTAL	170	TOTAL	

RECEIVED BY SHIPPER'S DOOR
REGULAR STOP 490
ON-CALL STOP
F.E.C. INC.
Federal Express Corporation Employees to
20439
DATE/TIME For Federal Express Use
03-10/1982



ADVANCE GUARANTEE
ADVANCE GUARANTEE
OTHER
TOTAL CHARGES
PART #204173000
REVISION DATE 3/01/82
PRINTED U.S.A.

ORIGIN ACCOUNTING COPY



PLEASE COMPLETE ALL INFORMATION IN THE 5 BLOCKS OUTLINED IN ORANGE
SEE BACK OF FORM SET FOR COMPLETE PREPARATION INSTRUCTIONS

768857552



YOUR FEDERAL EXPRESS ACCOUNT NUMBER

DATE

TO Recipient's Name

COMPANY

DEPARTMENT/FLOOR NO.

STREET ADDRESS P.O. BOX NUMBERS ARE NOT DELIVERABLE

CITY

STATE

8 Total Fee Paid up or Scheduling Inactivity
Recipient's Previous Number

FROM (Your Name) _____

COMPANY _____ DEPARTMENT/FLOOR NO. _____

STREET ADDRESS _____

CITY _____ STATE _____

AMBL NO. **768857552**

ZIP 5-DIGIT 418191

YOUR REFERENCE NUMBERS FIRST 12 CHARACTERS WILL ALSO APPEAR ON SERVICE

IN FORWARDING THIS SERVICE IN SERVICE AREAS THAT
F.E.C. SHALL NOT BE LIABLE FOR SPECIAL SERVICE
TAX OR OTHER TAXES UNLESS INDICATED OTHERWISE

CLASS OF MAIL: REGISTERED MAIL REGISTERED MAIL WITH RETURN RECEIPT REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE AND INSURANCE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE AND INSURANCE AND POSTNET REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE AND INSURANCE AND POSTNET AND TRACKING REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE AND INSURANCE AND POSTNET AND TRACKING AND DELIVERY POINT REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE AND INSURANCE AND POSTNET AND TRACKING AND DELIVERY POINT AND DELIVERY POINT REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE AND INSURANCE AND POSTNET AND TRACKING AND DELIVERY POINT AND DELIVERY POINT AND DELIVERY POINT REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE AND INSURANCE AND POSTNET AND TRACKING AND DELIVERY POINT AND DELIVERY POINT AND DELIVERY POINT

PAYMENT Cash on Delivery Bill Recipient's F.E.C. Acct. Bill My F.E.C. Acct. Bill Other Card

SERVICES CHECK ONLY ONE BOX

PRIORITY ONE (P-1) GOVERNMENT LETTER 1-2 Business Days

COMMERCIAL PAK 2-3 Business Days

2-DAY 2 Business Days

3-DAY 3 Business Days

4-DAY 4 Business Days

STANDARD AIR 5-7 Business Days

5-DAY 5 Business Days

OVERSEAS - IS RETURNED AS REG. BUSINESS MAIL
HANDY THROUGH FRONT. SEE SPECIAL
MAILING FOR SCHEDULED DELIVERY

DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED	FEES	WEIGHT	DECLASS	INS
HOLD FOR PICK UP AT FOLLOWING FEDERAL EXPRESS LOCATION SHOWN IN SERVICE GUIDE				
1 <input type="checkbox"/> FEDERAL EXPRESS LOCATION SHOWN IN SERVICE GUIDE				
2 <input checked="" type="checkbox"/> Insured				
3 <input type="checkbox"/> Insured (Maximum Value \$5000)				
4 <input type="checkbox"/> Insured (Maximum Value \$1000)				
5 <input type="checkbox"/> Insured (Maximum Value \$500)				
6 <input type="checkbox"/> Insured (Maximum Value \$100)				
7 <input type="checkbox"/> Insured (Maximum Value \$50)				
8 <input type="checkbox"/> Insured (Maximum Value \$25)				
9 <input type="checkbox"/> Insured (Maximum Value \$10)				
10 <input type="checkbox"/> Insured (Maximum Value \$5)				
TOTAL	41		180	

RECEIVED AT _____

SHIPMENT AT _____

REGULAR STOP OR CALL STOP

SHIPMENT AT _____

DATE/TIME FOR FEDERAL EXPRESS USE _____

3-17 2130



SHIPPER'S COPY

86000098

EXPRESS

SHIPERS COPY
SERIAL ALWAYS ENTER NO.
PRINT ON THE CHECK REFERENCE
NUMBER WHEN MAKING PAYMENT



(Print)

738722320

AMBL NUMBER

DATE
3-17-82

1 Pound Per Pick Up or Saturday Delivery
Insurance's Premium Number

FROM (Your Name) William L. Brown DEPARTMENT/ROOM NO. 1111
 COMPANY Test Dept STREET ADDRESS 1111
 CITY Albany STATE NY ZIP 12202

TO (Recipient's Name) John Doe DEPARTMENT/ROOM NO. 222
 COMPANY ABC Corp STREET ADDRESS P.O. BOX NUMBERS ARE NOT DELIVERED
 CITY Albany STATE NY ZIP 12202

AMBL NO. 738722320

1044 NOTS/PRECEDES NUMBERS FIRST 12 CHARACTERS WILL ALSO APPEAR ON INVOICE

PAYMENT By Shipper By Recipient P.E.C. Acct. By 3rd Party P.E.C. Acct. By Cash On Delivery

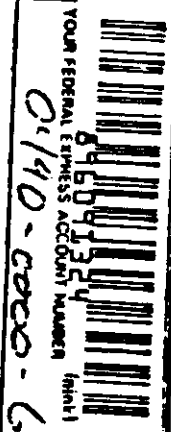
REGULAR SERVICE REGISTERED MAIL REGISTERED MAIL WITH RETURN RECEIPT REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE AND TRACKING SERVICE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE AND TRACKING SERVICE AND DELIVERY GUARANTEE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE AND TRACKING SERVICE AND DELIVERY GUARANTEE AND SIGNATURE GUARANTEE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE AND TRACKING SERVICE AND DELIVERY GUARANTEE AND SIGNATURE GUARANTEE AND SIGNATURE GUARANTEE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE AND TRACKING SERVICE AND DELIVERY GUARANTEE AND SIGNATURE GUARANTEE AND SIGNATURE GUARANTEE

ITEMS	WEIGHT	POSTAGE	INSURANCE	TOTAL
1	5.0	1.00		6.00
2	1.0	.20		1.20
TOTAL	6.0	1.20		7.20

SHIPPER'S COPY

REGULAR SERVICE REGISTERED MAIL REGISTERED MAIL WITH RETURN RECEIPT REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE AND TRACKING SERVICE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE AND TRACKING SERVICE AND DELIVERY GUARANTEE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE AND TRACKING SERVICE AND DELIVERY GUARANTEE AND SIGNATURE GUARANTEE REGISTERED MAIL WITH RETURN RECEIPT AND SIGNATURE GUARANTEE AND INSURANCE AND TRACKING SERVICE AND DELIVERY GUARANTEE AND SIGNATURE GUARANTEE AND SIGNATURE GUARANTEE

SHIPPER'S COPY
 SHIPPING LABELS ARE
 NOT TO BE REUSED
 AND THE ORIGINAL LABEL
 SHOULD BE KEPT FOR RECORDS



YOUR FEDERAL EXPRESS ACCOUNT NUMBER (10-11)
 0190-0000-6



SHIPMENT NUMBER
 768855636

DATE
 1/1/72

CBS OUTLINED IN ORANGE
 FOR INSTRUCTIONS

SHIPPER'S NAME
 T. J. Sweeney

DEPARTMENT/FLOOR NO.
 17

STREET ADDRESS
 1715 S. 17th St. P.O. Box 1111

CITY
 PHILADELPHIA PA.

STATE
 PA.

ZIP CODE
 19104

SHIPMENT NO.
 768855636

SHIPPER'S NAME
 T. J. Sweeney

DEPARTMENT/FLOOR NO.
 17

STREET ADDRESS
 1715 S. 17th St. P.O. Box 1111

CITY
 PHILADELPHIA PA.

STATE
 PA.

ZIP CODE
 19104

SHIPMENT NO.
 768855636

DATE
 1/1/72



SHIPMENT NUMBER
 768855636

SHIPPER'S NAME
 T. J. Sweeney

DEPARTMENT/FLOOR NO.
 17

STREET ADDRESS
 1715 S. 17th St. P.O. Box 1111

CITY
 PHILADELPHIA PA.

STATE
 PA.

ZIP CODE
 19104

SHIPMENT NO.
 768855636

SHIPPER'S NAME
 T. J. Sweeney

DEPARTMENT/FLOOR NO.
 17

STREET ADDRESS
 1715 S. 17th St. P.O. Box 1111

CITY
 PHILADELPHIA PA.

STATE
 PA.

ZIP CODE
 19104

SHIPMENT NO.
 768855636

SHIPPER'S COPY

SHIPPER'S COPY

SHIPPER'S NAME: T. J. Sweeney

DEPARTMENT/FLOOR NO.: 17

STREET ADDRESS: 1715 S. 17th St. P.O. Box 1111

CITY: PHILADELPHIA PA.

STATE: PA.

ZIP CODE: 19104

SHIPMENT NO.: 768855636

SHIPPER'S NAME: T. J. Sweeney

DEPARTMENT/FLOOR NO.: 17

STREET ADDRESS: 1715 S. 17th St. P.O. Box 1111

CITY: PHILADELPHIA PA.

STATE: PA.

ZIP CODE: 19104

SHIPMENT NO.: 768855636

ITEMS	WEIGHT	DECLARED VALUE	INS.
1	125		
2	56		
TOTAL	181		

SHIPPER'S NAME: T. J. Sweeney

DEPARTMENT/FLOOR NO.: 17

STREET ADDRESS: 1715 S. 17th St. P.O. Box 1111

CITY: PHILADELPHIA PA.

STATE: PA.

ZIP CODE: 19104

SHIPMENT NO.: 768855636

SHIPPER'S NAME: T. J. Sweeney

DEPARTMENT/FLOOR NO.: 17

STREET ADDRESS: 1715 S. 17th St. P.O. Box 1111

CITY: PHILADELPHIA PA.

STATE: PA.

ZIP CODE: 19104

SHIPMENT NO.: 768855636

SHIPPER'S NAME: T. J. Sweeney

DEPARTMENT/FLOOR NO.: 17

STREET ADDRESS: 1715 S. 17th St. P.O. Box 1111

CITY: PHILADELPHIA PA.

STATE: PA.

ZIP CODE: 19104

SHIPMENT NO.: 768855636



0000100

Appendix B
Drilling Permission

0000101

Appendix B

Drilling Permission Slips



NATURAL RESOURCES COMMISSION:

JACOB A. MOFFERT
E. M. LAITALA
MURRAY F. SNELL
PAUL H. WENDLER
HARRY H. WANTELEY
JOAN L. WOLFE
CHARLES G. YOUNGLOVE

WILLIAM G. MILLIKEN Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING
BOX 30028
LANSING, MI 48909
HOWARD A. TARKER, Director

A groundwater contamination problem exists in your area. At the request of the Department of Natural Resources (DNR), the U.S. Environmental Protection Agency (U.S. EPA) is funding an investigation to determine the source of the contamination. Permission is requested to install and monitor wells on your property as part of this investigation.

The wells will be the responsibility of the DNR and will eventually be removed. We do anticipate some disturbance to your property as a result of the well drilling. We expect the disturbance to be limited to: truck tire marks, equipment storage on the ground, excavation of the well site, and some possible water and mud at the well site.

As the state agency responsible for coordinating efforts to investigate incidents of groundwater contamination, please direct any questions to:

Department of Natural Resources
Groundwater Quality Section
8th Floor, Mason Building
P.O. Box 30028
Lansing, Michigan 48909
Telephone (517) 373-8147

Attention: Garth Aslakson

Please sign this permission slip and return it to me at the above address.

Thank you for your assistance and cooperation.

Very truly yours,

WATER QUALITY DIVISION

Garth Aslakson
Groundwater Quality Section

GA:clp

I give permission to enter my property to construct, monitor and survey water wells. On those street right-of-ways within Emmett Township, as shown on the attached drawing.

Signature Cyril B. Beckwith Feb 12, 1952
Date

Address 630 Cliff St. Battle Creek, Mich 49017
Phone

616-968-0241

0000104

P E N F I E L D

Thomas Solue

Raymond Rabinowitz

Contaminated wells

Greenfield Park

Verona

Rocky Hill

Greenfield Park

Brownlee Park

Thomas Solue

Raymond Rabinowitz

Grand Trunk
Lagers

0000105



NATURAL RESOURCES COMMISSION

JACOB A. HUNTER
 E. M. CAPATA
 RICHARD F. SNELL
 PAUL H. WENDLER
 HARRY M. WHITELEY
 JOAN L. WOLFE
 CHARLES G. YOUNGLOVE

DEPARTMENT OF NATURAL RESOURCES

STEVENS & MASON BUILDING
 BOX 30028
 LANSING MI 48909
 HOWARD A. TANNER Director

A groundwater contamination problem exists in your area. At the request of the Department of Natural Resources (DNR), the U.S. Environmental Protection Agency (U.S. EPA) is funding an investigation to determine the source of the contamination. Permission is requested to install and monitor wells on your property as part of this investigation.

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Department of Natural Resources
 Groundwater Quality Section
 8th Floor, Mason Building
 P.O. Box 30028
 Lansing, Michigan 48909
 Telephone (517) 373-8147

Attention: Garth Aslakson

Please sign this permission slip and return it to me at the above address.

Thank you for your assistance and cooperation.

Very truly yours,

WATER QUALITY DIVISION

Garth Aslakson
 Groundwater Quality Section

GA:clp

I give permission to enter my property to construct, monitor and survey water wells. On those County road right-of-ways as shown on the attached drawings.

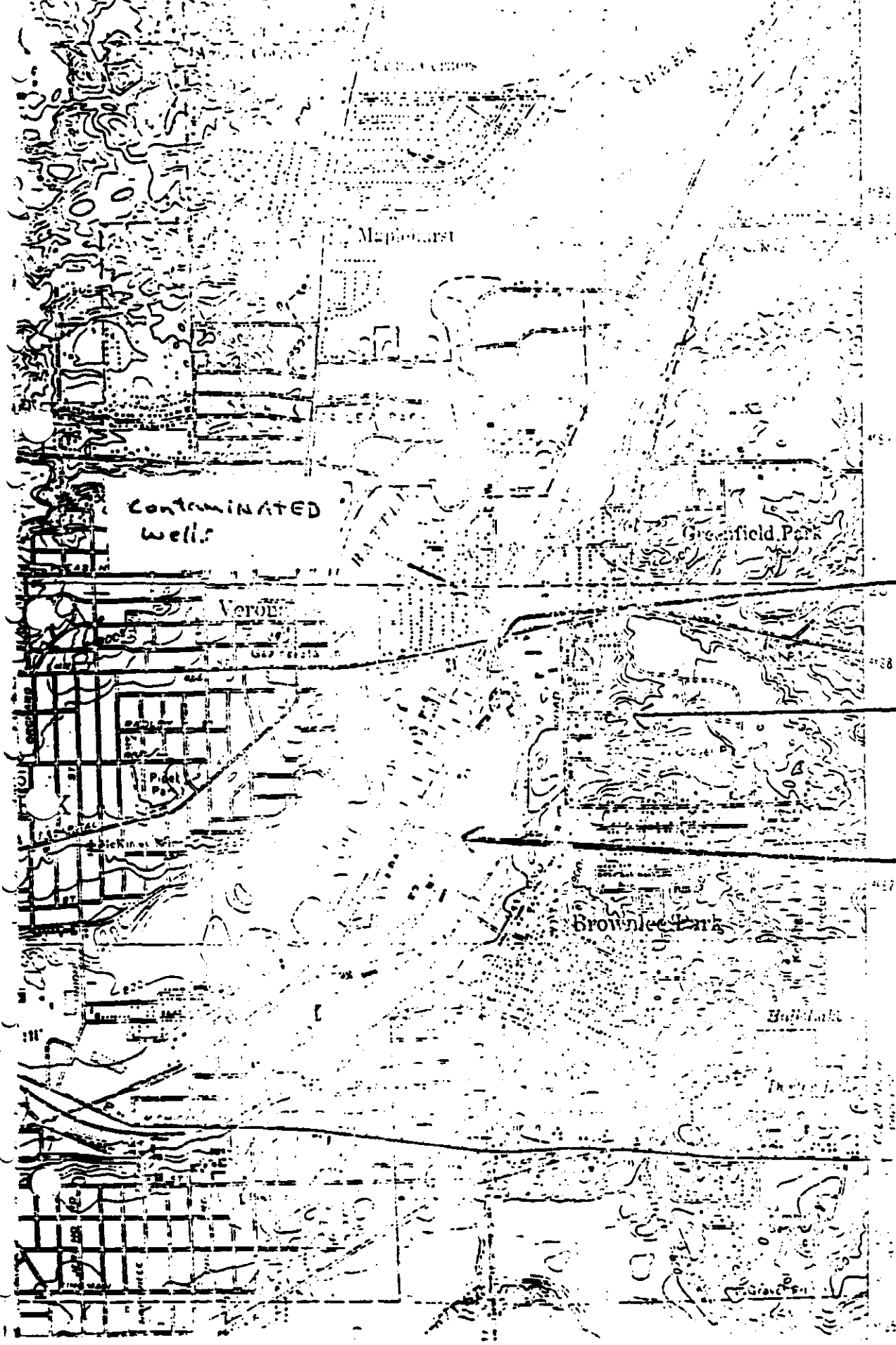
Signature _____

Date _____

Address Calhoun County Road Commission, 13300 - 15 Mile Road,
Phone Marshall, MI 49068

0000107

P E N N A F I E L D



Contaminated Wells

Thomas Soluc

Raymond Rd
Lansing

Grand Trunk
Lagoons

NATURAL RESOURCES COMMISSION

JACOB A. NUESTER
E. M. LAITALA
HARRY F. SNELL
PAUL H. WENDLER
HARRY H. WHITELEY
JOAN L. WOLFE
CHARLES G. YOUNGLOVE

WILLIAM G. MILLEREN Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING
BOX 30028
LANSING MI 48909
HOWARD A. TAMMER Director

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The wells will be the responsibility of the DNR and will eventually be removed. We do anticipate some disturbance to your property as a result of the well drilling. We expect the disturbance to be limited to: truck tire marks, equipment storage on the ground, excavation of the well site, and some possible water and mud at the well site.

As the state agency responsible for coordinating efforts to investigate incidents of groundwater contamination, please direct any questions to:

Department of Natural Resources
Groundwater Quality Section
8th Floor, Mason Building
P.O. Box 30028
Lansing, Michigan 48909
Telephone (517) 373-8147

Attention: Garth Aslakson

Please sign this permission slip and return it to me at the above address.

Thank you for your assistance and cooperation.

Very truly yours,

WATER QUALITY DIVISION

Garth Aslakson
Groundwater Quality Section

GA:clp

I give permission to enter my property to construct, monitor and survey water wells. On those street right-of-ways within Pennfield Township as shown on the attached drawing.

Signature Russell E. Clutter 2-16-82
Date

Address Pennfield Township Office, 20260 Capital Ave. N.E.
Phone (616) 968-3549 Battle Creek, MI 49017

P E N N S I L V A N I A

CONTAMINATED
wells

Griffith Park

Verona

Verona
Pike Park

Brown's Park

Thomas Selver

Raymond Rd
Lancaster

Grand Trunk
Lagoons

0000111



NATURAL RESOURCES COMMISSION

JACOB A. MURPHY
 E. V. LAITAN
 LARRY F. SNELL
 PAUL W. WENDLEY
 HARRY M. WHITELEY
 JOAN L. WOLFE
 CHARLES G. YOUNGLOVE

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING
 BOX 30028
 LANSING, MI 48909
 HOWARD A. TANNER, Director

A groundwater contamination problem exists in your area. At the request of the Department of Natural Resources (DNR), the U.S. Environmental Protection Agency (U.S. EPA) is funding an investigation to determine the source of the contamination. Permission is requested to install and monitor wells on your property as part of this investigation.

The wells will be the responsibility of the DNR and will eventually be removed. We do anticipate some disturbance to your property as a result of the well drilling. We expect the disturbance to be limited to: truck tire marks, equipment storage on the ground, excavation of the well site, and some possible water and mud at the well site.

As the state agency responsible for coordinating efforts to investigate incidents of groundwater contamination, please direct any questions to:

Department of Natural Resources
 Groundwater Quality Section
 8th Floor, Mason Building
 P.O. Box 30028
 Lansing, Michigan 48909
 Telephone (517) 373-8147

Attention: Garth Aslakson

Please sign this permission slip and return it to me at the above address.

Thank you for your assistance and cooperation.


Very truly yours,

WATER QUALITY DIVISION

Garth Aslakson
 Groundwater Quality Section

GA:clp

I give permission to enter my property to construct, monitor and survey water wells. On those City street right-of-ways as shown on the attached drawing.

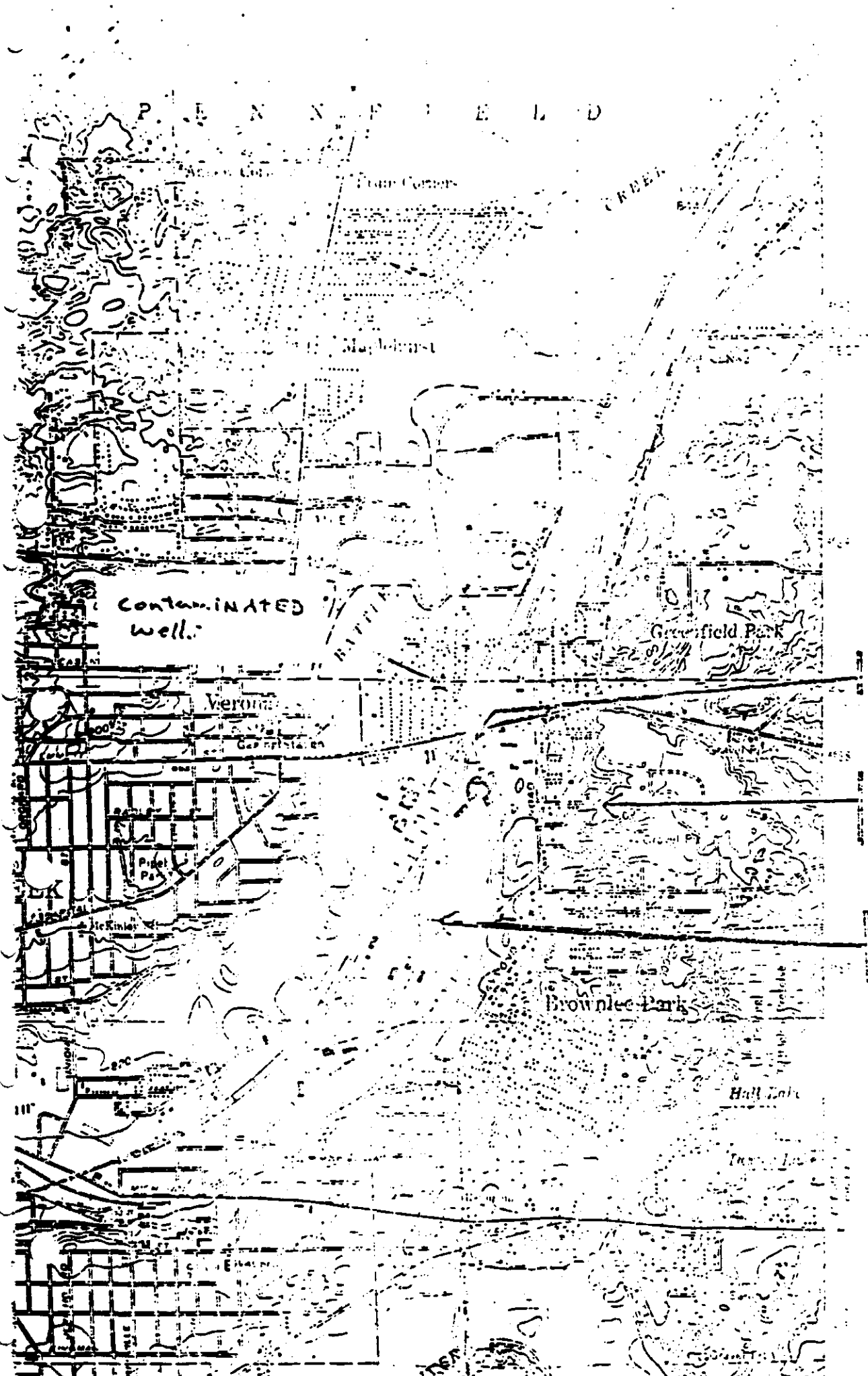
Signature  2-2-72

Date

City of Battle Creek, Department of Public Works
Address Rm. 110, City Hall, P.O.Box 1717, Battle Creek, MI 49016-1717
Phone (616) 966-3407

0000113

P E N N S Y L V A N I A



Contaminated Well

CRIB

HATFIELD

Greenfield Park

Verona

Camphillan

Paget Park

Thomas Soler

Raymond Rd
Landfill

Grand Trunk
Lagoons

Brownlee Park

Hull Lake

0000114

I give permission to enter my property to construct,
maintain and survey water wells.

Signature ** Arthur B Moore 3-1-82

Address Verona Electric Company 4th Mill Street Battle Creek MI
Phone 9686067

0000115

KELLOGG COMPANY
BATTLE CREEK, MICHIGAN 49016

March 10, 1982

EXECUTIVE OFFICES

Department of Natural Resources
Stevens T. Mason Building
Box 30028
Lansing, Michigan 48909

Gentlemen:

Pursuant to your written request and our related discussions of today, Kellogg Company hereby grants permission to the Department of Natural Resources of the State of Michigan to enter upon the Company's property to construct, monitor and survey water wells at the following location or locations:

This permission is granted upon the explicit understanding that the Department of Natural Resources will and does assume any and all responsibility, financial or otherwise, for any injury to its personnel or personnel working under its direction on Kellogg property and any injury or damage to Kellogg or its property resulting from or related to the above-mentioned well or wells, except the reasonable and unavoidable disturbance to Kellogg Company property as is approved by the Company and is intrinsically required for such construction, monitoring, and survey of the above-mentioned well or wells.

KELLOGG COMPANY

DEPARTMENT OF NATURAL
RESOURCES

By

David W. Thomas

Title

General Plant Manager

Date

March 11, 1982

By

Wm. M. Jensen

Title

Chief Hydrogeologist DNR

Date

3-11-82

0000116

Appendix C

Well Logs

Appendix C

Well Logs

TECHNICIAN Dennis H SURFACE ELEV. _____
 DRILLER Roger R BORING STARTED 2-24-82
 HELPER _____ BORING COMPLETED 2-25-82
 RIG NO. Lon B STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS
 WL: 20.23 SWS OR ND
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 28 SIZE HW

JOB NO. 70776 BORING NO. 1 CLIENT EPA WEATHER _____

ABBREVIATIONS
 F.T.-Fish Tail
 W.O.-Wash Out
 S.T.-Shelby Tube
 S.S.-Split Spoon
 D.B.-Diamond Bit
 P.A.-Power Auger
 R.B.-Rock Bit
 W.S.-White Sampling
 W.D.-White Drilling
 B.C.R.-Before Casing Removal
 A.C.R.-After Casing Removal
 A.B.-After Boring

0000119

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
			← 2 Feet →								
0	38.5	PA	Sand & Gravel				to 30'			Then very dense sand	
0	39.0	RB	HW casing @				28'				
			Installed well per instructions @ 38.5'								
			GOB								

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTIONS:

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise In Casing _____

SOIL TESTING SERVICES OF MICHIGAN, INC.

2710 N. GRAND RIVER
LANSING, MICHIGAN
(517) 321-4867

Sheet _____ of _____

TECHNICIAN Boba SURFACE ELEV. _____
 DRILLER Rogus BORING STARTED 3-1-82
 HELPER _____ BORING COMPLETED 3-1-82
 RIG NO. Bomb STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS
 WL: 12.5 WS OR W
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 25 SIZE HW

JOB NO. 20776 BORING NO. 2 CLIENT EPA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in ISF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
				← 2 Feet →							
0	25		PA	Lost 15' auger in hole moved 5' and started over							
0	25		PA								
0	39		RB	HW casing @ 25'							
				Sand & gravel to 20'							
				Very dense sand to 32'							
				Very dense sand or sandstone to 39'							
				cattered well @ 39.0 per instructions							
				SOB							

ABBREVIATIONS
 F.T.-Fish Tail
 W.O.-Wash Out
 S.T.-Shelby Tube
 S.S.-Split Spoon
 D.B.-Diamond Bit
 P.A.-Power Auger
 R.B.-Rock Bit
 W.S.-While Sampling
 W.D.-While Drilling
 B.C.R.-Before Casing Removal
 A.C.R.-After Casing Removal
 A.B.-After Boring

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTIONS:

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise In Casing _____

0000120

TECHNICIAN Boba SURFACE ELEV. _____
 DRILLER Rogers BORING STARTED 3-3-82
 HELPER _____ BORING COMPLETED 3-3-82
 RIG NO. Dim 6 STATION _____
 OFF SET _____

GRAND RIVER
 LANSING, MICHIGAN
 (517) 321-4967

WATER LEVEL OBSERVATIONS
 WL: 12.15 WS OR W
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 35 SIZE Hw

JOB NO. 20776 BORING NO. 3 CLIENT EPA WEATHER _____

ABBREVIATIONS
 F.T.-Flash Tall
 W.O.-Wash Out
 S.T.-Shelby Tube
 S.S.-Split Spoon
 D.B.-Diamond Bit
 P.A.-Power Auger
 R.B.-Rock Bit
 W.S.-While Sampling
 W.D.-While Drilling
 B.C.R.-Before Casing Removal
 A.C.R.-After Casing Removal
 A.B.-After Boring

0000121

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
				← 2 Feet →							
	0	25	PA								
	0	39	RB	Hw casing @ 35'							
				0-35 sand & Gravel							
				35-39 very dense sand or Sand stone							
				<u>DOB</u>							
				Installed well per instructions @ 38.5'							

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTIONS:

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise In Casing _____

SOIL TESTING SERVICES OF MICHIGAN, INC.

2710 N. GRAND RIVER
LANSING, MICHIGAN
(517) 321-4967

Sheet _____ of _____

TECHNICIAN Bob A SURFACE ELEV. _____
 DRILLER Roger K BORING STARTED 3-1-82
 HELPER _____ BORING COMPLETED 3-2-82
 RIG NO. Bonds STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS
 WL: 12-15 WS OR WD
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 25 SIZE Hw

JOB NO. 20776 BORING NO. 5 CLIENT GPA WEATHER _____

ABBREVIATIONS

- F.T.-Fish Tail
- W.O.-Wash Out
- S.T.-Shelby Tube
- S.S.-Split Spoon
- D.B.-Diamond Bit
- P.A.-Power Auger
- R.B.-Rock Bit
- W.S.-While Sampling
- W.D.-While Drilling
- B.C.R.-Before Casing Removal
- A.C.R.-After Casing Removal
- A.B.-After Boring

0000123

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
	0	25	PA								
	0	39	RB	← 2 Feet →							
				HW casing @ 25'							
				Sand & gravel to 25'							
				Very dense sand to 33'							
				Very dense sand or sandstone to 39'							
				Installed well per instructions @ 39'							
				EB							

DRILL CREW CHECK LIST
 Topsoil Thickness _____
 Fill Thickness _____

CAVE IN LEVEL:
 While Drilling and Sampling _____
 After Boring Completion _____

WATER LOSS:
 At _____ To _____
 Percent Loss _____
 At _____ To _____
 Percent Loss _____

BOULDERS OR OBSTRUCTION
 At _____ To _____
 At _____ To _____

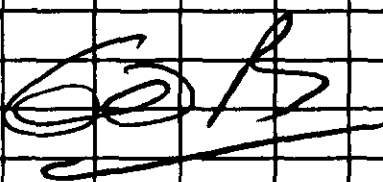
ARTESIAN PRESSURE:
 Depth _____
 Height of Soil Rise In Casing _____

TECHNICIAN Bo PA SURFACE ELEV. _____
 DRILLER Kogly R BORING STARTED 3-2-82
 HELPER _____ BORING COMPLETED 3-2-82
 RIG NO. Bomb STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS
 WL: _____ WS OR WD
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED ~~39~~ 39 SIZE Hw

JOB NO. 70776 BORING NO. 6 CLIENT EPA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
	0	25	PA								
	0	39	Rh	← 2 Feet →							
				Hw casing @ 39'							
				0-39' sand & gravel							
				Installed well @ 39' per instructions							
											

- ABBREVIATIONS**
 F.T.-Fish Tail
 W.O.-Wash Out
 S.T.-Shelby Tube
 S.S.-Split Spoon
 D.B.-Diamond Bit
 P.A.-Power Auger
 R.B.-Rock Bit
 W.S.-White Sampling
 W.D.-While Drilling
 B.C.R.-Before Casing Removal
 A.C.R.-After Casing Removal
 A.B.-After Boring

DRILL CREW CHECK LIST
 Topsoil Thickness _____
 Fill Thickness _____

CAVE IN LEVEL:
 While Drilling and Sampling _____
 After Boring Completion _____

WATER LOSS:
 At _____ To _____
 Percent Loss _____
 At _____ To _____
 Percent Loss _____

BOULDERS OR OBSTRUCTIONS:
 At _____ To _____
 At _____ To _____

ARTESIAN PRESSURE:
 Depth _____
 Height of Soil Rise In Casing _____

0000124

SOIL TESTING SERVICES OF MICHIGAN, INC.

2710 N. GRAND RIVER
LANSING, MICHIGAN
(517) 321-4067

DATE: _____
WATER LEVEL OBSERVATIONS
WL: 13.0 WS OR (D)
WL: _____ BCR _____ ACR
WL: _____ AB _____ Hr. AB
WL: _____ 24 Hr. AB

TECHNICIAN Pat A SURFACE ELEV. _____
DRILLER Roger A BORING STARTED 3/15/82
HELPER _____ BORING COMPLETED 3/15/82
RIG NO. D-53 STATION _____
OFF SET _____

CASING USED _____ SIZE _____

JOB NO. 70776 BORING NO. 6A CLIENT FRA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
1	0.0	0.8	SS	2	3	4	1.5			Topsoil	
1A	0.8	1.5	SS							Fin to med coarse brown sand	
	0.0	5.0	PA								
2	5.0	6.5	SS	4	5	5	1.5			Fin to med coarse brown sand	
	5.0	10.0	PA								
3	10.0	11.5	SS	6	9	12	1.5			Same	
	10.0	15.0	PA								
4	15.0	16.5	SS	14	20	25	1.5			Fin to coarse sand to some gravel (H ₂ O ≈ 12')	
60R											

ABBREVIATIONS
F.T.-Fish Tail
W.O.-Wash Out
S.T.-Shelby Tube
S.S.-Split Spoon
D.B.-Diamond Bit
P.A.-Power Auger
R.B.-Rock Bit
W.S.-While Sampling
W.D.-While Drilling
B.C.R.-Before Casing Removal
A.C.R.-After Casing Removal
A.B.-After Boring

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTION:

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise In Casing _____

0000125

TECHNICIAN Dennis H SURFACE ELEV. _____
 DRILLER Roger B BORING STARTED 2-22-82
 HELPER _____ BORING COMPLETED 2-22-82
 RIG NO. Dumb B STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS
 WL: 23-25 WS OR WD
 WL: _____ BCR _____ ACR _____
 WL: 23' AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 30 SIZE 4W

JOB NO. 70776 BORING NO. 7 CLIENT EPA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
				← 2 Feet →							
0	38.5		PA							Sand & gravel to 25' then very dense sand	
0	39.0		CB							HW casing @ 30'	
										Installed well per instructions @ 39'	
										CB	

ABBREVIATIONS

- F.T.-Fish Tail
- W.O.-Wash Out
- S.T.-Shelby Tube
- S.S.-Split Spoon
- D.B.-Diamond Bit
- P.A.-Power Auger
- R.B.-Rock Bit
- W.S.-While Sampling
- W.D.-While Drilling
- B.C.R.-Before Casing Removal
- A.C.R.-After Casing Removal
- A.B.-After Boring

0000126

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTIONS

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise In Casing _____

WATER LEVEL OBSERVATIONS

TECHNICIAN Dennis H SURFACE ELEV. _____
 DRILLER Roger R BORING STARTED 2-24-82
 HELPER _____ BORING COMPLETED 2-24-82
 RIG NO. B m B STATION _____
 OFF SET _____

WL 20.15 WS OR AD
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 15 SIZE HW

JOB NO. 10776 BORING NO. 9 CLIENT EPA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in ISF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
0	38.5	PA	← 2 Feet →								
1	39.0	RB	Sand & gravel to 13.5' very dense sand to 9'								
			few casing @ 15'								
			Installed well per instructions @ 38.5'								
			EAB								

ABBREVIATIONS

- F.T.-Fish Tail
- W.O.-Wash Out
- S.T.-Shelby Tube
- S.S.-Split Spoon
- D.B.-Diamond Bit
- P.A.-Power Auger
- R.B.-Rock Bit
- W.S.-While Sampling
- W.D.-While Drilling
- B.C.R.-Before Casing Removal
- A.C.R.-After Casing Removal
- A.B.-After Boring

0000126

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTIONS:

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise In Casing _____

SOIL TESTING SERVICES OF MICHIGAN, INC.

2710 N. GRAND RIVER
LANSING, MICHIGAN
(517) 321-4867

Sheet 1 of 1

TECHNICIAN Dennis H SURFACE ELEV. _____
 DRILLER Royek BORING STARTED 3-8-82
 HELPER _____ BORING COMPLETED 3-8-82
 RIG NO. Bomb STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS

WL: 18-20 WS OR (D)
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 35' SIZE Hw

JOB NO. 70776 BORING NO. 10 CLIENT EPA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in ISF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
	0	25	PA								
	0	39.0	RB	Hw casing @ 35'							
				Sand & Gravel to 39'							
				Installed well @ 39'							
				<u>SOB</u>							

- ABBREVIATIONS**
- F.T.-Fish Tail
 - W.O.-Wash Out
 - S.T.-Shelby Tube
 - S.S.-Split Spoon
 - D.H.-Diamond Bit
 - P.A.-Power Auger
 - R.B.-Rock Bit
 - W.S.-While Sampling
 - W.D.-While Drilling
 - B.C.R.-Before Casing Removal
 - A.C.R.-After Casing Removal
 - A.B.-After Boring

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTIONS:

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise in Casing _____

0000029

SOIL TESTING SERVICES OF MICHIGAN, INC.

2710 N. GRAND RIVER
LANSING, MICHIGAN
(517) 321-4967

Sheet _____ of _____

TECHNICIAN Ed A SURFACE ELEV. _____
DRILLER Roger R BORING STARTED 3/15/82
HELPER _____ BORING COMPLETED 3/15/82
RIG NO. 0-53 STATION _____
OFF SET _____

WATER LEVEL OBSERVATIONS
WL: 8 WS OR WD _____
WL: _____ BCR _____ ACR _____
WL: _____ AB _____ Hr. AB _____
WL: _____ 24 Hr. AB _____

CASING USED 30 SIZE HW

JOB NO. 70276 BORING NO. 11 CLIENT EPA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
1	0.0	0.9	SS	1	1	1	1.5			Topsoil	
1A	0.9	1.5	SS							Fine to med. coarse brown sand	
	0.0	5.0	PA	← 2 Feet →							
2	5.0	6.5	SS	4	5	6	1.0			Fine to med coarse br sand & gravel	
	5.0	10.0	PA							(H ₂ O ≈ 8')	
3	10.0	11.5	SS	6	12	32	1.5			same	
	10.0	38.5	PA								
	0.0	39.0	RB	HW casing at 30'							
				Sand + Gravel to 39'							
				Installed well at 39'							
				E.O.B							

ABBREVIATIONS
F.T.-Fish Tail
W.O.-Wash Out
S.T.-Shelby Tube
S.S.-Split Spoon
D.B.-Diamond Bit
P.A.-Power Auger
R.B.-Rock Bit
W.S.-While Sampling
W.D.-While Drilling
B.C.R.-Before Casing Removal
A.C.R.-After Casing Removal
A.B.-After Boring

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTION

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise In Casing _____

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SOIL TESTING SERVICES OF MICHIGAN, INC.

2710 N. GRAND RIVER
LANSING, MICHIGAN
(517) 321-4987

Sheet _____ of _____

TECHNICIAN Bob A SURFACE ELEV. _____
 DRILLER Roger R BORING STARTED 3/15/82
 HELPER _____ BORING COMPLETED 3/15/82
 RIG NO. B-53 STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS
 WL: 13' WS OR (D)
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 30.5 SIZE HW

JOB NO. 70776 BORING NO. 12 CLIENT FPA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
1	0.0	1.5	SS	3	6	8		1.5		Gray + Black Fine sand + siltstone ls. - ls	
	0.0	5.0	PA								
2	5.0	6.5	SS	2	4	6		1.2		Same	
	5.0	10.0	PA								
3	10.0	10.8	SS	1	3	6		.5		Same	
3A	10.8	11.5	SS					.5			
	10.0	15.0	PA							Fine to coarse sand to gravel - brown (H ₂ O ≈ 13')	
4	15.0	16.5	SS	2	4	-		.5			
	0.0	38.5	PA								
	0.0	39	AB	HW casing at 38.5'							
				Sand + Gravel at 39'							
				installed well at 39'							
				EOB							

ABBREVIATIONS
 F.T.-Flash Tail
 W.O.-Wash Out
 S.T.-Shelby Tube
 S.S.-Split Spoon
 D.B.-Diamond Bit
 P.A.-Power Auger
 R.B.-Rock Bit
 W.S.-While Sampling
 W.D.-While Drilling
 B.C.R.-Before Casing Removal
 A.C.R.-After Casing Removal
 A.B.-After Boring

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTIONS:

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise In Casing _____

0000131

TECHNICIAN Dennis H SURFACE ELEV. _____
 DRILLER Royce R BORING STARTED 3-8-82
 HELPER _____ BORING COMPLETED 3-8-82
 RIG NO. Bomb STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS
 WL: 13.5 WS OR W
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 30 SIZE 1 1/2

JOB NO. 70776 BORING NO. 13 CLIENT EPA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
0	25		PA								
0	39		RB	Hw casing @ 30'							
				Sand & Gravel to 39'							
				Installed well @ 39'							
				<u>EOB</u>							

ABBREVIATIONS
 F.T.-Fish Tail
 W.O.-Wash Out
 S.T.-Sheby Tube
 S.S.-Split Spoon
 D.B.-Diamond Bit
 P.A.-Power Auger
 R.B.-Rock Bit
 W.S.-While Sampling
 W.D.-While Drilling
 B.C.R.-Before Casing Removal
 A.C.R.-After Casing Removal
 A.B.-After Boring

0000132

DRILL CREW CHECK LIST
 Topsoil Thickness _____
 Fill Thickness _____
 CAVE IN LEVEL:
 While Drilling and Sampling _____
 After Boring Completion _____
 WATER LOSS:
 At _____ To _____
 Percent Loss _____
 At _____ To _____
 Percent Loss _____
 BOULDERS OR OBSTRUCTIONS:
 At _____ To _____
 At _____ To _____
 ARTESIAN PRESSURE:
 Depth _____
 Height of Soil Rise In Casing _____

SOIL TESTING SERVICES OF MICHIGAN, INC.

2710 N. GRAND RIVER
LANSING, MICHIGAN
(517) 321-4987

Sheet 1 of 1

TECHNICIAN Dennis H SURFACE ELEV. _____
 DRILLER Ray R BORING STARTED 3-12-82
 HELPER _____ BORING COMPLETED 3-12-82
 RIG NO. Bmb STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS
 WL: 18.19 WS OR WD
 WL: _____ BCR _____ ACR
 WL: _____ AB _____ Hr. AB
 WL: _____ 24 Hr. AB

CASING USED 2.5 SIZE Hw

JOB NO. 70776 BORING NO. 14 CLIENT EPA WEATHER _____

ABBREVIATIONS:
 F.T.-Fish Tail
 W.O.-Wash Out
 S.T.-Shelby Tube
 S.S.-Split Spoon
 D.B.-Diamond Bit
 P.A.-Power Auger
 R.B.-Rock Bit
 W.S.-While Sampling
 W.D.-While Drilling
 B.C.R.-Before Casing Removal
 A.C.R.-After Casing Removal
 A.B.-After Boring

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in TSF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
				← 2 Feet →							
	0	25	PA								
	0	39	RB	Hw casing @ 25'							
				0-30 sand & gravel							
				30-39 possible till w/small boulders or weathered & broken rock							
				Installed well @ 39'							

DRILL CREW CHECK LIST:
 Topsoil Thickness _____
 Fill Thickness _____
 CAVE IN LEVEL:
 While Drilling and Sampling _____
 After Boring Completion _____
 WATER LOSS:
 At _____ To _____
 Percent Loss _____
 At _____ To _____
 Percent Loss _____
 BOULDERS OR OBSTRUCTIO
 At _____ To _____
 At _____ To _____
 ARTESIAN PRESSURE:
 Depth _____
 Height of Soil Rise In Casing _____

0000133

SOIL TESTING SERVICES OF MICHIGAN, INC.

2710 N. GRAND RIVER
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(517) 321-4967

Sheet 1 of 1

TECHNICIAN Dennis H SURFACE ELEV. _____
DRILLER Roger R BORING STARTED 3-9-82
HELPER _____ BORING COMPLETED 3-9-82
RIG NO. Bomb STATION _____
OFF SET _____

WATER LEVEL OBSERVATIONS
WL: 2.5 P.S. WS OR WD
WL: _____ BCR _____ ACR _____
WL: _____ AB _____ Hr. AB _____
WL: _____ 24 Hr. AB _____

CASING USED 30 SIZE HW

JOB NO. 70776 BORING NO. 15 CLIENT EPA WEATHER _____

- ABBREVIATIONS**
 F.T.-Flash Tall
 W.O.-Wash Out
 S.T.-Shelby Tube
 S.S.-Split Spoon
 D.B.-Diamond Bit
 P.A.-Power Auger
 R.B.-Rock Bit
 W.S.-While Sampling
 W.D.-While Drilling
 B.C.R.-Before Casing Removal
 A.C.R.-After Casing Removal
 A.B.-After Boring

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R	Qp	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
				← 2 Feet →							
0	25		PA								
0	39		KB	HW casing @ 30'							
				Sand & Gravel 0-34							
				Very fine sand or sandstone 34-39							
				Installed well @ 39'							
				EOB							

- DRILL CREW CHECK LIST**
 Topsoil Thickness _____
 Fill Thickness _____
CAVE IN LEVEL:
 While Drilling and Sampling _____
 After Boring Completion _____
WATER LOSS:
 At _____ To _____
 Percent Loss _____
 At _____ To _____
 Percent Loss _____
BOULDERS OR OBSTRUCTIVE:
 At _____ To _____
 At _____ To _____
ARTESIAN PRESSURE:
 Depth _____
 Height of Soil Rise In Casing _____

C10000

SOIL TESTING SERVICES OF MICHIGAN, INC.

2710 N. GRAND RIVER
LANSING, MICHIGAN
(517) 321-4867

Sheet _____ of _____

TECHNICIAN B. BA SURFACE ELEV. _____
 DRILLER Logan X BORING STARTED 3-4-92
 HELPER _____ BORING COMPLETED 3-4-92
 RIG NO. Bomb STATION _____
 OFF SET _____

WATER LEVEL OBSERVATIONS

WL: 12.5 WS (ND)
 WL: _____ BCR _____ ACR _____
 WL: _____ AB _____ Hr. AB _____
 WL: _____ 24 Hr. AB _____

CASING USED 20 SIZE Hw

JOB NO. 20776 BORING NO. 16 CLIENT EPA WEATHER _____

Sample No.	Depth or Elevation		Sampling Method	PENETRATION RECORD				R Length Recovered in Feet	Qp Penetrometer Test in ISF	Strata Change	Sample Description
	From	To		Split Spoon Blows							
				6"	6"	6"	6"				
	0	25	PA								
	0	39	RB	← 2 Feet →							
										Hw casing @ 20'	
										0-24' Sand & Gravel	
										24-39' very dense sand or Sand Stone	
										Installed well Per Instructions @ 39'	
										<u>EPA</u>	

ABBREVIATIONS

- F.T.-Fish Tail
- W.O.-Wash Out
- S.T.-Sheiby Tube
- S.S.-Split Spoon
- D.B.-Diamond Bit
- P.A.-Power Auger
- R.B.-Rock Bit
- W.S.-While Sampling
- W.D.-While Drilling
- B.C.R.-Before Casing Removal
- A.C.R.-After Casing Removal
- A.B.-After Boring

DRILL CREW CHECK LIST

Topsoil Thickness _____

Fill Thickness _____

CAVE IN LEVEL:

While Drilling and Sampling _____

After Boring Completion _____

WATER LOSS:

At _____ To _____

Percent Loss _____

At _____ To _____

Percent Loss _____

BOULDERS OR OBSTRUCTIONS:

At _____ To _____

At _____ To _____

ARTESIAN PRESSURE:

Depth _____

Height of Soil Rise In Casing _____

0000135

Appendix D
Spills

Appendix D

Spills

SPILL REPORT
from
BATTLE CREEK FIRE DEPARTMENT

August 29, 1978

Warehouse fire on Jamison Avenue on Grand Trunk. Bugged chemicals:

Chloride Flakes
Killer Weed (1,000 lbs.)
Dearborn Treatment
Dearsol No. 80 (1,000 lbs.)
Acid Cleaner (6,000 lbs.)

Run-off ran into the collection pit. DNR on scene. Materials generating most of the smoke was Sodium Chromate.

An old train repair at 200 Elm Street just off East Michigan Avenue.

0000138

Appendix H
Background Information

0000139

S. Oshadka

Errata Page to Battle Creek Groundwater Study

TDD 5-8201-1

Please add the following section from the MDNR dated April 13, 1982 to the background information section in Appendix H.

0000140

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

April 12, 1982

RECEIVED

APR 15 1982

Groundwater Qual., WQD

TO: William Iversen, Groundwater Quality, Water Quality Division
FROM: Roger Jones, Water Quality Division, District II *R.J.*
SUBJECT: Contaminated Public and Private Water Supply Wells in the
Battle Creek Area

On March 15, 1982, I collected split spoon soil samples in Battle Creek during the installation of monitoring wells #12 and #11 by USEPA's Technical Assistance Team. Soil samples were also collected from a boring located near monitoring well #6. The results and a map are attached. My field notes and interpretations of the sample results are below.

At Monitoring Well #12

The soil to a depth of 11 feet was black silty/sandy with some cinders in it. Water was encountered at a depth of 12-1/2 to 13 feet and the soil at this depth was fine sand with fine gravel in it. Soil samples were split here and at the other locations with Mr. John Dourjalian of the Technical Assistance Team. Mr. Walter Matyasic of the Kellogg Company was also present for awhile during the drilling. No Scan #1 and Scan #2 parameters were detected in the soil here. However, while assisting Mr. Dourjalian in collecting water samples from monitoring well #12 on March 16, 1982, we observed that the water was cloudy and had patches of film on the surface (when viewed in a jar).

Near Monitoring Well #6

The top one foot of soil here was black with some sand in it. Below one foot to about 16 feet the soil was mostly a brown sugar colored sand. At 16 feet the soil consisted of light brown moist sand with gravel (1/2 pea size) interspersed in it. No unusual odors were noticed in the soil at any depth.

I have spoken with Jim Bedford about the sample results here. The concentrations of volatile organics found in the free liquid over the soil would be about one tenth of the ug/kg value indicated on laboratory form. Therefore, the chloroform results indicate that only a trace of this compound was detected in the liquid for each depth. Note also that the letter J on the laboratory form denotes that a value is an estimate (and may not be accurate). Mr. Bedford felt that the chloroform results were not very

0000141

William Iversen
April 12, 1982
Page 2

significant, but he did think the TCE and PCE results here were significant. It should also be noted that chloroform is the most volatile of all the compounds detected in the March 15 soil samples (i.e. losses of chloroform to the atmosphere during sampling may have been greater than the losses of the other compounds to the atmosphere).

At Monitoring Well #11

The first 12 inches of soil here was black and gravelly. The next six inches of soil consisted of dark brown sand. From 6 feet to 11 feet the soil consisted of light brown sand. Water was encountered at a depth of 11 feet. No unusual odors were noticed.

Water from Well #5000

This is a blank. Demineralized water from the laboratory was placed in the vials by using the squeeze bottle and funnel that had been used while collecting and preparing the other samples.

Note in the sample results that the sample (at well #11) collected before the blank was prepared showed 1,1,1 TCE to be present. It is possible that there may have been a trace amount of cross contamination from that sample to the blank via the funnel which previously held the 1,1,1 TCE contaminated soil. The funnel was rinsed with demineralized water between samplings. However, it is possible that a soil particle remained on the funnel to be washed into the blank.

Pictures were taken at each site where samples were collected. They have been developed, and if you need them, please let me know.

On March 15, 1982, one monitoring well at the Raymond Road Landfill was also sampled. There are supposed to be three monitoring wells here. One was dry (on March 16, 1982) and the owner (Mr. W. Carter) and I could not find the third one.

The well that was sampled was about 51 feet deep and was bailed 19 times with a 2"x 4' bailer before sample collection. I collected a one gallon jug of water and 2-40 ml. vials of water and gave them to Mr. Dourjalian (custody sheet attached). The water from this well was clear on the first bail, but gradually turned a coffee with cream color and stayed that way. This well is located about 200 yards east from the landfill office along the entrance road and then about 80 feet south of this road.

RJ/sp

cc: J. Bohunsky (WQD File)
T. Newell

xc: S. Ostrodka
T.A.T. ✓

C. WEAVER

R. Wirsing/J. Lovato

A. Cummings.

0000142

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES
TRANSMITTAL OF EVIDENCE AND LABORATORY ANALYSIS**

To: Michigan State Police Crime Laboratory
 Michigan Dept. of Public Health
 DNR Pathologist
 DNR Environmental Laboratory

Location: _____
 CASE NUMBER _____

From: _____ Conservation Officer
 _____ Address & Phone No.

Description of Evidence — Describe Fully: Manufacturer's Model No., Serial No., Officer's Marks, Tag or Seal Numbers

Handwritten description of evidence, including details of a rifle and its components.

Type of Analysis Requested:

Name and Address of Person(s) From Whom Property Seized: (If Known)

Received By: Signature & Badge No.	Date	Time	Received by: Signature & Badge No.	Date	Time

Final Disposition of Property: _____ Date _____

Returned to Owner By: _____
 Received By: (Signature of Owner) _____
 Confiscated By: (Signature and Badge No.) _____
 Destroyed By: _____ Witnessed: _____
 How Destroyed: _____

White — Retain with evidence
 Canary — Investigating Officer
 Pink — Lab
 Goldenseal — District Office with Prosecution Report

TRANSMITTAL OF EVIDENCE AND LABORATORY ANALYSIS

1110 201
CASE NUMBER 7821

Location: _____

- To: Michigan State Police Crime Laboratory _____
 Michigan Dept. of Public Health _____
 DNR Pathologist _____
 DNR Environmental Laboratory _____

From: John Jones, Wildlife Control Service Conservation Officer
1100 E. Grand St. #703-302-1118 Address & Phone No.

