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MORNER

V A1

X35

Report on Subsurface Investigation of
Carboline,
Ankeney Mill Road,
Xenia, Ohio

For

Carboline
P.O. Box 370
Xenia, Ohio 45385

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Report on Subsurface Investigation of
Carboline,
Ankeney Mill Road,
Xenia, Ohio

For

Carboline
P.O. Box 370
Xenia, Ohio 45385

Report No. 12208-692-311

June 22, 1992

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SINCE 1911

4516 Taylorsville Road
P.O. Box 51
Dayton, OH 45401-0051
513-236-8805

513-233-2016 FAX

June 22, 1992

Carboline
P.O. Box 370
Xenia, Ohio 45385

Attention: Mr. Thomas W. Higgins

Dear Mr. Higgins:

Your copies of our report on the subsurface investigation we performed for you at the Carboline site on Ankeney Mill Road in Xenia, Ohio are enclosed. For your information, recommendations are given here, not in the actual report.

No methyl ethyl ketone was detected in any of the soil samples or the water sample tested. No volatile organic compounds (VOC's) were detected by SW-846 Method 8240 in Soil Sample 1-1A from Boring 1 or in the water sample from Boring 2. Toluene was detected in Soil Sample 2-1A from Boring 2 at a level of 0.2 mg/kg and in Soil Sample 3-1A from Boring 3 at a level of 16 mg/kg. Ethylbenzene and xylene were also detected in the soil sample from Boring 3, at levels of 2.4 mg/kg and 6.7 mg/kg, respectively.

All of the samples analyzed were from the top 2-1/2 feet of the borings. The sample from Boring 3, where the highest levels of VOC's were found, was native soil that seemed to be fill from under an old loading dock where the aboveground storage tanks sat. The photo-ionization detector (PID) readings indicate that paint solvents probably did not migrate downward to any great extent at the locations sampled.

Your business is appreciated; we are always glad to help you in any way we can. We look forward to working with you again soon. In the meantime, please call us if you have any questions or if we can help you in any way.

Sincerely,

Bowser-Morner Associates, Inc.

Stephen D. Sommer

Stephen D. Sommer
Hydrogeologist

SDS/mwt
1-Client
2-File

BOWSER-MORNER
4518 Taylorsville Road • P.O. Box 51 • Dayton, Ohio 45401 • 513/236-8805

ENGINEERING REPORT

REPORT TO: Carboline
P.O. Box 370
Xenia, Ohio 45385

REPORT DATE: June 22, 1992

REPORT NO.: 12208-692-311

Attention: Mr. Thomas W. Higgins

REPORT ON: Subsurface Investigation, Carboline Site, Ankeney Mill Road, Xenia, Ohio

1.0 AUTHORIZATION

Written authorization to proceed with this project was received from Mr. Thomas Higgins of Carboline on May 8, 1992. The project was conducted in accordance with our proposal and agreement dated May 6, 1992.

2.0 PURPOSE

The purpose of this investigation was to determine if paint solvents were in the soils or groundwater in the borings made on the site and to describe the hydrogeologic conditions near the location of three aboveground storage tanks at the Carboline site in Xenia, Ohio.

3.0 BACKGROUND INFORMATION

A paint and coating manufacturing facility is on the site, near Shawnee Creek in Xenia, Ohio. A mixture of toluene and methyl ethyl ketone (MEK) was spilled in the location to be investigated. The release may have affected soil and/or groundwater in the immediate area.

This investigation was intended to determine if toluene and MEK have affected soils and groundwater sampled from near the spill, and if so, to attempt to define the extent of soils and/or groundwater affected.

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4.0 HYDROGEOLOGICAL INVESTIGATION

4.1 Site Description

4.1.1 Location

The site is on Ankeney Mill Road southwest of the county fairgrounds in Xenia, Ohio. The development of surrounding area is industrial/commercial. A site location map is included in Appendix A.

4.1.2 Geography

The site lies on gently to steeply sloping land on the east side of Shawnee Creek. Most of the surrounding area consists of industrial and commercial buildings and undeveloped land along Shawnee Creek.

4.1.3 Climate

The climatic conditions at the site are typical for the eastern Midwest. The mean annual temperature is 53 degrees Fahrenheit and the average annual precipitation is 39 to 40 inches. Precipitation is the major recharge mechanism for groundwater in this area. Recharge for groundwater is estimated to be provided by six inches of total annual precipitation.

4.2 Geology

4.2.1 Surface Geology

The soils on the site are developed on clayey glacial till with occasional sand and gravel lenses. These soils have low permeability and may have a seasonally high water table. The glacial till deposits in this area are 20 to 40 feet thick.

4.2.2 Bedrock Geology

The glacial outwash deposits are underlain by thin bedded limestones and calcareous shales of the upper Ordovician Richmond group.

4.3 Hydrogeology

4.3.1 Water Use

Most of the water in the area is used for industrial and commercial purposes. This water is supplied by the Xenia water system.

4.3.2 Water Resources

The water resources in the area are poor. Yields of less than three gallons per minute (gpm) can be developed from the occasional sand and gravel deposits at depths of less than 40 feet.

The Ohio Department of Natural Resources water well logs for wells within one mile of the site are included in Appendix B.

5.0 SUBSURFACE INVESTIGATION

5.1 Boring and Sampling

On May 21 and 22, 1992, three borings were advanced to depths of 10.5, 8.5, and 12.5 feet at locations specified by Mr. Jim Crawford of the Ohio Environmental Protection Agency (OEPA). These borings were made to provide data on the soils, to determine the depth to groundwater, and to determine if paint solvent constituents were in the soil at the locations where Borings 1, 2, and 3 were made and groundwater from the location where Boring 2 was made.

The borings were made with a boring rig using hollow-stem augers and employing standard penetration resistance methods (140-pound hammer, 30-inch drop, two-inch-O.D.

split spoon sampler) at two-foot intervals (continuously) beginning at the ground surface directly beneath the concrete pavement. The depths where these "A"-type split-spoon samples were obtained are noted on the boring logs. Soil cuttings from the borings were placed in D.O.T.-approved drums and left on-site for the client's disposal. The boring location plan and the boring logs are included in Appendix C. When the borings were completed, they were plugged with bentonite chips and capped with concrete.

Before the ground was broken, the boring equipment was decontaminated with high-pressure steam. The sampling equipment was manually decontaminated by removing loose soil, washing it in detergent, rinsing with clean tap water, and air drying the equipment between samples.

The disturbed split-spoon samples were visually classified, logged, and screened with a photo-ionization detector (PID) designed to detect rising organic vapors such as those released from paint solvents. The samples were then sealed in moisture-proof jars, placed on ice, and taken to the laboratory. The PID readings are listed in Table 1.

TABLE 1

PID READINGS

Results are given in parts per million (ppm)

Sample No.	Depth	Result		
		Boring 1	Boring 2	Boring 3
1A	0.5 - 2.5 feet	2.0*	5.0*	22.0*
2A	2.5 - 4.5 feet	0.4	0.6	0.6
3A	4.5 - 6.5 feet	0.6	0.6	0.2
4A	6.5 - 8.5 feet	ND	0.8	0.2
5A	8.5 - 10.5 feet	0.4	---	1.0

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(TABLE 1, PID READINGS, Continued)

Results are given in parts per million (ppm)

Sample No.	Depth	Result		
		Boring 1	Boring 2	Boring 3
6A	10.5 - 12.5 feet	---	---	0.2
7A	12.5 - 14.5 feet	---	---	0.2

*Submitted to laboratory for analysis

ND = None Detected

5.2 Groundwater

Groundwater was encountered in Borings 1 and 2 at depths ranging from 6.0 feet in Boring 2 to 7.5 feet in Boring 1. No groundwater was encountered in Boring 3.

5.3 Field Observations

In all of the borings, gray silty glacial till was encountered starting from the ground surface to depths of 6.0 to 14.5 feet.

A 2.5-foot-thick layer of water-saturated sand was encountered at a depth of 7.5 feet of Boring 1. Gray silty glacial till was encountered under this sand. Groundwater from this sand rose rapidly in the augers to a depth of three feet in this boring.

Boring 2 was advanced with a five-foot slotted auger. A 2.5-foot-thick layer of saturated sand was encountered at a depth of six feet in this boring. No water from this sand entered the slotted auger. After the augers were withdrawn, the water rose to a depth of 5.5 feet. A sample of this water was collected using a new disposable bailer. Gray silty glacial till was encountered under this sand.

No saturated sand was encountered in Boring 3 from the ground surface to a depth of 14.5 feet. This boring could not be advanced further due to physical limitations of the rig and the hardness of the glacial till.

5.4 Sample Analyses

The soil sample with the highest PID reading from each boring and the water sample from Boring 2 were submitted for laboratory analysis within 24 hours after the samples were collected.

These samples were analyzed for volatile organic compounds (VOC's) by EPA SW-846 Method 8240. The results are summarized in Table 2. The laboratory reports are included in Appendix E.

TABLE 2

LABORATORY RESULTS

VOLATILE ORGANIC COMPOUND ANALYSES

Location	Sample No.	Depth	PID Reading	Result
Boring 1	1-1A	0.5 - 2.5 feet	2.0 ppm*	All BDL**
Boring 2	2-1A	0.5 - 2.5 feet	5.0 ppm	Toluene -- 0.2 mg/kg All Other VOC's*** -- BDL
Boring 3	3-1A	0.5 - 2.5 feet	22.0 ppm	Ethylbenzene -- 2.4 mg/kg Toluene -- 16 mg/kg Xylene -- 6.7 mg/kg All Other VOC's -- BDL
Boring 2	Water	---	---	All BDL

*Parts per million
**Below detection limits
***Volatile organic compounds

6.0 SUMMARY

No volatile organic compounds (VOC's) were detected by SW-846 Method 8240 in Soil Sample 1-1A from Boring 1 or in the water sample from Boring 2. Toluene was detected in Soil Sample 2-1A from Boring 2 at a level of 0.2 mg/kg and in Soil Sample 3-1A from Boring 3 at a level of 16 mg/kg. Ethylbenzene and xylene were also detected in the soil sample from Boring 3, at levels of 2.4 mg/kg and 6.7 mg/kg, respectively.

All of the samples analyzed were from the top 2-1/2 feet of the borings. The sample from Boring 3, where the highest levels of VOC's were found, was native soil that seemed to be fill from under an old loading dock where the aboveground storage tanks sat. The photo-ionization detector (PID) readings indicate that paint solvents probably did not migrate downward to any great extent at the locations sampled.

Thank you for selecting Bowser-Morner Associates, Inc. for this project. Your business is appreciated, and we look forward to working with you again soon. In the meantime, if you have any questions or if we can help you in any way, please let us know.

Sincerely,

BOWSER-MORNER ASSOCIATES, INC.