Description of Evidence — Describe Fully: Manufacturer's Model No., Serial No., Officer's Marks, Tag or Seal Numbers

Soil Sample
Butte Creek

Soil sample from [unclear] Well #12 Sample 001 to 1-2"
Approx. 10 yds. S. of B. Edison St. " 002 to 1-2"
" " " " " 003 to 1-2"
" " " " " 004 to 1-2"

Soil sample from [unclear] Sample 005 to 1-2"
NW 1/4 sec 10, Township 57 S, Range 10 E
" " " " " 006 to 1-2"
" " " " " 007 to 1-2"
" " " " " 008 to 1-2"

Soil sample from [unclear] Sample 009 to 1-2"
1/4 sec 10 E. of [unclear]
" " " " " 010 to 1-2"

Type of Analysis Requested:

Paraphrase Photo and Chromatic Applications

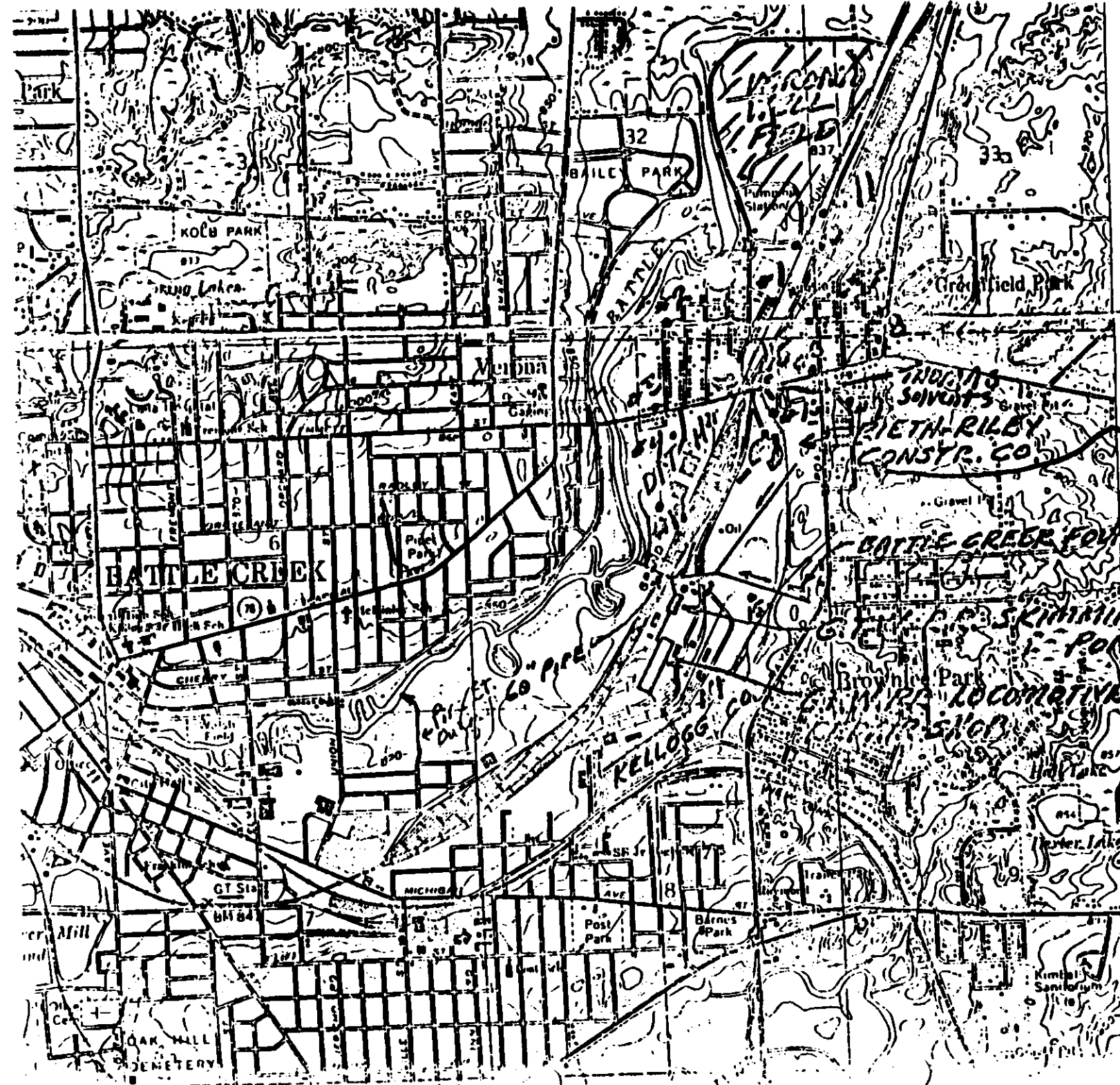
Name and Address of Person(s) From Whom Property Seized: (If Known)

Received By: Signature & Badge No.	Date	Time	Received by: Signature & Badge No.	Date	Time

Final Disposition of Property: Date

Returned to Owner By:	
Received By: (Signature of Owner)	
Confiscated By: (Signature and Badge No.)	
Destroyed By:	Witnessed:
How Destroyed:	

LOCATIONS
USEPA TAT
Monitoring Wells
Installed Feb. Mar.
1982



RAYMOND RD.
LANDFILL

BATTLE CREEK FOUNDRY

SKIMMING
POND

KELLOGG CO.

WYRE LOCOMOTIVE

ICERESCO
VARSHELL 83 MI.
JACKSON 40 MI.

0000145

MICHIGAN DEPT. OF NATURAL RESOURCES, ENVIRONMENTAL LABORATORY ANN ARBOR MI 48106
 LAB LOG # 9076 PROJ W77 COST PR 3 COL CTED R.O.S. TRANSFERRED TO RECEIVED AT LAB EXAMINER J.B.
 LOCATION SAMPLED Soil at Montross Well #12, 1/2 mi. E. of Crk. SAMPLE REMARKS Fair Compacted Level Teaspoons of Soil in each 1/2 C. Bottle. SEND RESULTS TO (NAME & SECTION) R.O.S. 1st Floor

FIELD ID.	"DO NOT PUNCH" DESCRIPTION OF SAMPLING SITE OR SAMPLE	REF NO.	STORE NUMBER	START DATE YMMDD	TIME MIL TTT	DEPTH FEET	LAB NO.
		P					00008
001	Approx. 100 yds. South of S. Edison St.	101		820315	1025	1.2"	13585
002	" " " " "	102			1030	1.2"	13586
003	" " " " "	103			1045	1.2"	13587
004	" " " " "	104			1055	1.2"	13589
		105					
		106					
		107					
		108					
		109					
		110					

REF NO.	DESCRIPTION	DEPTH	LAB NO.	REMARKS
01				Scan #2 w/1/2 and w/1/2
02				↓
03				
04				
05				
06				
07				
08				
09				
10				

SEE CODE LIST * Soil in wide mouth bottle is to be weighed (see remarks above) ESD-02502 REV. 10/79

0000140

MICHIGAN DEPT. OF NATURAL RESOURCES. ENVIRONMENTAL LABORATORY ANALYSIS -- ORGANICS -

61610...

LAB LOG# *7676* PROJ *4111* COST PR *3* COLLECTED BY *R. Jones* TRANSFERRED TO *LA* RECEIVED AT LAB EXAMINER *R. Jones*
 LOCATION SAMPLED *Sub near Monitoring Well #6, 1/2 mile SW of sample* REMARKS *Two samples at level 1000 ft of soil in each VMC bottle* SEND RESULTS TO (NAME & SECTION) *R. Jones, Dist. II*

FIELD ID.	DESCRIPTION OF SAMPLING SITE OR SAMPLE	REF. NO.	STORE NUMBER	START DATE	TIME	DEPTH	LAB NO.
		P		YYMMDD	TTTT	FEET	
001	N.W. corner of Howell St. & Raymond Rd.	101		820215	1455	6.2"	13629
002	" " " " " " " "	102			1500	6.2"	13630
003	" " " " " " " "	103			1505	11.2"	13631
004	" " " " " " " "	104			1515	16.2"	13632
		105					
		106					
		107					
		108					
		109					
		110					

All values are micrograms per kilogram

REF. NO.	CHCB	TCE	PCE	Scan #1 ug/kg soil by	Scan #2 ug/kg soil by
01					0
02					
03					
04					
05					
06					
07					
08					
09					
10					

SEE CODE LIST

ESD-02502 REV. 10/79

Note: ON 4/5/82 J. Bedford informed staff (R. Jones) that all values above should be divided by 1000 (i.e. TCE = T85 etc.)

0000147

MICHIGAN DEPT. OF NATURAL RESOURCES. ENVIRONMENTAL LABORATORY ANALYSIS -- ORGANICS

LAB 726 PROJ W/M COST PR 3 COLLECTED BY 2/1/82 TRANSFERRED TO RECEIVED AT LAB EXAMINER
 LOCATION SAMPLED *Soil at 1/2 mile from Well #11, C. 11, 11* SAMPLE REMARKS *Top 2 inches of core fragmented* SEND RESULTS TO (NAME & SECTION) *Lab. 726*

FIELD ID.	DESCRIPTION OF SAMPLING SITE OR SAMPLE	REF NO.	STORE NUMBER	START DATE	TIME	DEPTH	LAB NO.
		P		YYMMDD	TTTT	FEET	
101	<i>Box at 1/2 mile from Well #11, C. 11, 11</i>	I01	<i>Box 574</i>	<i>820215</i>	<i>1655</i>	<i>1-2"</i>	<i>10008</i>
102	" " " "	I02	"	↓	<i>1705</i>	<i>1-2"</i>	<i>10008</i>
103	" " " "	I03	"	↓	<i>1712</i>	<i>1-2"</i>	<i>10008</i>
		I04					
		I05					
		I06					
		I07					
		I08					
		I09					
		I10					

All values are micrograms per kilogram

REF NO.	DESCRIPTION OF SAMPLING SITE OR SAMPLE	REF NO.	STORE NUMBER	START DATE	TIME	DEPTH	LAB NO.
01							
02							
03							
04							
05							
06							
07							
08							
09							
10							

* SEE CODE LIST

ESD-02502 REV. 10/79

* Soil in wide mouth bottle to be weighed (see remarks above)

Note: On 4/5/82 J. Bedford informed staff that all values above should be divided by 1000 (i.e. 41,175 = 27)

0000146

LAB CODE: 102 PROJ CODE: 411 COST CENTER: PR 3 COLLECTED BY: *[Signature]* TRANSFERRED TO: RECEIVED AT LAB: *[Signature]* EXAMINER: *[Signature]*
 LOCATION SAMPLED: *Wells from Well 5000, 12 Creek* SAMPLE REMARKS: *Water analysis* SEND RESULTS TO (NAME & SECTION): *Dist. II, W.D.*

FIELD NO.	"DO NOT PUNCH" DESCRIPTION OF SAMPLING SITE OR SAMPLE	REF. NO.	STORE NUMBER	START DATE YYYMMDD	TIME MIL OR TTTT	S. T. OR B	NUM SALES	END DATE YYYMMDD	TIME MIL TTTT	DEPTH FEET	LAB NO.
001	<i>3' 20'</i>	C01		<i>6/27/75</i>	<i>1500</i>						<i>13096</i>
		C02									
		C03									
		C04									
		C05									
		C06									
		C07									
		C08									
		C09									
		C10									

REF. NO.	DESCRIPTION	ANALYSIS	REMARKS
01			<i>Scan # 1 ng/L only</i>
02			<i>Scan # 2 ng/L only</i>
03			<i>U (KIP)</i>
04			
05			
06			
07			
08			
09			
10			

0000143



WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF PUBLIC HEALTH

3500 N. LOGAN

P.O. BOX 30035, LANSING, MICHIGAN 48209

April 13, 1982

0450

City of Battle Creek
Water Department
East Michigan Avenue
Battle Creek, Michigan 49014

Attention: Mr. LaVerne Serne, Director of Public Works

Subject: Water Supply - Battle Creek
Sampling Results

Gentlemen:

Please find enclosed with this letter the results of analyses conducted on water samples collected from the Battle Creek water supply. These samples were collected on April 6, 1982 as part of the weekly sampling program and were analyzed for volatile, halogenated hydrocarbons.

No significant changes in the concentrations of organic chemicals in the two wells being pumped to waste (Well No. 32 and Well No. 35) are indicated by these results. The plant tap sample results continue to show no presence of the chemicals or only trace amounts of one or two of them. The sample from Well No. 43 showed no presence of the organic chemicals as was the case in previous sampling.

It should be noted, however, that analyses of the sample from Well No. 20 showed the presence of 1,1-dichloroethane, 1,1,1-trichloroethane, and perchloroethylene. This well had not been previously found to be affected. The total number of wells in the Verona Wellfield which have been shown to be affected by groundwater contamination is now 14. The number of affected wells has increased by four since the wells were first sampled in September of 1981. We continue to advise the city to limit the use of these wells.

We have become concerned about the ability of the Battle Creek water supply to meet increasing water demands. In addition to seasonal increases in water demand, additional demands are now being placed on the water supply by the Kellogg Company. The Post Division of the General Food Corporation may also be increasing their demand for water from the Battle Creek water supply system. A review of our records indicates the remaining unaffected wells should provide adequate capacity to meet the additional demands. However, should more wells in the Verona Wellfield become affected, the ability to meet demands without using one or more of the affected wells may be doubtful.

0000150

We recommend that the city carefully evaluate this situation. Consideration should be given towards the courses of action the city may be required to take in order to continue to provide a safe drinking water while adequately meeting water demands. The city should also consider additional pumping of wells to waste to help protect the remaining unaffected wells.

We are awaiting completion of the Environmental Protection Agency Technical Assistance Team report. When this report becomes available, a meeting of the Task Force will be called to discuss the findings of the report and the future actions of the agencies involved.

We very much appreciate the cooperation of the city in this most difficult situation. If you have any questions or are in need of assistance, please feel free to contact this office.

Sincerely,

RMW

Richard M. Wirsing
Acting District Engineer
Division of Water Supply
Bureau of Environmental and
Occupational Health

RMW:ak

Enclosures

cc: William A. Kelley, P.E.

cc: Don Keech/Joe Lovato

cc: Mr. Larry Osborne, Public Utilities Engineer

cc: Russell Schuler, Verona Pumping Station Superintendent

cc: Task Force Members:

Mr. William Iversen, Water Quality Division, DNR

Mr. Albert Hafner, Food and Dairy Division, MDA

Mr. Ray Cummings, U.S. Geological Survey

Mr. Steve Ostrodka, U.S. Environmental Protection Agency

Mr. Ted Havens, Calhoun County Health Department

Mr. Don Thomason, Kellogg Company

Mr. James Schwartz, General Foods Corporation

Mr. Gordon E. Olivier, Division of Water Supply, MDPH

0000151

LANSING

1982 APR -7 PM 1:17

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

Location Code (F-3)

192

Give all known information—Type or Print with soft lead or black ink.

LAB NO.

1. Report Results to: Division of Water Supply Phone No:
 Street Address: 300 North Logan St.
 Post Office: Lansing, Mi. Zip Code: 48909

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owners: City of Battle Creek Phone No. 366-3493

Sample Collected at—Street Address: Verona Wellfield Township: Keeneland Section No.:

Sample Collected at—Post Office (MI), Zip Code: Battle Creek Michigan County: Calhoun

Sample Collected by (name): Vernon Time—24 hr. Format: (8-13) (4-7) (1-4) (MIN) (MD) (DAY) (YR) 4/6/82

Sampling Point (circle): Faucet pump, crop top, other Source (circle): Well, surface water Well No. #43 Age (yrs.) Depth (ft.) Diam. (in.)

7. Check and complete following line only if sampling a public water supply

Name of Supply: Battle Creek WSSN (14-22) 110495 Sample Type (21) RAW

LAB ID (27-26) 0001 DO NOT WRITE BELOW - LABORATORY RESULTS

Code (27-33) Parameter Result (31-34)

Volatile, Halogenated Hydrocarbons
< 1 ppb (NOT Detected)

JR

Examiner

(*Unless otherwise indicated results given as mg/l)

Reported (35-40)

APR 9 1982 3

Steve R. Anderson, Director
 Laboratory Director
 Bureau of Disease Control and Laboratory Services
 MICHIGAN DEPARTMENT OF PUBLIC HEALTH

0000152

LANSING

1982 APR -7 PM 1:17

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

Location Code (F-3)

199

Give all known information—Type or Print with soft lead or black ink.

LAB NO.

1. Report Results to: Division of Water Supply Phone No:
 Street Address: 2500 N. Logan Street
 Post Office: Lansing, Mi. Zip Code: 48909

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owners: City of Battle Creek Phone No. 366-3493

Sample Collected at—Street Address: Verona Wellfield Township: Keeneland Section No.:

Sample Collected at—Post Office (MI), Zip Code: Battle Creek Michigan County: Calhoun

Sample Collected by (name): Vernon Time—24 hr. Format: (8-13) (4-7) (1-4) (MIN) (MD) (DAY) (YR) 4/6/82

Sampling Point (circle): Faucet pump, crop top, other Source (circle): Well, surface water Well No. LAB Age (yrs.) - Depth (ft.) - Diam. (in.)

7. Check and complete following line only if sampling a public water supply

Name of Supply: Battle Creek WSSN (14-22) 110495 Sample Type (21) RAW

LAB ID (27-26) 0001 DO NOT WRITE BELOW - LABORATORY RESULTS

Code (27-33) Parameter Result (31-34)

Volatile, Halogenated Hydrocarbons
1,1,1-trichloroethane - 1ppb
bromochloroethane - 3ppb
chloroethane - 4ppb
bromobenzene - 1ppb

CR

Examiner

(*Unless otherwise indicated results given as mg/l)

Reported (35-40)

APR 9 1982 3

Steve R. Anderson, Director
 Laboratory Director
 Bureau of Disease Control and Laboratory Services
 MICHIGAN DEPARTMENT OF PUBLIC HEALTH

LANSING

1982 APR -7 PM 1:17

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

1388

Location Code (1-3)

REV.

Give all information—Type or Print with soft lead or black ink. LAB NO.

1. Report Results to: Division of Water Supply Phone No.

Street Address: 3500 N. LANSING STREET

Post Office: LANSING, MI. 48204

State - Zip Codes: MI. 48204

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: City of Battle Creek Phone No. 413-192

Sample Collected at - Street Address: Verona Wellfield Township: Verona County: Calhoun

Sample Collected at - Post Office (MI) Zip Code: Verona

Sample Collected by (name): VERNON

Sampling Point (circle): Well, surface water Well No. 123

Time—24 hr. format Date: (M-D-Y) 4/7/82 11:17 AM 1982

Age (yrs.) - Depth (ft.) - Diam. (in.) 123

Source: public water supply

3. Check and complete following line only if sampling a public water supply.

Name of Supply: Battle Creek WSSN (14-20) 1111 Sample Type (21) 1111

LAB ID (22-26) 6001 DO NOT WRITE BELOW—LABORATORY RESULTS

Cont. (27-30) Parameter Result (31-34)

Volatile, Halogenated Hydrocarbons

1,1-dichloroethene - 2ppb

1,2-dichloroethane - 3ppb

1,1,1-trichloroethene - 34ppb

1,1,2-dichloroethane - 5ppb

Examiner JR

Reported (23-40) APR 8 1982 3

Signature: Greg R. Anderson Director

Bureau of Disease Control and Laboratory Services

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

LANSING

1982 APR -7 PM 1:17

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

1391

Location Code (1-3)

Give all information—Type or Print with soft lead or black ink. LAB NO.

1. Report Results to: Division of Water Supply Phone No.

Street Address: 3500 N. LANSING, MI. 48204

Post Office: LANSING, MI. 48204

State - Zip Codes: MI. 48204

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: City of Battle Creek Phone No. 413-192

Sample Collected at - Street Address: Verona Wellfield Township: Verona County: Calhoun

Sample Collected at - Post Office (MI) Zip Code: Verona

Sample Collected by (name): VERNON

Sampling Point (circle): Well, surface water Well No. 123

Time—24 hr. format Date: (M-D-Y) 4/7/82 11:17 AM 1982

Age (yrs.) - Depth (ft.) - Diam. (in.) 123

Source: public water supply

3. Check and complete following line only if sampling a public water supply.

Name of Supply: Battle Creek WSSN (14-20) 1111 Sample Type (21) 1111

LAB ID (22-26) 6001 DO NOT WRITE BELOW—LABORATORY RESULTS

Cont. (27-30) Parameter Result (31-34)

1,1-DICHLOROETHYLENE 3ppb

1,2-DICHLOROETHANE 7ppb

CIS-1,2-DICHLOROETHYLENE 3ppb

1,1,1-TRICHLOROETHANE 39ppb

TRICHLOROETHYLENE 1ppb

PERCHLOROETHYLENE 2ppb

Examiner JR

Reported (23-40) APR 9 1982 3

Signature: Greg R. Anderson Director

Bureau of Disease Control and Laboratory Services

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

Received

PARTIAL CHEMICAL ANALYSIS OF WATER

1-29 3/78
REV.

LANSING

Location Code (1-3)
| | |

1982 APR -7 PM 1:17

SANITARY BACTERIOLOGY
& CHEMISTRY SECTION

489

Give all information—Type or Print with soft lead or black ink. LAB NO.

1. Report Results to: Division of Water Supply Phone No:
 Street Address: 3500 North Logan St.
 Post Office:
 State—Zip Code: LANSING, MI. 48909

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: City of Battle Creek Phone No. 746-3773

3. Sample Collected at—Street Address: _____ Township: 1. Section No.: _____
Verona Wellfield Pointfield

4. Sample Collected at—Post Office (MI), Zip Code _____ County: Calhoun
Battle Creek

5. Sample Collected by (name): VEYNON Time—24 hr. Format: Date: (8-13)
4-7 1982 APR 7 PM

6. Sampling Point (circle): _____ Source (circle): Well, surface water Well No. #20 Age (yrs.)—Depth (ft.)—Diam. (in.)
 Faucet, pump, (circle for other) _____

7. Check and complete following line only if sampling a public water supply.

Name of Supply: Battle Creek WSSN (14-20) 1103450 Sample Type (21) R/W

LAB ID (27-30) CCG01 DO NOT WRITE BELOW—LABORATORY RESULTS

Code (27-30)	Parameter	Result (31-34)
	<u>Volatile, Halogenated Hydrocarbons</u>	
	<u>1,1-dichloroethane - 2 ppb</u>	
	<u>1,1,1-trichloroethane - 5 ppb</u>	
	<u>1,2-dichloroethane - 3 ppb</u>	

(*Unless otherwise indicated results given as mg/l)

Reported (35-40) 633 8 1982 3

Examiner
Heidi R. Anderson
Laboratory Director
Bureau of Disease Control and Laboratory Services
MICHIGAN DEPARTMENT OF PUBLIC HEALTH

0000154

TCE SAMPLES FOR 3-30-82

① CAROL DU BOIS 63 MAXWELL 9639789

② ILAH FORD 185 PICKFORD

③ RUBY FREED 185 KIMBALL 9641523

④ MARVIN MORGAN 174 KIMEALL 9623379

⑤ BONNIE LINDSEY 171 BRIGDEN 9649944

⑥ HOWARD HEIDER 72 PICKFORD 9636868

⑦ ALLEN DAVE 70 PICKFORD 9633085

⑧ ALBERTINA CLAY 168 DARLENE LN. 9626886

⑨ MELVIN JACKSON 55 CORCORAN 9654819

(e. of 9:00)
CLOSEST WELL TO RAYMOND RD. LANDFILL DUMPING AREA.
4" SUBMERSIBLE. HAS EXTREME H₂O ODR & BLACK WATER AT TIMES / WHEN PUMPED AT A HIGH R.

⑩ Lloyd Fease/ 895 N.E. CAPITAL 9640025
"BILL'S BAIT SHOP" - SW OF BAILEY PARK (OTHER SIDE OF THE RIVER) THE ONLY KNOXIN WELL IN THIS AREA WHICH IS SUPPLIED WITH CITY WATER.
4" SUBMERSIBLE - ROLL WELL - BY ED WARD, DRILLER.

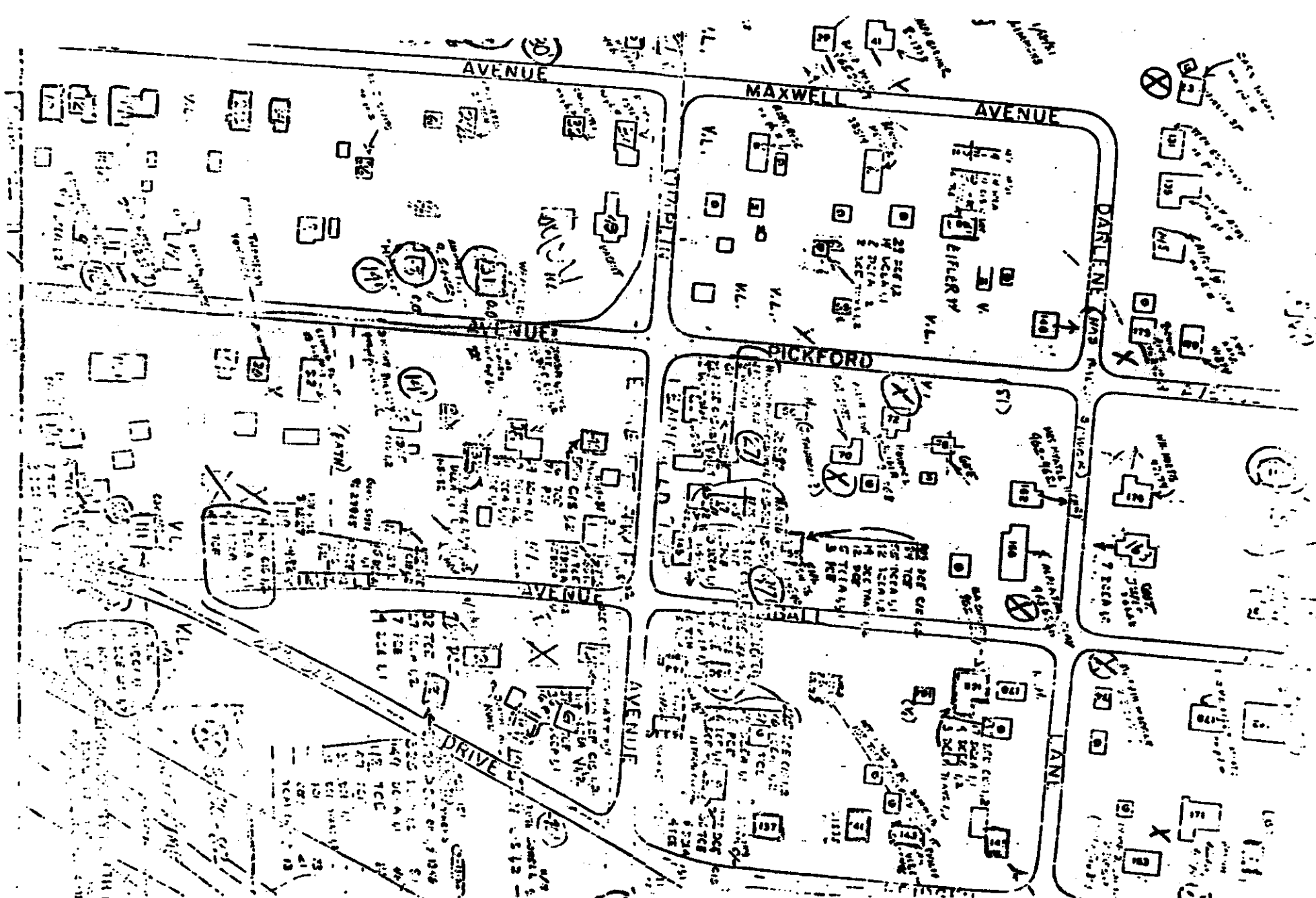
RECEIVED

APR 5 1982

Groundwater Qual., WQD

0000155

0000156



LANSING

1982 APR -1 PM 1:19

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

893

All known information Type or Print with soft lead or black ink.

LAB NO.

Report Results to: DIVISION OF WATER SUPPLY
3500 NORTH LOGAN STREET
Street Address: P.O. BOX 30035
City: LANSING, MI 48909
State: MI Zip Code: 48909

Consent for Analysis (check): Routine Other (Describe on separate sheet)

By: ROBY FREED
Phone No. 96 415233

Sample Collected at: Street Address: 185 KIMBALL
Township: TENNFIELD
Section No.:

Sample Collected at: Post Office (MI), Zip Code: DARTLE CREEK 49017
County: CALHOUN

Sample Collected by (name): John L. Heard
Time: 24 hr. Format (4-7) Date: (8-13) 03/31/82

Sampling Point (circle): Well surface water
Well No. 20 Age (yrs.) 2 Depth (ft.) 2

Check and complete following line only if sampling a public water supply.

Name of Supply: WELLS WET-BURNED WELL HEAD
Well ID (22-2e): DO NOT WRITE BELOW LABORATORY RESULTS

Parameter: VOLATILE HALOGENATED HYDROCARBONS
Result (31-34): < 1 ppb (NOT DETECTED)

Examiner: [Signature]

Unless otherwise indicated results given as mg/l

Reported (35-40): APR 7 1982 3
George R. Anderson, M.D.
Laboratory Director
Bureau of Disease Control and Laboratory Services
MICHIGAN DEPARTMENT OF PUBLIC HEALTH

REV.

Location Code (1-3)

LANSING

1982 APR -1 PM 1:19

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

897

All known information Type or Print with soft lead or black ink.

LAB NO.

1. Report Results to: DIVISION OF WATER SUPPLY
3500 NORTH LOGAN ST.
Street Address: P.O. BOX 30035
City: LANSING, MI 48909
State: MI Zip Code: 48909

2. Consent for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: ILAH FORD
Phone No.:

Sample Collected at: Street Address: 185 PICKFORD
Township: TENNFIELD
Section No.:

Sample Collected at: Post Office (MI), Zip Code: DARTLE CREEK
County: CALHOUN

Sample Collected by (name): John L. Heard, P.S.
Time: 24 hr. Format (4-7) Date: (8-13) 03/31/82

Sampling Point (circle): Well surface water
Well No. 20 Age (yrs.) 2 Depth (ft.) 2

Check and complete following line only if sampling a public water supply.

Name of Supply: WELLS DOES STRAIGHT DOWN DIRT
Well ID (22-2e): DO NOT WRITE BELOW LABORATORY RESULTS

Parameter: VOLATILE HALOGENATED HYDROCARBONS
Result (31-34): < 1 ppb (NOT DETECTED)

Examiner: [Signature]

Unless otherwise indicated results given as mg/l

Reported (35-40): APR 7 1982 3
George R. Anderson, M.D.
Laboratory Director
Bureau of Disease Control and Laboratory Services
MICHIGAN DEPARTMENT OF PUBLIC HEALTH

0000157

Location Code (1-3)

DIVISION OF WATER SUPPLY
 3500 NORTH LOEWEN STREET
 P.O. Box 102 APR - 1 PM 1:10

SANITARY BACTERIOLOGY
 & CHEMISTRY SECTION

89

Give all known information - Type or Print with soft lead or black ink. IAS NO.

1. Report Results to: DIVISION OF WATER SUPPLY
3500 NORTH LOEWEN STREET
 Street Address: P.O. BOX 30033
 Post Office: LANSING, MICH 48209
 State Zip Code: MI 48209
 Name No:

2. Reason for Analysis checked: Routine Other (Describe on separate sheet)

Supply Owner: ALBERTA CLAY Phone No. 9686886

Sample Collected at: Street Address: 168 DARLENE Township: PENNINGTON Section No. 96

Sample Collected at: Post Office (MI), Zip Code: BATTLE CREEK County: CALHOUN

Sample Collected by (name): John H. Haggard Time: 24 hr. format: Date: (8 13)
 (4:7) 11 11 10 13 10 12 12

Sample (container): surface water Well No: 1947 016 Depth (ft.): 1 1/2
 (surface, well, tap, other): surface water Age (yrs.): 1 1/2

3. Check and complete following line only if sampling a public water supply. SECRET REARILL

Name of Supply: ELERO - NO ACCESS PER WSSN (11-70) Sample Type: PERCENT

LAB ID: 127 26: 00001 DO NOT WRITE BELOW LABORATORY RESULTS SECRET
 Code (27-30) Parameter Result (1-34) SECRET REARILL

VOLATILE HALOGENATED HYDROCARBONS

1,1-dichloroethane - 24 ppb
 trans-1,2-dichloroethene - 80 ppb
 cis-1,2-dichloroethene - 315 ppb
 1,2-dichloroethane - 60 ppb

C.R.

(Unless otherwise indicated results given as mg/l) _____ Examiner

Reported (25-40) APR 7 1982 3 John A. Anderson Director

Bureau of Disease Control and Laboratory Services
 MICHIGAN DEPARTMENT OF PUBLIC HEALTH

LANSING

1982 APR -1 PM 1:10

Location Code (1-3)

SANITARY BACTERIOLOGY
& CHEMISTRY SECTION

82

LAB NO.

DIVISION OF WATER SUPPLY

5500 NORTH LOSAN STREET

P.O. BOX 30085

LANSING, MI. 48909

[4] Routine [] Other (Describe on separate sheet)

MRS. ALLEN DOVE

70 PICKFORD

BATTLE CREEK, MI.

John A. Heppard

Well No.

Surface water

Age (yrs.)

1984

Depth (ft.)

25 ft

Diam. (in.)

2"

Check and complete following line only if sampling a public water supply.

WSSSI (14-20) Sample Type (21)
ELFORD TOWER - 100 FT. DEEP - 4" DIA. - 100 FT. WALL

DO NOT WRITE BELOW - LABORATORY RESULTS (NOT REPRODUCIBLE)

Parameter

Result (31-34)

1,1 DICHLOROETHYLENE 10 ppb

7430NS

1,1 DICHLOROETHANE 65 ppb

TRANS-1,2 DICHLOROETHYLENE 31 ppb

CIS-1,2 DICHLOROETHYLENE 87 ppb

1,2 DICHLOROETHANE 70 ppb

1,1,1 TRICHLOROETHANE 8 ppb

CHLOROTETRACHLORIDE 5 ppb

1,2 DICHLOROPROPANE 2 ppb

TRICHLOROETHYLENE 60 ppb

JR

Examiner

Unless otherwise indicated results given as (µg/l)

APR 9 1982 2

Henry R. Anderson, Jr.
Laboratory Director
Bureau of Disease Control and Laboratory Services
MICHIGAN DEPARTMENT OF PUBLIC HEALTH

LANSING

1982 APR -1 PM 1:10

Location Code (1-3)

SANITARY BACTERIOLOGY
& CHEMISTRY SECTION

84

LAB NO.

Give all known information - Type or Print with soft lead or black ink.

1. Report Results to:

DIVISION OF WATER SUPPLY

Street Address

3500 NORTH LOSAN STREET

Post Office

P.O. BOX 30085

State Zip Code

LANSING, MI. 48909

2. Reason for Analysis (check) [] Routine [] Other (Describe on separate sheet)

Supply Owner:

3. HOWARD HEIDER

Sample Collected at Street Address:

72 PICKFORD

Sample Collected at Post Office (MI), Zip Code

BATTLE CREEK

Sample Collected by (name)

John A. Heppard, MS.

Sampling Point (circle):

Surface water

Well No.

20

Age (yrs.)

?

Depth (ft.)

25 min

Diam. (in.)

1/2"

Check and complete following line only if sampling a public water supply.

WSSSI (14-20) Sample Type (21)
INDISER - PIPE HAS 90° BELL, SPICE FLANGES CUT THRU WALL

DO NOT WRITE BELOW - LABORATORY RESULTS

Parameter

Result (31-34)

1,1 DICHLOROETHYLENE 6 ppb

1,1 DICHLOROETHANE 35 ppb

TRANS-1,2 DICHLOROETHYLENE 21 ppb

CIS-1,2 DICHLOROETHYLENE 482 ppb

CHLOROFORM 3 ppb

1,2 DICHLOROETHANE 52 ppb

JR

Examiner

Unless otherwise indicated results given as (µg/l)

Reported (35-40) APR 9 1982 2

Henry R. Anderson, Jr.
Laboratory Director
Bureau of Disease Control and Laboratory Services

0000159

REV.

Location Code (1-3)

LANSING

1982 APR -1 PM 1:10

90

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

Give all known information - Type or Print with soft lead or black ink. LAB NO.

1. Report Results to: DIVISION OF WATER SUPPLY - Phone No.

Street Address: 3500 NORTH LOGAN STREET - Phone No.

Post Office: LANSING, MI 48909

State Zip Code: LANSING, MI 48909

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: MARVIN MORGAN Phone No. 962 3379

Sample Collected at Street Address: 174 KIMBALL PENNSFIELD Section No.

Sample Collected at Post Office (MI), Zip Code: BATTLE CREEK 49017 County: CALTEEN

Sample Requested by (name): John A. Heppner Time - 24 hr. Format: Date: (8.13)

Sampling Point (circle): Well No: 20 Age (yrs): 20 Depth (ft.): 43 Diameter (in.): 2

Source (circle): pump, sump, other: Well (circle): volatile water

3. Check and complete following line only if sampling a public water supply.

Name of Supply: WSSN (14-20) Sample Type (21)

LAB ID (22-24) C2001 DO NO: WRITE BELOW LABORATORY RESULTS

Code (27-33) Parameter *Result (31-34)

VOLATILE HALOGENATED HYDROCARBONS

1,1,1-Trichloroethane - 1ppb

*Unless otherwise indicated results given as mg/l

Reported (35-40) APR 7 1982

Examiner

Steve N. Williams Laboratory Director Bureau of Disease Control and Laboratory Services MICHIGAN DEPARTMENT OF HEALTH

LABORATORY

Location Code (1-3)

1992 APR - 1 PM 1:19

SANITARY ENGINEERING
& CHEMISTRY SECTION

85

LAB NO.

Phone No:

REPORT SENT TO: DIVISION OF WATER SUPPLY

3500 N. LOGAN STREET
PO. BOX 30035
LANSING, MICH. 48909

REPORT FROM: (Type or Print with soft lead or black ink.)

LEAD FEASEL (Bills Bail Shop) 9641035

171 BRIGLEY ST. CAPTAL TOWNSHIP, KENNFIELD

BRITTE CREEK, MICH. CALHOUN

DELLA C. HENNING, R.S. 14-71

WELL No. 20 Age (Yrs.) 20 Depth (ft.) 100-5' Dia. (in.) 8" S.W. 1/4 Sec. 14

DO NOT WRITE BELOW—LABORATORY RESULTS

VOLATILE HALOGENATED HYDROCARBONS

1,1,1-Trichloro ethane - 3ppb

OP

Examiner

APR 7 1992

Henry A. Alderson
Laboratory Director
Bureau of Disease Control and
Prevention Michigan Department of
Public Health

LABORATORY

Location Code (1-3)

1992 APR - 1 PM 1:19

SANITARY ENGINEERING
& CHEMISTRY SECTION

83

LAB NO.

Phone No:

REPORT SENT TO: DIVISION OF WATER SUPPLY

3500 NORTH LOGAN
LANSING, MICH.

REPORT FROM: (Type or Print with soft lead or black ink.)

BONNIE LINDSEY 9649944

171 BRIGLEY ST. CAPTAL TOWNSHIP, KENNFIELD

BRITTE CREEK, MICH. CALHOUN

DELLA C. HENNING, R.S. 14-71

WELL No. 20 Age (Yrs.) 20 Depth (ft.) 100-5' Dia. (in.) 8" S.W. 1/4 Sec. 14

DO NOT WRITE BELOW—LABORATORY RESULTS

VOLATILE HALOGENATED HYDROCARBONS

1,1-DICHLORODETHYLENE < 1ppb
1,1-DICHLOROETHANE 1ppb
CIS-1,2-DICHLOROETHYLENE 6ppb
1,1,1 TRICHLOROETHANE < 1ppb

JR

Examiner

APR 9 1992

Henry A. Alderson
Laboratory Director
Bureau of Disease Control and Laboratory Service
MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1910000

Location Code (1-3)

LANSING

1992 APR - 1 PM 1:10

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

86

LAB NO.

Report Results for DIVISION OF WATER SUPPLY & CHEMISTRY SECTION
3500 NORTH LOGAN STREET
LANSING, MICH 48209

Supply Owner: ALVIN JACKSON
Street Address: 55 CORCORAN
City: DATTLE CREEK
State: MI
Zip Code: 48209

Sample Collected at: 55 CORCORAN
Post Office (MI), Zip Code: 48209

Township: FARMETT
County: CALHOUN

Time - 24 hr. Format Date: (8-13)
11 01 310812

Well No. 8
Depth (ft.) - Diameter (in.)
138' 4 1/2"

Source (circle): Surface water
Well surface water

Check and complete following line only if sampling a public water supply.
Sample Type (21)
WSSN (14-20) 1111

LAB ID (27-26) 00001
DO NOT WRITE BELOW - LABORATORY RESULTS

Result (31-34)
Parameter

VOLATILE HALOGENATED HYDROCARBONS

1,1-dichloroethane - 1ppb
cis-1,2-dichloroethane - 7ppb
1,2-dichloroethane - 1ppb

Examiner: CAR

Reported (35-40) APR 7 1992 3

MICIGAN DEPARTMENT OF PUBLIC HEALTH
Bureau of Disease Control and Laboratory Services
Miss A. Anderson, Director

Location Code (1-3)

LANSING

1992 APR - 1 PM 1:19

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

91

LAB NO.

Report Results for DIVISION OF WATER SUPPLY & CHEMISTRY SECTION
3500 NORTH LOGAN ST.
P.O. BOX 30035
LANSING, MI

Supply Owner: CAROL DU BOIS
Street Address: 63 MAXWELL
City: DATTLE CREEK
State: MI
Zip Code: 48209

Sample Collected at: 63 MAXWELL
Post Office (MI), Zip Code: 48209

Township: TENNIFIELD
County: CALHOUN

Time - 24 hr. Format Date: (8-13)
11 01 01510812

Well No. 20E
Depth (ft.) - Diameter (in.)
31' 2 1/2"

Source (circle): Well surface water

Check and complete following line only if sampling a public water supply.
Sample Type (21)
WSSN (14-20) 1111

LAB ID (27-26) 00001
DO NOT WRITE BELOW - LABORATORY RESULTS

Result (31-34)
Parameter

VOLATILE HALOGENATED HYDROCARBONS

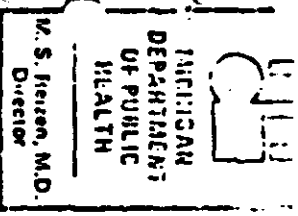
1,1,1-trichloroethane - 8ppb

Examiner: CAR

Reported (35-40) APR 7 1992 3

Bureau of Disease Control and Laboratory Services
Miss A. Anderson, Director

0000169



MEMORANDUM

WILLIAM A. PERLICK, P. E., Chief
Division of Water Supply

DATE:
February 11, 1982

Through: Gordon E. Olivier, P. E. *GO*
Regional Engineer
FROM: Richard M. Wirsing, Acting District Engineer *R.W.*

0450

SUBJECT: Battle Creek Area Groundwater Contamination
- Meeting with the Kellogg Company

On February 9, 1982, Mr. Don Thomason, General Plant Manager, Kellogg Company, Battle Creek Plant, called this office to request a meeting. He said that they had some information that they would like to share with us and any other parties we felt might be interested. Mr. Thomason indicated that they had information regarding the groundwater contamination affecting wells in the Battle Creek area.

On February 10, 1982, representatives of the Kellogg Company, the City of Battle Creek, the Department of Natural Resources, the Calhoun County Health Department, and this office met at the Kellogg plant in Battle Creek. A list of names of those in attendance is attached.

Mr. Thomason informed us at this meeting that the Kellogg Company had sampled their wells for trichloroethylene (TCE) as a result of newspaper articles regarding the partial contamination of the Verona Wellfield which serves the City of Battle Creek water supply system. The company uses water at the plant in food processing, as well as for drinking purposes. The analyses were conducted at company facilities using gas chromatographic techniques. Four of the company's five wells were found to contain TCE. Concentrations determined were 1.4 ppb, 10.4 ppb, 8.3 ppb and 173 ppb. Dichloroethylene was also suspected to be present, however, it was not quantified or specified which samples were suspect.

Upon learning these results, the Kellogg Company decided to immediately begin using the Battle Creek water supply as their sole source of water for all uses. This decision was made on December 3, 1981. Prior to this decision, the company obtained approximately 50% of their water needs from the Battle Creek water supply and combined it with the flow from their wells.

The roles of each of the government agencies presently involved in the groundwater contamination investigation was explained to the company. The findings to date were also discussed. The company expressed a desire to assist the investigation in any way they could. The company was requested to provide the following:

RECEIVED

FEB 12 1982

Groundwater Qual, V:GD

0000163

February 11, 1982

1. All available information regarding their wells (location, construction, well logs, water levels, etc.).
2. Information regarding the techniques used to conduct the water analyses.
3. Make arrangements to allow sampling of their wells without having to pump directly into the plant distribution system (pump to waste).
4. Identify any possible sources of contamination they might suspect.
5. Investigate the possibility of granting permission to the EPA Technical Assistance Team or the EPA Federal Investigation Team to drill monitoring wells on company property.
6. Contact the Michigan Department of Agriculture and inform them of the findings and the actions taken.

Mr. Thomason indicated that they would attempt to comply with all requests dependent upon legal advisement.

The company is also considering the possibility of issuing a news release regarding this matter. It was indicated that any news release issued would emphasize that the Kellogg Company had begun using the Battle Creek water supply as their sole source of water, that the Battle Creek water supply is sampled weekly by the Michigan Department of Public Health; and that the Kellogg Company was offering their assistance to the groundwater contamination investigation.

RMW:ak

Attachment

cc: Mr. Jim Cleland

cc: Mr. Don Keech

cc: Mr. Joe Lovato

cc: Mr. Don Thomason, Kellogg Company

cc: Mr. John Hesse, Chemicals and Health Center

cc: Contact Persons:

Calhoun County Health Department - Mr. Ted Havens

City of Battle Creek - Mr. Larry Osborn

Department of Natural Resources - Mr. William Iversen

Department of Agriculture - Mr. Albert Hafner

U.S. Geological Survey - Mr. Ray Cumming

0000164

1966 WATER INVESTIGATION 4 G.S.A.

Table 3... Records of wells... Continued

Well No.	Location in section	Owner	Year drilled	Blower (hp.)	Depth to water (ft.)	Acidifier	Specific capacity	Water level	M or R	Date measured	Altitude	Approx. depth to base of aquifer	Remarks
20-19	W1 S1 section 14	CITY of Battle Creek (TV 2)			87	0 0							
20-20	W2 S1 section 14	CITY of Battle Creek	1905	6	140	0 0							
26-1	W1 S1 section 16	Battle Creek Twp (TV 2)	1905	8	155	M 0	4	2.5		7-7-43	945		One of 8 test wells drilled in 1906.
26-2	W2 S1 section 16	Battle Creek Twp (TV 2)	1905	10	150	M 0	7	2.5		6-7-43	947		L, C or of 4 test wells drilled about 1900.
26-3	W3 S1 section 16	Battle Creek Twp (TV 2)	1906	11	150	M 0	9				948		L, C, at site of TV 2.
26-4	W4 S1 section 16	Battle Creek Twp (TV 2)	1909	6	75	0 0	2	3		1909	949		L, C
26-5	W5 S1 section 16	Battle Creek Twp (TV 2)	1941	8	110	0 0	8	4		1941	951		L, C
26-6	W6 S1 section 16	Battle Creek Twp (TV 2)	1961	8	200	0 0	8			1961	952		
26-7	W7 S1 section 16	Battle Creek County Club	1965	7	25	M 0	9	15		1965	957		
26-8	10 Wesley Street	Palmer Athletic Club	1965	7	80	M 0	8				958		
26-9	W1 S1 section 17	Michigan State Highway Department	1979	6	140	0 0	6	3		12-7-89	975		L
26-10	W2 S1 section 17	Battle Creek Twp (TV 2)	1962	8	150	0 0	6	1.5		1962	980		L
26-11	W3 S1 section 17	Battle Creek Twp (TV 2)	1962	8	75	0 0	6	1.5		1962	981		L
26-12	W4 S1 section 17	Battle Creek Twp (TV 2)	1962	8	125	0 0	6			1962	982		
26-13	W5 S1 section 17	Battle Creek Twp (TV 2)	1962	8	125	0 0	6			1962	983		
26-14	W6 S1 section 17	Standard Oil Co.	1961	4	70	0 0				1961	984		
26-15	Capital Ave at 39th	Sill-Kemp Automobile Sales Inc	1961	4	140	M 0				1961	985		
26-16	Capital Ave at 39th	Fallday Inn	1961	4	150	M 0				1961	986		
26-17	1210 Payment Rd.	Modern Transit Bus	1961	4	125	M 20				1961	987		
26-18	W1 S1 section 5	Grand Trunk Western RR	1939	16	116	M 20					988		
26-19	W2 S1 section 5	Grand Trunk Western RR	1939	16	121	M 20				1939	989		
26-20	W3 S1 section 5	Grand Trunk Western RR	1939	16	90	M 20		9.5		1939	990		
26-21	W4 S1 section 5	Grand Trunk Western RR	1939	16	90	M 20				1939	991		
26-22	W5 S1 section 5	Grand Trunk Western RR	1939	16	80	M 20				1939	992		
26-23	W6 S1 section 5	Richard Mine and Steel		8	130	M 20					993		
26-24	W7 S1 section 5	J. Kliney		8	125	M 20		3			994		
26-25	W8 S1 section 5	Oliver Pump Equipment	1910	6	7	M 0		19-20		11-7-46	911.5		One of 15 pre-war wells
26-26	W9 S1 section 5	General Foods Corp (1)	1918	8	87	M 20		20-20		1963	990		One of 15 pre-war wells
26-27	W10 S1 section 7	General Foods Corp (2)	1991	11	115	M 20					992		L
26-28	W11 S1 section 7	General Foods Corp	1991	8	115	M 0					993		L
26-29	W12 S1 section 7	General Foods Corp	1991	8	115	M 0					994		L
26-30	W13 S1 section 7	General Foods Corp	1991	16	110	M 20					995		L
26-31	W14 S1 section 7	General Foods Corp	1991	16	110	M 20					996		L
26-32	W15 S1 section 7	General Foods Corp	1991	16	110	M 20					997		L
26-33	W1 S2 section 8	CITY of Battle Creek (TV 1)	1905	8	70	0 0					957		L
26-34	W2 S2 section 8	CITY of Battle Creek (TV 2)	1905	8	70	0 0					958		L
26-35	W3 S2 section 8	CITY of Battle Creek (TV 3)	1905	2	115	M 0					959		L
26-36	W4 S2 section 8	CITY of Battle Creek (TV 4)	1905	2	130	M 0					960		L
26-37	W5 S2 section 8	CITY of Battle Creek (TV 5)	1905	2	115	M 0				1905	961		L
26-38	W6 S2 section 8	CITY of Battle Creek (TV 6)	1905	2	100	M 0					962		L
26-39	W7 S2 section 8	CITY of Battle Creek (TV 7)	1905	2	80	M 0					963		L
26-40	W8 S2 section 8	CITY of Battle Creek (TV 8)	1905	2	60	M 0					964		L
26-41	W9 S2 section 8	CITY of Battle Creek (TV 9)	1905	2	100	M 0					965		L
26-42	W10 S2 section 8	CITY of Battle Creek (TV 10)	1905	2	100	M 0					966		L
26-43	W11 S2 section 8	CITY of Battle Creek (TV 11)	1905	2	90	M 0					967		L
26-44	W12 S2 section 8	CITY of Battle Creek (TV 12)	1905	2	90	M 0					968		L
26-45	W13 S2 section 8	CITY of Battle Creek (TV 13)	1905	2	80	M 0					969		L
26-46	W14 S2 section 8	CITY of Battle Creek (TV 14)	1905	2	70	M 0					970		L
26-47	W15 S2 section 8	CITY of Battle Creek (TV 15)	1905	2	70	M 0					971		L
26-48	W1 S3 section 9	CITY of Battle Creek (TV 1)	1906	2	110	M 0					972		L
26-49	W2 S3 section 9	CITY of Battle Creek (TV 2)	1906	2	110	M 0					973		L
26-50	W3 S3 section 9	CITY of Battle Creek (TV 3)	1906	2	75	M 0					974		L
26-51	W4 S3 section 9	CITY of Battle Creek (TV 4)	1906	2	75	M 0					975		L
26-52	W5 S3 section 9	CITY of Battle Creek (TV 5)	1906	2	75	M 0					976		L
26-53	W6 S3 section 9	CITY of Battle Creek (TV 6)	1906	2	75	M 0					977		L
26-54	W7 S3 section 9	CITY of Battle Creek (TV 7)	1906	2	75	M 0					978		L
26-55	W8 S3 section 9	CITY of Battle Creek (TV 8)	1906	2	75	M 0					979		L
26-56	W9 S3 section 9	CITY of Battle Creek (TV 9)	1906	2	75	M 0					980		L
26-57	W10 S3 section 9	CITY of Battle Creek (TV 10)	1906	2	75	M 0					981		L
26-58	W11 S3 section 9	CITY of Battle Creek (TV 11)	1906	2	75	M 0					982		L
26-59	W12 S3 section 9	CITY of Battle Creek (TV 12)	1906	2	75	M 0					983		L
26-60	W13 S3 section 9	CITY of Battle Creek (TV 13)	1906	2	75	M 0					984		L
26-61	W14 S3 section 9	CITY of Battle Creek (TV 14)	1906	2	75	M 0					985		L
26-62	W15 S3 section 9	CITY of Battle Creek (TV 15)	1906	2	75	M 0					986		L
26-63	W1 S4 section 10	Richison Waterworks		6	117	M 10		8		1963	993		L

0000165

KELLOGG COMPANY WELLS (WGSN 2016713)

WELL NO.

		CASING	SIZE	DEPTH	STAT.
7 1944	Inside bldg. in pit	(new pump)	8"	85'	29
7 1942	In Warehouse under floor			102'	
8 1933	300' behind loading dock in parking lot	60'	16"	119'	30
8 1933	north of plant	"rock" (new pump)	14"	113'	36
9 1934	in #2 parking lot, N. of #2 BLDG	"rock"	14"	112'	
10 1935	N.E. corner of back parking lot	"rock"	15"	106'	33
11 1945	75' E. of parking lot, in #6 well pit			113'	34
11 1941		(new pump)	12"	83'	21

WELL & PUMP INSPECTION REPORT

OWNER Kellogg Company
Battle Creek STATE Michigan
 WELL NO. 8 LOCATION 300' behind loading dock in parking lot
 DIA. 16" DEPTH _____ TYPE WELL _____
 SCREEN I.D. 16" SCREEN LENGTH _____ DEPTH TO TOP OF SCREEN _____ TYPE SCREEN _____
 DATE DRILLED 1933 DATES OF CLEANING liner 1946, 72, 76
 DATE INSPECTED 5/9/78 PERSON TO CONTACT Russ Joslyn
 CONTACT LOCATION At Plant

	DATE	STATIC	GPM	PUMPING LEVEL	PRESSURE	SPECIFIC CAPACITY
ORIGINAL			900	NO OTHER DATA	AVAILABLE	
AFTER LAST CLEANING	1976	(39')	984	52'		75.6
AFTER LAST TEST						
SENT AT PRESSURE	1978	(45')	737	55'	122#	73.7

TEST WILL BE COMPLETE THROUGH: TOP OF CHECK _____ METER _____ FLANGE OR PIPE OD: 5.38 4"
 TOTAL PUMP SETTING 100'6" MOTOR H.P. 100 VOLTS _____ RPM 1200
 PUMP MFG. Peerless SERIAL NUMBER 33961 AIRLINE LENGTH _____
 RATED CAPACITY: 1000 GPM.; 300' TDH.; OPERATING PRESSURE _____
 DATE INSTALLED 1953 DATES OF OVERHAUL 1964, 72, 76, 53

IS CHECK VALVE LEAKING? YES _____ NO _____ DOES STUFFING BOX HAVE SPRINGS? no SIZE OF PACKING 3"

THE FOLLOWING IS TO BE PERFORMED DURING EACH INSPECTION:

CHANGE MOTOR OIL & GREASE x REPACK PUMP x GREASE PUMP x

(place check mark when completed)

PUMP IS PRESENTLY DEVELOPING 1000 GPM. 285' TDH.; SHUT OFF HEAD _____ FT.

ELECTRICAL DATA WITH PUMP IN OPERATION 100-100-105 AMPS; 480 VOLTS; 3 PHASE

MATERIALS NEEDED TO CLEAN WELL: _____

NEED A SMEAL TO RAISE PUMP? yes REMARKS Used 2 stuffing box bolts.

INSPECTED BY Tony J. Ross

0000167

DATE COMPLETED 1933 .

SIZE OR DIAMETER 16"

FINISHED DEPTH. SURFACE TO BOTTOM.

LOCATION OF WELL

SCREEN

CASED WITH 16" PIPE TO 60'.

DIAMETER

LENGTH

MAKE AND TYPE

OPENING OR SLOT SIZE

FITTINGS

FORMATIONS ENCOUNTERED

4. INSTALLED:

10-STAGE STERLING PUMP
3/8" FLANGED COLUMN
SUCTION
1200 RPM, 440/3/60
RPM, 310' LEVEL.

0 - 24	FILL (CINDERS)
24 - 49	SAND
49 - 51	CLAY
51 - 60	SHALE & SANDSTONE
60 - 111	GREY SANDSTONE
111 - 119	SHALE
APPROXIMATELY 900 GPM.	

TOTAL DEPTH PENETRATED

STATIC OR NORMAL WATER LEVEL FROM BASE OF MACHINE

PUMPING TEST

DRAWDOWN FT. AT . GPM.

PERMANENT WELL INFORMATION, AS INSTALLED

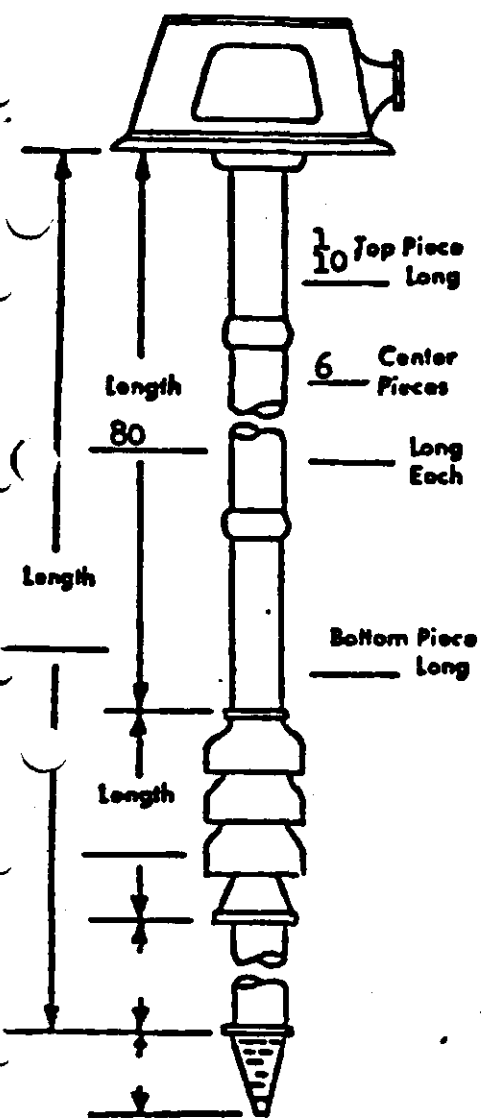
0000168

- 1946 Well tested, static 37'4" (#9 off), 41' (#9 on) pumped 888 GPM, 11' of DD, spec. cap. 80.7.
- 1972 Well cleaned, static 44', pumped 1016 GPM @ 57' PL, spec. cap. 78.1.
- 1976 Well cleaned, static 39', pumped 984 GPM @ 52' PL, spec. cap. 75.6.

0000169

Order No. B66 Date 3-5-76
 Pump Mfg. Peerless Serial No. 33961 Well No. 8
 Owner Kellogg Co. City Battle Creek State Mich
 Location of Well behind loading dock 300', north of plant in parking lot
 MOTOR: Make US Type HV Frame 1504P Ser. No. 1305919
 HP 100 Volts 220/440 Line Voltage 440 Phase 3 RPM 1200
 Was Motor Taken to a repair shop at this time? yes Where? Electrico
 GEAR DRIVE: Make _____ Serial No. _____ Gear Ratio _____
 ENGINE: Make _____ Model _____ Serial No. _____

PUMP HEAD Type 1 1/4 S. S. COLUMN Pipe Size 8"
 Discharge Pipe Size 12" Flanged _____ Coupled X
 Located above above below ground Special Point? no
 Flanged X Threaded _____ Oil Lube _____ Water Lube X
 Separate Base Plate? no Shaft Size 1 15/16 SS X or CS _____
 Head Shaft Length 7' 1 1/2" Tubing Size none SN _____ or Br _____
 Dia. 1 15/16 Coupled above below X
 MOTOR SHAFT: Dia. _____ Length _____ SUCTION PIPE Size 8"
 Thread Size in Head Keyway 1/2" Length 9' Special Point? no
 PUMP BOWL Type 1 1/4 MA Threads on Bottom? no
 Dia. 14 No. of Stages 10 Strainer none Size _____
 Bowls - Cast Iron or Bronze? bronze Rubber Bumper? none
 Shaft - SS X CS _____ Length _____ Well Seal? none



NOTE - All measurements from top of pump foundation. WELL INFORMATION Grovel Wall Tubular Rock rock
 Inside Dia. 14 Depth 113 Static 36 Type: _____
 Air Line Length 80' Strapped to Column? no
 Type Airline _____ Plastic _____ Copper Tubing X Steel Pipe _____
 PUMPING TEST - Pumped 984 GPM at 52' Ft. Pumping Level _____
 with 105# lbs. discharge pressure after 1 hours. _____
 Pump to Waste Outside _____ Inside _____ Size _____ THD.O. _____

PULLING INSTRUCTIONS

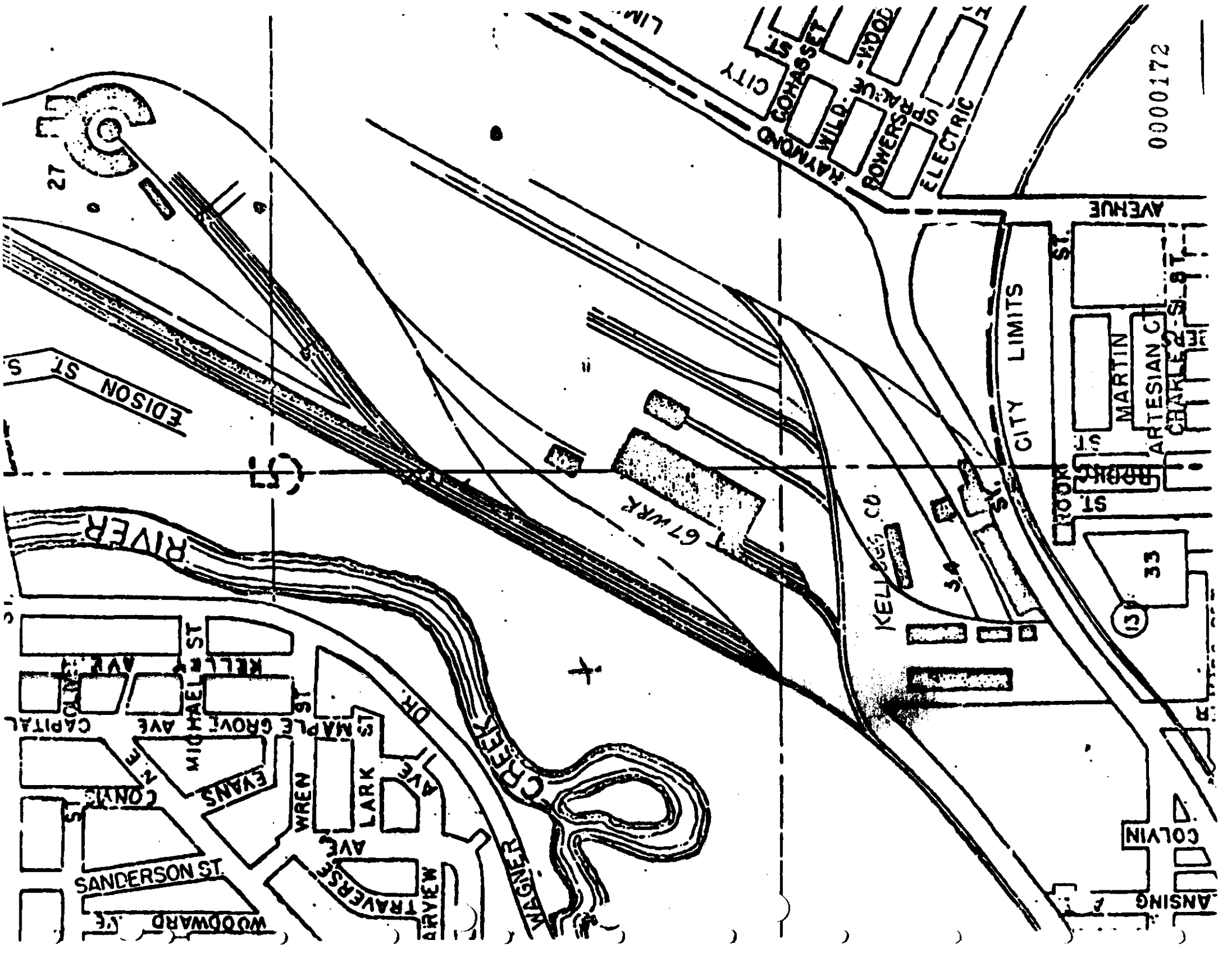
Length of Poles required _____ Special equipment or pulling instructions 8" wood clamps
 Power Lines: 20' away

REMARKS: Have to turn pump to clean
To run maint test there is a 4" spool to take out.
 Installer Mike Garrage

0000170

HISTORY OF PEERLESS PUMP #33961

- 1947 Pump #33961 ordered.
- 1953 Installed new, rated 1000 GPM @ 300' TDH. Motor overhauled.
- 1963 Installed new 100 HP, 1200 RPM motor.
- 1964 Pump pulled and overhauled, strainer removed.
- 1972 Pump pulled and overhauled, motor and Kingsbury unit overhauled.
- 1976 Pump pulled and overhauled, motor and Kingsbury unit overhauled.
- 1977 Kingsbury clutch repair after pump was started against a closed valve, impellers also raised.



27

EDISON ST

RIVER

ST

67 WRK

WAGNER CREEK

WOODWARD ST

SANDERSON ST

EVANS

WREN AVE

TRAVELERS AVE

LARK AVE

MICHAEL ST

MAPLE GROVE AVE

KELLOGG AVE

ARVIEW

DR

KELLOGG CO

34

CITY LIMITS

ST

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ST

ST

AVENUE

MARTIN

ARTESIAN C

CHARLES ST

33

COLVIN

ANSING

RAYMOND CITY

COHASSET

WILD WOOD

ELECTRIC

0000172

Clear logistic - don't create
50 gal barrier -
Thick plastic liner inside.
vents of Solon, Greenland

~~Get into the program now~~

Concise

To clear metal before putting habitat on bearings

for push rods.
Dump all liquid out - sure to re-use
4-5' deep in bottom

Ride out onto a jolly

Have blank office, paper tracks

Read good to tracks

"mud" -

1920-1970

Rule a lot of it in + pile it 5' deep

Skew of our bank.

~~Stage 1~~ Bank - push per with the swamp.

skim on top of water (only)

would like mequiter for 1 summer.

Current hardly moved.

Crust over in top (white) - nothing would grow on it.

In the main stage.

Middle back door

Jim Schwartz

CALHOUN COUNTY HEALTH DEPARTMENT

Division of Environmental Health

Handwritten initials

Name Albert Anthony Tel. 968-6072
 Oper. _____ Tel. _____
 "C" _____ Tel. _____
 Act. _____ Loc. _____ EH _____ Ref. H₂O - Grand Trunk

Date 2/6/82 Act. Date _____ Reason Mr. Anthony's father worked

for many years (30+) at Grand Trunk and thought we should know about the degreaser that for more than 30 years was taken routinely from a large vat 12' X 12' X 12' (4000 gallons) and buried in a hole behind the shops on west side of tracks toward the river. It is swampy now, was filled in in late '60's or early '70's, but he suggests that it could be located by driving a posthole about 25'.

This is only a mile ± from pumping station.

	SITE	COUNTY
GTWRR	20060	017



TO: Mr. William Iversen
Department of Natural Resources

DATE:
February 8, 1982

FROM: Richard M. Wirsing *RMW*
Division of Water Supply

0450

SUBJECT: Battle Creek Area Sampling Results

MEMORANDUM

Please find attached copies of the results of analyses conducted on water samples collected on January 22, 1982 from privately-owned wells located in the vicinity of the Verona Wellfield. These results continue to show wells in the residential area south of the wellfield to be significantly contaminated.

*It should also be noted that two (2) samples were collected from wells located near the Raymond Road Landfill. These samples were found to contain low concentrations of CIS-1,2-dichloroethylene, trichloroethylene, and perchloroethylene. Further sampling of wells in this area will be conducted.

RMW:ak
Attachments

RECEIVED
FEB 10 1982
Groundwater Qual., WQD

0000175

REV. 1-29 2/78

PARTIAL-CHEMICAL ANALYSIS OF WATER

Revised

LANSGING

882 JAN 25 PM 12:06

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

1243

0000176

Location Code (1-2)

Give all known information—Type or Print with soft lead or black ink. LAB NO.

1. Report Results to: DIVISION OF WATER SUPPLY

Phone No.

3500 N. LOGAN STREET

P.O. BOX 30035

LANSGING, MI 48909

Post Office

State Zip Code:

2. Request for Analysis (check): Routine Other (Describe on separate sheet)

3. Supplier: DWIGHT BIGLEY

Street Address: BATTLE CREEK

Township: ENNETT

Section No. 5

Sample Collected at: Post Office (MI), Zip Code

28 PICKFORD

Sample Collected by: *John L. Heppard, R.S.*

Source (check):

Well No. Age (yr.) Depth (ft.)

Time - 24 hr. Formed Date: (8-13)

8. Check and complete following line only if sampling a public water supply.

9. Name of Supplier: *Waterworks, Stryker, Mich.*

WSSN (14-20)

LAB ID (27-26) 00001

Code (27-20) Parameter

VOLATILE HALOGENATED HYDROCARBONS

CH-12-DICHLOROETHYLENE | ppb

Examiner

(Unless otherwise indicated results given as mg/l)

Reported (35-40)

4 1982 3

Bureau of Disease Control and Laboratory Services

PARTIAL-CHEMICAL ANALYSIS OF WATER

Revised

LANSGING

892 JAN 25 PM 12:06

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

1239

Location Code (1-2)

Give all known information—Type or Print with soft lead or black ink. LAB NO.

1. Report Results to: DIVISION OF WATER SUPPLY

Phone No.

3500 N. LOGAN STREET

P.O. BOX 30035

LANSGING, MI 48909

Post Office

State Zip Code:

2. Request for Analysis (check): Routine Other (Describe on separate sheet)

3. Supply Owner: ALMETHA FRANCE

Phone No. 966-6432

Section No. 5

Sample Collected at: Post Address: BATTLE CREEK

27 PICKFORD

Sample Collected by: *John L. Heppard, R.S.*

Source (check):

Well No. Age (yr.) Depth (ft.)

Time - 24 hr. Formed Date: (8-13)

8. Check and complete following line only if sampling a public water supply.

9. Name of Supplier: *Waterworks, Stryker, Mich.*

WSSN (14-20)

LAB ID (27-26) 00001

Code (27-20) Parameter

VOLATILE HALOGENATED HYDROCARBONS

SAMPLE LOST IN LABORATORY ACCIDENT. HERE RESUBMIT

Examiner

(Unless otherwise indicated results given as mg/l)

Reported (35-40)

4 1982 3

Bureau of Disease Control and Laboratory Services

Location Code (1-3)
LANSING

1982 JAN 25 PM 12: 06

1238

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

Give all known information - Type or Print with soft lead or black ink. LAB NO.

1. Report Results to: DIVISION OF WATER SUPPLY
3500 N. LOGAN STREET
P.O. Box 30035
LANSING, MI. 48909
Phone No.

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

3. Supply Owner: JANICE CUSTER Phone No. 962-8419

4. Sample Collected at - Street Address: Battle Creek
Township: EMMETT Section No.: 4

5. Sample Collected at Post Office (MI), Zip Code: 125 MC GRATH
County: CALHOUN

6. Sample Collected by (name): John A. Heppard, R.S.
Time - 24 hr. Format Date: (8-13) (4-7) 11 11 01/21/82

7. Sampling Point (circle): Well No. 6 Age (yrs.) 6 Depth (ft.) 4' Thum. (in.) 2"

8. Check and complete following line only if sampling a public water supply. Name of Supply: well in front yard
WSSN (14-20) 154 Sample Type (21) 1

LAB ID (22-26) 00001 DO NOT WRITE BELOW - LABORATORY RESULTS

VOLATILE HALOGENATED HYDROCARBONS

CIS-1,2-DICHLOROETHYLENE 1ppb
TRICHLOROETHYLENE <1ppb
PERCHLOROETHYLENE <1ppb

DA
Examiner

(*Unless otherwise indicated results given as mg/l)

Reported (35) FEB 4 1982 3

John A. Heppard R.S.
Laboratory Director
Michigan Department of Health and Human Services
Michigan State University

Location Code (1-3)
LANSING

1982 JAN 25 PM 12: 06

00001710000

1240

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

Give all known information - Type or Print with soft lead or black ink. LAB NO.

1. Report Results to: DIVISION OF WATER SUPPLY
3500 N. LOGAN STREET
P.O. Box 30035
LANSING, MI. 48909
Phone No.

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

3. Supply Owner: Bill Lahn Phone No. 962-9315
McCur Jackson last fall in Corcoran Smelly water at 170 or 180.

4. Sample Collected at - Street Address: Battle Creek
Township: PENNFIELD Section No.: 32

5. Sample Collected at Post Office (MI), Zip Code: 46 CORCORAN
County: CALHOUN

6. Sample Collected by (name): John A. Heppard, R.S.
Time - 24 hr. Format Date: (8-13) (4-7) 11 11 01/21/82

7. Sampling Point (circle): Well No. 20 Age (yrs.) 70 Depth (ft.) 2' Thum. (in.) 2"

8. Check and complete following line only if sampling a public water supply. Name of Supply: from yard well to drink
WSSN (14-20) 154 Sample Type (21) 1

LAB ID (22-26) 00001 DO NOT WRITE BELOW - LABORATORY RESULTS

VOLATILE HALOGENATED HYDROCARBONS

CIS-1,2-DICHLOROETHYLENE 6ppb

DA
Examiner

(*Unless otherwise indicated results given as mg/l)

Reported (35-40) FEB 4 1982 3

John A. Heppard R.S.
Laboratory Director
Michigan Department of Health and Human Services
Michigan State University

Location Code (1-3)

LANSING

1002 JAN 25 PM 12:06

1242

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

Give all known information—Type or Print with soft lead or black ink.

LAB NO.

1. Report Results for: DIVISION OF WATER SUPPLY
 Street Address: 3500 N. LOGAN STREET
 Post Office: P.O. BOX 30035
 State—Zip Code: LANSING, MI. 48909

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: *CY WILLAUISE* Phone No. *222-2222*

Sample Collected at—Street Address: *Battle Creek* Township: *PENNFIELD* Section No.: *32*

Sample Collected at—Post Office (MI), Zip Code: *150 KIMBALL* County: *CALHOUN*

Sample Collected by (name): *John A. Heppard, R.S.* Time—24 hr. format Date: (8-13) *11/15/01/12/2/82*

Sampling Point (circle): *Well surface water* Well No. *RD. ?* Age (yrs.) *16*

3. Check and complete following line only if sampling a public water supply. *large up lead well*

Name of Supply: *Supply pipe for house* WSSN (14-20) *1111* Sample Type (21) *for 1 minute*

LAB ID (27-30) 00001 DO NOT WRITE BELOW—LABORATORY RESULTS

Code (27-30) Parameter Result (31-34)

Code (27-30)	Parameter	Result (31-34)
VOLATILE HALOGENATED HYDROCARBONS		
	1,1-DICHLOROETHYLENE	6 ppb
	1,1-DICHLOROETHANE	31 ppb
	TRANS-1,2-DICHLOROETHYLENE	2 ppb
	CIS-1,2-DICHLOROETHYLENE	975 ppb
	1,2-DICHLOROETHANE	76 ppb
	TRICHLOROETHYLENE	69 ppb
	1,1,1-TRICHLOROETHYLENE	29 ppb

DD
Examiner

(*Unless otherwise indicated results given as mg/l)

Reported (3): *FEB 4 1982 3*
 Bureau of Disease Control and Laboratory Services
 Michigan Department of Public Health

Location Code (1-3)

LANSING

1002 JAN 25 PM 12:06

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

0000176
0210000

1235

Give all known information—Type or Print with soft lead or black ink.

LAB NO.

1. Report Results for: *Division of Water Supply*
 Street Address: *3500 N. Logan St.*
 Post Office: *P.O. Box 30035*
 State—Zip Code: *Lansing, MI*

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: *Mabel Shroll* Phone No. *222-2222*

Sample Collected at—Street Address: *152 N. Priggen* Township: *Emmett* Section No.: *32*

Sample Collected at—Post Office (MI), Zip Code: *Battle Creek, MI* County: *Calhoun*

Sample Collected by (name): *John A. Heppard* Time—24 hr. format Date: (8-13) *01/24/82*

Sampling Point (circle): *Well surface water* Well No. *RD. ?* Age (yrs.) *16*

3. Check and complete following line only if sampling a public water supply.

Name of Supply: *Pump in pit outdoors* WSSN (14-20) *1111* Sample Type (21) *for 1 minute*

LAB ID (27-30) 00001 DO NOT WRITE BELOW—LABORATORY RESULTS

Code (27-30) Parameter Result (31-34)

Code (27-30)	Parameter	Result (31-34)
HALOGENATED VOLATILE HYDROCARBONS		
	1,1-Dichloroethylene	6 ppb
	1,1,1-Trichloroethane	34 ppb
	1,1-Dichloroethane	99 ppb
	CIS-1,2-Dichloroethylene	670 ppb
	chloroform	4 ppb
	1,2-Dichloroethane	38 ppb
	1,1,1-Trichloroethane	657 ppb
	Perchloroethylene	202 ppb
	chlorobenzene	4 ppb

af
Examiner

(*Unless otherwise indicated results given as mg/l)

Reported (3-4): *2/3/82*
 Laboratory for Bureau of Disease Control and Laboratory Services
 MICHIGAN DEPARTMENT OF PUBLIC HEALTH

REV.

Location Code (1-3)

LANSING

1982 JAN 25 PM 12: 06

1237

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

Give all known information Type or Print with soft lead or black ink.

LAB NO.

1 Report Results to: **DIVISION OF WATER SUPPLY**
3500 NORTH LOGAN STREET
 Street Address: **P.O. BOX 30035**
 Post Office: **LANSING, MI. 48909**
 State Zip Codes: **LANSING, MI. 48909**

2 Reason for Analysis (check): Routine Other (Describe on separate sheet)

3 Supply Owner: **JAMES NEGUS**
 Phone No. _____

4 Sample Collected at Street Address: **140 1/2 KIMBALL**
 Street Address: **NIEMSON**
 Township: **Summit**
 Section No.: **32**

5 Sample Collected at Post Office (MI), Zip Code: **Calhoun**
 Post Office (MI), Zip Code: **Calhoun**
 County: **CALHOUN**

6 Sample Collected by (name): **John A. Sheppard, R.S.**
 Time - 24 hr. Format: (M-13) (4-7) 1000 10000 100000 1000000
 Date: (8-13) 01/27/82

7 Sampling Point (circle): Well Surface water
 Well No. _____ Age (yrs.) _____ Depth (ft.) _____ Diam. (in.) _____

8 Check and complete following line only if sampling a public water supply.
 Name of Supply: _____ WSSN (14-20) _____ Sample Type (21) _____

LAB ID (22-26) CC001 DO NOT WRITE BELOW LABORATORY RESULTS
 Code (27-30) _____ Parameter _____ Result (31-34) _____

VOLATILE HALOGENATED HYDROCARBONS

1,1-DICHLOROETHYLENE 37pb
 1,1-DICHLOROETHANE 34pb
 1,1-DICHLOROETHYLENE 127pb -
 1,1-DICHLOROETHYLENE 17pb
 1,1-DICHLOROETHYLENE 77pb
 1,1-TRICHLOROETHANE 9pb
 1,1,1-TRICHLOROETHANE 77pb -
 1,1,1-TRICHLOROETHANE 44pb

JA
Examiner

Reported (3) _____
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Location Code

LANSING

1982 JAN 25 PM 12: 06

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

0000179

123

Give all known information Type or Print with soft lead or black ink.

LAB NO.

1 Report Results to: **DIVISION OF WATER SUPPLY**
3500 NORTH LOGAN STREET
 Street Address: **P.O. BOX 30035**
 Post Office: **LANSING, MI. 48909**
 State Zip Codes: **LANSING, MI. 48909**

2 Reason for Analysis (check): Routine Other (Describe on separate sheet)

3 Supply Owner: **Mark ALERY VAN VLIET**
 Phone No. _____

4 Sample Collected at Street Address: **156 KIMBALL**
 Street Address: **156 KIMBALL**
 Township: **PENNFIELD**
 Section No.: **32**

5 Sample Collected at Post Office (MI), Zip Code: **Calhoun**
 Post Office (MI), Zip Code: **Calhoun**
 County: **CALHOUN**

6 Sample Collected by (name): **John A. Sheppard, R.S.**
 Time - 24 hr. Format: (M-13) (4-7) 1000 10000 100000 1000000
 Date: (8-13) 01/27/82

7 Sampling Point (circle): Well Surface water
 Well No. _____ Age (yrs.) _____ Depth (ft.) _____ Dia. _____

8 Check and complete following line only if sampling a public water supply.

Name of Supply: _____ WSSN (14-20) _____ Sample Type _____

LAB ID (22-26) 00001 DO NOT WRITE BELOW LABORATORY RESULTS
 Code (27-30) _____ Parameter _____ Result (31-34) _____

VOLATILE HALOGENATED HYDROCARBONS

1,1-Dichloroethylene 4 pb
 1,1-Dichloroethane 58 pb
 cis-1,2-Dichloroethane 512 pb
 Chloroform 4 pb
 1,2-Dichloroethane 20 pb
 1,1,1-Trichloroethane 20 pb
 1,2-Dichloropropane 2 pb

JA
Examiner

Reported (3) _____
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 (50) _____

Received

PARTIAL CHEMICAL ANALYSIS OF WATER

F-29 3/78

REV.

LANSING

1982 JAN 25 PM 12:06

SANITARY BACTERIOLOGY
& CHEMISTRY SECTION

000000

Location Code (1-3)

1241

Give all known information - Type or Print with soft lead or black ink.

LAB NO.

1. Report Results to: DIVISION OF WATER SUPPLY 3500 N. LOGAN STREET Street Address: P.O. BOX 30035 Post Office State Zip Code: LANSING, MI. 48909		Phone No.
2. Reason for Analysis (check): <input type="checkbox"/> Routine <input checked="" type="checkbox"/> Other (Describe on separate sheet)		
3. Supply Owner: EARL SIVITS		Phone No. 96 24840
4. Sample Collected at - Street Address: Battle Creek		Township: KENNEFIELD
5. Sample Collected at Post Office (MI), Zip Code: 155 KIMBALL		Section No. 32
6. Sample Collected by (name): John L. Heppard, P.S.		County: CALHOUN
7. Sampling Point (circle): Well (surface water)		Time - 24 hr. Format (10-13) (4-7) 11/31/81 12:12
8. <input type="checkbox"/> Check and complete following line only if sampling a public water supply.		Well No. Age (yrs.) Depth (ft.) Diam. (in.) (shallow)
9. Name of Supply: Michigan Dept. of Health, this location not known		WSSN (14-20) Sample Type (21) no other
LAB ID (22-26) 00001 DO NOT WRITE BELOW--LABORATORY RESULTS		

Code (27-30)

Parameter

Result (31-34)

VOLATILE HALOGENATED HYDROCARBONS

1,1-DICHLOROETHYLENE	12 ppb
1,1-DICHLOROETHANE	55 ppb
TRANS-1,2-DICHLOROETHYLENE	14 ppb
CIS-1,2-DICHLOROETHYLENE	90 ppb
1,2-DICHLOROETHANE	42 ppb
1,1,1-TRICHLOROETHANE	5 ppb
TRICHLOROETHYLENE	9 ppb
PERCHLOROETHYLENE	3 ppb

DP
Examiner

(*Unless otherwise indicated results given as mg/l)

Reported (35-40)

FEB 1982 3

John N. Anderson
Laboratory Director
Bureau of Disease Control and Laboratory Services

Verona Pumping Station
February 5, 1982
10:00 am.

...	MDH	517-373-8147
...	MDH	517-373-8147
Larry ...	Battle Creek	616-966-3421
GARTH ASLAKSON	MDNR	517-373-8147
... INC. ✓	MDNR	517-373-8147
Jim Schmitt	Tech. Assist. Team (EPA) Ecology Env.	312-663-9415
...	MDPH - Lansing	517-373-1376
Steve Ostrodka	EPA	312-886-7571
...	CITY OF BATTLE CREEK	616-966-3407
...	BATTLE CREEK	616-966-3407
John A. Heffernan	Calhoun County Health Dept	616-966-1241

Kellogg Meeting
2-10-82

NAME:

FIRM or AGENCY

Don Thomasow
GENERAL PLANT MANAGER

Kellogg Co

Rosalyn Franta
Dir. Nutrition & Analytical Svcs.

Kellogg

Lana Gale
Mgr. Safety + Environmental Health

Kellogg

Lavene Lane
Dir of Pub. Works

City of B.C.

Harry A. Osborn
Public Utilities Engineer

City of Battle Creek

Peggy Wollerman
V.P. Public Affairs

Kellogg Co.

TED HAVENS
CALHOUN COUNTY
HEALTH DEPT
Dir of ENV. HEALTH.

HEALTH Dept.

John A. Heppard

Calhoun County Health Dept.

0000182

GORDON E. OLIVIER

Mich. Dept. Public Health
Div. of Water Supply

Joe Kovato
Geologist

MD PH

Michigan Dept. of Public Health

Richard Wirsing
Engineer

MD PH

Water Supply Division

Wm. M. Inversen
Chief Hydrogeology Unit

Dept. of Natural Resources
Water Quality Div.



TO: William A. Kelley, P.E.
THROUGH: Gordon E. Olivier, P.E.
FROM: Richard M. Wirsing *RMW*

DATE:
January 15, 1982

SUBJECT: Water Supply - Battle Creek
Extension of Service to Replace Contaminated Wells

0450

MEMORANDUM

On January 14, 1982, a meeting was held in Battle Creek to discuss the possibility of extending the Battle Creek water system to serve an area in which groundwater has been found to be contaminated with organic chemicals. The area affected includes adjacent parts of Pennfield Township and Emmett Township. Present at the meeting were representatives of Battle Creek, Pennfield Township, Emmett Township, the Calhoun County Health Department, the Calhoun County Department of Public Works, and this office. A list of those in attendance is attached.

At this meeting, representatives of the townships decided to jointly retain a consultant engineer to provide a project proposal and cost estimate for the installation of water mains. Possible funding options will also be investigated. The details of any financial arrangements between the townships regarding the sharing of costs will also need to be determined.

The city is also being very cooperative in this matter. They have recently reduced their tap-in fees from \$400 to \$175. This reduction will remain in effect until November 15, 1982. A few residents in the affected area are presently able to tap into existing mains. The city has also provided hours in which residents in the affected area may obtain water at the Verona Pumping Station. The city is sending letters to owners of wells which have been identified as being contaminated to inform them of this service. A copy of one of the letters is also attached.

RMW:ak
Attachments
cc: Don Keech/Joe Lovato

*X C: Larry Holcomb, TSCC
Rich Powers, DUR
Andy Hogarth, DNR
Burt Cardwell, MDI
Bill Rusten, Ex. Off.
2-2-82*

RECEIVED

FEB 5 1982

Groundwater Qual., WQD

0000184 A2111

LAURENCE SENESE
LARRY QUINN

Richard Winters
Gordon Oliver

TED HUBERT
MILAN KENNER JR

Russ Carter
Frank Randall

Henry Phillips
Bill Schickel

Set Deming

John O'Neil
John W. O'Neil

11/2/81
11/2/81

SCHEID
Painfield supervisor

REARFIELD TYPD Supervisors
Small Environmental Group Inc

Donna Lounsbury Clark
" " Longenecker

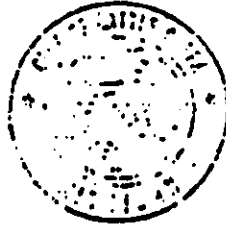
Calvin Conby DRU

Bartlett
Bartlett

BATZES CREW

CITY OF BATTLE CREEK, MICHIGAN

P. O. BOX 1717 49010



DIRECTOR OF PUBLIC WORKS

ROOM 110 CITY HALL

January 8, 1982

Mr. Arthur Eifler
46 Maxwell
Battle Creek, MI 49017

SUBJECT: WATER FOR DRINKING PURPOSES

Dear Mr. Eifler:

Our records indicate that recently you received a letter from the Michigan Department of Public Health containing the water sample analyse of your private well. In that letter the Michigan Department of Public Health recommended that you seek another source of water for drinking and cooking purposes. Inasmuch as the Verona Pumping Station is in the close proximity to your home, the City of Battle Creek would like to offer the opportunity to obtain water for drinking and cooking purposes from the Verona Pumping Station, 250 Bridgen Drive. Should you wish to obtain water, the Pumping Station will be open for this purpose between the hours of 8 AM to 10AM and 4 PM to 6 PM Monday thru Sunday. There will be no charge for the water, but it will be necessary for you to bring your own containers.

The City of Battle Creek hopes this will provide you with some measure of assistance until a solution for this problem can be determined and implemented.

Sincerely,

A handwritten signature in cursive script, appearing to read "Laverne A. Serne".

Laverne A. Serne, P.E.
Director of Public Works

LAS/eh

0000186



TO: William Iversen
Water Quality Division
Department of Natural Resources

DATE:
January 15, 1982

FROM: Richard M. Wirsing *RMW*
Water Supply Division

SUBJECT: Private Well Sampling Results - Battle Creek Area

MEMORANDUM

Please find attached copies of the results of analyses for volatile, halogenated hydrocarbons conducted on water samples collected from privately owned wells in the Battle Creek area. These samples were collected on January 5, 1982. Owners of those wells shown to contain organic chemicals have been contacted by this office and advised of the results. The Calhoun County Health Department is contacting those residents whose wells have been shown to be unaffected.

More sampling of privately owned wells in the residential area south of the Verona Wellfield will be conducted. You will be advised of these sampling results.

RMW:rs
Attachments

RECEIVED
JAN 19 1982
Groundwater Div., WQD

0000187

1972 JAN -6 AM 11:51
 SANITARY BACTERIOLOGY & CHEMISTRY SECTION
 163

Report Results to: **WATER SUPPLY**
 P.O. Box 30035
 Lansing, MI 48909

LAB NO. _____
 Phone No. _____

Sample Collected at: **GREEN CREEK**
 38 PICKERING
 Green Creek
 Township: **FAMMETT**
 County: **CALHOUN**
 State: **MI**
 Zip Code: **48823**

Time: 24 hr. Format: **DATE: (8-13)**
 (4-7) 11 11 01/10/51

Well No. _____
 Depth: _____

Source: **WELL - SURFACE WATER**

DO NOT WRITE BELOW THIS LINE
 DO NOT WRITE BELOW THIS LINE

1,1-DICHLOROETHYLENE 12 ppb
1,2-DICHLOROETHYLENE 17 ppb
VOLATILE HALOGENATED HYDROCARBONS

JR
 Examiner

Unless otherwise indicated results given as mg/l
 Reported (35-40)

1972 JAN 11 1982
 State of Michigan
 Laboratory Director
 Bureau of Disease Control and Laboratory Services

1972 JAN -6 AM 11:52
 SANITARY BACTERIOLOGY & CHEMISTRY SECTION
 173

Report Results to: **WATER SUPPLY**
 P.O. Box 30035
 Lansing, MI 48909

LAB NO. _____
 Phone No. _____

Sample Collected at: **ROBERT FIELDS**
 148 KIMBALL
 Battle Creek
 Township: **PENNINGTON**
 County: **CALHOUN**
 State: **MI**
 Zip Code: **48802**

Time: 24 hr. Format: **DATE: (8-13)**
 (4-7) 11 11 01/05/82

Well No. _____
 Depth: _____

Source: **WELL - SURFACE WATER**

DO NOT WRITE BELOW THIS LINE
 DO NOT WRITE BELOW THIS LINE

1,1-DICHLOROETHYLENE 4 ppb
1,2-DICHLOROETHYLENE 21 ppb
1,1,2-DICHLOROETHYLENE 2 ppb
1,1,2-DICHLOROETHYLENE 930 ppb
CHLOROFORM 6 ppb
1,2-DICHLOROETHYLENE 85 ppb
1,1,2-DICHLOROETHYLENE 5 ppb
TRICHLOROETHYLENE 113 ppb
PENTACHLOROETHYLENE 26 ppb

AS
 Examiner

Unless otherwise indicated results given as mg/l
 Reported (35-40)

1972 JAN 11 1982
 State of Michigan
 Laboratory Director
 Bureau of Disease Control and Laboratory Services

1982 JAN -6 AM 11:52
 1032
 1032

Give all known information. Type or Print with soft lead or black ink. (All NO.)

Owner: JAMES ROTHWELL
 Phone No: 963-4427

Sample Collected at: 141 KIMBALL
 Township: EMMETT
 County: EMERY
 Section: 5

Sample Collected by: John W. Hayward, RES.
 Date: 1/5/82
 Time: 11:52 AM
 From: 24 hr. Form: Date: 12/13/81
 Well No.: 10
 Age: 47
 Depth: 4'

DO NOT WRITE BELOW LABORATORY RESULTS
 Parameter: 1,1-DICHLOROETHYLENE 6ppb
 1,1-DICHLOROETHANE 25ppb
 TRANS-1,2-DICHLOROETHYLENE 51ppb
 CIS-1,2-DICHLOROETHYLENE 756ppb
 1,2-DICHLOROETHANE 29ppb
 TRICHLOROETHYLENE 71ppb
 PERCHLOROETHYLENE 100ppb

Reported (3) 1/13/82
 Miss M. J. Adams, Director

1982 JAN -6 AM 11:52
 68100000
 173

Give all known information. Type or Print with soft lead or black ink.

Owner: SLAUGHTER'S RESTAURANT
 Phone No: 963-4993

Sample Collected at: 915 EAST EMMETT ST.
 Township: EMMETT
 County: EMERY
 Section: 4

Sample Collected by: John W. Hayward, RES.
 Date: 1/5/82
 Time: 11:52 AM
 From: 24 hr. Form: Date: 12/13/81
 Well No.: 175
 Age: 47
 Depth: 4'

DO NOT WRITE BELOW LABORATORY RESULTS
 Parameter: 1,1-DICHLOROETHYLENE 6ppb
 1,1-DICHLOROETHANE 25ppb
 TRANS-1,2-DICHLOROETHYLENE 51ppb
 CIS-1,2-DICHLOROETHYLENE 756ppb
 1,2-DICHLOROETHANE 29ppb
 TRICHLOROETHYLENE 71ppb
 PERCHLOROETHYLENE 100ppb

Reported (3) 1/13/82
 Miss M. J. Adams, Director

with State funds
 Location Code (1-3)
 158
 1982 JAN -6 AM 11:51
 MILITARY BACTERIOLOGY & CHEMISTRY SECTION
 Give all known information Type or Print with soft lead or black ink LAB NO.

1. Report Results to: Michigan State Supply Phone No:
 Street Address: 3500 North Logan Street
 Post Office: P.O. Box 30035
 State Zip Code: Lansing, MI 48909

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)
 Supply Order: G.T.W.R.R. Phone No:
CREDIT UNION - MR. RIESS 9651381

3. Sample Collected at: Street Address: 1275 NORTH RAYMOND ROAD Township: PENNFIELD Section No.: 32
 Sample Collected at: Post Office (MI), Zip Code: Battle Creek County: CALHOUN
 Sample Collected by name: John L. Heppard, R.S. Time 24 hr. For most tests: (8-13)
 Sampling Point (circle): Well Source (circle): Well surface water Well No.: 101105102 Age (yrs.): 4"
 (Well, pump, comp tap, other)

Check and complete following line only if sampling a public water supply.
 4. Name of Public Water Supply: Wells in backyard, Ridgeway Hill WSSN (14-20): 00001 Sample Type (21): Office
 LAB. D 22-26) 0001 DO NOT WRITE BELOW LABORATORY RESULTS

Code (27-30)	Parameter	Result (31-34)
VOLATILE HALOGENATED HYDROCARBONS		
	1,1-Dichloroethane	2 ppb
	CIS-1,2-Dichloroethylene	33 ppb
	1,2-Dichloroethane	2 ppb
	Trichloroethylene	53 ppb
	Perchloroethylene	172 ppb
		Examiner

(*Unless otherwise indicated results given as mg/l)
 Reported (35-40): 1 JAN 6 1982
 Laboratory Director: John L. Heppard

Location Code (1-3)
 0000190
 157
 1982 JAN -6 AM 11:51
 MILITARY BACTERIOLOGY & CHEMISTRY SECTION
 Give all known information Type or Print with soft lead or black ink LAB NO.

1. Report Results to: Smith North Logan Street Phone No:
 Street Address: P.O. Box 30035
 Post Office: Lansing, MI 48909
 State Zip Code:

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)
 Supply Order: HAROLD MAST Phone No:
96 23965

3. Sample Collected at: Street Address: 145 KIMBALL Township: PENNFIELD Section No.: 32
 Sample Collected at: Post Office (MI), Zip Code: Battle Creek County: CALHOUN
 Sample Collected by name: John L. Heppard, R.S. Time 24 hr. For most tests: (8-13)
 Sampling Point (circle): Well Source (circle): Well surface water Well No.: 12 Age (yrs.): (99) Depth (ft.): 4"
 (Well, pump, comp tap, other)

Check and complete following line only if sampling a public water supply.
 4. Name of Public Water Supply: Wells in Pig - rock well WSSN (14-20): 00001 Sample Type (21): Office
 LAB. D 22-26) 0001 DO NOT WRITE BELOW LABORATORY RESULTS

*fills up of Reservoir window
 all used in basement (36 ft) 1 1/2" dia open. Could please.*

Code (27-30)	Parameter	Result (31-34)
VOLATILE HALOGENATED HYDROCARBONS		
	1,1-Dichloroethane	4 ppb
	1,1-Dichloroethylene	3 ppb
	1,1-Dichloroethane	13 ppb
	TRANS-1,2-Dichloroethylene	2 ppb
	CIS-1,2-Dichloroethylene	548 ppb
	1,2-Dichloroethane	17 ppb
	1,1-Trichloroethane	2 ppb
		Examiner

(*Unless otherwise indicated results given as mg/l)
 Reported (35-40): 1 JAN 8 1982
 Laboratory Director: John L. Heppard
 Bureau of Disease Control and Laboratory Services

Location Code (1-3)

LANSHING
 1982 JAN -6 AM 11:51

SANITARY BACTERIOLOGY & CHEMISTRY SECTION 156
 LAB NO.

Give all known information Type or Print with soft lead or black ink.

1. Report Results to: Division of Water Supply Phone No: _____
 Street Address: 3500 North Logan Street
 Post Office: P.O. Box 30035
 State Zip Code: Lansing, MI 48909

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

3. Supply Owner: THOMAS HIATT Phone No. 96 81345

4. Sample Collected at Street Address: 130 KIMBALL Township: EMMETT Section No.: 5

Sample Collected at Post Office (MI), Zip Code: _____ County: CALHOUN

5. Sample Collected by: John C. Hayward, W.S. Time: 24 hr. Format Date: (8-13) 11/11/82

6. Sampling Point (circle): Well, surface water Well No. _____ Depth (ft): 2'

7. Check and complete following line only if sampling a public water supply.

8. Disinfection used WSSN (14-70) 100% Chlorine Sample Type (21) _____

DO NOT WRITE BELOW LABORATORY RESULTS

Handwritten notes: "Disinfection used for 70%".

VOLATILE HALOGENATED HYDROCARBONS

1,1-Dichloroethylene	7 ppb	TCE	37 ppb
1,1-Dichloroethane	36 ppb	PCE	16 ppb
trans-1,2-Dichloroethylene	5 ppb		
cis-1,2-Dichloroethylene	1.1 ppm (1100 ppb)		
Chloroform	4 ppb		
1,2-Dichloroethane	119 ppb		

Examiner: D.J.

Location Code (1-3)

LANSHING
 1982 JAN -6 AM 11:51

SANITARY BACTERIOLOGY & CHEMISTRY SECTION 155
 LAB NO.

Give all known information Type or Print with soft lead or black ink.

1. Report Results to: Division of Water Supply Phone No: _____
 Street Address: 3500 North Logan Street
 Post Office: P.O. Box 30035
 State Zip Code: Lansing, MI 48909

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

3. Supply Owner: ETEREA STUTZ Phone No. 96 27925

4. Sample Collected at Street Address: 125 KIMBALL Township: EMMETT Section No.: 5

Sample Collected at Post Office (MI), Zip Code: _____ County: CALHOUN

5. Sample Collected by: John C. Hayward, W.S. Time: 24 hr. Format Date: (8-13) 11/11/82

6. Sampling Point (circle): Well, surface water Well No. _____ Depth (ft): 14'

7. Check and complete following line only if sampling a public water supply.

8. Disinfection used WSSN (14-70) 100% Chlorine Sample Type (21) _____

DO NOT WRITE BELOW LABORATORY RESULTS

Handwritten notes: "Disinfection used for 70%".

VOLATILE HALOGENATED HYDROCARBONS

1,1-Dichloroethylene	311 ppb	TCE	64 ppb
1,1-Dichloroethane	15 ppb	PCE	5 ppb
trans-1,2-Dichloroethylene	12 ppb		
cis-1,2-Dichloroethylene	485 ppb		
Chloroform	< 1 ppb		
1,2-Dichloroethane	5 ppb		
1,1,1-Trichloroethane	1 ppb		

Examiner: D.J.

Received **PARTIAL CHEMICAL ANALYSIS OF WATER** 1-29 3/78
REV.

Location Code (1-3)
159

1612 JAN -6 AM 11:51
SAINT ANTHONY'S TECHNOLOGY
& CHEMISTRY SECTION

Give all known information Type or Print with soft lead or black ink. LAB NO.
1. Report Results to: Division of Water Supply Phone No.
2. Street Address: 2000 N. Logan Street
3. City, State, Zip Code: P.O. Box 30335 Lansing, MI 48909

4. Name of Person Analyzed (check): Other (Describe on separate sheet)
Name: **LETHA Mc CANN** Phone No. **96 33135**
Address: **135 BRIDEN** Township: **TENNIFIELD** Section No. **32**
County: **CALMESSON**
Time 24 hr. Form: **10:29** Date: **(8-13)**
Sample collected at: **Post Office (MI), Zip Code**
Collector: **Dr. G. Heppard, R.S.** Well No. **111** Depth (ft.): **Drum (in)**
Type of Well: **Drill** Age (yrs): **28**
Type of Water: **Drill**

5. Check and complete following only if sampling a public water supply
Name of Public Water Supply: **City of Lansing**
Address: **1000** Phone: **333**
DO NOT WRITE BELOW LABORATORY RESULTS

1,1,1,2,2-PENTACHLOROETHANE

Methylene chloride	3 ppb	1,1,1-Trichloroethane	4 ppb
1,1-Dichloroethane	4 ppb	Trichloroethylene	36 ppb
1,1-Dichloroethane	6 ppb	Pentachloroethane	4 ppb
Trans-1,2-Dichloroethylene	3 ppb		
CIS-1,2-Dichloroethylene	372 ppb		
Chloroform	4 ppb		
1,2-Dichloroethane	3 ppb		

*Unless otherwise indicated results given as mg/l

Reported (35-40) **1/29/78**
Director: **John A. ...**
Laboratory Director: **John A. ...**
Bureau of Disease Control and Laboratory Services

Received **PARTIAL CHEMICAL ANALYSIS OF WATER** 1-29 3/78
REV.

Location Code (1-3)
0300192

1612 JAN -6 AM 11:51
SAINT ANTHONY'S TECHNOLOGY
& CHEMISTRY SECTION

Give all known information Type or Print with soft lead or black ink. LAB NO.
1. Report Results to: Division of Water Supply Phone No.
2. Street Address: Lansing, MI 48909

3. Name of Person Analyzed (check): Other (Describe on separate sheet)
Name: **GEORGE MARTIN** Phone No. **96 30256**
Address: **52 PICKFORD** Township: **TENNIFIELD** Section No. **32**
County: **CALMESSON**
Time 24 hr. Form: **10:17** Date: **(8-13)**
Sample collected at: **Post Office (MI), Zip Code**
Collector: **Dr. G. Heppard, R.S.** Well No. **111** Depth (ft.): **Drum (in)**
Type of Well: **Drill** Age (yrs): **14**
Type of Water: **Drill**

5. Check and complete following only if sampling a public water supply
Name of Public Water Supply: **City of Lansing**
Address: **1000** Phone: **333**
DO NOT WRITE BELOW LABORATORY RESULTS

1,1,1,2,2-PENTACHLOROETHANE

1,1-Dichloroethane	4 ppb	Trichloroethylene	2 ppb
1,1-Dichloroethane	12 ppb		
Trans-1,2-Dichloroethylene	8 ppb		
CIS-1,2-Dichloroethylene	229 ppb		
Chloroform	6 ppb		
1,2-Dichloroethane	3 ppb		

*Unless otherwise indicated results given as mg/l

Reported (35-40) **1/29/78**
Director: **John A. ...**
Laboratory Director: **John A. ...**
Bureau of Disease Control and Laboratory Services

SANITARY BACTERIOLOGY
 & CHEMISTRY SECTION

160

Give all known information. Type or Print with soft lead or black ink. LAB NO.

1 Report Results for: Division of Water Supply Phone No.
3200 North Laramie Street
 Street Address: 1001 N. 32nd St.
 City: Lansing, MI 48209
 State: MI Zip Code: 48209

2 Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: IYA HERWARTH Phone No. 9686726

3 Sample Collected at Street Address: 32 FICKFORD Township: EMMETT Section No.: 5

4 Sample Collected at Post Office (MI, Zip Code): WILLE CREEK County: CALHOUN

5 Sample Collected by (name): John C. Hayward, P.S. Time: 74 hr. Form No. (8-13) (4-7) 11-11-12 10512

6 Sampling Point (circle): Well No. 42 Age (yr): 22 Depth (ft): 22 Diam. (in): 22

Other comments following line only if sampling in public water supply:
Obtained in a pet water tray from a Kitten's water tray

LAB NO. 77-26-1097 DATE 1-11-62 NAME BELOW LAB. ANALYST RESULTS

Code (27-30) Parameter Result (31-34)

VOLATILE HALOGENATED HYDROCARBONS
 1,1-Dichloroethane 2 ppb
 1,1-Dichloroethane 11 ppb
 C1S-1,2-Dichloroethylene 2 ppb
 1,1,1-Trichloroethane 134 ppb
 Trichloroethylene 2 ppb

(*Unless otherwise indicated results given as mg/l)

Reported (35-40) John R. Anderson Examiner
 Laboratory Director
 Bureau of Disease Control and Laboratory Services

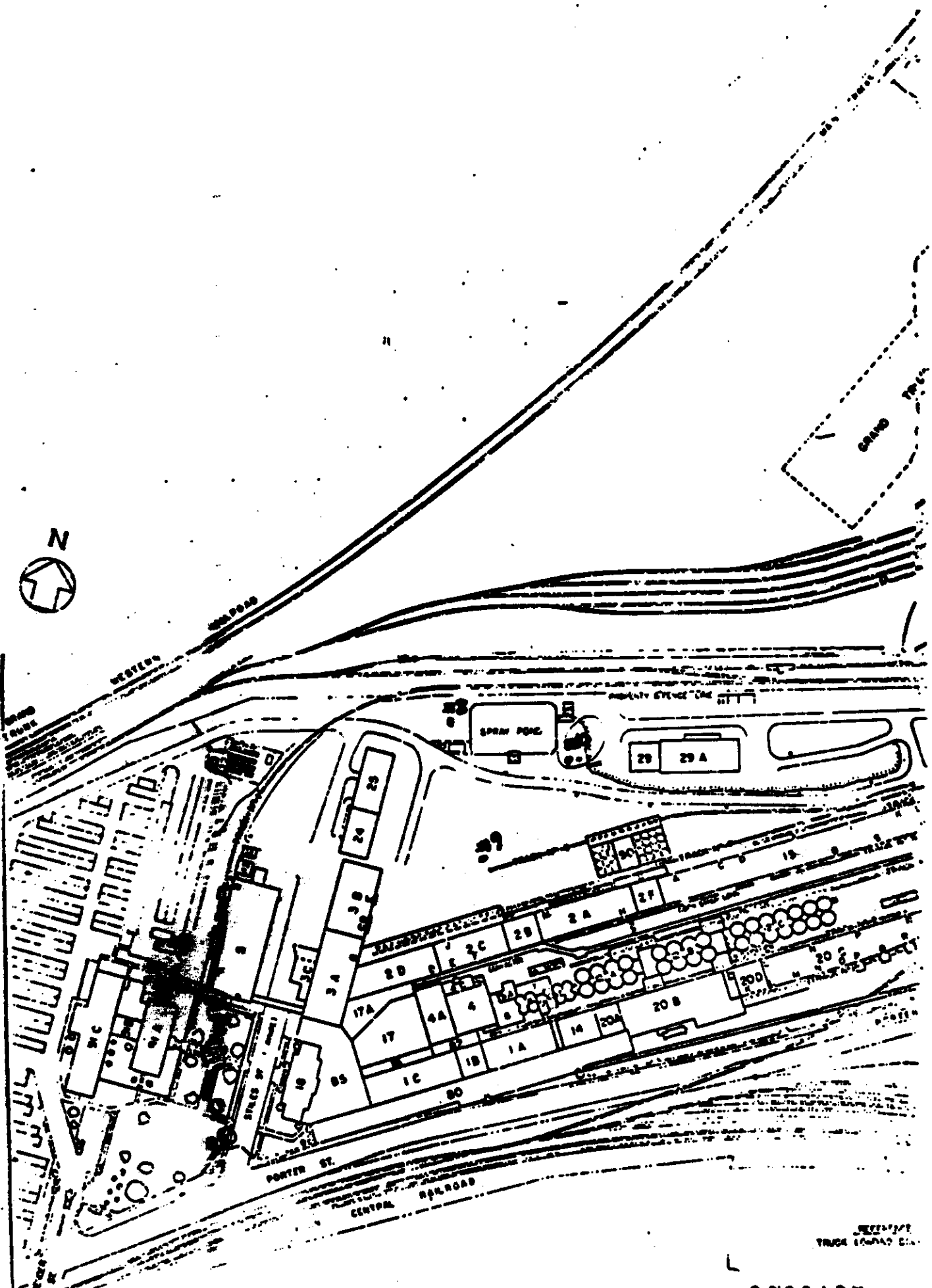
JAN 11 '62 3

0000193

Kellogg wells.

well 7	-	1.4	ppb	T.C.F
8	-	10.4	"	"
9	-	8.3	"	"
10	-	173.0	"	"
11	-	N.D.		