Stephen D. Sommer

Stephen D. Sommer
Hydrogeologist

SDS/mwt
3-Client
3-File

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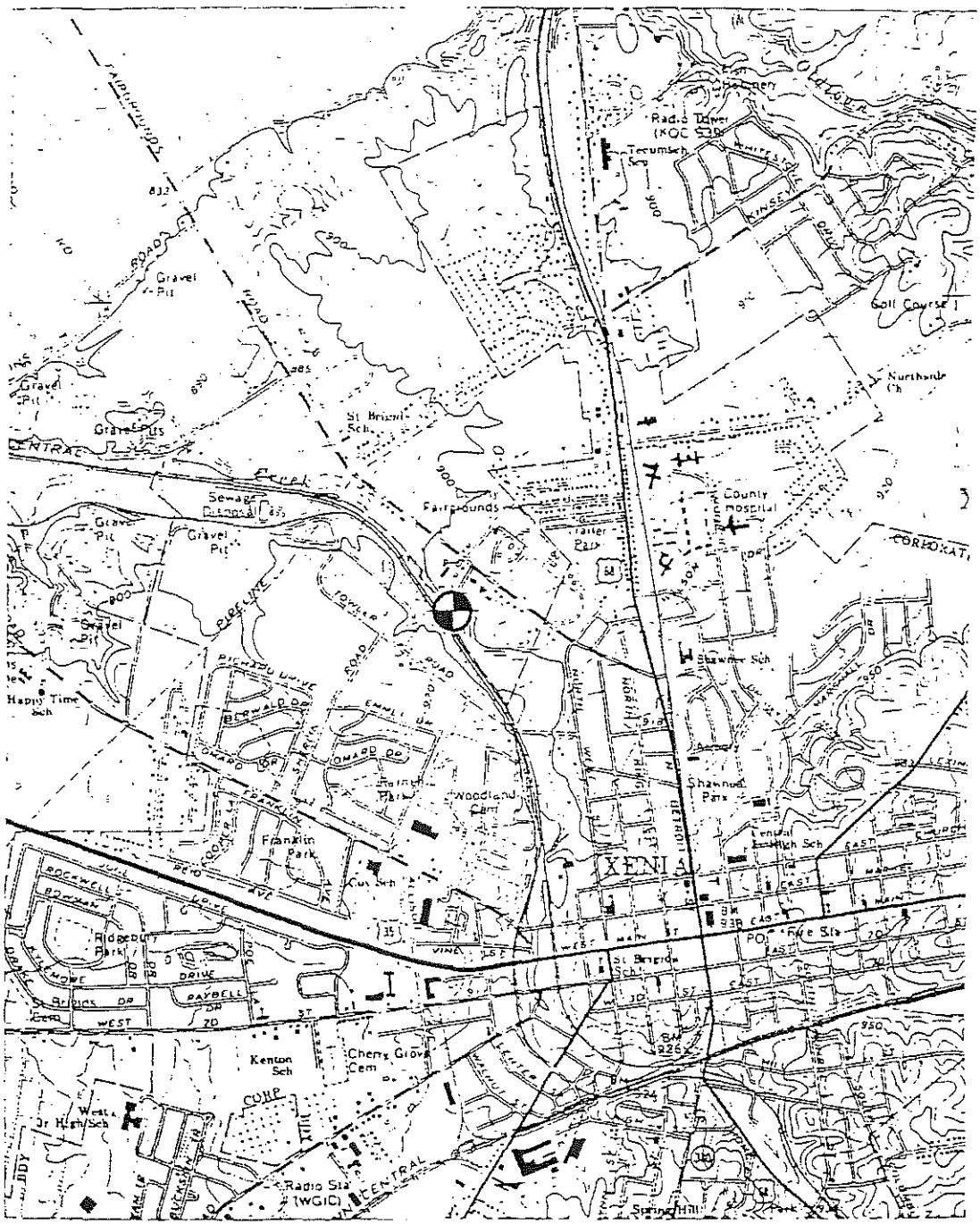
APPENDIX A

SITE LOCATION MAP

BOWSER MORNER



SITE LOCATION MAP

SITE LOCATION

APPENDIX B

OHIO DEPARTMENT OF NATURAL RESOURCES

WATER WELL LOGS

BOWSER
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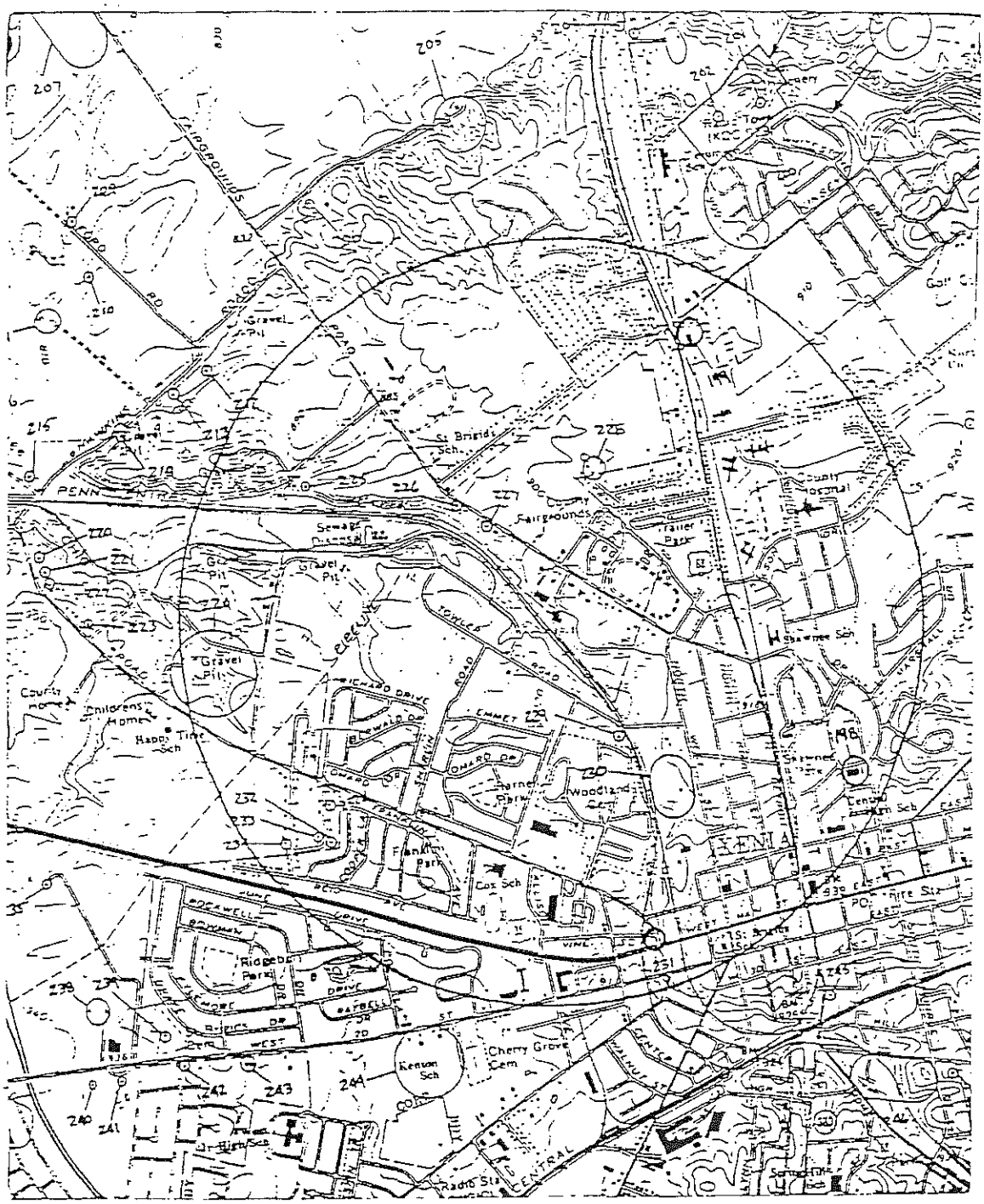

WATER WELL LOCATIONS

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

№ 318337

County Greene Township Xenia Section of Township

Owner Xenia City Board of Education Address E. Church St. Xenia O.

Location of property Central High School Sutton Dr.

CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter 6" OD Length of casing 20'	Pumping Rate 6 G.P.M. Duration of test — hrs.
Type of screen None Length of screen	Drawdown 100 ft. Date 1/18/66
Type of pump Submersible	Static level-depth to water 10 ft.
Capacity of pump 5 to 8 GPM.	Quality (clear, cloudy, taste, odor) Clear.
Depth of pump setting 140'	
Date of completion 1/18/66	Pump installed by Weaver

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	2 Ft.
Gravel & clay	2	20
Shale	20	150
Water from thin limestone layers in the shale.		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. E.

S.

See reverse side for instructions

Drilling Firm Don Weaver Date 1/18/66

Address Xenia O Signed Don Weaver

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WEL LOG AND DRILLING REPORT

NO CARBON PAPER NECESSARY – SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

603593

COUNTY Greene TOWNSHIP Xenia SECTION OF TOWNSHIP

OWNER Wickline's Landscaping + Nursery ADDRESS 1625 N. Detroit St

LOCATION OF PROPERTY Same Xenia O

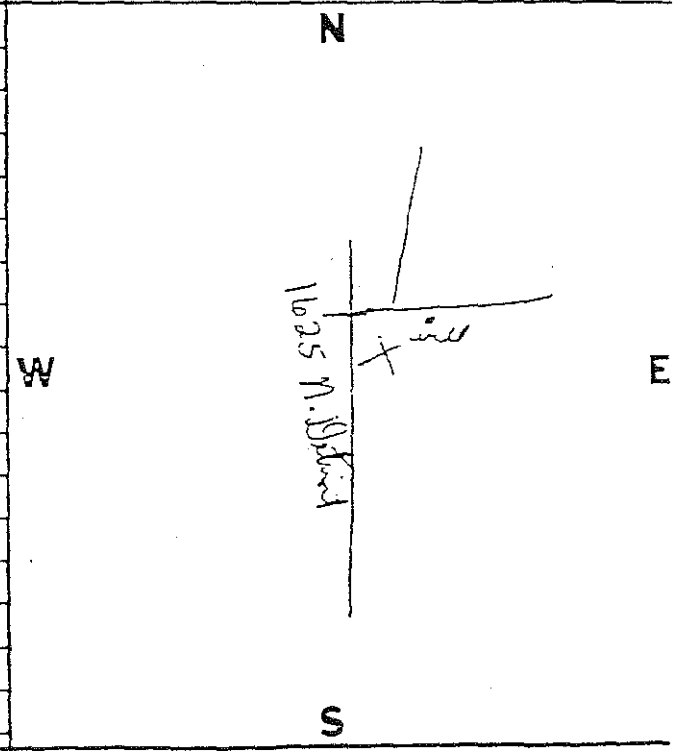
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST (specify one by circling)
Casing diameter 5 3/8 Length of casing 26	Test rate 6 gpm Duration of test hrs
Type of screen Length of screen	Drawdown 15 ft Date
Type of pump	Static level (depth to water) 10 ft
Capacity of pump	Quality (clear, cloudy, taste, odor) Clear
Depth of pump setting	
Date of completion March 1982	Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay + gravel	0 ft	24 ft
Blue shale	24	50

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM John E. Iobst + Son DATE March 1982

ADDRESS Xenia, Ohio SIGNED John E. Iobst

*If additional space is needed to complete well log, use next consecutive numbered form.