-
- check EPA report form for any reporting
 - copy Kellogg for transfer to EPA/T.A.T.
Joe is sending a Kellogg site map.



REPLICA
TRUCK COMPANY INC.

0000195



TO: Task Force Members

DATE:
February 26, 1982

Through: Gordon E. Olivier, P.E. *GO*

FROM: Richard M. Wirsing *RAW*

0450

SUBJECT: Battle Creek Area Groundwater Contamination
Sampling Results

MEMORANDUM

Please find attached copies of the analysis results of sampling conducted by this office on February 18, 1982. Water samples were collected from one city-owned well in the Verona Wellfield, one privately-owned well in the residential area south of the Verona Wellfield, and from 4 wells owned by the Kellogg Company and located at the plant site in Battle Creek. These samples were collected in an effort to identify all contaminants which may be present in the groundwater. [The attached results are from analyses for volatile, halogenated and non-halogenated hydrocarbons.]

The analysis results of the samples from the privately-owned well and the city-owned well are consistent with previous sampling results from these wells. No volatile, non-halogenated hydrocarbons were detected in these samples.

The analysis results of the samples from the wells owned by the Kellogg Company show the presence of up to 7 volatile, halogenated hydrocarbons. These organic chemicals have previously been found in other wells in the Battle Creek area. No volatile, non-halogenated hydrocarbons were detected. The Michigan Department of Public Health had not previously sampled Kellogg's wells. Sampling conducted by the company had shown trichloroethylene to be present in some of the wells.

On February 10, 1982, a meeting was held at the Kellogg Company facility in Battle Creek. At this meeting, requests for information were made by us and others. Attached are the responses of the Kellogg Company to these requests. The information provided includes all available information regarding the wells and the sample analysis techniques used.

0000196

Task Force Members
Page 2
February 26, 1982

Additional samples were collected on February 18, 1982 from the privately-owned well, the city-owned well, and one well owned by the Kellogg Company which had been shown to have the highest concentrations of TCE. These additional samples will be analyzed for aliphatic hydrocarbons, aromatic hydrocarbons, mixed ring compounds and non-aromatic compounds, and some inorganic compounds. The results of these analyses will be reported to you as soon as they become available.

RMW:ak

Attachments

cc: Task Force Contact Persons:

William Iversen, Water Quality Division, DNR

Albert Hafner, Food & Dairy Division, Dept. of Agriculture

Ray Cummings, U. S. Geological Survey

✓ Steve Ostrodka, U.S. Environmental Protection Agency

Theodore Havens, Calhoun County Health Department

LaVerne Serne, City of Battle Creek

Don Thomason, Kellogg Company

cc: William A. Kelley, P.E.

cc: Don Keech/Joe Lovato

0000197

Received

PARTIAL CHEMICAL ANALYSIS OF WATER

1-29 3/78

REV.

LANSING

Location Code (1-3)

1992 FEB 19 AM 11: 23

SANITARY BACTERIOLOGY
& CHEMISTRY SECTION

1073

Give all known information—Type or Print with soft lead or black ink.

LAB NO.

1. Report Results to: Rick Wirsing	Phone No:
Street Address: Water Supply Division	31376
Post Office— State—Zip Code: MDPH	

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: _____ Phone No. _____

3. **Kellogg's & Matthews**

4. Sample Collected at Street Address: _____ Township: _____ Section No.: _____

5. Sample Collected at Post Office (MI), Zip Code: **Battle Creek** County: **Calhoun**6. Sample Collected by (name): **Wirsing/Lovato** Time—24 hr. Format Date: (8-13) (4-7) **75 010 012 18 8 2**7. Sampling Point (circle): _____ Source (circle): _____ Well No.: **10B** Age (yrs.)—Depth (ft.)—Diam. (in.): _____8. Check and complete following line only if sampling a public water supply.9. Name of Supply: **Water Supply Survey** WSSN (14-20) _____ Sample Type (21) _____

LAB ID (22-24) 00001 DO NOT WRITE BELOW—LABORATORY RESULTS

Code (27-30) Parameter *Result (31-34)

1,1 Dichloroethylene 2ppb
 1,1 Dichloroethane 14ppb -
 cis,2 Dichloroethylene 29ppb -
 1,2 Dichloroethane 1ppb
 1,1,1 Trichloroethane 4ppb
 Trichloroethylene 75ppb -
 Perchloroethylene 1ppb

Examiner

(*Unless otherwise indicated results given as mg/l)

Reported (35-40)

FEB 24 1982 3

Gary R. Anderson, M.D.
 Laboratory Director
 Bureau of Disease Control and Laboratory Services
 MICHIGAN DEPARTMENT OF PUBLIC HEALTH

Received

PARTIAL CHEMICAL ANALYSIS OF WATER

1-29 3/78

REV.

Location Code (1-3)

1992 FEB 19 AM 11: 23

SANITARY BACTERIOLOGY
& CHEMISTRY SECTION

1074

Give all known information—Type or Print with soft lead or black ink.

LAB NO.

1. Report Results to: Rick Wirsing	Phone No:
Street Address: Water Supply Div.	
Post Office— State—Zip Code: MDPH	

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: _____ Phone No. _____

3. **City of Battle Creek**4. Sample Collected at Street Address: **Acacia Field** Township: **Annfield** Section No.: _____5. Sample Collected at Post Office (MI), Zip Code: **Battle Creek** County: **Calhoun**6. Sample Collected by (name): **Lovato/Wirsing** Time—24 hr. Format Date: (8-13) (4-7) **012 18 8 2**7. Sampling Point (circle): _____ Source (circle): _____ Well No.: **32** Age (yrs.)—Depth (ft.)—Diam. (in.): _____8. Check and complete following line only if sampling a public water supply.9. Name of Supply: **WSS** WSSN (14-20) **11191510** Sample Type (21) _____

LAB ID (22-24) 00001 DO NOT WRITE BELOW—LABORATORY RESULTS

Code (27-30) Parameter *Result (31-34)

VOLATILE HYDROCARBONS

Halogenated:

1,1-dichloroethylene 2ppb
 1,1-dichloroethane 14ppb
 cis,2-dichloroethylene 29ppb
 1,2-dichloroethane 1ppb
 1,1,1-trichloroethane 4ppb

Non-halogenated:

Not Detected

Examiner

(*Unless otherwise indicated results given as mg/l)

Reported (35-40)

FEB 24 1982 3

Gary R. Anderson, M.D.
 Laboratory Director
 Bureau of Disease Control and Laboratory Services
 MICHIGAN DEPARTMENT OF PUBLIC HEALTH

0000195

Received

PARTIAL CHEMICAL ANALYSIS OF WATER

F-29 3/78 REV.

LANSING

Location Code (1-3)

1982 FEB 19 AM 11: 23

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

1075

Received

PARTIAL CHEMICAL ANALYSIS OF WATER

F-29 3/78 REV.

LANSING

Location Code (1-3)

1982 FEB 19 AM 11: 23

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

1072

Give all known information Type or Print with soft lead or black ink.

LAB NO.

1. Report Results to: Rick Wirsing
 Street Address: Water Supply Division
 Post Office: MDPH
 State: Zip Code: Phone No: 31376

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

3. Supply Owner: Kellogg's
 Sample Collected at Street Address: Townships: Emmett Section No.:
 Sample Collected at Post Office (M), Zip Code: County: Calhoun

4. Sample Collected by (name): Wirsing/Lovato
 Time—24 hr. Format Date: (8-13) (4-7) 17/10/82 11/18/82

5. Sampling Point (circle): Surface water
 Source (circle): surface water Well No. 10A Age (yrs.)—Depth (ft.)—Diam. (in.) ≈ 100

6. Check and complete following line only if sampling a public water supply.

7. Name of Supply: Water Supply Survey WSSN (14-20) 2101617113 Sample Type (21)
 LAB ID (22-26) 00001 DO NOT WRITE BELOW—LABORATORY RESULTS

Code (27-30)	Parameter	Result (31-34)
1/1	Dichloroethylene	1 ppb
1/1	D. chloroethane	9 ppb
1/2	Dichloroethylene	24 ppb
1/2	D. chloroethane	1 ppb
1/1	Trichloroethane	2 ppb
1/1	Trichloroethylene	44 ppb
	Perchloroethylene	1 ppb

Examiner: *[Signature]*

(*Unless otherwise indicated results given as mg/l)
 Reported (35-40) 1
 FEB 24 1982 3
 Laboratory Director: *[Signature]*
 Bureau of Disease Control and Laboratory Services
 MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1. Report Results to: Rick Wirsing
 Street Address: Water Supply Division
 Post Office: MDPH
 State: Zip Code: Phone No:

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

3. Supply Owner: Kellogg's
 Sample Collected at Street Address: Townships: Emmett Section No.:
 Sample Collected at Post Office (M), Zip Code: County: Calhoun

4. Sample Collected by (name): Wirsing/Lovato
 Time—24 hr. Format Date: (8-13) (4-7) 02/18/82

5. Sampling Point (circle): Surface water
 Source (circle): surface water Well No. #9 Age (yrs.)—Depth (ft.)—Diam. (in.)

6. Check and complete following line only if sampling a public water supply.

7. Name of Supply: Water Supply Survey WSSN (14-20) Sample Type (21)
 LAB ID (22-26) 00001 DO NOT WRITE BELOW—LABORATORY RESULTS

X VOLATILE HYDROCARBONS
 Halogenated:
 1,1-dichloroethane: 1 ppb
 cis-1,2-dichloroethane: 0-4 ppb
 trichloroethylene: 4 ppb
 Non-halogenated:
 Not Detected *[Signature]*

(*Unless otherwise indicated results given as mg/l)
 Reported (35-40) 1
 FEB 24 1982 3
 Laboratory Director: *[Signature]*
 Bureau of Disease Control and Laboratory Services
 MICHIGAN DEPARTMENT OF PUBLIC HEALTH

00000000

PARTIAL CHEMICAL ANALYSIS OF WATER

REV. 1/78

Location Code (1-3)

1982 FEB 19 AM 11: 23

SANITARY BACTERIOLOGY & CHEMISTRY SECTION

1071

LAB NO.

1. Report Number for: R.E. Wising, Dr.

Street Address: 424 S. My Dr.

Post Office: R.A.P.H.

State - Zip Code:

2. Reason for Analysis (check): Routine Other (Describe on separate sheet)

Supply Owner: McGraws, N.C.

3. Sample Collected on - Street Address: 125 Briggs

Township: Rye Field

Section No.:

4. Sample Collected on - Post Office (M.I., Zip Code): Little Creek

5. Sample Collected by (Name): Wising

6. Time - 24 hr. Formed Date: (8-13)

7. Sampling Point (check): Spring Surface water Well No. Pump, corp tap, other

8. Check and complete following line only if sampling a public water supply.

9. Name of Supply: WSS

WSSN (14-20):

Sample Type (21):

10. LAB ID (23-24) 00001

11. Form No. (27-28)

12. Parameters (27-28)

Dichloroethylene	13 ppb
Dichloroethane	46 ppb
Chloroform	13 ppb
Dichloroethylene	1346 ppb
Dichloroethane	80 ppb
Carbon tetrachloride	< 1 ppb
Bromochloroethane	< 1 ppb
Trichloroethylene	84 ppb
Trichloroethylene	33 ppb

13. Form No. (31-34)

14. DO NOT WRITE BELOW - LABORATORY RESULTS

15. Form No. (37-38)

16. Examinee: *fy*

17. (Unless otherwise indicated results given as Mg/l)

Reported (35-40) 1 FEB 24 1982

Laboratory Director: *Ray R. Anderson*

Bureau of Disease Control and Laboratory Services

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

KELLOGG COMPANY
U.S. FOOD PRODUCTS DIVISION
BATTLE CREEK, MI 49016

February 18, 1982

Mr. Richard M. Wirsing
Acting District Engineer
Michigan Department of Public Health
3500 North Logan
P.O. Box 30035
Lansing, MI 48909

Dear Mr. Wirsing:

The attached are our responses to the six items requested
at the February 9 Groundwater Contamination Meeting held
at the Kellogg Company.

Sincerely,



Don Thomason
General Plant Manager

att.

0000201

February 17, 1982

CONFIDENTIAL

On February 10, 1982 a meeting was requested by the Kellogg Company with representatives from the city of Battle Creek, the Department of Natural Resources, the Calhoun County Health Department and the Michigan Department of Health to discuss groundwater contamination affecting well water in the Battle Creek area and specifically the finding of the Compound Trichloroethylene (TCE) in four of the company's five wells. The company was requested to provide the following six items:

- * 1. All available information regarding their wells (location, construction, well logs, water levels, etc.).

Response: See attachments 1 and 2.

2. Information regarding the techniques used to conduct the water analyses.

Response: See attachment 3.

3. Make arrangements to allow sampling of their wells without having to pump directly into the plant distribution system (pump to waste).

Response: See attachment 4 - Sampling of wells will be completed February 18, 1982.

4. Identify any possible sources of contamination they might suspect.

Response: No additional information identified for possible source.

5. Investigate the possibility of granting permission to the EPA Technical Assistance Team or the EPA Federal Investigation Team to drill monitoring wells on company property.

* Response: The company is more than willing to cooperate in the investigation; however, additional information from the E.P.A. Technical Assistant Team or the E.P.A. Federal Investigation Team with an overall plan would have to be submitted for review prior to granting permission to drill wells on company property.

6. Contact the Michigan Department of Agriculture and inform them of the findings and the actions taken.

Response: Notified on February 10, 1982.

Don Thomason

att.

cc S. Campbell, R. Franta, P. Wollerman, P. Humiston, and B. Haefner

0000202

APPROXIMATE DEPTHS OF EARTH STRATA

0 - 24 Fill (Cinders)
 24 - 48 Sand
 48 - 51 Clay
 51 - 60 Shale & Sandstone
 60 - 111 Grey Sandstone
 111 - 119 Shale

No. 7 WELL

Drilled: Before 1933
 Size: 8 inch
 Depth: ~~Well 102 ft.~~
 Casing 78 ft.

Casing
 Material: Cold Roll Steel
 Capacity: 400 GPM
 Location: In pit under ground
 floor in 99 bldg.
 So. end of Jetzone

No. 8 WELL

Drilled: 1933
 Size: 16"
 Depth: ~~Well 122 ft.~~
 Casing 100 ft. 9 in.

Casing
 Material: Cold Roll Steel
 Capacity: 1,000 GPM
 Location: West of Spray Pond
 300' north of No. 2
 Bldg. Canopy Dock

No. 9 WELL

Drilled: 1933
 Size: 14 inch
 → Depth: Well 112 ft.
 Casing 96 ft.

Casing
 Material: Cold Roll Steel
 Capacity: 500 GPM
 Location: North of No. 2 Bldg.
 Canopy Dock.

No. 10 WELL

Drilled: 1941
 Size: 16 inch
 → Depth: Well 106 ft.
 Casing 97 ft. 4 inch

Casing
 Material: Cold Roll Steel
 Capacity: 1,000 GPM
 Location: South east corner
 of Spray Pond behind
 No. 2 Bldg.

No. 11 WELL

Drilled: 1945
 Size: 16 inch
 Depth: ~~Well 113 ft.~~
 Casing 81 ft.

Casing
 Material: Cold Roll Steel
 Capacity: 600 GPM
 Location: Old No. 6 Well Pit
 below man hole cover

February 15, 1982

Don Thomason:

Re: Well Water Sampling

Wells #8 and #10

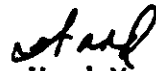
These wells can be discharged into the Spray Pond while taking samples.

Wells #7, #9, and #11

Due to the location of these wells in relation to the location of the nearest storm sewer, it will be necessary to pipe the well water some distance when taking samples. Peerless-Midwest, who maintains and tests the capacity of our wells each year, should be hired at the time of sampling to pipe the discharge from each well to the nearest sewer. This procedure is routine.

★ Procedure

1. Sample #8 and #10.
2. At the same time set-up #9, #11, and #7.
3. Sample #9, #11, and #7.


Ward M. White, Jr.

es

February 17, 1982

Don Thomason:

<u>Water Pumped "M"</u> <u>Gals</u>	<u>#7</u>	<u>#8</u>	<u>#9</u>	<u>#10</u>	<u>#11</u>
September 81	-	27,582	14,431	15,749	17,968
October		6,952	12,639	17,904	17,661
November	8,832	7,461	5,911	16,313	7,560
December	3,264	961	2,138	6,926	2,065
January 82	-	-	-	-	-

Ward M. White, Jr.
Ward M. White, Jr.

es

0000205

February 16, 1982

Don Thomason:

SUBJECT: Analyses of Water Sources Used at the Battle Creek Plant
for TCE

As follow-up to the February 9 meeting with state officials, the following explains the techniques used to conduct the water analyses:

Water samples from the sources used at the Battle Creek plant were analyzed for TCE. None of the samples were chlorinated except for the city water.

The method used for the analysis was similar to EPA Method 624, (Federal Register Vol. 44, No. 233, December 3, 1979 pg. 69532) with the following modifications.

The volatiles were trapped on a 10.5 cm Tenax tube. This tube was then placed in the heated injector port of the GC/MS. The volatiles were desorbed from the Tenax onto a 25 meter SP-2100 fused silica capillary column maintained at -50°C. After a 10-minute trap time the oven was rapidly heated to 25°C and then programmed to 180°C at 5°C per minute.



Rosalyn Franta

0000206

Appendix E
Well Installation

Appendix E

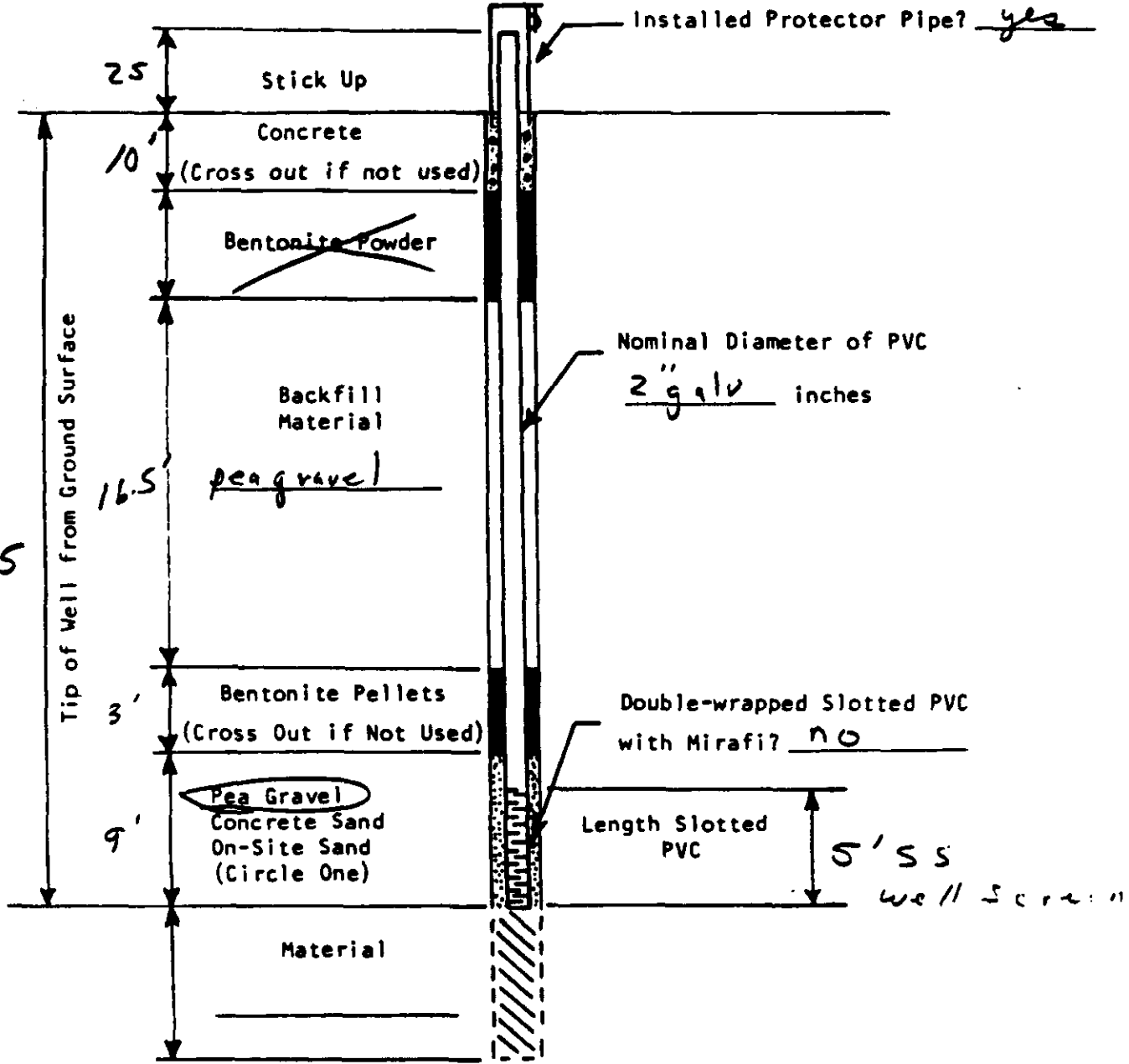
Well Installation

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varona Water Works

CLIENT EPA

WELL NO. 1 DATE INSTALLED 2-25-82



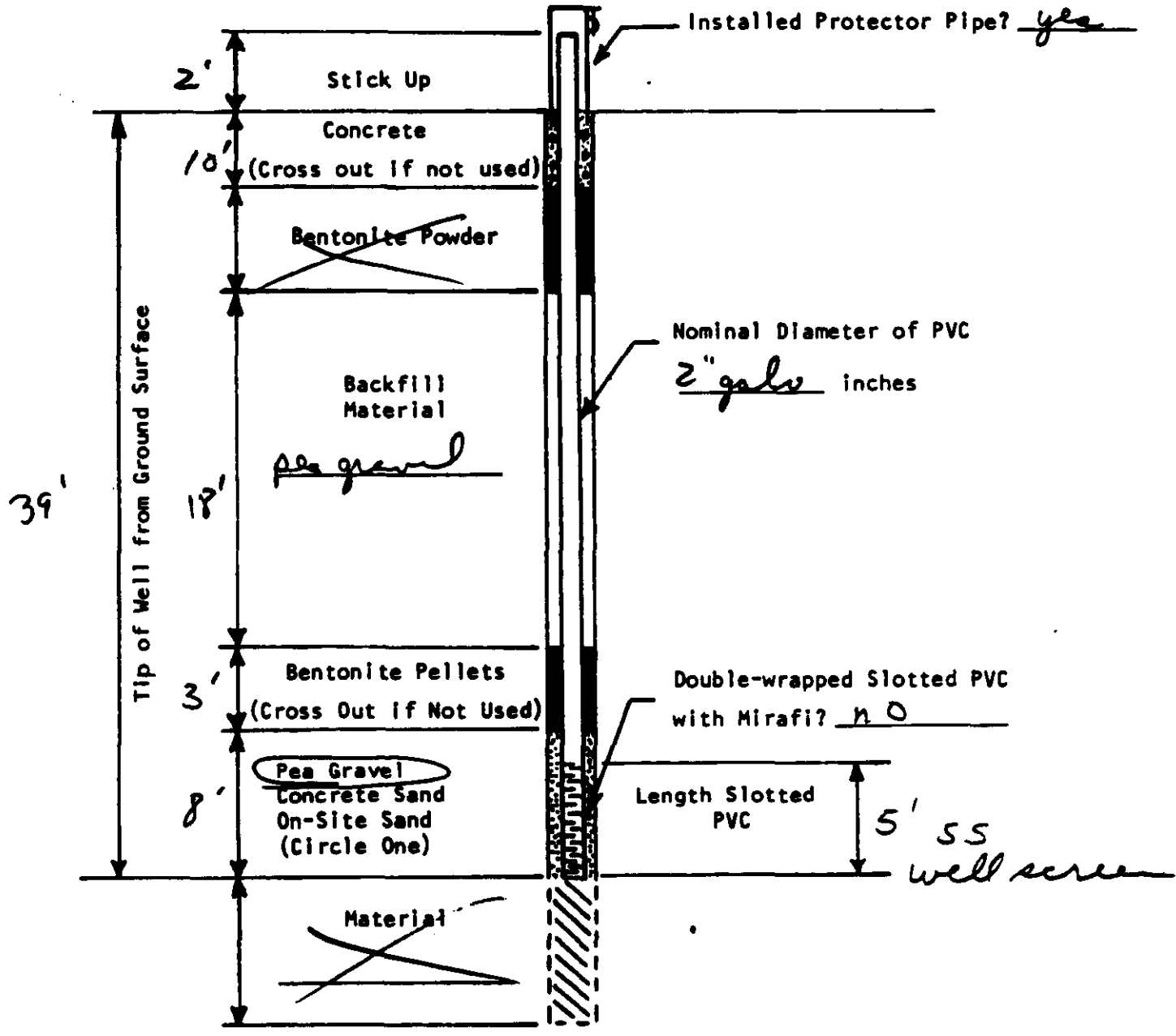
38.5

INSTALLATION

1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
(if so, who has the keys? client)
4. Did the PVC come up when you removed the casing? no
Was the well bailed? yes Spring Veg Check Valve
5. Were water level readings taken after the well was installed? yes
Was a PVC cap installed on bottom of well? 55 Well Screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Verona Water Works
 CLIENT EPA
 WELL NO. 2 DATE INSTALLED 3-1-82



INSTALLATION

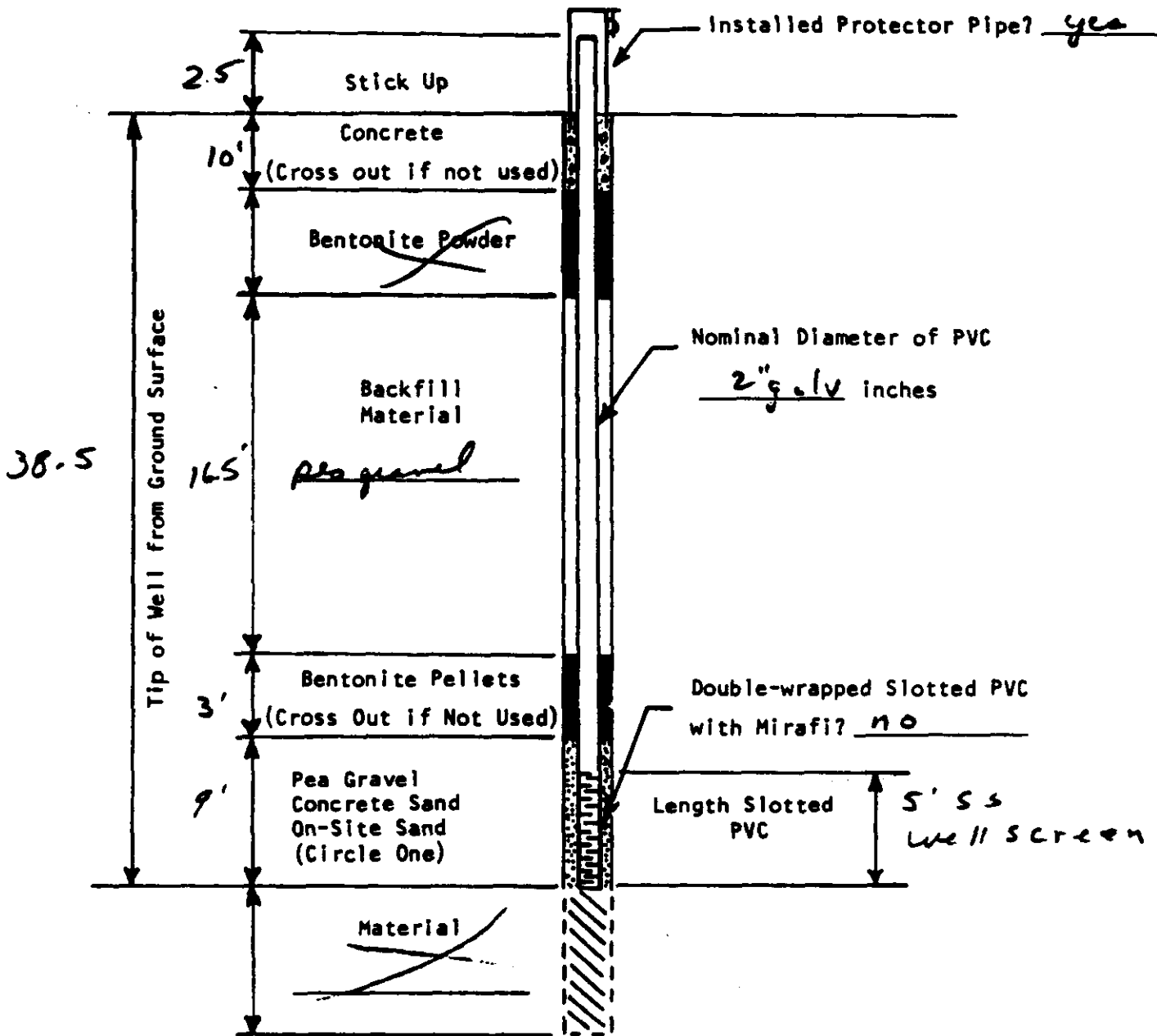
1. Did the bentonite pellets hang up? NO
2. Did you have to drive the protector pipe? NO
3. Did you install a lock on the protector pipe? yes
 If so, who has the keys? Client
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes spring for check valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? SS well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varma Water Works

CLIENT GPA

WELL NO. 3 DATE INSTALLED 3-3-82



INSTALLATION

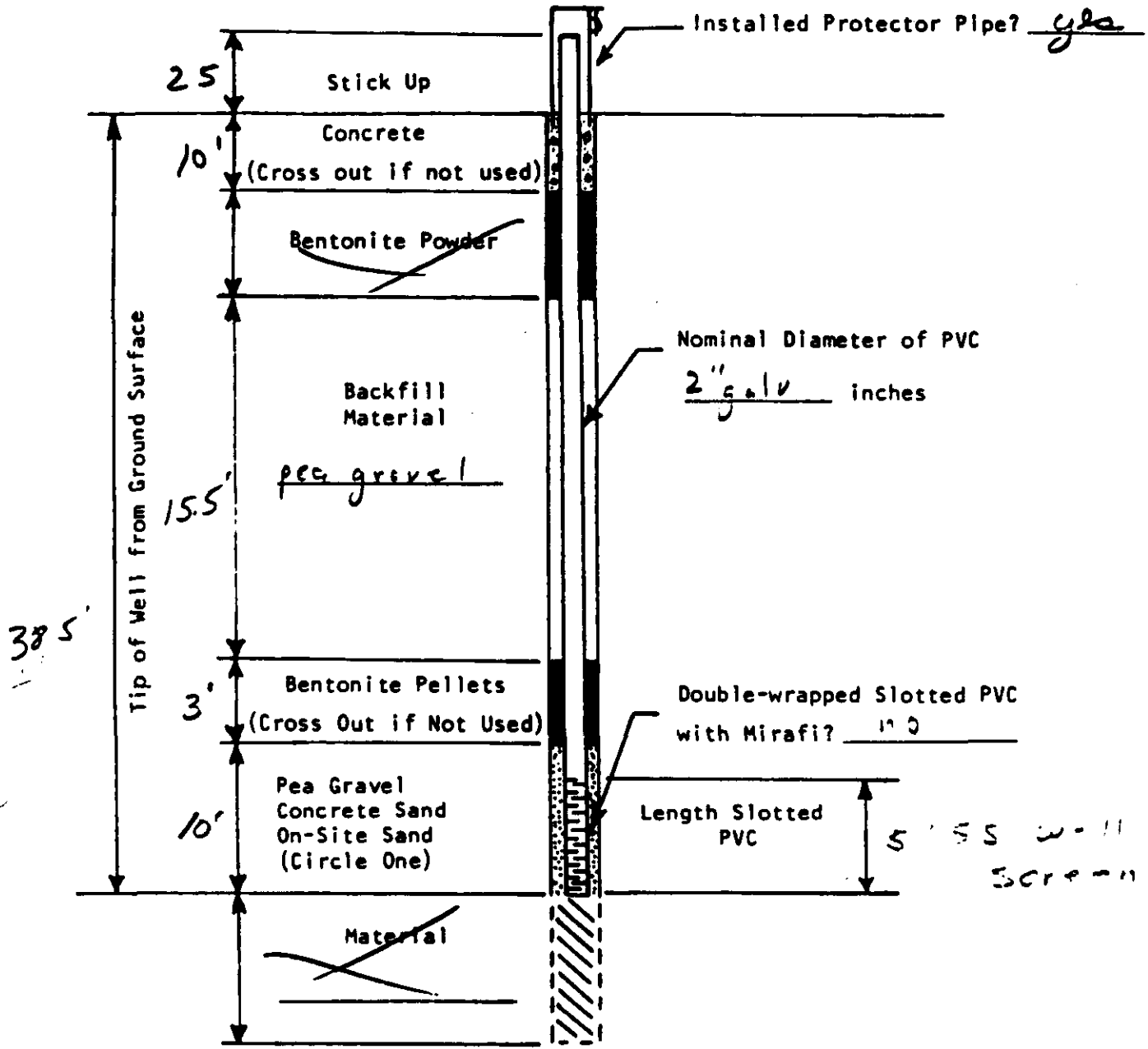
1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? client
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes Spring dog Check valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? SS well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varona Water Works

CLIENT EPA

WELL NO. 4 DATE INSTALLED 2-26-82



INSTALLATION

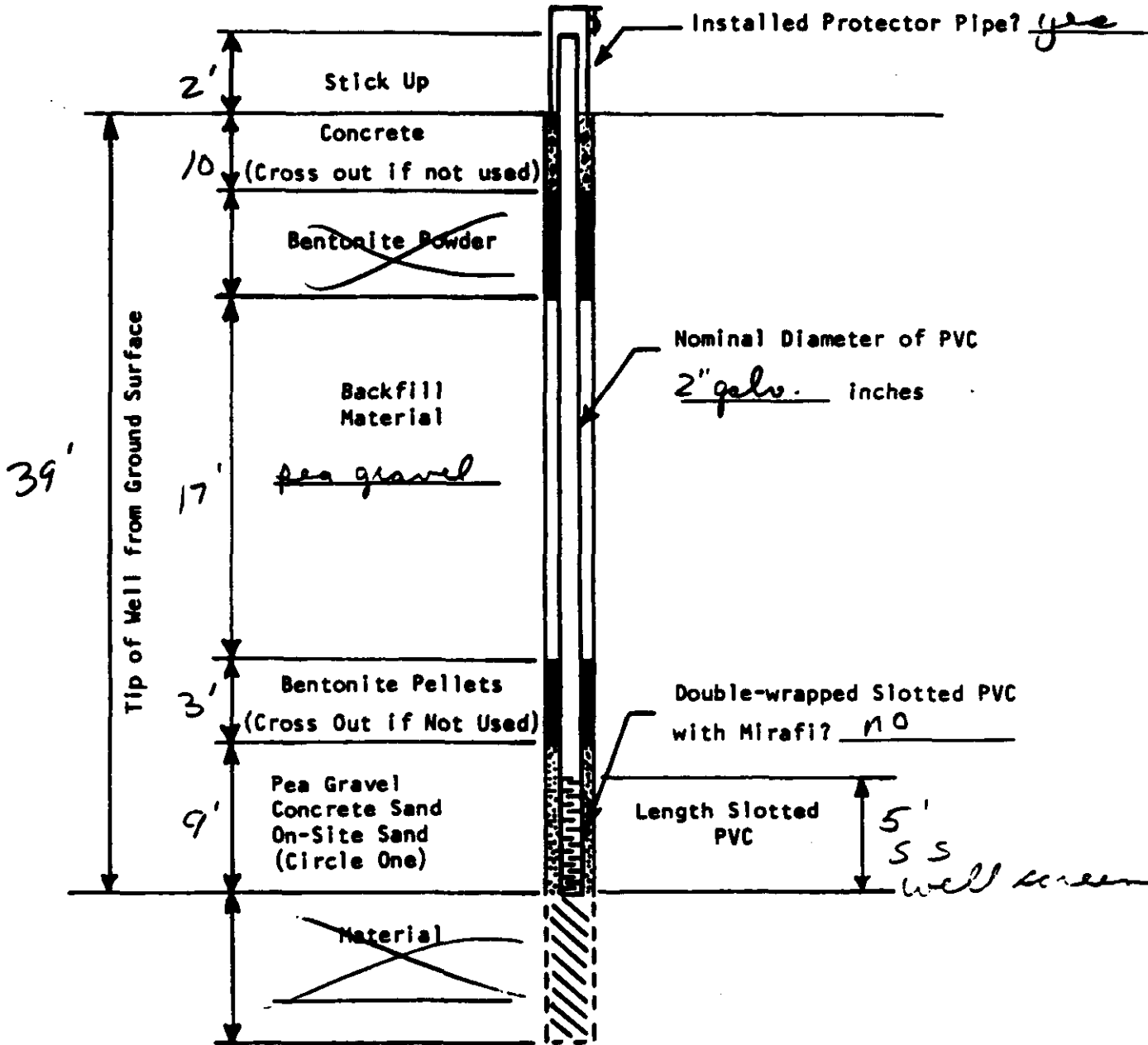
1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
if so, who has the keys? EPA
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? use spring dog Check Valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? SS well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varona Water Works

CLIENT EPA

WELL NO. 5 DATE INSTALLED 3-2-82



INSTALLATION

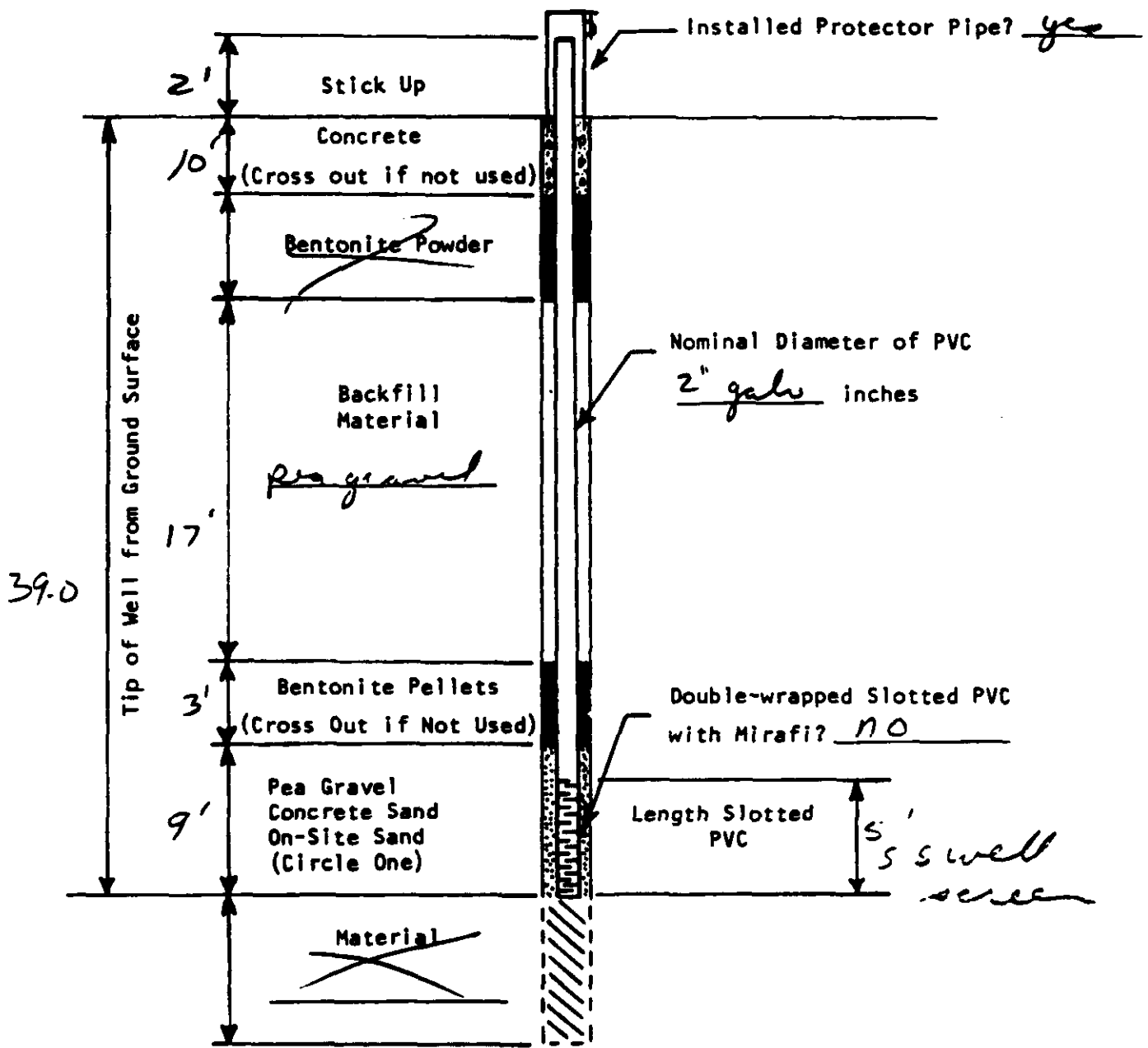
1. Did the bentonite pellets hang up? NO
2. Did you have to drive the protector pipe? NO
3. Did you install a lock on the protector pipe? NO
If so, who has the keys? Client?
4. Did the PVC come up when you removed the casing? NO
5. Was the well bailed? NO
6. Were water level readings taken after the well was installed? YES
7. Was a PVC cap installed on bottom of well? SS well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Various Water Works

CLIENT EPA

WELL NO. 6 DATE INSTALLED 3-2-82



INSTALLATION

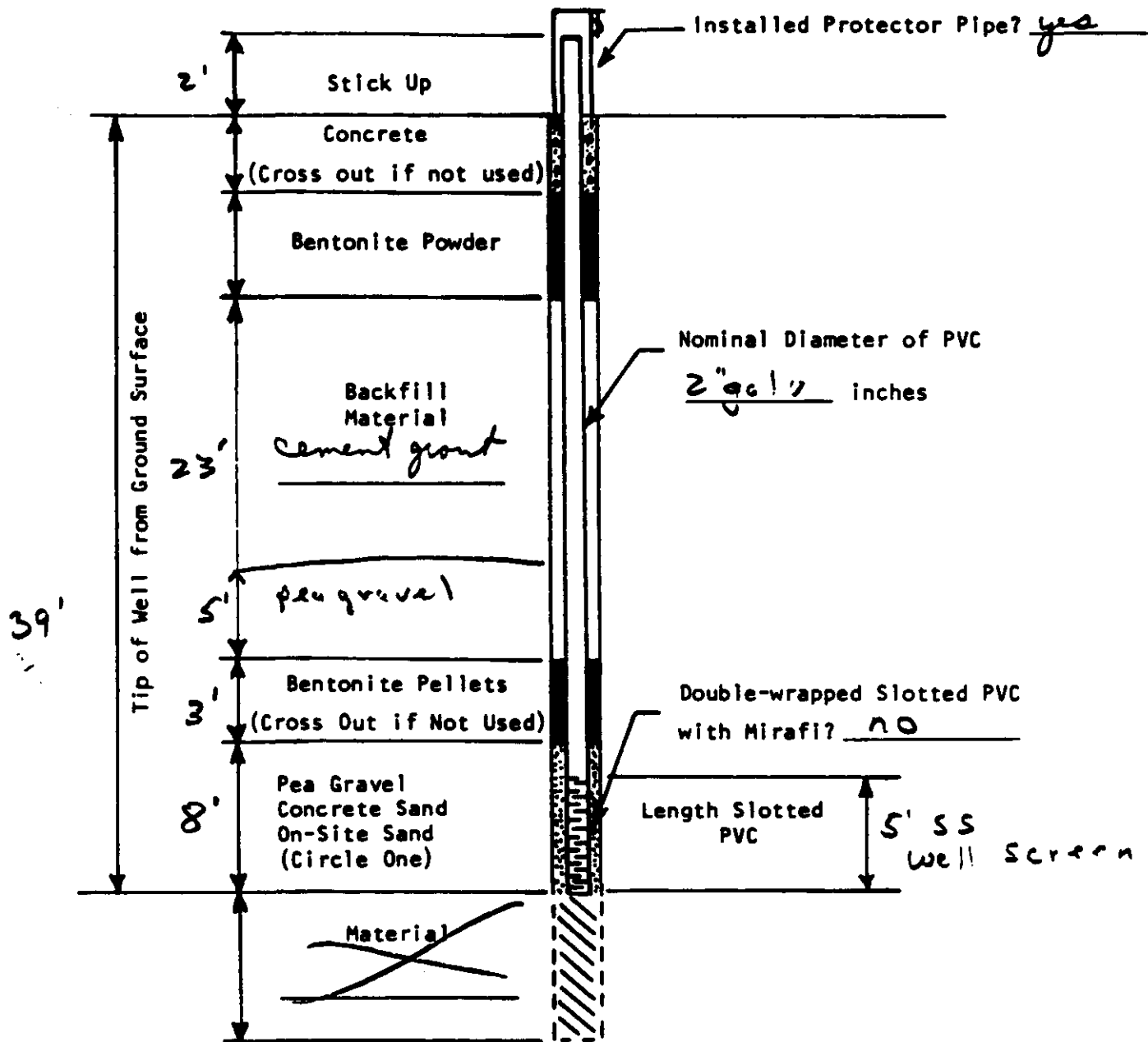
1. Did the bentonite pellets hang up? NO
2. Did you have to drive the protector pipe? NO
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? client
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes Spring dog check valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? 5 feet well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varona Water Works

CLIENT EPA

WELL NO. 7 DATE INSTALLED 2-22-82



INSTALLATION

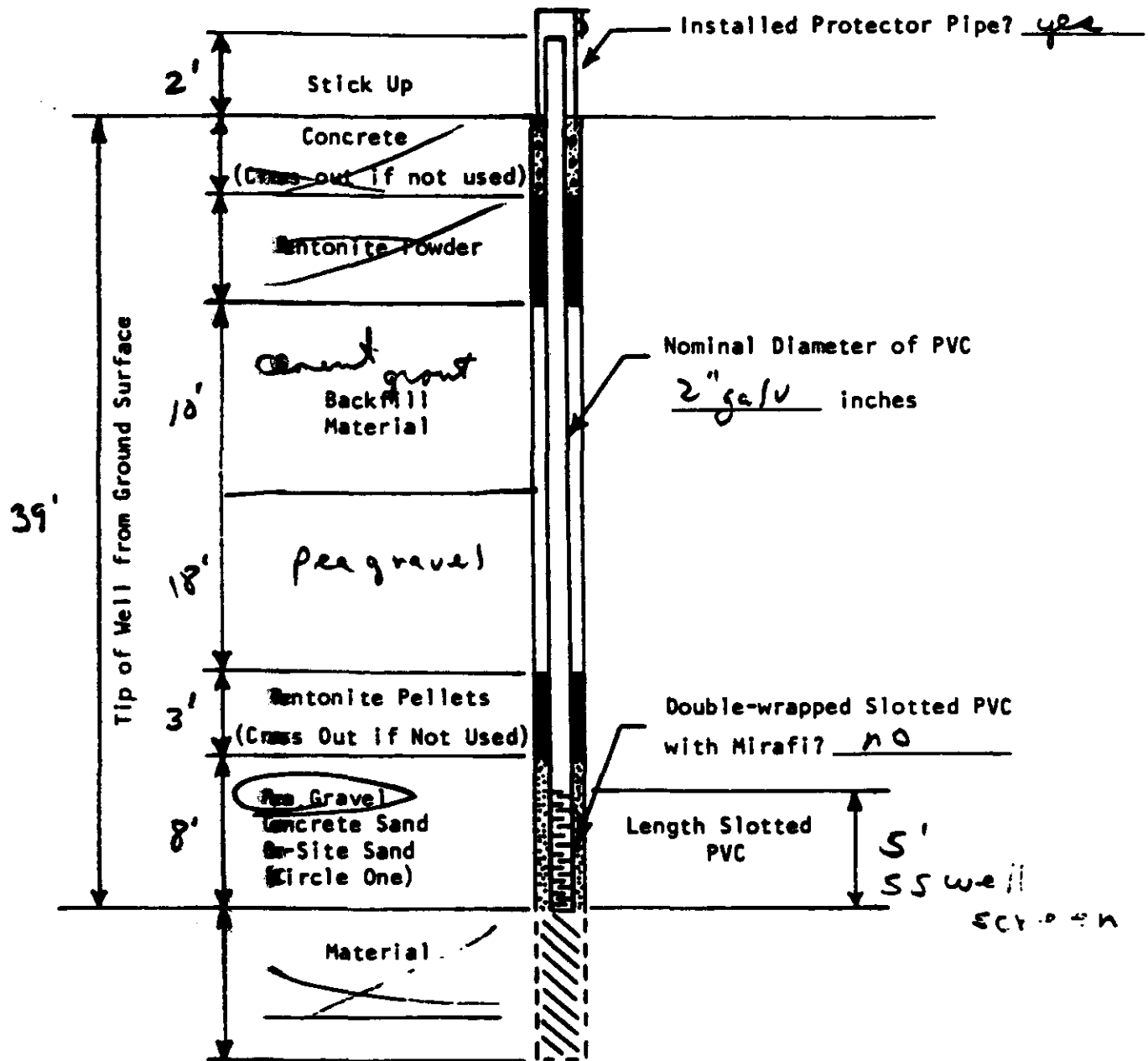
1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? _____
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes Spring box check valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? SS well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Verona Water Works

CLIENT EPA

WELL NO. 8 DATE INSTALLED 2-23-82



INSTALLATION

1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? _____
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes Spring has been checked
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? SS well screen

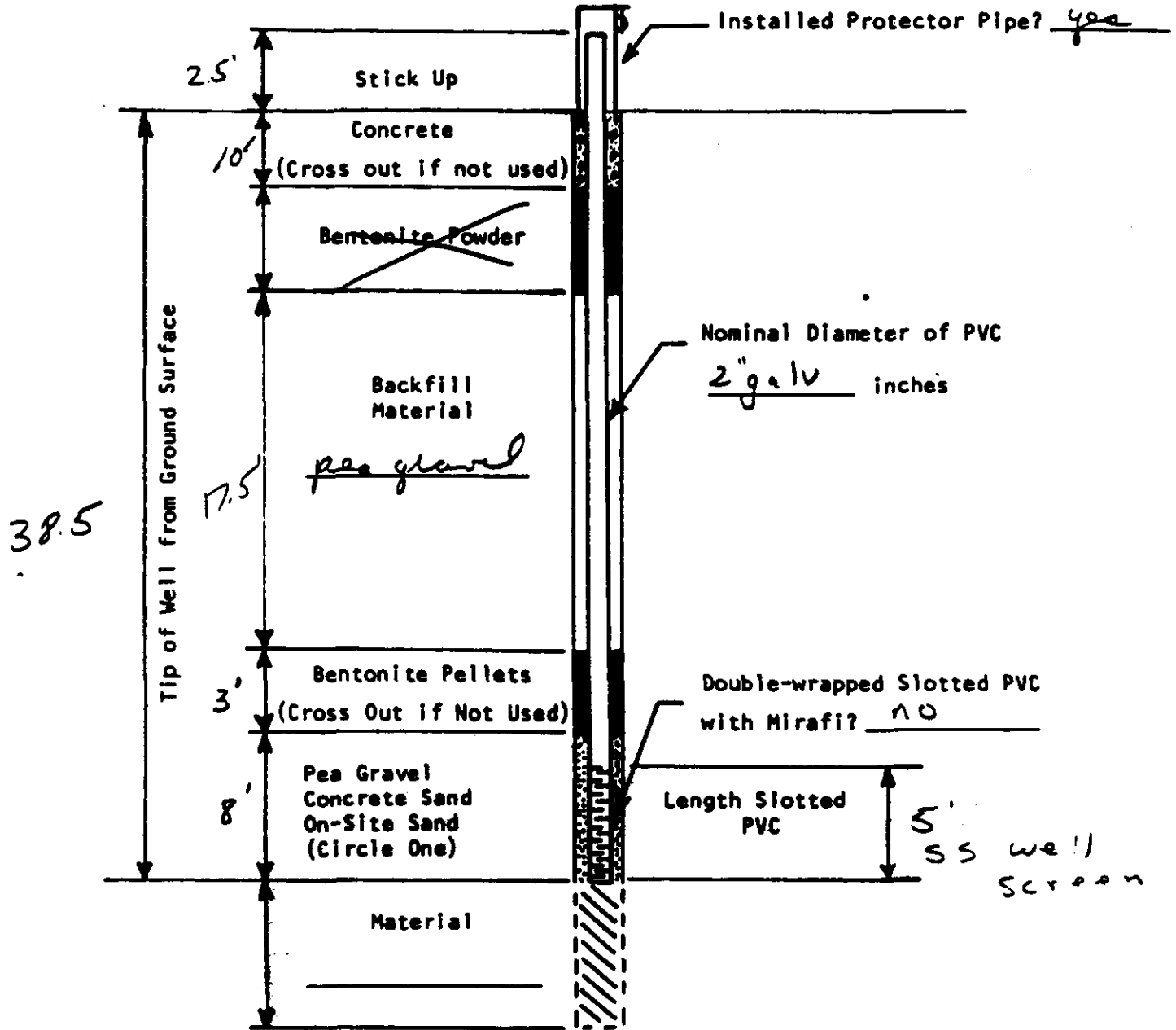
0000216

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varona Water Works

CLIENT EPA

WELL NO. 9 DATE INSTALLED 2-24-82



INSTALLATION

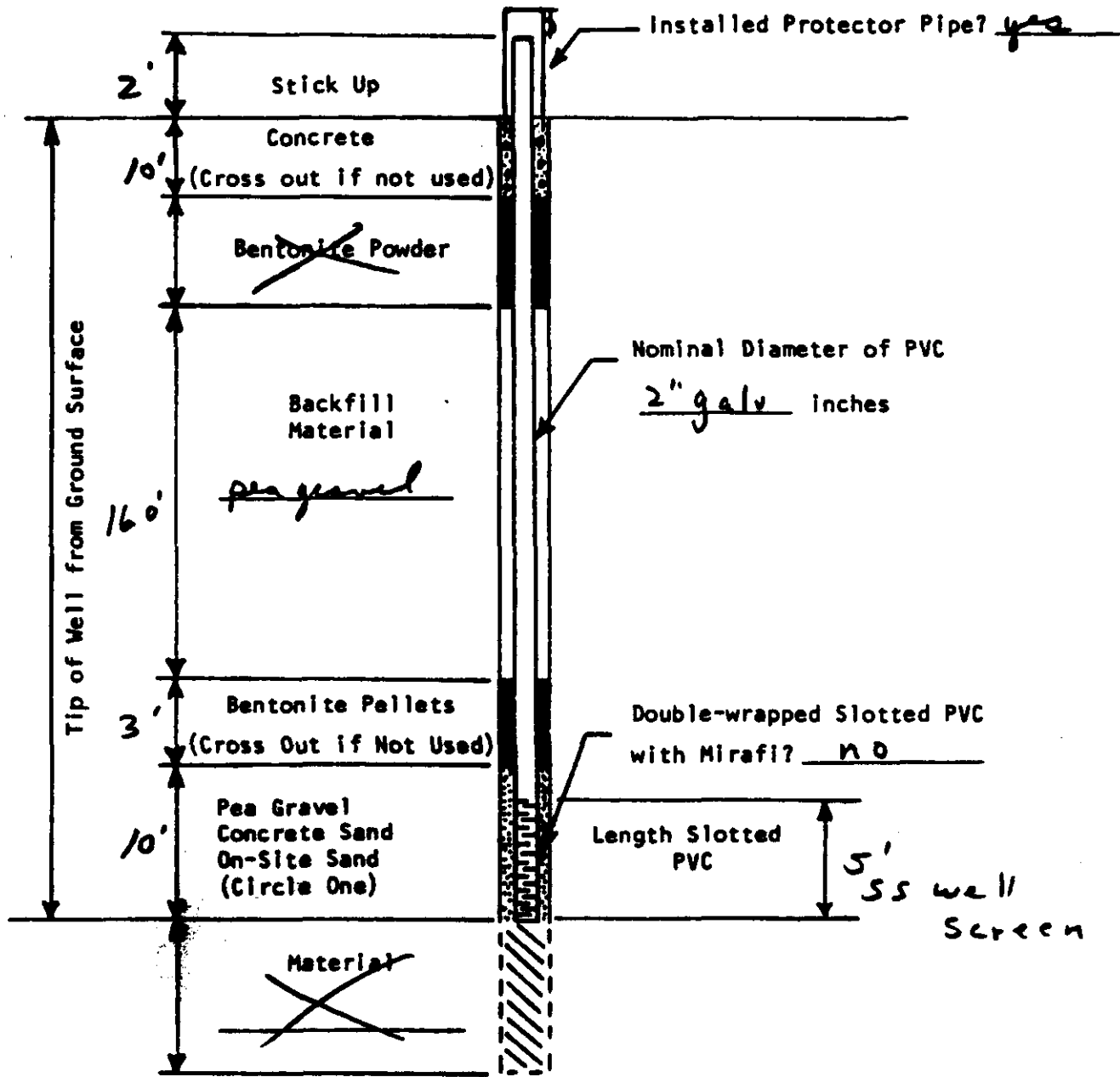
1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? _____
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes Spring log Check Valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? SS well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varona Water Works

CLIENT EPA

WELL NO. 10 DATE INSTALLED 3-8-82



INSTALLATION

1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? Client
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes Spring dog Check Valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? SS well Screen

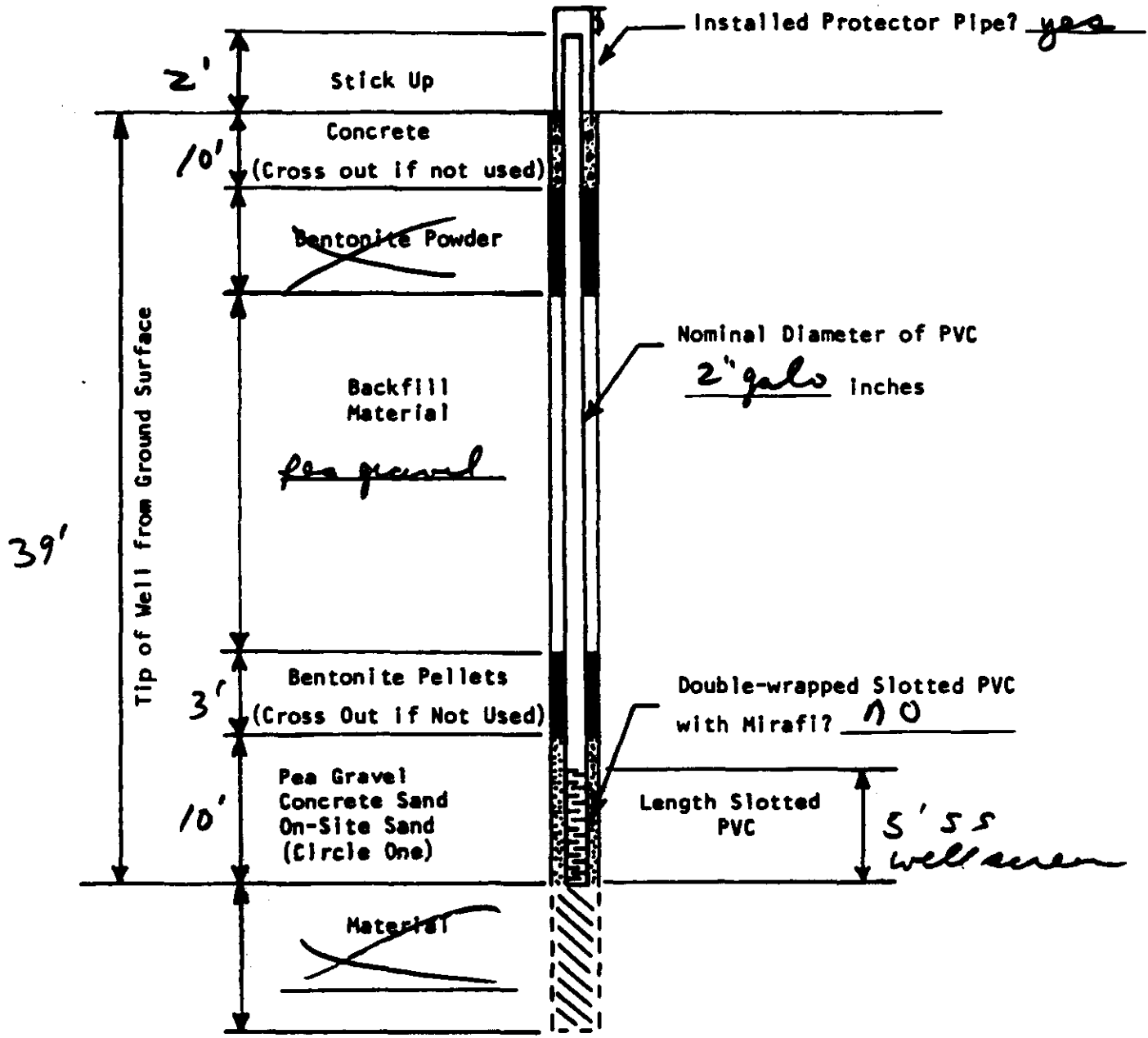
0000218

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varma Water Works

CLIENT EPA

WELL NO. 11 DATE INSTALLED 3-15-82



INSTALLATION

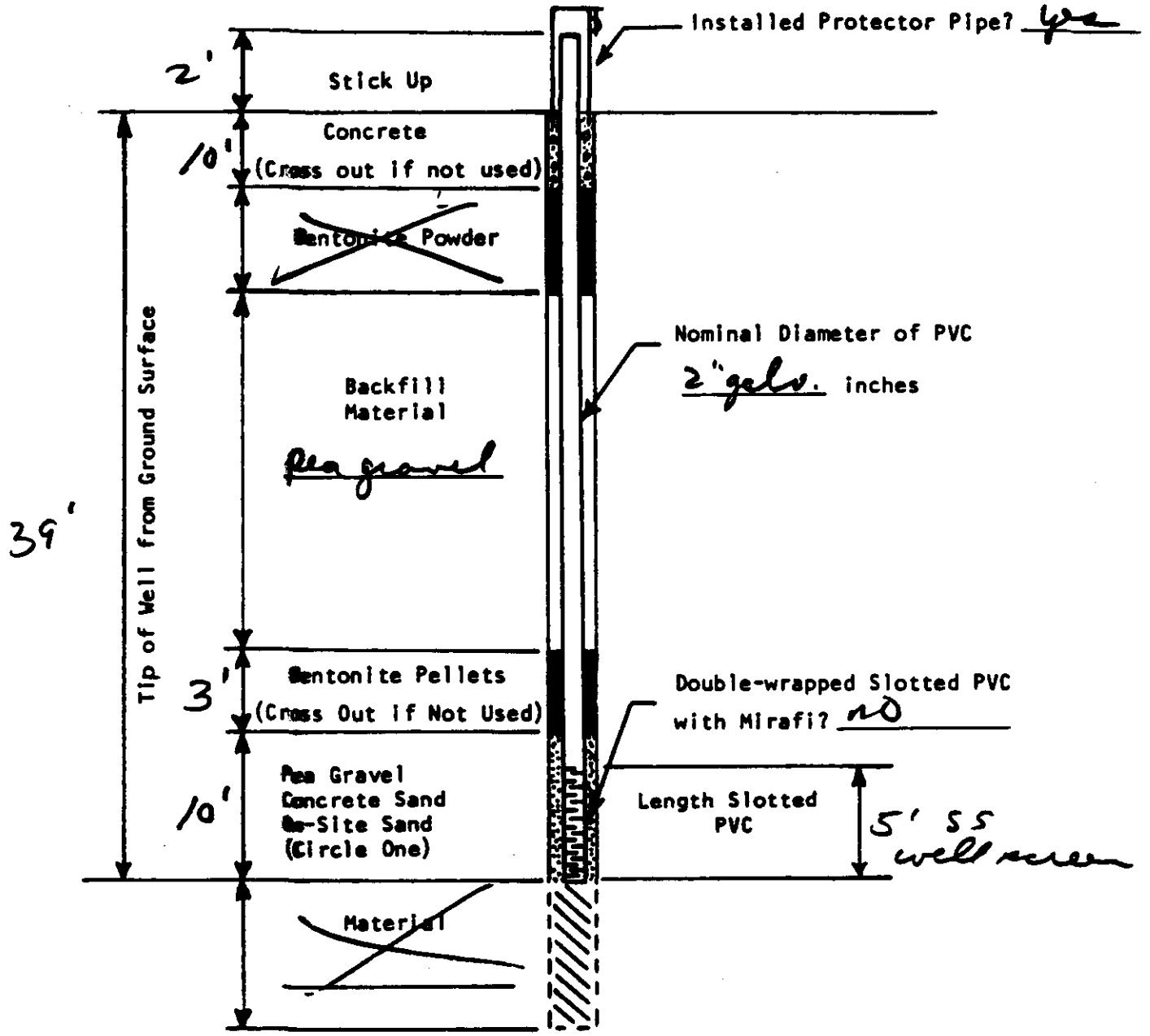
1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? EPA
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes spring top check valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? SS well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Various Water Works

CLIENT EPA

WELL NO. 12 DATE INSTALLED 3-15-82



INSTALLATION

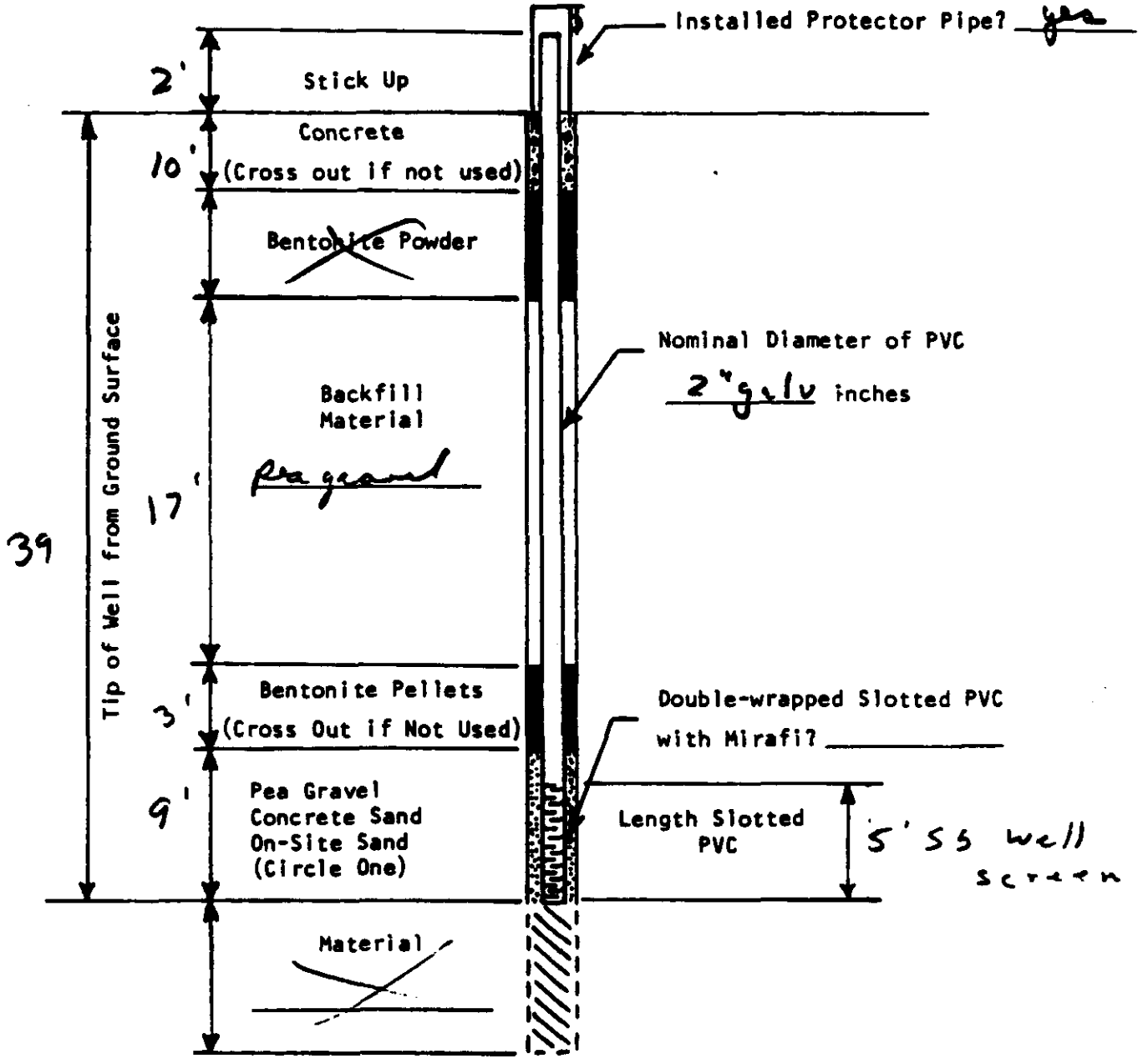
1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? EPA
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes spring by check valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? 55 well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varona Water Works

CLIENT EPA

WELL NO. 13 DATE INSTALLED 3-8-82



INSTALLATION

0000221

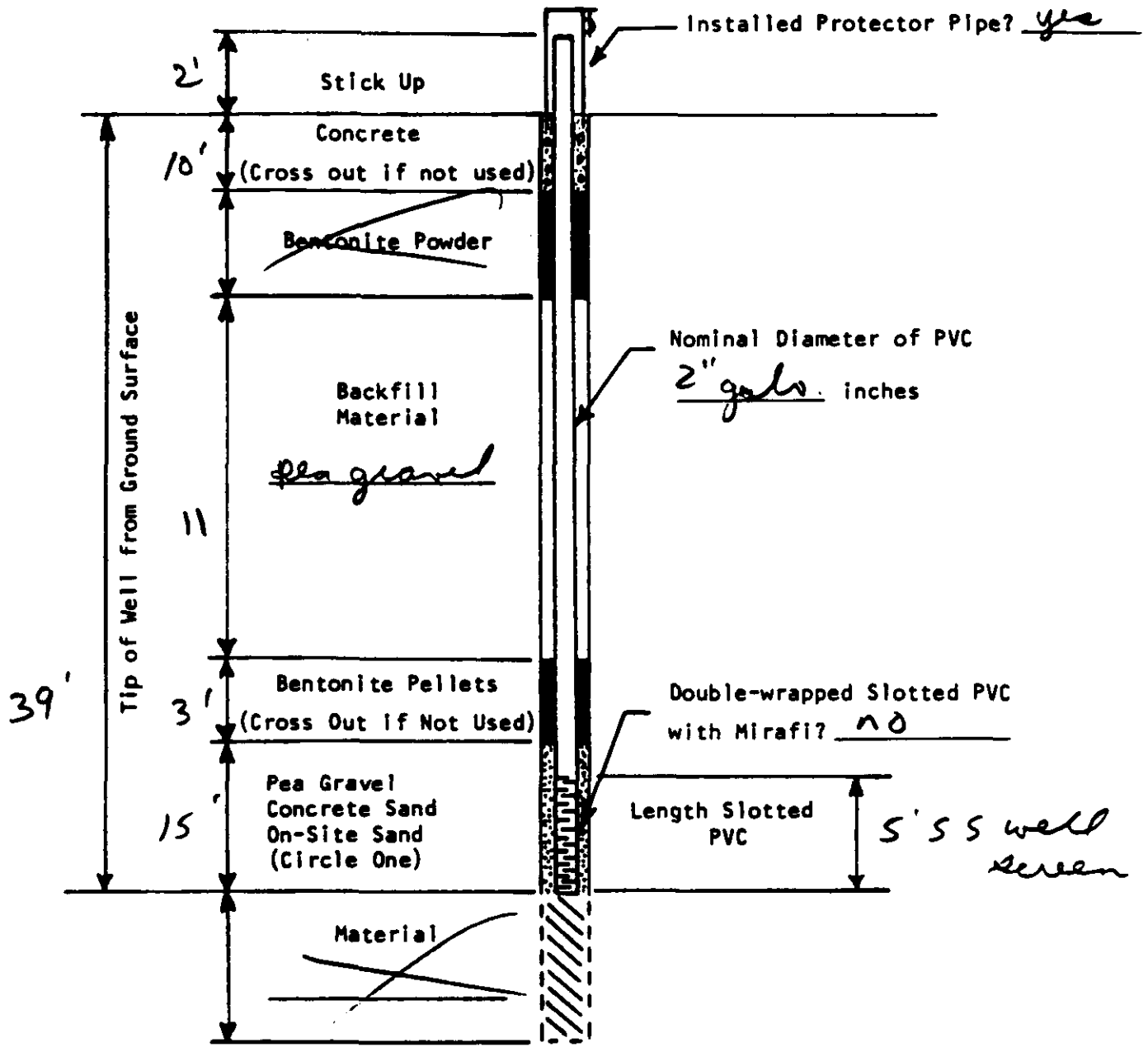
1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? client
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes spring dog check valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? 5 1/2 well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Union Water Works

CLIENT EPA

WELL NO. 14 DATE INSTALLED 3-12-82



INSTALLATION

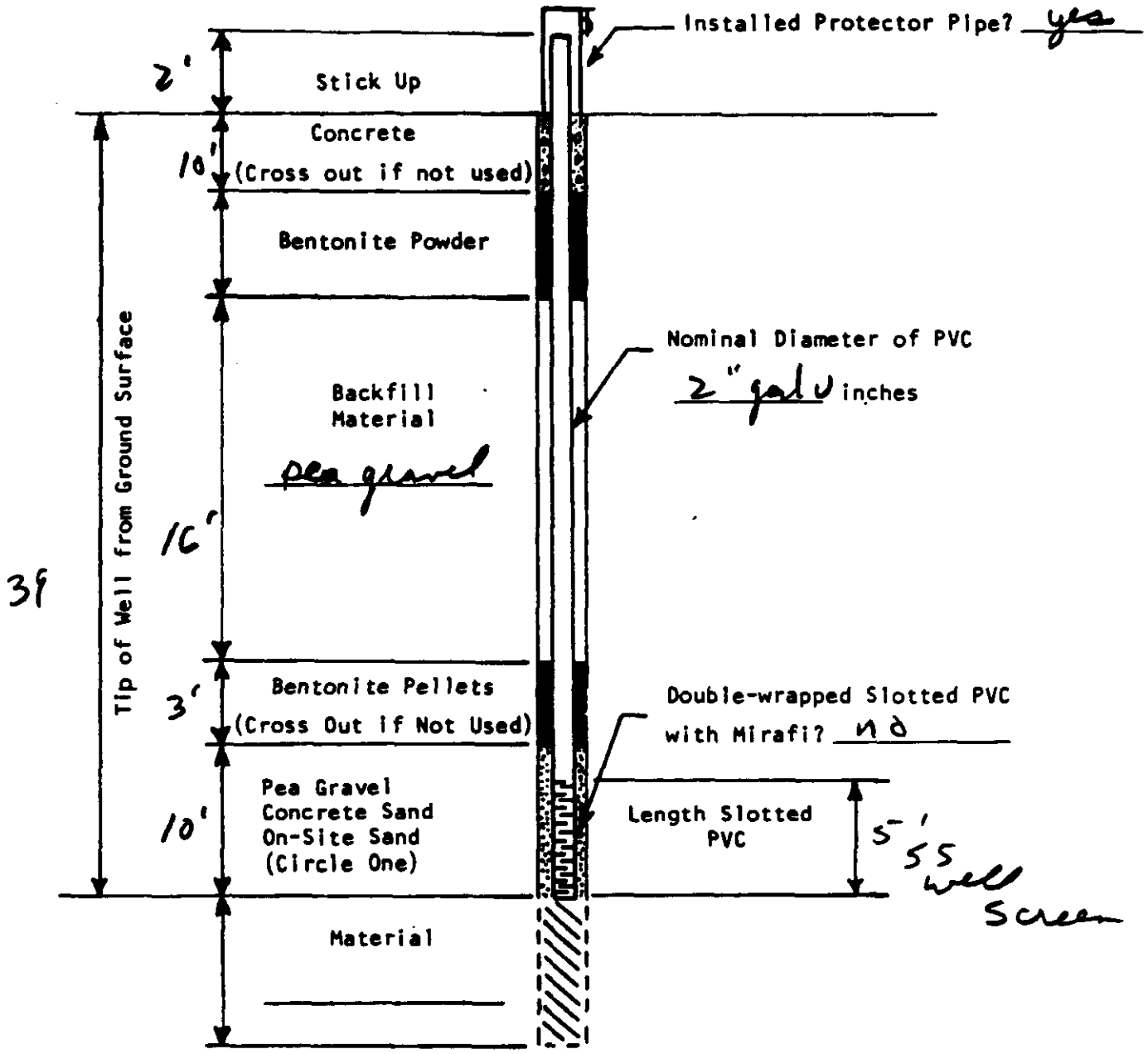
1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? client
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes spring to check valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? SS well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Varena Water Works

CLIENT EPA

WELL NO. 15 DATE INSTALLED 3-9-82

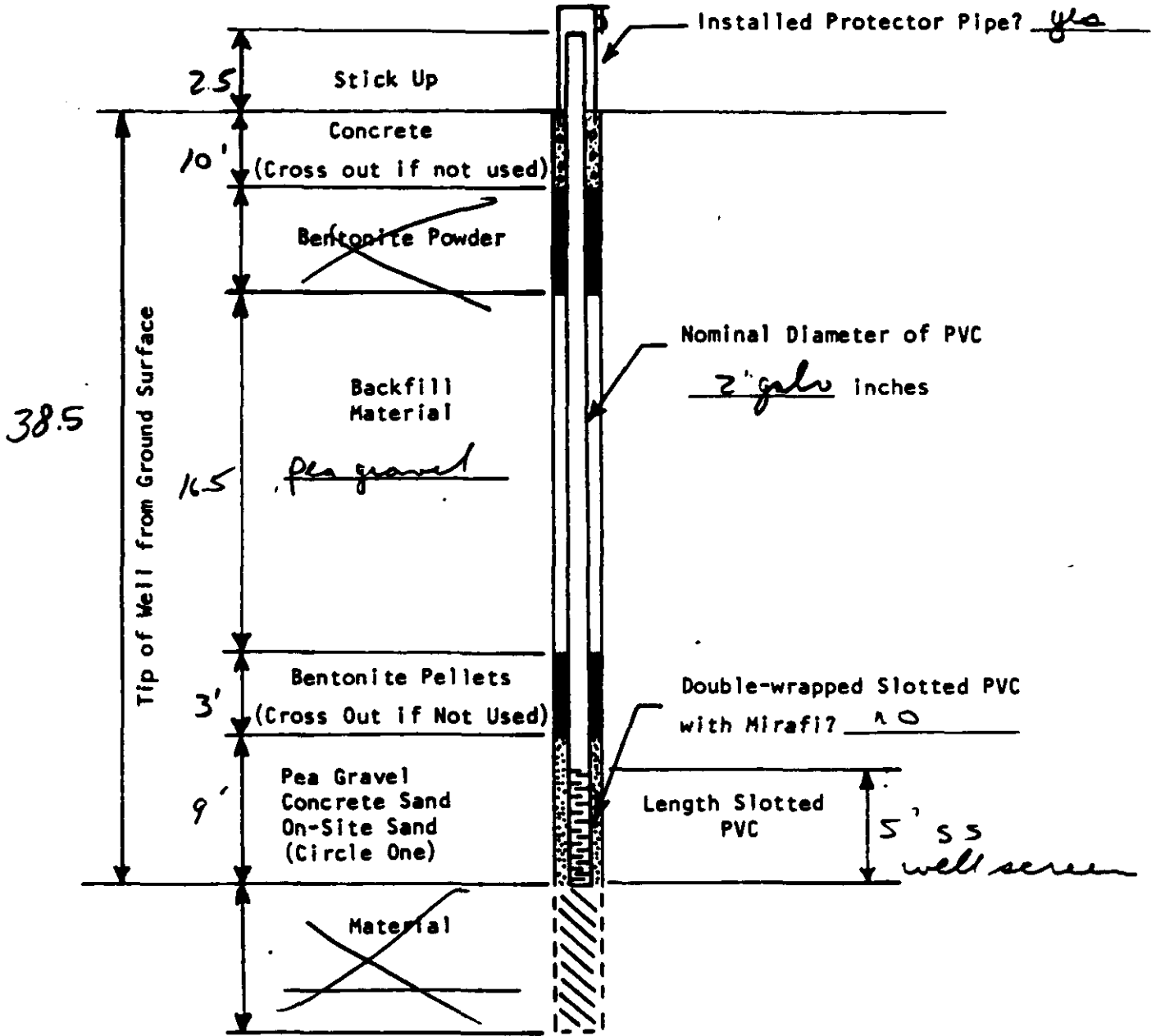


INSTALLATION

1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
If so, who has the keys? Client
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes Spring dan Check Valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? 55 well screen

FIELD WELL INSTALLATION DIAGRAM - AS INSTALLED

STS JOB NO. 70776 JOB Various Water Works
 CLIENT EPA
 WELL NO. 16 DATE INSTALLED 3-5-82



INSTALLATION

1. Did the bentonite pellets hang up? no
2. Did you have to drive the protector pipe? no
3. Did you install a lock on the protector pipe? yes
 If so, who has the keys? Client
4. Did the PVC come up when you removed the casing? no
5. Was the well bailed? yes spring dog check valve
6. Were water level readings taken after the well was installed? yes
7. Was a PVC cap installed on bottom of well? 5 1/2 well screen

Appendix F
Industrial Inspections

0000225

Appendix F

Industrial Inspections

0000226

EPA PROJECT
ECOLOGY AND ENVIRONMENT, INC.
MEMORANDUM: REGION V

COST CENTER EP151-5

TO: Ross Powers

FROM: Technical Assistance Team

VIA: Scott McCone

SUBJECT: EDO Assistance Grosse Isle, Michigan

DATE: March 18, 1982

COMMENTS:

From February 24, 1982 to March 10, 1982 personnel from TAT assisted Ross Powers from Grosse Isle, Michigan. During this period of time the TAT members delivered equipment to Battle Creek, Michigan, obtained information on East Bay Township groundwater contamination, conducted an on site inspection of U.S. Coast Guard Air Station in Traverse City, Michigan, and conducted SPCC inspections in Battle Creek, Michigan. The following is a chronology of events:

Wednesday, February 24, 1982

At 1530, I arrived in Battle Creek, Michigan to supply ice chests and other equipment for Battle Creek, Michigan Groundwater Survey.

At 1730 I secured.

Thursday, February 25, 1982

At 1130, I arrived at EDO in Grosse Isle, Michigan. At 1300 I met with Ross Powers who supplied information on East Bay Township groundwater contamination problem in Traverse City, Michigan. At 1630, I arrived in Traverse City, Michigan. An inspection of the U.S. Coast Guard Air Station was scheduled for the following day.

Friday, February 26, 1982

At 0800, I arrived at the Grand Traverse County Health Department. Mr. William Stanton of the County Health Department provided information on the potentials source or sources of the contamination.

At 1030, I arrived at U.S. Coast Guard Airbase. CDR Thomas Morgan, the Commanding Officer of the Air Station, was not available; a meeting was scheduled for 1300.

0000227

At 1100, I arrived at the Traverse City Engineers Office where I obtained copies of aerial photos along with maps of the affected area. At 1245, I returned to the Air Station and met with Commander Morgan. Commander Morgan supplied maps of the surrounding area. According to Commander Morgan the U.S. Department of Navy had operated the facility in the 1940's. During this period, the Navy, according to maps of the facility, had used a portion of the property as a dump site. Commander Morgan could not confirm this information.

At 1500, Commander Morgan and I surveyed the Airstation. No observation of the alleged dump area was possible due to a heavy snow cover.

At 1700, I secured.

Wednesday, March 3, 1982

At 1000, I met Mr. Ross Powers of the EDO in Grosse Isle, Michigan at the MDNR Headquarters in Lansing, Michigan. A meeting was arranged by Mr. Powers to give Federal assistance to the MDNR on their current investigation of the East Bay Township groundwater contamination problem in Traverse City, Michigan. Representatives of MDNR Water Quality Division, Groundwater Quality Division, Environmental Enforcement, and Michigan Department of Public Health were present.

According to MDNR personnel a series of studies and investigations including the location of monitoring wells around the contaminated area indicates that a potential source of contamination came from the property of the U.S. Coast Guard Airstation, located in Traverse City, Michigan. Mr. Powers requested that the MDNR notify U.S. Coast Guard officials of the studies and their results. Ms. Claudia Weaver of MDNR Environmental Enforcement would request that a letter be sent to U.S. Coast Guard officials.

At 1230, I reviewed MDNR files on East Bay Township Groundwater contamination problem.

At 1530, I arrived at Soil Testing Services office. Soil Testing Service was contracted to install monitoring wells in Battle Creek, Michigan. I received sample bottles and equipment needed to complete the Battle Creek, Michigan Groundwater contamination survey. At 1800, I arrived at the Verona Pumping Station and secured for the day.

Tuesday, March 9, 1982

At 1100, I met Mr. Scott McCone, who had arrived from Chicago to assist in SPCC inspections in Battle Creek, Michigan. The information collected will assist Michigan DNR and EPA personnel who are presently investigating groundwater contamination problems in Battle Creek, Michigan. At 1330 Mr. McCone, Mr. Tom DeFouw, and I met with Ross Powers from the EDO in Grosse Isle, Michigan. Mr. Powers requested that TAT members assist him in the inspection of industrial facilities in Battle Creek, Michigan.

During the inspection TAT members were asked to check SPCC Plans and acquire information regarding past spill or discharges of material onto the ground. Mr. Powers also requested that TAT personnel to obtain information from local Fire Departments, concerning discharges of material into ground. At 1700, we secured.

0000228

Wednesday, March 16, 1982

At 0730, Mr. McCone, Mr. DeFouw, and I met with Mr. Powers at the Verona Pumping Station. Mr. Powers and Mr. DeFouw left to gather soil samples from the Grand Trunk Railyard for analysis.

At 0800, Mr. McCone and I arrived at the Penfield Township Fire Department to collect information on past discharges of material. Penfield Township Fire personnel had already provided the information to Mr. Powers.

At 0830, Mr. McCone and I arrived at the Battle Creek Fire Department where we met with Fire Chief Yager. Chief Yager provided information concerning a discharge of oil which had occurred in the later 1940's.

At 0900, Mr. McCone and I accompanied Chief Yager to Benke Industries. According to Chief Yager, Benke Industries have in the past discharged materials into the ground and into the Battle Creek River. Chief Yager could not verify what materials were dumped. The area is approximately 2 miles downstream from the area affected in the Battle Creek Groundwater survey.

At 0930, Mr. McCone and I inspected Reith Riley for an SPCC check. No plan was available for inspection. A copy of 40CFR was given to Reith Riley officials.

At 1030, Mr. McCone and I arrived at Kellogg Company. Upon inspection of the Kellogs facility no violations of the SPCC was noted.

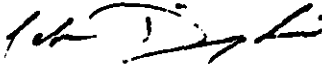
At 1400, Mr. McCone and I inspected Packaged Convenience Foods, a Division of General Foods. A survey of the facility indicated that a spill from an aboveground edible oil tank could enter a storm sewer line. The company is presently considering constructing a dike completely around the tank.

At 1600, Mr. McCone and I returned to the Verona Pumping Station.

At 1700, we secured.

John Dourjalian

JD:pj



0000229

SPCC INSPECTION FIELD SHEET
 (To be completed if Spill Regulation is applicable to Facility - see 40CFR Part 112.1.)

SEE
 INSTRUCTIONS ON
 REVERSE

18. NAME OF FACILITY: **PACKAGED CONVENIENCE FOODS (POST) DIVISION OF GENERAL FOODS** 19. TYPE OF FACILITY: **FOOD MANUFACTURER**

19. FACILITY LOCATION: **275 CLIFF STREET, BATTLE CREEK, MICHIGAN 49016**

20. NAME OF OWNER AND/OR OPERATOR RESPONSIBLE FOR FACILITY: **RALPH W. BENNETT, PLANT MANAGER** 21. TELEPHONE NUMBER: **(616) 966-1000**
Area Code

22. MAILING ADDRESS: **275 CLIFF STREET, BATTLE CREEK, MICHIGAN 49016**

23. TYPES OF OIL STORED AND CAPACITY OF ABOVEGROUND AND BURIED STORAGE:
SEE DETAILED SPCC DOCUMENTATION REPORT

4. IS A CERTIFIED SPCC PLAN AVAILABLE FOR INSPECTION? YES NO 5. DATE OF INSPECTION: **MARCH 10, 1982**

6. NAME AND REGISTRATION NUMBER OF CERTIFYING ENGINEER NOT AVAILABLE 7. DATE SPCC PLAN WAS CERTIFIED NOT AVAILABLE
KEITH M. COLE - MICHIGAN # 23133 **AUGUST 19, 1981**

8. IS SPCC PLAN FULLY IMPLEMENTED? (Are the items called for in the Plan in the interest of spill prevention actually installed - if observable).
 NOT APPLICABLE
YES

9. NAME OF WATER BODY THAT POTENTIAL SPILL COULD ENTER; OR IF UNNAMED TRIBUTARY, THEN FIRST NAMED WATERBODY DOWNSTREAM (if known):
BATTLE CREEK RIVER

10. COMMENTS (Include comments by owner/operator - write on back or attach extra sheets if needed):
ALL BURIED TANKS ARE CHECKED WEEKLY FOR LOSSES AND MONITORED DAILY THROUGH AUTOMATIC LEVEL INDICATORS.
TANK TRUCK LOADING AREA IS CURBED.
EXTERIOR ABOVEGROUND TANK IS PARTIALLY DIKED; THE COMPANY IS CONSIDERING A COMPLETE DIKE AROUND THE TANKS.

0000230

11. SPCC NO. 11B. CASE NO.: **TDD# 5-8203-2** 11C. NPDES NO. NOT AVAILABLE

12A. INSPECTOR (SIGN): *[Signature]* 12B. DATE: **MARCH 10, 1982**

12C. INSPECTOR (PRINT): **SCOTT W. McCONE**

B. SPCC INSPECTION SUMMARY SHEET

SPCC NO.	CASE NO. TDD# 5-8203-2	DATE OF INSPECTION MARCH 10, 1982
NAME OF INSPECTOR (Signature) <i>Scott W. McCone</i>		DATE OF DOCUMENTATION REPORT MARCH 15, 1982
NAME OF INSPECTOR (Print) SCOTT W. McCONE		NPDES NO. NONE

1. FACILITY

A. COMPANY
PACKAGED CONVENIENCE FOODS, DIVISION OF GENERAL FOODS CORPORATION

ADDRESS
275 CLIFF STREET

CITY
BATTLE CREEK

STATE
MICHIGAN

ZIP CODE
49016

TELEPHONE
(616)966-1000

FACILITY NAME
SAME AS ABOVE

B. FACILITY LOCATION

RENT CORPORATION
GENERAL FOODS CORPORATION

ADDRESS
250 NORTH STREET

CITY
WHITE PLAINS

STATE
NEW YORK

ZIP CODE
10625

C. WATER BODY PROTECTED
BATTLE CREEK RIVER

2. PURPOSE

INITIATION: Routine Surveillance Coast Guard Information
 Spill Report Citizen Information Other (specify):

(PE): Plan Preparation Plan Implementation
 Follow-up Plan Amendment

3. INSPECTION

INDIVIDUAL CONTACTED DAN JOBA	TITLE ENVIRONMENTAL MANAGER
INDIVIDUAL CONTACTED	TITLE

NOTIFICATION

4. FINDINGS

SOURCE IN APPARENT COMPLIANCE WITH SPCC REQUIREMENTS:

Yes

- Have adequate plan
- Not subject to regulations
- Insufficient storage
- No reasonable spill expectation
- Plan fully implemented
- New facility operational less than 6 months

No

- No plan
- Plan not properly certified
- Plan does not have management approval
- Plan not maintained at facility manned 8 hrs/day
- Inadequate plan (detailed SPCC Plan review attached)
- Plan not fully implemented
- Plan not reviewed within 3 years

Other

5. ATTACHMENTS (None required if facility in apparent compliance)

	NONE	ATTACHED	ALREADY ON FILE
*Detailed Observations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
*Photographs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slides	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*Field Drawing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
*Comments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Telephone Conversations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*SPCC Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ALL REQUIRED IF FACILITY IS NOT IN APPARENT COMPLIANCE. If photos not permitted, check "None" and explain. Add "SPCC Plan" to List of Attachments when appropriate.

0000231

C. DETAILED SPCC DOCUMENTATION

SEE
INSTRUCTIONS
ON PAGE B

FACILITY

PACKAGED CONVENIENCE FOODS (POST) DIVISION OF GENERAL FOODS

DATE OF INSPECTION

MARCH 10, 1982

1. FACILITY DESCRIPTION

1A. TYPE OF BUSINESS/OPERATION

FOOD MANUFACTURER

1B. FACILITY OIL STORAGE

- 4-50,000 GALLON BURIED TANKS FOR #2 FUEL OIL STORAGE
- 1-20,000 GALLON BURIED TANKS FOR #2 FUEL OIL STORAGE
- 2- 3,000 GALLON BURIED TANKS FOR GASOLINE STORAGE
- 1- 2,000 GALLON BURIED TANK FOR DIESEL OIL STORAGE
- 1-15,000 GALLON BURIED TANK FOR ACETALDENYDE STORAGE
- 2-10,500 GALLON ABOVEGROUND TANKS FOR EDIBLE OIL STORAGE
- 2- 7,000 GALLON ABOVEGROUND TANKS FOR EDIBLE OIL STORAGE
- 11- 55 GALLON DRUMS FOR SHELL SOLVENT AND CARBON TETRACHLORIDE STORAGE

1C. PREVENTION MEASURES PROVIDED

BURIED TANKS ARE CHECKED WEEKLY FOR LOSSES AND AUTOMATIC LEVEL INDICATORS ARE CHECKED AND LOGGED DAILY.

TANK TURCK LOADING AREA IS CURBED AND DRAINS ARE CLOSED AND LOCKED.

THE TWO 7,000 GALLON EDIBLE OIL TANKS ARE INSIDE THE MAIN BUILDING; ANY SPILLS WOULD ENTER SANITARY SEWER LINE.

THE TWO 10,500 GALLON EDIBLE OIL TANKS ARE PARTIALLY DIKED TO ALLOW DRAINAGE INTO SANITARY SEWER LINE.

1D. APPEARANCE OF FACILITY (housekeeping)

ALL AREAS OF THE FACILITY ARE CLEAN AND NO SPILLS WERE OBSERVED.

1E. PAST SPILL HISTORY

NONE

0000232

2. RECEIVING WATER (should a spill occur)

2a. NAME AND/OR DESCRIPTION

BATTLE CREEK RIVER

- Perennial Intermittent
- Water present at time of inspection
- Inspector traced discharge to receiving water
- Inspector traced apparent drainage path to receiving water
- Receiving water identified by company representative
- Receiving water identified from topo maps
- Receiving water identified by other means (specify):

2b. PROBABLE FLOW PATH TO RECEIVING WATER

OIL WOULD FLOW INTO STORM SEWER LINE, AND FLOW NORTH 1,500 YARDS INTO THE BATTLE CREEK RIVER

2c. CLIMATIC INFORMATION FROM OWNER/OPERATOR

NONE

0000233

3. COMMENTS

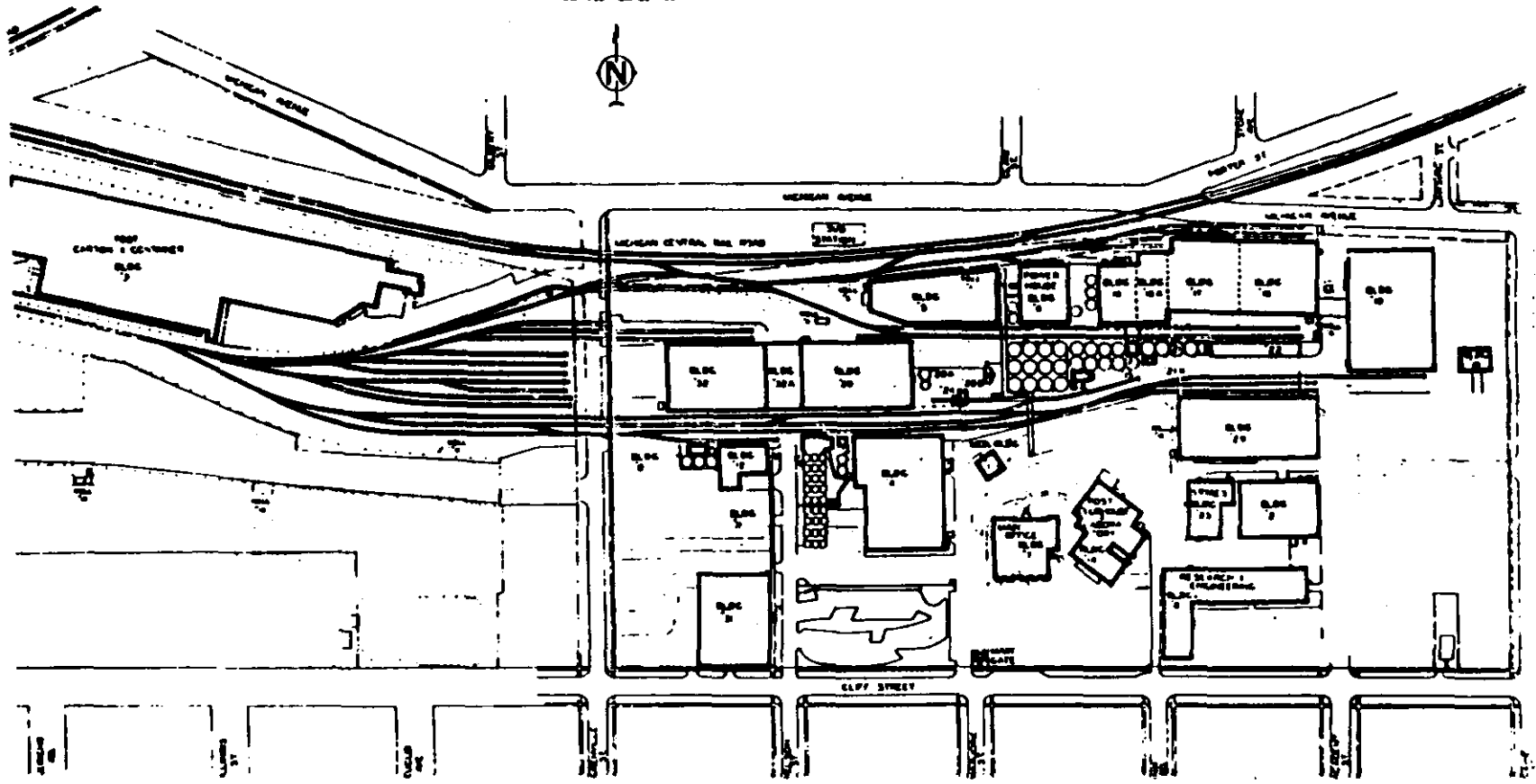
A survey of the post facility indicated that a spill from the aboveground edible oil tank could enter a storm sewer line. The company is presently considering constructing a dike completely around the tanks. All other tanks are situated in such a manner as to not present a spill potential. The 55 gallon drums are scattered throughout the facility; any spill from a drum may enter a storm sewer or sanitary sewer line.

The four buried #2 Fuel Oil Tanks were tested in 1980 at the request of the Michigan DNR.

0000234

6. FIELD DRAWINGS (Attach more sheets if needed, and show north arrow or other orient. tool)

GENERAL FOODS CORPORATION
POST DIVISION
BATTLE CREEK, MICH.
FIG. 000 - SCALE 1:50



FACILITY
PACKAGE D CONVENIENCE FOODS (POST)

INSPECTOR
Robert McLean

EPA Form 7500-54 (8-80)

INSPECTION DATE
MARCH 10, 1982

0000235

PAGE 6 OF 6

* COLLECTION THIRD SHEET
 (To be completed if RCRA Regulation is applicable to Facility - see 40 CFR Part 112.1.)

SEE
 INSTRUCTIONS
 ON REVERSE

18. NAME OF FACILITY: **RIETH RILEY CONSTRUCTION COMPANY, INCORPORATED** 19. TYPE OF FACILITY: **ASPHALT PAVING CO.**

16. FACILITY LOCATION: **1175 N. Raymond Road, Battle Creek, Michigan 49017**

2. NAME OF OWNER AND/OR OPERATOR RESPONSIBLE FOR FACILITY: **Robert J. Pfauth, Division Manager** 25. TELEPHONE NUMBER Area Code: **(616) 962-5168**

22. MAILING ADDRESS: **P.O. BOX 56, Battle Creek, Michigan 49016**

3. TYPES OF OIL STORED AND CAPACITY OF ABOVEGROUND AND BURIED STORAGE:
See detail SPCC Documentation Form

4. IS A CERTIFIED SPCC PLAN AVAILABLE FOR INSPECTION? YES NO 6. DATE OF INSPECTION: **MARCH 10, 1982**

NAME AND REGISTRATION NUMBER OF CERTIFYING ENGINEER NOT AVAILABLE 7. DATE SPCC PLAN WAS CERTIFIED NOT AVAILABLE

8. IS SPCC PLAN FULLY IMPLEMENTED? (Are the items called for in the Plan in the interest of spill prevention actually installed - if observable).
 NOT APPLICABLE
NO PLAN AVAILABLE

9. NAME OF WATER BODY THAT POTENTIAL SPILL COULD ENTER; OR IF UNNAMED TRIBUTARY, THEN FIRST NAMED WATERBODY DOWNSTREAM (if known):
Grand Trunk Ditch 100 yards southwest of the facility.

1. COMMENTS (Include comments by owner/operator - write on back or attach extra sheets if needed)
An earthen dike was present around the #2 fuel oil tank. All other aboveground tanks are not diked. Operator feels that, due to the type of material handled, there is only a slight possibility of any material entering a surface water.

0000236

118. SPCC NO. 119. CASE NO.: **TDD# 5-8203-2** 112. NPDES NO. NOT AVAILABLE

122. INSPECTOR (Sign): *Scott McCone* 123. DATE: **March 10, 1982**

121. INSPECTOR (Print): **Scott McCone**

B. SPCC INSPECTION SUMMARY SHEET

SPCC NO.	CASE NO. TDD# 5-8203-2	DATE OF INSPECTION MARCH 10, 1982
NAME OF INSPECTOR (Signature) <i>Scott McCone</i>		DATE OF DOCUMENTATION REPORT MARCH 15, 1982
NAME OF INSPECTOR (Print) Scott McCone		NPDES NO. NONE

1. FACILITY

a. COMPANY
RIETH RILEY CONSTRUCTION COMPANY, INCORPORATED

ADDRESS 1175 N. RAYMOND ROAD	TELEPHONE (616)962-5168
CITY BATTLE CREEK	STATE MICHIGAN
	ZIP CODE 49017

FACILITY NAME
SAME AS ABOVE

b. FACILITY LOCATION
-

PARENT CORPORATION
NONE

ADDRESS
-

CITY -	STATE -	ZIP CODE -
-----------	------------	---------------

c. WATER BODY PROTECTED
GRAND TRUNK DITCH, A TRIBUTARY TO THE BATTLE CREEK RIVER

2. PURPOSE

INITIATION: Routine Surveillance Coast Guard Information
 Spill Report Citizen Information Other (specify):

TYPE: Plan Preparation Plan Implementation
 Follow-up Plan Amendment

3. INSPECTION

INDIVIDUAL CONTACTED ROBERT J. PFAUTH	TITLE DIVISION MANAGER
INDIVIDUAL CONTACTED	TITLE

NOTIFICATION

4. FINDINGS

SOURCE IN APPARENT COMPLIANCE WITH SPCC REQUIREMENTS:

Yes

- Have adequate plan
- Not subject to regulations
 - Insufficient storage
 - No reasonable spill expectation
- Plan fully implemented
- New facility operational less than 6 months

No

- No plan
- Plan not properly certified
- Plan does not have management approval
- Plan not maintained at facility manned 8 hrs/day
- Inadequate plan (detailed SPCC Plan review attached)
- Plan not fully implemented
- Plan not reviewed within 3 years

Other

5. ATTACHMENTS (None required if facility in apparent compliance)

	NONE	ATTACHED	ALREADY ON FILE
*Detailed Observations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
*Photographs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slides	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*Field Drawing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
*Comments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Telephone Conversations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*SPCC Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**(ALL REQUIRED IF FACILITY IS NOT IN APPARENT COMPLIANCE. If photos not permitted, check "None" and explain. Add "SPCC Plan" to List of Attachments when appropriate.)*

0000237

C. DETAILED SPCC DOCUMENTATION

SEE
INSTRUCTIONS
ON PAGE 8

FACILITY

DATE OF INSPECTION

RIETH RILEY CONSTRUCTION COMPANY, INCORPORATED

MARCH 10, 1982

1. FACILITY DESCRIPTION

12. TYPE OF BUSINESS/OPERATION

ASPHALT PAVING COMPANY

13. FACILITY OIL STORAGE

- 2 - 10,000 GALLON BURIED TANKS FOR GASOLINE STORAGE
- 1 - 1,000 GALLON ABOVEGROUND TANK FOR #2 FUEL OIL STORAGE
- 4 - 10,000 GALLON ABOVEGROUND TANK FOR ASPHALT STORAGE
- 1 - 1,000 GALLON BURIED TANK FOR #2 FUEL OIL STORAGE
- 1 - 1,000 GALLON BURIED TANK FOR #2 FUEL OIL STORAGE
- 1 - 5,000 GALLON BURIED TANK FOR WASTE OIL STORAGE
- 1 - 10,000 GALLON ABOVEGROUND TANK FOR MCO 30 STORAGE
- 1 - 10,000 GALLON ABOVEGROUND TANK FOR SS+H STORAGE
- 1 - 500 GALLON BURIED TANK FOR WASTE OIL STORAGE
- 1 - 10,000 GALLON ABOVEGROUND TANK FOR #2 FUEL OIL STORAGE
- 30 - 55 GALLON DRUMS FOR MISCELLANEOUS OIL STORAGE

14. PREVENTION MEASURES PROVIDED

An earthen dike was present around the #2 Fuel Oil Tank. All other aboveground tanks are not diked. In case of a spill, sand is used to contain the oil. Earth around the asphalt tanks is removed yearly.

15. APPEARANCE OF FACILITY (housekeeping)

Asphalt was present around Boiler Room and Asphalt Tanks. All other areas clean.

16. PAST SPILL HISTORY

NONE

0000236

2a. NAME AND/OR DESCRIPTION

BATTLE CREEK RIVER

- Perennial Intermittent
 Water present at time of inspection
 Inspector traced discharge to receiving water
 Inspector traced apparent drainage path to receiving water
 Receiving water identified by company representative
 Receiving water identified from topo maps
 Receiving water identified by other means (specify):

2b. PROBABLE FLOW PATH TO RECEIVING WATER

Oil would flow into a storm sewer catch basin, flow 100 yards wouthwest into the Grand Trunk Ditch, and then into the Battle Creek River 1,000 yards west.

2c. CLIMATIC INFORMATION FROM OWNER/OPERATOR

NONE

0000239

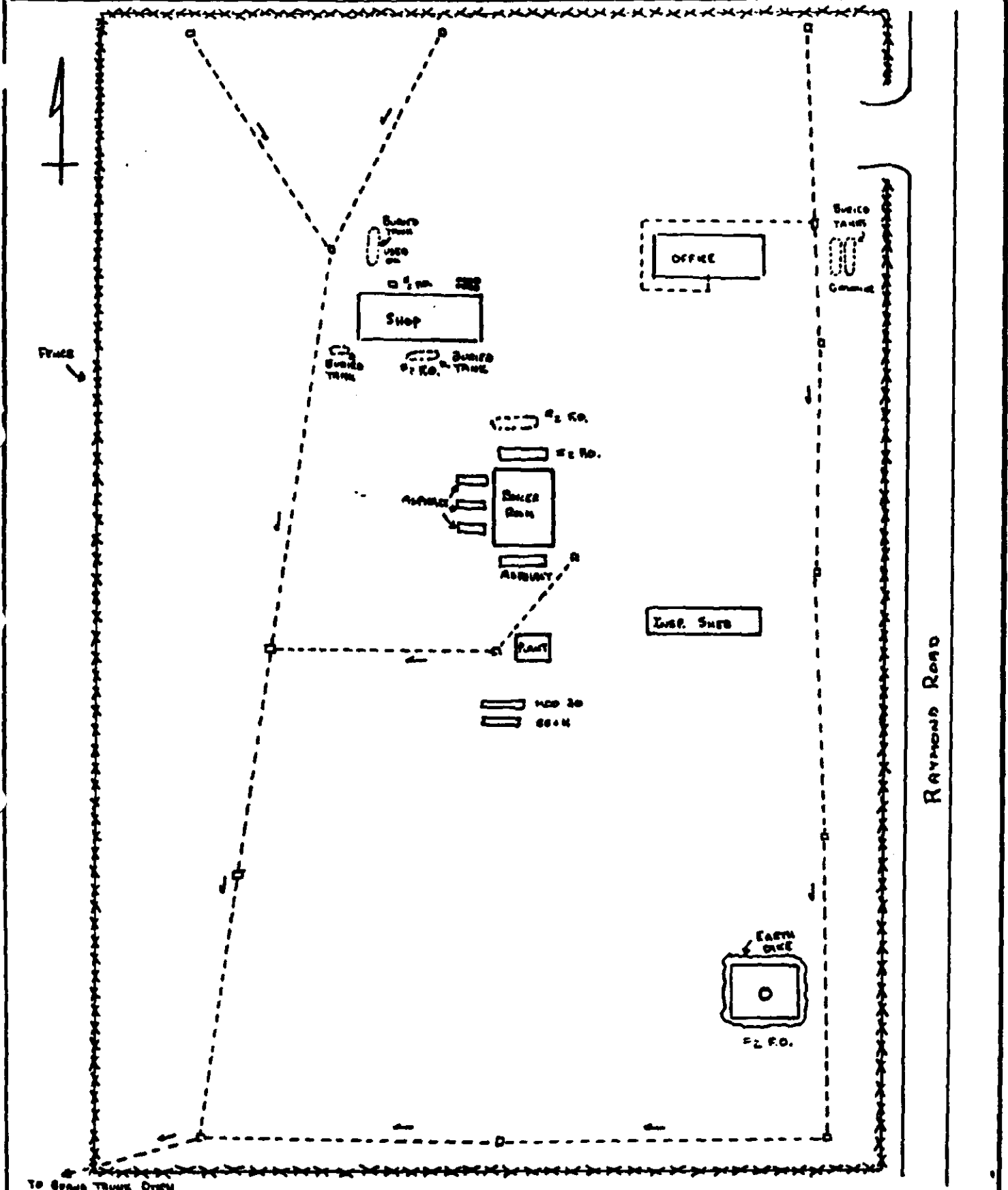
3. COMMENTS

A survey of the Rieth Riley Construction Company, Inc., indicated that any spill from the aboveground #2 Fuel Oil Tank just north of the Boiler Room or in the Drum Storage Area by the shop would flow into the storm sewer line. Inside the shop are two solvent drums used for parts cleaning; these drums are returned to the distributor for recycling. The Rieth Riley Facility was relocated by the Grand Trunk Railroad a few years back to its present location. No spills have occurred at the present location.