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WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

No. 243383

County Greene Township Xenia Section of Township

Owner R. J. Mason Address

Location of property Xenia E. on old SR 35 in Xenia

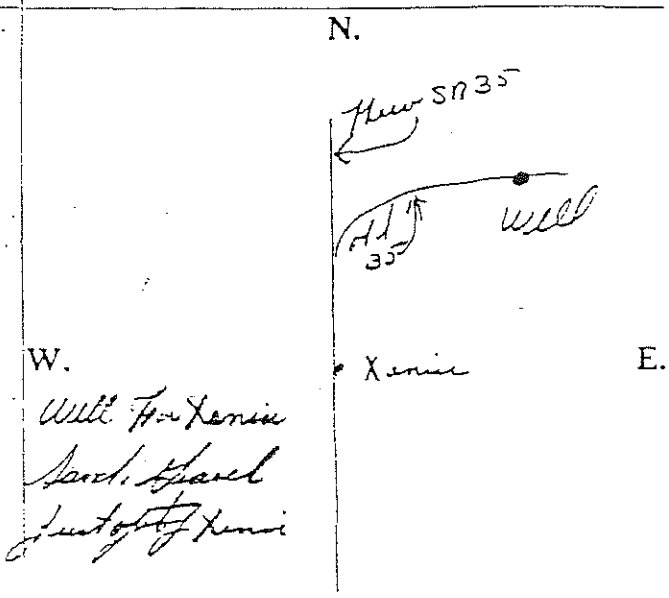
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter 5 Length of casing 82	Pumping rate 2 G.P.M. Duration of test 1 hrs.
Type of screen Length of screen	Drawdown 35 ft. Date 8-9-61
Type of pump	Developed capacity 2 Gal Per Min
Capacity of pump	Static level—depth to water 40 ft.
Depth of pump setting	Pump installed by
Date of completion	

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	5 Ft.
Gravel	5	50
Clay	50	82
Shale	82	85
Depth of Well	85 feet	

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Clinton Well Drillers Date 8-12-61

Address R.R. 1 Wilmington Signed Jack Hobbs

224

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NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

487822

COUNTY Greene TOWNSHIP Xenia O. SECTION OF TOWNSHIP OR LOT NUMBER

OWNER Hugh Pagett ADDRESS 669 Hawkins School House Rd

LOCATION OF PROPERTY above

CONSTRUCTION DETAILS

Casing diameter 16" O.D. Length of casing 84' 6"

pe of screen None Length of screen

Type of pump Submersible

pacity of pump 10 GPM

pth of pump setting 100 ft.

Date of completion Bryman

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 30 gpm Duration of test 3 hrs

Drawdown 10 ft Date Mar-21, 77

Static level (depth to water) 67 ft

Quality (clear, cloudy, taste, odor) Clear

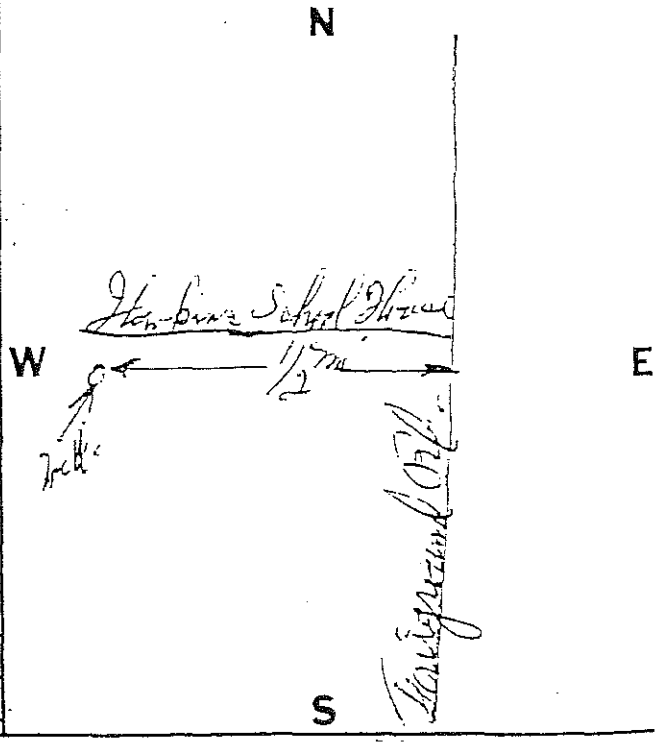
Pump installed by Owner

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top gravel	0 ft	15 ft
Red Clay	15	35
Blue clay	35	60
Brown clay & sand	60	65
Clay & gravel	65	75
Gravel (Dirty)	75	90
Shale	90	125
Water from about 90 ft.		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Don Weaver DATE May 21, 77

ADDRESS Xenia O SIGNED Don Weaver

*If additional space is needed to complete well log, use next consecutive numbered form.

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WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

434036

County Greene Township Xenia Section of Township

Owner M. F. Moran Address Fairground Rd.

Location of property Fairground Rd at Intersection of Purcell Dr.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 50'

Type of screen Gravelpack Length of screen None

Type of pump Submersible

Capacity of pump 10 GPM.

Depth of pump setting 45

Date of completion Apr 3 1973

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 8 G.P.M. Duration of test 3 hrs

Drawdown 35 ft. Date Apr 3, 1973

Static level-depth to water 7 ft.

Quality (clear, cloudy, taste, odor) Clear.

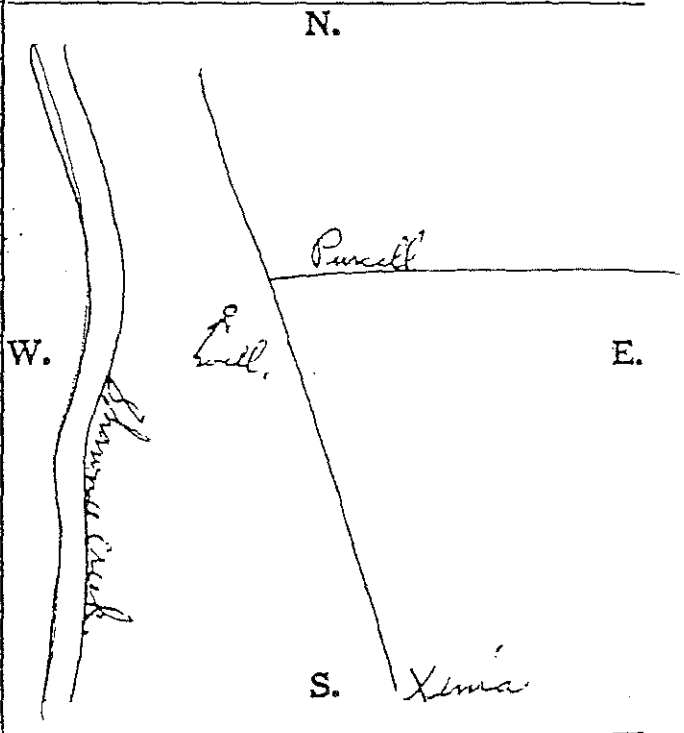
Pump installed by Weaver

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Topsoil	0 Feet	2 Ft
Clay	2	10
Hard pan	10	16
Hard clay & gravel	16	20
Shale with interbedded	20	50
layers of hard pan		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Don Weaver Date Apr 3 1973

Address Xenia O. Signed Don Weaver

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WELL LOG AND DRILLING REPORT

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NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

434043

County Greene Township Xenia Section of Township

Owner Ellis P. Snyder Address Springfield Rd.

Location of property above

CONSTRUCTION DETAILS

Casing diameter 6" OD Length of casing 27' 6"

Type of screen None Length of screen

Type of pump Submersible

Capacity of pump 10 GPM.

Depth of pump setting 40 ft.

Date of completion June 22, 73

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 36 G.P.M. Duration of test 1 hrs

Drawdown 10 ft. Date June 21, 73

Static level-depth to water 10 ft.

Quality (clear, cloudy, taste, odor) Clear

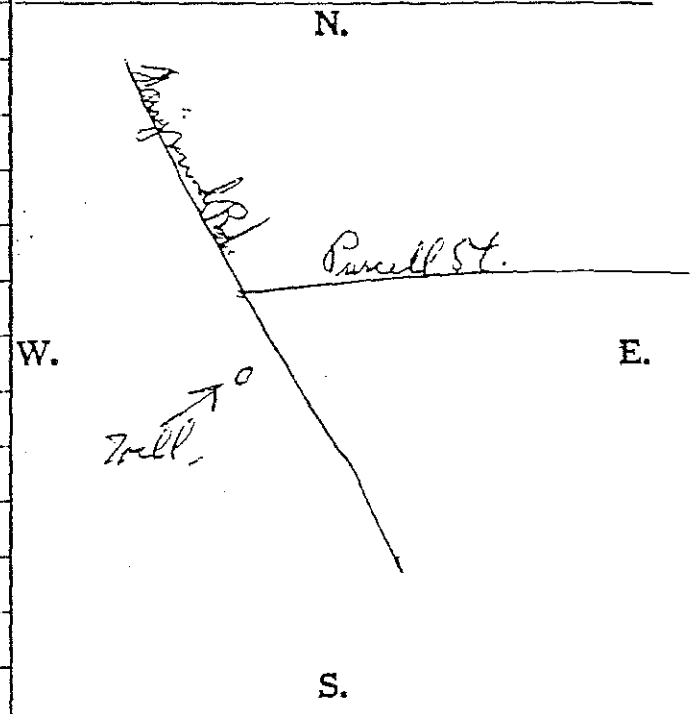
Pump installed by Weaver

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Topsoil	0 Feet	2 Ft.
Brown clay gravel	2	20
Gravel (water)	20	27
Shale	27	50

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Don Weaver Date June 22 73

Address Xenia O. Signed Don Weaver

*If additional space is needed to complete well log, use next consecutive numbered form.

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WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK

№ 333533

County Greene Township Xenia Section of Township

Owner H. A. Hicks Address 126 Rumbler Dr. Xenia O.

Location of property Ewalee Omalee Dr. Lot 2.

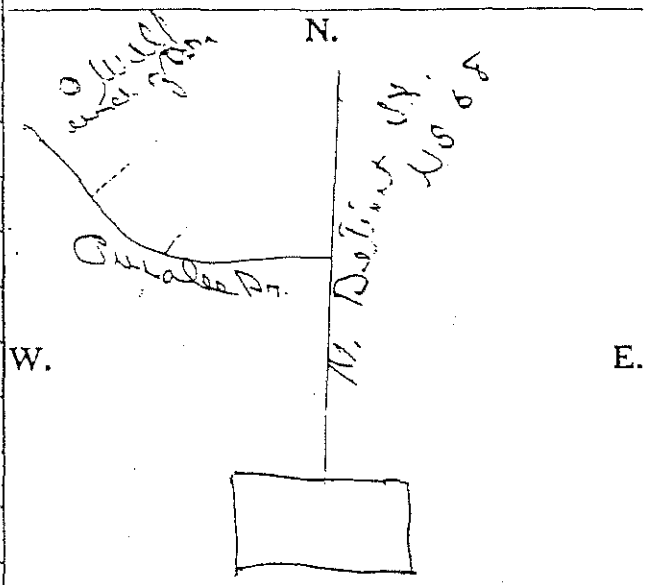
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter 6" OD Length of casing 41 ft	Pumping Rate 7 G.P.M. Duration of test 5 hrs.
Type of screen Length of screen	Drawdown 3 ft. Date 10/3/67
Type of pump Submersible	Static level-depth to water 17 ft.
Capacity of pump 10 G.P.M.	Quality (clear, cloudy, taste, odor) Clear
Depth of pump setting 71 ft.	
Date of completion Oct 13. 1967	Pump installed by W A Crumley

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Top Soil	0 Feet	4 Ft.
Shale	4	12
Sand & Clay	12	23
Gravel	23	25
Clay	25	37
Salt	37	80
Penlanatch		
Coming from 23 to 25		
Water & gravel from 23 to 25 ft.		
40 ft 2 1/2" Tubes		
Air Slide		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm W A Crumley Date Oct. 17, 1967

Address Xenia O. 45385 Signed W. A. Crumley

*If additional space is needed to complete well log, use next consecutive numbered form.

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State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

632914

COUNTY Green TOWNSHIP Xenia SECTION OF TOWNSHIP

OWNER Merchants + Mechanics S+L ADDRESS 20 S. Limestone St.

LOCATION OF PROPERTY 467 Towler Rd.

CONSTRUCTION DETAILS

Casing diameter 6 in Length of casing 64 FT

pe of screen Length of screen

Type of pump

pacity of pump

Depth of pump setting

te of completion

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 6 gpm Duration of test 1 hrs

Drawdown 10 ft Date 7-19-86

Static level (depth to water) 31 FT. ft

Quality (clear, cloudy, taste, odor) Clear

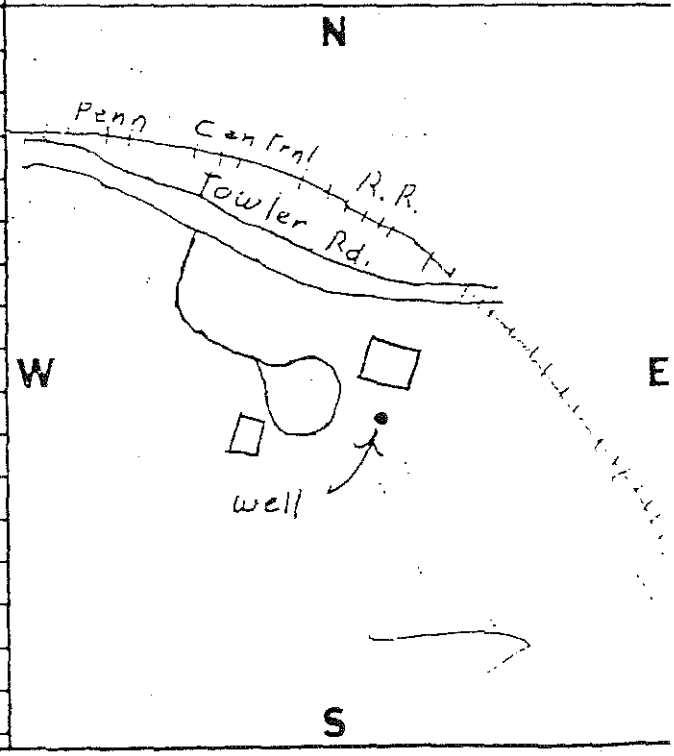
Pump installed by Paul Clark

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay	0 ft	8 ft
gravel	8	25
Clay	25	60
Sand + gravel	60	64
WATER AT	64	
Clay	64	99
Shale	99	110

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Lower Well Drilling DATE 7-19-86

ADDRESS 2531 S. Limestone St. SIGNED David V. Lower

*If additional space is needed to complete well log, use next consecutive numbered form.

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WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 409324

County Greene Township Xenia City Section of Township

Owner Xenia Foundry Co. Address

Location of property West St

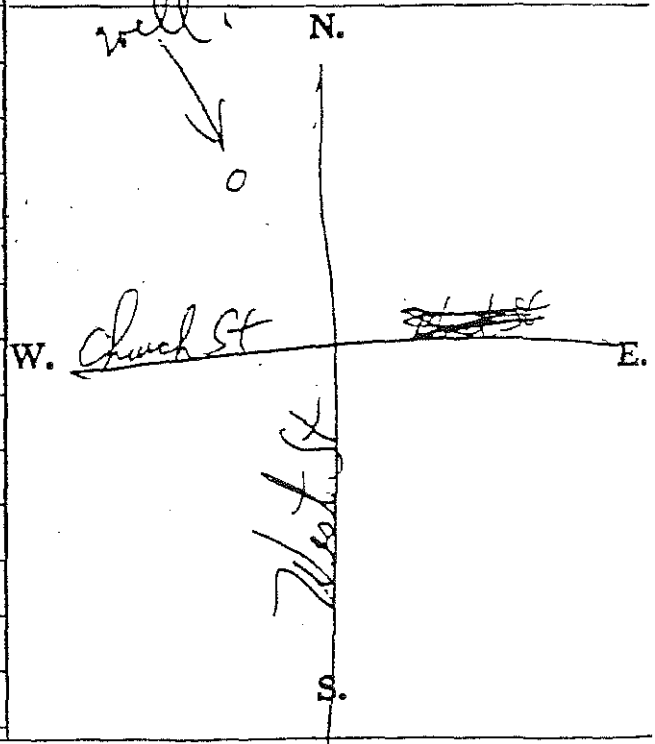
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST (Specify one by circling)
Casing diameter 6" OD Length of casing 31	Test Rate 10 G.P.M. Duration of test 4 hrs.
Type of screen None Length of screen	Drawdown 40 ft. Date June 25, 1971
Type of pump Submersible	Static level-depth to water 10 ft.
Capacity of pump 10 GPM	Quality (clear, cloudy, taste, odor) Clear
Depth of pump setting 60 ft.	
Date of completion June 25, 1971	Pump installed by Weaver

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Topsoil	0 Feet	3 Ft.
Yellow clay	3	20
Blue clay	20	29
Coarse sand (water)	29	32
Shale	32	100

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Don Weaver Date June 25 1971

Address Xenia O. Signed Don Weaver

*If additional space is needed to complete well log, use next consecutive numbered form.

23 of

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 409323

County Greene Township Xenia ~~City~~ Section of Township

Owner Xenia Foundry Co. Address

Location of property West St.

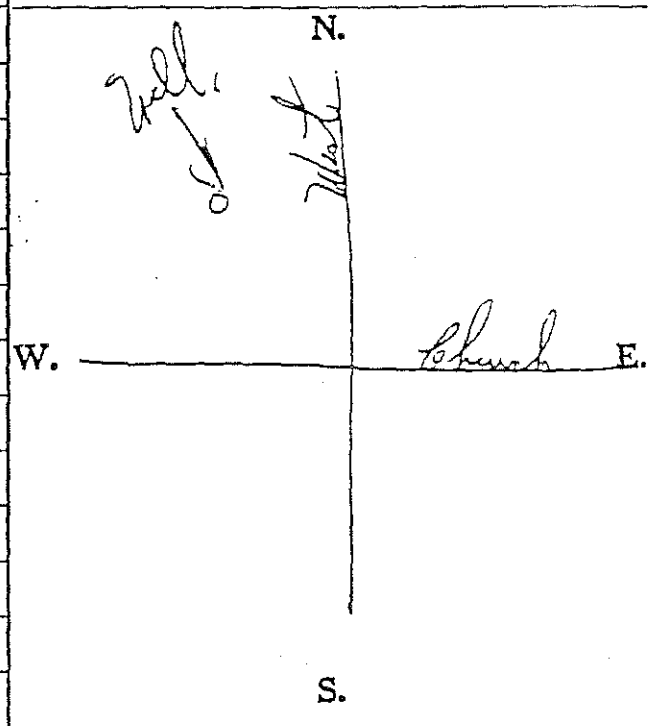
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST (Specify one by circling)
Casing diameter 6" OD Length of casing 31	Test Rate 20 G.P.M. Duration of test 4 hrs.
Type of screen None Length of screen	Drawdown 20 ft. Date June 25, 1971
Type of pump Submersible	Static level-depth to water 80 ft.
Capacity of pump 20 GPM.	Quality (clear, cloudy, taste, odor) Clear
Depth of pump setting 60 ft.	
Date of completion June 25, 1971	Pump installed by Weaver

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Topsoil	0 Feet	3 Ft.
Yellow Clay	3	29
Gravel (water)	29	32
Shale	32	95

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Don Weaver Date June 25 1971

Address Xenia O. Signed Don Weaver

*If additional space is needed to complete well log, use next consecutive numbered form.

(230)

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 409322

County Greene Township Xenia ~~City~~ Section of Township

Owner Xenia Foundry & Mfg Co. Address West St. Xenia O.

Location of property West Street

CONSTRUCTION DETAILS

Casing diameter 6" OD Length of casing 31 ft.

Type of screen none Length of screen

Type of pump Submersible

Capacity of pump 30 GPM.

Depth of pump setting 60 ft.

Date of completion June 25, 1971

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 30 G.P.M. Duration of test 4 hrs.

Drawdown 15 ft. Date June 25, 1971

Static level-depth to water 8 ft.

Quality (clear, cloudy, taste, odor) Clear.

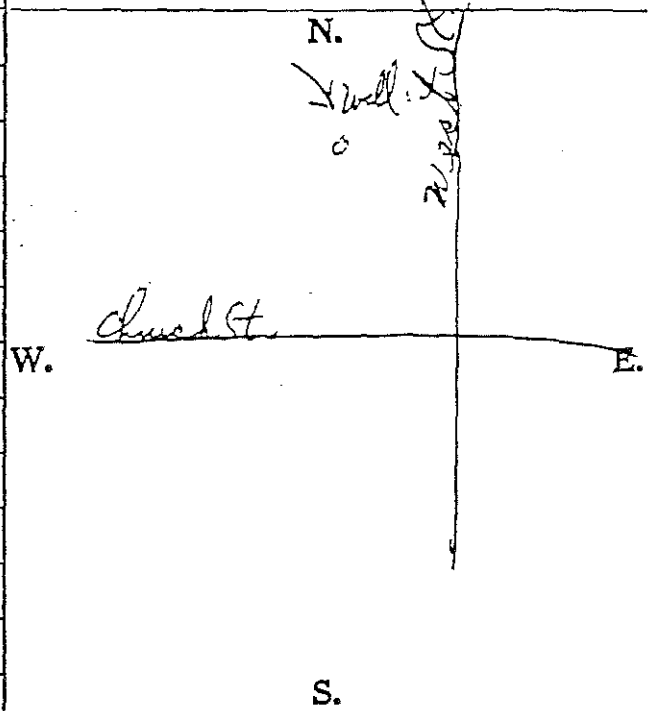
Pump installed by Weaver

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Topsoil	0 Feet	3 Ft.
Yellow clay	3	19
Blue clay	19	29
Gravel (water)	29	32
Shale with limestone layers	32	120

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Don Weaver Date June 25 1971

Address Xenia O. Signed Don Weaver

*If additional space is needed to complete well log, use next consecutive numbered ~~form.~~ 230

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

434011

County Greene Township Xenia City Section of Township

Owner Lee Cornick Address Main & Dayton Ave.