The vertical aboveground tank in the southeast corner of the facility is not being utilized at this time. None of the buried tanks have been tested for leaks.

0000240

6. FIELD DRAWINGS (Attach more sheets if needed, and show north arrow or other orientation)



FACILITY
RIETH RILEY CONSTRUCTION COMPANY, INC
 INSPECTOR *John W. McCune*

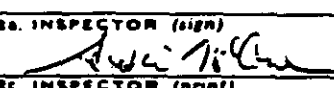
INSPECTION DATE
MARCH 10, 1982

0000241

SPCC INSPECTION FIELD SHEET

(To be completed if Spill Regulation is applicable to Facility under 40 CFR Part 112.1)

SEE INSTRUCTIONS ON REVERSE

11. NAME OF FACILITY KELLOG COMPANY		10. TYPE OF FACILITY FOOD MANUFACTURERS
12. FACILITY LOCATION 235 PORTER STREET, BATTLE CREEK, MICHIGAN 49016		25. TELEPHONE NUMBER Area Code (616) 966-2000
13. NAME OF OWNER AND/OR OPERATOR RESPONSIBLE FOR FACILITY DONALD W. THOMASON, GENERAL PLANT MANAGER		
26. MAILING ADDRESS 235 PORTER STREET, BATTLE CREEK, MICHIGAN 49016		
3. TYPES OF OIL STORED AND CAPACITY OF ABOVEGROUND AND BURIED STORAGE. SEE DETAILED SPCC DOCUMENTATION FORM		
4. IS A CERTIFIED SPCC PLAN AVAILABLE FOR INSPECTION? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		5. DATE OF INSPECTION MARCH 10, 1982
6. NAME AND REGISTRATION NUMBER OF CERTIFYING ENGINEER <input type="checkbox"/> NOT AVAILABLE L.W. SCHOTT/MICHIGAN # 09718		7. DATE SPCC PLAN WAS CERTIFIED <input type="checkbox"/> NOT AVAILABLE NOVEMBER 9, 1979
8. IS SPCC PLAN FULLY IMPLEMENTED? (Are the items called for in the Plan in the interest of spill prevention actually installed - if observed?) <input type="checkbox"/> NOT APPLICABLE ALL CONTAINMENT DEVICES AND TESTS CALLED FOR IN THE PLAN A PRESENT.		
9. NAME OF WATER BODY THAT POTENTIAL SPILL COULD ENTER; OR IF UNNAMED TRIBUTARY, THEN FIRST NAMED WATERBODY DOWNSTREAM (if known) BATTLE CREEK RIVER		
10. COMMENTS (Include comments by owner/operator - write on back or attach extra sheets if needed) A DIKE IS PRESENT AROUND THE #6 FUEL OIL TANK, AND THE DRAINS AROUND THE TWO TANK CARS ARE CLOSED AND LOCKED. ALL BURIED TANKS ARE INSPECTED ANNUALLY.		
11a. SPCC NO.	11b. CASE NO. TDD# 5-8203-2	11c. NPDES NO. <input checked="" type="checkbox"/> NOT AVAILABLE
12a. INSPECTOR (sign) 		12b. DATE march 10, 1982
12c. INSPECTOR (print) SCOTT W. McCONE		

B. SPCC INSPECTION SUMMARY SHEET

SPCC NO.	CASE NO. TDD# 5-8203-2	DATE OF INSPECTION MARCH 10, 1982
NAME OF INSPECTOR (Signature) <i>Scott W. McCone</i>		DATE OF DOCUMENTATION REPORT MARCH 15, 1982
NAME OF INSPECTOR (Print) SCOTT W. McCONE		NPDES NO. NONE

1. FACILITY

A. COMPANY KELLOG COMPANY		
ADDRESS 235 PORTER STREET		TELEPHONE (616)966-2000
CITY BATTLE CREEK	STATE MICHIGAN	ZIP CODE 49016
FACILITY NAME SAME AS ABOVE		
B. FACILITY LOCATION		

PARENT CORPORATION NONE		
ADDRESS		
CITY	STATE	ZIP CODE

C. WATER BODY PROTECTED BATTLE CREEK RIVER
--

2. PURPOSE

INITIATION: <input checked="" type="checkbox"/> Routine Surveillance <input type="checkbox"/> Coast Guard Information <input type="checkbox"/> Spill Report <input type="checkbox"/> Citizen Information <input type="checkbox"/> Other (specify):
TYPE: <input checked="" type="checkbox"/> Plan Preparation <input type="checkbox"/> Plan Implementation <input type="checkbox"/> Follow-up <input type="checkbox"/> Plan Amendment

3. INSPECTION

INDIVIDUAL CONTACTED DONALD W. THOMASON	TITLE GENERAL PLANT MANAGER
INDIVIDUAL CONTACTED	TITLE
NOTIFICATION	

4. FINDINGS

SOURCE IN APPARENT COMPLIANCE WITH SPCC REQUIREMENTS:
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Have adequate plan <input type="checkbox"/> Not subject to regulations <input type="checkbox"/> Insufficient storage <input type="checkbox"/> No reasonable spill expectation <input type="checkbox"/> Plan fully implemented <input type="checkbox"/> New facility operational less than 6 months
<input type="checkbox"/> No <input type="checkbox"/> No plan <input type="checkbox"/> Plan not properly certified <input type="checkbox"/> Plan does not have management approval <input type="checkbox"/> Plan not maintained at facility manned 8 hrs/day <input type="checkbox"/> Inadequate plan (detailed SPCC Plan review attached) <input type="checkbox"/> Plan not fully implemented <input type="checkbox"/> Plan not reviewed within 3 years
<input type="checkbox"/> Other

5. ATTACHMENTS (None required if facility in apparent compliance)

	NONE ATTACHED ALREADY ON FILE		
*Detailed Observations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
*Photographs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slides	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*Field Drawing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
*Comments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Telephone Conversations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*SPCC Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**(ALL REQUIRED IF FACILITY IS NOT IN APPARENT COMPLIANCE. If photos not permitted, check "None" and explain. Add "SPCC Plan" to List of Attachments when appropriate.)*

C. DETAILED SPCC DOCUMENTATION

SEE
INSTRUCTIONS
ON PAGE 2

FACILITY

KELLOGG COMPANY

DATE OF INSPECTION

MARCH 10, 1982

1. FACILITY DESCRIPTION

1a. TYPE OF BUSINESS/OPERATION

FOOD MANUFACTURERS

1b. FACILITY OIL STORAGE

- 4 - 23,7000 GALLON ABOVEGROUND TANK CARS FOR #6 FUEL OIL STORAGE
- 1 - 63,000 GALLON ABOVEGROUND TANK FOR #6 FUEL OIL STORAGE
- 1 - 63,000 GALLON BURIED TANK FOR #6 FUEL OIL STORAGE
- 1 - 12,000 GALLON BURIED TANK FOR GASOLINE STORAGE
- 1 - 6,000 GALLON BURIED TANK FOR DIESEL OIL STORAGE
- 2 - 10,000 GALLON ABOVEGROUND TANKS FOR EDIBLE OIL STORAGE
- 1 - 9,950 GALLON BURIED TANK FOR CRC CLEANING SOLVENT STORAGE
- 1 - 1,450 GALLON BURIED TANK FOR RECLAIMED SOLVENT STORAGE
- 210 - 55 GALLON DRUMS FOR MISCELLANEOUS OIL STORAGE

1c. PREVENTION MEASURES PROVIDED

THE ABOVEGROUND TANKS FOR #6 FUEL OIL STORAGE ARE KIKED:

THE ABOVE EDIBLE OIL STORAGE TANKS ARE LOCATED INSIDE THE MAIN BUILDING AND ANY SPILL WOULD ENTER A SANITARY SEWER LINE.

THE RAILROAD TANK CAR AND TANK TRUCK LOADING AREAS ARE CURBED AND DRAINS LEADING FROM THE AREAS ARE CLOSED AND LOCKED.

ALL BURIED TANKS ARE EMPTIED YEARLY AND INSPECTED: ALL BURIED TANKS ARE CHECKED DAILY FOR LOSSES.

1d. APPEARANCE OF FACILITY (housekeeping)

GENERAL AREAS OF THE FACILITY ARE CLEAN. DRUM STORAGE AREA SHOWS MINOR SPILLS.

1e. PAST SPILL HISTORY

NONE

2. RECEIVING WATER (Should be filled in cut)

2a. NAME AND/OR DESCRIPTION

BATTLE CREEK RIVER

- Perennial Intermittent
- Water present at time of inspection
- Inspector traced discharge to receiving water
- Inspector traced apparent drainage path to receiving water
- Receiving water identified by company representative
- Receiving water identified from topo maps
- Receiving water identified by other means (specify):

2b. PROBABLE FLOW PATH TO RECEIVING WATER

OIL WOULD FLOW INTO A 60" STORM SEWER LINE, AND FLOW NORTH 1500 YARDS INTO THE BATTLE CREEK RIVER.

2c. CLIMATIC INFORMATION FROM OWNER/OPERATOR

NONE

0000245

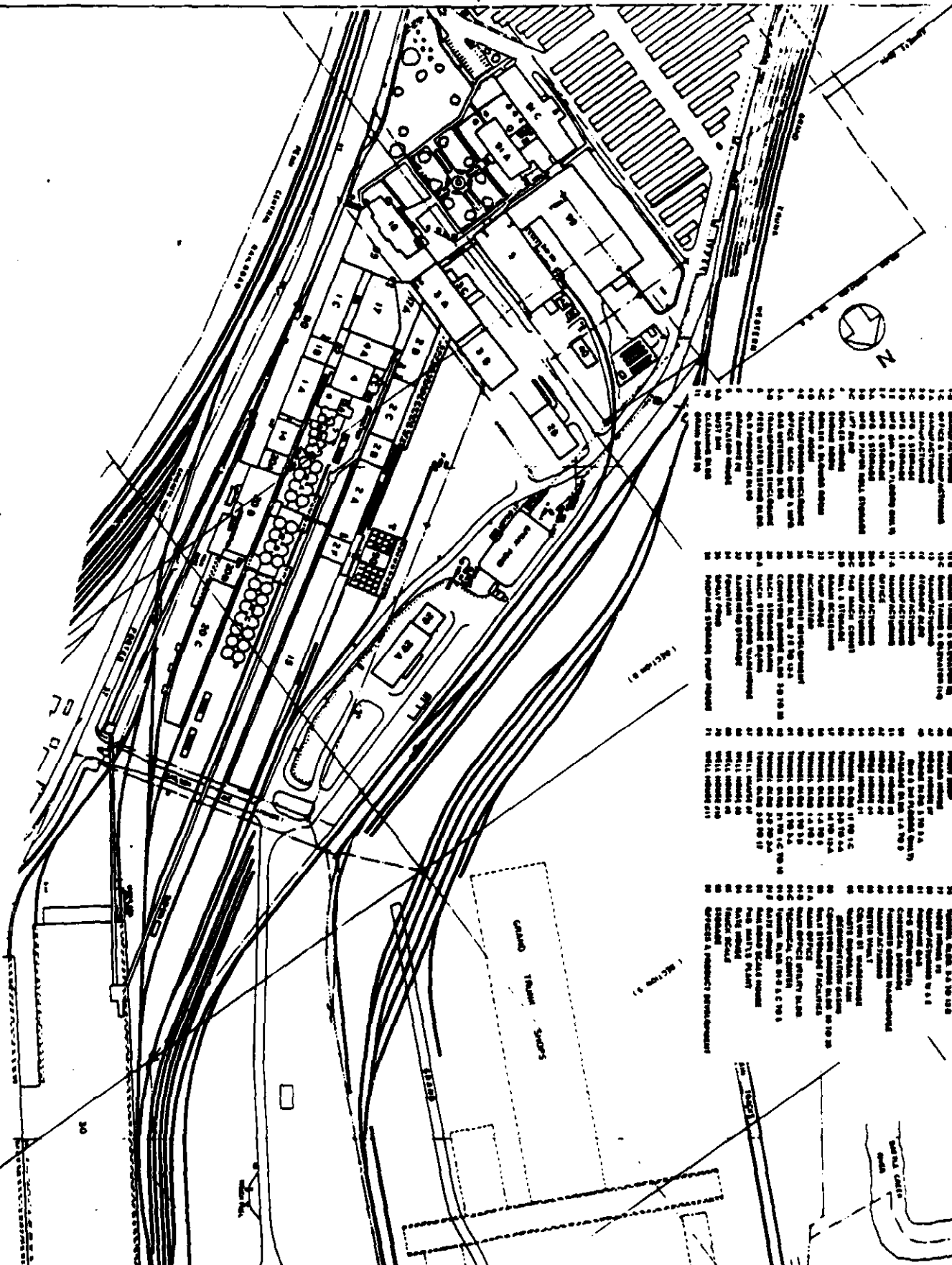
3. COMMENTS

A survey of the Kellogg Company indicated that any spill from an aboveground tank would be contained by a dike or would enter a sanitary sewer line. An leak from a buried tank would be noted during routine level checks. Any spill in the tank truck or tank car loading areas would be contained by the closed drains. Any spill from a 55 gallon drum would be contained in the drum storage area.

A review of the SPCC Plan disclosed that a number of transformers and capacitors were listed since they contained PCB. These have been replaced but the plan has not been updated.

0000246

6. FIELD DRAWINGS (Attach more sheets if needed, and show north arrow or other orientation)



- 1. Structural steel
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FACILITY
KELLOGG COMPANY

INSPECTION DATE
MARCH 10, 1982

INSPECTOR
John W. Coe

A. SPCC INSPECTION FIELD SHEET
 (To be completed if SPCC Regulation is applicable to Facility - see 40CFR Part 112.1.)

SEE
INSTRUCTIONS
ON REVERSE

18. NAME OF FACILITY Thomas Solvent Company	19. TYPE OF FACILITY Bulk-Chemical Packaging
---	--

20. FACILITY LOCATION
1180 Raymond Road - Battle Creek, Michigan 49016

20. NAME OF OWNER AND/OR OPERATOR RESPONSIBLE FOR FACILITY Richard Thomas, Owner	21. TELEPHONE NUMBER Area Code (616) 963-5565
--	--

22. MAILING ADDRESS
P.O. Box 44, Battle Creek, Michigan 49016

23. TYPES OF OIL STORED AND CAPACITY OF ABOVEGROUND AND BURIED STORAGE.
**Aromatic and aliphatic solvents
 Industrial Chemicals
 The owner did not itemize his tanks or give capacities for them.
 All of the tanks except one empty vertical tank are underground.**

24. IS A CERTIFIED SPCC PLAN AVAILABLE FOR INSPECTION? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	25. DATE OF INSPECTION February 8, 1982
--	---

26. NAME AND REGISTRATION NUMBER OF CERTIFYING ENGINEER <input checked="" type="checkbox"/> NOT AVAILABLE	27. DATE SPCC PLAN WAS CERTIFIED <input checked="" type="checkbox"/> NOT AVAILABLE
---	--

28. IS SPCC PLAN FULLY IMPLEMENTED? (Are the items called for in the Plan in the interest of spill prevention actually installed - if observable?)
 NOT APPLICABLE
Buckets to contain connection spillage

29. NAME OF WATER BODY THAT POTENTIAL SPILL COULD ENTER; OR IF UNNAMED TRIBUTARY, THEN FIRST NAMED WATERBODY DOWNSTREAM (if known)
City storm drain system to Battle Creek River

30. COMMENTS (Include comments by owner/operator - write on back or attach extra sheets if needed)
The owner stated that his Environmental Engineer, Ron Byersmith, was preparing a Michigan PIP Plan, which may qualify as a SPCC Plan.

31A. SPCC NO.	31B. CASE NO. 5-8201-1	31C. NPDES NO. <input type="checkbox"/> NOT AVAILABLE
---------------	----------------------------------	---

32A. INSPECTOR (sign) <i>Jerome Kelly</i>	32B. DATE February 8, 1982
--	--------------------------------------

32C. INSPECTOR (PRINT)
Jerome Kelly

B. SPCC INSPECTION SUMMARY SHEET

SPCC NO.	CASE NO. 5-8201-1	DATE OF INSPECTION February 8, 1982
NAME OF INSPECTOR (Signature) <i>Jerome Kelly</i>		DATE OF DOCUMENTATION REPORT February 8, 1982
NAME OF INSPECTOR (Print) Jerome Kelly		NPDES NO.

1. FACILITY		
a. COMPANY Thomas Solvent Company		
ADDRESS 1180 Raymond Road		TELEPHONE (616) 963-5565
CITY Battle Creek	STATE Michigan	ZIP CODE 49016
FACILITY NAME Same as above		
b. FACILITY LOCATION Same as above		
PARENT CORPORATION Same as above		
ADDRESS		
CITY	STATE	ZIP CODE
c. WATER BODY PROTECTED Battle Creek River		

2. PURPOSE	
INITIATION: <input checked="" type="checkbox"/> Routine Surveillance <input type="checkbox"/> Coast Guard Information <input type="checkbox"/> Spill Report <input type="checkbox"/> Citizen Information <input type="checkbox"/> Other (specify):	
TYPE: <input checked="" type="checkbox"/> Plan Preparation <input checked="" type="checkbox"/> Plan Implementation <input type="checkbox"/> Follow-up <input type="checkbox"/> Plan Amendment	

3. INSPECTION	
INDIVIDUAL CONTACTED Richard Thomas	TITLE President
INDIVIDUAL CONTACTED	TITLE

NOTIFICATION

<p align="center">4. FINDINGS</p> <p>SOURCE IN APPARENT COMPLIANCE WITH SPCC REQUIREMENTS:</p> <p><input type="checkbox"/> Yes</p> <ul style="list-style-type: none"> <input type="checkbox"/> Have adequate plan <input type="checkbox"/> Not subject to regulations <ul style="list-style-type: none"> <input type="checkbox"/> Insufficient storage <input type="checkbox"/> No reasonable spill expectation <input type="checkbox"/> Plan fully implemented <input type="checkbox"/> New facility operational less than 6 months <p><input checked="" type="checkbox"/> No</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> No plan <input type="checkbox"/> Plan not properly certified <input type="checkbox"/> Plan does not have management approval <input type="checkbox"/> Plan not maintained at facility manned 8 hrs/day <input type="checkbox"/> Inadequate plan (detailed SPCC Plan review attached) <input type="checkbox"/> Plan not fully implemented <input type="checkbox"/> Plan not reviewed within 3 years <p><input type="checkbox"/> Other</p>	<p align="center">5. ATTACHMENTS (None required if facility in apparent compliance)</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td align="center" colspan="2">NONE ATTACHED</td> <td align="center" colspan="2">ALREADY ON FILE</td> </tr> <tr> <td>*Detailed Observations</td> <td align="center"><input type="checkbox"/></td> <td align="center"><input checked="" type="checkbox"/></td> <td align="center" colspan="2">On A Sheet <input type="checkbox"/></td> </tr> <tr> <td>*Photographs</td> <td align="center"><input checked="" type="checkbox"/></td> <td align="center"><input type="checkbox"/></td> <td align="center" colspan="2"><input type="checkbox"/></td> </tr> <tr> <td>Slides</td> <td align="center"><input checked="" type="checkbox"/></td> <td align="center"><input type="checkbox"/></td> <td align="center" colspan="2"><input type="checkbox"/></td> </tr> <tr> <td>Map</td> <td align="center"><input checked="" type="checkbox"/></td> <td align="center"><input type="checkbox"/></td> <td align="center" colspan="2"><input type="checkbox"/></td> </tr> <tr> <td>*Field Drawing</td> <td align="center"><input checked="" type="checkbox"/></td> <td align="center"><input type="checkbox"/></td> <td align="center" colspan="2">On A Sheet <input type="checkbox"/></td> </tr> <tr> <td>*Comments</td> <td align="center"><input type="checkbox"/></td> <td align="center"><input type="checkbox"/></td> <td align="center" colspan="2"><input type="checkbox"/></td> </tr> <tr> <td>Telephone Conversations</td> <td align="center"><input checked="" type="checkbox"/></td> <td align="center"><input type="checkbox"/></td> <td align="center" colspan="2"><input type="checkbox"/></td> </tr> <tr> <td>*SPCC Plan</td> <td align="center"><input checked="" type="checkbox"/></td> <td align="center"><input type="checkbox"/></td> <td align="center" colspan="2"><input type="checkbox"/></td> </tr> </table> <p><i>*(ALL REQUIRED IF FACILITY IS NOT IN APPARENT COMPLIANCE. If photos not permitted, check "None" and explain. Add "SPCC Plan" to List of Attachments when appropriate.)</i></p>		NONE ATTACHED		ALREADY ON FILE		*Detailed Observations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	On A Sheet <input type="checkbox"/>		*Photographs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Slides	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		*Field Drawing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	On A Sheet <input type="checkbox"/>		*Comments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Telephone Conversations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		*SPCC Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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*SPCC Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																											

MAR 08 1982

SULLIVAN, HAMILTON, RYAN & SCHULZ RECEIVED

ATTORNEYS AT LAW

200 GREAT LAKES FEDERAL SAVINGS & LOAN BLDG

BATTLE CREEK, MICHIGAN 49017

AREA CODE 616

TELEPHONE 868-3210

MAR 2 1982

RONALD M. RYAN
OF COUNSEL

JAMES M. SULLIVAN
ROBERT P. HAMILTON
DAVID K. RYAN
BERT W. SCHULZ

March 1, 1982

ENVIRONMENTAL ENFORCEMENT
DIVISION

Mr. Jack D. Bails, Chief
Environmental Enforcement Division
Department of Natural Resources
Stevens T. Mason Building
Box 30028
Lansing, Michigan 48909

Dear Mr. Bails:

RE: Thomas Solvent Company

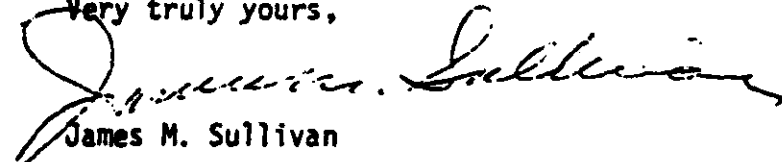
We represent Thomas Solvent Company of this City. This letter is written in response to your letter of January 26, 1982, in accordance with understandings reached at our meeting in Lansing on January 23, 1982.

Enclosed herewith is a Pollution Incident Prevention Plan prepared and submitted on behalf of Thomas Solvent Company. We trust that this plan will meet with the approval of the Department. We will proceed with the implementation of the plan as stated upon receipt of notification of approval of the plan. If changes are required, please let us know.

With respect to further exploration concerning contamination in the dock area at the railroad spur facility leased by the Company from the Canadian National Railroad, we are proceeding as follows: We have conferred with Keck Consulting Service with regard to that item. Our present plan is to do some soil sampling and testing in the area recently tested by the DNR for comparison purposes. We also intend to sample some adjacent areas to determine, if possible, the extent and, to some degree, the source of soil contamination.

Because of the fact that the EPA plans very shortly to do rather extensive hydrogeological testing in this general vicinity, we would prefer to defer any such testing on our part. It would be a waste of money and energy to duplicate their efforts. Accordingly, we will be most interested in any information you can give us with regard to their plans and progress and, of course, results. We feel this information would be essential for the design of future testing by us.

Very truly yours,


James M. Sullivan

JMS/sje
Enclosure

RL: LRP
Iverson

0000250

BATTLE CREEK

UTILITY SHED
(WOOD)

22

23

LOADING
RACK

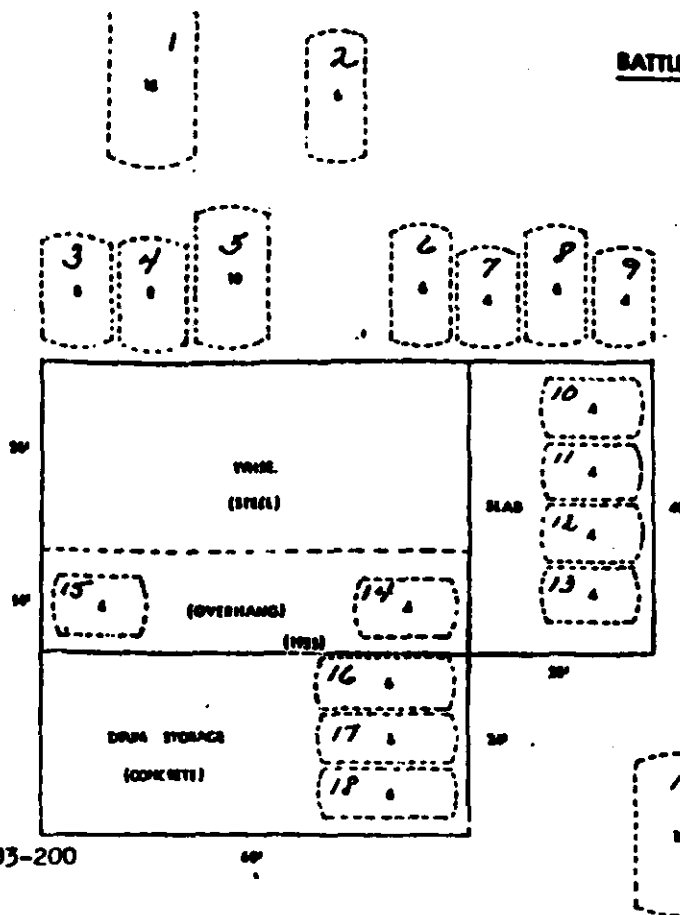
24
20

LEADS FROM
GRAND TRUNK R.E.

1. Hi-Purity Hexane
2. Ethyl Acetate 99%
3. Xylene
4. Acetone
5. Toluene
6. Trichlorethylene
7. Perchloroethylene
8. 1-1-1 Trichloroethane
9. TS-100 Solvent
10. Methyl Ethyl Ketone
11. Methanol
12. VMP Naptha
13. 310-66 Mineral Spirits

HARD
SURFACE RD.

14. Ethyl Alcohol 903-200
15. 140F Solvent
16. Heptane
17. N. Propyl Acetate
18. Isopropyl Alcohol 99%
19. Mineral Spirits
20. Diesel Fuel
21. Reclaimed Acetone
22. Odorless Mineral Spirits
23. Odorless Mineral Spirits
24. Empty - Not Used.



FOIL
BLDG.
(CONCRETE)

CORPORATE
OFFICE

0000251

SECRET - CAL - CAP - ASOCY - OFFICE
SECRET - CAL - CAP - ASOCY - OFFICE



SOLVENTS CHEMICALS
SOLVENT REPROCESSING
LIQUID WASTE DISPOSAL

BATTLE CREEK, MICH. 49018
P.O. BOX 44, (616) 963-5565

MUSKEGON, MICH. 49443
P.O. BOX 51, (616) 777-2619

ROMULUS, MICH. (DET.) 48174
P.O. BOX 422, (313) 484-1580

FORT WAYNE, IND. 46825
5805 PLANEVIEW DR., (219) 482 9638

**THOMAS SOLVENT COMPANY
SUPPLEMENT PRICE SCHEDULE**

<u>Aromatic Solvents</u>		<u>T/W</u>	<u>T/L Drums</u>
Toluene	Gal.	1.68	1.86
Xylene	Gal.	1.68	1.86
TS-100	Gal.	1.88	2.01
TS-150	Gal.	1.90	2.03
<u>Aliphatic Solvents</u>			
Hexane, Hi-Purity	Gal.	1.89	2.10
Hexane	Gal.	1.75	1.93
Heptane	Gal.	1.67	1.90
Kerosene (Industrial)	Gal.	1.55	1.65
Lacquer Dilutent-LD Naptha	Gal.	1.65	1.88
Mineral Seal Oil	Gal.	1.55	1.75
Mineral Spirits	Gal.	1.45	1.68
Mineral Spirits 66	Gal.	1.50	1.73
Mineral Spirits Odorless	Gal.	2.17	2.35
Mineral Spirits LEP	Gal.	1.71	1.91
140F Solvent	Gal.	1.72	1.90
Odorless 450-LOPS	Gal.	1.71	1.85
Petroleum Ether			
Rubber Solvent	Gal.	1.85	2.03
Textile Spirits	Gal.	1.83	2.01
VM&P 66	Gal.	1.76	1.94
VM&P Hi Flash 80°F	Gal.	1.93	1.94
VM&P 260 H & F	Gal.	1.93	2.13
Naptha 205°F	Gal.	1.55	1.73

All \$20.00 Drum Deposit

L/T/L Drum Schedule

10 - 39 add 10¢
3 - 9 add 22¢
1 - 2 add 44¢

Above prices do NOT include Superfund Tax Liability. This tax will be billed as a separate line item on products subject to the tax.

April, 1981

0000252



SOLVENT COMPANY

SOLVENTS CHEMICALS
 SOLVENT REPROCESSING
 LIQUID WASTE DISPOSAL

BATTLE CREEK, MICH. 49016
 P.O. BOX 44, (616) 963-5565

MUSKEGON, MICH. 49443
 P.O. BOX 51, (616) 777-2619

ROMULUS, MICH. (DET.) 48174
 P.O. BOX 422, (313) 484-1580

FORT WAYNE, IND. 46825
 5605 PLANEVIEW DR., (219) 482-9638

**THOMAS SOLVENT COMPANY
SUPPLEMENT PRICE SCHEDULE**

Alcohols

		<u>T/T</u>	<u>T/L Drums</u>
Butyl Alcohol N.	Lb.	.35	.43
Isobutyl Alcohol	Lb.	.30	.38
Isopropyl Alcohol 99%	Gal.	2.05	2.60
Isopropyl Alcohol 91%	Gal.	1.86	2.40
Methanol	Gal.	.95	1.48
Propyl Alcohol N.	Lb.	.42	.49
Ethyl Alcohol Reg. 590-190	Gal.	1.855	2.37
Ethyl Alcohol Reg. 903-190	Gal.	1.83	2.35
Ethyl Alcohol Anhy. 590-200	Gal.	1.975	2.49
Ethyl Alcohol Anhy. 903-200	Gal.	1.95	2.47
Duplicating Fluid-WM-52-200	Gal.	1.91	2.42

Esters

Ethyl Acetate 85%	Lb.	.39	.46
Ethyl Acetate 99%	Lb.	.395	.47
Isopropyl Acetate	Lb.	.405	.48
N. Propyl Acetate	Lb.	.465	.54
Isobutyl Acetate	Lb.	.415	.49
N. Butyl Acetate	Lb.	.415	.49
EE Acetate	Lb.	.52	.59

Ketones

Acetone	Lb.	.27	.34
Methyl Ethyl Ketone	Lb.	.42	.49
Methyl Isobutyl Ketone	Lb.	.47	.54
Diisobutyl Ketone	Lb.	.52	.59
Diacetone Alcohol AF	Lb.	.50	.57
Cyclohexanone	Lb.	.61	.68
Methyl Isoamyl Ketone	Lb.	.48	.55
Di Methyl Formamide DMF	Lb.	.59	.67
Isophorone	Lb.	.74	.81

Drums included in above prices.

<u>Gal.</u>	<u>L/T/L Drum Schedule</u>	<u>Lb.</u>
10 - 39 add 10¢		10 - 39 add 2¢
3 - 9 add 22¢		3 - 9 add 4¢
1 - 2 add 45¢		1 - 2 add 8¢

Above prices do NOT include Superfund Tax Liability. This tax will be billed as a separate line item on products subject to the tax.
 April, 1981

0000253



SOLVENT COMPANY

SOLVENTS CHEMICALS
SOLVENT REPROCESSING
LIQUID WASTE DISPOSAL

BATTLE CREEK, MICH. 49016
P.O. BOX 44, (616) 963-5585

MUSKEGON, MICH. 49643
P.O. BOX 51, (616) 777-2619

ROMULUS, MICH. (DET.) 48174
P.O. BOX 422, (313) 484-1580

FORT WAYNE, IND. 46825
5805 PLANEVIEW DR., (219) 482-9638

**THOMAS SOLVENT COMPANY
SUPPLEMENT PRICE SCHEDULE**

<u>Glycols</u>		<u>T/T</u>	<u>T/L Drums</u>
Ethylene Glycol	Lb.	.37 (.40-3¢ TVA)	.44
Diethylene Glycol	Lb.	.315	.39
Propylene Glycol, Ind.**	Lb.	.44	.51
Propylene Glycol, USP **	Lb.	.47	.54
Dipropylene Glycol **	Lb.	.44	.51
Hexylene Glycol **	Lb.	.60	.68
Triethylene Glycol	Lb.	.53	.60

Glycol Ethers

Poly-Solv EM	Lb.	.49	.56
Poly-Solv EE	Lb.	.48 (.52-4¢ TVA)	.57
Poly-Solv EB	Lb.	.48 (.52-4¢ TVA)	.55
Poly-Solv DM	Lb.	.51	.58
Poly-Solv DE	Lb.	.53	.60
Poly-Solv DB	Lb.	.54	.61

Chlorinated Solvents

Carbon Tetrachloride	Lb.		.25
Ethylene Dichloride	Lb.		.35
Methylene Chloride	Lb.	.3050	.3550
Perchlorethylene	Lb.	.24	.29
Trichlorethylene	Lb.	.28	.33
1-1-1 Trichloroethane	Lb.	.32	.37
Propylene Dichloride	Lb.	*	

*Prices on Request
**1¢/Lb. Higher Factory Packed Drums.
Drums included in above prices.

L/T/L Drum Schedule

10 - 39 add 2¢
3 - 9 add 4¢
1 - 2 add 8¢

Above prices do NOT include Superfund Tax Liability. This tax will be billed as a separate line item on products subject to the tax.

April, 1981

0000254



SOLVENTS CHEMICALS
SOLVENT REPROCESSING
LIQUID WASTE DISPOSAL

BATTLE CREEK, MICH. 49018
P.O. BOX 44, (616) 963-5565

MUSKEGON, MICH. 49443
P.O. BOX 51, (616) 777-2618

ROMULUS, MICH. (DET.) 48174
P.O. BOX 422, (313) 484-1580

FORT WAYNE, IND. 46825
5605 PLANEVIEW DR., (219) 482-9638

**THOMAS SOLVENT COMPANY
SUPPLEMENT PRICE SCHEDULE**

<u>Amines</u>		<u>T/T</u>	<u>T/L Drums</u>
Diethanolamine (DEA)**	Lb.	.515	{ .555-4¢ TVA } .585
Monoethanolamine (MEA)**	Lb.	.505	{ .545-4¢ TVA } .575
Triethanolamine 85% (TEA)**	Lb.	.525	{ .565-4¢ TVA } .595
Triethanolamine 99% (TEA)**	Lb.	.525	{ .585-6¢ TVA } .595
Morpholine**	Lb.	1.02	1.10
N. Methyl Morpholine**	Lb.		2.73
Diglycolamine **	Lb.	.85	.93

Surfactants

Surfonic N-40**	Lb.	.55	.62
Surfonic N-60**	Lb.	.55	.62
Surfonic N-95**	Lb.	.5275	.5975
Surfonic N-120**	Lb.	.5275	.5975
Surfonic LF-7 **	Lb.	.715	.785
Surfonic LF-17**	Lb.	.715	.785
Surfonic J-4 **	Lb.	.565	.635

Caustic Soda

Flake	Lb.		.2550
Beads	Lb.		.2550
Ground	Lb.		
Liquid 50%		*	

*Prices on Request.

**1¢/Lb. Higher Factory Packed Drums.
Drums included in above prices.

L/T/L Drum Schedule

10 - 39 add 2¢
3 - 9 add 4¢
1 - 2 add 8¢

Above prices do NOT include Superfund Tax Liability. This tax will be billed as a separate line item on products subject to the tax.

April, 1981

0000255



SOLVENT COMPANY

SOLVENTS CHEMICALS
SOLVENT REPROCESSING
LIQUID WASTE DISPOSAL

BATTLE CREEK, MICH. 49018
P.O. BOX 44, (616) 963-5566

MUSKEGON, MICH. 49443
P.O. BOX 51, (616) 777-2619

ROMULUS, MICH. (DET.) 48174
P.O. BOX 422, (313) 484-1580

FORT WAYNE, IND. 46825
5805 PLANEVIEW DR., (219) 482-9638

THOMAS SOLVENT COMPANY
SUPPLEMENT PRICE SCHEDULE

<u>Plasticizers</u>		<u>T/T</u>	<u>T/L Drums</u>
Diocetyl Phthalate (DOP)	Lb.	.50	.57
Dibutyl Phthalate (DBP)	Lb.	.56	.63
Di-Iso-Decyl Phthalate (DIDP)	Lb.	.515	.585
Di-2 Ethyhexyl Adipate (DOA)	Lb.	.70	.77

Other Chemicals

Formaldehyde 37%			
7-8% Methanol	Lb.		.1775
12-15% Methanol	Lb.		.1875
Ni-Par S-20	Lb.	.395	.465
Ni-Par S-30	Lb.	.395	.465
N. Methyl 2 Pyrrolidone	Lb.	1.18	1.29
Styrene Monomer	Lb.	.44	.52
Tetrahydrofuran (THF)	Lb.	.8850	1.02
Ethylene Carbonate	Lb.		.83
Propylene Carbonate	Lb.		.83
Nonylphenol		*	
Epoxy Curing Agents		*	
Industrial Coolants		*	

Cold Cleaning Solvents

Electric Cleaner	Gal.	4.23
CS-100 Cold Cleaner	Gal.	3.10
No. 49 Cold Cleaner	Gal.	2.80
CS-50 Cold Cleaner	Gal.	4.25

*Prices on Request.

Drums included in above prices.

<u>Gal.</u>	<u>L/T/L Drum Schedule</u>	<u>Lb.</u>
10 - 39 add 15¢		10 - 39 add 2¢
3 - 9 add 40¢		3 - 9 add 4¢
1 - 2 add 75¢		1 - 2 add 8¢

Above prices do NOT include Superfund Tax Liability. This tax will be billed as a separate line item on products subject to the tax.



SOLVENTS CHEMICALS
SOLVENT REPROCESSING
LIQUID WASTE DISPOSAL

BATTLE CREEK, MICH. 49016
P.O. BOX 44, (616) 963-5565

MUSKEGON, MICH. 49443
P.O. BOX 51, (616) 777-2619

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P.O. BOX 422, (313) 484-1580

FORT WAYNE, IND. 46825
5605 PLANEVIEW DR., (219) 482 9638

**THOMAS SOLVENT COMPANY
SUPPLEMENT PRICE SCHEDULE**

**Thinners, Mask Wash
Solvents**

T/T

T/L Drums

Roller Wash TS-65	Gal.	2.40
Type Wash	Gal.	2.50
Lacquer Thinner D-1010	Gal.	2.96
Lacquer Thinner D-1024	Gal.	2.92
Lacquer Thinner D-1030	Gal.	2.74
#8 Mask Wash	Gal.	1.90
Rerun Thinner	Gal.	1.40
Rerun Acetone	Gal.	1.50
Reclaimed Chlorinated	Gal.	2.35
178 Thinner	Gal.	3.06
D-990 Thinner	Gal.	3.04
Silk Screen Thinner	Gal.	2.90
Acrylic Lacquer Thinner	Gal.	3.40
Stripper	Gal.	7.00
Specialty Ink Solvent Blends		*

*Prices on Request.

Drums included in above prices.

L/T/L Drum Schedule

10 - 39 add 10¢
3 - 9 add 25¢
1 - 2 add 48¢

Above prices do NOT include Superfund Tax Liability. This tax will be billed as a separate line item on products subject to the tax.

0000257

April, 1981

Appendix G
Future U.S.G.S. Groundwater Model



United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
6520 Mercantile Way, Suite 5
Lansing, Michigan 48910-7994

March 4, 1982

Mr. Larry A. Osborn
Public Utilities Engineer
City of Battle Creek
Room 101, City Hall
Battle Creek, Michigan 49014

Dear Larry:

Attached is a draft of the proposed ground-water modeling project for the Battle Creek area. It is based on what we know at this time about the distribution of contaminants in the system. We have given an end date of September 30, although decision making information will be available well in advance of that date.

Within the next month or so a letter type bill for \$32,000.00 will be sent to you (or whomever you wish) by Dennis Adams, Chief of the Office of Budget & Federal Aid, Michigan Department of Natural Resources. Your check should be sent to him, made payable to the State of Michigan, as soon as possible thereafter as our cooperative funds are about exhausted. We will include this project in the next cooperative agreement we sign with the State.

Any questions let me know.

Sincerely yours,

T. Ray Cummings
District Chief

TRC/p

0000259

DRAFT

Project Proposal
for
Ground-Water Model of Battle Creek, Michigan

GENERAL INFORMATION

Battle Creek is in Calhoun County in the southwestern part of Michigan. It lies on the Kalamazoo and Battle Creek Rivers and has a population of 36,000. Altitude of the land surface ranges from 800 to 950 feet. Average annual precipitation is 34 inches. The area is underlain by the Marshall Formation of Mississippian age and glacial deposits. A study of the water resources of the area was done by Vanlier (1966).

The public water supply of the City of Battle Creek is from wells tapping sandstone in the Marshall Formation. The well field, called the Verona field, consists of about 30 wells located on each side of Battle Creek River on the northeast edge of the city. The wells are 110 to 150 feet deep and have yields ranging from 300 to 1,000 gal/min. In 1981, a total of 1,000 to 12,000 gal/min were pumped from several wells near the center of the field to supply the municipal water system. Under natural conditions, ground water flows from the vicinity of the Verona well field to Battle Creek River. Under a continuous pumping stress averaging 6,000 gal/min, however, Vanlier (1966) found that a cone of depression 2 to 4 feet deep develops in the vicinity of the pumping wells, and that ground water is drawn to the wells from the river.

In 1981, Cis-1,2 dichloroethylene in concentrations as great as 3,900 $\mu\text{g/l}$ was found in water from a domestic well just south of the Verona field. Other substances--1,1 and 1,2 dichloroethane, 1,1,1 trichloroethane, 1,1 and 1,2 dichloroethylene, trichloroethylene, perchloroethylene, 1,2 dichloropropane, methyl chloride, and vinyl chloride--have also been detected. Water from several wells in the southern part of the field contain some of these contaminants.

0000260

In an attempt to contain the contaminants, the city converted two supply wells to purge wells and began pumping water to waste at the rate of 2,000 gal/min. Recently, contaminants have been found in industrial ground-water supplies--at the Kellogg Company and at General Foods.

The State of Michigan and the U.S. Environmental Protection Agency are currently engaged in efforts to determine the source or sources of the organic contaminants. Wells are being drilled, and samples of water and soil analyzed.

PROBLEM

Movement of ground water in the Battle Creek area is not understood in sufficient detail to permit accurate predictions of contaminant movement, nor to develop and evaluate remedial plans. It is not certain that present purge pumping serves the intended purpose; acceleration of contaminants to the well field may be occurring. Further, it is impossible to determine which water supply wells should currently be operated, and operated in the future, to prevent more extensive contamination of the Verona field. Alternative purging schemes near sources of contamination cannot be developed and evaluated.

OBJECTIVE

- (1) To develop a mathematical model of ground-water hydraulics of the Verona well field and surrounding area.
- (2) To determine the effect that current water supply pumping has on the direction and rate of natural ground-water flow, and how changes in the quantity and location of pumping effect flow.
- (3) To determine the most appropriate pumping pattern to assure minimum impact of existing contamination in the well field.
- (4) To evaluate hydrologically suitable locations for installing purge wells if needed.

APPROACH

(1) The project will require six months, beginning April 1, 1982 and ending September 30, 1982.

(2) Data in files of the city, state agencies, and the U.S. Geological Survey will be assembled and evaluated. This includes, but is not limited to, the following:

- (a) Water-level data
- (b) Pumpage data from supply wells in the Verona field, including information on past changes in pumping patterns.
- (c) Pumping tests conducted in the Verona field.
- (d) Information on pumpage of wells outside the project area.
- (e) Information on the altitude of the shale surface underlying the aquifer.
- (f) Information on characteristics of glacial deposits.
- (g) Information on the occurrence of organic contaminants to aid in documenting the direction of ground-water flow.

(3) Develop and calibrate a flow model of the Verona field and surrounding area. The model will encompass a 6 by 6-mile area; a 2-dimensional format will be used. A preliminary model will be developed using existing data. Results from this model will guide subsequent data collection.

(4) Drill approximately 20 2-inch diameter wells at selected locations to obtain lithologic and water level data. Most of these wells will be necessary in areas where no water quality data needs to be collected, or to provide more detailed information on the well field.

(5) To support model development, measure water-levels periodically in existing domestic, city, and industrial wells. Water levels will also be measured in wells drilled by the U.S. Environmental Protection Agency, the State of Michigan, and the Geological Survey.

(6) Periodically measure discharge of the Battle Creek River upstream and downstream from the project area.

REPORT PLANS

Results of the investigation will be issued in an open-file interpretative report, although preliminary information will be made available on a continuing basis to the City of Battle Creek. Development and calibration of the model, and model simulations under varying conditions of pumping, will be discussed. Maps and cross sections resulting from different model simulations will be included. The report will also contain tables listing and summarizing data.

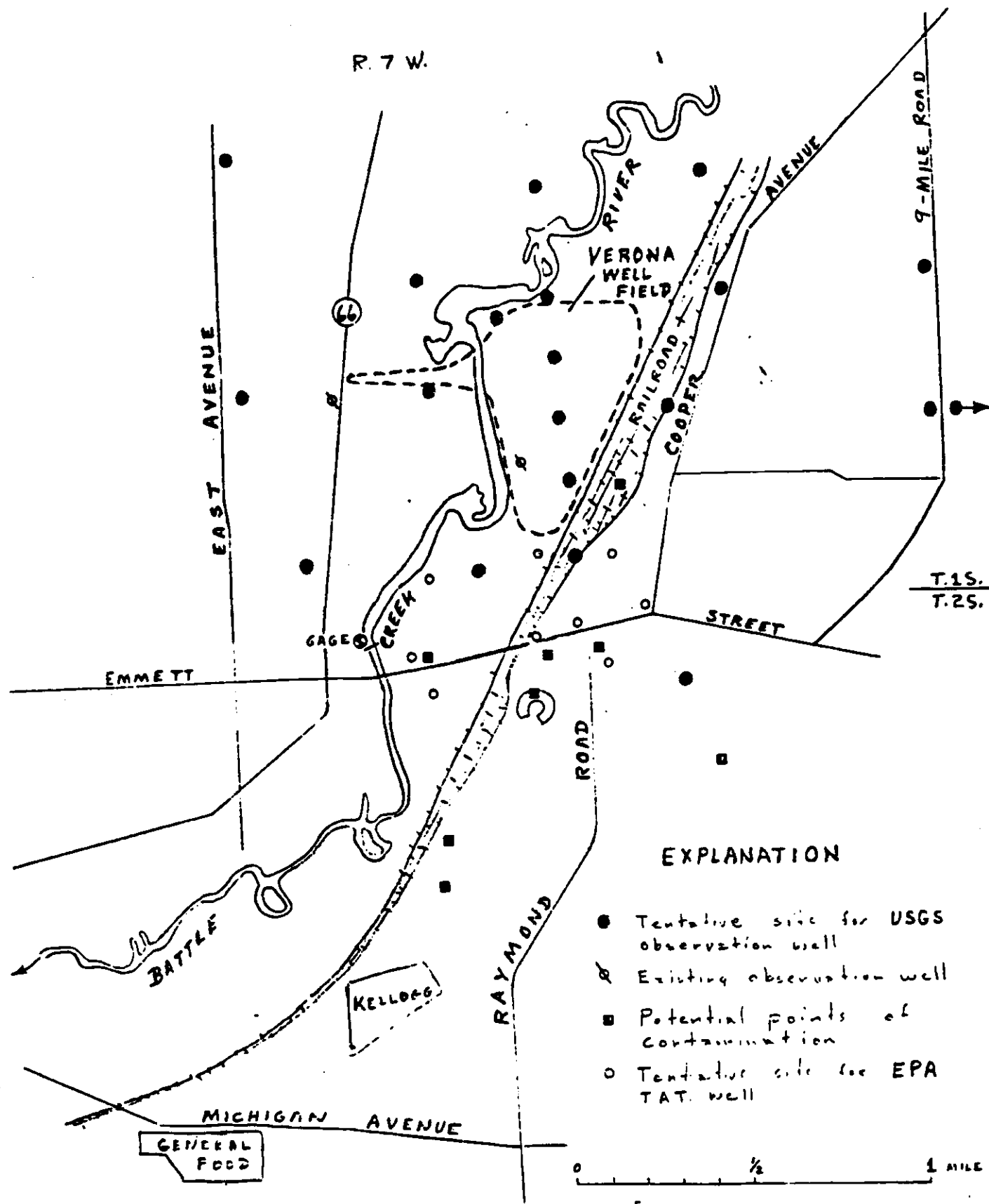
FUNDING

The following costs are based on a six-month project.

	<u>1982 FY</u>
(1) Inventory of wells and test holes	2,000
(2) Drilling about 20 2-inch wells for geologic and hydrologic information	9,000
(3) Supervision of well drilling and contract preparation	2,000
(4) Establishment and maintenance of observation well network; measurement of water levels	9,000
(5) Discharge measurements on Battle Creek River	2,000
(6) Equipment and supplies	1,000
(7) Compilation of data on ground water & geology	3,000
(8) Analysis and interpretation of data	15,000
(9) Development of computer-based digital model	16,000
(10) Preparation of report	5,000
	<hr/>
Total	\$64,000
Cooperator Share	32,000

REFERENCES

VanLier, K. E., 1966, Ground-water resources of the Battle Creek area, Michigan: Michigan Geological Survey Water Investigation 4, 52 p., 19 figs., 2 refs.



0000266

Appendix I
Emergency Action Plan

0000267

EMERGENCY ACTION PLAN

CITY OF BATTLE CREEK
Verona Station

T1S R7W, Sec. 32, E $\frac{1}{2}$

Pennfield Twp.
Calhoun Co., Mich.

prepared by:
Water Quality Division
Mich. Dept. of Natural Resources
November 1981

0000266

I Site Summary

In September 1981 the Michigan Department of Public Health detected chlorinated hydrocarbons in residential tap water in Battle Creek. The hydrocarbons were traced to Verona Station, the municipal well field. Contaminants found in municipal wells included:

- '1. Trichloroethane - up to 99 ppb.
2. cis-1,2 dichloroethylene - up to 79 ppb.
- '3. Trichloroethylene (TCE) - up to 34 ppb.
- '4. Perchloroethylene - up to 44 ppb.
- '5. 1,1 Dichloroethane - up to 12 ppm. 12,000 ppb
- '6. 1,2 Dichloroethane - 3 ppb.
7. 1,1 Dichloroethylene - 5 ppb.

Also, at least ten private and non-community supply wells up gradient from Verona Station are contaminated. Cis-1,2 dichloroethylene as high as 3,900 ppb has been found in one private well. Complete laboratory data is attached.

[The City of Battle Creek has one well field with thirty wells. Ten of these wells are known to be contaminated. These ten wells are no longer in service because of the contamination. The well field is located in the E $\frac{1}{2}$ of Section 32, T1S, R7W, Pennfield Township, Calhoun County, Michigan. The population served by this field is about 40,000. The water needs of the community are being met.

There are, at this time, three suspected sources of the contamination:

1. Thomas Solvents (active).
2. Raymond Road Landfill (active).
3. Settling ponds owned by Grand Trunk Railroad (inactive for about 10 years).

The attached well logs show that the area is mostly sand and gravel. Clay layers are present but do not seem to be continuous. Depending on topography, bedrock (Marshall Sandstone) is encountered between 40 and 100 feet below the land surface. The static water level is 5 to 100 feet below the land surface, depending on topography. The groundwater flow direction is northwest. All the municipal wells in the Verona field are completed in highly fractured Marshall Sandstone.

0000269

II Site Status

A. Security Measures:

1. Fencing - The Verona Well Field is fenced.
2. Access control - Access to the well field is through a gate.
3. Security guards - None.
4. Other - None.

B. Ongoing Activities:

1. Emergency actions - Two of the municipal wells are being continuously pumped at 2.8 MGD to the Battle Creek River in an effort to retard the expansion of the contaminated plume. A total of ten wells have been taken out of service.
2. Survey studies - Private wells up gradient have been tested by the Health Department. Municipal wells are being monitored weekly.
3. Construction - None.

C. Current Information on the Extent of Contamination:

1. Air - None available.
2. Soil - None available.
3. Groundwater (Verona Well Field) - Trichloroethane: 99 ppb; cis 1,2-dichloroethylene: 79 ppb; TCE: 34 ppb; Perchloroethylene: 44 ppb; 1,1 dichloroethane: 12 ppb; 1,2 dichloroethane: 3 ppb; and 1,1 dichloroethylene: 5 ppb. Private wells immediately upgradient of the Verona Field show groundwater contamination in much higher concentrations.
4. Surface water - Groundwater from two municipal wells pumped to Battle Creek River via storm sewer.

D. Current Information on Human Health and/or Environmental Impacts:

1. Using U.S. EPA guidelines, it is calculated that the cancer risk associated with these levels of contamination found in the groundwater at Verona Station is 3.1 extra cancer deaths per year per 100,000 population.
2. Ten of thirty municipal wells are contaminated.

3. At least three non-municipal supply wells and several private wells are contaminated.

III Recommended Actions

A. Security:

Additional security is not needed at this time.