Location of property

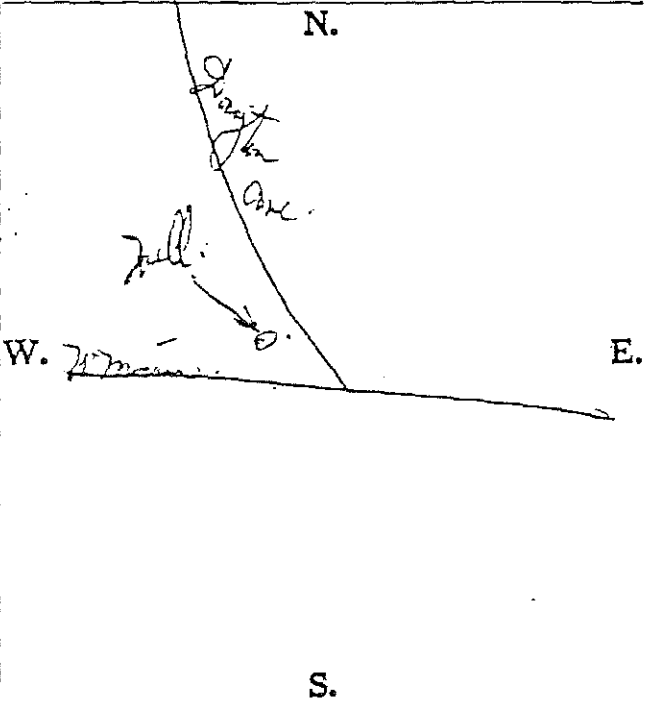
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST (Specify one by circling)
Casing diameter 6" CD Length of casing 27'	Test Rate 3 G.P.M. Duration of test 4 hrs
Type of screen None Length of screen	Drawdown 50 ft. Date Apr. 15, 1972
Type of pump Submersible	Static level-depth to water 8 ft.
Capacity of pump 10 GPM	Quality (clear, cloudy, taste, odor) Clear
Depth of pump setting 65 ft.	
Date of completion Apr. 20, 1972	Pump installed by Weaver

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Topsoil	0 Feet	2 Ft.
Brown clay	2	12
Blue clay	12	14
Brown clay & gravel	14	27
Shale	27	70

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Don Weaver Date Apr. 20, 1972

Address Xenia O. Signed Don Weaver

*If additional space is needed to complete well log, use next consecutive numbered ~~form~~ 231

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY – SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

487807

COUNTY Greene TOWNSHIP Xenia SECTION OF TOWNSHIP OR LOT NUMBER

OWNER James Nunnery ADDRESS Richard Dr.

LOCATION OF PROPERTY Above.

CONSTRUCTION DETAILS

Casing diameter 6" OD Length of casing 102

Type of screen None Length of screen

Type of pump None

Capacity of pump

Depth of pump setting

Date of completion Oct 27, 76

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 10 gpm Duration of test 1 hrs

Drawdown 20 ft Date Oct 26, 76

Static level (depth to water) 40 ft

Quality (clear, cloudy, taste, odor) Clear

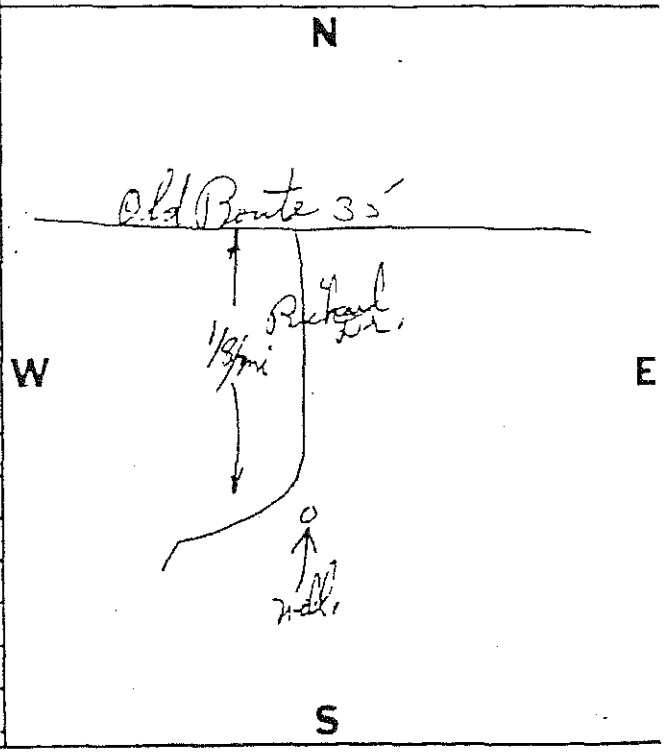
Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top soil	0 ft	3 ft
Br. clay	3	52
Blue clay	52	60
Sand & water	61	96
Hard blue clay	96	99
Gravel (water)	99	102

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Don Weaver DATE Oct 28, 76

ADDRESS Xenia, O. SIGNED Don Weaver

*If additional space is needed to complete well log, use next consecutive numbered form.

932

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1939 Fountain Square Drive
Columbus, Ohio 43224

688997

TYPE OR USE PEN
SELF-TRANSCRIBING
PRESS HARD!

Permit Number _____

COUNTY Greene TOWNSHIP Xenia SECTION OF TOWNSHIP _____

OWNER Helen J. Owen PROPERTY ADDRESS 188 Richard Dr

LOCATION OF PROPERTY 188 Richard Dr.

CONSTRUCTION DETAILS

CASING

Casing Diameter 5 5/8 in. Length of Casing 203 ft.

Type: ☒ Steel ☒ Galv. ☐ PVC ☐ Other _____

Joints: ☐ Threaded ☒ Welded ☐ Solvent ☐ Other _____

SCREEN

Type (wire wrapped, louvered, etc.) _____ Material _____

Length _____ ft. Diameter _____ in.

Set between _____ ft. and _____ ft. Slot _____

GROUT

Material _____ Volume used _____

Method of installation _____

Depth: placed from _____ ft. to _____ ft.

☐ Rotary ☒ Cable ☐ Augered ☐ Driven ☐ Dug ☐ Other _____

BAILING OR PUMPING TEST
(specify one by circling)

WELL TEST

Test rate 7 gpm Duration of test _____ hrs.

Drawdown (water level during pumping) 50 ft.

Measured from: ☐ top of casing ☒ ground level ☐ Other _____

Static Level (depth to water) 55 ft. Date: _____

Quality (clear, cloudy, taste, odor) _____

PUMP

Type of pump _____ Capacity _____ gpm

Pump set at _____ ft.

Pump installed by _____

Pitless Device ☐ Adapter ☐ Preassembled unit

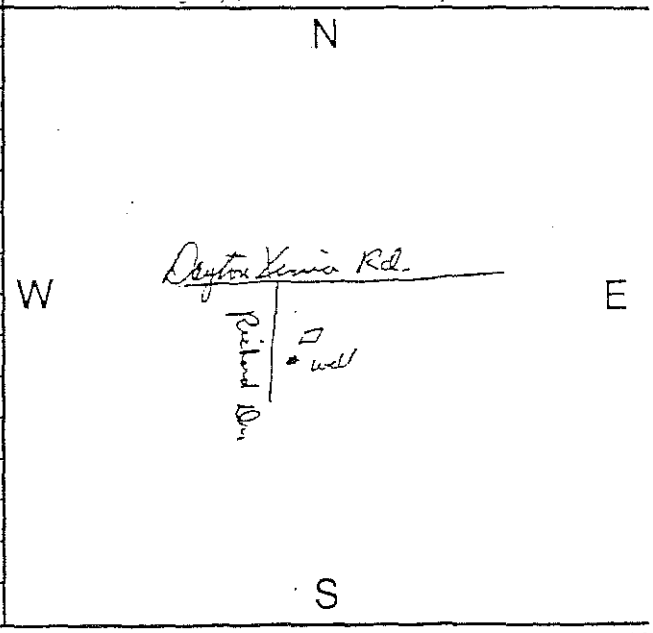
Use of Well _____

WELL LOG*

Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand	From	To
Clay	0 ft.	4 ft.
Dry gravel	4	51
Clay + gravel	51	185
Green Shale	185	201
Blue Shale	201	218

SKETCH SHOWING LOCATION

Show distances well lies from numbered state highways, street intersections, county roads, etc.



* If additional space is needed to complete well log, use next consecutively numbered form.

DNR 7802.68

DRILLING FIRM John E. White SIGNED John E. White

ADDRESS 5873 45 68 S. DATE 11-8-8

CITY, STATE, ZIP Xenia, Ohio 45385 ODH REGISTRATION NUMBER 15

232.

Completion of this form is required by 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.

ORIGINAL COPY - ODNR, DIVISION OF WATER, 1939 FOUNTAIN SQ. DRIVE, COLS., OHIO 43224

Y=1,528,000 ±2,[illegible]
X= 620,000S

WELL LOG AND DRILLING REPORT

State of Ohio
OHIO WATER RESOURCES BOARD
Department of Public Works
553 E. Broad St., Columbus 15, Ohio

№ 49157

County Greene Township Xenia Section of Township or Lot Number

Owner Charles Kruff Address Xenia

Location of property 1 mile west of Xenia ½ mile South of Rt 35

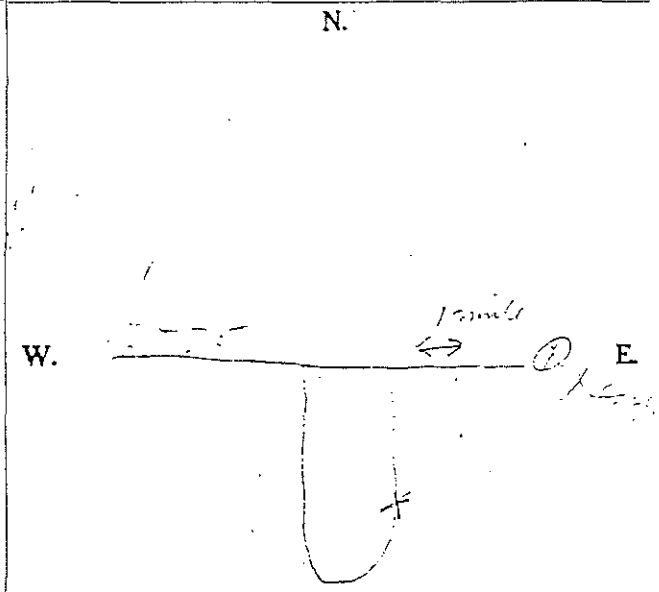
CONSTRUCTION DETAILS	PUMPING TEST
Casing diameter [illegible] Length of casing [illegible]	Pumping rate [illegible] G.P.M. Duration of test ____ hrs.
Type of screen ____ Length of screen ____	Drawdown 40 ft. Date ____
Type of pump J.T.	Developed capacity ____
Capacity of pump ____	Static level of completed well [illegible] ft.
Depth of pump setting [illegible]	Pump installed by Owner

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From ~~0 Feet~~	To Ft.
[illegible]	113	[illegible]
[illegible]	[illegible]	[illegible]
mud	[illegible]	155
[illegible]	154	[illegible]
mud	160	167
[illegible]	[illegible]	[illegible]
[illegible]	165	170
water lt	[illegible]	

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm [illegible] Date 4-6-54

Address RR #3 Box [illegible] Signed [illegible]

[illegible]

233

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

GWC

XENIA

№ 168708

County Greene Township ~~Beaver Creek~~ ~~Xenia~~ Section of Township or Lot Number

Owner Glendon Wiseman Address Xenia O. RD # 4

Location of property 3/4 mi. west of Xenia just south of Old Rt. 35

CONSTRUCTION DETAILS

Casing diameter 5" O.D. Length of casing 170'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

PUMPING TEST

Pumping rate 10 G.P.M. Duration of test 3 hr.