B. Extent of Contamination:

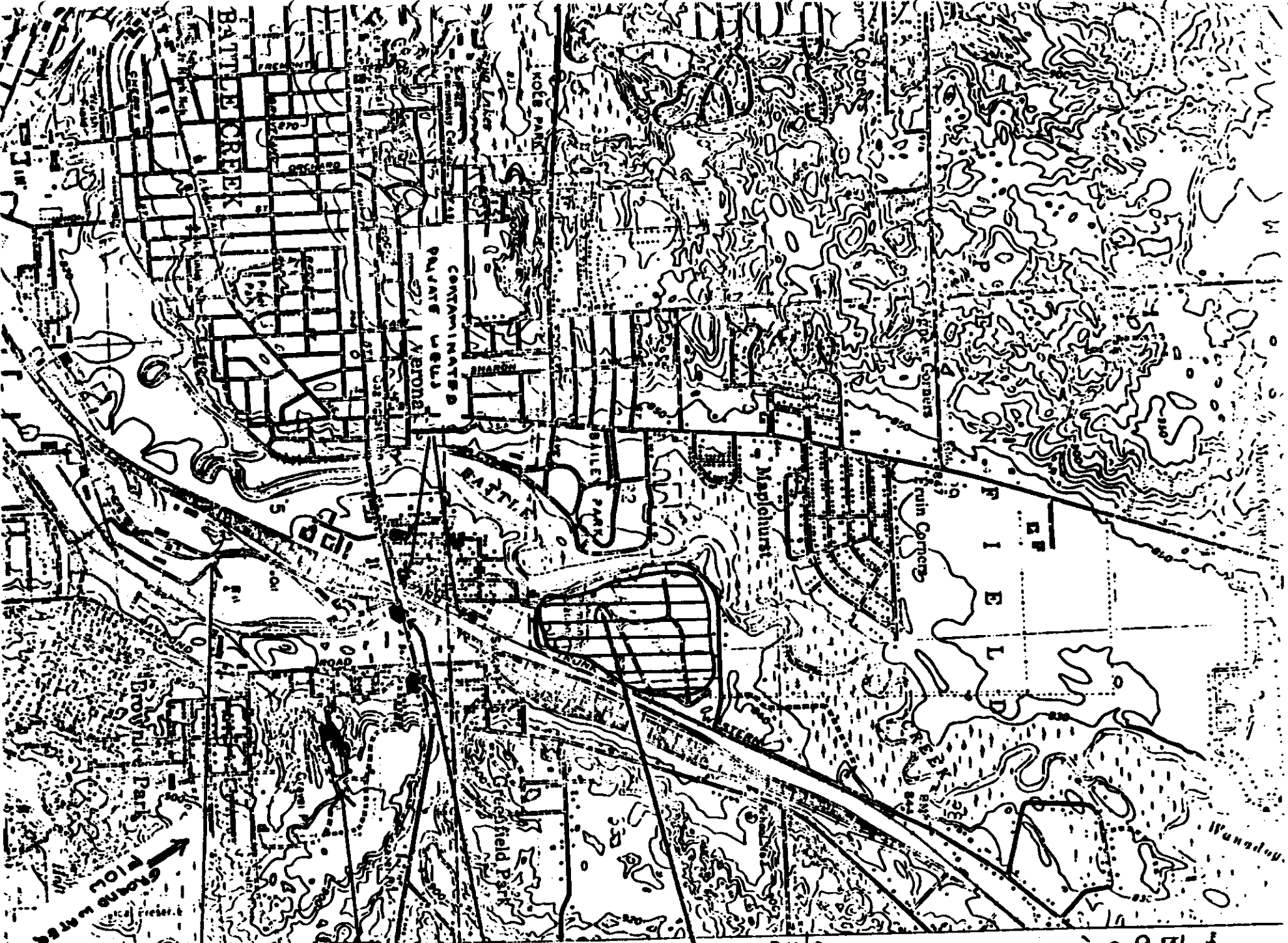
A hydrogeological study to determine the source and extent of contamination is needed. Full determination of the extent of contamination will require hydrogeologic investigation of the bedrock deposits. It is requested that the TAT be mobilized immediately to perform a preliminary investigation of the glacial drift. Also, it is requested that the FIT be enlisted to perform a more exhaustive study based upon the information generated by TAT. Appropriate laboratory analysis of groundwater will be required in both the TAT and FIT investigations.

C. Mitigative Techniques:

Based upon the results of the hydrogeological study of the area, an evaluation of the measures necessary to mitigate the health and environmental impacts should be prepared. Recommended mitigative measures should be detailed. Computer modeling may be helpful in generating recommendations presented in an evaluation of available options.

IV Emergency Action Plan

<u>Task</u>	<u>Management and Administration</u>	<u>Time</u>	<u>Estimated Cost</u>
Hydrogeological Study	EPA/State		
A) TAT		60 days	\$35,000
B) FIT		120 days	\$70,000
Options Evaluation	EPA/State	60 days	\$40,000



0000272

Grand Trunk
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Battle
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QUAD
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BATH
Creek
QuAD
7.5 MIN

WEL
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Trust
P. P.
P. 2

0000272

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT
OF
PUBLIC HEALTH

N

1 LOCATION OF WELL

County: <u>Calhoun</u> Township Name: <u>Pennfield</u> Fraction: <u>SW_{1/4} NW_{1/4} SE_{1/4}</u> Section Number: <u>33</u> Town Number: <u>1</u> T ₃₅ Range Number: <u>7</u> R ₁₀ W.	3 OWNER OF WELL: <u>Clarence Halder</u> Address: <u>343 Cooper Battle Creek Mich</u> 4 WELL DEPTH: (completed) <u>(170)</u> ft. Date of Completion: <u>8/29/69</u> 5 ROD TYPE <input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Driven <input type="checkbox"/> Dug <input type="checkbox"/> Hollow rod <input type="checkbox"/> Jetted <input type="checkbox"/> Bored <input type="checkbox"/> 6 USE: <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Public Supply <input type="checkbox"/> Industry <input type="checkbox"/> Irrigation <input type="checkbox"/> Air Conditioning <input type="checkbox"/> Commercial <input type="checkbox"/> Test Well <input type="checkbox"/> 7 CASING: Threaded <input checked="" type="checkbox"/> Welded <input type="checkbox"/> Height: Above/Below Surface _____ ft. Weight <u>11</u> lbs./ft. Drive Shoe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 8 SCREEN: Type: <u>None</u> Dia.: _____ Slot/Gauge _____ Length _____ Set between _____ ft. and _____ ft. Fittings: <u>Rock well</u> 9 STATIC WATER LEVEL: <u>96</u> ft. below land surface 10 PUMPING LEVEL below land surface _____ ft. after _____ hrs. pumping _____ g.p.m. _____ ft. after _____ hrs. pumping _____ g.p.m. 11 WATER QUALITY in Parts Per Million: Iron (Fe) _____ Chlorides (Cl) _____ Hardness _____ Other _____ 12 WELL HEAD COMPLETION: <input type="checkbox"/> In Approved Pit <input checked="" type="checkbox"/> Pitless Adapter <input type="checkbox"/> 18" Above Grade 13 Well Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Depth: From _____ ft. to _____ ft. 14 Nearest Source of possible contamination _____ feet _____ Direction _____ Type _____ Well disinfected upon completion <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 15 PUMP: <input checked="" type="checkbox"/> No installed Manufacturer's Name: <u>Rockwell</u> Model Number: <u>701155</u> HP <u>1</u> Volts <u>220</u> Length of Drop Pipe: <u>126</u> ft. capacity <u>12</u> G.P.M. Type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Jet <input type="checkbox"/> Reciprocating
---	---

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
<u>Gravel</u>	<u>80</u>	<u>80</u>
<u>Suptone</u>	<u>50</u>	<u>130</u>
<u>Marshall</u>		

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY: DR. J. J. ...

CORRECTED BY:

DATE:

17 WATER WELL CONTRACTOR'S CERTIFICATION:

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

REGISTERED BUSINESS NAME: Rockwell REGISTRATION NO. 0386

Address: 243 Cooper Battle Creek Mich

Signed: [Signature] Date: 8/29/69

AUTHORIZED REPRESENTATIVE

AUG 2 1974

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT
OF
PUBLIC HEALTH

1 LOCATION OF WELL

County: Calhoun Township: Pennfield Fraction: SW 1/4 NW 1/4 SE 1/4 Section Number: 33 Town Number: 1 NYS. Range Number: 7 N.W.

Distance and Direction from Road Indications: 236 Poulson Ave

Street: Bellevue Creek, Mich

Locate well in section below Sketch Map:

3 OWNER OF WELL: Heurman McMatt

4 WELL DEPTH (Conductivity) Date of Completion: 180 ft. 7/23/74

5 Cable tool Rotary Driven Dug
 Hollow rod Jetted Bored _____

6 USE: Domestic Public Supply Industry
 Irrigation Air Conditioning Commercial
 Test Well _____

7 CASING: Threaded Welded Height: Above/Below Surface _____ ft.
 4 in. to 135 ft. Depth Weight 11 lbs./ft.
 _____ in. to _____ ft. Depth Drive Shoe? Yes No

2 FORMATION

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
<u>Sand-gravel</u>	<u>65</u>	<u>65</u>
<u>Red Clay</u>	<u>30</u>	<u>95</u>
<u>Limestone</u>	<u>35</u>	<u>110</u>
<u>Marshall</u>	<u>70</u>	<u>180</u>

8 SCREEN: Type: None Dia.: _____
 Slot/Gauze _____ Length _____
 Set between _____ ft. and _____ ft.
 Fittings: Rock Well

9 STATIC WATER LEVEL: 91 ft. below land surface

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

11 WATER QUALITY in Parts Per Million:
 Iron (Fe) _____ Chlorides (Cl) _____
 Hardness _____ Other _____

12 WELL HEAD COMPLETION: In Approved Pit
 Wellhead Adapter 2' Above Grade

13 Well Grouted? Yes No
 Neat Cement Bentonite _____
 Depth: From _____ ft. to _____ ft.

14 Nearest Source of possible contamination
 _____ feet _____ Direction _____ Type _____
 Well disinfected upon completion Yes No

15 PUMP: No. Installed
 Manufacturer's Name: Red Pump Co
 Model Number: 909A HP 1/2 Volts 130
 Length of Drop Pipe: 105 ft. capacity 10 g.p.m.
 Type: Submersible Jet Reciprocating

16 Remarks, elevation, source of data, etc.

USE A 2ND SHEET IF NEEDED

DATE BY JC
 DRAWN BY JC
 SECTION
 DATE TO ADD

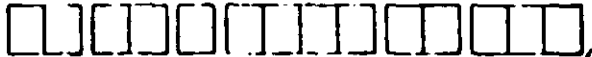
17 WATER WELL CONTRACTOR'S CERTIFICATION:

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

REGISTERED BUSINESS NAME: 14315-9th St. Red-Bottle Creek REGISTRATION NO. 0356

Signed: [Signature] Date: 7/24/74

EMPLOYED REPRESENTATIVE



1972

WATER WELL RECORD
ACT 206 PA 1965

MICHIGAN DEPARTMENT
OF
PUBLIC HEALTH

1 LOCATION OF WELL		County <u>Calhoun</u>		Township Name <u>Pennfield</u>		Fraction <u>SE 1/4 SW 1/4 SE 1/4</u>		Section Number <u>32</u>		Town Number <u>T18</u> N/S.		Range Number <u>R7W</u> E/W.	
Distance And Direction from Road Intersections <u>46 Maxwell St Battle Creek, Mich</u> Street address & City of Well Location						3 OWNER OF WELL: <u>Arthur Eifer</u> Address <u>46 Maxwell</u>							
Locals with "X" in section below Sketch Map:						4 WELL DEPTH: (completed) Date of Completion <u>80</u> ft. <u>10-13-71</u>							
FORMATION						5 <input checked="" type="checkbox"/> Cable tool <input type="checkbox"/> Rotary <input type="checkbox"/> Driven <input type="checkbox"/> Dug <input type="checkbox"/> Hollow rod <input type="checkbox"/> Jetted <input type="checkbox"/> Bored <input type="checkbox"/>							
						6 USE: <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Public Supply <input type="checkbox"/> Industry <input type="checkbox"/> Irrigation <input type="checkbox"/> Air Conditioning <input type="checkbox"/> Commercial <input type="checkbox"/> Test Well <input type="checkbox"/>							
THICKNESS OF STRATUM						7 CASING: Threaded <input checked="" type="checkbox"/> Welded <input type="checkbox"/> Height: Above/Below Surface _____ ft. <u>4</u> in. to _____ ft. Depth Weight _____ lbs./ft. _____ in. to _____ ft. Depth Drive Shoe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>							
						8 SCREEN: Type: _____ Dia.: _____ Slot/Gauze _____ Length _____ Set between _____ ft. and _____ ft. Fittings: _____							
DEPTH TO BOTTOM OF STRATUM						9 STATIC WATER LEVEL <u>11</u> ft. below land surface							
						10 PUMPING LEVEL below land surface <u>21</u> ft. after _____ hrs. pumping <u>20</u> S.P.M. _____ ft. after _____ hrs. pumping _____ S.P.M.							
gravel						11 WATER QUALITY in Parts Per Million: Iron (Fe) _____ Chlorides (Cl) _____ Hardness _____ Other _____							
						12 WELL HEAD COMPLETION: <input type="checkbox"/> In Approved Pit <input checked="" type="checkbox"/> Pitless Adapter <input type="checkbox"/> 12" Above Grade							
sand rock						13 Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Depth: From _____ ft. to _____ ft.							
						14 Nearest Source of possible contamination <u>100 feet NE</u> Direction <u>SE</u> <u>DW</u> Type Well disinfected upon completion <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							
						15 PUMP: <input type="checkbox"/> Not installed Manufacturer's Name <u>Aermotor</u> Model Number _____ HP <u>3/4</u> Volts <u>220</u> Length of Drop Pipe <u>21</u> ft. capacity <u>20</u> G.P.M. Type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Jet <input type="checkbox"/> Reciprocating							
						16 Remarks, elevation, source of data, etc. 17 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. <u>Warren Plumb Co</u> <u>0210</u> REGISTERED BUSINESS NAME REGISTRATION NO. Address <u>189 N 20 St Street</u> Signed <u>Warren Walters</u> Date <u>1-26-72</u> AUTHORIZED REPRESENTATIVE							

VERONA WELLFIELD SAMPLING RESULTS
 (RESULTS REPORTED IN PARTS PER BILLION)
 (BLANKS INDICATE BELOW DETECTION LIMIT)

0000281

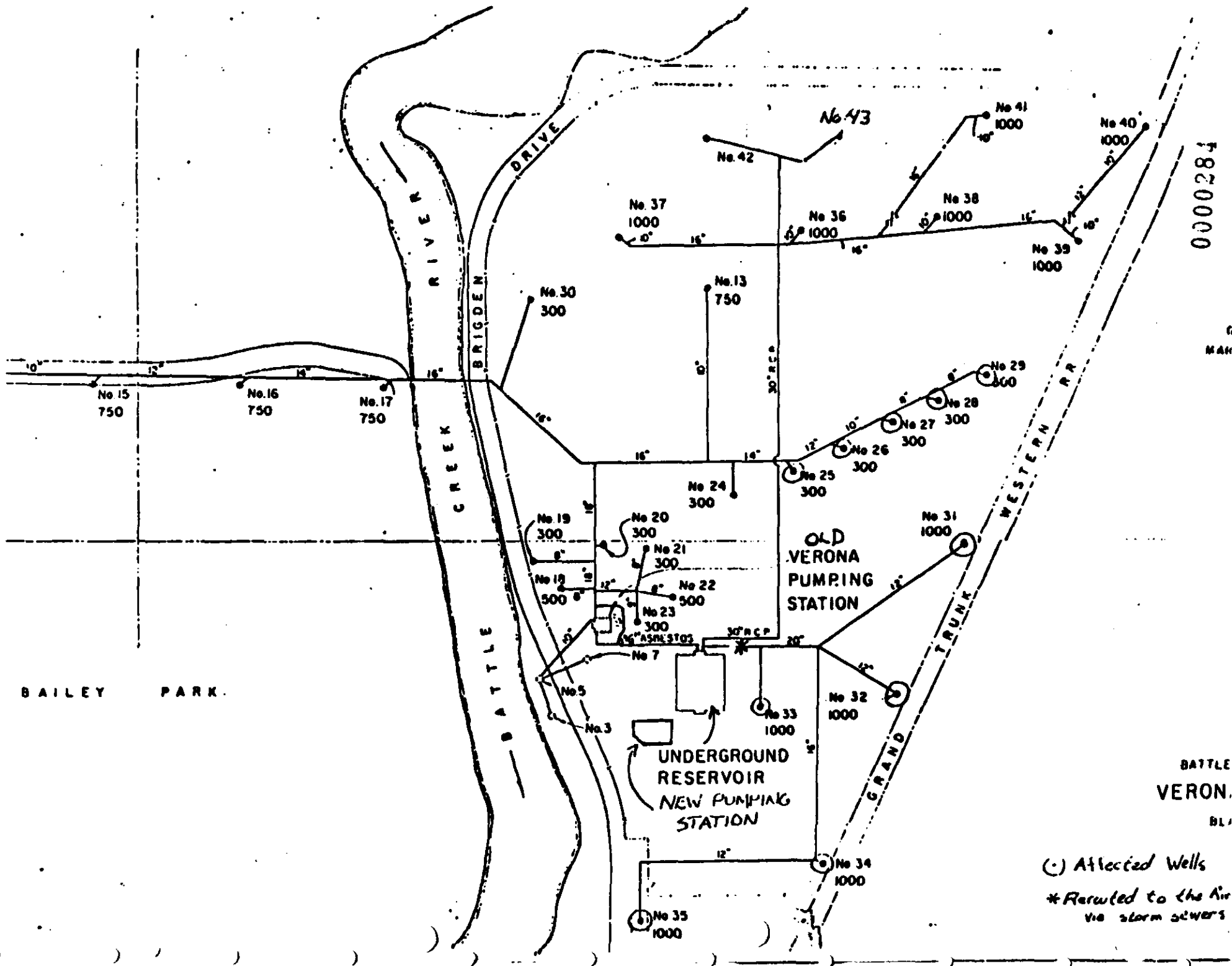
LOCATION	DATE	Dichloroethane		Trichloroethane	Dichloroethylene		Trichloroethylene	Perchloroethylene
		1,1	1,2	1,1,1	Cis-1,2	1,1		
Well No. 13	9-24-81							
Well No. 14	9-9-81							
Well No. 15	9-24-81							
Well No. 16	9-24-81							
Well No. 18	9-21-81							
Well No. 19	9-9-81							
Well No. 20	9-10-81							
Well No. 21	9-10-81							
Well No. 22	9-10-81							
Well No. 23	9-10-81							
Well No. 24	9-21-81							
Well No. 25	9-9-81	7		11		1		6
Well No. 26	9-10-81	10		13		2		10
Well No. 27	9-10-81	6		5		1	1	5
Well No. 28	9-21-81	1		1				1
Well No. 29	9-9-81			<1				
Well No. 30	9-9-81							
Well No. 31	9-10-81			1				<1
Well No. 32	9-11-81	12		91		4		44
Well No. 33	9-10-81	2		6	2		1	1
Well No. 34	9-9-81				5		2	
Well No. 35	9-9-81	6	2	1	66	2	26	3

VERONA WELLFIELD SAMPLING RESULTS
Pumpage to Waste - 2.88 MGD
(RESULTS REPORTED IN PARTS PER BILLION)
[BLANKS INDICATE BELOW DETECTION LIMIT]

0300283

LOCATION	DATE	Dichloroethane		Trichloroethane	Dichloroethylene		Trichloroethylene	Perchloroethylene
		1,1	1,2	1,1,1	Cis-1,2	1,1		
Well No. 32	10-13-81							
Well No. 35 ¹	10-13-81	6	2	1	66	1	26	3
Discharge to River ¹	10-13-81	9	1	51	30	3	11	22
Well No. 32	10-20-81	9		86	2	5		30
Well No. 35	10-20-81	5	2	1	65	2	29	3
Discharge to River	10-20-81	7	1	51	25	4	10	22
Well No. 32	10-27-81	9		99	2	4		36
Well No. 35	10-27-81	7	3		79	1	34	3
Discharge to River	10-27-81	9	1	64	31	3	13	22
Well No. 32	11-3-81	6	2	80	1	3		32
Well No. 35	11-3-81	4		<1	57	1	25	3
Discharge to River	11-3-81	6	1	53	27	3	11	21
Well No. 34	11-10-81				5		2	<1
Well No. 35	11-10-81	4	2	1	61	1	29	3
Discharge to River	11-10-81	1	1		27		12	1
Well No. 34	11-17-81				5		2	<1
Well No. 35	11-17-81	3	2	<1	54	1	24	3
Discharge to River	11-17-81	2	1		29		12	1

¹Vinyl Chloride present



0000284

G
MAN

BATTLE
VERON.
BL

(C) Affected Wells
*Rerouted to the Air
via storm sewers

PRIVATELY-OWNED WELLS SAMPLING RESULTS
 (RESULTS REPORTED IN PARTS PER BILLION)
 [BLANKS INDICATE BELOW DETECTION LIMIT]

0000285

LOCATION	DATE	Dichloroethane		Trichloroethane	Dichloroethylene		Trichloroethylene	Perchloroethylene
		1,1	1,2	1,1,1	Cis-1,2	1,1		
46 Maxwell ³	10-7-81	4	3		71		2	
46 Maxwell	10-21-81	4	5		70		2	
343 Cooper	10-7-81							
203 Paulson	10-7-81							
323 Cooper	10-7-81							
419 Cooper	10-7-81							
130 Hampton	10-7-81							
250 Livingston	10-7-81							
G.T.W. RR Yard	10-8-81							
409 Jameson	10-8-81							
G.T.W. Car Dept.	10-9-81							
145 Brigden ¹	10-20-81	39	11	12	298	5	150	87
125 Brigden ^{2,3}	10-20-81	149	325		3,900	38	118	47
772 Emmett	10-20-81		1					30
1194 Raymond ²	10-20-81				2			1
150 Edison ²	10-20-81	35	17	14	313	3	269	95
11 Mill	10-20-81	14	57	3				
890 Emmett	10-20-81							
186 Pickford	10-20-81							
280 S. Edison	10-20-81							

¹Vinyl Chloride present ²Methylene Chloride present ³Trans-1,2-Dichloroethylene present

(If document filed with State funds)

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

December 8, 1981

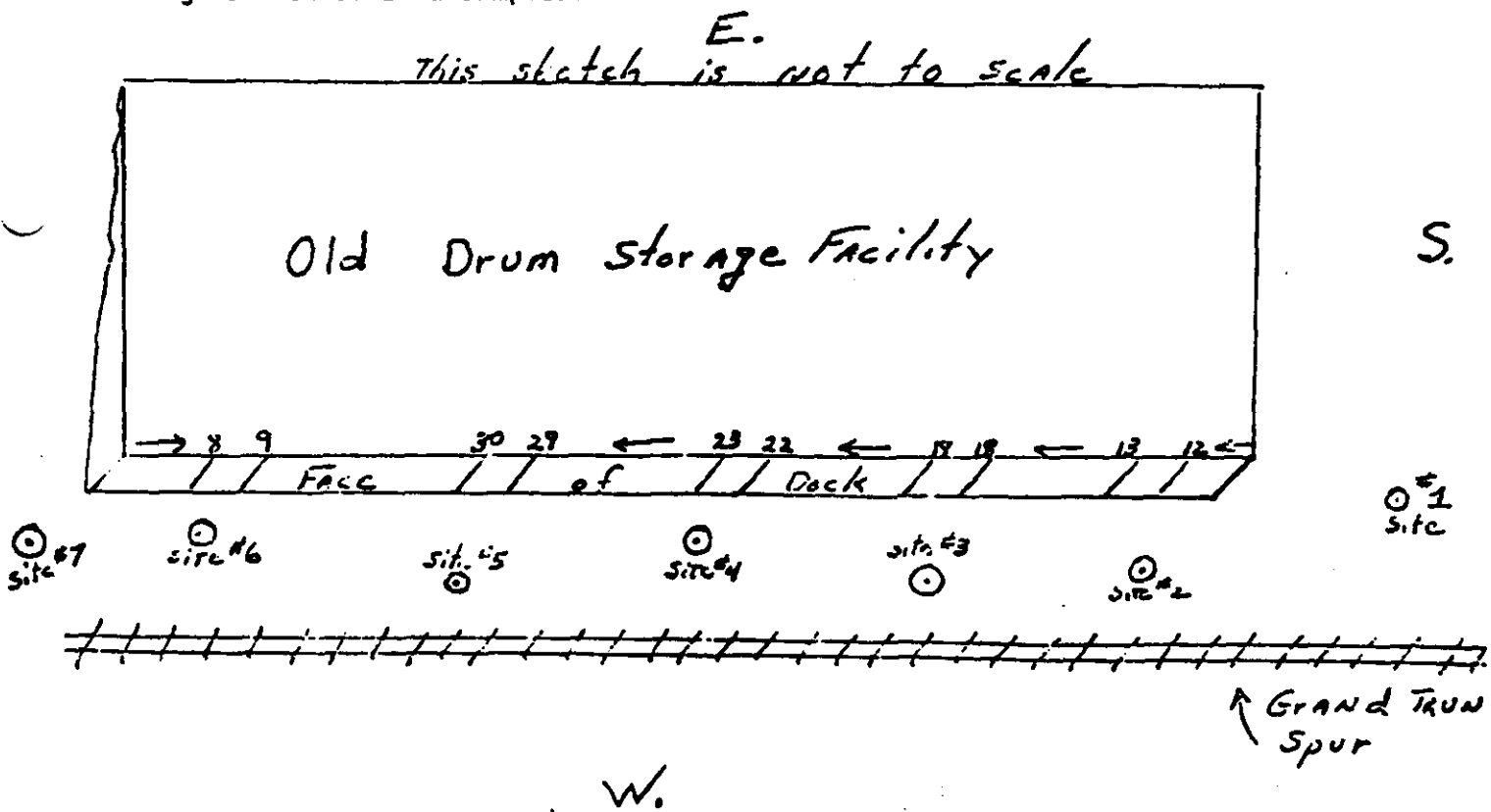
TO: Battle Creek file #146-13-81
FROM: Lyle Rowell, Environmental Enforcement Division
SUBJECT: Thomas Solvents Samples

November 18, 1981, Lyle Rowell and Gene Hall made site inspection of Thomas Solvent in Battle Creek.

The purpose of this visit was to resample an area previously sampled by ECO Rumsey and Gene Hall on August 5, 1980. Samples taken at that time were not quantified and showed only trace amounts of T.C.E. and P.C.E. The area sampled is located at the Thomas Solvent, Emmett Street facility. This is the old drum storage site adjacent to a Grand Trunk spur. Drums had been stored on a dock next to the spur.

Rough sketch of area sampled:

This sketch is not to scale



0000287

1. The first sample was taken fourteen (14) feet south of storage dock. Depth of sample 4'6" to 4'10", this sample site is located parallel to the face of the storage dock. (12:10 p.m.)
2. The second sample was taken between post 12 and 13, starting at the south end of the dock counting to the north. Sample site is three (3) feet out from face of the dock, and 4'6" to 4'10" in depth, one picture was taken. (12:30 p.m.)
3. The third sample was taken between post 18 and 19, counting from south to north. Sample site is 3½ feet out from the face of the dock and 4'6" to 4'10" in depth, one picture was taken. (12:45 p.m.)
4. The fourth sample was taken between post 22 and 23 of the dock, counting from the south to the north. This sample was two feet out from the face of the dock and at a depth of 4'6" to 4'10", one picture was taken. (1:00 p.m.)
5. The fifth sample was taken between post 29 and 30 of the dock, counting from the south to the north. This sample was taken 3½ feet out from the face of the dock and at a depth of 4'6" to 4'10", one picture was taken (1:10 p.m.)
6. The sixth sample was taken between post 8 and 9 of the dock, counting this time from the north end to the south. The sample was taken 2 feet out from the face of the dock and at a depth of 4'6" to 4'10", one picture was taken. (1:28 p.m.)
7. The seventh sample was taken three (3) feet n/w of the north end of the dock at a depth of 4'6" to 4'10", one picture was taken. (1:45 p.m.)
8. Duplicate samples were given to Mr. Ronald Byersmith, a representative of Thomas Solvent. Mr. Byersmith was present during the time of sampling.
9. Process used in sampling per Dr. James Bedford's instructions. (D.N.R. lab)
10. Samples were taken after verbal consent by Mr. Richard Thomas. Those present at Thomas Solvent besides Gene Hall and Lyle Rowell were Mr. Ronald Byersmith, Mr. Richard Thomas and Mr. Larry Charkowski.

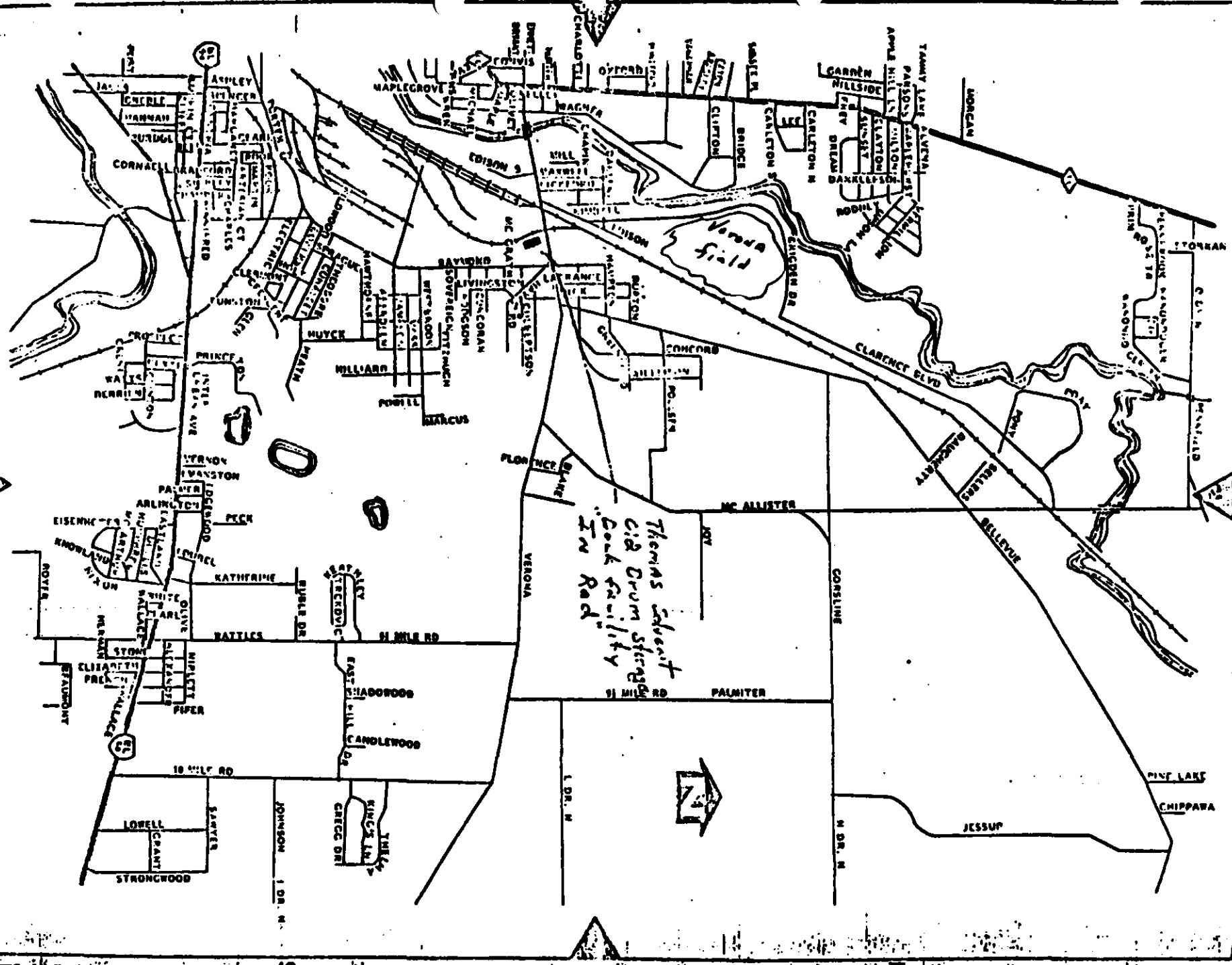
LR:dr

0000286

SW

NW

32



*Thomas Edward
Cig Drum Storage
Cok facility
IN Rd*



0000289

PROJ NO. 0201
 COST CENTER
 LOCATION *Thomas Salvant/Booth Case*

SAMPLE REMARKS *dist*

FIELD ID.	DESCRIPTION OF SAMPLING SITE OR SAMPLE	REF NO.	STORE NUMBER	START DATE	TIME	S.T. OR	NUM	ENG DATE	TIME	DEPTH	LAD NO.	TOTAL SOLIDS PERCENT	VALUITY SOLIDS % T.S.	F-OIL	A-1242	A-1243
		P		YYMMDD	TTTT	B	FLES	YYMMDD	TTTT	FEET	00006	70318	70322	00561	35497	09107
1	<i>Drum storage facility by tanks</i>	C01														
2	" " " "	C02														
3	" " " "	C03														
4	" " " "	C04														
5	" " " "	C05														
6	" " " "	C06														
7	" " " "	C07														
		C08														
	<i>* Saw field with for exact location</i>	C09														
		C10														

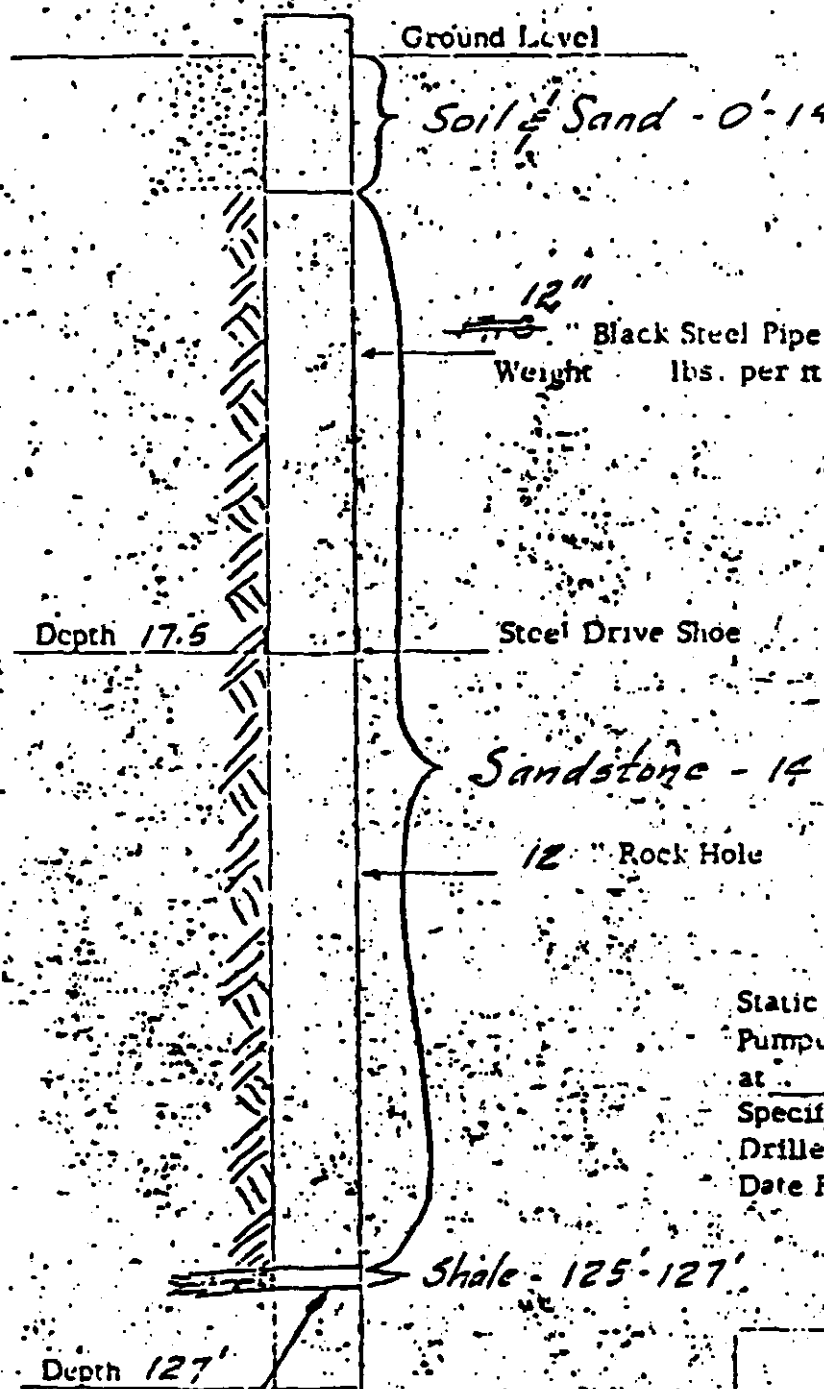
sample water sub water

REF NO.	A-1260 PCB UG/KG 39511	DDE P.P. UG/KG 39321	DDD P.P. UG/KG 39311	DDT O.P. UG/KG 39306	DDT P.P. UG/KG 39301	DILDRN UG/KG 39383	CHLDRN UG/KG 39351	HCB UG/KG 39701	CHCl ₃	CHCl ₂	PCE #	PCE	TCE	TCE	CHCl ₃	CHCl ₂
									<i>STANIS</i>		<i>#</i>	<i>1</i>	<i>and</i>	<i>#</i>	<i>2</i>	
01									6200	1100	370	66				
02									1700	320	570	73	120	16		
03									4000	540	280	39				
04										KS		KS				
05										↓		↓		25	3	
06																
07																
08																
09																
10																

EGD-01303 REV. 12/79

0000290

Pipe extends 0.5' above ground level.



Static Level 7'
Pumped _____ GPM
at _____ pumping Level
Specific Capacity 750 G.P.M.
Driller Dunbar
Date Finished 11-23-1936

WELL No. 13

City of Battle Creek
Battle Creek, Michigan

Location: Verona Well Field

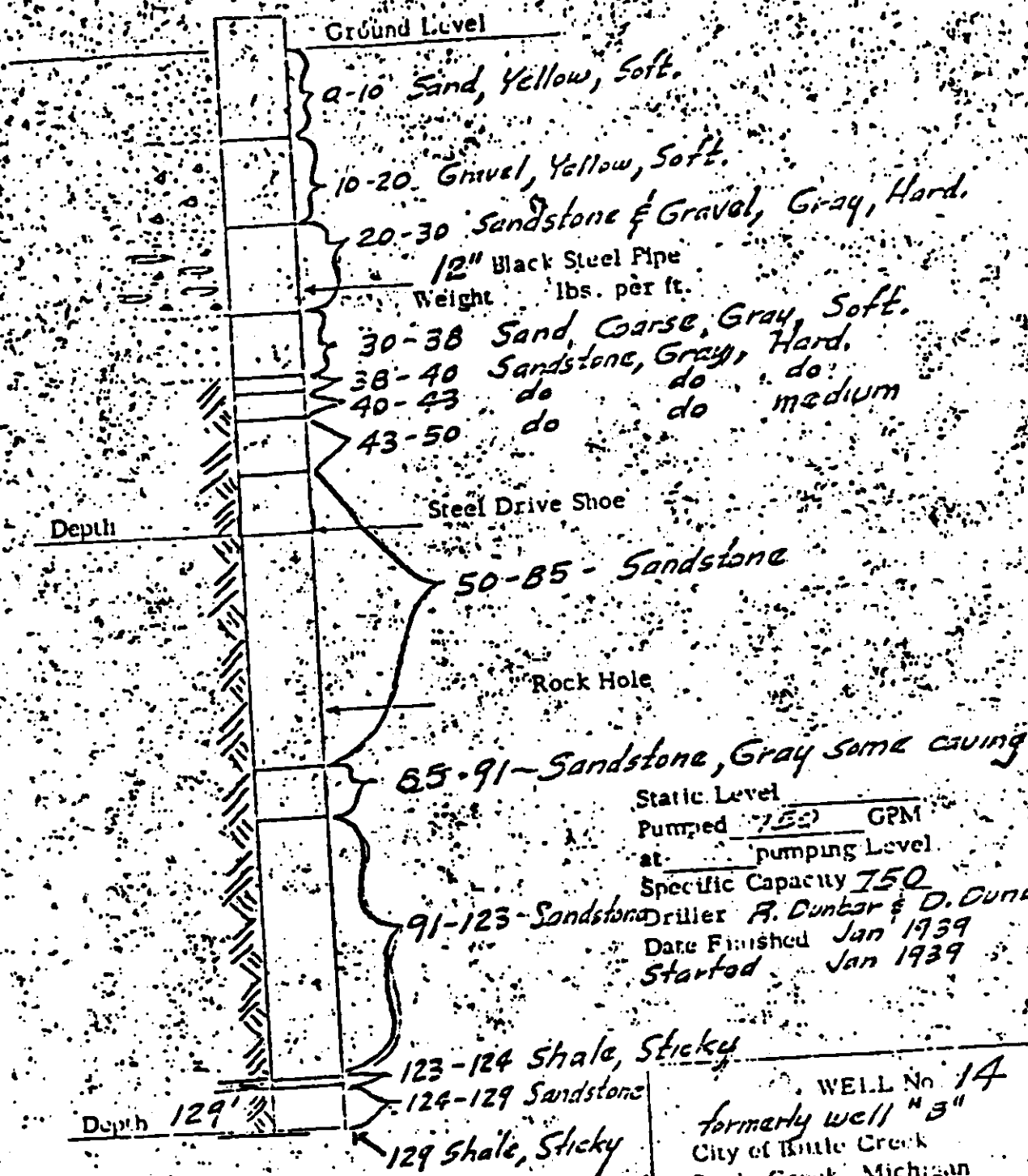
0000291

Drawn by [Signature]
Approved by [Signature]
Date _____

Drawing No.
WD-46

Not drawn to scale
All depths measured from Ground Level

Pipe extends above ground level.



12" Black Steel Pipe
Weight lbs. per ft.

Depth

Steel Drive Shoe

Rock Hole

Static Level
Pumped 750 GPM
at pumping Level.

Specific Capacity 750
Driller R. Dunbar & D. Dunbar
Date Finished Jan 1939
Started Jan 1939

Depth 129'

WELL No. 14
formerly well "B"
City of Little Creek
Battle Creek, Michigan
Location: Verona Well Field
Barley Park 0000292

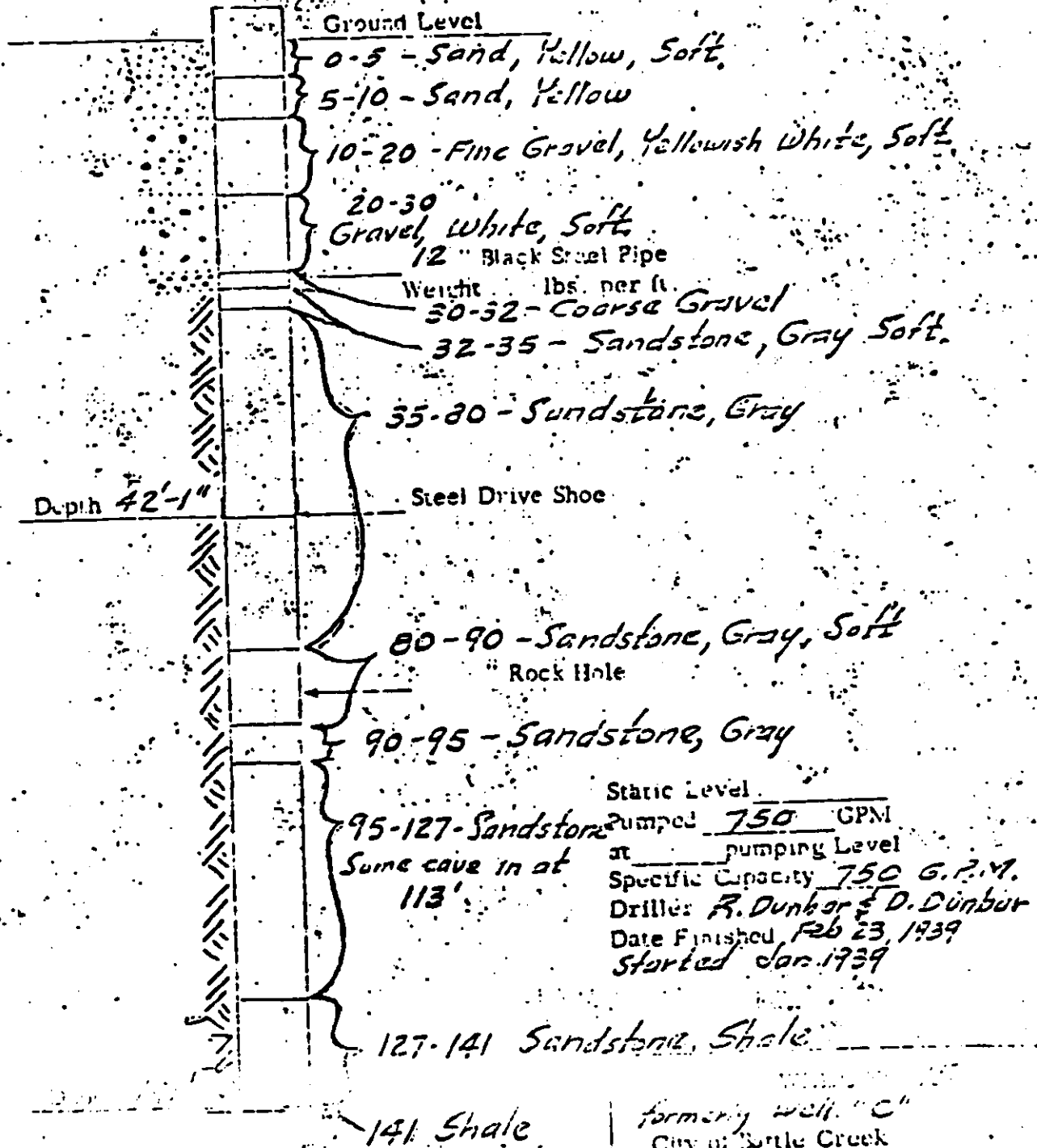
Note - Revised to conform
with log - 12-3-63

Not drawn to scale

Drawn by JFW
Approved by
Date

Drawing No.
WD-4

Pipe extends above ground level.



formerly well "C"
 City of Battle Creek
 Battle Creek, Michigan

Location: Verona Well Field
 Bailey Park

0000293

Not drawn to scale
 All depths measured from Ground Level

Drawn by	SEN	Drawing No.
Approved by		WD-42
Date		

Pipe extends above ground level

Ground level

Fine sand 0'-14'

Soft sandstone 14'-19'

Black Steel Pipe
Weight lbs. per ft.

Very hard sandstone - 19'-80'

Depth

Steel Drive Shoe

Rock Hole

Softer sandstone
many openings
80'-110'

Static Level _____

Pump at _____ GPM

at _____ pumping Level

Specific Capacity 500 G.P.M.

Driller _____

Date Finished 1915

Fine grained
Sandstone fewer openings, 110'-126'

Depth 126

45'-10" ϕ BYERS READING GALV.
CASING
81'-8" ϕ HOLE

WELL No. 18

City of Battle Creek
Battle Creek, Michigan

Location: Verona Well Field

0500294

Not drawn to scale
All depths measured from Ground Level

Drawn by SEW

Approved by _____

Date _____

Drawing No

WD-5

Not drawn to scale

Approved by _____
Drawn by _____
Drawings

WELL No. 19
City of Battle Creek
Battle Creek, Michigan
Location: *Lena Well Field*
050029

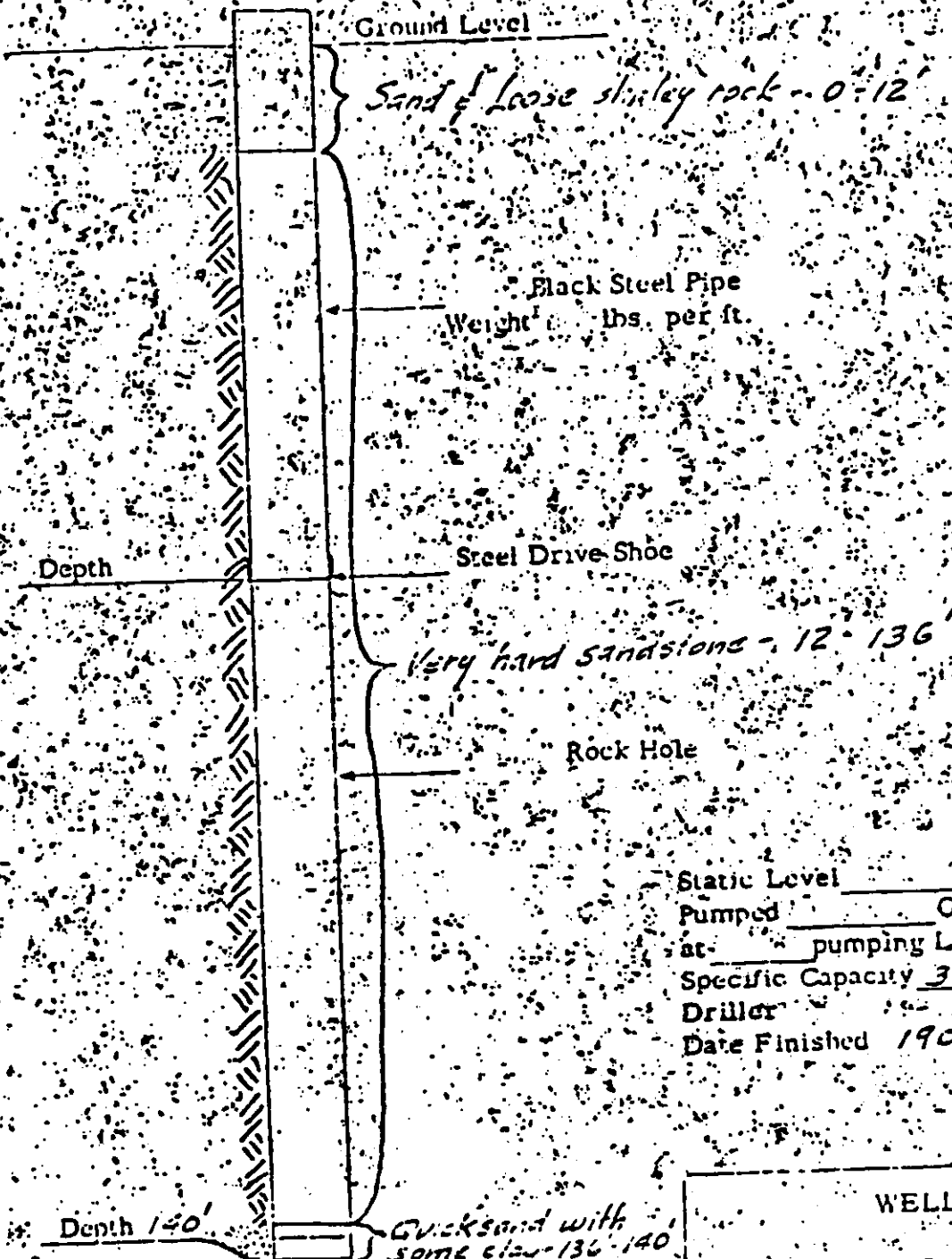
Water-bearing formation, Marshall Sandstone
47' 8" Reading Galv. casing
78' 8" hole, valve on casing in 11'

Pumped _____ GPM.
 at 19.50 pumping level
 Specific Gravity 500 G.P.M.
 Driller: *Armstrong*
 Date Finished: *2 Aug 1952*
 Static Level: *14.5*
 Hard sandstone, several large openings 90'
 Hard sandstone 46' - 90'
 Rock Hole
 Steel Drive Shoe
 Very hard sandstone with Fe in quantities
 Sandstone - 15 - 26
 Weight lbs. per ft.
 Black Steel Pipe
 Fine sand - 0-15
 Ground Level



pipe extends above ground level

Pipe extends 1.0' above ground level.



Depth

Ground Level

Sand & loose shaly rock - 0-12'

Black Steel Pipe
Weight lbs. per ft.

Steel Drive Shoe

Very hard sandstone - 12-136'

Rock Hole

Static Level _____
 Pumped _____ GPM
 at _____ pumping Level
 Specific Capacity 300 G.P.M.
 Driller _____
 Date Finished 1904

Depth 140'

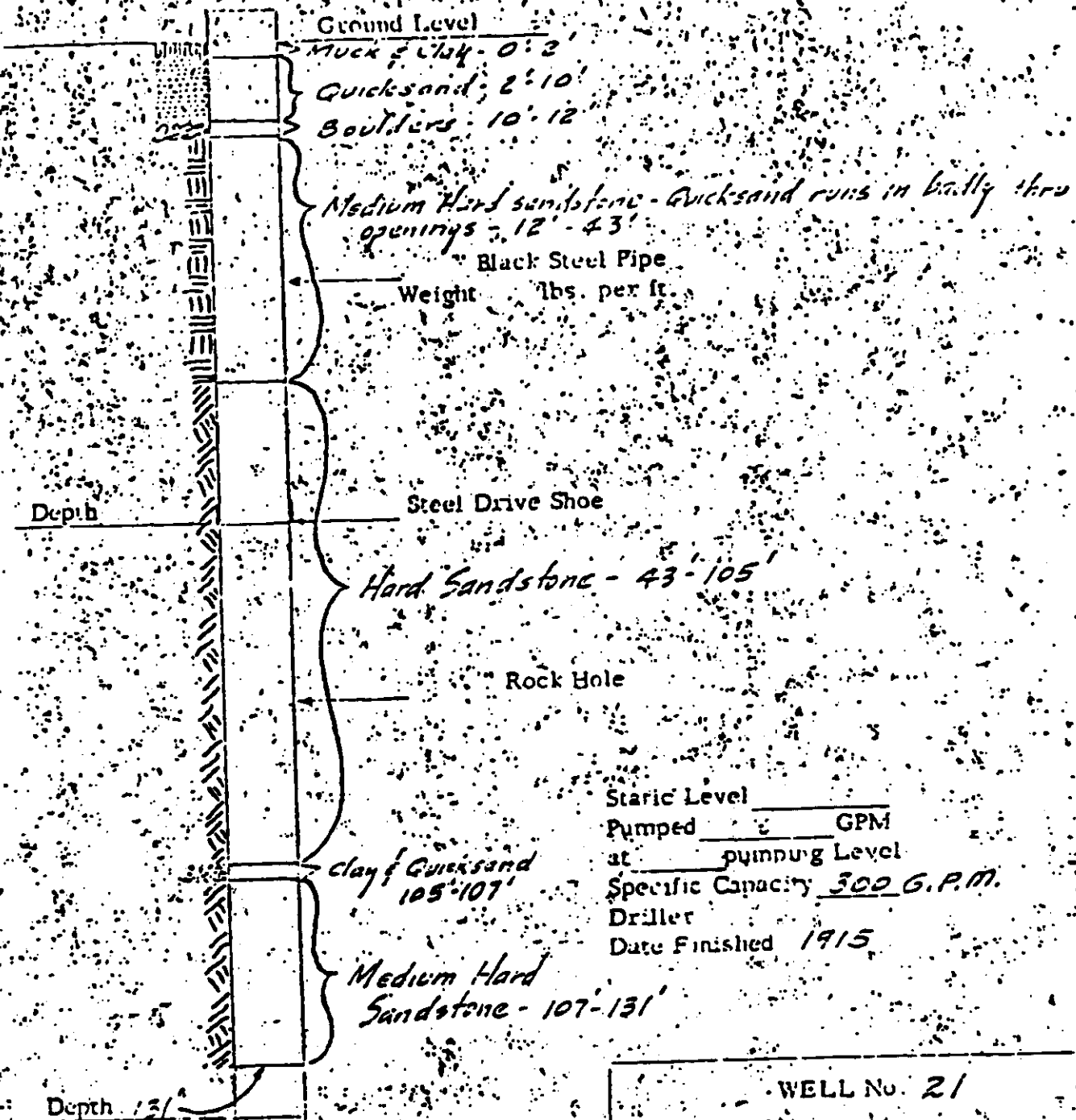
Gyps sand with some clay - 136-140'

21"-8" 5 Black drive casing 1' above gnd.
120"-8" 4 HOLE

Not drawn to scale
All depths measured from Ground Level

WELL No. 20	
City of Battle Creek Battle Creek, Michigan	
Location: <u>Verona Well Field</u>	
0000296	
Drawn by _____	Drawing No
Approved by _____	WD-5
Date _____	

Pipe extends above ground level.