Drawdown 10 ft. Date 3/14/56

Developed capacity 600 G.P.H.

Static level—depth to water 60

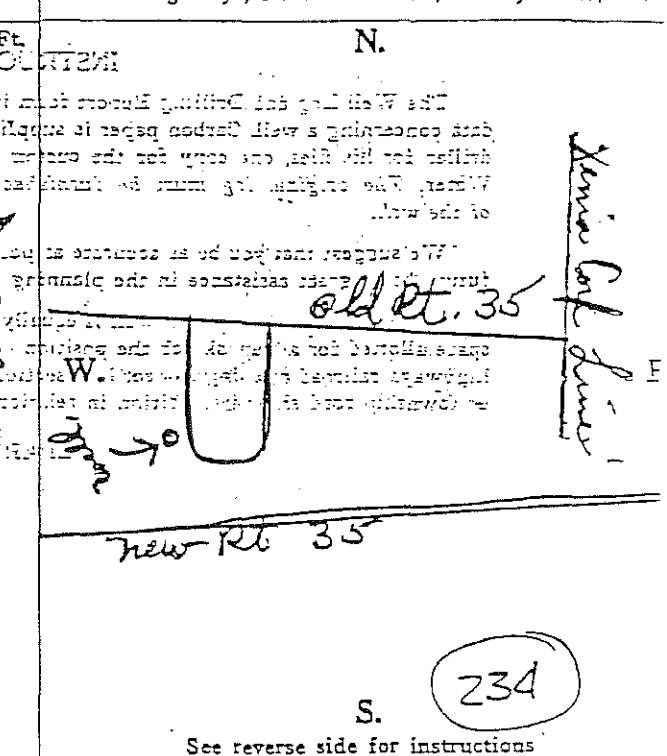
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Top soil	0 Feet	3 Ft.
Clay & gravel	3	90
Gravel	90	110
Gravel & sand	110	168
Shale (water)	168	170
Limestone (water)	170	173

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



234

See reverse side for instructions

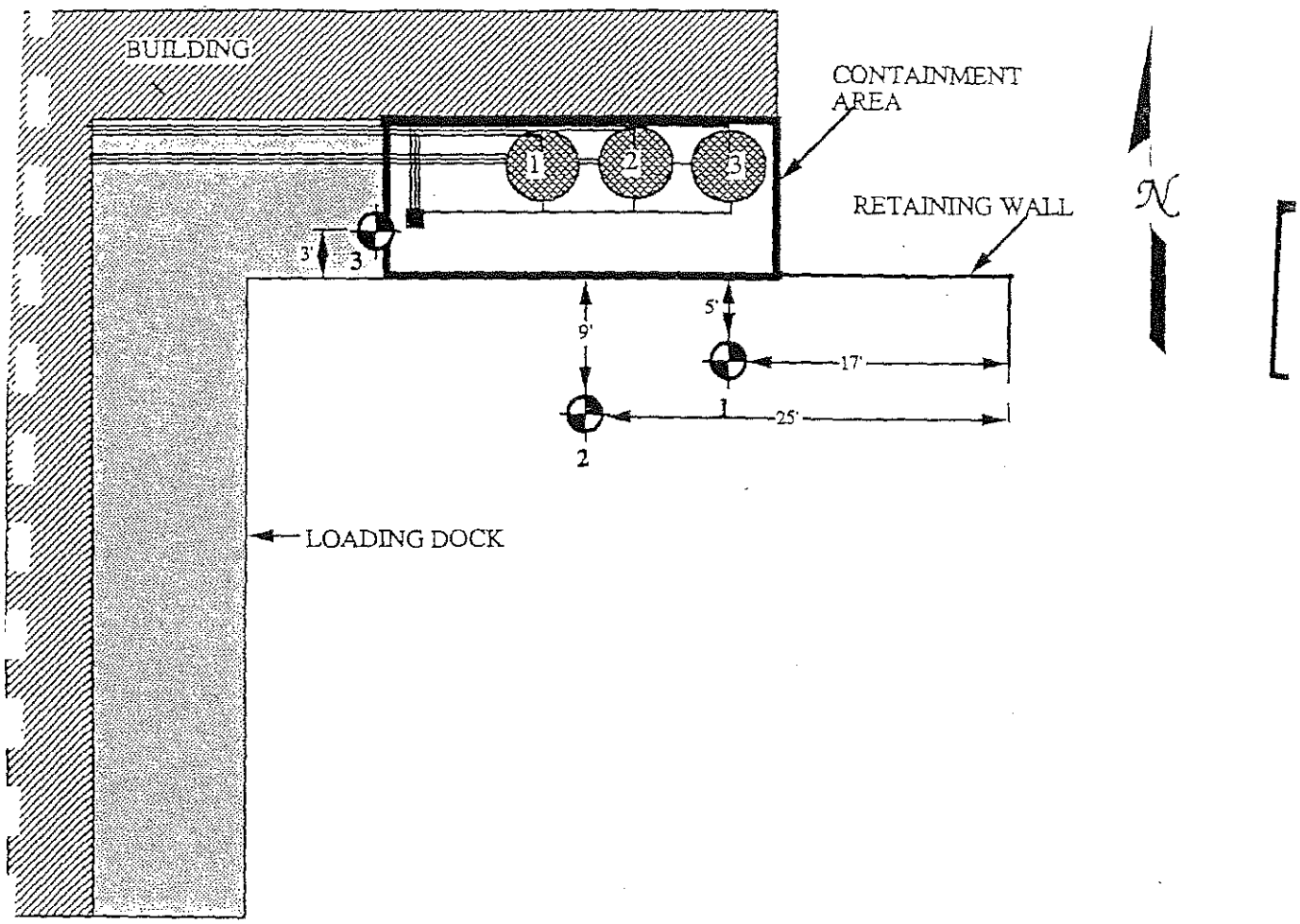
Drilling Firm Don Weaver Date 3/14/56

Address Xenia O. Signed Don Weaver

APPENDIX C

BORING LOCATION PLAN AND BORING LOGS

BOWSER MORNER



BORING LOCATION

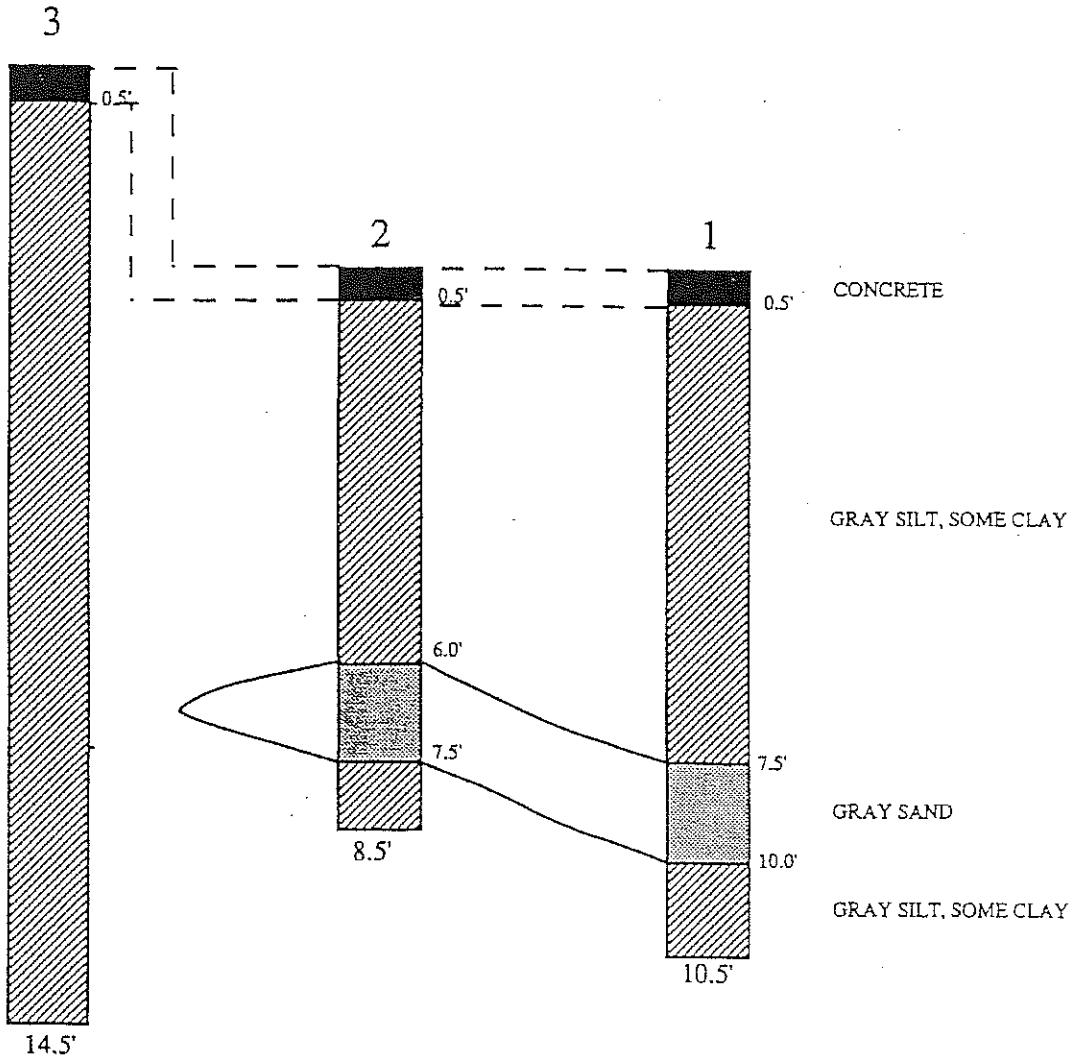
PUMP LOCATION

ABOVE GROUND STORAGE TANK

PIPING

BORING LOCATION PLAN

CARBOLINE
ANKENEY MILL ROAD
XENIA, OHIO
12208 NOT TO SCALE 5-29-92



GENERALIZED SOIL PROFILE

CARBOLINE
ANKENEY MILL ROAD
XENIA, OHIO
12208 NOT TO SCALE 5-29-92

Log of Boring No. 1

Carboline
Ankeney Mill Road, Xenia, Ohio

Boring Location: As shown on boring location plan
Surface Elevation: Not Taken
Date Started: 05-21-92
Date Completed: 05-21-92

Depth or Elevation:	Description of Material	Sample # & Type	Sample Depth	Blows Per 6"	"N" Blows/ft. Or Core Rec.
0.0'	Concrete				
0.5'	Very stiff gray silt, trace clay, trace sand, trace gravel - damp	1A	0.5 - 2.5	8 -10-12-18	22
		2A	2.5 - 4.5	12-20-22-30	42
	As above - becomes hard	3A	4.5 - 6.5	15- 9-20-32	29
5'					
	As above - becomes very stiff	4A	6.5 - 8.5	12-22-33-65	55
7.5'	Very dense gray sand, some gravel, trace silt - wet	5A	8.5 - 10.5	11-17-22-30	39
10.0'	Hard gray silt, some clay, trace sand				
	Bottom of Boring at 10.5'				
15'					
20'					
25'					
30'					

Method: Hollow Stem Auger
Technician: AW, SN
Job No. 12208/jmm

Water Observations
Initial Depth: 7.5 ft
Completion Depth: 3.0 ft
Depth After: _____ hrs. _____

Type Sampler
[X] A. Split-Spoon
[ ] B.
[ ] C. Shelby Tube

Log of Boring No. 2

Carboline
Ankeney Mill Road, Xenia, Ohio

Boring Location: As shown on boring location plan
Surface Elevation: Not Taken
Date Started: 05-21-92
Date Completed: 05-21-92

Depth or Elevation:	Description of Material	Sample # & Type	Sample Depth	Blows Per 6"	"N" Blows/ft. Or Core Rec.
0.0'	Concrete				
0.5'	Very stiff gray silt, some clay, trace sand, trace gravel - moist	1A	0.5 - 2.5	5 - 6 -12-15	18
		2A	2.5 - 4.5	8 -15-19-28	34
	As above - becomes hard	3A	4.5 - 6.5	8 -11-14-21	25
5'					
6.0'	Medium dense gray sand, some silt, trace clay, trace gravel - wet	4A	6.5 - 8.5	16-18-19-26	37
7.5'	Hard gray silt, some clay, trace sand, trace gravel - moist				
	Bottom of Boring at 8.5'				
10'					
15'					
20'					
25'					
30'					

Method: Hollow Stem Auger
Technician: AW, SN
Job No. 12208/jmm

Water Observations
Initial Depth: 6.0
Completion Depth: 5.5
Depth After: _____ hrs. _____

Type Sampler
[X] A. Split-Spoon
[ ] B.
[ ] C. Shelby Tube

Log of Boring No. 3

Carboline
Ankeney Mill Road, Xenia, Ohio

Boring Location: As shown on boring location plan
Surface Elevation: Not Taken
Date Started: 05-22-92
Date Completed: 05-22-92

Depth or Elevation:	Description of Material	Sample # & Type	Sample Depth	Blows Per 6"	"N" Blows/ft. Or Core Rec.
0.0'	Concrete				
0.5'	Medium stiff gray silt, some clay, some sand, trace gravel - moist	1A	0.5 - 2.5	3 - 3 - 4 - 7	7
		2A	2.5 - 4.5	9 -12-17-19	29
	(ORIGINAL) As above, becomes very stiff	3A	4.5 - 6.5	8 -14-20-20	34
5'	As above, becomes very hard	4A	6.5 - 8.5	18-22-18-34	40
	As above	5A	8.5 - 10.5	18-23-24-20	47
10'	As above	6A	10.5 - 12.5	39-43-48-60	91
	As above	7A	12.5 - 14.5	33-41-37-28	78
	As above				
15'	Bottom of Boring at 14.5' Auger refusal				
20'					
25'					
30'					

Method: Hollow Stem Auger
Technician: BT
Job No. 12208/jmm

Water Observations
Initial Depth: None
Completion Depth: None
Depth After _____ hrs. _____

Type Sampler
[X] A. Split-Spoon
[ ] B.
[ ] C. Shelby Tube

APPENDIX D

LABORATORY RESULTS

BOWSER MORNER

BOWSER MORNER

Shipping: 4518 Taylorsville Rd. • Dayton, OH 45424 Mailing: P.O. Box 51 • Dayton, OH 45401
513/236-8805

LABORATORY REPORT

To: 12208 Carboline
Attn: Stephen Sommer

Date: 06/03/92
Lab. No.: 9205318 001
Sample No.: 99787
Authorization:

On: One (1) Sample Received May 22, 1992 for Chemical Analysis.

Sample Identification: 1-1A 5-21-92 Boring 1 0.5-2.5 FT (Grab Sample)

ANALYTE	RESULT	UNITS	METHOD LIMIT
....VOLATILE ORGANICS....			
Benzene	BPQL	mg/Kg	0.1
Bromodichloromethane	BPQL	mg/Kg	0.3
Bromoform	BPQL	mg/Kg	0.3
Bromomethane	BPQL	mg/Kg	0.1
Carbon Tetrachloride	BPQL	mg/Kg	0.3
Chlorobenzene	BPQL	mg/Kg	0.1
Chloroethane	BPQL	mg/Kg	0.3
2-Chloroethylvinyl Ether	BPQL	mg/Kg	0.5
Chloroform	BPQL	mg/Kg	0.3
Chloromethane	BPQL	mg/Kg	0.3
cis-1,3-Dichloropropene	BPQL	mg/Kg	0.1
Dibromochloromethane	BPQL	mg/Kg	0.1
1,1-Dichloroethane	BPQL	mg/Kg	0.1
1,2-Dichloroethane	BPQL	mg/Kg	0.1
1,1-Dichloroethylene	BPQL	mg/Kg	0.1
1,2-Dichloropropane	BPQL	mg/Kg	0.1
Ethylbenzene	BPQL	mg/Kg	0.1
Methylene Chloride	BPQL	mg/Kg	0.3
1,1,2,2-Tetrachloroethane	BPQL	mg/Kg	0.1
Tetrachloroethylene	BPQL	mg/Kg	0.1
Toluene	BPQL	mg/Kg	0.1
trans-1,2-Dichloroethylene	BPQL	mg/Kg	0.1
trans-1'3-Dichloropropene	BPQL	mg/Kg	0.1
1,1,1-Trichloroethane	BPQL	mg/Kg	0.3
1,1,2-Trichloroethane	BPQL	mg/Kg	0.1
Trichloroethylene	BPQL	mg/Kg	0.1
Trichlorofluoromethane	BPQL	mg/Kg	0.1
Vinyl Chloride	BPQL	mg/Kg	0.3

The above analysis was performed in accordance with procedures listed in Title 40 of the Code of Federal Regulations, Parts 136.6 and 261-Appendices II and III. In lieu of other arrangements, all samples recovered for this project will be retained at this laboratory for a period of 30 days. All reports remain the confidential property of BOWSER-MORNER, INC. and no publication or distribution may be made without our expressed written consent, except as authorized by contract.

BOWSER MORNER

Shipping: 4518 Taylorsville Rd. • Dayton, OH 45424 Mailing: P.O. Box 51 • Dayton, OH 45401
513/236-8805

LABORATORY REPORT

Xylene	BPQL	mg/Kg	0.3
Acetone	BPQL	mg/Kg	4
Acrolein	BPQL	mg/Kg	0.5
Acrylonitrile	BPQL	mg/Kg	0.4
Carbon Disulfide	BPQL	mg/Kg	0.3
Dibromomethane	BPQL	mg/Kg	0.3
Dichlorodifluoromethane	BPQL	mg/Kg	0.3
Methyl Butyl Ketone	BPQL	mg/Kg	2
Methyl Ethyl Ketone	BPQL	mg/Kg	4
Methyl Isobutyl Ketone	BPQL	mg/Kg	2
Stryene	BPQL	mg/Kg	0.3
1,2,3 Trichloropropane	BPQL	mg/Kg	0.5
Vinyl Acetate	BPQL	mg/Kg	0.5

Respectfully Submitted,
BOWSER-MORNER, INC.
Analytical Sciences Division

Eric C. Wiegert, Manager
Environmental Sciences Laboratory

ECW/VTB
1 -Client
2 -File

The above analysis was performed in accordance with procedures listed in Title 40 of the Code of Federal Regulations, Parts 136.6 and 261-Appendices II and III. In lieu of other arrangements, all samples recovered for this project will be retained at this laboratory for a period of 30 days. All reports remain the confidential property of BOWSER-MORNER, INC. and no publication or distribution may be made without our expressed written consent, except as authorized by contract.

BOWSER MORNER

Shipping: 4518 Taylorsville Rd. • Dayton, OH 45424 Mailing: P.O. Box 51 • Dayton, OH 45401
513/236-8805

LABORATORY REPORT

To: 12208 Carboline
Attn: Stephen Sommer

Date: 06/03/92
Lab. No.: 9205318 002
Sample No.: 99788
Authorization:

On: One (1) Sample Received May 22, 1992 for Chemical Analysis.

Sample Identification: 2-1A 5-21-92 Boring 2 0.5-2.5 FT (Grab Sample)

ANALYTE	RESULT	UNITS	METHOD LIMIT
....VOLATILE ORGANICS....			
Benzene	BPQL	mg/Kg	0.1
Bromodichloromethane	BPQL	mg/Kg	0.3
Bromoform	BPQL	mg/Kg	0.3
Bromomethane	BPQL	mg/Kg	0.1
Carbon Tetrachloride	BPQL	mg/Kg	0.3
Chlorobenzene	BPQL	mg/Kg	0.1
Chloroethane	BPQL	mg/Kg	0.3
2-Chloroethylvinyl Ether	BPQL	mg/Kg	0.5
Chloroform	BPQL	mg/Kg	0.3
Chloromethane	BPQL	mg/Kg	0.3
cis-1,3-Dichloropropene	BPQL	mg/Kg	0.1
Dibromochloromethane	BPQL	mg/Kg	0.1
1,1-Dichloroethane	BPQL	mg/Kg	0.1
1,2-Dichloroethane	BPQL	mg/Kg	0.1
1,1-Dichloroethylene	BPQL	mg/Kg	0.1
1,2-Dichloropropane	BPQL	mg/Kg	0.1
Ethylbenzene	BPQL	mg/Kg	0.1
Methylene Chloride	BPQL	mg/Kg	0.3
1,1,2,2-Tetrachloroethane	BPQL	mg/Kg	0.1
Tetrachloroethylene	BPQL	mg/Kg	0.1
Toluene	0.2	mg/Kg	0.1
trans-1,2-Dichloroethylene	BPQL	mg/Kg	0.1
trans-1,3-Dichloropropene	BPQL	mg/Kg	0.1
1,1,1-Trichloroethane	BPQL	mg/Kg	0.3
1,1,2-Trichloroethane	BPQL	mg/Kg	0.1
Trichloroethylene	BPQL	mg/Kg	0.1
Trichlorofluoromethane	BPQL	mg/Kg	0.1
Vinyl Chloride	BPQL	mg/Kg	0.3

The above analysis was performed in accordance with procedures listed in Title 40 of the Code of Federal Regulations, Parts 136.6 and 261-Appendices II and III. In lieu of other arrangements, all samples recovered for this project will be retained at this laboratory for a period of 30 days. All reports remain the confidential property of BOWSER-MORNER, INC. and no publication or distribution may be made without our expressed written consent, except as authorized by contract.