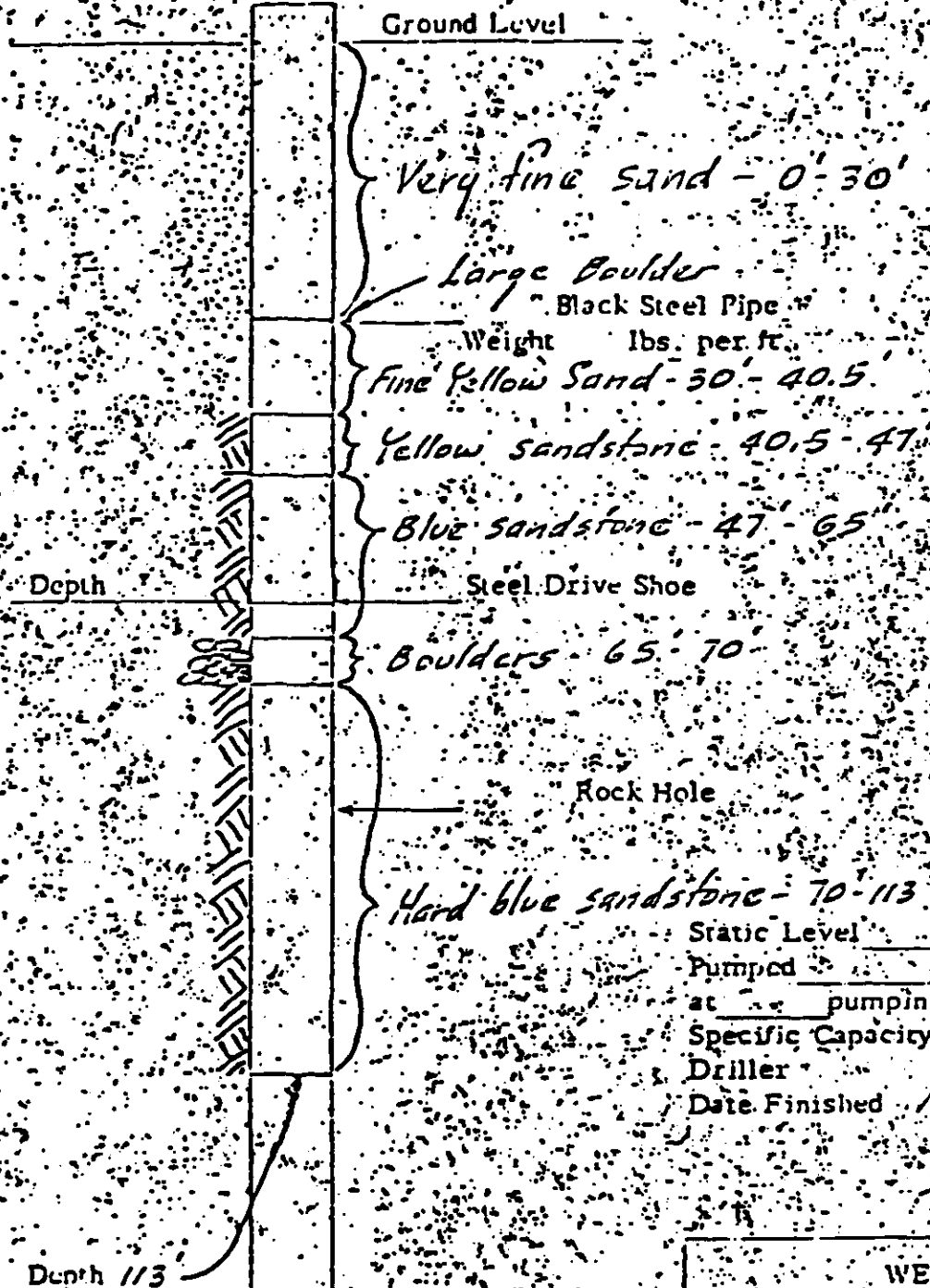
Static Level _____
 Pumped _____ GPM
 at _____ pumping Level
 Specific Capacity 300 G.P.M.
 Driller _____
 Date Finished 1915

43'-8" ϕ Riding Galv. Casing
 88'-8" ϕ Hole

WELL No. 21	
City of Battle Creek Battle Creek, Michigan	
Location: <u>Verona Well Field</u>	
0000297	
Drawn by <u>SEV</u>	Drawing No
Approved by _____	<u>WD-54</u>
Date _____	

Not drawn to scale
 All depths measured from Ground Level

Pipe extends above ground level.



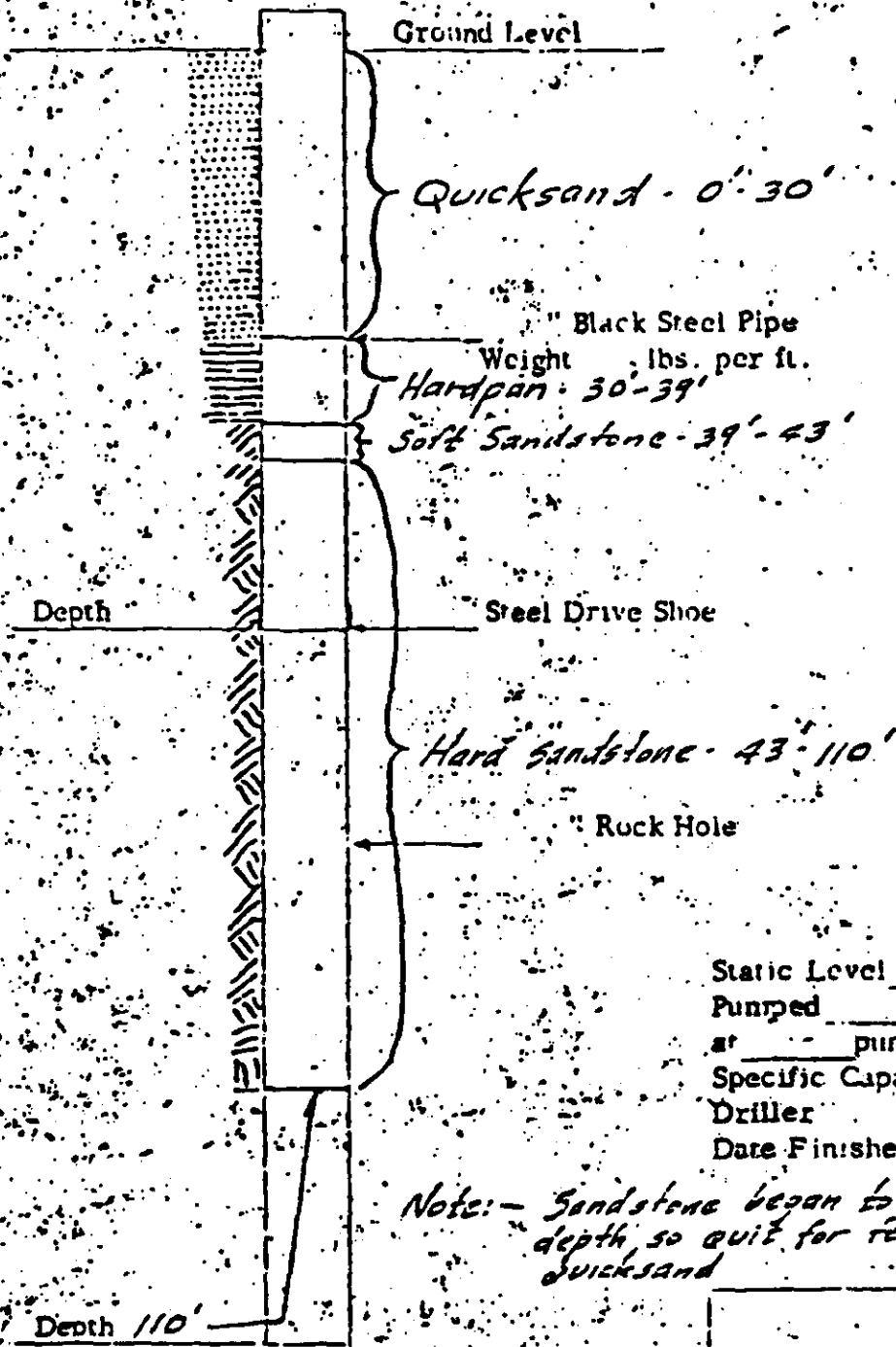
76' 10" ϕ BYERS GALL. CASING
 6' 10" ϕ HOLE
 31' 8" ϕ HOLE

Static Level _____
 Pumped _____ GPM
 at _____ pumping Level
 Specific Capacity 500 G.P.M.
 Driller _____
 Date Finished 1918-1919

WELL No. 22	
City of Battle Creek Battle Creek, Michigan	
Location: <u>Verona Well Field</u>	
0000298	
Drawn by <u>[Signature]</u>	Drawing No
Approved by _____	<u>WD 5</u>
Date _____	

Not drawn to scale.
 All depths measured from Ground Level.

Pipe extends above ground level.



Static Level _____
 Pumped _____ GPM
 at _____ pumping Level
 Specific Capacity 300 G.P.M.
 Driller _____
 Date Finished 1913

Note: - Sandstone began to get soft near 110' depth, so quit for fear of going thru to Quicksand

Depth 110'

45' 8" ϕ Galv. casing driven to 46' below surface
 67' 5" ϕ HOLE

WELL No. 23

City of Battle Creek
 Battle Creek, Michigan

Location: Verona Well Field

0000299

Not drawn to scale

Drawn by DF
 Approved by _____

Drawing No.

1110-50

Pipe extends above ground level.

Ground Level

Sand 0-12'

Medium Soft sandstone 12-24'

Black Steel Pipe

Weight lbs. per ft.

Hard sandstone with considerable Fe₂O₃ streaks
dynamic load to clear 24'-36'

Hard sandstone no openings 36'-60'

Steel Drive Shoe

Depth

Rock Hole

Hard sandstone with sufficient openings to carry 24' all drillings 60'-105'

Static Level

Pumped at _____ GPM

at _____ pumping Level

Specific Capacity 500 G.P.M.

Driller

Date Finished 1926

5-11-501 - 117.5
Pumped
bottom of casing
reached

Depth 117.5

40 - 8" ϕ 6 FEET GALV. CASING

77.5 - 8" ϕ HOLE

WELL NO 24

City of Battle Creek 00300

Battle Creek, Michigan

Location: Vermont Well Field

Drawn by: JCF

Approved by:

Date

Drawing No.

WD-5

Not drawn to scale

All depths measured from Ground Level

Pipe extends above ground level

Ground Level

Sand 0-12'

Soft sandstone 12-22'

Very hard sandstone 2 charges of dynamite
is clear - 22'-52'

Black Steel Pipe
Weight lbs. per ft.

Hard sandstone, few openings - 32'-80'

Steel Drive Shoe

Rock Hole

Hard sandstone with sufficient openings to carry
away all drillings - 80'-105'

Static Level _____ GPM
Pumped _____ at _____ pumping Level.

Hard sandstone no openings 105'-114.5' Driller
Date Finished 1926

Depth 114.5'

35'-8" 8" casing
Driven to 35.5' below surface

17' 8" hole

WELL No. 25

000030

City of Battle Creek

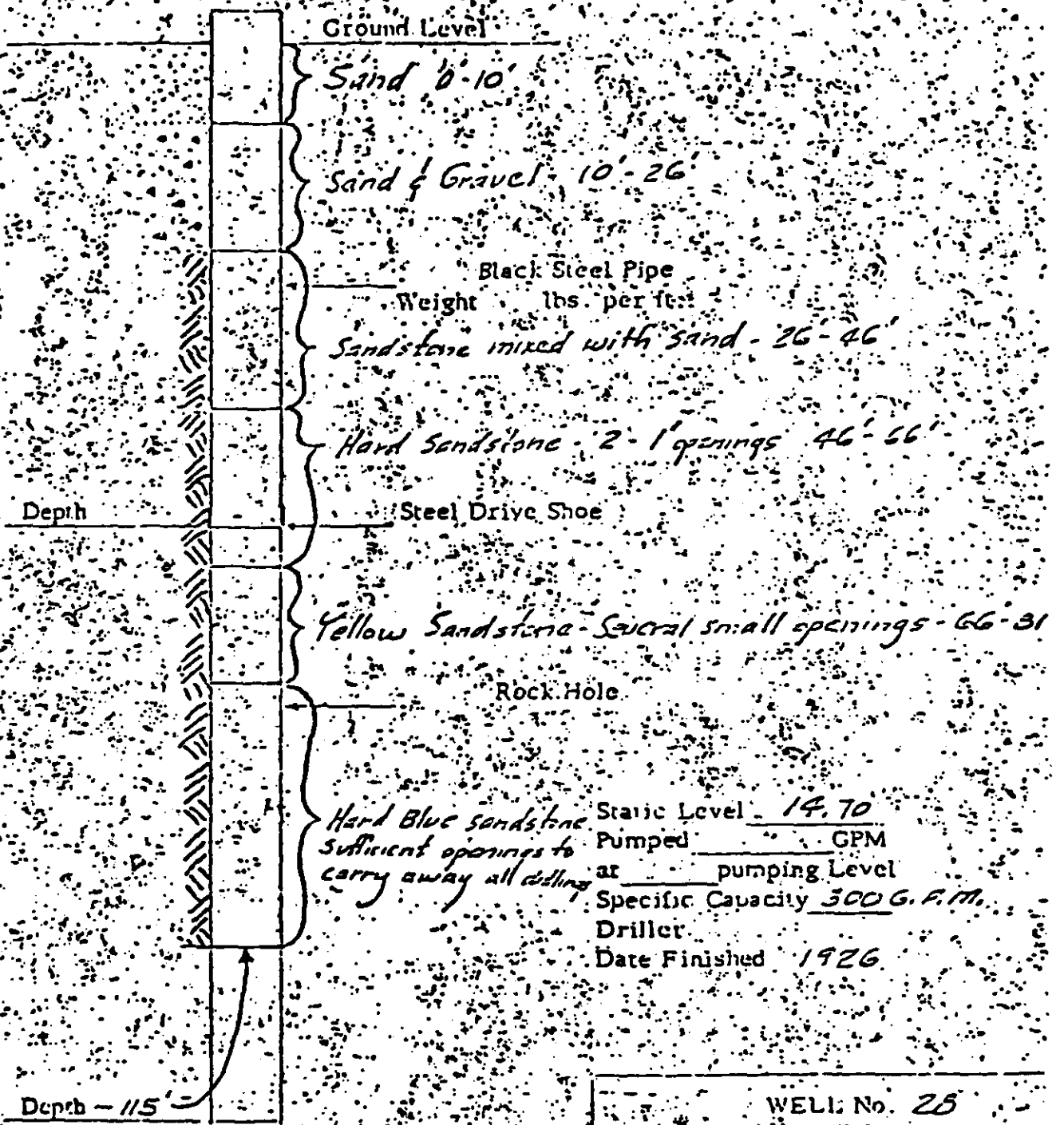
Battle Creek, Michigan

Location: Verona Well Field

Not drawn to scale

Drawn by _____ Drawing No. _____
Approved by _____

Pipe extends above ground level.



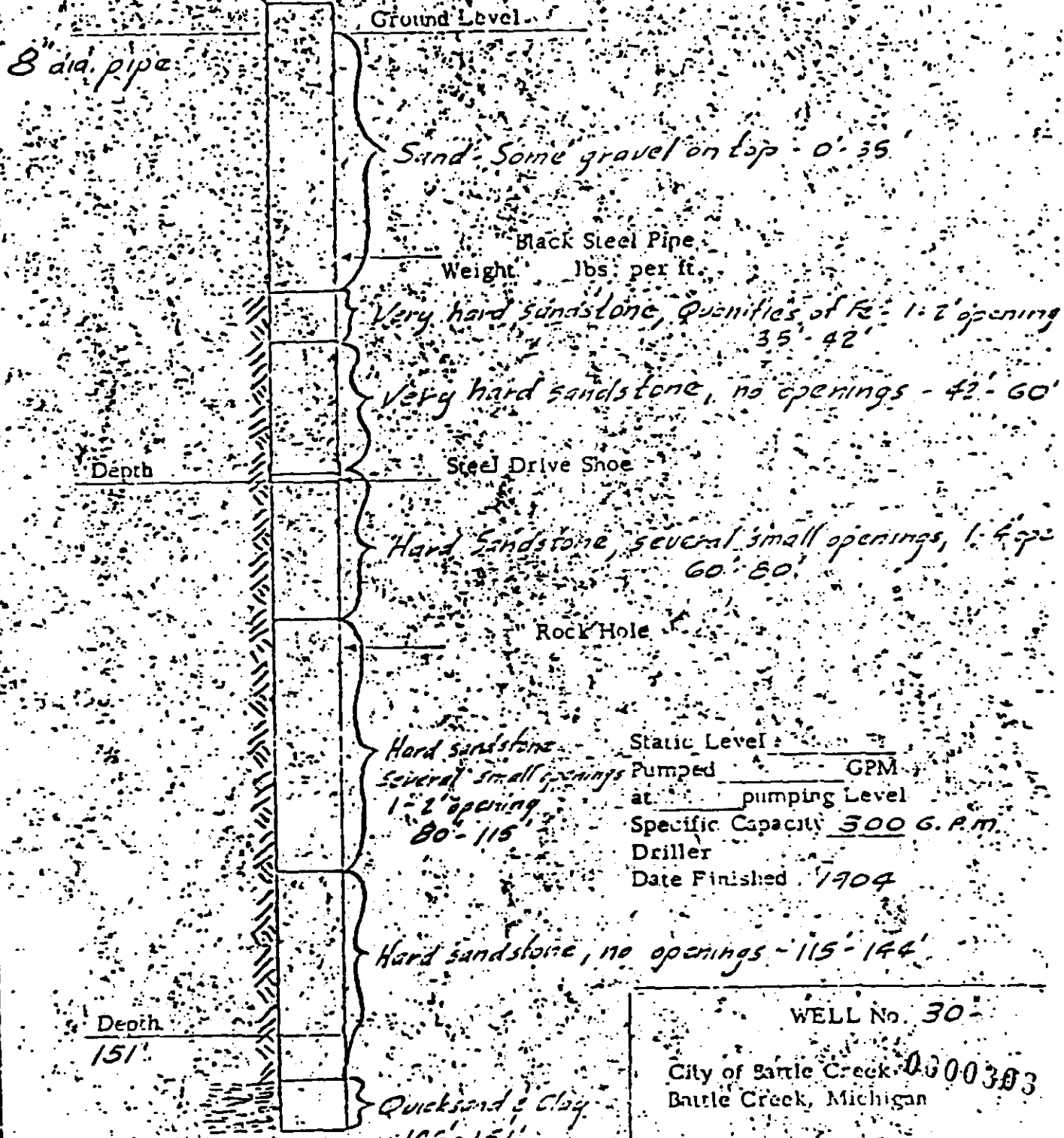
46'- 8" BYERS GALV. CASING
69'- 8" ϕ HOLE

WELL No. 25
City of Battle Creek 0000302
Battle Creek, Michigan
Location: Verona Well Field

Not drawn to scale

Drawn by *[Signature]* Drawing No.
Approved by *[Signature]*

Pipe extends above ground level



Depth

Depth
151'

Static Level: _____
 Pumped _____ GPM
 at _____ pumping Level
 Specific Capacity 300 G.P.M.
 Driller _____
 Date Finished 1904

WELL No. 30
 City of Battle Creek 0000303
 Battle Creek, Michigan

Location: Verona Well Field

Note: - no reference to length of casing used after depth of 46' is reached, although notes state that sand still runs in at 60' depth, states all sand is cased out.

Not drawn to scale
All depths measured from Ground Level

Drawn by [Signature] Drawing No.
 Approved by _____
 Date _____ WD-E

Pipe extends 1.5' above ground level

Ground Level

Muddy Sand - 0'-30'

16" Black Steel Pipe
Weight 65 lbs. per ft.

Clean sand - 30'-50'

Sand & Gravel - 50'-53'

Depth 76'

Steel Drive Shoe

Muddy broken sandstone - 53'-75'

16" Rock Hole

Clean sand rock - 75'-105'

Static Level 10'

Pumped 1034 GPM

at 14.9" pumping Level

Specific Capacity 1000 G.P.M.

Driller Harry Ness

Date Finished 6-8-48

Layne-Northern Co. Inc.
Mishawaka, Ind.

Muddy sand rock
105'-123'

Shale 123'-125'

Depth 125'

WELL No. 31

City of Battle Creek
Battle Creek Michigan

Location: Verona Well Field

0000304

Drawn by JBN

Drawing No

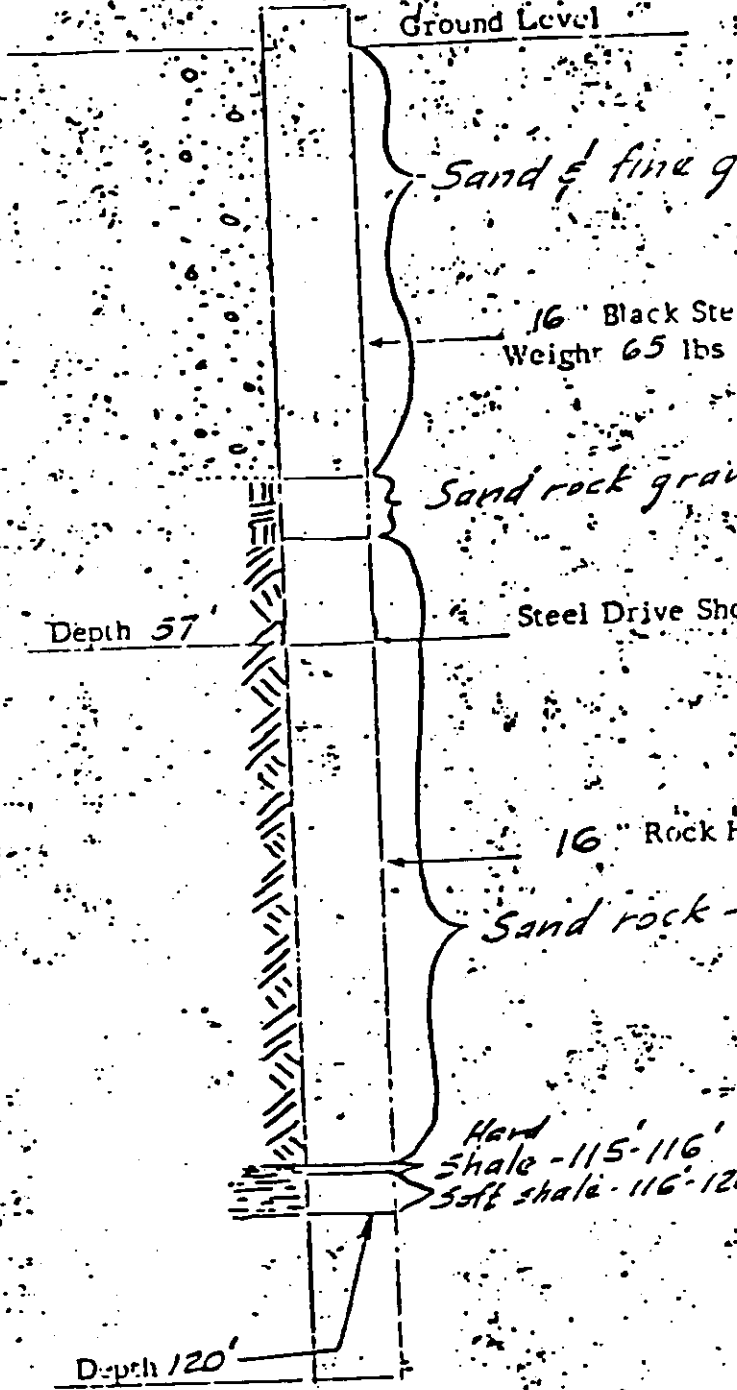
Approved by

WD-6

Date

Not drawn to scale
All depths measured from Ground Level

Pipe extends 2.0' above ground level.



Sand & fine gravel - 0'-44'

16" Black Steel Pipe
Weight 65 lbs per ft.

Sand rock gravel not clean - 44'-50'

Depth 57'

Steel Drive Shoe

16" Rock Hole

Sand rock - 50'-115'

Static Level 9'-4"

Pumped 1023 GPM
at 12'-8" pumping Level

Specific Capacity 1000 G.P.M.

Driller Harry Ness

Date Finished 5-14-48

Layne Northern Co. Inc.

Hard shale - 115'-116'
Soft shale - 116'-120'

Depth 120'

WELL No. 32

City of Battle Creek
Battle Creek, Michigan

Location: Verona Well Field

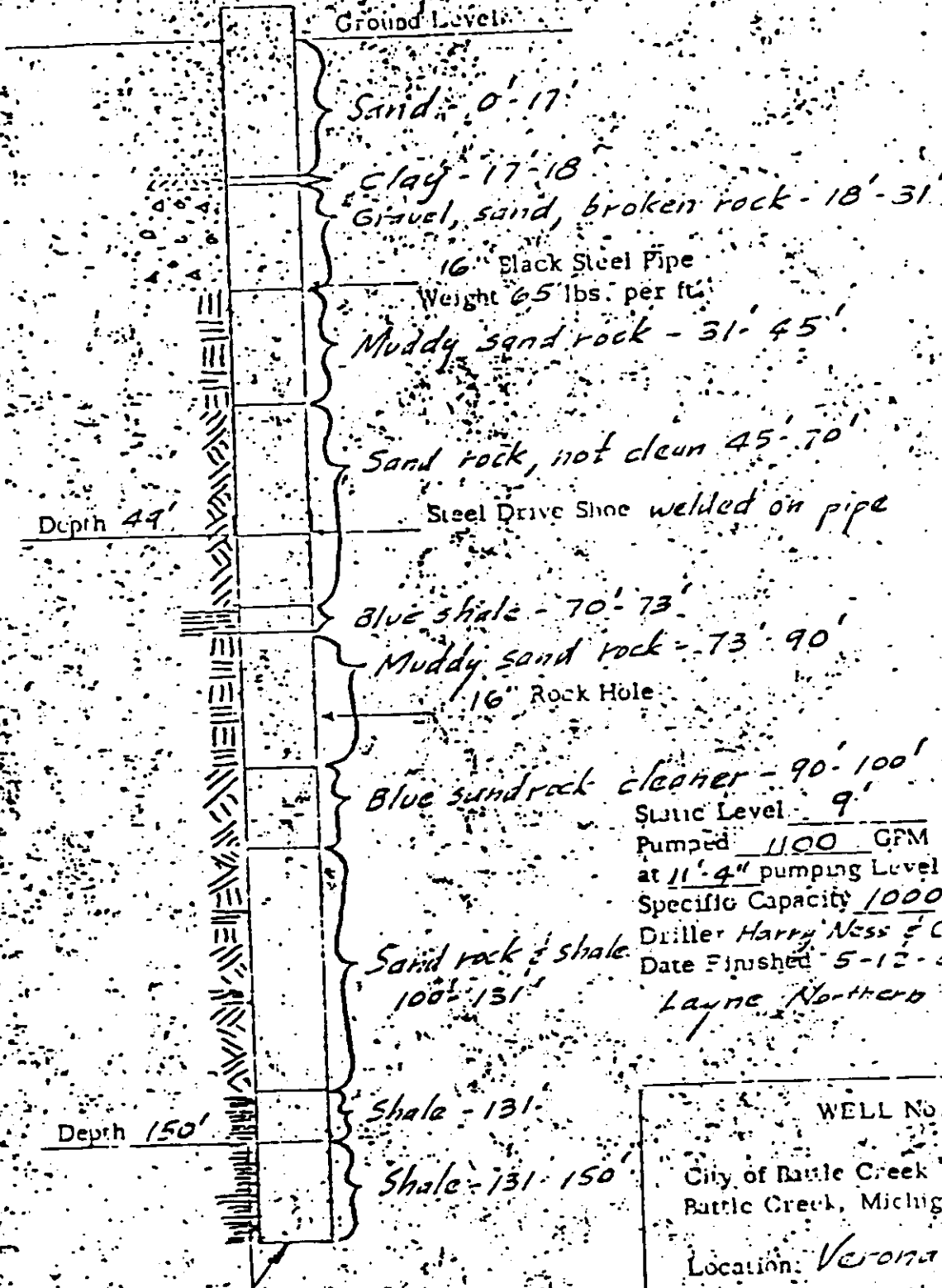
0000305

Drawn by DEN
Approved by
Date

Drawing
WD-6

Not drawn to scale
All depths measured from Ground Level

Pipe extends 15' above ground level.



Depth 44'

Depth 150'

Ground Level

Sand - 0'-17'

Clay - 17'-18'

Gravel, sand, broken rock - 18'-31'

16" Black Steel Pipe
Weight 65 lbs. per ft.

Muddy sand rock - 31'-45'

Sand rock, not clean 45'-70'

Steel Drive Shoe welded on pipe

Blue shale - 70'-73'

Muddy sand rock - 73'-90'

16" Rock Hole

Blue sandrock cleaner - 90'-100'

Static Level - 9'
Pumped 1100 GPM
at 11'-4" pumping level
Specific Capacity 1000 G.P.M.

Sand rock & shale
100'-131'

Driller Harry Ness & Charles Kir
Date Finished 5-12-48
Layne Northern Co. Inc.

Shale - 131'

Shale - 131'-150'

WELL No. 33

City of Battle Creek
Battle Creek, Michigan

Location: Verona Well Fr.

0000300

Drawn by *FR*
Approved by
Date

Drawing
WD-

Not drawn to scale.
All depths measured from Ground Level.

Pipe extends 2.0' above ground level.

Ground Level

Sand, gravel - 0'-48'

16" Black Steel Pipe
Weight 65 lbs. per ft.

Clay, sand, rock, 48'-55'

Depth 67'

Steel Drive Shoe welded to pipe

16" Rock Hole

Sand rock
55'-138'

Static Level 10'
Pumped 1001 GPM
at 12.8" pumping Level
Specific Capacity 1000 G.P.M.
Driller Harry Ness
Date Finished 6-2-48

Layne Northern Co. Inc.

Depth 140'

Shale - 138-140'

WELL No. 34

City of Battle Creek
Battle Creek, Michigan

Location: Verona Well Field

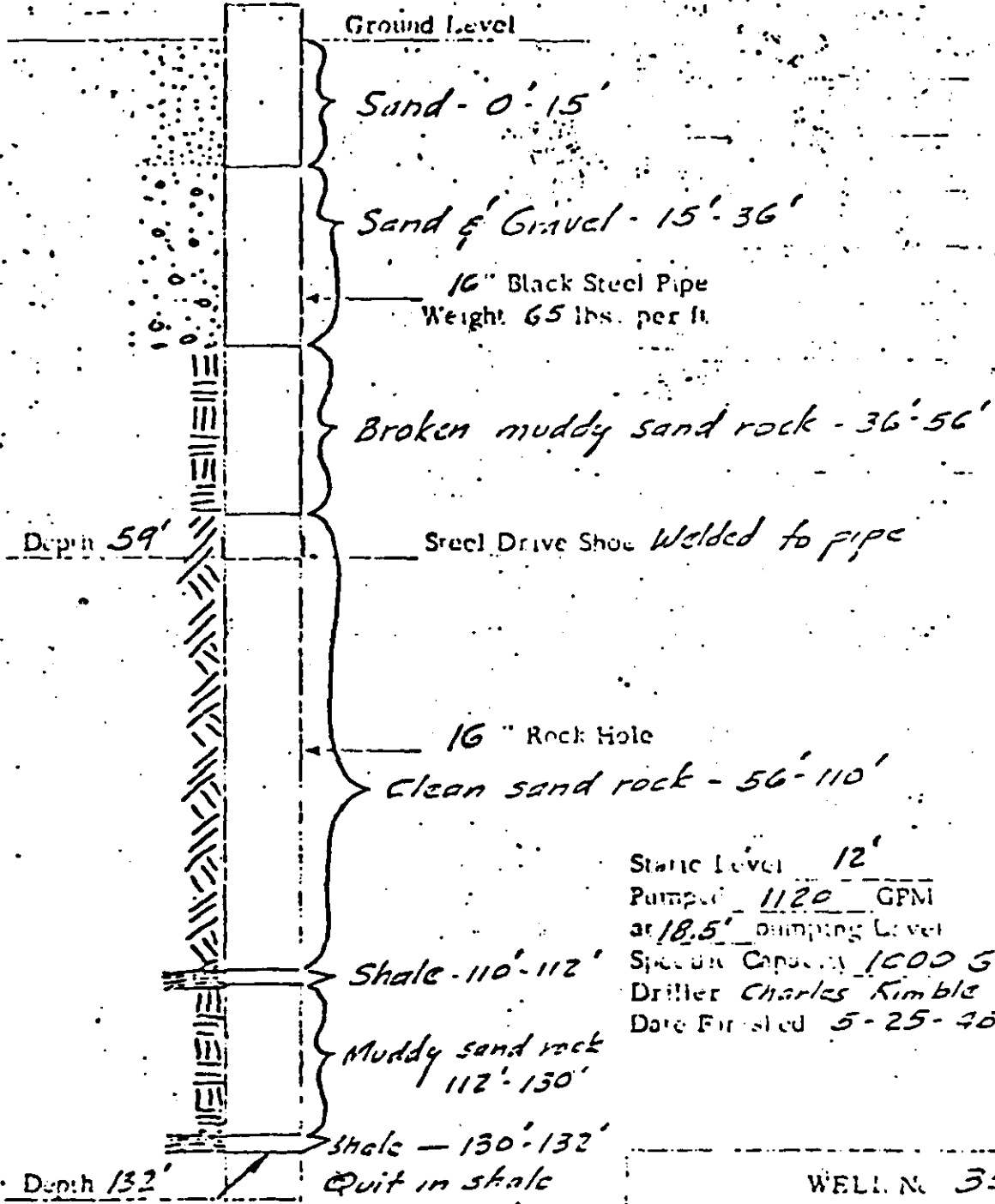
0000307

Not drawn to scale
All depths measured from Ground Level

Drawn by *FW*
Approved by
Date

Drawing No
WD-67

Pipe extends 1.5' above ground level.



Static Level 12'
 Pumped 1120 GPM
 at 18.5' pumping Level
 Specific Capacity 1000 G.P.M.
 Driller Charles Kimble
 Date Finished 5-25-48

WELL NO. 35

City of Little Creek
Battle Creek, Michigan

Location: Verona Well Field

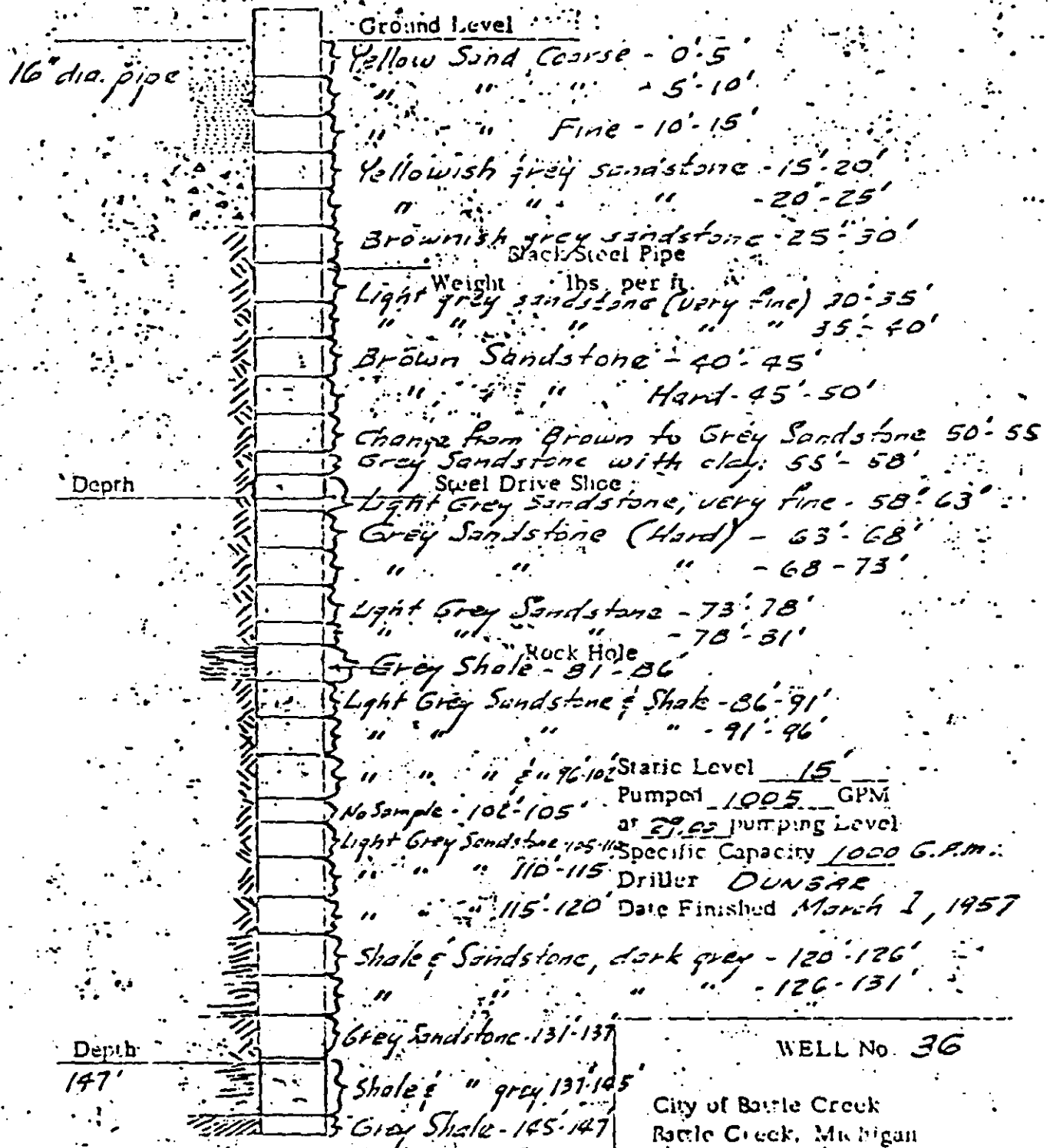
0000308

Not drawn to scale
All depths measured from Ground Level

Drawn by DEW
Approved by
Date

Drawing No.
WD-6

Pipe extends _____ above ground level.



Depth

Depth

147'

Weight lbs. per ft.

Back Steel Pipe

Swel Drive Slice

Rock Hole

Static Level 15'

Pumped 1005 GPM

at 27.65 pumping level

Specific Capacity 1000 G.P.M.

Driller DUNBAR

Date Finished March 1, 1957

WELL No. 36

City of Battle Creek
Battle Creek, Michigan

Location: Verona Well Field

0000309

Drawn by *[Signature]*
Approved by

Drawing
WD-

Not drawn to scale

Job No. _____

Location: VERONA FIELD

Pipe extends 1.5 feet above ground level.

County _____

Township _____

Section _____

SAND 0' to 15'

Soft Sandstone
15' to 33'

Hard Sandstone
33' to 44'

Depth 44'

Grey Sandstone
59' to 143'

Shale
143' to 145'

Depth 145'

Ground Level

16" Black Steel Pipe
Weight lbs. per ft.

Steel Drive Shoe

16" Rock Hole

Pipe Tally Welded
 Threaded

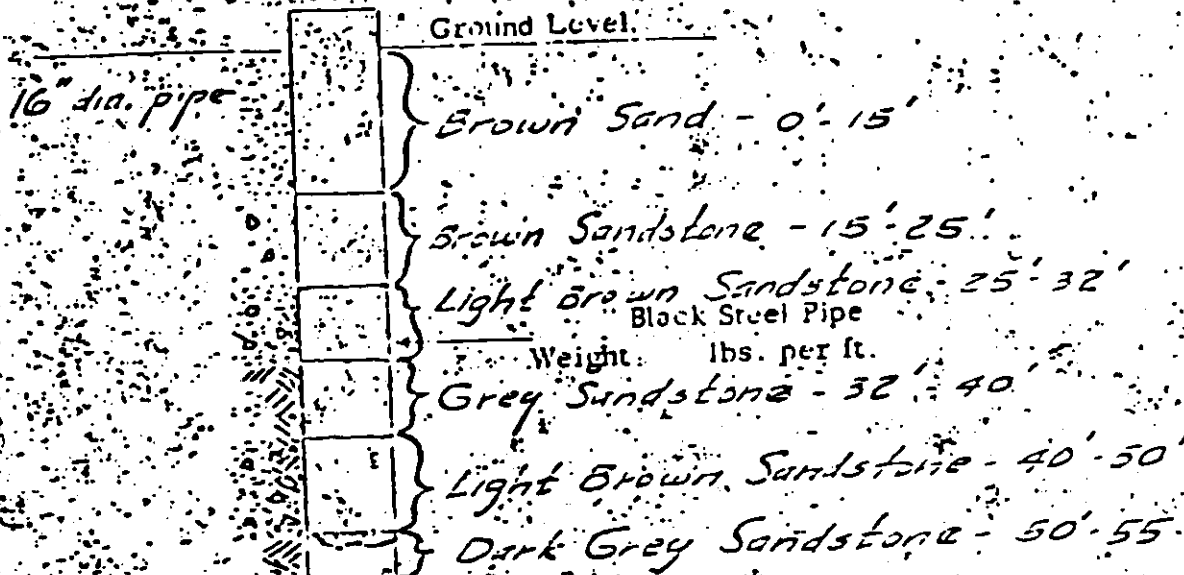
Total _____

Static Level 9.5
Pumped 1009 GPM - 260 G.P.F.
at 13.5 pumping level after 4 hours
Driller - D.H. BOO
Date Finished - 3/57

ROCK WELL No. 32
For _____
City Bottle Creek
VERONA 0000310

LAYNE-NORTHERN CO., INC
MICHAWAKA, INDIANA

Pipe extends above ground level.



Depth

Steel Drive Shoe

Rock Hole

Light Grey Sandstone - 55' - 128'

Static Level

Pumped 1200 GPM

at 26.5 pumping Level

Specific Capacity 1000

Driller: DUNBAR

Date Finished 10-1-1957

Dark Grey Sandstone - 128' - 133'

Depth

152'

Light Grey Sandstone
133' - 143'

Shale - 143' - 152'

WELL No. 58

City of Battle Creek
Battle Creek, Michigan

Location: Verona Well Field

0000311

Drawn by

Approved by

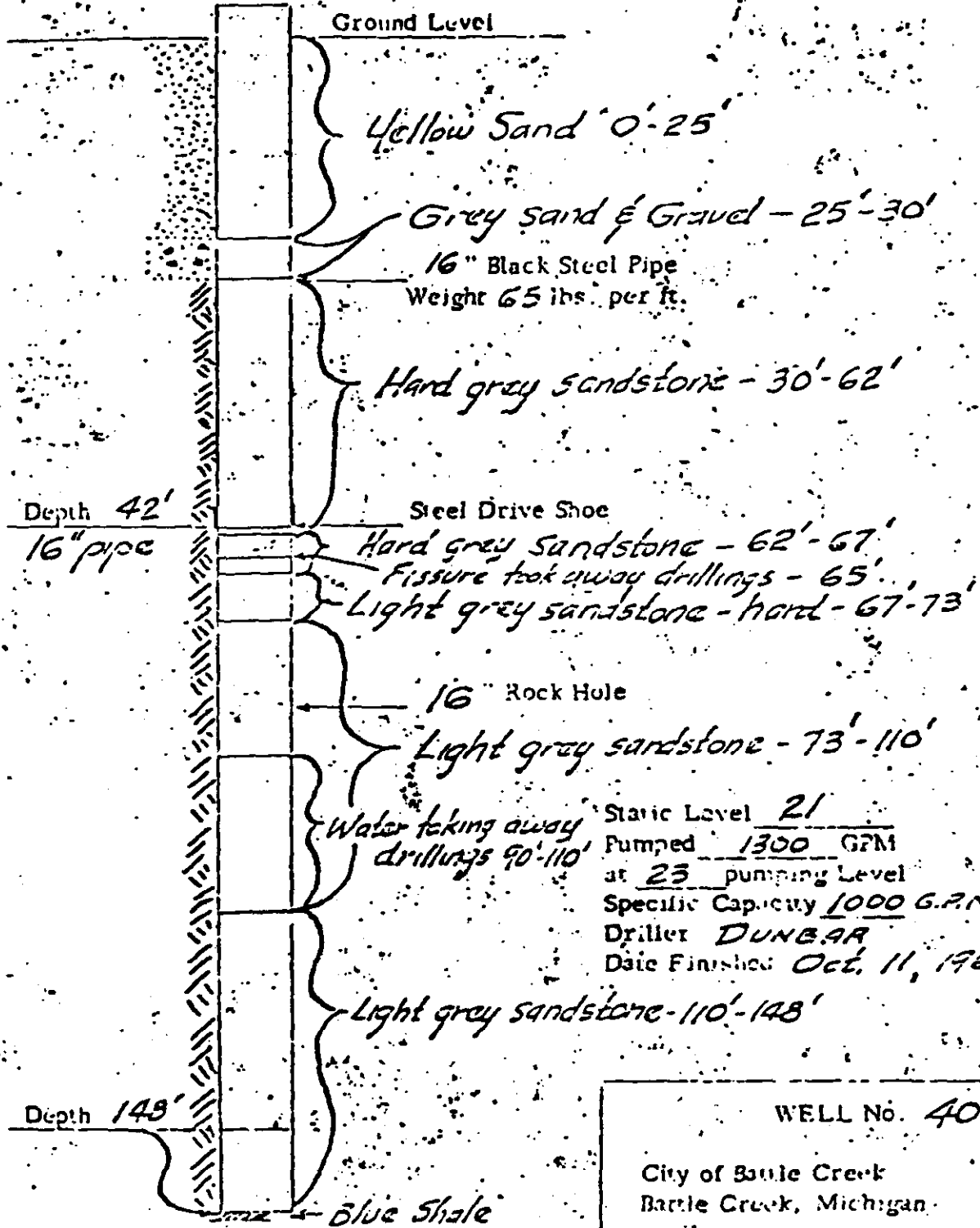
Date

Drawing

WD

Not drawn to scale
All depths measured from Ground Level

Pipe extends above ground level.



Depth 42'
16" pipe

Depth 148'

Ground Level

Yellow Sand 0'-25'

Grey sand & Gravel - 25'-30'

16" Black Steel Pipe
Weight 65 lbs. per ft.

Hard grey sandstone - 30'-62'

Steel Drive Shoe

Hard grey sandstone - 62'-67'

Fissure took away drillings - 65'

Light grey sandstone - hard - 67'-73'

16" Rock Hole

Light grey sandstone - 73'-110'

Water taking away
drillings 90'-110'

Static Level 21

Pumped 1300 GPM

at 23 pumping Level

Specific Capacity 1000 G.P.M.

Driller DUNBAR

Date Finished Oct. 11, 1962

Light grey sandstone - 110'-148'

Blue Shale

Driller - Ralph Drummond
Helper - Howard Krause

WELL No. 40

City of Battle Creek
Battle Creek, Michigan

Location: Verona Well Field

0000312

Not drawn to scale
All depths measured from Ground Level

Drawn by *DK*
Approved by
Date

Drawing No.
WD-13

Pipe extends

above ground level

Ground Level

Surface dirt, light brown sand - 0'-18'

Light grey sandstone, medium hard - 19'-

16" Black Steel Pipe
Weight 65 lbs. per ft.

Medium grey sandstone, hard - 38'-69'

Depth 44'
16" Pipe

Steel Drive Shoe

Medium grey sandstone, hard - 69'-90'

16" Rock Hole

openings take
away drillings
110'

gray sandstone
medium hard
90'-125'

Static Level 21.3
Pumped 1300 GPM
at 26.3 pumping Level
Specific Capacity 1000 G.P.M.
Driller DUNBAR
Date Finished Oct.-30-1962

Depth 147

Light gray sandstone,
medium hard
125'-146'

Blue shale - 146'-147'

WELL No. 41

City of Battle Creek,
Battle Creek, Michigan

Location: Verona Well Field

Driller - Ralph Drummond
Union United Knives

0000313

Job No. MS-0116

Locations 50' So. of Bridgdon Road

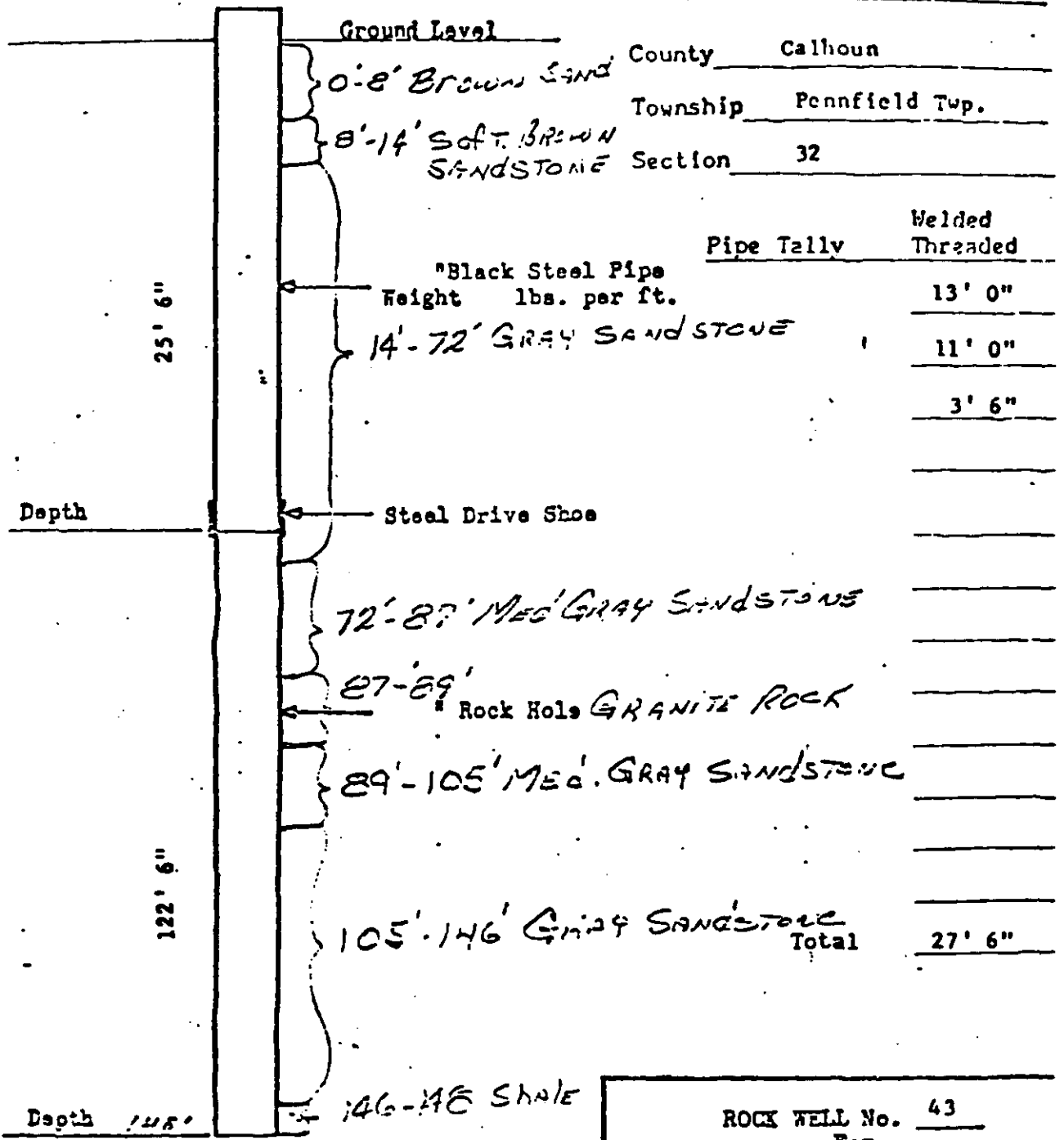
Pipe extends 2 feet above ground level.

Site #43

County Calhoun

Township Pennfield Twp.

Section 32



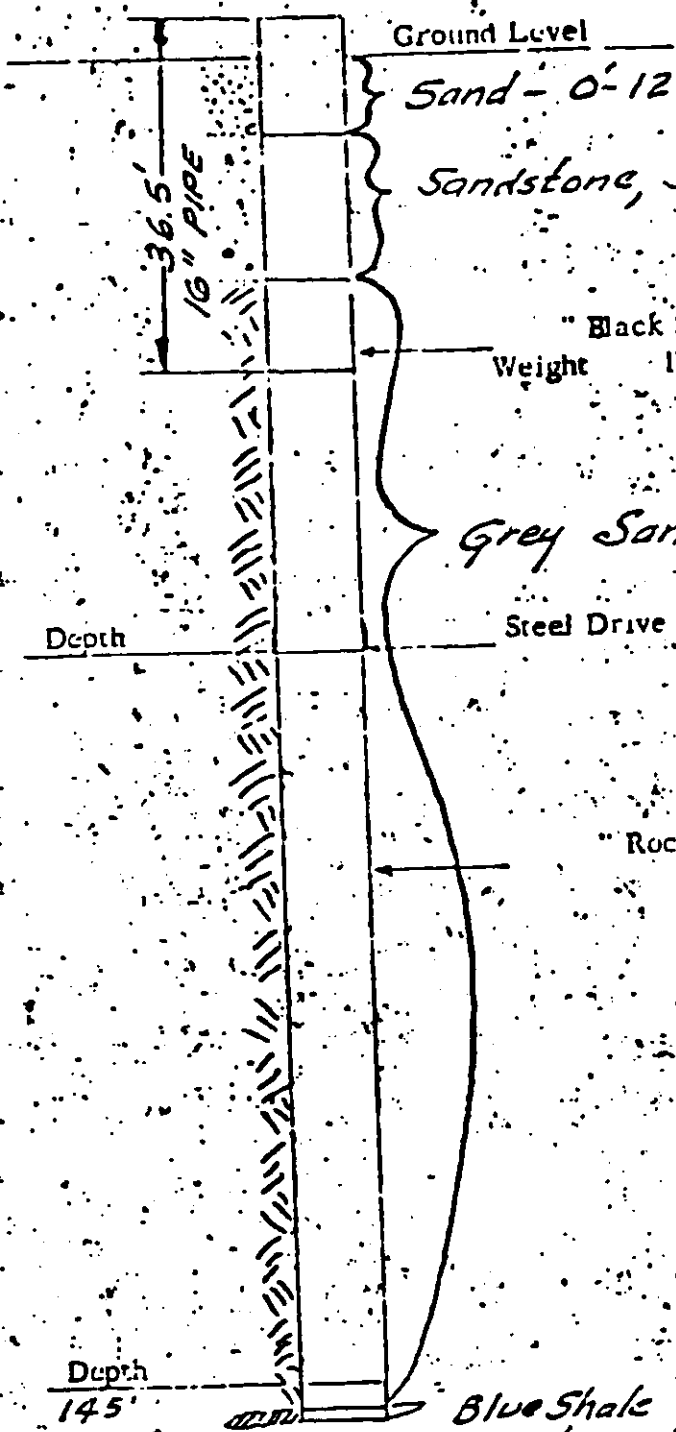
Static Level 12'
 Pumped 7002 GPM
 at 17' pumping level after 6 hours
 Driller Don Snyder
 Date Finished 8-11-76

ROCK WELL No. 43
 For
 City of Battle Creek 0000314
LAYNE NORTHERN CO. INC
 MICHAWAKA, INDIANA

DRAWN BY
 APPROVED BY
 DRAWING No.

Not drawn to scale
 All depths measured from Ground Level

Pipe extends 1.5' above ground level.



Ground Level

Sand - 0'-12'

Sandstone, Sand & Gravel - 12'-27'

Black Steel Pipe
Weight lbs per ft.

Grey Sandstone - 27'-144'

Depth

Steel Drive Shoe

Rock Hole

Static Level 15'
 Pumped 1050 GPM
 at 21' pumping Level
 Specific Capacity 1000 G.P.M.
 Driller DUNBAR
 Date Finished AUG 2, 1960

Depth
145'

Blue Shale
144'-145'

WELL No. 39

City of Battle Creek
Battle Creek, Michigan

Location: Verona Well Field

0000315

Drawn by D.E.N.
Approved by
Date

Drawing No
WD-72

Not drawn to scale
Depth measured from Ground Level