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513/236-8805

LABORATORY REPORT

Lab No.: 9205318 002

Xylene	BPQL	mg/Kg	0.3
Acetone	BPQL	mg/Kg	4
Acrolein	BPQL	mg/Kg	0.5
Acrylonitrile	BPQL	mg/Kg	0.4
Carbon Disulfide	BPQL	mg/Kg	0.3
Dibromomethane	BPQL	mg/Kg	0.3
Dichlorodifluoromethane	BPQL	mg/Kg	0.3
Methyl Butyl Ketone	BPQL	mg/Kg	2
Methyl Ethyl Ketone	BPQL	mg/Kg	4
Methyl Isobutyl Ketone	BPQL	mg/Kg	2
Stryene	BPQL	mg/Kg	0.3
1,2,3 Trichloropropane	BPQL	mg/Kg	0.5
Vinyl Acetate	BPQL	mg/Kg	0.5

Respectfully Submitted,
BOWSER-MORNER, INC.
Analytical Sciences Division

Eric C. Wiegert, Manager
Environmental Sciences Laboratory

ECW/SAB
1 -Client
2 -File

The above analysis was performed in accordance with procedures listed in the Code of Federal Regulations, Parts 136,6 and 261-Appendices II and III. In lieu of other arrangements, all samples recovered for this project will be retained at this laboratory for a period of 30 days. All reports remain the confidential property of BOWSER-MORNER, INC. and no publication or distribution may be made without our expressed written consent, except as authorized by contract.

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LABORATORY REPORT

To: 12208 Carboline
Attn: Stephen Sommer

Date: 06/03/92
Lab. No.: 9205318 003
Sample No.: 99789
Authorization:

On: One (1) Sample Received May 22, 1992 for Chemical Analysis.

Sample Identification: 2-W 5-21-92 Boring 2 - Water
(Grab Sample)

ANALYTE	RESULT	UNITS	METHOD LIMIT
....VOLATILE ORGANICS....			
Benzene	BPQL	ug/L	5
Bromodichloromethane	BPQL	ug/L	10
Bromoform	BPQL	ug/L	10
Bromomethane	BPQL	ug/L	5
Carbon Tetrachloride	BPQL	ug/L	10
Chlorobenzene	BPQL	ug/L	5
Chloroethane	BPQL	ug/L	10
2-Chloroethylvinyl Ether	BPQL	ug/L	20
Chloroform	BPQL	ug/L	10
Chloromethane	BPQL	ug/L	10
cis-1,3-Dichloropropene	BPQL	ug/L	5
Dibromochloromethane	BPQL	ug/L	5
1,1-Dichloroethane	BPQL	ug/L	5
1,2-Dichloroethane	BPQL	ug/L	5
1,1-Dichloroethylene	BPQL	ug/L	5
1,2-Dichloropropane	BPQL	ug/L	5
Ethylbenzene	BPQL	ug/L	5
Methylene Chloride	BPQL	ug/L	10
1,1,2,2-Tetrachloroethane	BPQL	ug/L	5
Tetrachloroethylene	BPQL	ug/L	5
Toluene	BPQL	ug/L	5
trans-1,2-Dichloroethylene	BPQL	ug/L	5
trans-1'3-Dichloropropene	BPQL	ug/L	5
1,1,1-Trichloroethane	BPQL	ug/L	10
1,1,2-Trichloroethane	BPQL	ug/L	5
Trichloroethylene	BPQL	ug/L	5
Trichlorofluoromethane	BPQL	ug/L	5
Vinyl Chloride	BPQL	ug/L	10

The above analysis was performed in accordance with procedures [illegible] Code of Federal Regulations, Parts 136.6 and 261-Appendices II and III. In lieu of other arrangements, all samples recovered for this project [illegible] laboratory for a period of 30 days. All reports remain the confidential property of BOWSER-MORNER, INC. and no publication or distribution [illegible] without our expressed written consent, except as authorized by contract.

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LABORATORY REPORT

Lab No.: 9205318 003

Xylene	BPQL	ug/L	10
Acetone	BPQL	ug/L	100
Acrolein	BPQL	ug/L	20
Acrylonitrile	BPQL	ug/L	200
Carbon Disulfide	BPQL	ug/L	10
Dibromomethane	BPQL	ug/L	10
Dichlorodifluoromethane	BPQL	ug/L	10
Methyl Butyl Ketone	BPQL	ug/L	100
Methyl Ethyl Ketone	BPQL	ug/L	200
Methyl Isobutyl Ketone	BPQL	ug/L	100
Stryene	BPQL	ug/L	10
1,2,3 Trichloropropane	BPQL	ug/L	20
Vinyl Acetate	BPQL	ug/L	20

Respectfully Submitted,
BOWSER-MORNER, INC.
Analytical Sciences Division

Eric C. Wiegert, Manager
Environmental Sciences Laboratory

ECW/SAB
1 -Client
2 -File

The above analysis was performed in accordance with procedures listed in Title 40 of the Code of Federal Regulations, Parts 136.6 and 261-Appendices II and III. In lieu of other arrangements, all samples recovered for this project will be retained at this laboratory for a period of 30 days. All reports remain the confidential property of BOWSER-MORNER, INC. and no publication or distribution may be made without our expressed written consent, except as authorized by contract.

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92D5018-001-WX-WS

CHAIN OF CUSTODY RECORD

BOWSER-MORNER, INC., DISTRICT OFFICES
2416-B Overdrive, Lexington, KY 40510
122 S. St. Clair St., P.O. Box 838, Toledo, OH 43696

JOB NO.: 12208
PROJECT NAME: Carboline
SAMPLER'S (Signature): Stephen D. Sommer

BMI Sample No.	DATE	TIME	Composite	Grab	SAMPLE LOCATION/DESCRIPTION	NO. OF CONTAINERS	Sulfric Acid	Nitric Acid	~~Non-Preserved~~ Iced	Other	40 ml. VOA	Liter Jar			REMARKS
1-1A	5/21			X	Boring 1 0.5-2.5 ft 99788	1			X			1			VOC's (8240)
2-1A	5/21			X	Boring 2 0.5-2.5 ft 99788	1			X			1			
2-W	5/21			X	Boring 2 - Water 99789	6			X		6				

NOTE - 6 VOA Bottles contain varying amounts of sediment - use best samples of the 6 available VOA Bottles.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Stephen D. Sommer	5/22/92 8:09 AM				
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	Cooler No.	Cooler Temp.°C	Remarks:
		Julia Welk	5/22/92 8:09 am			

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513/236-8805

LABORATORY REPORT

To: 12208 Carboline
Attn: Stephen Sommer

Date: 06/03/92
Lab. No.: 9205326 001
Sample No.: 99880
Authorization:

On: One (1) Sample Received May 22, 1992 for Chemical Analysis.

Sample Identification: 3-1A 5/22/92 Boring 3 (Grab Sample)

ANALYTE	RESULT	UNITS	METHOD LIMIT
....VOLATILE ORGANICS....			
Benzene	BPQL	mg/Kg	0.1
Bromodichloromethane	BPQL	mg/Kg	0.3
Bromoform	BPQL	mg/Kg	0.3
Bromomethane	BPQL	mg/Kg	0.1
Carbon Tetrachloride	BPQL	mg/Kg	0.3
Chlorobenzene	BPQL	mg/Kg	0.1
Chloroethane	BPQL	mg/Kg	0.3
2-Chloroethylvinyl Ether	BPQL	mg/Kg	0.5
Chloroform	BPQL	mg/Kg	0.3
Chloromethane	BPQL	mg/Kg	0.3
cis-1,3-Dichloropropene	BPQL	mg/Kg	0.1
Dibromochloromethane	BPQL	mg/Kg	0.1
1,1-Dichloroethane	BPQL	mg/Kg	0.1
1,2-Dichloroethane	BPQL	mg/Kg	0.1
1,1-Dichloroethylene	BPQL	mg/Kg	0.1
1,2-Dichloropropane	BPQL	mg/Kg	0.1
Ethylbenzene	2.4	mg/Kg	0.1
Methylene Chloride	BPQL	mg/Kg	0.3
1,1,2,2-Tetrachloroethane	BPQL	mg/Kg	0.1
Tetrachloroethylene	BPQL	mg/Kg	0.1
Toluene	16	mg/Kg	0.1
trans-1,2-Dichloroethylene	BPQL	mg/Kg	0.1
trans-1'3-Dichloropropene	BPQL	mg/Kg	0.1
1,1,1-Trichloroethane	BPQL	mg/Kg	0.3
1,1,2-Trichloroethane	BPQL	mg/Kg	0.1
Trichloroethylene	BPQL	mg/Kg	0.1
Trichlorofluoromethane	BPQL	mg/Kg	0.1
Vinyl Chloride	BPQL	mg/Kg	0.3

The above analysis was performed in accordance with procedures listed in Title 40 of the Code of Federal Regulations, Parts 136,6 and 261-Appendices II and III. In lieu of other arrangements, all samples recovered for this project will be returned at this laboratory for a period of 30 days. All reports remain the confidential property of BOWSER-MORNER, INC. and no publication or distribution may be made without our expressed written consent, except as authorized by contract.

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513/236-8805

LABORATORY REPORT

Lab No.: 9205326 001

Xylene	6.7	mg/Kg	0.3
Acetone	BPQL	mg/Kg	4
Acrolein	BPQL	mg/Kg	0.5
Acrylonitrile	BPQL	mg/Kg	0.4
Carbon Disulfide	BPQL	mg/Kg	0.3
Dibromomethane	BPQL	mg/Kg	0.3
Dichlorodifluoromethane	BPQL	mg/Kg	0.3
Methyl Butyl Ketone	BPQL	mg/Kg	2
Methyl Ethyl Ketone	BPQL	mg/Kg	4
Methyl Isobutyl Ketone	BPQL	mg/Kg	2
Stryene	BPQL	mg/Kg	0.3
1,2,3 Trichloropropane	BPQL	mg/Kg	0.5
Vinyl Acetate	BPQL	mg/Kg	0.5

Respectfully Submitted,
BOWSER-MORNER, INC.
Analytical Sciences Division

Eric C. Wiegert, Manager
Environmental Sciences Laboratory

ECW/VTB
1 -Client
2 -File

The above analysis was performed in accordance with procedures issued in "Title 40" of the Code of Federal Regulations, Parts 136,6 and 261-Appendices II and III. In lieu of other arrangements, all samples recovered for this project will be returned to this laboratory for a period of 30 days. All reports remain the confidential property of BOWSER-MORNER, INC. and no publication or distribution may be made without our expressed written consent, except as authorized by contract.

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CHAIN OF CUSTODY RECORD

BOWSER-MORNER, INC., DISTRICT OFFICES
2416-B Overdrive, Lexington, KY 40510
122 S. St. Clair St., P.O. Box 838, Toledo, OH 43696

JOB NO.: 12208

PROJECT NAME: Carboline

SAMPLER'S (Signature): Stephen D. Sommer

BMI Sample No.	DATE	TIME	Composite	Grab	SAMPLE LOCATION/DESCRIPTION	NO. OF CONTAINERS	Preservatives: Sulfric Acid	Nitric Acid	~~Non-Preserved~~ Iced	Other	Container Type: 40 ml. VOA	500 ml Jar			REMARKS
3-1A	5/22			X	Boring 3 99880	1			X			1			VOC's - 8240

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Stephen D. Sommer	5/22/92 2:56 PM				
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) Julie Dell	Date/Time 5/22/92 2:56	Cooler No.	Cooler Temp.°C	Remarks: