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DELINEATION OF GROUNDWATER CAPTURE ZONES FOR MUNICIPAL WELLS IN DANE COUNTY, WISCONSIN

Final Report to the Wisconsin Department of Natural Resources

by

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INTRODUCTION

Background

This report describes the use of a three-dimensional computer model to delineate zones of contribution for municipal water-supply wells in Dane County, Wisconsin. The capture zone, or zone of contribution (ZOC) of a well is the land surface area where recharging precipitation enters a groundwater system and eventually flows to the well (Fig 1). Delineating the zones of contribution for municipal wells is a critical step in establishing wellhead protection areas for the wells. A wellhead protection area (WHPA) is defined by the federal Safe Drinking Water Act as the "surface and subsurface area surrounding a water well or well field, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water or well field ." In practical terms, the ZOC is a technically-defined area based on groundwater hydraulics, while the WHPA is a legally-defined area including all or part of the ZOC and within which zoning practices or other land-use controls can be implemented to help protect groundwater from contamination.

The Wisconsin Department of Natural Resources (WDNR) has the responsibility and authority to delineate wellhead protection areas for all public water supplies in Wisconsin (WDNR, 1992). In 1992, the WDNR prepared the Wisconsin Wellhead Protection Program Plan (WDNR, 1992), which required the DNR to perform initial ZOC delineations for all existing municipal wells in the State. At the same time, the Wisconsin Administrative Code, Chapter NR811, was revised to require that a wellhead protection program plan be submitted for each new municipal well constructed in Wisconsin after April 1, 1992.

The technical methodologies for ZOC delineation range from simple to complex, and are described in a number of publications such as Born and others (1988), Bradbury and others (1991), Kreitler and Senger (1991), Muldoon and Peyton (1993), and USEPA (1987) among others. Most of these authors suggest simple techniques, such as the fixed-radius methods, as a first approach, but most also recommend the use of numerical groundwater flow models as more sophisticated and reliable methods for ZOC delineation. Unfortunately, due to the cost, data requirements, and level of expertise required, few municipalities in Wisconsin currently have numerical groundwater flow models available for use in ZOC delineation.

In 1995, the Wisconsin Geological and Natural History Survey (WGNHS) and U S Geological Survey (USGS) jointly developed a three-dimensional groundwater flow model for Dane County, Wisconsin (Krohelski and Bradbury, in preparation) as part of a county-wide groundwater study (the Dane County Regional Hydrologic Study) administered by the Dane County Regional Planning Commission. This model is based on an updated hydrogeologic database and newly-completed water-table and potentiometric maps for Dane County. The model directly simulates pumping from all high-capacity wells in the county, including all municipal wells.

The Dane County groundwater flow model is ideally suited for delineating ZOCs for high-

capacity wells in Dane County. In 1995 the WDNR Water Resources Management section requested and provided funding for the WGNHS to undertake a 1-year project to use the flow model to delineate capture zones for all municipal wells in Dane County. This report summarizes the results of that project.

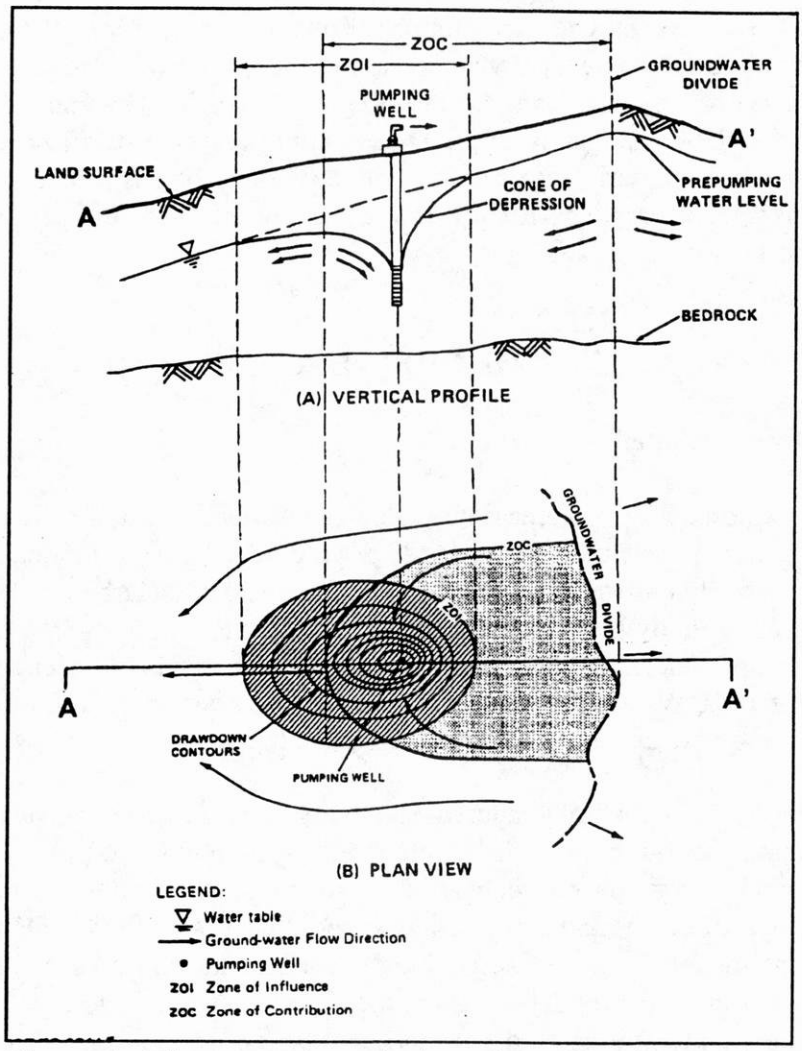

Figure 1. Diagram and terminology for wellhead protection in a simple hypothetical groundwater flow system (from USEPA, 1987).

Objectives

The overall objective of this project was to use the Dane County regional groundwater flow model to delineate the capture zones, or zones of contribution, for all municipal high-capacity wells in Dane County, Wisconsin. Additional objectives were to delineate 5-, 10-, and 100-year

time-of-travel boundaries for each well, and also to delineate the zone of influence (ZOI), or drawdown cone produced by each well. The resulting information can be used in the development of wellhead protection plans for these wells.

Acknowledgements

We thank Jill Jonas of the WDNR for her support of this project, and for her technical advice. Jim Krohelski of the U S Geological Survey developed the groundwater flow model, and assisted significantly with this project. The Dane County Regional Planning Commission has provided long-term support for the development of the Dane County groundwater flow model. The Wisconsin Department of Natural Resources provided funding for this project through the Groundwater Management Practice Monitoring Program which receives appropriations from the Groundwater Account.

METHODOLOGY

Regional groundwater model

The Dane County regional groundwater flow model is described in detail by Krohelski and Bradbury (in preparation). The model uses the U.S. Geological Survey modular groundwater modeling code, commonly known as MODFLOW (McDonald and Harbaugh, 1988), one of the most commonly used groundwater modeling codes in the United States. The ZOCs were determined using the particle-tracking code PATH3D (Zheng, 1991), which uses input and output files created by MODFLOW. All modeling runs were carried out on Pentium-class IBM-compatible microcomputers at the USGS and WGNHS offices.

The regional model, as currently implemented, simulates three-dimensional, steady-state groundwater movement through the entire groundwater system in Dane County. The model domain is discretized into a finite-difference grid consisting of rows, columns, and layers, and extends to natural hydrologic boundaries outside the political boundaries of Dane County itself. The model grid contains 200 rows and 240 columns, with a uniform grid spacing of 400 m, or about 0.25 mi. Recharge to the model occurs at the water table and is non-uniform. Swanson (1996) describes the creation of the model recharge array. The model simulates vertical groundwater flow to or from lakes and streams using the MODFLOW river package. The groundwater flow model was calibrated to existing steady-state hydraulic heads and streamflows as measured in the early 1990's. Krohelski and Bradbury (in preparation) describe the calibration procedure.

The three layers of the regional groundwater flow model represent four hydrostratigraphic units. From the top layer down, the hydrostratigraphic units are: unlithified surficial material (layer 1); Paleozoic carbonates, shales, and sandstones (layer 2); the shaley facies of the Eau Claire Formation (simulated as a semiconfining bed between model layers 2 and 3); and the Mt. Simon

sandstone (layer 3). The Mt. Simon sandstone is the primary aquifer unit for most of the high capacity wells in Dane County. The regional model includes a multi-aquifer well (MAW) package, which allows the simulated wells to draw water from more than one model layer in proportion to the transmissivity of the layers. The preparation of the well input file for the MAW package is described in Appendix A. The MAW package partitions the total well discharge between the model layers open to the well based on the transmissivity and head in the layers. WGNHS geologic logs and drillers' well construction reports indexed in the WGNHS database "Geobase" were used to identify the hydrostratigraphic units over which each well is screened. The original geologic logs were referenced when the Geobase information was incomplete or inconsistent, however, no systematic check of the lithologic, elevation, and construction information in Geobase was performed. Wells that were open predominantly to one hydrostratigraphic unit were assigned to the model layer representing that unit. Wells open to significant portions of more than one unit were assigned input values corresponding to the multiple layers.

Well locations and pumping rates

The municipal wells were identified and accurately located before any modeling took place. The regional groundwater flow model includes all of the active municipal wells known to the Dane County Regional Planning Commission (RPC) at the time the model was constructed. Table 1 lists these wells. The pumping rates of these 86 wells were verified with the local water utilities by the RPC and revised by the USGS in October, 1995. The model also contains seven high-capacity, non-municipal wells because these wells were expected to have a noticeable impact on model calibration. All of the locations of the municipal wells were field checked and plotted on U.S. Geological Survey topographic maps, 7.5 minute series. The locations of the wells were then digitized using a Geographic Information System (GIS) in order to facilitate more precise estimation of their geographic coordinates (latitude/longitude) and Dane County-UTM coordinates.

The regional model uses a finite difference grid oriented directly north-south while the Dane County UTM coordinate system is slightly offset from true north. This offset required rotating the model grid 1.4 degrees to facilitate alignment with the Dane County-UTM system. Appendix B describes the procedure for rotating the model grid. The model grid was plotted at the same scale (1:24,000) as the 7.5 minute topographic maps, and was then overlaid onto the maps. The model grid was used to verify that the field-located wells fell within the pumping nodes for corresponding wells in the model.

MODFLOW places wells in the middle of grid cells, so that a well that is located anywhere within a grid cell is considered to be mathematically at the center of the cell. This MODFLOW feature caused an apparent mis-location of some wells when model output is overlaid on the USGS 7.5 minute topographic maps, as wells located near cell boundaries on the map are shifted to cell centers in the model. The apparent mis-location is a manifestation of the resolution of the model, which is a function of the grid spacing. Appendix C describes a correction procedure used to shift

the positions of the wells in the model output and to align them with the actual well locations. The shift assumes that the flow system around the well would not be significantly different if the well could be modeled at its geographically correct position in the grid cell. This procedure was used for each well when delineating both zones of contribution and zones of influence.

Calculation of the zone of influence (ZOI)

The zone of influence of a production well is the area within the cone of depression created by the withdrawal of water from the well. In theory, the cone of depression can extend until some hydraulic boundary, such as a groundwater divide or surface water body, is encountered. This distance can be very large and the amount of drawdown almost insignificant (i.e. a few tenths or hundredths of a foot). For practical purposes, an arbitrary minimum drawdown value is often chosen to represent the limit of the zone of influence. The drawdown value selected for this study to represent the zone of influence is one foot. Some of the wells do not produce one foot of drawdown in either the water table or the potentiometric surface when pumped at the current rate. When this was the case, the area surrounding the well affected by a minimum drawdown value of 0.5 foot was delineated. Four wells (Brooklyn #2, DeForest #2, Marshall #1, and Morrison Sanitary District #2) had less than 0.5 ft of mappable drawdown; no ZOI maps are included for these wells.

The zone of influence for an individual well was estimated by subtracting the water table and/or potentiometric surface from the model run with all wells pumping from the model run with all wells but the one of interest pumping. In reality, cones of depression are superimposed on one another; therefore, the total drawdown at any location is the combined drawdown of all of the pumping wells in the area. See Appendix D for details on conversion of MODFLOW unformatted head output for postprocessing and plotting using Surfer Golden Software version 6.01 plotting package.

Delineation of the zones of contribution (ZOCs)

The particle tracking code PATH3D (Zheng, 1991) was used to model the ZOC for each pumping well by tracking imaginary particles backwards from the well location up-gradient to points where they enter the groundwater flow system. The possible points of entry represented in the regional groundwater flow model are the water table (i.e. recharge from the ground surface through the unsaturated zone) and surface water bodies, such as rivers and lakes. The velocity of the particles depends on the gradient in head, the hydraulic conductivity, and the porosity of the aquifer materials. Hydraulic conductivity values were input into the MODFLOW model along with other input parameters. The MODFLOW model then produced a distribution of head values for each layer of the model. PATH3D uses the head distribution, grid spacing and porosity values to calculate particle velocity vectors (velocity and direction of movement).

The PATH3D code allows several options for the input of particle locations. The most general option is to specify the x, y, and z coordinates of each particle. In this study, particles were

entered in rings at the top and bottom of the open interval of each well, thus bracketing the actual zone where water could enter the well. The PATH3D code tracked the particles as they were moved up gradient away from the well. The particle front positions at 5, 10, and 100 years were written to an output file and then processed to produce coordinates that could be plotted on a digital base-map using the Dane County-UTM coordinate system. The entire paths of all particles from the well to the points of entry into the groundwater system were recorded in a separate output file. Appendix E contains a detailed description of the preparation of the input files for PATH3D.

Creation of maps showing ZOIs and ZOCs

This report summarizes the results of the ZOC delineations in two ways. Figure 2 is a map of the entire county, showing all well locations and the steady-state particle traces for each well. This figure is useful for gaining an overall sense of groundwater movement to municipal wells in Dane County. Appendix F contains a brief report for each of the 86 municipal wells simulated, and includes individual maps of the ZOCs and ZOI for each well. A copy of the most complete geologic log for the well on file at the WGNHS offices is also included.

The final graphical output showing the ZOIs and ZOCs was created in the Golden Software Surfer version 6.01 plotting package. Line files of county and municipal boundaries, section lines, roads, and surface water bodies were exported from GIS coverages and imported into Surfer. These line files were overlaid to create a base map for plotting the municipal well locations, ZOIs, and ZOCs. The ZOIs were displayed by plotting the one foot or one-half foot contour of the drawdown in the water table and the potentiometric surface. The interiors of these contours were then filled to highlight the zones of influence. The ZOCs were displayed by creating polygons from the points representing each of the three plotted particle front positions (5, 10, and 100 years). Each of the three polygons was given a different fill pattern to distinguish the limits of the three zones. In many cases the particle fronts were different for the upper and lower sets of particles. The upper particles generally encounter the water table fairly rapidly, whereas the lower particles may travel great distances in the deep sandstone aquifer before they reach the surface. The gradients in the water table and deep sandstone aquifers may also be different so that the upper particles move in a different direction than the lower particles. In cases where the horizontal positions of the upper and lower particles were not coincident, the time-front positions farthest from the well were selected for the boundaries of the time-front polygon, resulting in the most conservative estimate for the zone of contribution.

RESULTS

Steady-state capture zones

The composite map of particle traces for all municipal wells in Dane County (fig 2) illustrates the complexity of the groundwater flow systems in the county and also demonstrates that the source

of groundwater for local wells originates relatively near the well locations. Each traceline on figure 2 represents the three-dimensional path of a single hypothetical "particle" of water from the water table to a particular well. The collection of particle pathlines for each well outlines the steady-state capture zone for that well. In figure 2, these three-dimensional traces are projected onto a two-dimensional map, resulting in some apparent angular refractions of the particle tracks where the particles are moving vertically from one model layer to the next. All traces on figure 2 are *steady-state* particle paths, meaning that these are the paths that groundwater would take assuming that the groundwater system is steady (ie recharge is constant, pumping rates and water levels are unchanging) for an infinitely long period of time. Therefore, the length of a particular pathline is not necessarily related to the velocity of the particle, although in general the longer paths are associated with longer travel times. Steady-state travel times for many wells from recharge to entry into the well are on the order of several thousand years.

Maps of the ZOCs and ZOIs of each individual well in Dane County (Appendix F) provide more detail and also constrain the steady-state capture zones to 5-, 10-, and 100-year flow boundaries. Such boundaries should be more useful for WHPA delineation in real human terms. For each of these wells, the ZOC is best viewed in a three-dimensional sense as an ellipse with a cross-section represented by the shaded area of the ZOC and extending from the water table to the bottom of the deep sandstone aquifer. It is interesting to note that many of the time-constrained ZOCs are rather small, and that even the travel paths for the 100-year flow boundaries are only on the order of one or two miles long.

Accuracy of the capture zone delineations

The accuracy of the locations of the capture zones delineated in figure 2 and in Appendix F depends on the accuracy of the groundwater flow model and of the field data and data interpretations used to construct it. The MODFLOW and PATH3D codes themselves are mathmatically very precise, and numerical errors associated with these codes are probably insignificant. However, the calibration of the groundwater flow model (the "fit" of the model to observed field data) is not perfect, although it is considered good from a groundwater modeling standpoint (Krohelski and Bradbury, in preparation). In general, the model results are probably most precise in areas where hydrogeologic data are abundant, such as in the Madison metropolitan area. The model is less accurate in areas where hydrogeologic data are sparse, such as in western Dane County, where very few deep water wells exist. Also, the precision of the capture zone delineations decreases with increasing travel time. Therefore, the time-constrained capture zones shown in Appendix F are much more precise than are the long tails of the steady-state particle paths show in figure 2.

All capture zones show in this report assume steady-state conditions, meaning that groundwater levels and recharge rates do not change with time. In areas where this assumption is not met the capture zones may differ slightly from those shown in the report.

In two villages, Brooklyn and Verona, the potential for error in the capture zone delineations is

larger than in other areas. In both these villages municipal wells are located on or very near the regional potentionmetric divide between the Yahara River basin and the Sugar River basin. At these locations, the position of the divide is critical in controlling the direction of groundwater flow and thus the configuration of the zones of contribution. Field data in these areas are too sparse to allow a precise delineation of the position of the divide or to confirm the groundwater flow model. Therefore, the capture zones for wells in these villages, while consistent with the groundwater flow model, are currently unconfirmed by field data, and should be used with caution.

Other significant findings

In addition to delineating capture zones for municipal wells, this project has emphasized several facts about groundwater flow in Dane County which should be of interest to local water managers and County residents. The overall picture provided by figure 2 illustrates the following points:

- The source for groundwater produced by municipal wells in Dane County is local, and for almost every well the steady-state capture zone lies entirely within the county itself.

- Much of the recharge for the City of Madison wells (the largest municipality in Dane County) originates within or very near the Madison city limits.

- Wells located near the Yahara Lakes may be deriving significant quantities of water from downward leakage from the lakes themselves. Any particle path on figure 2 which terminates in a lake or wetland indicates that lake is supplying some water to the well. Madison well 19 (Picnic Point) is an example.

- There is significant interference between wells, particularly in the Madison metropolitan area, that results in complex capture zones. Simpler ZOC delineation methods, such as the fixed-radius techniques or even simple two-dimensional numerical models would fail to capture these interference effects and so would probably give inaccurate ZOC estimates.

- There is frequently a difference in groundwater flow direction between the shallow water-table aquifer and the deeper sandstone aquifer, as illustrated by wells having sets of particles radiating in two different directions (Waunakee wells 1, 2, and 3 are examples). These wells are usually open to both the shallow Paleozoic dolomites and sandstones (model layer 2) and deeper Mt Simon Sandstone (model layer 3), and produce water from both units.

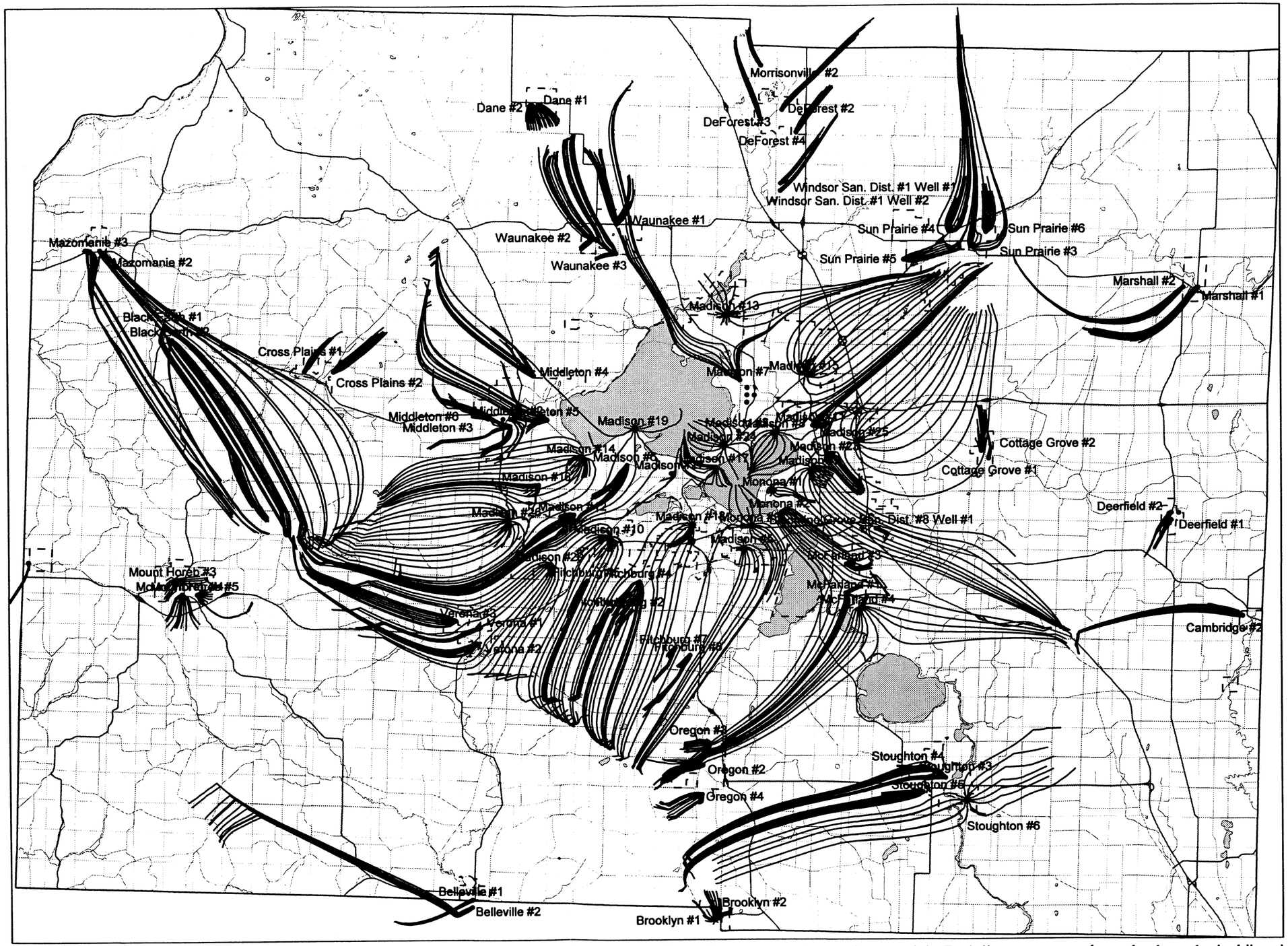

Figure 2 Steady-state particle traces from the water table to municipal wells in Dane County, based on the Dane County groundwater flow model. Each line represents the path a hypothetical "particle"of water would follow from the water table through the groundwater flow system to a pumping well. The collection of particle paths for each well outlines the zone of contribution for that well.

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Table 1. Municipal wells in Dane County and associated identification numbers and pumping rates

Well Name	WGNHS ID	Model Well Number	Model Pumping Rate (ft3/d)	Model Pumping Rate (gal/d)
Belleville #1	DN-39	83	6954.5	52034.7
Belleville #2	GN-23	84	12167.7	91040.8
Black Earth #1	DN-38	21	6742.6	50449.3
Black Earth #2	—	22	7381.9	55232.6
Blooming Grove San. Dist. #8, Well #1	DN-928	55	8780.6	65697.9
Blue Mounds #1	DN-1092	58	4489.2	33588.9
Brooklyn #1	GN-22	86	2607.7	19511.2
Brooklyn #2	DN-1303	85	3772.2	28224.2
Cambridge #2	DN-1064	70	16084.7	120348.4
Cottage Grove #1	DN-63	41	5937.3	44423.9
Cottage Grove #2	DN-1069	38	10871.5	81342.4
Cross Plains #1	DN-145	23	17154.9	128355.8
Cross Plains #2	DN-1062	25	28549.2	213609.9
Dane #1	DN-86	2	1755.8	13137.2
Dane #2	DN-950	3	4690.5	35095.1
DeForest #2	DN-301	4	8042.4	60174.6
DeForest #3	DN-1139	5	22784.9	170480.4
DeForest #4	DN-1256	6	36096.2	270077.8
Deerfield #1	DN-66	52	10066.2	75317.0
Deerfield #2	DN-65	50	10013.2	74920.4
Fitchburg #2	DN-922	68	19479.0	145745.1
Fitchburg #4	DN-981	62	148238.0	1109141.4
Fitchburg #5	DN-1066	61	12800.0	95771.7
Fitchburg #7	DN-1272	74	1545.3	11562.2
Fitchburg #8	DN-1273	75	1828.9	13684.1
Fitchburg #9	DN-1226	69	4983.7	37288.9
Madison #3	DN-50	33	2658.9	19894.3
Madison #5	DN-121	57	173386.0	1297302.9
Madison #6	DN-52	43	20104.1	150422.2
Madison #7	DN-53	26	97165.3	727006.9
Madison #8	DN-54	35	160989.0	1204546.5
Madison #9	DN-87	44	147850.0	1106238.3
Madison #10	DN-96	56	275849.0	2063948.1
Madison #11	DN-139	31	32395.5	242388.5
Madison #12	DN-144	51	70216.2	525369.3
Madison #13	DN-372	20	358851.0	2684982.9
Madison #14	DN-715	39	327805.0	2452691.6

Madison #15	DN-930	24	330277.0	2471187.5
Madison #16	DN-947	46	31325.3	234381.1
Madison #17	DN-935	42	91549.4	684987.8
Madison #18	DN-961	54	280794.0	2100947.4
Madison #19	DN-983	34	318339.0	2381865.4
Madison #20	DN-1060	60	172503.0	1290696.2
Madison #23	DN-307	40	81342.0	608614.4
Madison #24	DN-1124	37	362030.0	2708768.7
Madison #25	DN-1140	36	370154.0	2769553.8
Madison #26	DN-1290	48	398056.0	2978321.2
Madison #27	DN-1328	45	33924.9	253831.7
Marshall #1	DN-29	18	14375.2	107557.6
Marshall #2	DN-957	19	13298.0	99497.8
Mazomanie #2	DN-893	15	3510.5	26266.1
Mazomanie #3	DN-1095	14	19433.1	145401.7
McFarland #1	DN-13	66	14756.7	110412.1
McFarland #3	DN-1138	59	12920.1	96670.3
McFarland #4	DN-1331	67	44750.4	334829.9
Middleton #2	DN-56	28	14046.8	105100.5
Middleton #3	DN-119	30	42525.3	318181.4
Middleton #4	DN-698	27	53050.6	396933.4
Middleton #5	DN-921	29	82401.6	616542.5
Middleton #6	DN-1183	32	95752.5	716436.1
Monona #1	DN-109	47	38746.0	289904.0
Monona #2	DN-300	49	55982.2	418868.1
Monona #3	DN-958	53	64423.7	482028.8
Morrisonville San. Dist. #1, Well #2	DN-1358	1	4012.4	30021.4
Mount Horeb #3	DN-9	63	20697.5	154862.1
Mount Horeb #4	DN-10	64	21965.5	164349.5
Mount Horeb #5	DN-993	65	15819.8	118366.4
Oregon #2	DN-73	77	2005.8	15007.7
Oregon #3	DN-934	76	133.9	1001.9
Oregon #4	DN-1334	80	69545.1	520348.0
Stoughton #3	DN-79	79	8558.0	64032.4
Stoughton #4	DN-900	78	20725.8	155073.9
Stoughton #5	DN-1096	81	37721.8	282240.8
Stoughton #6	DN-1098	82	82119.0	614428.0
Sun Prairie #3	DN-114	13	53474.5	400105.1
Sun Prairie #4	DN-888	10	111788.0	836416.4
Sun Prairie #5	DN-941	17	54816.6	410146.9
Sun Prairie #6	DN-1091	11	80247.0	600421.4

Verona #1	DN-82	72	24519.1	183456.0
Verona #2	DN-316	73	26112.1	195375.1
Verona #3	DN-1042	71	58066.1	434460.2
Waunakee #1	DN-27	9	24985.4	186944.9
Waunakee #2	DN-914	12	44291.3	331394.9
Waunakee #3	DN-1275	16	40829.9	305496.1
Windsor San. Dist. #1, Well #1	DN-878	7	9359.8	70031.6
Windsor San. Dist. #1, Well #2	DN-1070	8	10698.4	80047.2

APPENDICES

Appendix A: Multiaquifer Well Package

The multiaquifer well (MAW) input file used in the regional groundwater flow model is similar to the standard MODFLOW well input file except that there are at least two lines of input for each well. The first line specifies the row, column, pumping rate, number of model layers open to the well, and the number of wells with the same characteristics. The last number in this line was always one because no node in the model contains more than one well, The second (and third) line(s) of input for each well consist of the layer number and the radius ratio for that layer. The radius ratio is the effective radius (delta X / 4.81, for a uniform, delta X = delta Y grid) divided by the well radius. Radius ratios were calculated for each layer open to each well based on information provided in the well construction reports. Well diameter and open interval information is tabulated in the Paradox "Geobase" database at WGNHS. It is interesting to note that the MAW package for MODFLOW not only calculates the proportional discharge or recharge of each model layer open to the well, but also allows for water movement between layers through the open well, based on head differences, even if the well is not being pumped.

Appendix B: Algorithm for Rotation of MODFLOW Grid

At the time the input files for the MODFLOW regional groundwater flow model were created, the coordinates of the input data were transformed (rotated 1.4 degrees) so that the model grid would be aligned with the Dane County UTM system. The model output cannot be overlain directly on standard maps unless it is "untransformed". The following algorithm summarizes the computer code used to perform this un-rotation in the various post-processing programs.

1) Convert model X and Y coordinates from feet to meters.

2) Determine the distance, HU, and angle, AU, from the origin of the model grid to the point X,Y: HU = square root of $X^2 + Y^2$, AU = arctangent Y/X

3) If the angle AU is less than 1.4 degrees (the original amount of rotation) then,
   a) the new angle, AN, is 1.4 - AU
   b) the new X is HU * cos(NA)
   c) the new Y is HU * sin(NA)
   d) the point is then referenced to the Dane TM grid system
      grid X = Dane TM grid X position of model origin + new X
      grid Y = Dane TM grid Y position of model origin - new Y

4) Otherwise
   a) the new angle, AN, is AU - 1.4
   b) the new X is HU * cos(NA)

c) the new Y is HU * sin(NA)
d) the point is then referenced to the Dane TM grid system
grid X = Dane TM grid X position of model origin + new X
grid Y = Dane TM grid Y position of model origin + new Y

Appendix C: Repositioning of Model Output to Align with Actual Geographic Positions

The actual locations of all of the municipal wells in the model were field checked and plotted on U.S. Geological Survey topographic maps, 7.5 minute series. The well locations were digitized and transformed into Dane County UTM coordinates. The Dane County UTM coordinates of the model well locations (corresponding to the centers of the appropriate grid cells) were also calculated. X and Y offsets for each well were determined and model output centered on the well location was shifted to align with the actual well location.

Appendix D: Conversion of MODFLOW output files for postprocessing and plotting

Several FORTRAN programs were created for processing and displaying the input and unformatted output files produced by MODFLOW. The table below is a partial list of the programs on file at the WGNHS with brief descriptions of their functions.

Table D-1: FORTRAN Programs for Processing Input and Output Files

BCFSPLIT	Reads the BCF file for the Dane County regional groundwater flow model and writes the individual arrays to separate files
COMPHEAD	Reads unformatted head files for two model runs (with different pumping wells or other modified parameters) and creates two new gridable files (Dane TM-X,Y,Z) containing the differences in the water table aquifer (layers 1 and 2) and the deep sandstone aquifer (layer 3).
MULTIWEL	Written prior to successful implementation of the MAW package. The program distributes the total discharge of a pumping well among multiple layers for wells open to more than one layer based on the transmissivity of the layers open to the well. (Not used)
READHD2	Writes three formatted files (one for each layer) from the unformatted head file
RCHTRANS	Converts recharge input file into a list of X, Y and recharge values
ROTHEAD	Reads an X,Y,Z head file and transforms the model coordinates to Dane TM
UNFTRANS	Transforms unformatted head file into a formatted file of water table elevations (layers 1 and 2) in X, Y, Z format

WELCOORD	Reads a MODFLOW well input file and created a file of well coordinates referenced to the Dane TM grid.
WELLCK	Reads a MODFLOW well input file and files containing the thicknesses of the three model layers and produces an output file with the well IDs and the thicknesses of each model layer at the location of the well.

Appendix E: Preparation of input files for PATH3D

PATH3D requires basic information about time intervals and data output controls as well as coordinates for the initial positions of the particles to be tracked. The PATH3D code reads most of the MODFLOW input packages as well as the unformatted head output file. PATH3D is not configured to read the MAW input file so a standard MODFLOW well input file with the correct well locations must be substituted. The MODFLOW Basic Input package (BAS) must also be edited to indicate the presence of a standard well input file since the MAW input file is called from a different position in the IUNIT array. Arrays for the top elevation, thicknesses and porosities of the model layers must be appended to the end of the MODFLOW Block Centered Flow package (BCF). The top elevation, to which all particle depths are referenced, was set to 1,100 feet above sea level.

In this study, the thicknesses of the model layers were calculated as follows: layer 1 thickness = 1,100 feet - layer 2 top, layer 2 thickness = layer 2 top - layer 3 top, layer 3 thickness = layer 3 top - layer 3 bottom. The thickness of layer 1 used by PATH3D does not reflect the actual thickness of layer 1 of the MODFLOW model, but is referenced to the arbitrary top elevation of 1,100 feet. The depths for the open intervals of wells in construction reports are measured from the ground surface. The particle depths entered into PATH3D must be adjusted from the open intervals listed in the construction reports to reference the top datum, not the land surface.

The input parameters used for PATH3D in this study are described in the following table:

Table E-1: Input Parameters for PATH3D

NCOUNT	100	maximum number of particles (actually only 24)
	2500	(if all wells are entered as a group)
NTRKOP	1	option flag for creation of plot data file
NFRONT	3	number of times at which positions will be saved in a default output file
INIPOS	1	indicates that initial particle positions will be entered by specifying X,Y, and Z coordinates

IOPSS	2	indicates that particles will be removed from the flow system as soon as they enter a sink (source) cell, even with incomplete inward (outward) gradients
INCAPT	0	initial and final particle positions are not saved
TIME1	0	start time
TIME2	-.365E+15	end time in days (negative sign indicates reverse{upgradient} tracking)
EPS	.0001	error criterion
DT	1	estimated first stepsize
MAXSTP	500	maximum number of tracking steps allowed
ISAV	2	interval for saving tracking steps in default output file
IPRT	3	program will print X,Y, and Z coordinates, time, and i,j,k indices in default output file
TFRONT(1)	-1826.25	front position in days equal to 5 years
TFRONT(2)	-3652.5	front position in days equal to 10 years
TFRONT(3)	-36525	front position in days equal to 100 years

The Fortran programs used for processing PATH3D input and output are described in the following table:

Table E-2: Fortran Programs for Processing P3D-Related Files

ALLP3DIN	Generates a separate PATH3D input file containing the parameters listed above and well-specific initial coordinates for all of the municipal wells. Also generates batch and text files to run particle tracling code and all postprocessing programs with one command.
WELP3DIN	Similar to ALLP3DIN except that program generates files for only one well.
P3DPLOT1	Modification of original P3DPLOT which generates *.bln files of particle pathlines for Surfer in Dane TM coordinates.
P3DFRNT1	Modification of original P3DFRONT which generates an output file of particle time-front positions in Dane TM coordinates: X, Y, Z, time, particle #, front #

P3DCAPT2	Totally new program which reads P3DPLOT.DAT file (not P3DCAPT.DAT) and generates a file with the initial and final particle positions: Xinit, Yinit, Zinit, Xend, Yend, Zend, total time
TOTALRUN	Similar to ALLP3DIN but creates files for a simultaneous PATH3D run of all of the municipal wells. Particle data for all wells is contained in a single file.

Appendix F: Reports for individual wells

Appendix F consists of the following information for each well analyzed:

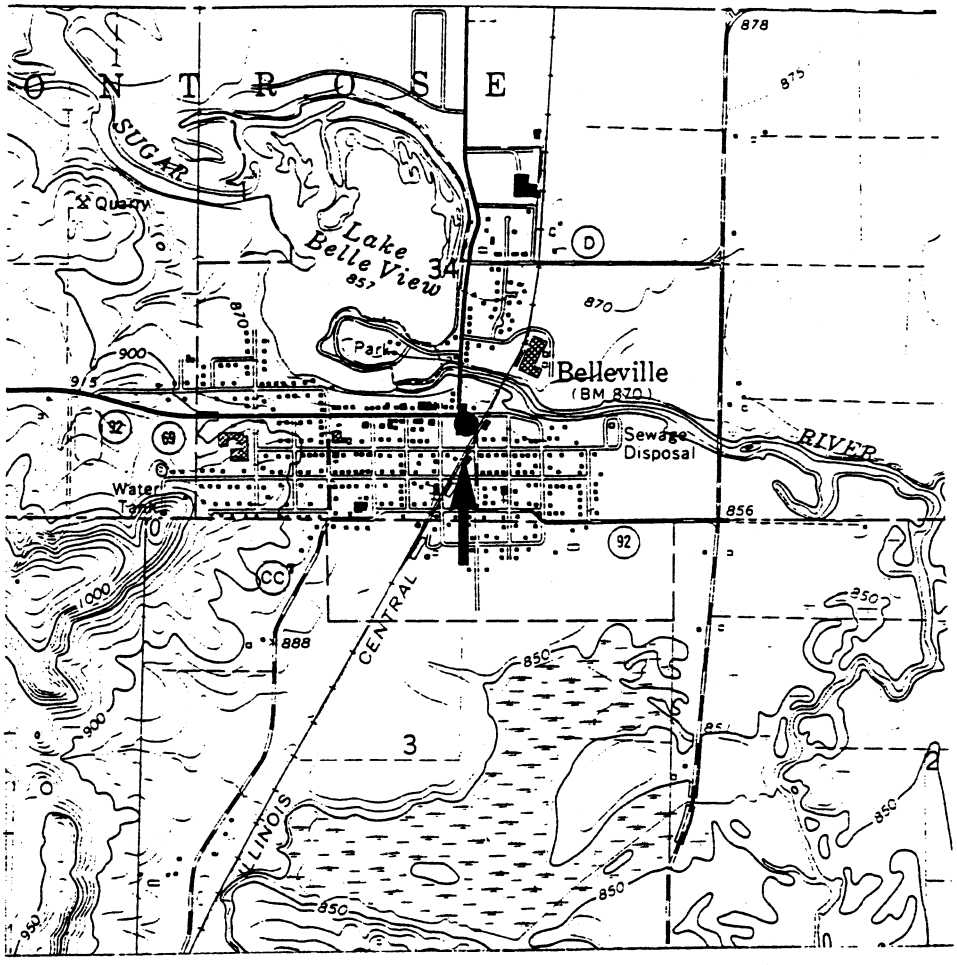
- A page containing a section of the USGS 1:24000 quadrangle map showing the well location, and including basic information about the well.

-A page containing a map at the same 1:24000 scale showing 5-, 10-, and 100-year zones of contribution for the well

- A page containing a map at 1:24000 showing the zone of influence of the well in both the water table and in the deep sandstone. Note that in some wells the zone of influence in one or both of these aquifers is too small to be mapped.

-A copy of the most complete geologic log or well construction report for the well found in WGNHS files.

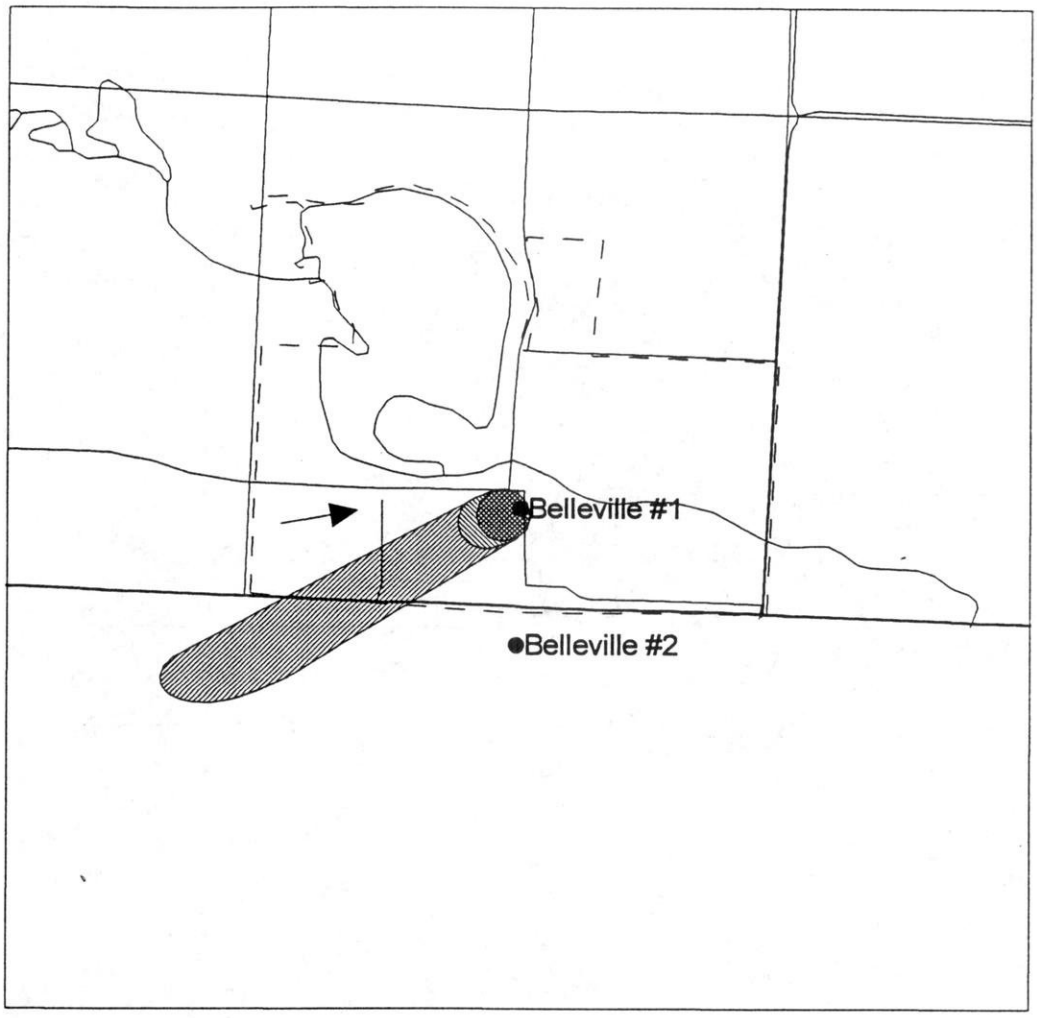
Village of Belleville, Well Number 1



Village of Belleville, Well Number 1 is located at 42° 51' 34.10" north latitude and 89° 31' 58.41" longitude. The well was installed in 1912 and has a pumping capacity of 350 gpm. The average daily use of the well between October 1994 and September 1995 was 79,000 gpd.

The well casing extends to a depth of 50 feet below ground surface, and the total depth of the well is 325 feet. Water is drawn from the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the upper Paleozoic bedrock units in the vicinity of the well is generally to the east.

Zone of Contribution for Belleville, Well Number 1



Well Location

Latitude: 42° 51' 34.10"
Longitude: 89° 31' 58.41"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Belleville, Well Number 1



Scale 1:24,000

0 500 1000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Dn-39

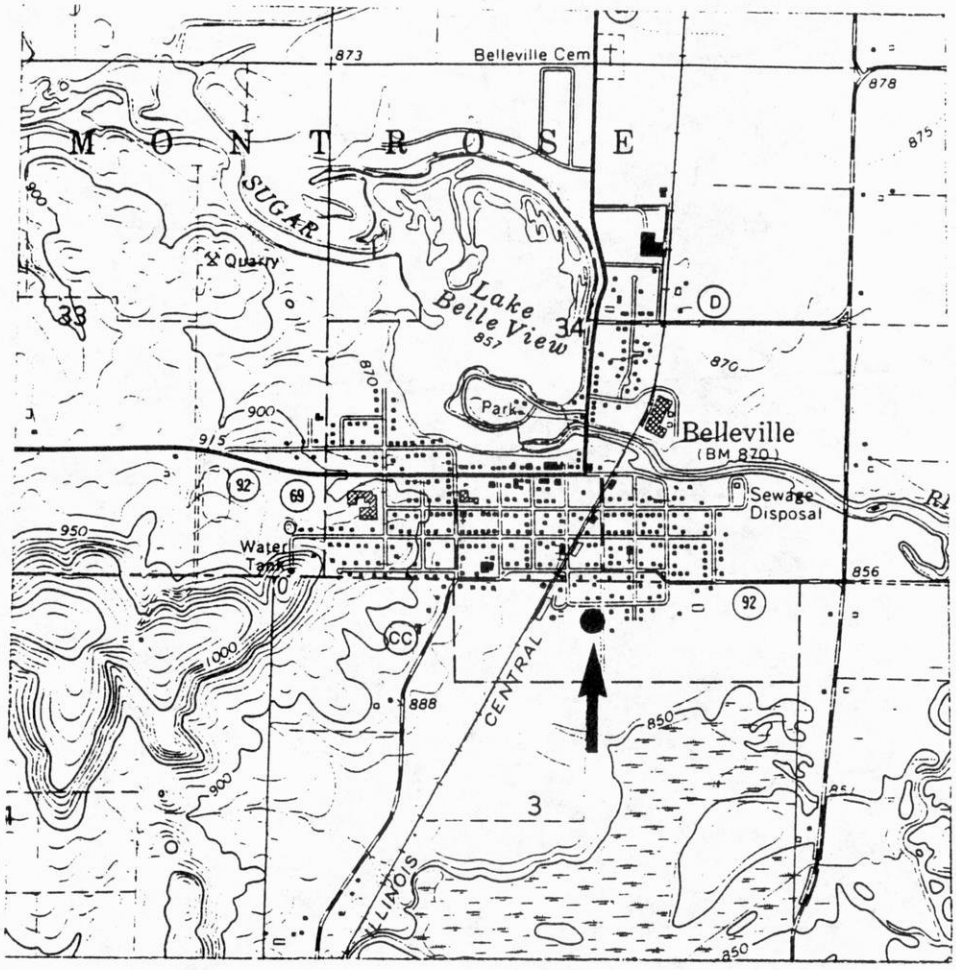
WATERWORKS WELL, BELLEVILLE

Samples sent by G. A. Scarcliff.
" examined by F. T. Thwaites, 1912 U.W.# 15914-45
C, W½, W½, NW¼, SW¼, SE¼, sec. 34, T. 5 R. 8 E., DANE Co.

Alt.=862' ETM. 1" = 100'

	25	0-25		No samples - probably drift etc.
St. P.	10	25-35		Reddish-brown medium sandstone & chert
L.M.	15	35-50		White & brown chert passing to dolomite at base
TREMPEALEAU	30	50-80		White to brownish medium to very fine sandstone, little lime
	70	80-150 (100)		Very fine sandy yellowish, occasionally gray or reddish dolomite or dolomitic sandstone. Much glauconite towards base "Yellow beds"
FRANCONIA	50	150-200 (200)		Fine gray, pinkish & yellowish calcareous glauconitic sandstone
				No record Total Depth 325

Village of Belleville, Well Number 2



Village of Belleville, Well Number 2 is located at 42° 51' 19.90" north latitude and 89° 31' 58.36" longitude. The well was installed in 1957 and has a pumping capacity of 500 gpm. The average daily use of the well between October 1994 and September 1995 was 107,000 gpd.

The well casing extends to a depth of 71 feet below ground surface, and the total depth of the well is 394 feet. Water is drawn from the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the upper Paleozoic bedrock units in the vicinity of the well is generally to the southeast.

Zone of Contribution for Belleville, Well Number 2



Well Location

Latitude: 42° 51' 19.90"
Longitude: 89° 31' 58.36"

0 500 1000
(meters)

N

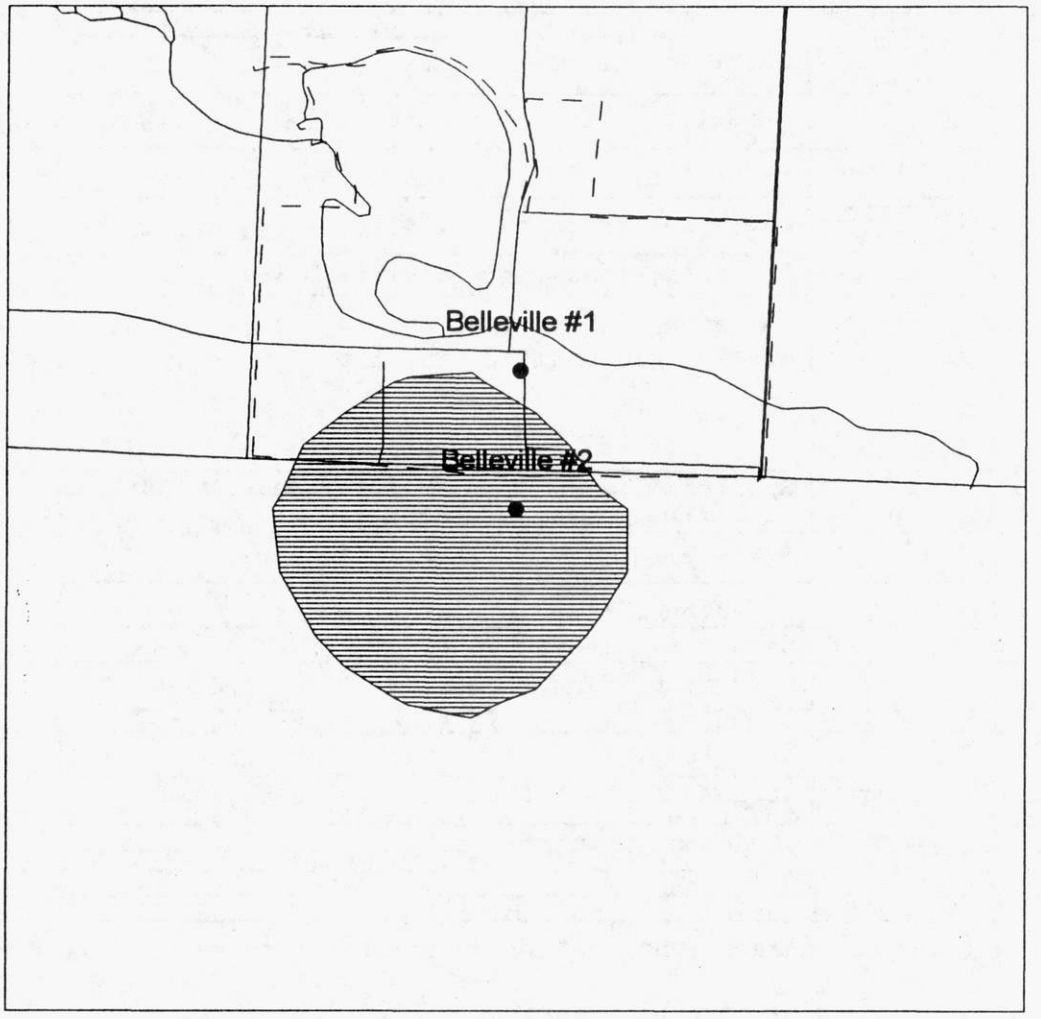
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Belleville, Well Number 2



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

VILLAGE WELL NO. 2, BELLEVILLE, GREEN CO., WIS. MASTER COPY

NW¼ NE¼ sec. 3, T. 4 N., R. 8 E.

J. A. Strand, Engineer Miller Well and Pump Co., Contractors,

Samples examined by F. T. Thwaites and J.B. Steuerwald, 19[redacted]

Nos. 194682-194760

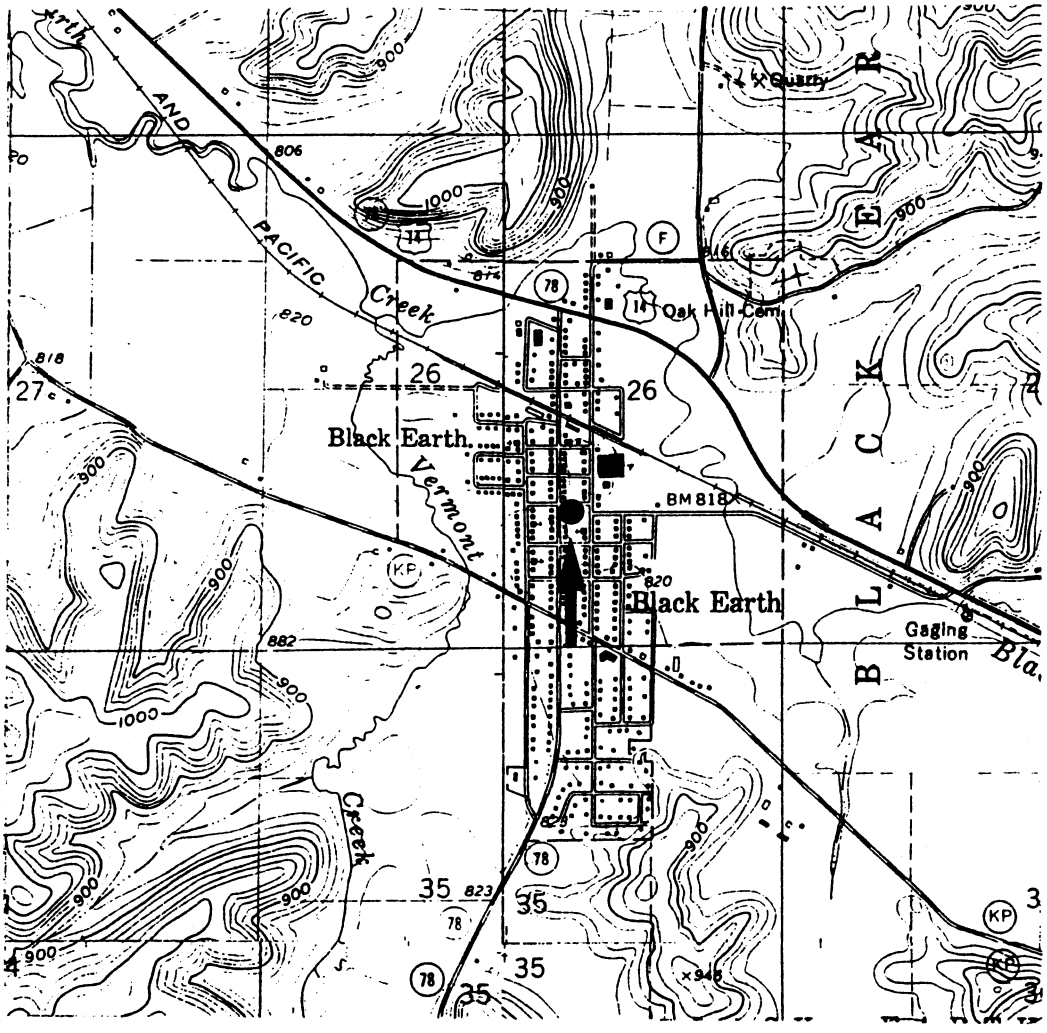
D	15	0-15	15	Gravel, very sandy, brown-gray to yel.-gray		18" pipe
S		15-25	10	Shale, red; chert pebs. some sand		7.6 water
T		25-50	25	Chert, white, some sand, red shale		35
P E	55	50-70	20	Sandstone, fine to medium, light pink, some chert		17½" hole 13 3/8" pipe cemented
T		70-90	20	Sandstone, very fine to medium, pink-gy, dol		71
R		90-115	25	Siltstone, some sand, lt.yel-gray, dolomitic		
E M	60	115-130	15	Dolomite, sandy, glauconitic, pink		
F		130-210	80	Sandstone, very fine, brown-gray to green-gray, glauconitic, dolomitic		12½" hole
R A N C O N I A	120	210-215	5	Sandstone, very fine, yellow-gray, dolomitic		
		215-230	15	Sandstone, fine to medium, lt.gy. yel-gy. gl.d		
		230-250	20	Sandstone, fine to coarse, light gray		
G		250-270	20	Sandstone, fine to medium, white		
A L E S V I L		270-285	15	Sandstone, medium to fine, lt.yellow-gray		
		285-305	20	Sandstone, fine to medium, light gray		
		305-315	10	Sandstone, medium to fine, light gray		
		315-340	25	Sandstone, fine to medium, light gray		
		340-345	5	Sandstone, very fine, lt. yel-gray, dol.		
	110	345-355	10	Sandstone, fine to medium, light gray		
		355-360	5	Sandstone, fine to medium, white		
		360-385	25	Sandstone, very fine to medium, lt.gy, dol; sh.		
E		385-390	5	Siltstone, light gray, dolomitic		
C	34	390-394	4	Shale, gray, dolomitic		

Formations: Drift (glacial outwash); St. Peter; Trempealeau; Franconia; Galesville(Dresbach); Eau Claire

Tested 24 hours up to 610 g.p.m. specific capacity = 14.2 g.p.m./ft.

Additional copies may be secured from Wisconsin Geological Survey, Science Hall, Madison 6, Wis.

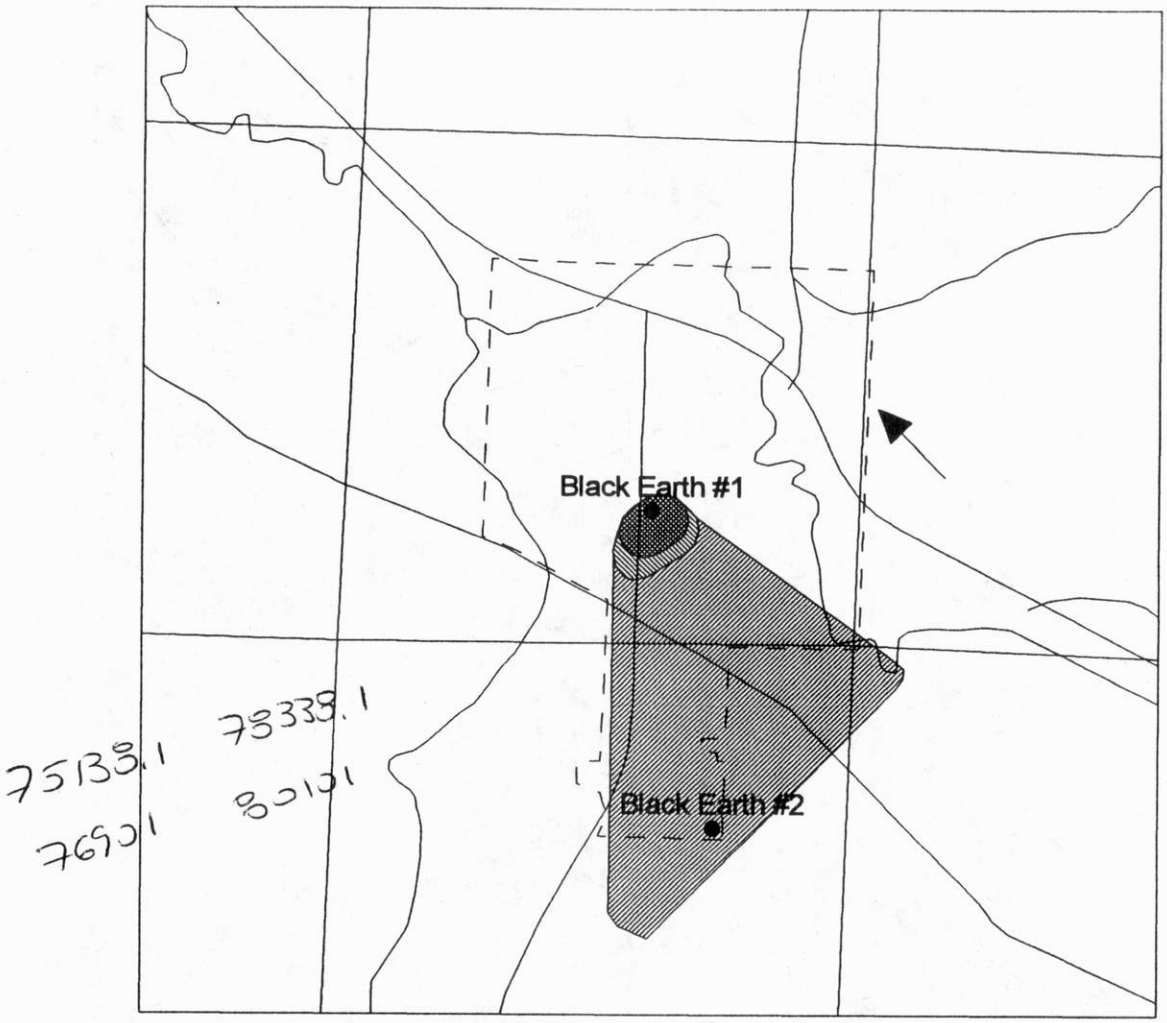
Village of Black Earth, Well Number 1



Village of Black Earth, Well Number 1 is located at 43° 8' 14.13" north latitude and 89° 44' 51.01" longitude. The well was installed in 1948, and has a pumping capacity of 500 gpm. The average daily use of the well over the period from October, 1994 through Spetember, 1995 was 25,100 gpd.

The well casing extends to a depth of 292 feet below ground surface, and the total depth of the well is 554 feet. Water is drawn primarily from the Mt. Simon sandstone. Groundwater flow in the Mt. Simon Sandstone in the vicinity of the well is generally to the northwest.

Zone of Contribution Black Earth, Well Number 1



Well Location

Latitude: 43° 8' 14.13"
Longitude: 89° 44' 51.01"

0 500 1000
(meters)

N

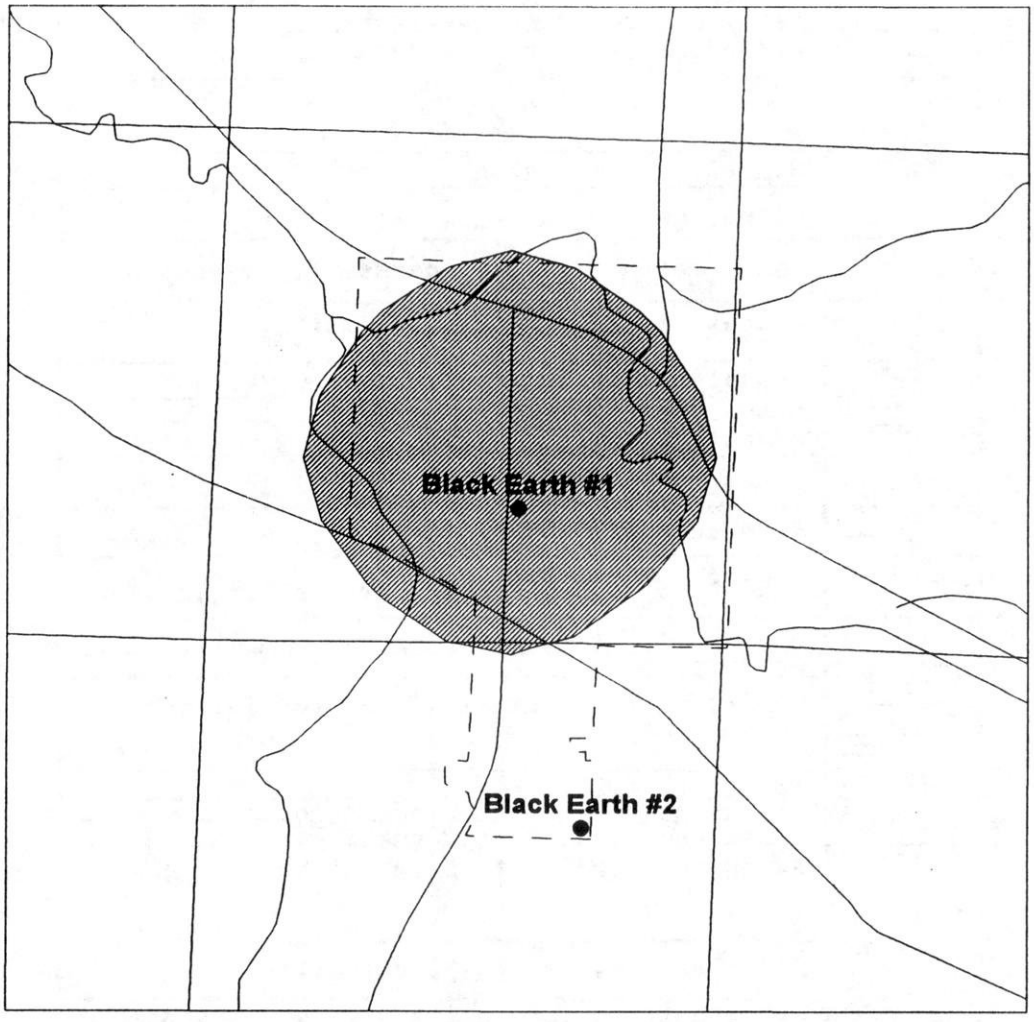
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Black Earth, Well Number 1



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

VILLAGE WELL, BLACK EARTH, WIS.

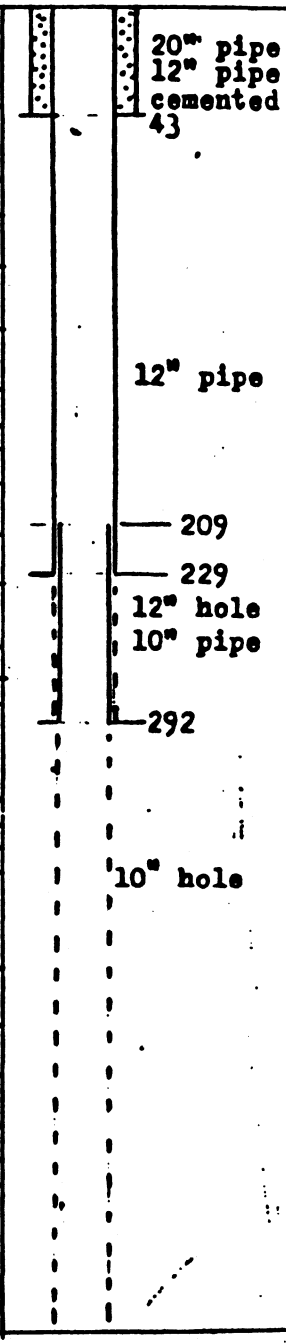
SE, SW, SE, SW NW ~~NW¼ SW¼~~ SE¼ sec. 26, T. 8 N., R. 6 E. ~~Elevation about 820~~

W. G. Kirchoffer, Engineer Milaeger Well Drilling Co.

Samples examined by F. T. Thwaites, Nos. 140190-140293

Alt. = 818' ETM

DRIFT		0-10	10		No sample
		10-12	2		Sand, medium to coarse, gray
		12-20	8		Gravel, fine, sandy, gray
		20-30	10		Sand, fine to coarse, gray
		30-70	40		Gravel, fine, sandy
		70-85	15		Gravel, coarse, stony
		85-105	20		Sand, medium to coarse, light gray
	130	105-130	25		Sand, medium to very coarse, light gray
DRESBACH		130-155	25		Sandstone, medium to fine, white
	45	155-175	20		Sandstone, medium to fine, light gray
EAU CLAIRE		175-180	5		Sandstone, fine, light gray
		180-185	5		Sandstone, fine, lt.gy; shale, gray, dol.
		185-215	30		Sandstone, fine, light gray, slightly dol.
		215-235	20		Sandstone, fine to medium, lt.gray, dol.
		235-260	25		Sandstone, fine, light gray, dolomitic layers
		260-280	20		Sandstone, fine, light gray, dolomitic
		280-285	5		No sample
		285-330	45		Shale, gray, dolomitic, some red layers
	160	330-335	5		Dolomite, silty, sandy, gray
MT SIMON		335-345	10		Sandstone, medium to fine, light gray
		345-355	10		Sandstone, medium to fine, light gray, dol.
		355-395	40		Sandstone, medium to fine, light gray
		395-420	25		Siltstone, sandy, gray, dolomitic
		420-440	20		Sandstone, medium to fine, gray, very dol.; no sample 430-435
		440-460	20		Sandstone, fine, light gray, dolomitic
		460-475	15		Sandstone, medium to fine, gray, very dol.
		475-487	12		Siltstone, sandy, gray, dolomitic
		487-535	48		Sandstone, fine to medium, silty, light gray
	209	535-544	9		Shale, gray, silty

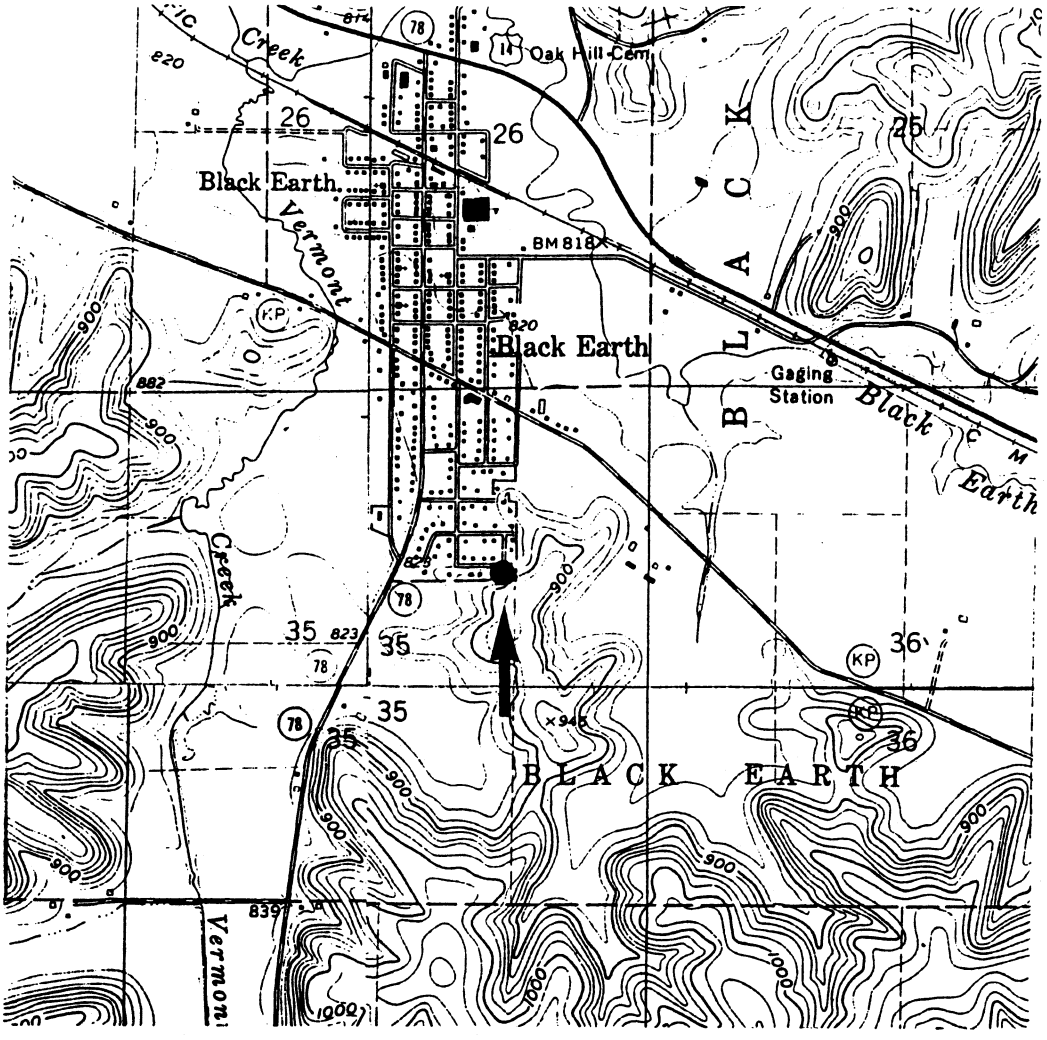


Formations: Drift (outwash); Dresbach (Galesville); Eau Claire; Mt. Simon

Tested at 400 g.p.m. specific capacity = 14.5 g.p.m./ft.; at 1080 g.p.m., 16.2 g.p.m./ft.

Well flows at surface/

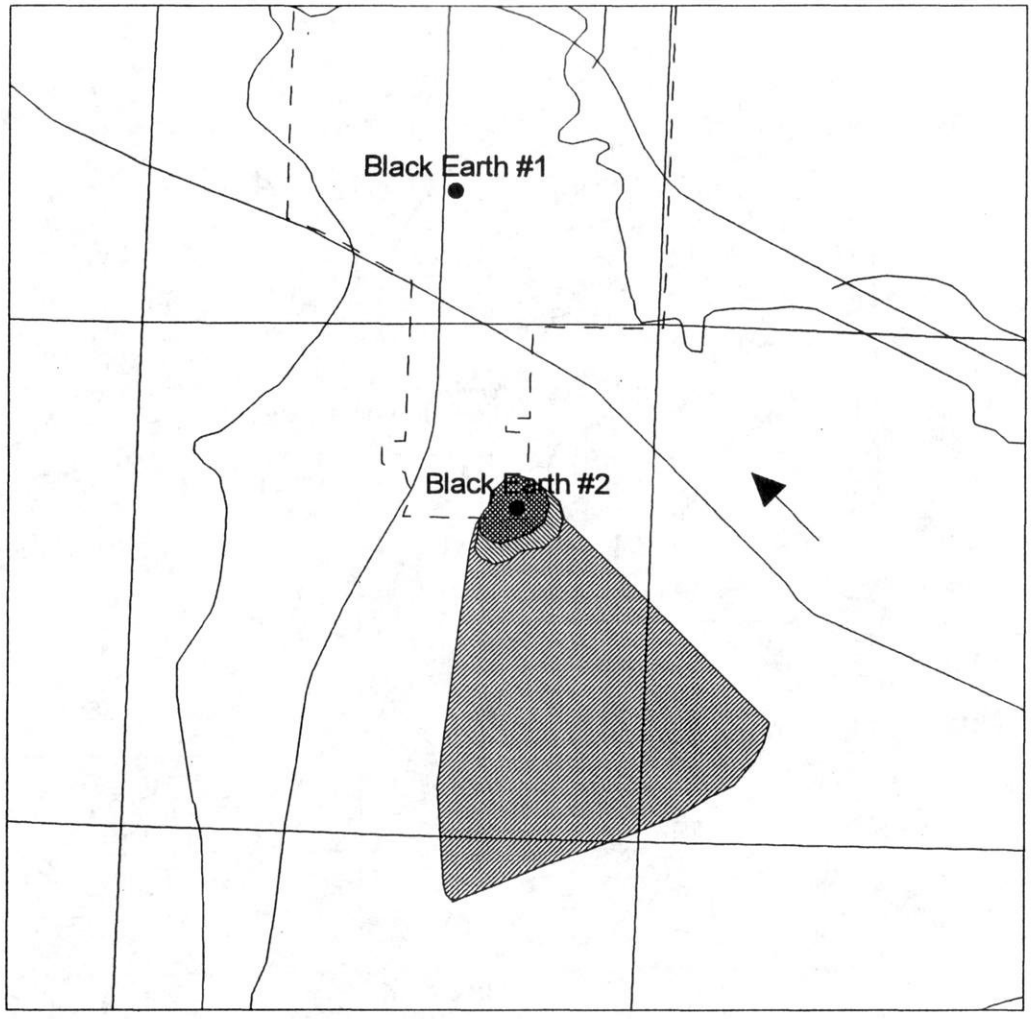
Village of Black Earth, Well Number 2



Village of Black Earth, Well Number 2 is located at 43° 7' 41.77" north latitude and 89° 44' 40.91" longitude. The well was installed in 1974, and has a pumping capacity of 500 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 87,100 gpd.

The well casing extends to a depth of 100 feet below ground surface, and the total depth of the well is 502 feet. Water is drawn from both the Mt. Simon sandstone and upper Paleozoic rocks. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Black Earth, Well Number 2



Well Location

Latitude: 43° 7' 41.77"
Longitude: 89° 44' 40.91"

0 500 1000
(meters)

N

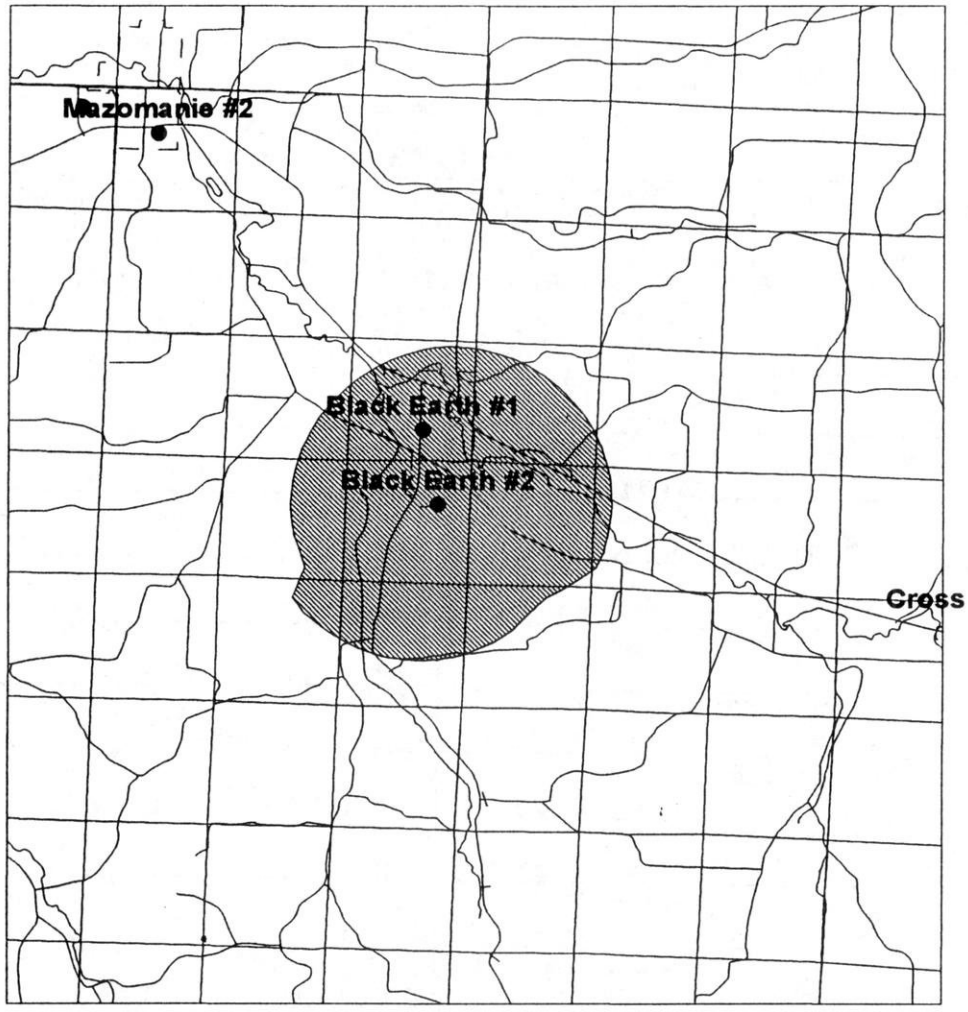
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Black Earth, Well Number 2



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

NO SAMPS

...RM 3300-15 ...REPORT

NOTE
WHITE COPY - DIVISION'S COPY
GREEN COPY - DRILLER'S COPY
YELLOW COPY - OWNER'S COPY

STATE OF ... DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

#2

COUNTY	CHECK ONE	NAME
Dane	☐ Town ☒ Village ☐ City	Black Earth

2. LOCATION – ¼ Section	Section	Township	Range
SW¼ of NE¼	35	8N	6E

OR – Grid or street no. | Street name

AND If available subdivision name, lot & block no.

3. OWNER AT TIME OF DRILLING
Village of Black Earth
ADDRESS #77102
POST OFFICE
Black Earth, Wisconsin 53515

4. Distance in feet from well to nearest:

BUILDING	SANITARY SEWER C. I.	SANITARY SEWER TILE	FLOOR DRAIN C. I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C. I.	WASTE WATER DRAIN TILE

(Record answer in appropriate block)

CLEAR WATER DRAIN C. I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

5. Well is intended to supply water for:
Municipality

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
24"	Surface 0'	23'	23"	23'	100'-10"
15"	100'-10"	502'			

7. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
24"	New steel 3/8" wall welded	Surface 1'+	23'
16"	A53B 3/8" wall welded	2'+	100'-10"

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Neat cement	Surface 1'+	100'-10"

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Clay	Surface, 0'	9'
Red sandstone	9'	42'
Yellow sandstone	42'	135'
White	135'	205'
Tan	205'	225'
White	225'	315'
Shale (sandy gray)	315'	375'
Gray sandstone	375'	502'

10. TYPE OF DRILLING MACHINE USED
☒ Cable Tool ☐ Direct Rotary ☐ Reverse Rotary
☐ Rotary – air w/drilling mud ☐ Rotary – hammer with drilling mud & air ☐ Jetting with ☐ Air ☐ Wate

Well construction completed on October, 19 74

11. MISCELLANEOUS DATA
Yield test: 10 Hrs. at 967 GPM

Depth from surface to normal water level 38 ft.

Depth to water level when pumping 132 ft.

Well is terminated 24 inches ☒ above ☐ below final grad

Well disinfected upon completion ☒ Yes ☐

Well sealed watertight upon completion ☒ Yes ☐

Water sample sent to State laboratory on: Sept. 12, 19 7

Y... opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, se... ty... of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., shou... ...iven on reverse side.

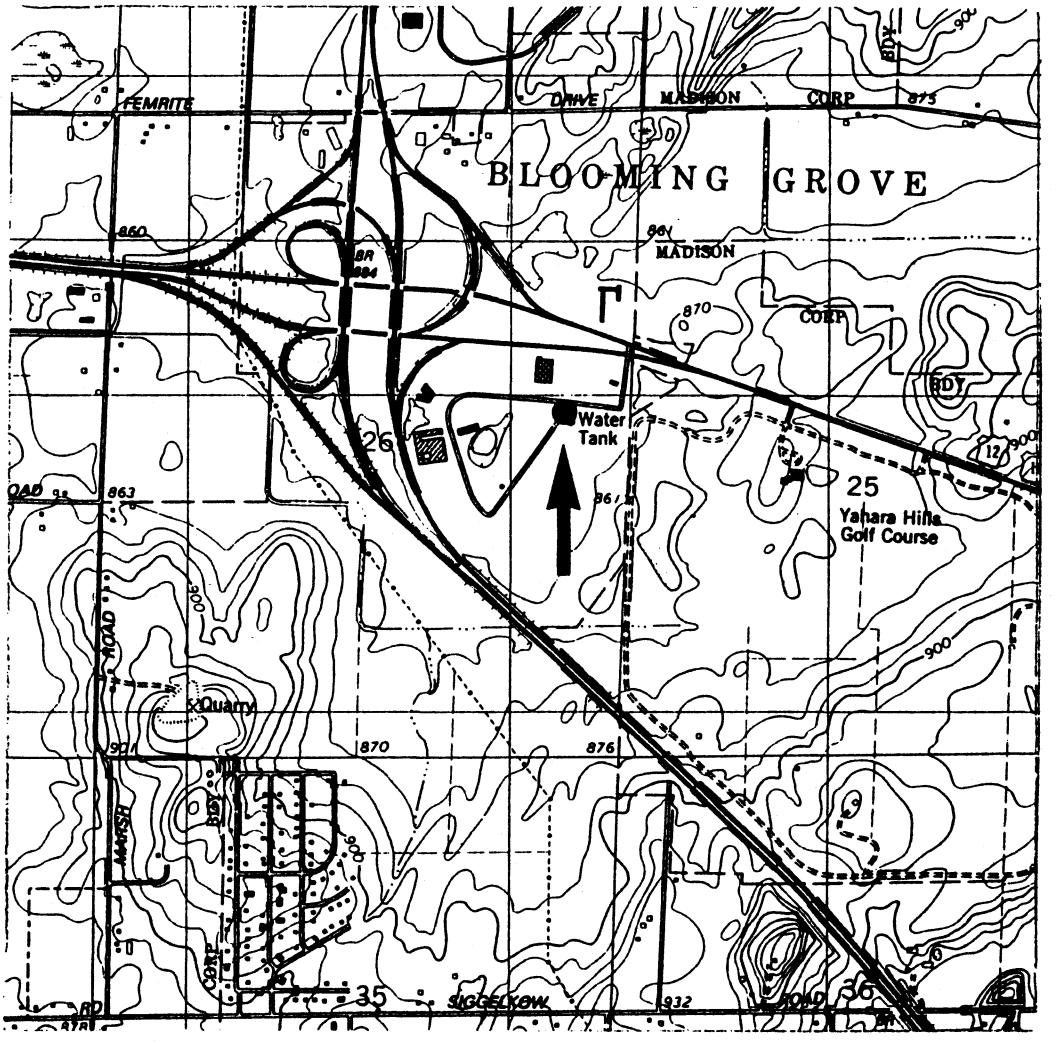
...GNATURE T. E. Leicht
LAYNE-NORTHWEST Registered Well Driller

COMPLETE MAIL ADDRESS
6005 West Martin Drive
Milwaukee, Wisconsin 53213

Please do not write in space below T. E. LEICHT/ls 10-...

...OFORM TEST RESULT	GAS – 24 HRS.	GAS – 48 HRS.	CONFIRMED	REMARKS

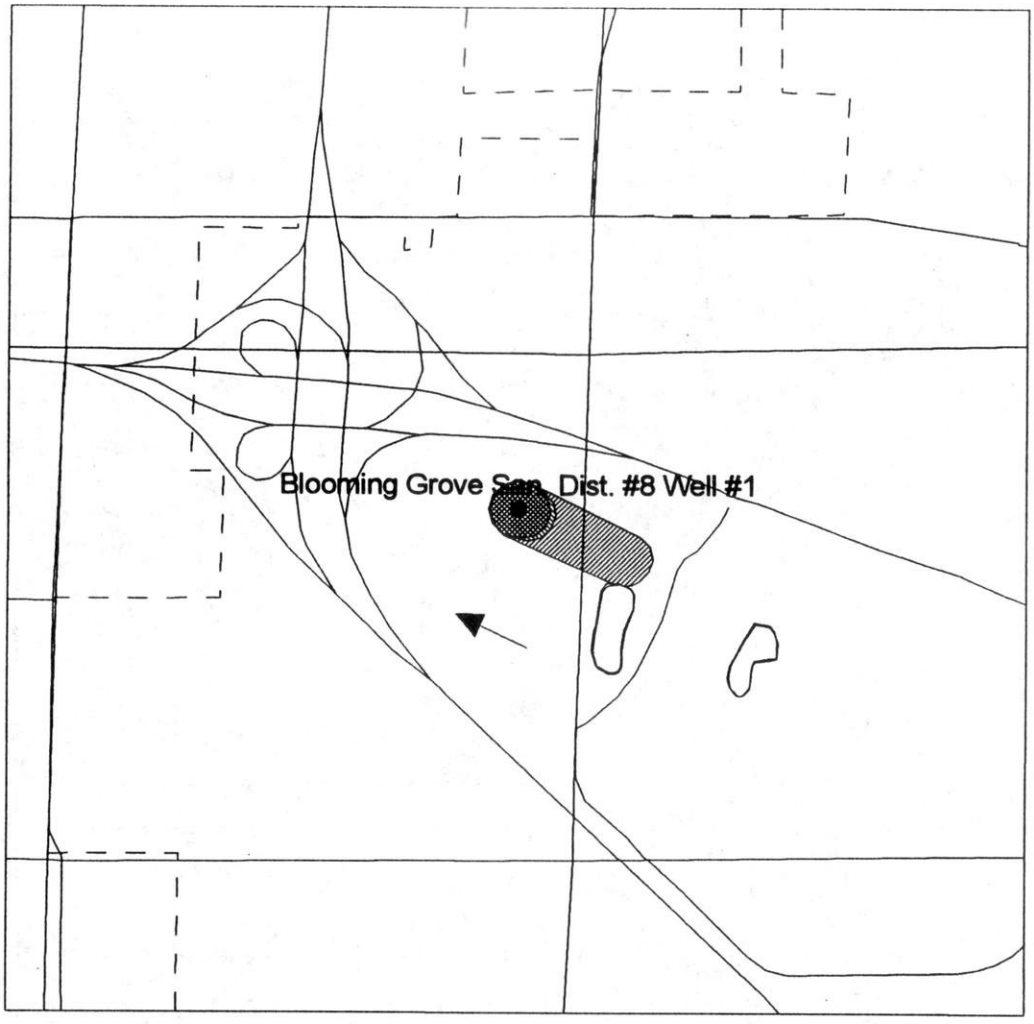
Blooming Grove Sanitary District Number 8, Well Number 1



Blooming Grove Sanitary District Number 8, Well Number 1 is located at 43° 2' 37.38" north latitude and 89° 16' 8.35" longitude. The well has a pumping capacity of 195 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 69,800 gpd.

The well casing extends to a depth of 171 feet below ground surface, and the total depth of the well is 460 feet. Water is drawn from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Blooming Grove Sanitary District, Well Number 1



Well Location

Latitude: 43° 2' 37.38"
Longitude: 89° 16' 8.35"

0 500 1000
(meters)

N

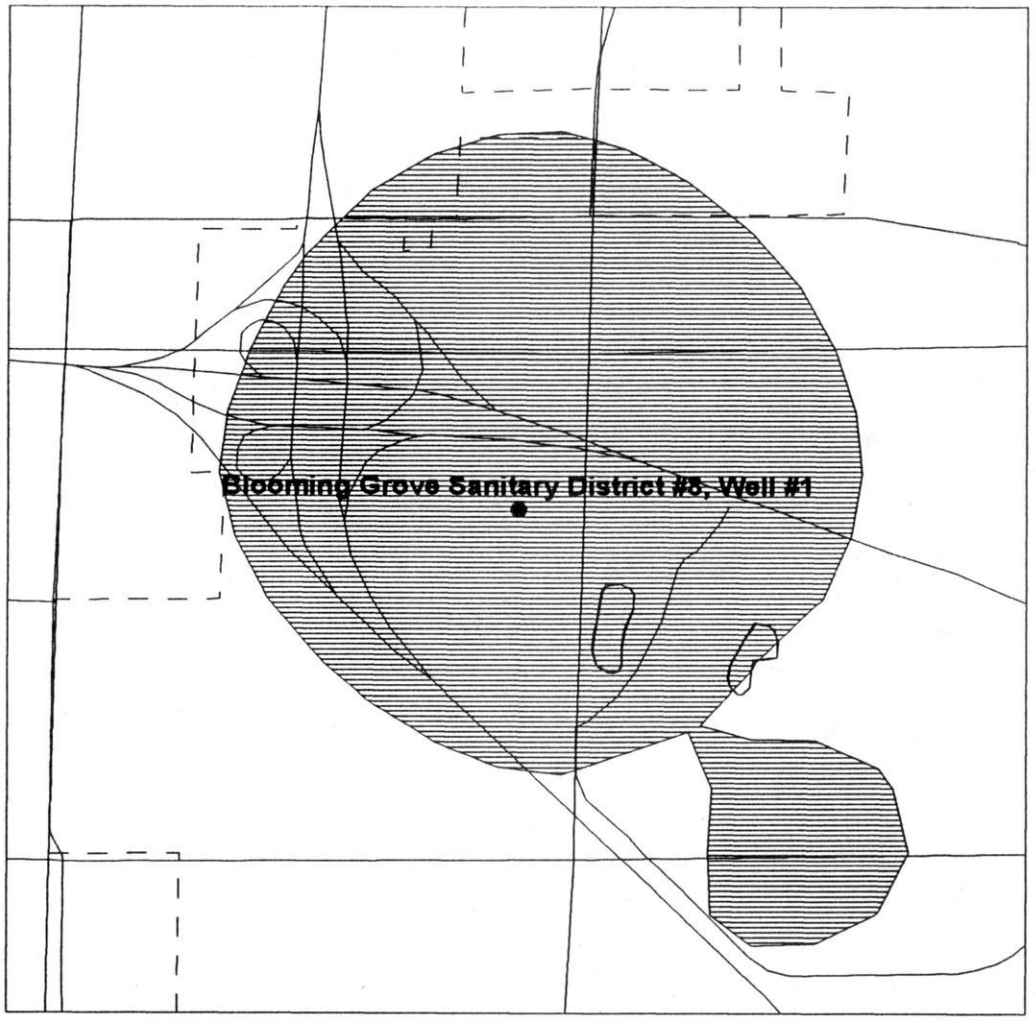
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Blooming Grove Sanitary District Number 8, Well Number 1



Scale 1:24,000

0 500 1000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

MASTER COPY

Blooming Grove Sanitary District #8 Well

Location: SW¼, NW¼, SW¼, NE¼, SE¼, NE¼, sec. 26, T7N, R10E

Harold M. O'Connor - Driller, 7-6-65

Sample Nos. 256648-256743 - Examined by Joan McKee - 10-65

863' ETM

+36"

DRIFT		0-5	5	St&Cl; MdYlBn; TrSnd
		5-15	10	Snd; LtYlBn; M, C; Srnd; P; TrFn, VC, TrVFn, FnGvl
		15-30	15	Snd; Mxd; Fn, VFn; Srnd; P; TrM, C, TrCl
		30-35	5	Cl; LtRdBn; Dolc; F; TrSnd
		35-45	10	Snd; Mxd; M, C; Srnd; P; TrFn, VFn, VC, MchCl, TrFnGvl
		45-46	1	Gvl; Mxd; Fn, VFn; SangSrnd; P; TrM, TrSnd
		46-50	4	Snd; Mxd; M, C; Srnd; P; TrFn, Lt1VFn, Fn, MGvl, TrCl
		50-60	10	Snd, Sty, LtBn; Fn; SangSrnd; P; DolicSt, P; MchM, C, Gvl
		60-65	5	Snd, Sty; LtBn; Fn; Sang, Srnd; P; DolicSt, P; Gvl, Dol, Cht, ig, VSty; MchM, C, Gvl
		65-78	13	Gvl; Mxd; Fn; Lt1igPebs, Dns, MchSnd, Fn, M, C
		78-82	4	Gvl, Dolic; Mxd; C; SangRnd; P; Dolic; QtzSnd, Lt1Fn Pebs, Ss, Ig, Dol
		82-95	13	Snd; GryOr; M; Sang; P; Dolic, Lt1Dol, DolicStonSnd TrSt, ig, MchFn, TrC
		95-100	5	Gvl; Mxd; C; Sang; P; Dolic; StonSndGrns, MchMSnd, Gvl, SndyDol
		100-110	10	Snd; GryOr; M; Srnd; P; Dolic; Lt1Gvl, Dolic St on Snd TrCht, TrCaCO3
		110-120	10	Gvl; Mxd; C; Srnd; P; Dolic; Lt1St, Qtz&DolGvl, C, M, Fn MchSnd,
		120-125	5	Snd; Mxd; VC; Sang; P; Dolic; MchDol, Lt1St, Fn, TrCaCO3
		125-130	5	St, YlBn; C; Dolic; MchQtz&Dol, TrCSnd, Dolic
	134	130-134	4	Snd; Mxd; M, Srnd; P; Dolic; FnSnd, CaCO3, St, C, VDolic
		134-135	1	Ss; LtOlGry; M; Srnd; P; Aggs; (Dol) (Pyr), Qtz, ig, Dol, Pyr
ST PETER		135-145	10	Ss, LtOlGry; Fn; Srnd; F; Same, Lt1St, Frstd, MchPyr, Lt1Dol
		145-160	15	Ss; LtOlGry; M; Srnd; F; Lt1Dol&SndyDol, MchFn, Lt1Pyr
		160-165	5	Ss; Mxd; M, Sang; P; TrSt, Lt1Dol, Pyr, MchFn, Lt1Gvl
		165-180	15	Ss; YlGry; M; Srnd; P; Lt1St, Lt1Dol, TrCaCO3, AngColoredQtz Lt1VCSnd, Gvl, TrPyr
		180-185	5	Ss; YlGry; M; Srnd; P; Aggs; QtzCem, SameAsAbove
		185-190	5	Ss; SameAsAbove, TrSt, TrDol, AngColoredQtz, &Same
		190-195	5	Ss; SameAsAbove, Lt1LtGrySh, TrPyr, MchRdBnSt, Sh
		195-200	5	Ss; DkOrPnk; M; Srnd; P; Aggs; QtzCem, Dol, Pyr, St, Sh
		200-205	5	Ss; SameAsAbove, MchVC, QtzGvl, Fn&VFn, MchSh, St, Qtzt
		205-210	5	Ss; MOrPnk; M; Srnd, P; P(Qtz); St, Gvl, Qtzt, Sh, Pyr, Dol
		210-215	5	Ss; GryOrPnk; SameAsAbove, MchSt, Fn, C, VC, MchQtz, Sh
	74'	215-218	3	St; YlGry; P; P(Qtz); MchSt, VCGvl, AngWhCht, Snd, Pyr
Pduc		218-225	6	Dol; VPlOr; VFn; GDol; Lt1Sh, Dns, St, Cht, Glauc, Pyr, Snd
		225-235	10	Dol; VPlOr; VFn; GDol; Lt1M, Fn, Snd, Lt1Sh, Dns, TrSt, TrPyr, Qtz, Cht, Glauc
		235-245	10	Dol; YlGry; G, Dol; Dns, FnSnd, Lt1Cht, TrGlauc, Sh
		245-260	15	Dol, YlGry; GDol; Dns, Lt1AngCht, TrFnSnd
		260-265	5	Dol, Sndy; FDol; FnSnd, Sh, MchSt, OoliticCht, Glauc, Pyr
		265-270	5	Ss, Dolic; VPLOr; Fn; Srnd; F; FDol; Dol, Sh, St, Qtzt, Cht
	57'	270-275	5	Dol, Sndy; YlBn, FDol, MchFnSnd, OolCht, MchSt, Sh, Fe
Jordn		275-280	5	Ss, Shly, YlGry, M; Srnd; F; PSh; MchFnSh, Lt1OolCht
		280-285	5	Ss; YlGry; M; Srnd; P; PDol (Qtz), MchDol, Cht, St, Sh, Fe
		285-290	5	Ss; SameAsAbove, MchFnVFn, MchCht, Lt1GnSh, Lt1Dol
	20'	290-295	5	Ss; SameAsAbove, MchFn, VFn, MchDol, Lt1St, Lt1Cht, Sh
STL		295-300	5	Dol; PlYlBn; VCalcic, G; Dol; TrSnd, Cht, Glauc, Fe
		300-310	10	Dol, Glaucic; P1Bn&VP1OrDol, G; DolFnSnd, Glauc, Cht MchRdBnSt, Mch
		310-315	5	Sh, Dolic, Glaucic; RdBn; P; Sh-PDol, F, SndyDolAggs, Glauc, Cht
	25'	315-320	5	Ss, Dolic, Glaucic; Bn, Fn; Sang; P, Dol, Fe; Glauc
FRAN		320-325	5	Ss, Shly; Bn; Fn, Sang, P, (Dol), St, Glauc, Cht, Fe, Dol
		325-330	5	Ss, Shly; Same, VSty, MchDol, Lt1Glauc, MchCht, GnSh
		330-340	10	Ss; P1Y1Bn; FnAng; P; (Dol), MchSt, Lt1Glauc, Lt1RdGnSh MchRdBn&WhDol, MchCht
		340-345	5	SsGryOrPnk; Same, Lt1Glauc, Lt1St, Lt1VFn, TrCht, TrM

10'6" wat lev
15" hole
neat cem gro
53'
10" std, Bl 365 wall casing
10" hole
170'6"

Blooming Grove Sanitary District #8 Well
Sample Nos. 256648-256743

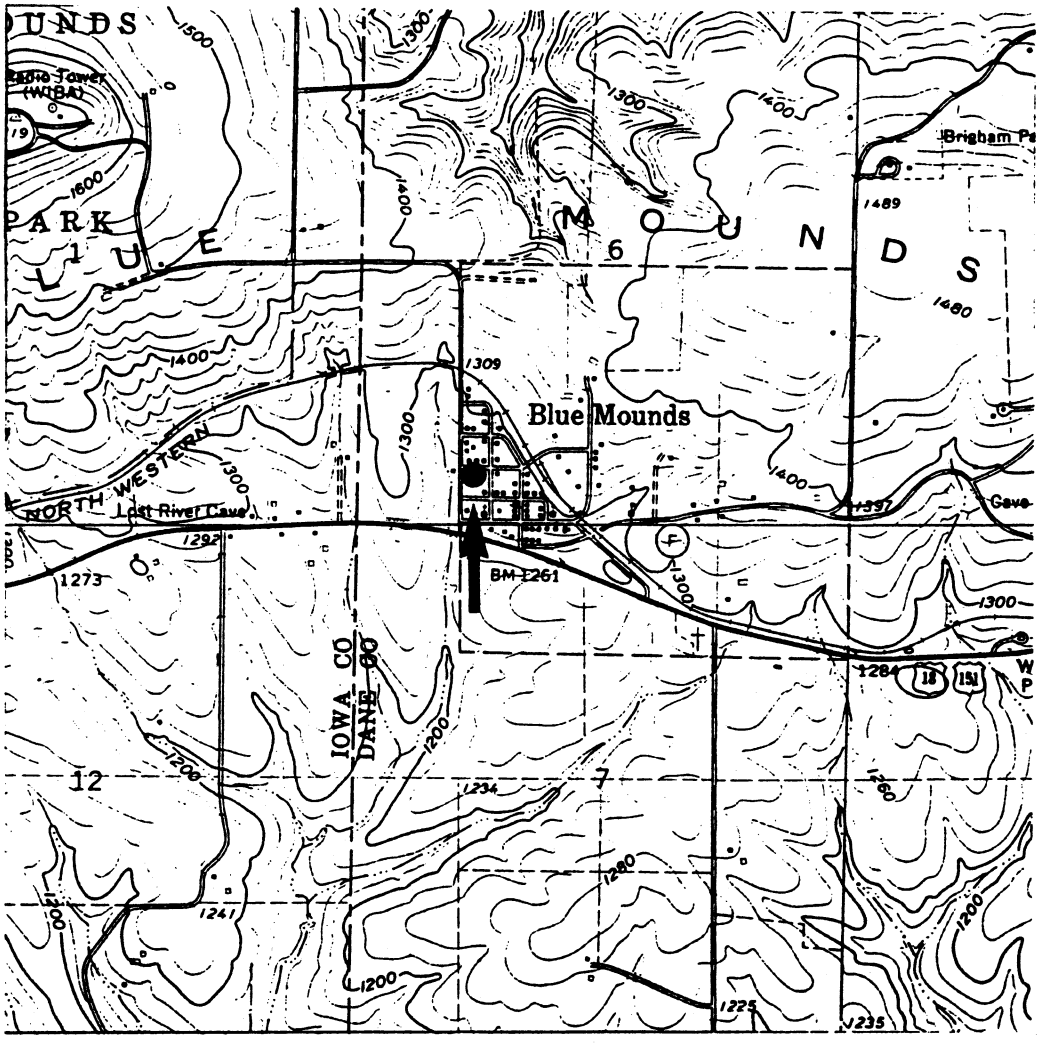
FRAN		345-365	20	Ss;Dolic;LtBn;Fn;Ang;F;(Dol);MchSt&Dol,LtlGnSh, TrGlauc,Fe,Cht		
		365-370	5	Ss;Dolic;GryOrPnk;Fn;Srnd;P;Same as above-MchAng		
		370-380	10	Ss;LtBn;Fn;Sang;P;Dolic;LtlDol,MchVfn,LtlGnSh LtlCht,TrSt,TrGlauc		
		380-385	5	Ss;LtPnkBn;Fn;Sang;P;Dolic;LtlDol,Cht,GnSh		10" hole
		385-395	10	Ss;LtPnkBn;Fn;Srnd;P;MchMmLtlCht,GnSh,VFn, TrGrySh,TrDol,TrFe		
		395-410	15	Ss;MOrPnkFn,Srnd;P;MchM&VFn,TrFe,Glauc,		
		410-415	5	Ss;GryOrPnkM;Rnd;P;MchSrndFn&VFn,Cht,TrFe,Glauc		
	110	415-425	10	Ss;GryOrPnk,M;Rnd;P;MchSrndFn&Vfn,LtlCht,TrFe, TrGrySh		
		425-430	5	Ss;GryOrPnk;M;Srnd;P;MchFn,LtlCht,Dol,GnSh		
		430-435	5	Ss;GryOrPnk;Fn;Srnd;P;Dolic;MchSt,M,VFn&C,LtlDol,		
IR		435-440	5	Ss;GryOrPnk;M;Srnd;P;Dolic;MchFn,Vfn&C,LtlChtCht Dol,Rd&GnSh		
		440-450	10	Ss;GryOrPnk;M;Srnd;P;Dolic;MchSt,C&AngFn		
	30	450-460	10	Ss;GryOrPnk;M;Srnd;P;Dolic;MchC,AngFn&Vfn,LtlOtzTrPyr,Fe,GnSh		460'

Formations: Drift, St. Peter, Prairie du Chien, Jordan, St. Lawrence, Franconia, and Ironton
Well tested for 24 hrs. at 145 gpm with 139 1/2 feet of drawdown.
Specific capacity = 1.0 gpm per foot of drawdown.
Driller reports a total depth of 492 feet.

The presence of oolitic chert in the well cuttings below 275 feet is attributed to fracturing and caving of a very cherty bed near the base of the Prairie du Chien.

Nov., 1989: Well had backfilled to 206', Layne-Northwest cleaned the caved material out to ~400' where steel was encountered.

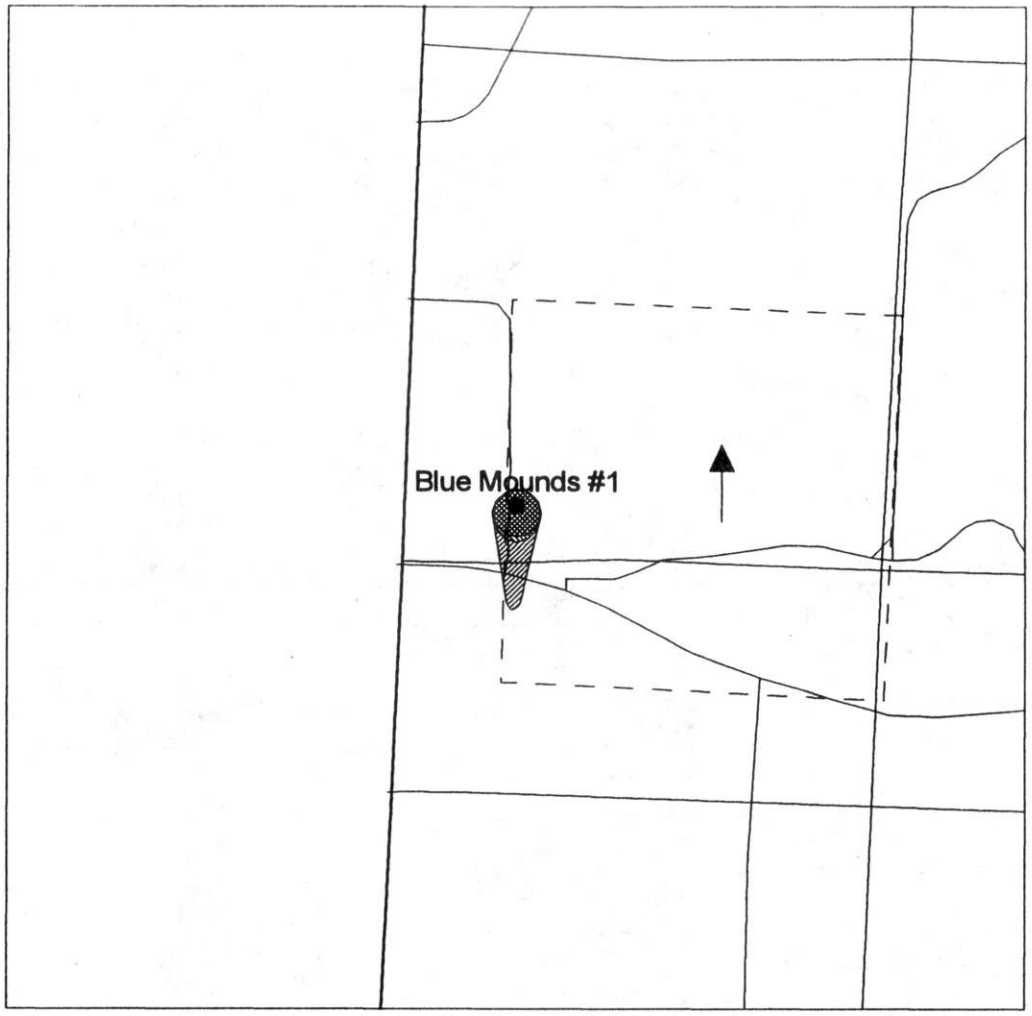
Village of Blue Mounds, Well Number 1



Village of Blue Mounds, Well Number 1 is located at 43° 1' 6.93" north latitude and 89° 50' 1.85" longitude. The well was installed in 1978 and has a pumping capacity of 195 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 69,800 gpd.

The well casing extends to a depth of 200 feet below ground surface, and the total depth of the well is 875 feet. Water is drawn from a combination of the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the north.

Zone of Contribution for Blue Mounds, Well Number 1



Well Location

Latitude: 43° 1' 6.93"
Longitude: 89° 50' 1.85"

0 500 1000
(meters)

N

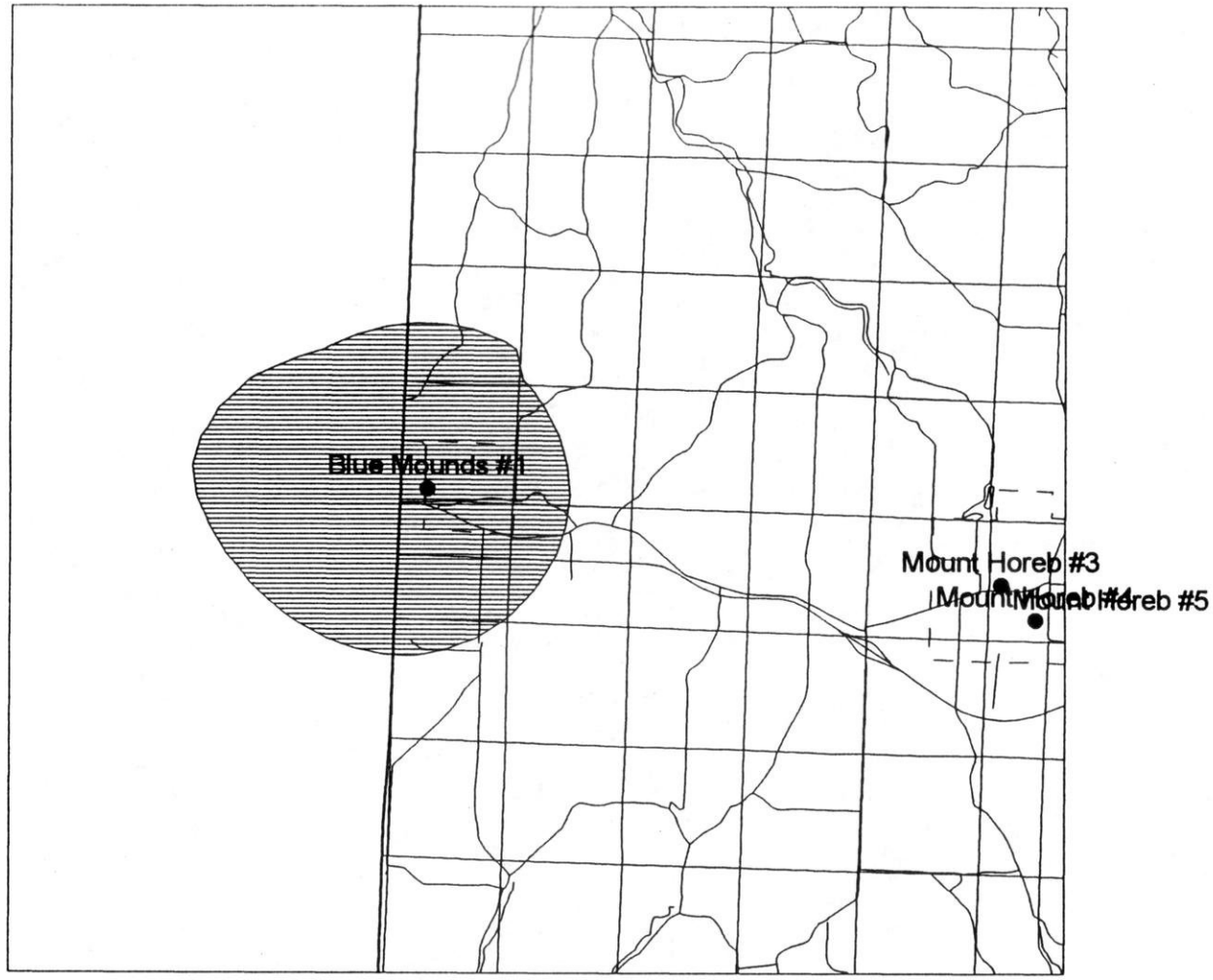
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Blue Mounds, Well Number 1



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (two feet drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

*Note: The zone of influence for Blue Mounds, Well Number 1 is delineated by the extent of two feet of drawdown in the water table aquifer.

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

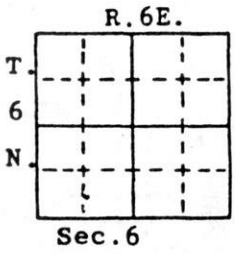
Log No.I2-Dn-1092

Well name Blue Mounds Village Well

County: Dane

Owner.... Village of Blue Mounds
Address.. Village Hall
Blue Mounds, WI 53517
Driller.. Milwaeger Well & Pump Co.
Engineer. Mead & Hunt, Inc.
Madison, Wisconsin

Completed... 5/78
Field check.
Altitude.... 1263'ETM
Use..... Municipal
Static w.l.. 195'
Spec. cap... 2.2 GPM/ft



Location: SE¼,NW¼,NW¼,SW¼,SE¼,SW¼,sec.6,T.6N.,R.6E. Quad. Blue Mounds 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
24"	0	17'	17"	200'	330'	24"	steel-.375"						
			15"	330'	500'		95#/ft	0	17'				
23"	17'	200'	12"	500'	831'	18"	steel-.375"	+1.5'	200'				
			10"	831'	875'								

Grout	from	to
Neat cement	0	200'

Drilling method: Cable Tool
Samples from 0 to 875' Rec'd: 5/4/78

Studied by: Kathleen Massie

Issued: 5/21/84

Formations: Surface, Sinnipee Gp (Galena, Decorah & Platteville Fms), Glenwood Fm, St. Peter Sandstone (Tonti & Readstown Mbrs), Prairie du Chien Gp, Jordan Fm (Coon Valley & Van Oser Mbrs), St. Lawrence Fm (Black Earth Mbr), Tunnel City Gp, Wonewoc Formation, Eau Claire Formation, Mt. Simon Sandstone.

Remarks: Well tested for 14 hours at 520 GPM with 233 feet of drawdown.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Sfc. 7.5'	0-5		Soil	Dk brown	—	—	Trace organic material. Trace white chert.
	5-10		Soil & dol	Strg brown	—	—	Dolomite: very weathered. Trace white chert.
	10-15		Dolomite	Yellow	M	Fn/M	Weathered. Little white chert. Trace fossil fragments.
G	15-20		"	"	"	"	Trace gry mottling, wh fos chert, lt rd chert, fos frags.
A	20-25		"	"	"	"	Same.
	25-30		"	"	"	"	Same but no chert.
L	30-35		"	"	"	"	Trace fossil fragments, white chert.
E	35-40		"	"	"	"	Same.
N	40-45		"	"	"	"	"
A	45-50		"	"	"	"	"
	50-55		"	"	"	"	"
	55-60		"	"	"	"	"
	60-65		"	Bn yellow	"	"	"
	65-70		"	"	"	"	"
	70-75		"	"	"	"	"
	75-80		"	"	"	"	Sugary. Trace fossil fragments.
	80-85		"	"	"	"	Trace fossil fragments, pink fossiliferous chert.
	85-90		"	"	"	"	Same plus trace pyrite.
	90-95		"	Lt yl bn	"	"	Same.
92.5'	95-100		"	"	"	"	Same plus mch lt gry dolomite w/few fos frags & ltl pyrite.
Dec. 10'	100-105		"	Bn & grey	"	"	Mny fos frags. Mch lim derived bn cl w/tr of lim. Tr pyr,lt
	105-110		"	Grey	"	"	Few fos frags. Ltl finely dis pyr,gry cl. Tr bn vl bn dol.
	110-115		"	Yl brown	Fn	"	Ltl dol as above. Tr bn cl,lim,fos frags. clay,limonite.
P	115-120		"	"	"	"	Tr finely dis pyrite, fossil fragments, grey mottling.
L	120-125		"	"	"	"	Tr finely dis pyrite, gry mottling, pnk chert, limonite.
A	125-130		"	"	"	"	Same plus trace brown clay, few fossil fragments.
T	130-135		"	Gry & ylbn	M	"	Few fos frags. Ltl dol as above. Tr finely dis pyrite, lim.
T	135-140		"	"	"	"	Same.
E	140-145		"	Lt grey	"	"	Trace fossil fragments, pyrite, limonite, grey mottling.
	145-150		"	"	"	"	Same plus trace white chert.
L	150-155		"	"	"	"	Same but no chert.
L	155-160		"	Lt gry bn	"	"	Same.
E							

Log No. I2-Dn-1092

Well name: Blue Mounds Village Well

	Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
					Mode	Range	
	160–165		Dolomite	Lt gry bn	M	Fn/M	Trace fossil fragments, pyrite, limonite, gray mottling,
...A.	165–170		"	"	"	"	Trace fos frags, pyrite, gry mottling, pnk chert, limonite.
55'	170–175		"	"	"	"	Same.
len.	175–180		"	"	"	"	Same plus little sand.
O'	180–185		Sandstone	Lt grey	Fn	Vfn/VC	Subrounded. Tr pyr cem, bn clay, limonite. Mch cvd dolomite.
	185–190		"	"	M	"	Same.
	190–195		"	"	"	"	"
	195–200		"	Pl yellow	"	"	"
	200–205		"	"	"	"	"
	205–210		"	"	"	"	"
T	210–215		"	Bn yellow	"	"	Subrounded. Tr pyr cem, bn clay, limonite. Mch cvd dolomite.
O	215–220		"	"	"	"	Same plus much caved brown clay.
N	220–225		"	Yellow	"	"	Subrounded. Tr pyr cem. Ltl caved dolomite & brown clay.
T	225–230		"	"	"	"	Same.
I	230–235		"	"	"	"	Rounded. Trace pyrite cem, caved dolomite & brown clay.
	235–240		"	"	Fn/M	"	Same.
	240–245		"	Pl yellow	M	"	Rounded. Trace caved dolomite.
	245–250		"	"	Fn/M	"	Same.
	250–255		"	"	M	"	Subrounded. Trace caved dolomite.
	255–260		"	"	Fn	Vfn/C	Same.
	260–265		"	"	M	"	Subrounded. Trace limonite cement, caved dolomite.
	265–270		"	"	Fn	"	Subrounded. Tr lim & pyr cem, caved dolomite & bn clay.
	270–280		"	270-275 Yellow 275-280 Pl yellow	M	Vfn/VC	Same but no clay.
99'	280–284		"	Pl yellow	Fn	"	Srnd. Trace silica, limonite & pyrite cem, caved dolomite, silt.
R	284–285		Shale	Rd brown	—	—	Siliceous. Mch wh shale. Tr sand, hematite, pyrite, mica.
E	285–290		Sandstone	"	M	Vfn/VC	Srnd. Trace silica cement. Much shale as above. Little dol.
A	290–295		Shale	"	—	—	Dolomitic. Ltl sandstone. Trace dolomite, white shale, hem.
D	295–300		"	Dk rd brown	—	—	Siliceous. Little sand. Trace dolomite, mica, white shale.
S	300–305		Sandstone	Rd brown	M	Vfn/VC	Srnd. Tr sil cem, ool, mica, hem. Mch sh w/wh sh banding. Ltl dol.
T	305–310		"	Pnk & rdbn	C	"	Srnd. Ltl sil cem, clear to wh cht. Mch rd bn sh w/wh sh banding.
O	310–315		Chert	Wh to pnk	—	—	See end of log. Tr ool, dol, pyrite.
W	315–320		"	"	—	—	Ltl stng from sh, rd bn sh. Few oolites. Tr sand, drsy qtz.
N	320–325		"	"	—	—	Mch ss. Ltl stng from shale, rd bn shale. Tr drusy quartz.
46'	325–330		"	"	—	—	Ltl sandstone, drsy quartz. Tr stng from shale, rd bn shale.
	330–335		Dolomite	Pink	Fn	Fn/M	Mch wh to pnk cht. Ltl ss, drsy qtz. Tr stng from sh, rd bn sh,
P.	335–340		"	"	"	"	Same. Vfn glauconite.
	340–345		"	"	"	"	Same but little chert, plus trace oolites.
du	345–350		"	"	"	"	Mch ool pnk cht. Tr ss, drsy qtz, rd bn sh, st/Vfn glauc, pyrite.
C.	350–355		"	"	"	"	Same but little chert.
	355–360		"	Pnk grey	M	"	Trace white chert, red brown shale, oolitic chert.
Gp.	360–365		"	"	"	"	Same but sugary.
	365–370		"	Lt brown	"	"	Sug. Tr wh to clear to yl cht, rd bn shale, ool cht, sand.
	370–375		"	Pnk grey	"	"	Trace pnk cht, fltg sand, sand, rd bn shale, Vfn glauconite.
	375–380		"	"	"	"	Same plus trace oolitic chert.
55'	380–385		"	"	"	"	Ltl ool chert. Tr fltg sand, sand, pl gn shale, silt-Vfn glauc.
C.V.	385–390		"	"	"	"	V ool. Mch sand. Ltl fltg snd, wh ool cht. Tr Vfn glauc, rd bn
	390–395		"	"	"	"	Same. shale, pyrite.
15'	395–400		"	"	"	"	Slgtly ool. Mch snd, fltg snd. Tr ool wh cht, Vfn glauc, pyrite.
	400–405		Sandstone	"	M	Vfn/VC	Srnd. Mch dol cem, dol. Tr pyr, Vfn glauc, ool wh cht, rd bn sh,
V.	405–410		"	"	C	"	Same. pl gn sh.
O.	410–415		"	Lt rd brown	"	"	Srnd. Mch dol cem, dol, rd bn & rd yl shale. Tr pl gn sh, wh cht.
20'	415–420		"	"	M	"	Srnd. Tr dol cem, wh chert, rd bn & pl gn shale. Mch dolomite.
	420–425		Dolomite	"	Fn	Fn/M	Ltl snd, fltg snd, rd bn sh. Tr wh chert, pl gn shale, ool chert.
B	425–430		"	"	"	"	Same but much sand.
L	430–435		"	"	"	"	Mch gry Fn dol. Ltl rd bn sh. Tr pl gn sh, wh cht, pyr, sand.
A	435–440		"	Grey	"	"	Mch gry mottling. Ltl bk finely dis pyr. Tr rd bn shale.
C	440–445		"	"	"	"	Same plus trace pyrite.
K	445–450		"	"	M	"	Same plus little floating sand.
	450–455		"	"	"	"	Same.
E	455–460		"	Lt grey	"	"	Tr bk finely dis pyr, gry mot, pyr, wh to pnk cht, rd bn sh, fltg
A	460–465		"	"	"	"	Same. snd, Vfn glauc, qtz xls.
R	465–470		"	Pnk grey	"	"	Trace pyrite, Vfn glauconite, white to pnk chert, floating sand.
T	470–475		"	"	"	"	Same but slightly sugary.
H	475–480		"	Lt brown	"	"	Tr Vfn glauconite, staining from rd bn shale, rd bn shale.
35'	480–485		"	Pnk grey	"	"	Mch dol cem very glaucic ss. Tr qtz xls, stng from rd bn sh.
...C.	485–490		Sandstone	Lt gn gry	Fn	Vfn/C	Srnd. Mch V G dol cem, dol, Fn glauc. Trace white chert.

Well name: Blue Mounds Village Well

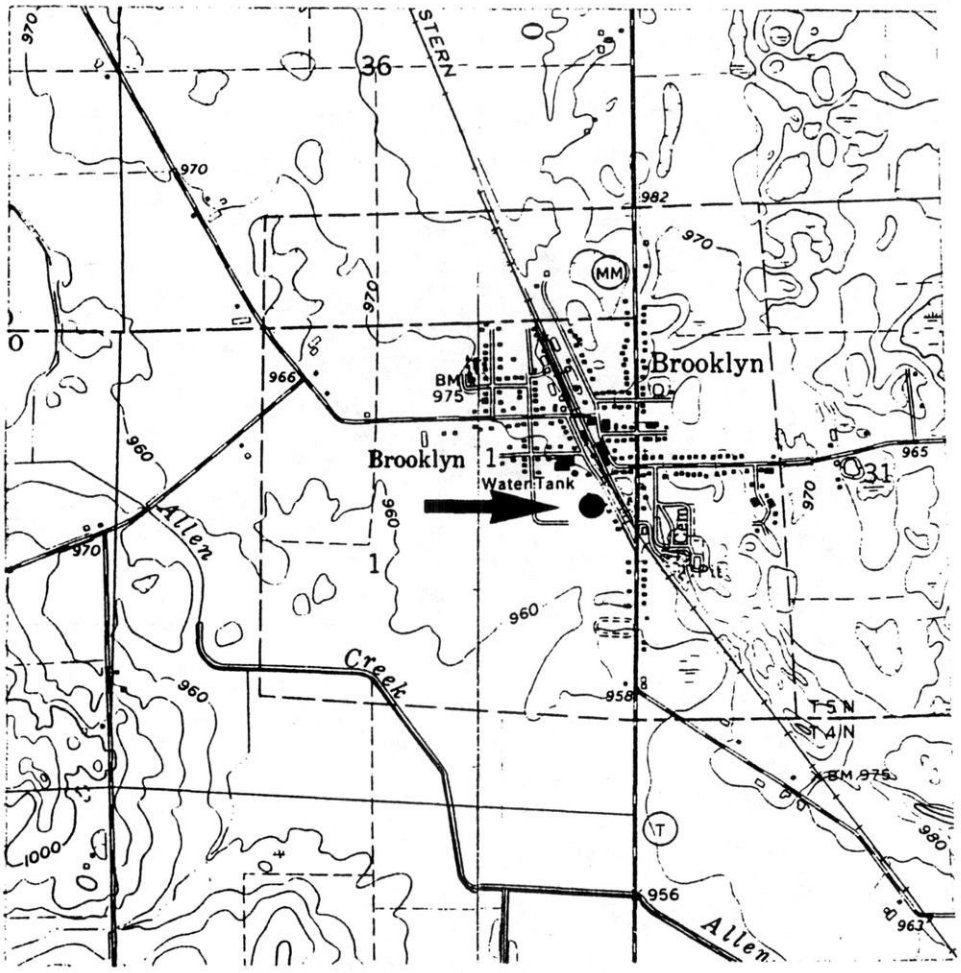
	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	490–495		Sandstone	Lt gn grey	Fn	Vfn/C	Srnd. Mch G dol cem,dol,Fn/M glauc. Tr pyr,rd bn sh,glaucic cl.
	495–500		Shale	Green	—	—	Dolic. Mch sand, M glauconite, dolomite. Trace pyrite.
T	500–505		Sandstone	Grey	Fn	Vfn/C	Srnd. Mch dol cem. Ltl dol,M–glauc. Tr pyrite,gn clay.
U	505–510		"	Lt grey	"	"	Srnd. Mch dol cem. Ltl dol, M–glauc. Tr pyrite, gn clay.
N	510–515		"	"	"	"	Same plus trace soft white chert.
N	515–520		"	Pl brown	"	"	Srnd. Tr dol cem,M–glauc,pyr,sft wh cht. Mch pl bn cl. Ltl dol.
E	520–525		"	"	"	"	Srnd. Mch dol cem,dol,pl bn clay. Tr M glauconite,wh chert.
L	525–530		"	Lt grey	"	"	Srnd. Ltl dol cem,dol. Tr pl bn cl,M–glauc,wh cht,pyrite.
	530–535		"	V pl brown	"	"	Same but little pale brown clay.
	535–540		"	Pnk grey	"	"	Srnd. Ltl dol cem,dol. Tr silt,Vfn glauconite,pyr,wh chert.
	540–545		"	Pink	"	"	Srnd. Tr dol cem,dol,silt,Vfn glauc,wh chert,cvd rd bn shale.
C	545–550		"	"	"	"	Same plus trace pyrite.
I	550–555		"	Pnk grey	"	"	Same plus little green clay.
T	555–560		"	Lt grey	"	"	Srnd. Ltl dol cem,Fn/M glauc,gn cl. Tr wh cht,rd bn shale.
Y	560–565		"	"	"	"	Srnd. Tr dolomite cement, white chert. Ltl pl bn cl, Fn–glauc.
	565–570		"	V pl brown	"	"	Srnd. Tr dol cem,wh cht. Mch silt,pl bn clay. Ltl Fn–glauc,gn clay.
	570–575		"	Lt grey	"	"	Same plus trace dolomite.
95'	575–580		"	Gn grey	"	"	Srnd. Mch dol cem,M–glauc,st. Ltl gn cl,dol. Tr wh ool chert.
	580–585		"	Lt grey	M	Vfn/VC	Rnd. Little dolomite cement, glaucic sandstone. Tr pyr, wh cht.
	585–590		"	"	"	"	Rnd. Ltl dolomite cement, Fn–glauc. Trace pyrite, white chert.
	590–595		"	V pl brown	"	"	Rnd. Tr dol cement, Vfn–glauconite, pyrite. Ltl white chert.
W	595–600		"	"	"	"	Same.
O	600–605		"	Yl red	"	"	Samp very stnd from Fe since drilling. Mny Fe frags. Tr wh cht.
N	605–610		"	"	"	"	Same.
E	610–615		"	"	C	"	"
W	615–620		"	Rd yellow	M	"	Rnd. Mch silt. Ltl Fe stng, iron pieces. Trace white chert.
O	620–625		"	"	"	"	Same but trace iron pieces.
C	625–630		"	"	C	"	Same.
	630–635		"	V pl brown	M	"	Rounded. Much silt. Trace iron staining, white chert.
F	635–640		"	Pink	"	"	Same.
	640–645		"	Lt rd yl	"	"	Rounded. Little silt, wh to or chert. Trace iron stainings.
O	645–650		"	"	"	"	Same.
R	650–655		"	V pl brown	"	"	Rounded. Trace silt, wh to or chert, iron stainings.
M	655–660		"	"	C	"	Rounded. Much silt. Trace white chert, iron stainings.
A	660–665		"	"	M	"	Same but trace silt.
T	665–670		"	"	"	"	Rounded. Much silt. Trace white chert, iron staining.
I	670–675		"	"	"	"	Same.
O	675–680		"	"	"	"	Rounded. Much silt. Trace wh to or chert, iron staining.
N	680–685		"	"	"	"	Same.
	685–690		"	"	C	"	Same but little silt.
	690–695		"	"	Fn/M	"	Same.
	695–700		"	"	"	"	Rounded. Trace iron staining.
	700–705		"	Lt yl bn	M	"	Rounded. Much silt.
	705–710		"	"	"	"	Same.
	710–715		"	V pl brown	"	"	Rounded. Much silt. Trace iron staining.
	715–720		"	Lt yl bn	"	"	Same plus trace white to orange chert.
	720–725		"	"	"	"	Same.
	725–730		"	V pl bn	"	"	"
	730–735		"	"	"	"	Rounded. Ltl silt. Trace iron staining, white to orange chert.
	735–740		"	Lt yl bn	"	"	Same but much silt.
	740–745		"	"	C	"	Rounded. Much silt, pl bn clay. Trace orange chert.
	745–750		"	V pl bn	"	"	Rounded. Trace white to orange chert, iron staining.
	750–755		"	"	M	"	Same plus trace silt.
	755–760		"	"	"	"	Srnd. Trace pyrite cem, pyr incl. Little white to orange cht.
	760–765		"	Lt yl bn	"	"	Same plus little silt.
190'	765–770		"	"	"	"	Same.
E	770–775		Shale	Gn grey	—	—	Dolomitic. Little sand. Trace pyrite.
A	775–780		"	"	—	—	Dolomitic. Much sand. Trace pyrite.
U	780–785		"	"	—	—	Dolomitic. Little sand. Trace pyrite.
	785–790		"	"	—	—	Same plus trace sandstone.
C	790–795		"	"	—	—	Dolomitic. Much dolic cemented sandstone. Trace pyrite.
L	795–800		"	"	—	—	Dolomitic. Little sand. Trace pyrite.
A	800–805		"	"	—	—	Dolomitic. Much sand, Trace pyrite, glauconitic sandstone.
	805–810		"	Gry brown	—	—	Dolomitic. Little sand. Trace Vfn glauconite, pyrite.
R	810–815		"	"	—	—	Same plus trace dolomite.
E	815–820		"	"	—	—	Same.
50'							

Log No. I2-Dn-1092

Well name: Blue Mounds Village Well

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	820-825		Sandstone	Lt grey	M	Vfn/VC	Rounded. Ltl cvd shale, wh to or chert, Trace Vfn glauconite.
Mt.	825-830		"	"	"	"	Rounded. Trace cvd shale, wh to or chert, pyrite.
	830-835		"	"	"	"	Rounded. Much silt. Trace white chert.
S	835-840		"	"	"	"	Rounded. Trace pyrite, silt, white chert.
I	840-845		"	"	"	"	Rounded. Little silt. Trace pyrite, white chert.
M	845-850		"	"	"	"	Rounded. Little white to orange chert. Trace silt, pyrite.
O	850-855		"	"	"	"	Same.
N	855-860		"	"	"	"	Same but little silt.
	860-865		"	Rd yellow	"	"	Rnd. Many iron frags from drilling. Mch Fe stng. Tr wh chert.
	865-870		"	"	"	"	Same.
55'	870-875		"	"	"	"	Same but slightly less staining & fragments.
			END OF LOG				
	310-315		Chert	Wh to pink	—	—	Much staining from red brown shale. Little red brown shale. Trace sand, pyrite, oolites.

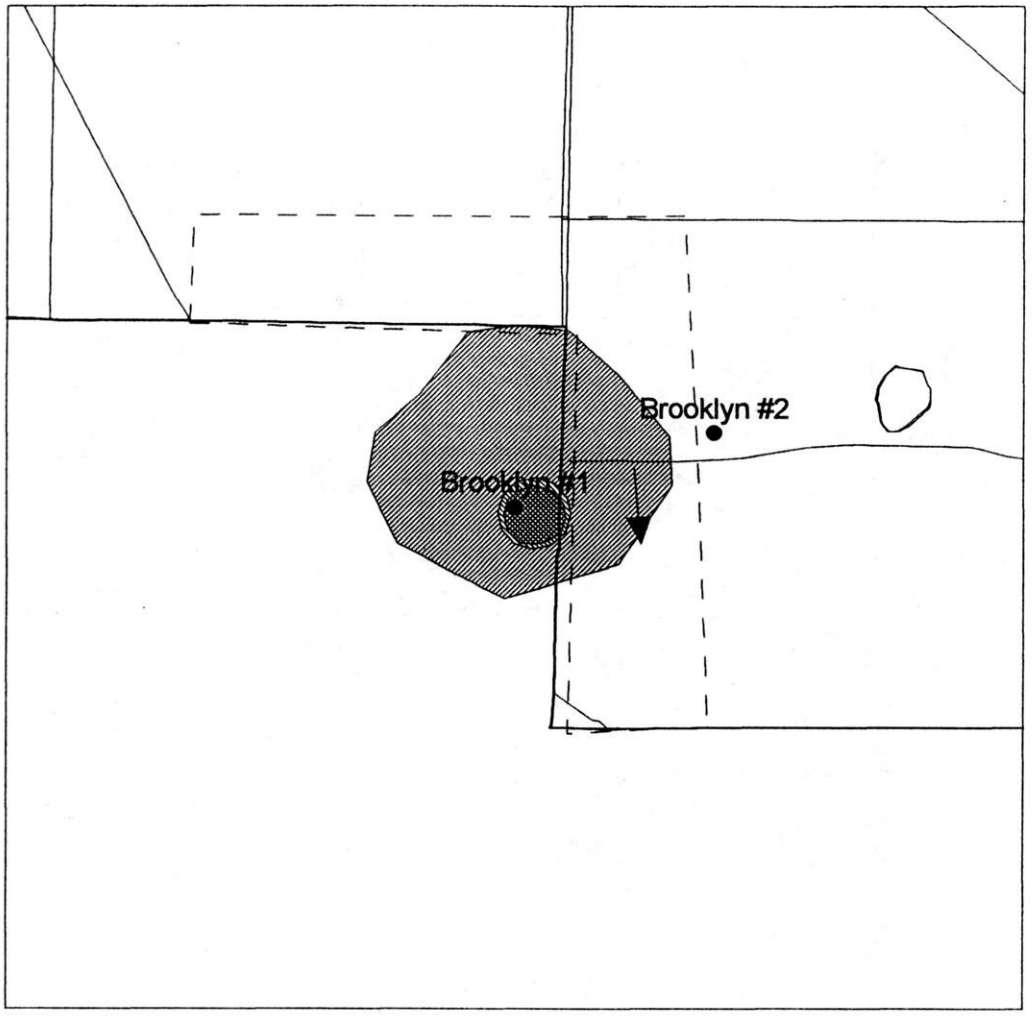
Village of Brooklyn, Well Number 1



Village of Brooklyn, Well Number 1 is located at 42° 51' 4.48" north latitude and 89° 22' 13.93" longitude. The well has a pumping capacity of 300 gpm. The average daily use of the well between October 1994 and September 1995 was 18,700 gpd.

The total depth of the well is 616 feet. Water is drawn from the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the south.

Zone of Contribution for Brooklyn, Well Number 1



Well Location

Latitude: 42° 51' 4.48"
Longitude: 89° 22' 13.93"

0 500 1000
(meters)

N

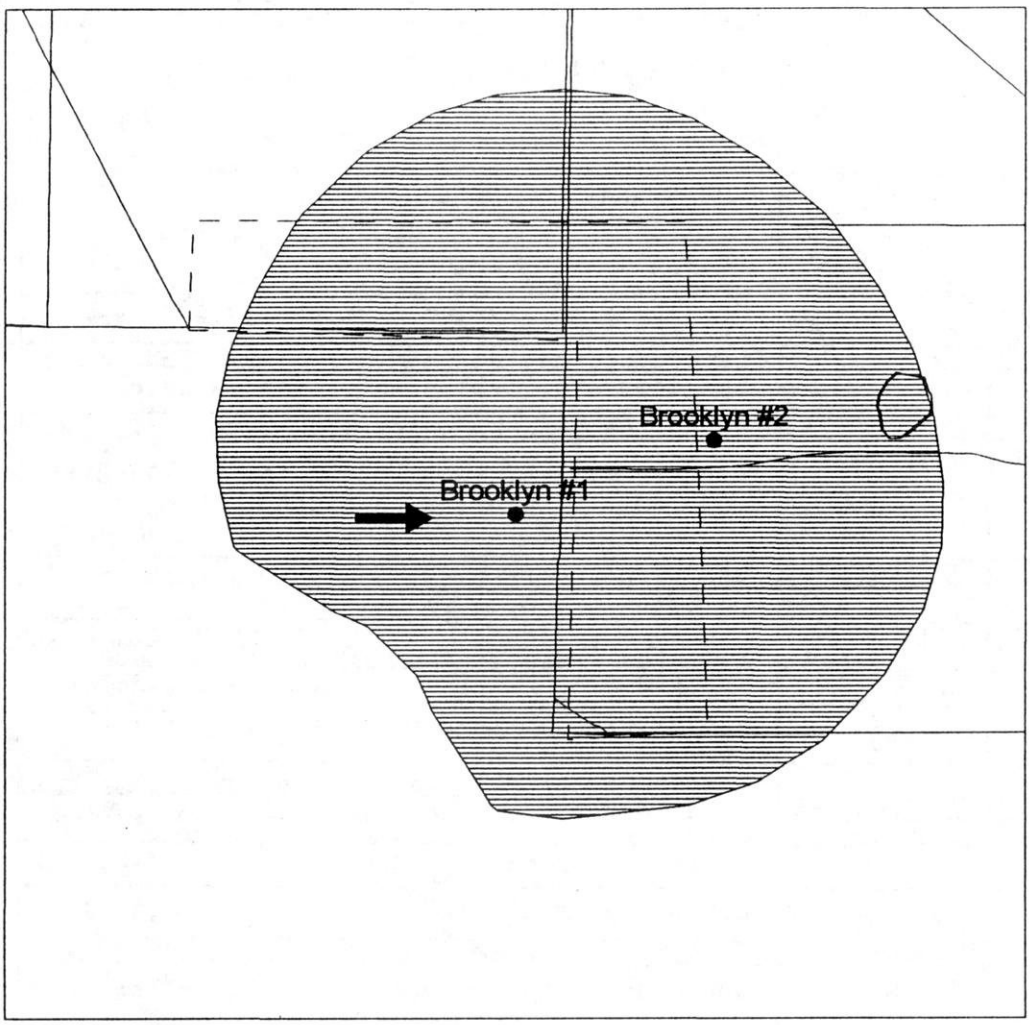
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Brooklyn, Well Number 1



Scale 1:24,000

0 500 1000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

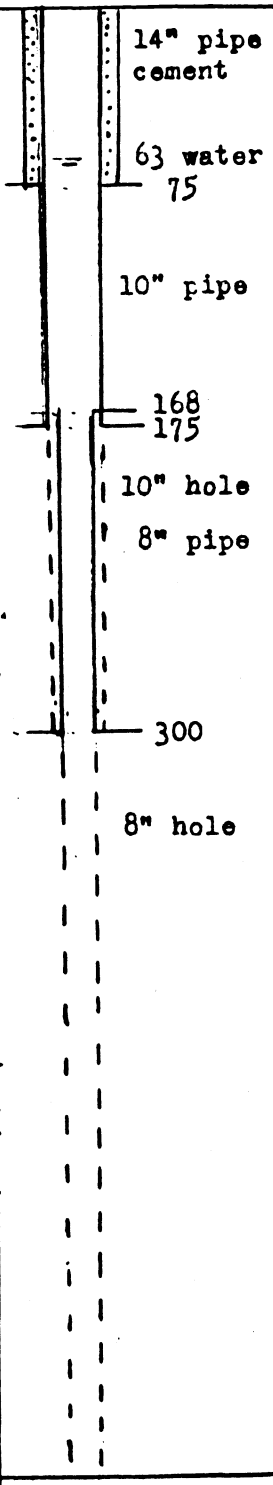
MASTER COPY

E

VILLAGE WELL, BROOKLYN, GREEN CO., WIS.

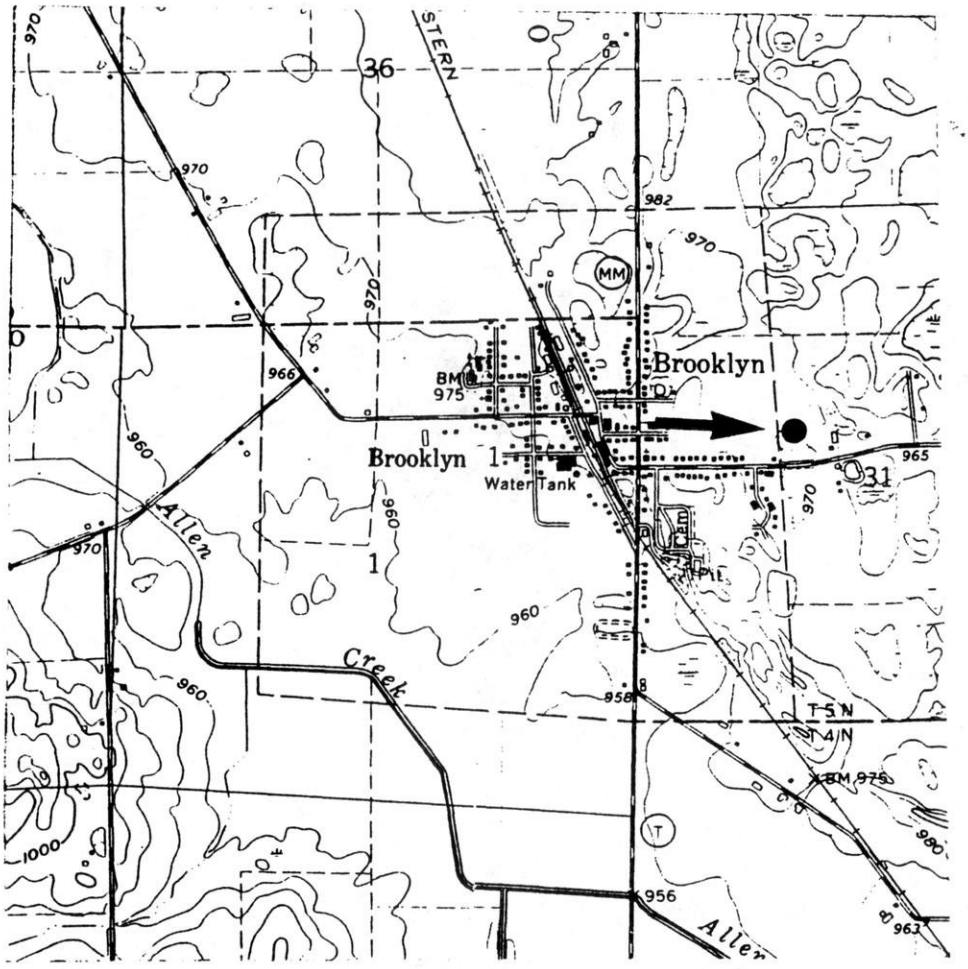
SE¼NE¼ sec. 1, T. 4 N., R. 9 E. Elevation about 965
General Engineering Co., Engineers Layne-Northwest Co., Contractors Samples examined by F. T. Thwaites and J. B. Steuerwald, Nos. 194761-194883

DRIFT		0-5	5	Silt, brown-gray, weathered
		5-70	65	Gravel, very sandy, silty, yellow-gray
	110	70-110	40	Till, sandy, gray, dolomitic
ST PETER		110-120	10	Sandstone, medium to fine, light gray
		120-130	10	Sandstone, medium to fine, silty, light gray
		130-135	5	Shale, light gray
		135-140	5	Sandstone, medium to fine, lt.gy; pebs chert
		140-170	30	Conglomerate, pebbles chert in sandstone
		170-180	10	Sandstone, coarse to fine, some peb, lt.gy,d
		180-235	55	Sandstone, very fine to coarse, yellow-gray, dolomitic; pebbles of chert
	130	235-240	5	Sandstone, very fine to pebbles, pink, dol.
T	15	240-255	15	Dolomite, pink, lt.gy, sandy, glauconitic
FRANCON		255-270	15	Sandstone, very fine, red, glauconitic, dol.
		270-275	5	Siltstone, sandym pink, dolomitic, glaucon.
		275-280	5	Sandstone, very fine, lt.gy, glauc., dolom.
		280-315	35	Sandsone, fine, light gray, very dolomitic
		315-335	20	Sandstone, fine, lt.gy, yellow-gy, dol., glau
		335-340	5	Sandstone, fine to coarse, dol, glauc, lt.gy
	95	340-350	10	Sandstone, fine to coarse, light gray
GALESV		350-370	20	Sandstone, fine to medium, lt.gy, yel-gy.
		370-395	25	Sandstone, medium to fine, lt.yel-gy, dol.
		395-400	5	Sandstone, medium to fine, very light gray
		400-440	40	Sandstone, fine to medium, light yellow-gray
	90	440-445	5	Siltstone, sandy, dolomitic, light gray
EAU CLAIRE		445-450	5	Sandstone, very fine to fine, lt.gy, dol.
		450-465	15	Sandstone, very fine to medium, lt.gy, sl.dol
		465-495	30	Shale, silty, gray, dolomitic; ss, streaks
		495-525	30	Sandstone, very fine to medium, light grey, slightly dolomitic
		525-550	25	Sandstone, fine to medium, light gray, slightly dolomitic
		550-565	15	Sandstone, fine to medium, lt.gy, yel-gy
		565-600	35	Sandstone, very fine to medium, lt.yel-gy, d.
	175	600-615	15	Sandstone, fine to medium, light grzgy, dol



Formations: Drift; St. Peter; Trempealeau; Franconia; Galesville(Dresbach); Eau Claire
Tested 24 hours at 375 g.p.m. specific capacity = 4.62 g.p.m./ft.
Additional copies may be secured from Wisconsin Geological Survey, Science Hall, Madison 6, Wis

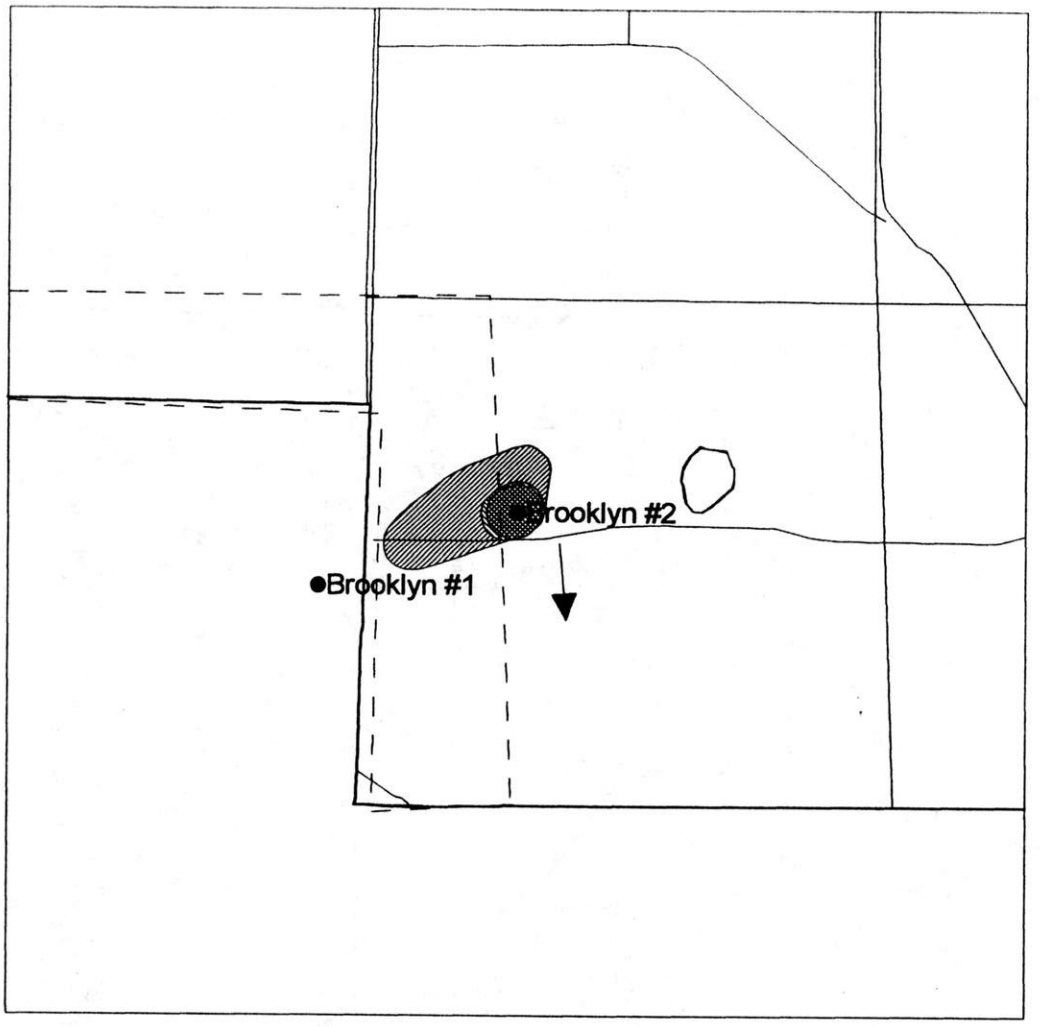
Village of Brooklyn, Well Number 2



Village of Brooklyn, Well Number 2 is located at 42° 51' 12.72" north latitude and 89° 21' 46.68" longitude. The well was installed in 1986 and has a pumping capacity of 500 gpm. Its average daily use between October 1994 and September 1995 was 44,500 gpd. The well produces less then one-half foot of drawdown in both the water table aquifer and the deep sandstone aquifer.

The well casing extends to a depth of 283 feet below ground surface, and the total depth of the well is 670 feet. Water is drawn from the Paleozoic bedrock units. Groundwater flow in the vicinity of the well is generally to the south.

Zone of Contribution for Brooklyn, Well Number 2



Well Location

Latitude: 42° 51' 12.72"
Longitude: 89° 21' 46.68"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300-15 Rev. 12-76

JAN ? WELL # 2

COUNTY: DANE

CHECK (✓) ONE: ☐ Town ☒ Village ☐ City

Name: BROOKLYN

2. LOCATION	¼ Section	Section	Township	Range
	SE NW	31	5N	10E

OR – Grid or Street No. | Street Name: HOTEL ST.

AND – If available subdivision name, lot & block No.

3. NAME ☐ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE
BROOKLYN

ADDRESS Perm # 77188

POST OFFICE
BROOKLYN

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain		Sanitary Bldg. Sewer		Floor Drain Connected To:		Storm Bldg. Drain		Storm Bldg. Sewer	
	C.I.	Other	C.I.	Other	C.I. Sewer	Other Sewer	C.I.	Other	C.I.	Other

Street Sewer		Other Sewers		Foundation Drain Connected to:				Sewage Sump		Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit	
San.	Storm	C.I.	Other	Sewer		Sewage Sump		C.I.	Other				Seepage Pit	
				Clearwater Dr.		Clearwater Sump							Seepage Bed	
													Seepage Trench	

Privy	Pet Waste Pit	Pit: Nonconforming Existing		Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit
		Well									
		Pump									
		Tank									

Temporary Manure Stack	Watertight Liquid Manure Tank	Solid Manure Storage Structure	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Other (Give Description)

5. Well is intended to supply water for:
VILLAGE well No. 2

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
16	Surface	176	10	285	670
15¼	176	285			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification & Method of Assembly	From (ft.)	To (ft.)
16	R.L. New Steel P.E. 62.58 IG A.53 Welded	Surface	176
10	BL-New steel P.E. 40.48 IB A-53 Welded	+3.5' *	283
	casing suspended at 283' to allow for grouting through casing		

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Neat Cement	Surface	285

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Silty sand	Surface	7
Clay w/sand & boulders	7	10
Sand, Cobbles, & Boulders	10	82
Grey clay w/sand & gravel & cobbles	82	172
Sand & gravel	172	175
Sand stone w/dolomite & shale	175	179
Sandstone w/dolomite & shale	179	256
Sandstone Red Brown Tan	256	285
Sandstone - Blue-Green-White	285	348
Sandstone - tan & brown	348	376
Sandstone - white	376	670

10. TYPE OF DRILLING MACHINE USED

☐ Cable Tool ☒ Rotary-hammer w/drilling mud & air ☐ Jetting with
☐ Rotary-air w/drilling mud ☐ Rotary-hammer & air ☐ Air ☐ Water
☐ Rotary-w/drilling mud ☐ Reverse Rotary

Well construction completed on January 6 19 87

11. MISCELLANEOUS DATA

Yield Test: 8 Hrs. at 500 GPM

Depth from surface to normal water level 118 Ft.

Depth of water level when pumping 160 Ft. Stabilized ☒ Yes ☐ No

Well is terminated 42" inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Wis. State Lab of Hygiene sp.cap = 11.9 gpm/ft laboratory on December 29 19 86

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature
Layne-Northwest
Registered Well Driller

c c S D
SGS
WELL LOG BOOK

Complete Mail Address
W229N5005 DuPlainville Rd., Pewaukee, WI 53072

WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
3817 Mineral Point Road • Madison, WI 53705

Geologic Log No. Q286-DN-1303

Well name Brooklyn

Owner....
Address..

Driller..
Engineer.

County:

Completed...
Field check.
Altitude....
Use.....
Static w.l..
Spec. cap...

R.
T.
N.
Sec.

Quad.

Drill Hole										
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Ki	n	to	

Please retype the end of the 305-310' interval in the space provided.

Thank you.

n	to

Drilling method:
Samples from to Rec'd:

Studied by:

Formations:

Remarks:

LOG OF WELL:

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
0-5		Sand	Dk brown	M/C	Vfn/VC	Mch gravel(Gr/SP),silt. Ltl cl. Tr soil,org.
5-10		Gravel	Mxd bn	S peb	Gr/MP	Ss,cht,grnt,trap,volc,qtz. Mch snd,st. Ltl clay. Tr org. /org.
10-15		"	"	"	"	Cht,grnt,ss,volc,trap,qtz,oolic cht,dol. Mch snd. Ltl st,cl. Tr
15-20		"	"	"	"	Ss,dol,cht,grnt,oolic cht,qtz,volc,trap. Mch snd. Tr st,cl,org.
20-25		"	"	"	"	Ss,dol,cht,grnt,qtz,volc,drsy qtz,trap. Mch snd. Tr st,cl,org.
25-30		"	"	"	"	Same minus drusy quartz.
30-35		"	"	"	"	Ss,cht,dol,qtz,grnt,volc,oolic cht,trap. Mch snd. Tr st,cl,org.
35-40		"	"	"	"	Ss,cht,dol,qtz,grnt,volc,oolic cht,sts,qtzt,trap. Mch snd. Tr
40-45		"	"	"	"	Same but ltl st. \ silt,clay,organics.
45-50		"	"	"	"	Ss,cht,dol,qtz,volc,grnt,oolic cht,trap. Mch snd. Ltl st. Tr cl,
50-55		"	"	"	"	Same.\ organics. /st,cl. Tr organics.
55-60		"	"	"	"	Ss,cht,dol,grnt,qtz,volc,drsy qtz,trap,oolic cht. Mch snd. Ltl
60-65		"	"	Gr	"	Ss,cht,dol,grnt,qtz,oolic cht,trap,volc. Mch snd. Ltl st. Tr cl,
65-70		"	"	"	"	Same minus oolitic chert. \ organics.
70-75		"	"	S peb	"	Same. /st. Tr cl,org.
75-80		"	"	"	"	Ss,cht,dol,grnt,volc,qtz,drsy qtz,trap,oolic cht. Mch snd. Ltl
80-85		"	"	"	"	Ss,cht,dol,grnt,volc,qtz,trap. Mch snd. Ltl st,cl. Tr organics.
85-90		"	"	"	"	Same.
90-95		"	"	"	"	Cht,dol,ss,qtz,grnt,volc,trap. Mch snd,st,cl. Tr organics.
95-100		Clay & Gvl	"	"	"	Calcus(cl). Cht,dol,qtz,grnt,volc,trap,ss. Mch snd,st. Tr org.
100-105		"	"	"	"	Same.
105-110		"	"	"	"	"
110-115		Gravel	"	"	"	Cht,dol,qtz,volc,grnt,ss,trap. Mch snd,st,cl. Tr org.
115-120		"	"	"	"	Same plus oolitic chert.
120-125		"	"	"	"	Cht,dol,volc,qtz,ss,grnt,trap,ark. Mch snd,st,cl. Tr org.
125-130		"	"	"	"	Same minus arkose.
130-135		"	"	"	"	Same.
135-140		Silt & Gvl	"	"	"	Calcus(st). Cht,dol,qtz,volc,ss,grnt,trap. Mch snd,cl. Tr org.
140-145		"	"	Gr	"	Same.
145-150		"	"	"	"	"
150-155		"	"	"	"	" /snd,silt,clay. Tr org.
155-160		Gravel	"	S peb	"	Chert,dolomite,quartz,volcanics,sandstone,granite,trap. Much

Well name:

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
160-165		Gravel	Mxd bn	S peb	Gr/MP	Cht,dol,qtz,ss,volc,grnt,trap. Mch snd. Ltl st,cl. Tr org.
165-170		"	"	"	"	Same but tr clay. /organics,
170-175		"	"	"	"	Dol,cht,qtz,ss,volc,grnt,oolic cht,trap. Mch snd. Ltl st. Tr cl,
175-180		Dolomite	Bn yellow	M	Fn/M	Limy. Chips vary from sndy dol to V sndy dol to dolic cemtd ss.
180-185		"	"	"	"	Same but mch \ Mch fltg qtz snd,cvd gvl(Gr/LP-tan & gy dol,cht,
185-190		"	"	"	"	Same. \ free qtz snd. \ drsy qtz plus other rk types). Mny im ools
190-195		"	"	"	"	" \ (mny qtz snd c). Ltl free qtz snd. Tr lim,
195-200		"	"	"	"	Same but slgtly less gvl(Gr/MP). \ mssv glauc,wh VG sil cemtd ss.
200-205		"	"	"	"	Limy. Mch fltg qtz snd,free qtz snd. Ltl cvd gvl(Gr/M-dol,cht,
205-210		Sandstone	"	Fn/M	Vfn/VC	See end of log. \ plus other rk types). Tr im ools(most qtz snd
210-215		"	"	M/C	"	See end of log. \ cored),lim,pyro,mssv glauc,drsy qtz.
215-220		"	Yl to bn yl	Fn	"	Ang. Mch G to VG calcus cem,frstg,qtz st. Tr Vfn-glauc,lim,cvd
220-225		"	Yellow	"	"	Ang. Mch G to F calcus to dolic cem,frstg,qtz st. \ mat(gvl & cl).
225-230		"	"	"	"	Same plus tr Vfn/Fn-zr. \ Tr Vfn-glauc,pl gn sh,lim,cvd mat(gvl &
230-235		"	"	"	"	Same. \ cl)
235-240		"	"	"	"	Same but ltl cvd mat. /hem sh,lim,mica.
240-245		"	Pk yellow	Vfn/Fn	"	Ang. Mch G dolic cem,qtz st,cvd mat. Ltl st/Vfn-glauc. Tr rd bn
245-250		"	Bn yellow	"	"	Ang. Mch VG calcus to dolic cem,qtz st,st/Vfn-glauc. Tr rd bn
250-255		"	Ltyl bn & rd bn	"	"	Same but ltl rd bn hem sh,plus tr fos frags. \ hem sh,lim,calc,mic
255-260		Siltstone	Ltyl bn & rd bn	---	---	Ang. Mch VG calcus to dolic cem,Vfn/Fn-qtz snd,st/Vfn- \ cvd mat.
260-265		"	Dk rd bn	---	---	See end of log. \ glauc. Ltl rd bn hem sh matx. Tr lim,calc,mic,
265-270		Sandstone	"	Vfn/Fn	Vfn/C	See end of log. \ M/VC snd,cvd mat.
270-275		"	"	Fn	"	Ang. Mch VG dolic to calcus cem,qtz st,st/M-glauc,rd bn hem sh
275-280		"	"	"	Vfn/M	Same. \ matx. Tr mica,pl gn sh,lim,fos frags. /cem. Ltl qtz st.
280-285		"	"	"	"	" / bn hem sh matx,st/C-glauc. Tr mic,fos frags,cvd mat,neat
285-290		"	"	M	Vfn/C	Sang. Mch VG dolic cem(lg dol xtls,some chips are a sndy dol),rd
290-295		"		"	"	Sang. Mch VG dolic cem(as abv). Ltl dk rd bn hem sh,Fn/C-glauc,
295-300		"	"	"	"	Same plus tr pk gy sndy glauc dol. \ quartz silt. Tr limonite,
300-305		"	"	"	"	Same. / \ neat cement.
305-310		"	Rd bn to pk gy	Fn/M	"	Sang to srnd. Mch VG dol cem(as abv). Ltl dk rd bn hem sh,Fn/C-
310-315		"	Pk gy to dsky rd	Fn	"	Sang. Mch VG dol cem. Ltl dk rd bn hem sh,qtz st. Tr Fn/C-glauc,
315-320		Dolomite	Bn yl to lt gy	M	Fn/M	See end of log. \ fos frags,pl gn sh.
320-325		Sandstone	Ltyl bn to bnyl	Fn	Vfn/C	Sang. Mch VG dolic to calcus cem(some chips are sndy dol,some
325-330		"	"	"	"	See end of log. \ sug). Ltl pl gn sh,Vfn/Fn-glauc,qtz st. Tr rd bn
330-335		"	Lt grey	"	Vfn/M	Sang. Mch VG dolic cem,gn gy sil sh. Ltl Vfn/Fn- \ hem sh,lim,mic
335-340		"	Ltgy to pkgy	"	"	See end of log. \ glauc,qtz st. Tr lim stng,rd bn hem sh,mic,cvd
340-345		"	Lt grey	"	Vfn/VC	Sang. Mch VG dolic cem,Vfn/C-glauc. Mny chips of a lt pk gy \ mat
345-350		"	"	Fn & C	"	See end of log. dol(sug,sndy & glaucic-M/C-qtz). Ltl gn gy sh.
350-355		"	V pl bn	M/C	"	See end of log. \ Tr rd bn hem stng,lim stng,bn sh prtgs(dol),Fn-
355-360		"	White	"	"	Rnd to Wrnd. Tr G sil cem,G calc cem,mfc incl,pl gn sh,cvd \ zr.
360-365		"	"	"	"	Same plus tr Fn-zr,but tr sec qtz grw. \ ss. Mch frstg. Few sec
365-370		"	"	"	Vfn/Gr	Rnd to Wrnd. Tr G sil cem,mfc incl,pl gn sh,lim,Fn-zr, \ qtz grw.
370-375		"	"	"	"	Same. \ qtz st,wh sil sh. Mch frstg. /incl,pl gn sh,qtz st.
375-380		"	Yellow	"	Vfn/VC	Rnd to Wrnd. Mch VG bn yl dolic to calcus cem,frstg. Tr lim,mfc
380-385		"	Pl yellow	M	"	Rnd. Mch G bn yl dolic to calcus cem,frstg. Tr lim,mfc incl,qtz
385-390		"	Bn yellow	M/C	Vfn/Gr	See end of log. \ st. Less cemtng than abv & therefore ltr color.
390-395		"	Yellow	"	"	Same as 385-390' but less cem than abv. /incl,qtz st. Mch frstg.
395-400		"	V pl bn	"	Vfn/VC	Rnd to Wrnd. Tr G yl dolic to calcus cem,G to F sil cem,lim,mfc
400-405		"	Pl yellow	"	"	Rnd to Wrnd. Mch VG dolic to calcus cem,frstg. Tr lim,pl gn sh,
405-410		"	V pl bn	"	"	Same but ltl cement. \ mfc incl,qtz st,Fn-zr.
410-415		"	"	"	"	Same. /sh,mfc incl,qtz st. Mch frstg.
415-420		"	"	"	"	Rnd to Wrnd. Tr VG yl bn dolic to calcus cem,G sil cem,lim,pl gn
420-425		"	Bn yellow	M	"	Rnd. Mch G calcus to dolic cem,frstg. Tr lim,pl gn sh,mfc incl,
425-430		"	"	"	"	Same. \ qtz st. /to G sil cem,lim,pl gn sh,mfc incl,qtz st,
430-435		"	V pl bn	"	"	Rnd. Mch G yl bn dolic to calcus cem(less than abv),frstg. Tr F
435-440		"	Bn yellow	"	"	Rnd. Mch G dolic to calcus cem,frstg. Tr lim,pl gn sh,mfc incl,
440-445		"	Pl yellow	"	"	Same but ltl G to F bn yl dolic to calcus cem,but ltl \ qtz st.
445-450		"	"	"	"	Same. \ quartz silt.
450-455		"	"	"	"	"
455-460		"	"	"	"	" / st. Tr Vfn-zr,rust,cvd mat.
460-465		"	V pl bn	Fn	Vfn/C	Sang. Ltl F dolic to calcus cem,gy to gn gy sh,frstg. Mch qtz
465-470		"	"	Fn/M	"	Same but tr qy to gn gy sh. /Tr Vfn-zr,pyr,cvd m
470-475		"	"	"	"	Sang to srnd. Ltl F dolic to calcus cem,gy sh,frstg. Mch qtz st.
475-480		Ss & Shale	Ltgy & dkgy	Fn	"	Sil(sh). Sang. Mch VG dolic to silcs cem,qtz st. Tr Vfn-zr,pyr,
480-485		Shale	Dk gn gy	---	---	Sil. Ltl Fn-dol cemtd ss(as abv,intlyrd w/sh) \ fos frags,cvd mat.
485-490		"	"	---	---	Same. \ Tr Fn/M-glauc(w/sh & ss),fos frags(w/sh & ss),pyr.

WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
3817 Mineral Point Road • Madison, WI 53705

Geologic Log No. Q286-DN-1303

Well name:

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
490-495		Shale & Ss	Dk gn gy & lt bn gy	M/C	Vfn/VC	Silcs(sh). Srnd to rnd. Mch VG dolic cem(lg xtls,some chips are
495-500	G G G	Dolomite	Lt bn gy & dk gn	M	Fn/M	See end of log. a sndy dol),Fn/C-glauc. Ltl frstg. Few sec qtz
500-505	G	Sandstone	Lt grey	M/C	Vfn/VC	See end of log. grw. Tr pyr,fos frags(w/ss & sh),mfc incl.
505-510	G	"	"	"	"	Same as 500-505'. glauc,frstg. Tr pyr,mfc incl,fos frags,rust.
510-515	G G G	"	"	"	"	Rnd to Wrnd. Ltl G to F dolic cem,dk gn gy sh. Mch qtz st,Fn/M-
515-520	P	"	"	"	"	Rnd to Wrnd. Overall grn size is slgtly coarser than abv. Mch G
520-525		"	"	"	"	Same but tr G pyr cem. dolic cem,frstg. Ltl G pyr cem. Few sec
525-530	P	"	"	"	"	Same but ltl G pyr cem plus tr pl gn sh. qtz grw. Tr mfc incl,
530-535	P	"	"	"	"	Rnd to Wrnd. Mch G dolic cem,frstg. Ltl G pyr cem. qtz st,cvd mat.
535-540		"	"	"	"	Same but tr pyr cem. Few sec qtz grw. Tr mfc incl,pl gn sh.cvd
540-545		"	"	"	"	Same plus tr wh dolic sh. mat.
545-550		"	"	"	"	Rnd to Wrnd. Mch G dolic to calcus cem,frstg. Ltl wh dolic sh.
550-555		"	"	"	"	Same but less dolic cem,but Tr G pyr cem,Fn-zr,mfc incl,pl gn sh,
555-560		"	"	"	"	Same. tr wh dolic shale. qtz st,rust.
560-565		"	"	"	"	Rnd to Wrnd. Ltl G dolic cem. Mch frstg. Few sec qtz grw. Tr G
565-570		"	"	"	"	Same. pyr cem,Fn-zr,mfc incl,pl gn sh,wh dolic sh,qtz st,rust.
570-575		"	"	"	"	"
575-580		"	"	"	"	"
580-585		"	"	"	"	"
585-590		"	"	"	"	"
590-595		"	"	"	"	Rnd to Wrnd. Mch G dolic cem,frstg. Few sec qtz grw. Ltl qtz st.
595-600		"	"	"	"	Same but tr qtz st. Tr G pyr cem,Fn-zr,mfc incl,pl gn sh,white
600-605		"	"	"	"	Same. dolomitic shale,rust.
605-610		"	"	"	"	"
610-615		"	"	"	"	Same but little good dolomitic cement.
615-620		"	"	"	"	Same. pyr cem,Fn-zr,mfc incl,pl gn sh,wh dolic sh,rust,cvd mat.
620-625		"	"	M	"	Rnd. Ltl G dolic cem,qtz st. Mch frstg. Few sec qtz grw. Tr G
625-630		"	"	M/C	".	Rnd. to Wrnd. Mch G dolic cem,frstg. Few sec qtz grw. Tr G pyr
630-635		"	"	"	"	Same but ltl G dol cem. cem,Fn-zr,mfc incl,pl gn sh,wh dolic sh,
635-640		"	"	"	"	Same. rust,caved material.
640-645		"	"	"	"	"
645-650		"	"	"	"	"
650-655		"	"	"	"	Same but much G dolomitic cement.
655-660		"	"	"	"	Same.
660-665		"	"	"	"	"
665-670		"	"	"	"	"
			END OF LOG			
		"See end of log" samples.				
205-210	G	Sandstone	Bn yellow	Fn/M	Vfn/VC	The lgr chips are V sim to abv but qtz snd is more abd than dol. Srnd to rnd. Mch VG limy dol cem,frstg,cvd gvl(Gr/MP-most is a yl tan dol,plus cht & other rk types). Few sec qtz growths. Tr lim,pyrolusite,mssv glauconite,immature ooliths(qtz snd cored).
210-215	G	Sandstone	Bn yellow	M/C	Vfn/VC	Srnd to rnd. Mch VG calcus cem,frstg. Ltl qtz st. Few sec qtz grw. Tr lim,pyro,mssv glauc,pl gn sh,mfc incl,cvd gvl(Gr/SP).
260-265		Siltstone	Dk rd bn	—	—	Chips vary from Vfn/Fn-sandstone to siltstone to silty dolomite, the more clastic the chips the more glauconite present. Angular. Mch very good calcareous to dolomitic cement,silt/M-glauconite, Vfn/Fn-quartz sand,red brown hematite shale matrix. Trace mica calcite,limonite,fossil fragments,caved material.
265-270	G	Sandstone	Dk rd bn	Vfn/Fn	Vfn/C	Chips vary as above. Angular. Much very good calcareous to dolomitic cement,quartz silt,red brown hematite shale matrix, silt/M-glauconite. Trace mica,fossil fragments,drusy quartz, white chert,fossil fragments,calcite,caved material.
315-320	G	Dolomite	Bn yl to lt gy	M	Fn/M	Limy & sugary(especially the brown yellow chips). Much floating quartz sand(Fn/M,some chips are a sandy dolomite). Trace pale green shale,Fn/C-glauconite,massive glauconite,Vfn-zircon, limonite,red brown chips(as above).
325-330	G	Sandstone	Lt yl bn to bn yl	Fn	Vfn/C	Same but even more chips of brown yellow sandy dolomite.

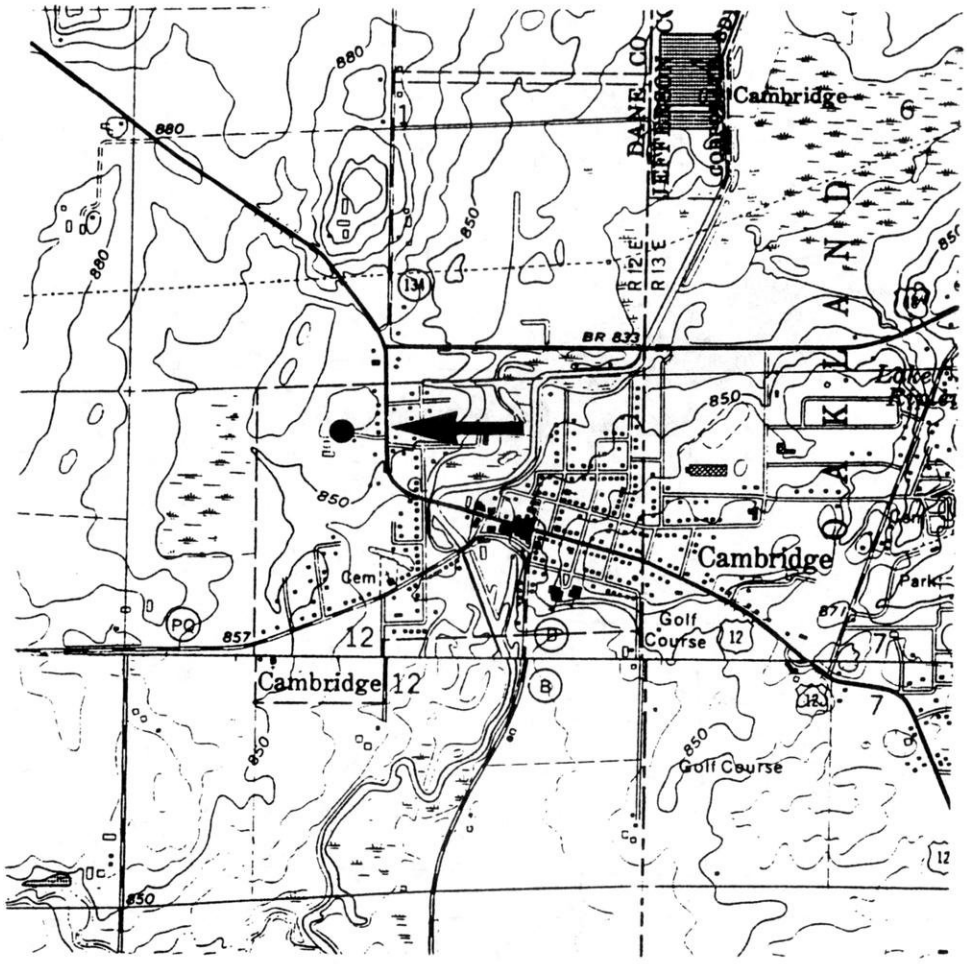
WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
3817 Mineral Point Road • Madison, WI 53705

Geologic Log No. Q286-DN-1303

Well name:

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
335-340		Sandstone	Ltgy to pkgy	Fn	Vfn/M	Subangular. Much very good dolomitic cement, grey grey silica shale, Vfn/C-glauconite. Little quartz silt. Trace red brown hematite shale, limonite staining, mica, fossil fragments.
345-350		Sandstone	Lt grey	Fn & C	Vfn/VC	Approximately 40% of sample is Fn-shaly sandstone of above, 60% is a C-dolomite cemented/sandy dolomite. C-Ss:Round. Much very good dolomite cement (many chips are a sandy dolomite), frosting. Few secondary quartz growths. Trace limonite, limonite staining, massive/C-glauconite, mafic inclusions, red brown hematite shale, pyrite.
350-355		Sandstone	V pl bn	M/C	Vfn/VC	Subrounded to well rounded. Much good to very good brown yellow dolomite cement (but less than above), frosting. Few secondary quartz growths. Trace good limonite cemented, mafic inclusions, caved Fn-sandstone.
385-390		Sandstone	Bn yellow	M/C	Vfn/Gr	Round to well rounded. Much very good dolomitic to calcareous cement, frosting. Trace limonite, pale green shale, mafic inclusions, quartz silt.
495-500		Dolomite	Lt bngy & dk gn	M	Fn/M	Much floating quartz sand (M/C mode, conc like above), Fn/C-glauc (more than above). Little dark green grey shale. Trace pyrite fossil fragments.
500-505		Sandstone	Lt grey	M/C	Vfn/VC	Round to well rounded. Much good dolomitic cement, frosting. Little quartz silt, Fn/M-glauconite, dark green grey shale. Trace pyrite, mafic inclusions, fossil fragments, rust.

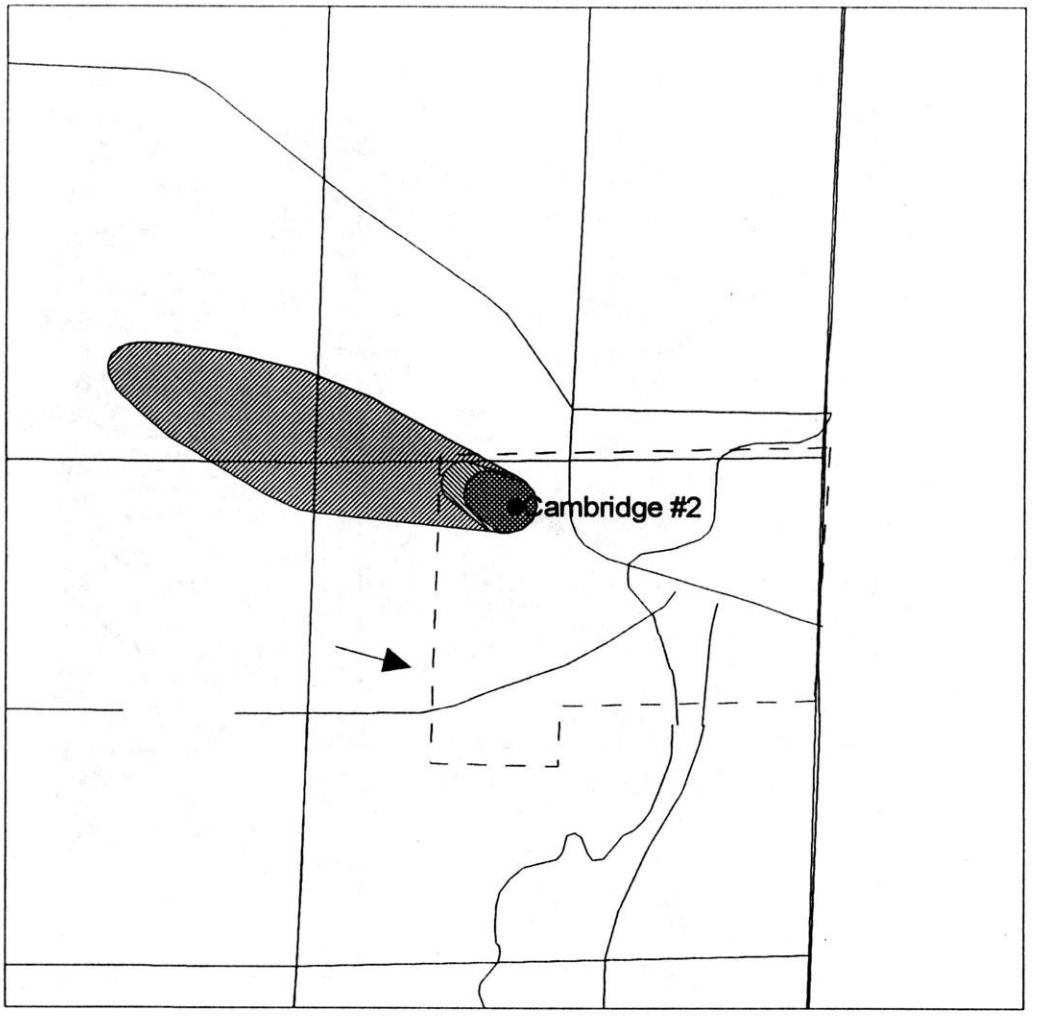
Village of Cambridge, Well Number 2



Village of Cambridge, Well Number 2 is located at 43° 0' 22.13" north latitude and 89° 1' 27.51" longitude. The well was installed in 1973 and has a pumping capacity of 400 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 132,100 gpd.

The well casing extends to a depth of 200 feet below ground surface, and the total depth of the well is 350 feet. Water is drawn from a combination of the upper Paleozoic bedrock units. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Cambridge, Well Number 2



Well Location

Latitude: 43° 0' 22.13"
Longitude: 89° 1' 27.51"

0 500 1000
(meters)

N

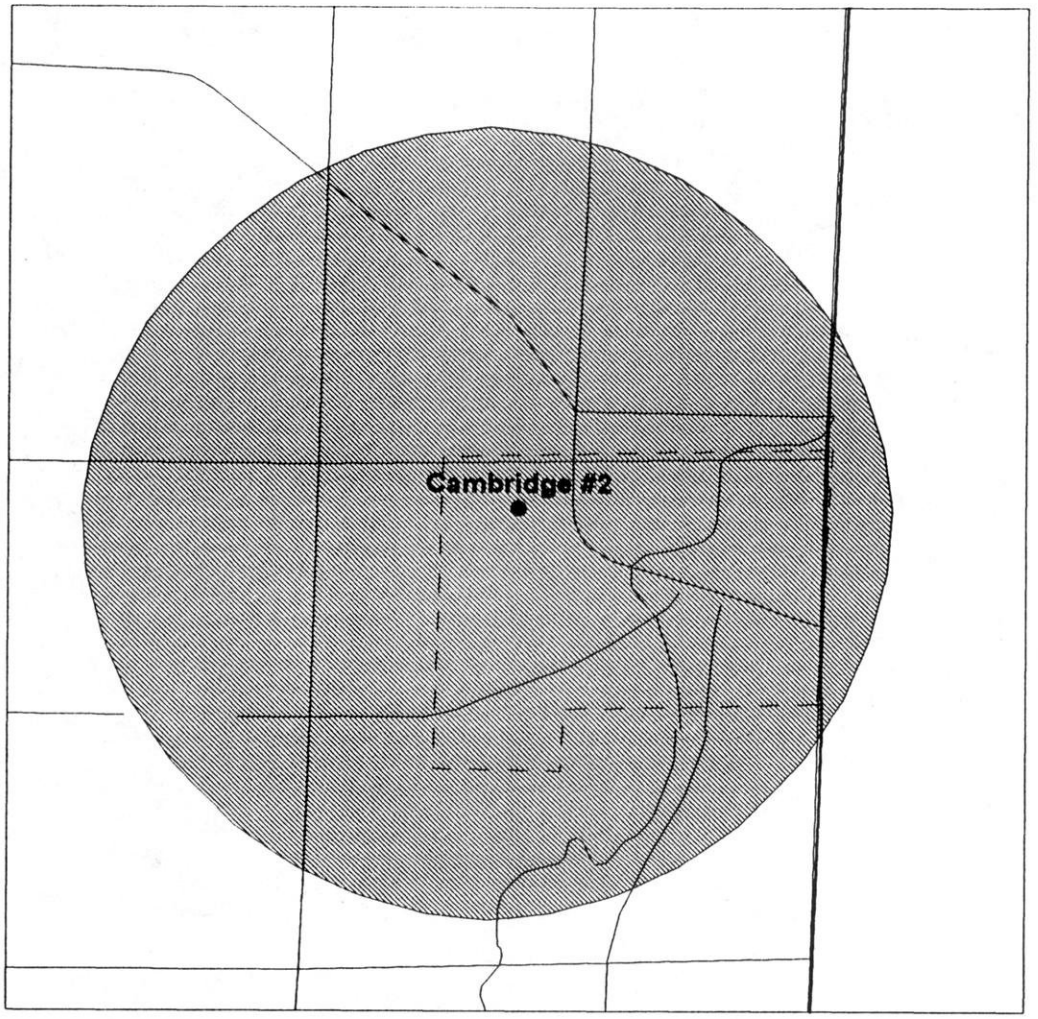
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Cambridge, Well Number 2



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

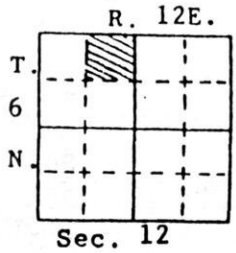
[illegible] University Avenue, Madison, Wisconsin 53706

Well name Cambridge Village Well #2

County: Dane

Owner.... Village of Cambridge
Address.. Box 68
Cambridge, WI 53523
Driller.. Miller Well & Pump Co.
Engineer. Jensen and Johnson
Elkhorn, Wisconsin

Completed... 10/31/73
Field check.
Altitude.... 855' ETM
Use..... Municipal
Static w.l.. 25'
Spec. cap... 3.8 GPM/ft



Quad. Deerfield 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
16"	0	130'	11"	140'	200'	16"	New Steel A Gr.B .375 Wall welded	53 0	130'	10"	New Steel A Gr.B .365 wall welded	53 +2'	200'
15"	130'	140'	10"	200'	350'								

Grout	from	to
Neat Cement	0	200'

Drilling method: cable tool
Samples from 0 to 350' Rec'd: 2/25/74

Studied by: R.M. Peters

Issued: 1/25/83

Formations: Drift, St. Peter Sandstone (Readstown Member), Tunnel City Group, Wonewoc Formation, Eau Claire Formation.

Remarks: Well tested 24 hours at 300 GPM with 78 feet of drawdown.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
DRIFT	0-5		Silt	Dk yl bn	—	—	Much sand. Trace gravel, soil.
	5-10		Silt & Sand	Yl bn	Fn/M	Vfn/VC	Trace gravel.
	10-15		Silt	"	—	—	Little gravel. Much sand.
	15-20		Silt & Sand	"	M	Vfn/VC	Little gravel.
	20-25		Gvl & Silt	Lt yl bn	M peb	Gran/L peb	Dolomite, chert, trap. Much sand.
	25-30		"	"	"	"	Same.
	30-35		Sand & Silt	Yl brown	M	Vfn/VC	Much gravel.
	35-40		Gravel	Mxd lt yl bn	M peb	Gran/L peb	Dolomite, chert, trap. Much sand, silt.
	40-45		"	"	"	Gran/VL peb	Same.
	45-50		"	"	SP/MP	Gran/L peb	"
	50-55		Gravel	Mixed	S peb	"	Dolomite, chert, trap, quartz. Much sand, silt.
	55-60		"	"	"	"	Dolomite, chert, trap, granite, quartz. Much sand, silt.
	60-65		"	"	"	"	Dolomite, chert, trap, quartz. Much sand, silt.
	65-70		"	Mxd lt yl bn	M peb	"	Dolomite, chert, trap, granite. Much sand, silt. Little clay.
	70-75		Sand	Lt ol bn	M	Vfn/VC	Much gravel, silt.
	75-80		"	Lt ol bn	Fn	"	Much silt. Little gravel.
	80-85		Gravel	Mixed	M peb	Gran/L peb	Dol, cht, trp, grnt, qtz, lim cemtd ss. Much sand, silt.
	85-90		"	"	"	"	Dolomite, chert, trap. Much sand, silt.
	90-95		Sand	Lt ol bn	M	Vfn/VC	Much gravel, silt.
	95-100		"	"	"	"	Little gravel. Much silt.
	100-105		"	"	"	"	Same.
110'	105-110		"	"	"	"	"
READS	110-115		Sandstone	Light gray	M/C	Vfn/VC	Srnd. Mch dol cem, multi colored cht. Ltl sndy dol, cvd mat.
	115-120		Dol & Ss	V pl brown	Fn	Fn Vfn/VC	Srnd. V sndy. Much dol cem. Ltl caved material, wh & bn chert.
	120-125		Ss & Sts	Lt yl bn	M	Vfn/VC	Rnd. Mch dol cem, Vfn/Fn glauc, sndy dol. Tr pl gn sh, wh cht.
TEAWN	125-130		Sandstone	Olive	Fn	Vfn/C	Rnd. V slty. Ltl dol cem, cvd? dol-cemtd ss, cvd? sndy dol. Mch
	130-135		"	Pale olive	Fn/M	Vfn/VC	Same but srnd, ltl Vfn glauc & no gy sh. Vfn glauc. Tr wh cht, pl gn sh,
	135-140		"	Lt yl bn	"	Vfn/C	Rnd. V slty. Mch dol cem. Ltl Vfn glauc. Tr pl gn sh, caved? gy sh.
35	140-145		"	"	"	Vfn/VC	Rnd. V slty. Mch dol cem. Ltl Vfn glauc. Tr yl cht. pels, wh & bnd cht.
T.C.	145-150		"	Pink gray	Fn	Vfn/Fn	Srnd. V slty. Mch dol cem, cvd? M/C snd. Ltl Vfn/Fn glauc. Tr wh cht,
	150-155		"	"	Vfn/Fn	Vfn/Fn	Srnd. V slty. Mch dol cem, cvd? M/VC snd. Trace wh sil sh. sndy dol,
	155-160		"	Red brown	Vfn	"	Same but no shale & sand is M/C. Ltl Vfn/Fn glauc.

1815 University Avenue, Madison, Wisconsin 53706

Well name: Cambridge Village Well #2

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
160–165		Sandstone	Red brown	Vfn	Vfn/Fn	Srnd. Vsilty. Mch dol cem, cvd? M/C sand. Ltl Vfn/Fn glauconite.
165–170		"	"	"	"	Same but glauconite Vfn/M and only trace caved M/C sand.
170–175		"	"	"	"	Same plus little red brown shale.
175–180		"	"	"	Vfn/M	Srnd. Vsilty, shly. Mch dol cem. Vfn/M glauc. Tr cvd? M/C sand.
180–185		NO SAMPLE. Driller reports same as adjoining intervals.				
185–190		Sandstone	Dk rd bn	Vfn/Fn	Vfn/C	Srnd. Very silty, shaly. Much dolomite cem, Vfn/C glauconite.
190–195		"	"	Fn	"	Same.
195–200		"	Brown red	"	"	"
200–205		"	Brown	"	"	Subrounded, Very silty. Much dol cem. Little Vfn/C glauconite.
205–210		"	Pink gray	Fn/M	"	Same plus little sandy dolomite and slightly shaly.
210–215		"	Brown	Fn	"	Srnd. V silty. Much dol cem. Little Vfn/M glauc. Slightly shaly.
215–220		"	Pink gray	Fn/M	"	Same plus trace pale green shale, pyrite and glauconite Vfn/C.
220–225		"	Red brown	Fn	"	Srnd. Vsilty. Mch dol cem. Ltl Vfn/VC glauc. Tr pl gn sh, pl gn shaly matrix.
225–230		"	"	"	"	Same but much glauc plus trace pyrite.
230–235		"	Lt brown	M/C	Vfn/VC	Rnd. Vsilty. Mch cvd mat. Ltl Vfn/C glauconite. Tr dolomite cem.
235–240		"	"	"	"	Rnd. Vsilty. Ltl cvd mat, Vfn/M glauc, dol cem. Tr pale green sh.
240–245		"	"	M	"	Rnd. Silty. Mch dol cem. Tr cvd mat, Vfn/M glauc, pl gn shale.
245–250		"	V pl brown	"	"	Same but little dolomite cement.
250–255		"	"	"	"	Rnd. Very silty. Little dol cem, pl gn shale. Tr Vfn/Fn glauc.
255–260		"	"	"	"	Rnd. Silty. Much pl gn shale. Ltl dol cem. Tr Vfn/Fn glauconite.
260–265		"	"	"	"	Rnd. Silty. Much dol cem. Tr pl gn & dk gy shales, Vfn glauc.
265–270		"	"	"	"	Rnd. V silty. Much dol cem. Tr pale green shale, Vfn glauconite.
270–275		"	"	"	"	Same.
275–280		"	"	"	"	Rnd. Silty. Much dol cem. Tr pale green shale, Vfn/M glauconite.
280–285		"	"	"	"	Rnd. Silty. Ltl dolomite cement. Tr pl gn shale, Vfn glauconite.
285–290		"	Light gray	"	"	Same but trace dolomite cement.
290–295		"	"	"	"	Same plus trace pyrite cement.
295–300		"	"	"	"	Same but no glauconite,
300–305		"	Lt yl gray	"	"	Same but no pyrite cement.
305–310		"	Light gray	"	"	Rounded. Slightly silty. Trace dolomite cement, pyrite,
310–315		"	"	"	"	Rnd. Slgt silty. Tr cvd? yellow dolomite, pyrite cement.
315–320		"	V pl brown	"	"	Rounded. Silty. Trace pyrite, Vfn/Fn glauconite.
320–325		"	"	"	"	Rnd. Silty. Tr pale green pyritic shale, Vfn/Fn glauconite.
325–330		"	Light gray	Fn/M	Vfn/C	Rnd. Very silty. Pyritic. Much dolomite cem. Ltl Vfn/M glauc.
330–335		"	V pl brown	Fn	"	Rnd. V silty. Shaly. Ltl dol cement. Trace pyrite, Vfn/Fn glauc.
335–340		"	"	"	"	Rnd. Vsilty, shaly. Ltl dol cem. Tr pyr, Vfn/Fn glauc, gn staining.
340–345		"	Light gray	"	"	Same.
345–350		"	"	M	"	Rnd. Silty. Much dol cem. Ltl pl gn pyric sh. Tr pyr cem, Vfn/Fn glauconite, green staining.
		END OF LOG				

TUNNEL CITY, 85'

WONEWOC

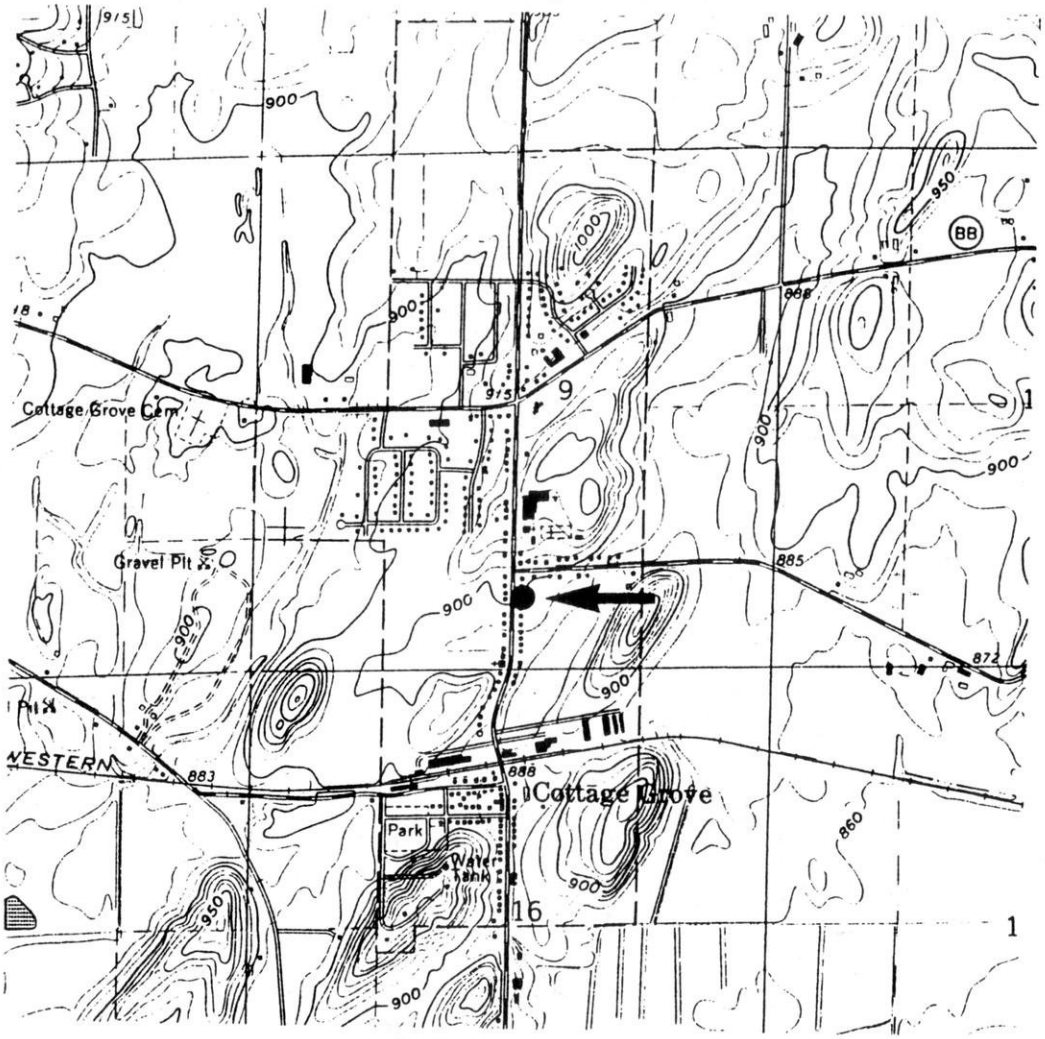
CLAIRE

EAU

25'

95'

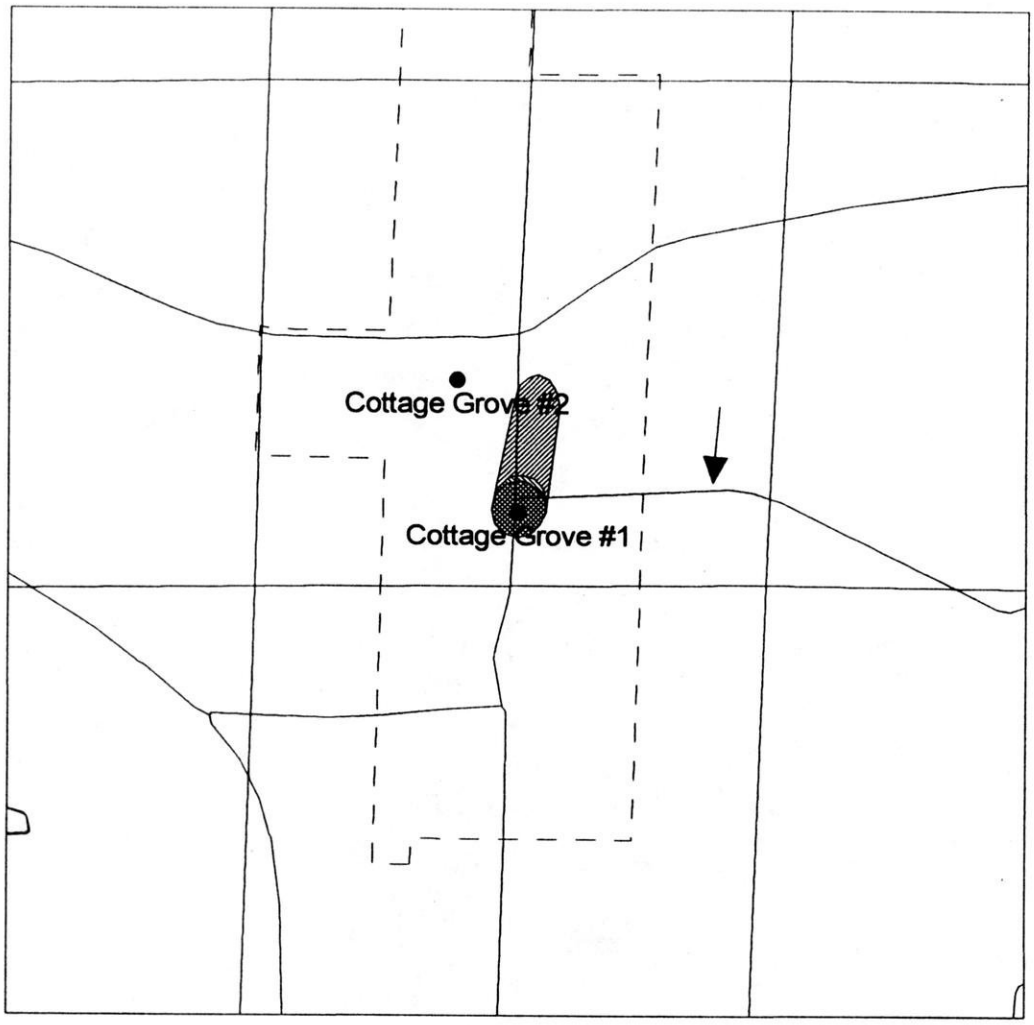
Village of Cottage Grove, Well Number 1



Village of Cottage Grove, Well Number 1 is located at 43° 4' 53.731" north latitude and 89° 11' 57.43" longitude. The well was installed in 1940, and has a pumping capacity of 150 gpm. The average daily use of the well over the period from October, 1994 through Spetember, 1995 was 31,840 gpd.

The well casing extends to a depth of 207 feet below ground surface, and the total depth of the well is 400 feet. Water is drawn from a combination of upper Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the south.

Zone of Contribution for Cottage Grove, Well Number 1



Well Location

Latitude: 43° 4' 53.73"
Longitude: 89° 11' 57.43"

0 500 1000
(meters)

N

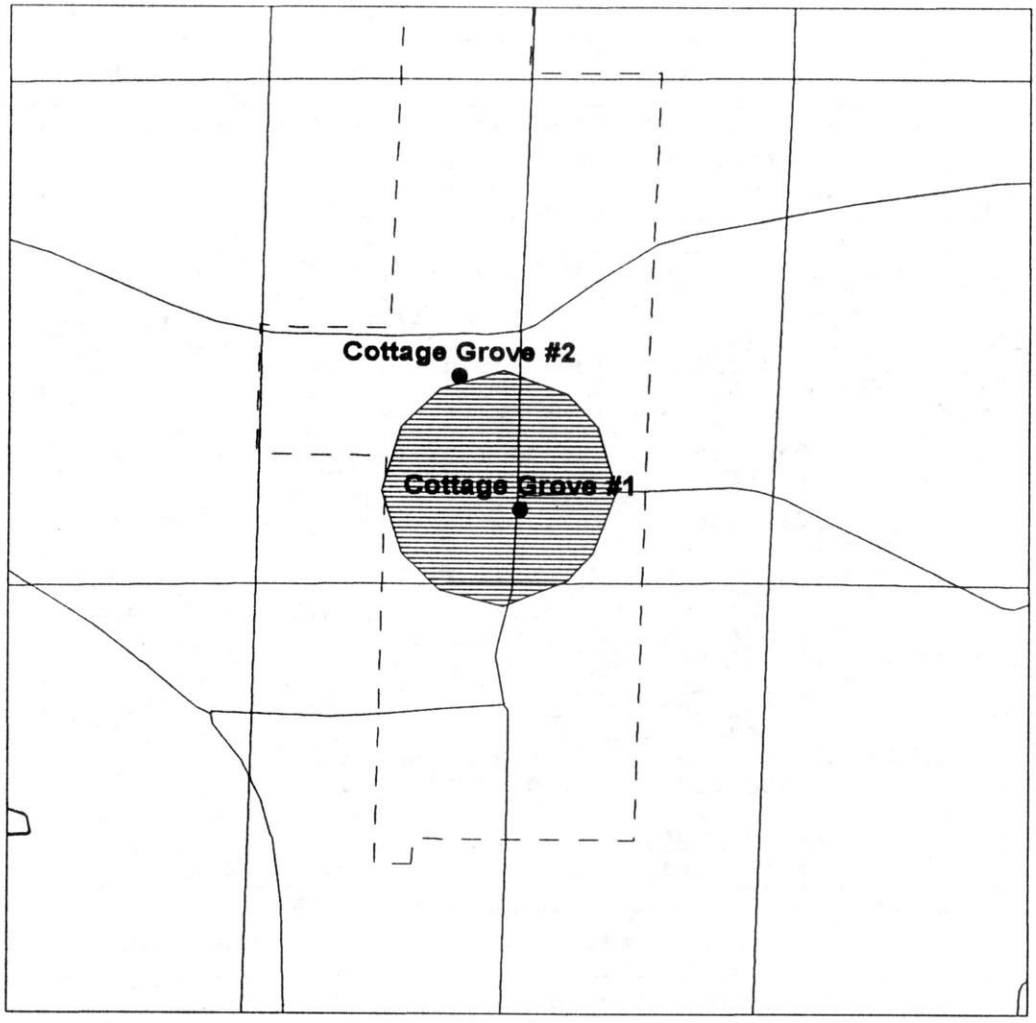
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Cottage Grove, Well Number 1



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

DN-63

VILLAGE WELL, COTTAGE GROVE, WIS.
General Engineering Co., Engineers
Geo. Reynolds, Driller, 1940
Samples examined by F. T. Thwaites, Nos. 107657-107736

#1

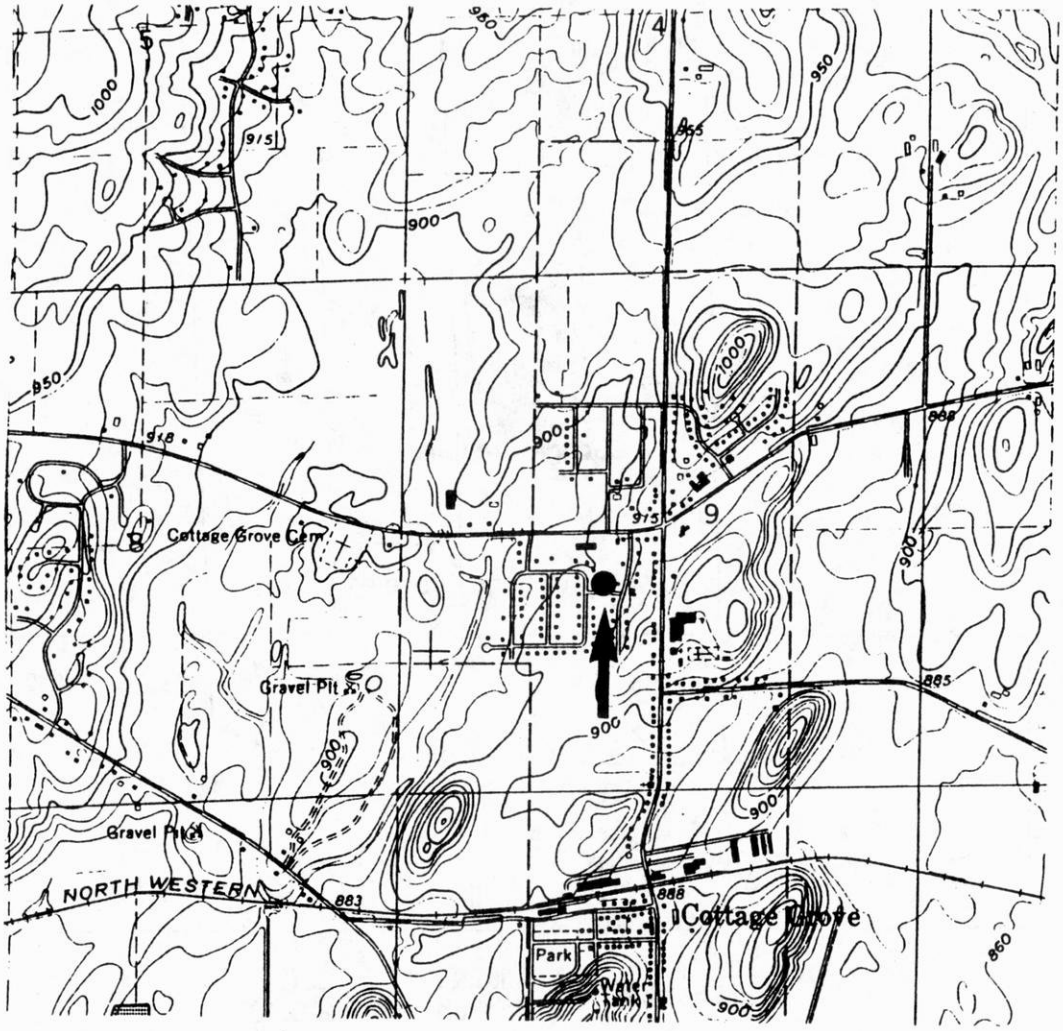
Location: SW, NW, SW, SW, NW, SW, SE, Sec. 9, 7N, 11E Alt. 900' ETM

DRIFT	60	0-35	35	T ill, brownish-gray at top. gray below; sandy gravel 5-10	14" steel pipe 32 water
		35-60	25	Gravel, fine, most very sandy	60.5
ST. PET	100	60-70	10	Sandstone, medium to fine, gray, dolomitic	14" hole 8" pipe cement 97
		70-80	10	Sandstone, medium to fine, pink	
		80-90	10	Conglomerate, pebs. chert, sa, fine, gy; sh, gy	
		90-100	10	Shale, red; chert, pink, white; sa, coarse, gy	
		100-105	5	Sandstone, fine to medium, pink	
		105-110	5	Chert, white, pink	
		110-137	27	Shale, red; some chert, white	
		137-155	18	Sandstone, fine to coarse, pink; shale, red	8" hole
		155-160	5	Shale, red; chert, white	7" welded pipe cem
TR	30	160-190	30	Siltstone, pink, some yellow-gray, dolomitic	
FRANJON	100	190-200	10	Sandstone, medium to fine, gray, glauc., dol.	207
		200-210	10	Sandstone, fine, gray, very dol, some glauc.	
		210-215	5	Siltstone, gray, dolomitic	
		215-224	9	Sandstone, very fine, pink, dolomitic	
		224-235	11	Siltstone, light pink, sandy, dolomitic	
		235-245	10	Sandstone, fine to medium, gray, dolomitic	
		245-255	10	Sandstone, coarse to fine, light gray, dol.	
		255-270	15	Sandstone, coarse to fine, white	7" hole
		270-290	20	Sandstone, coarse to fine, light gray, dol.	
DRE	40	290-305	15	Sandstone, medium to fine, white	
		305-320	15	Sandstone, medium to fine, yellow-gray	
		320-330	10	Sandstone, medium to fine, white	
EAU C	70	330-355	25	Sandstone, medium to fine, light gray, dol.	
		355-400	45	Sandstone, medium to fine, light gray, dolomitic, glauconitic	

Formations: Drift; St. Peter; Trempealeau; Franconia (formerly Mazomanie); Dresbach (Galesvill
Eau Claire

Tested at 217 g.p.m. specific capacity = 7 g.p.m.

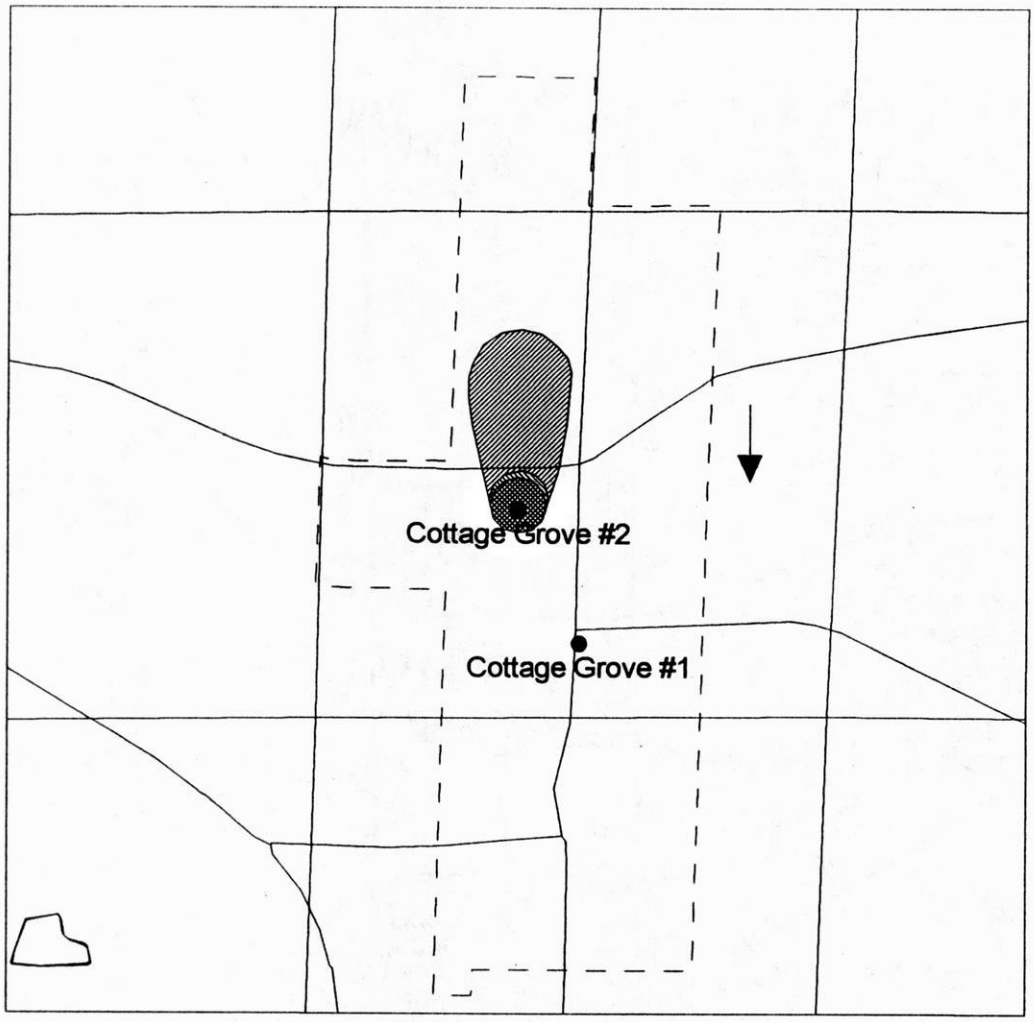
Village of Cottage Grove, Well Number 2



Village of Cottage Grove, Well Number 2 is located at 43° 5' 7.21" north latitude and 89° 12' 6.48" longitude. The well was installed in 1972, and has a pumping capacity of 320 gpm. The average daily use of the well over the period from October, 1994 through Spetember, 1995 was 57,170 gpd.

The well casing extends to a depth of 242 feet below ground surface, and the total depth of the well is 400 feet. Water is drawn from a combination of the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the south.

Zone of Contribution for Cottage Grove, Well Number 2



Well Location

Latitude: 43° 5' 7.21"
Longitude: 89° 12' 6.48"

0 500 1000
(meters)

N

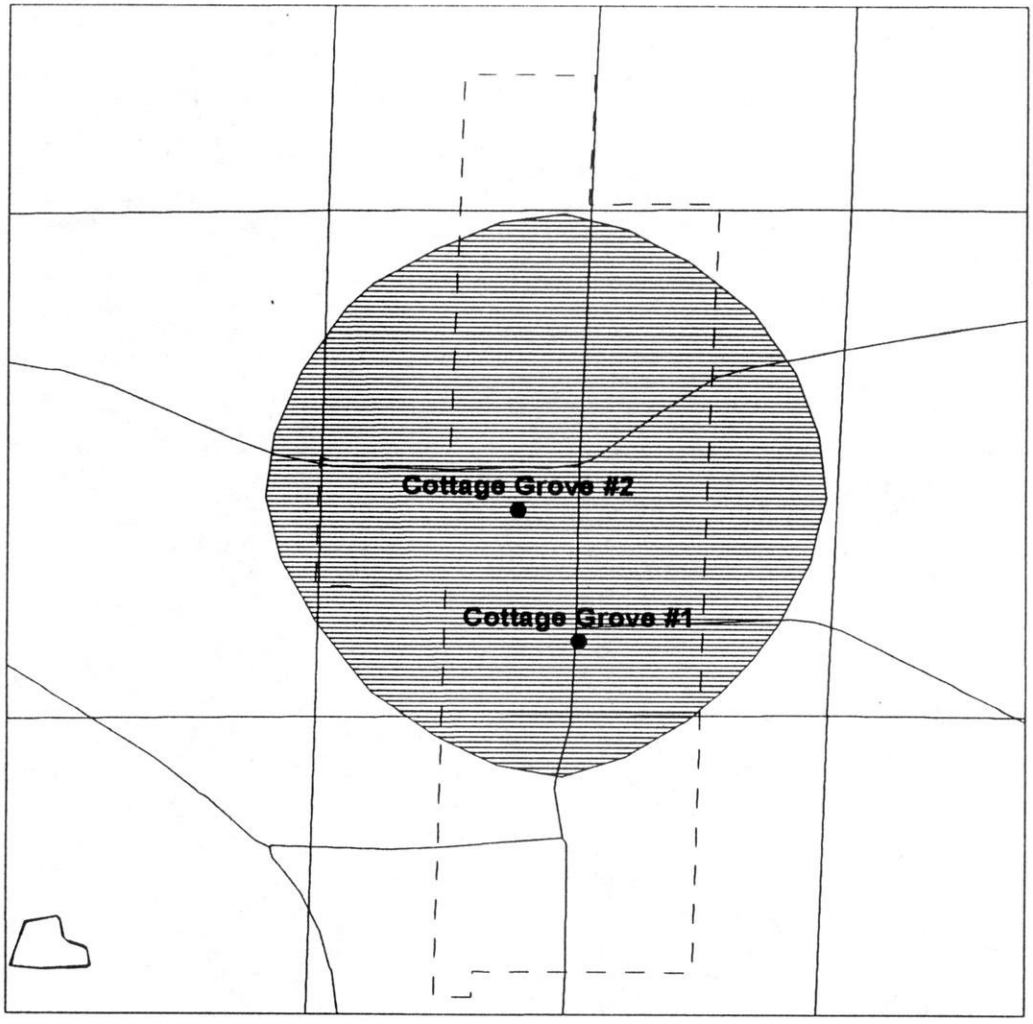
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Cottage Grove, Well Number 2



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

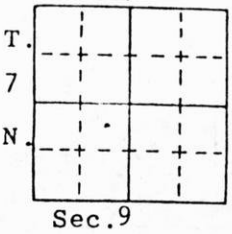
Log No.D93-Dn-10

Well name Cottage Grove Village Well #2

County: Dane

Owner.... Village of Cottage Grove
Address.. 116 Reynolds St.
Cottage Grove, WI 53527
Driller.. Layne - Northwest Co.
Engineer. General Engineering Co., Inc.
Portage, Wisconsin

Completed... 9/72
Field check.
Altitude.... 906'ETM
Use..... Municipal
Static w.l.. 48'
Spec. cap... 6.3 GPM/ft.



Location: center, SW¼, SW¼, NE¼, NE¼, SW¼, sec. 9, T7N, R11E Quad. Cottage Grove 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
24"	0	26'				24"	New welded steel	+2'	26'				
23"	26'	216'8"				16"	A53 Grade B black steel	+2'4"	216'8"				
15"	216'8"	400'											

Drilling method:
Samples from 0 to 400' Rec'd: 1/5/73

Studied by: Kathleen Massie

Grout	from	to
Neat Cement	+2'	216'8"

Issued: 12/2/82

Formations: Drift, St. Peter Sandstone (Tonti and Readstown Members), St. Lawrence Formation (Lodi Member), Tunnel City Group, Wonewoc Formation, Eau Claire Formation.

Remarks: Well tested 4 hours at 717 GPM with 113 feet of drawdown.
Spontaneous potential, resistivity, and gamma logs run 7/6/72.
See D115-Dn-1069 for duplicate sample set examination.

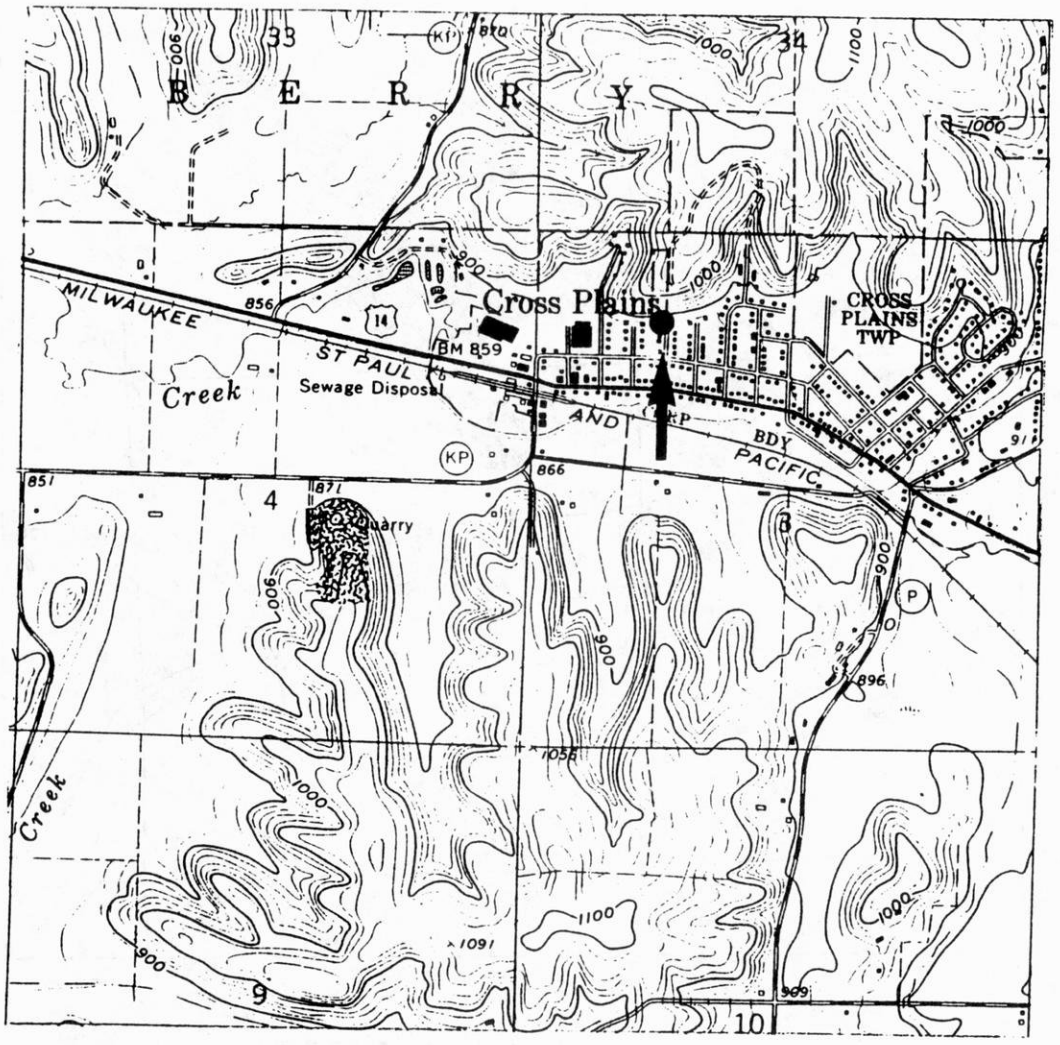
LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Dft.	0-5		Silt	Strg bn	—	—	Siliceous. Much clay. Trace gravel, sand.
12.5'	5-10		Silt & cl	Yl brown	—	—	Siliceous. Trace gravel, sand.
	10-15		Gravel, Sandstone &	Mixed Pale orange	L psb M	Gran/Vf psb Vfn/VC	Dol, grnt, trap. Srnd. Tr P sil cem, dolic clay, white chert.
	15-20		Sandstone	Or & wh	M	Vfn/VC	Rnd. Little very good silica cement. Trace caved sand.
	20-25		"	"	"	"	Same.
	25-30		"	Pl or & wh	"	"	Rnd. Tr silica cement. Mch caved gravel. Ltl caved sand.
T	30-35		"	Yellow	"	"	Rnd. Trace limonite & silica cement, caved sand.
O	35-40		"	"	"	"	Same.
N	40-45		"	"	"	"	Rounded. Trace limonite cement, silt, caved sand.
T	45-50		"	"	"	"	Rnd. Trace silica cement, silt, caved sand. Ltl yellow clay.
I	50-60		"	"	"	"	Same.
	60-65		"	"	"	Vfn/C	Same but trace clay.
	65-70		"	"	"	"	Rounded. Trace silica cement, silt. Little yellow clay.
	70-75		"	"	"	"	Same but trace yellow clay.
	75-78		"	Pl yl or	"	"	Rnd. Trace silica cement, silt, yellow clay. Few or coated grns
	78-80		"	Yl red	"	Vfn/VC	Rnd. Tr sil cem, silt. Ltl yl rd clay. Mny orange coated grns.
	80-85		"	Or red	"	"	Rounded. Trace silica cement, silt. Much orange red clay.
	85-90		"	Rd yellow	"	"	Rounded. Trace silica cement, silt, red yellow clay.
	90-95		"	Orange	C	"	Same.
92.5'	95-100		"	Rd yellow	M	"	Same but little clay.
	100-105		"	"	"	"	Same but trace clay.
R	105-110		Shale	Rd brown	—	—	Siliceous. Mch wh & dk rd bn sh. Ltl ss(w/hd wh matx). Tr snd.
	110-115		"	"	—	—	Siliceous. Tr wh sh, wh ool cht, ss(w/hd wh matx). Ltl sand.
E	115-120	Hem	Sandstone	Yl red	M	Vfn/VC	Rnd. Ltl ppl hemic matx(sh cem?). Tr sil & pyr cem, wh chert.
A	120-125		"	"	"	"	Rnd. Trace silica cem, ppl hemic matrix, wh cht, rd bn shale.
D	125-130		"	"	"	"	Same but much red brown to purple shale.
S	130-135	Hem	Shale	Dk red	—	—	Hematitic. Little sandstone. Trace purple and white shale.
	135-140		Sandstone	Yl red	M	Vfn/VC	Rnd. Tr sil & dol cem, ppl hemic matx, wh sh. Ltl purple shale.
	140-145		"	Lt red	"	"	Srnd. Much V G silica cement. Trace purple and white shale.
	145-150		Ss & shale	Rd brown	"	"	Srnd. Little silica cement. Trace purple shale, white chert.
50'	150-155		Shale	Dusky ppl	—	—	Siliceous. Tr layers of a wh sh. Mch rd bn sh as above, Vfn
Lodi	155-160		Siltstone	Strg bn	—	—	See end of log. glaucic sts. Ltl ss as above. Tr mica(in ppl shale).

Well name: Cottage Grove Village Well #2

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Lodi	160-165		Siltstone	Dty yl to ppl	—	—	Dolic. V hd. Mch ppl stng due to shale. Ltl ppl sh, fltg snd
	165-170		"	"	—	—	Same. (Vfn/Fn). Tr Vfn glauc, M/C ss(cvd), wh cht, rd bn sh.
20'	170-175		"	Yl rd to rd bn	—	—	Dolic. V hd. Mch Vfn glauc(rd bn sts), rd bn sh. Tr fltg snd,
TUNNEL CITY	175-180		Sts & sh	Rd brown	—	—	See end of log. ppl stng(dty yl sts), Vfn glauc(in dty yl st
	180-185		Ss & shale	"	Fn/M	Vfn/VC	Srnd. Little P dol cem, M-glauc. Tr purple shale, mica.
	185-190		Shale	"	—	—	Siliceous. Mch dol cem ss. Tr Fn-glauc, purple shale.
	190-195		Sandstone	"	Fn	Vfn/VC	Sang to srnd. Mch P dol cem. Ltl Fn-glauc, rd brown shale.
	195-200		"	"	"	"	Srnd. Mch P to G dolomite cement. Ltl Fn-glauc. Tr dolomite.
	200-205		"	Brown	"	"	Srnd. Ltl P dol cem, Fn-glauc, rd yl shale. Trace dolomite.
	205-210		"	Rd yellow	M	"	Srnd. Ltl F to G dol cem. Tr M-glauc, rd bn sh, dol, wh chert.
	210-215		"	"	"	"	Same but no chert. (Almost a sandy dolomite).
	215-220		"	"	"	"	Same.
	220-225		"	"	"	"	Srnd. Tr F to G dolomite cement, Fn/M-glauconite, red bn shale.
	225-230		"	"	"	"	Srnd. Ltl F to G dol cem. Tr Fn/M-glauconite, red brown shale.
	230-235		"	Lt brown	Fn	Vfn/C	Srnd. Trace dolomite cement, Fn/M-glauconite, silt.
	235-240		"	Yl red	"	"	Same plus little shale.
70'	240-245		"	"	"	"	Same.
WONEWOC	245-250		"	Rd yellow	M	"	Srnd. Ltl G dol cem(almost a sndy dol). Tr Fn/M-glauc, rd bn sh,
	250-255		"	V pl bn	M/C	"	Rnd. Tr G sil cement, caved ss as above. wh cht.
	255-260		"	Pink	Fn/M	"	Srnd. Ltl pink shale. Trace Fn-glauconite (caved?).
	260-265		"	"	"	"	Srnd. Trace light red brown shale, silt, caved Fn-glauconite.
	265-270		"	"	"	"	Same plus trace white siliceous shale.
	270-275		"	"	M	"	Srnd. Trace silt, caved Fn-glauconite, white siliceous shale.
	275-280		"	"	"	"	Same plus trace pale green shale.
	280-285		"	"	Fn	"	Same.
	285-290		"	V pl yellow	M	"	Srnd. Tr yl dol cem, pl gn shale, white sil shale, silt.
	290-295		"	"	"	"	Same plus trace very pale shale.
	295-300		"	Pl yellow	"	"	Srnd. Ltl G yl dolomite cement. Trace silt, pale green shale.
	300-305		"	"	"	"	Same but trace dolomite cement.
	305-310		"	Yellow	C	"	Rnd. Ltl yl G dolomite cement. Mch yl shale. Trace pl gn shale.
	310-315		"	"	"	"	Same.
	315-320		"	"	"	"	Rnd. Tr F dolomite cement, pl gn shale. Ltl yl shale, silt.
	320-325		"	"	"	"	Same but much shale.
	325-330		"	"	"	"	Same but little yellow shale.
	330-335		"	"	"	"	Same.
	335-340		"	Pl yellow	M	"	Rounded. Trace F dolomite cement, yellow shale, silt.
100'	340-345		"	White	"	"	Rounded. Trace F yl dolomite cement, silt, pale green shale.
E. C.	345-350		"	"	Fn/M	Vfn/C	Subrounded. Trace poor dolomite cement, silt.
	350-355		"	"	Fn	Vfn/M	Subrounded. Little silt. Trace white shale.
	355-360		"	Lt grey	Vfn&M	Vfn/C	Srnd. Ltl G dol cem, silt. Tr pyr cem, pnk stng, Vfn glauc.
	360-365		"	"	"	Vfn/VC	Srnd. Tr G dol cem, pnk stng, pl gn sh, Vfn-glauc, sh. Mch st.
	365-370		"	"	M	"	Srnd. Tr G dol cem, pnk stng, Vfn-glauc. Little shale, silt.
	370-375		"	"	Vfn&M	"	Same plus trace pale green shale.
	375-380		"	White	M	"	Rnd. Tr G dol cem, pnk stng, Vfn glauconite. Little silt.
	380-385		"	"	"	"	Same.
	385-390		"	"	Vfn&M	"	Same but Vfn grains are subrounded.
	390-395		"	Lt pnk	M	"	Rnd. Mch G dol cem(almost a sndy dol, a result of layering).
55'	395-400		"	"	"	"	Same. Tr pl gn shale, silt, pyrite.
			END OF LOG				
	155-160		Siltstone	Strg brown	--	—	Dolomitic. Very hard. Much purple shale. Little M/C sandstone. Trace Vfn sand (in siltstone), red brown shale, Vfn glauconite, white chert.
	175-180		Sts & sh	Rd brown	--	—	Dolomitic. Soft. Little dolomite cemented sandstone, Fn/M glauconite. Trace muscovite.

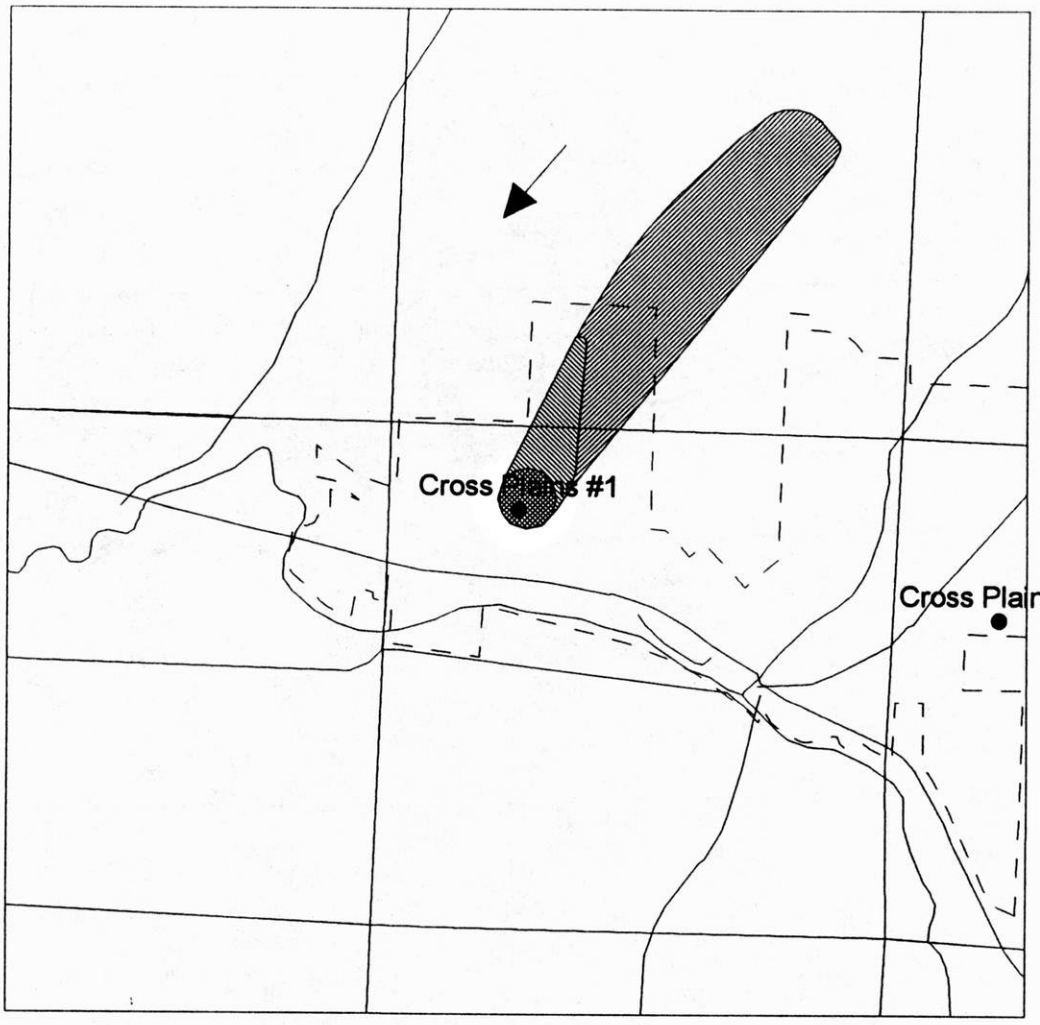
Village of Cross Plains, Well Number 1



Village of Cross Plains, Well Number 1 is located at 43° 6' 58.70" north latitude and 89° 39' 18.90" longitude. The well was installed in 1956, and has a pumping capacity of 425 gpm. The average daily use of the well over the period from October, 1994 through Spetember, 1995 was 103,860 gpd.

The well casing extends to a depth of 40 feet below ground surface, and the total depth of the well is 253 feet. Water is drawn primarily from a combination of the Paleozoic bedrock units. Groundwater flow in the vicinity of the well is generally to the nothwest.

Zone of Contribution for Cross Plains, Well Number 1



Well Location

Latitude: 43° 6' 58.70"
Longitude: 89° 39' 18.90"

0 500 1000
(meters)

N

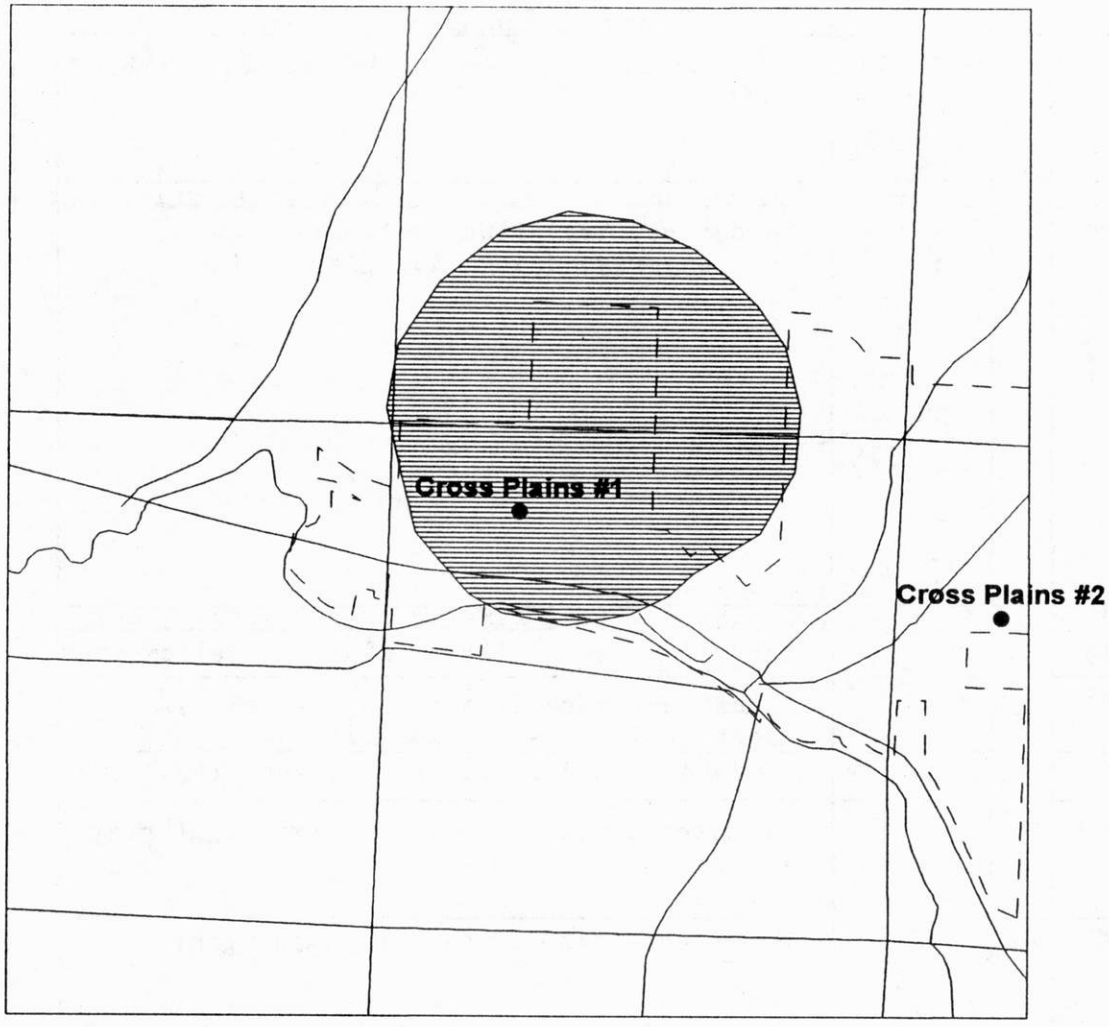
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Cross Plains, Well Number 1



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

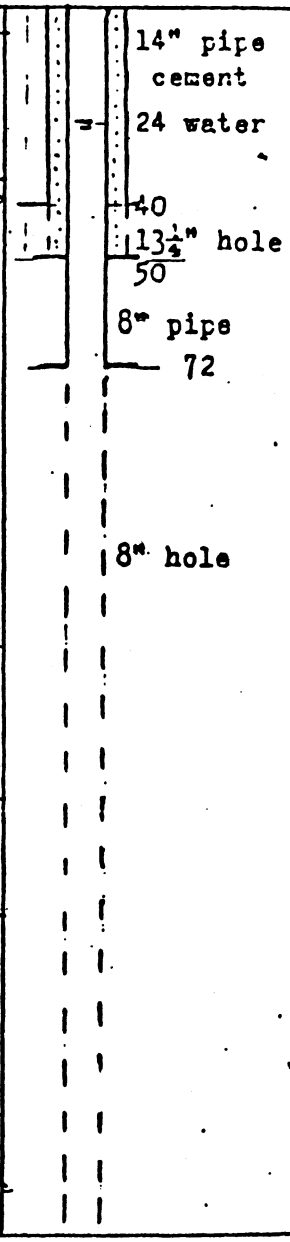
One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

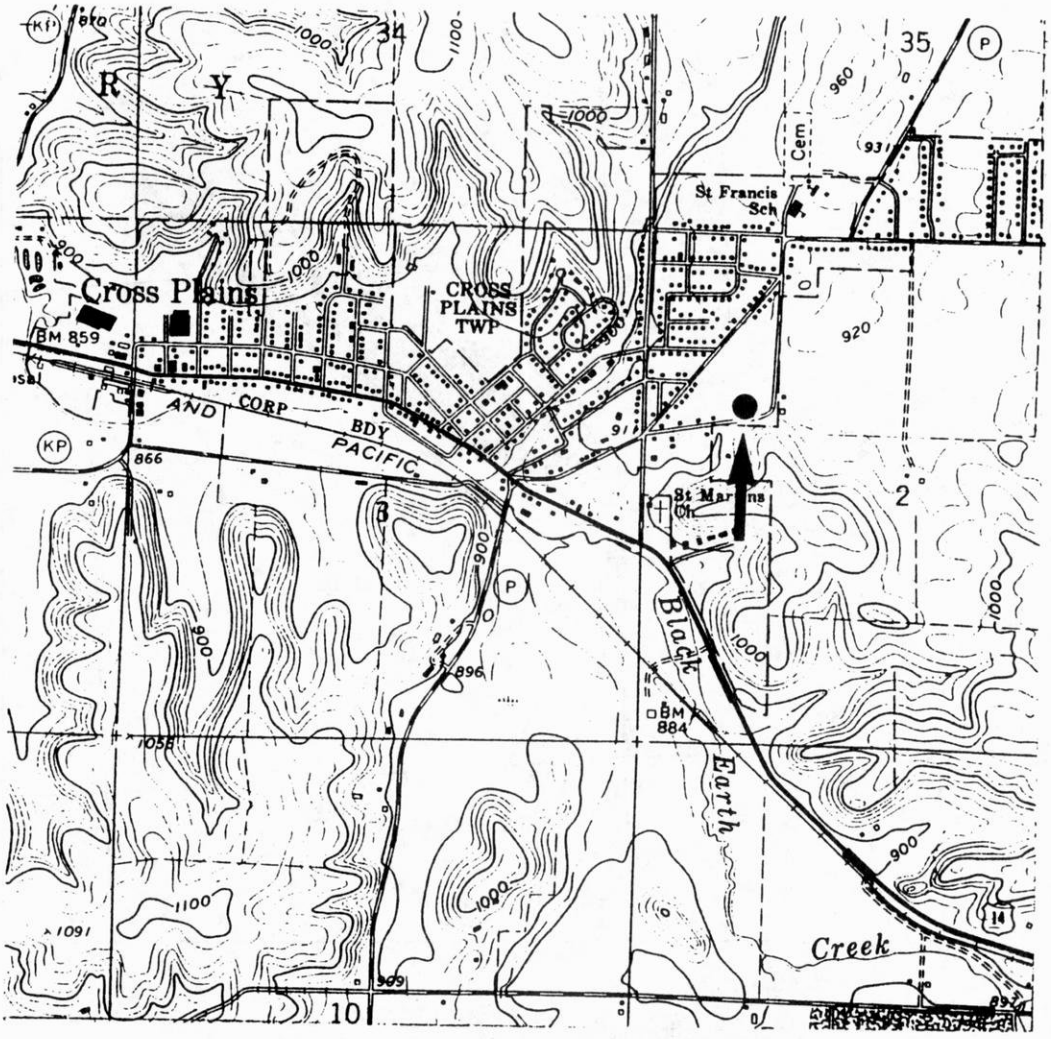
VILLAGE WELL, CROSS PLAINS, DANE CO., WIS.
End of East St. N. part, sec. 3, T. 7 N., R. 7 E.
General Engineering Co., Douglas Holzem, Driller, 1956
Samples examined by F. T. Thwaites, Nos. 192469-192518

D	5	0-5	5		Silt, sandy, brown-gray, weathered
TREMP	35	5-35	30		Siltstone, yellow-gray, dolomitic, broken (talus)
		35-40	5		Siltstone, sandy, lt. yellow-gray, dolo. gl.
FRANCONIA		40-120	80		Sandstone, very fine to fine, light yellow-gray, dolomitic, glauconitic
		120-125	5		Sandstone, very fine to fine, lt.gray, dol
		125-135	10		Sandstone, very fine to fine, lt.yellow-gray dolomitic
		135-150	15		Sandstone, very fine to coarse, silty, light yellow-gray, dolomitic
	120	150-160	10		Sandstone, medium to coarse, very light gray
GALESVILLE		160-185	25		Sandstone, medium to fine, very light gray
		185-210	25		Sandstone, fine to medium, light gray
		210-225	15		Sandstone, very fine to medium, light gray
		225-240	15		Sandstone, fine to medium, light gray, dolomitic
	90	240-250	10		Sandstone, fine to medium, very light gray
		T.D. 253'			



Formations: Drift; talus; Trempealeau: Franconia; Galesville(Dresbach)
Tested 26 hours at 500 g.p.m. specific capacity = 125.0 g.p.m./ft.
Additional copies may be secured from Wisconsin Geological Survey, Science Hall, Madison 6, Wi.

Village of Cross Plains, Well Number 2



Village of Cross Plains, Well Number 2 is located at 43° 6' 49.27" north latitude and 89° 38' 11.51" longitude. The well was installed in 1973, and has a pumping capacity of 650 gpm. The average daily use of the well over the period from October, 1994 through Spetember, 1995 was 179,170 gpd.

The well casing extends to a depth of 116 feet below ground surface, and the total depth of the well is 295 feet. Water is drawn primarily from a combination of the Paleozoic bedrock units. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Cross Plains, Well Number 2



Well Location

Latitude: 43° 6' 49.27"
Longitude: 89° 39' 11.51"

0 500 1000
(meters)

N

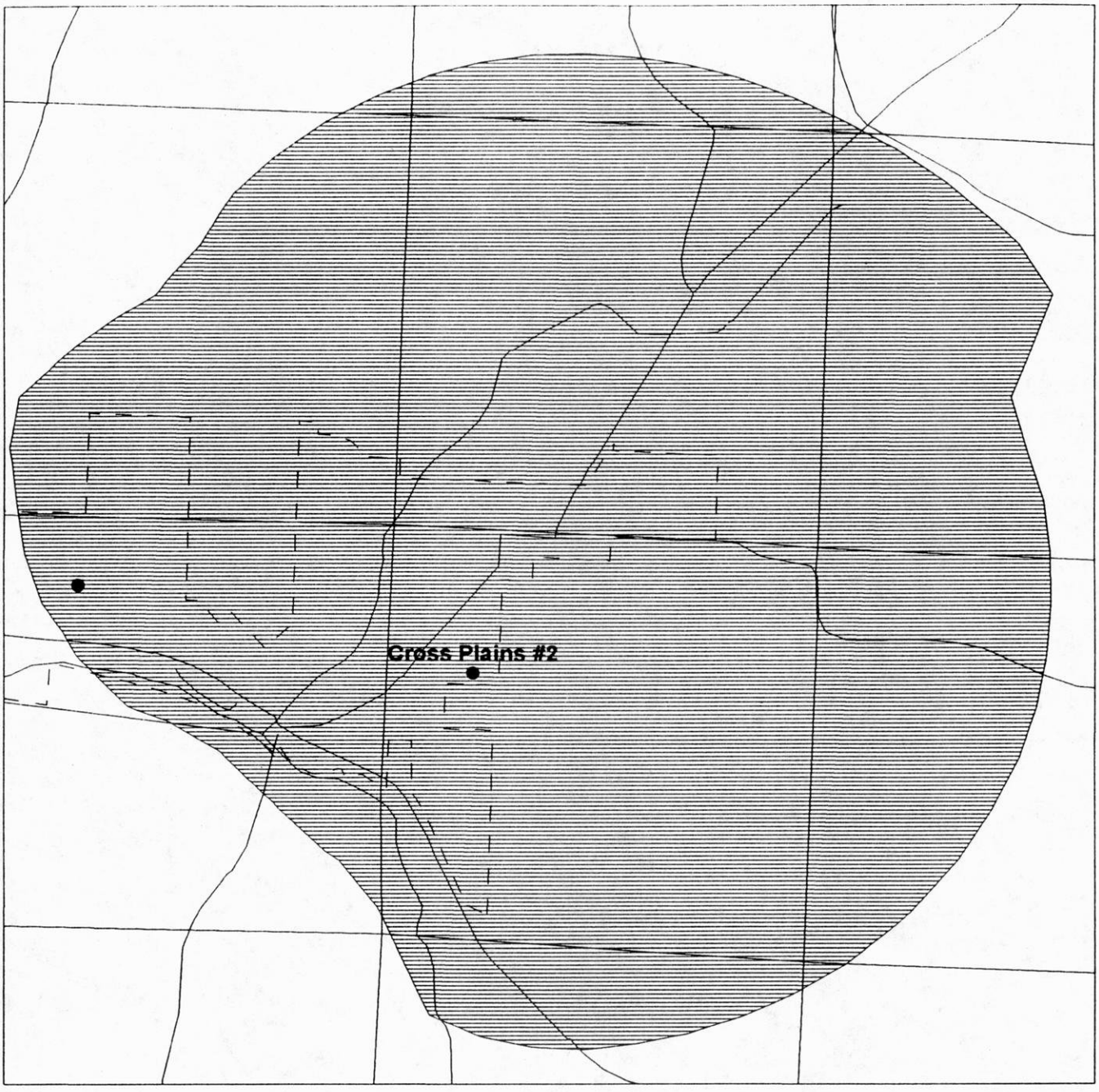
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Cross Plains, Well Number 2



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. D20-Dn-106

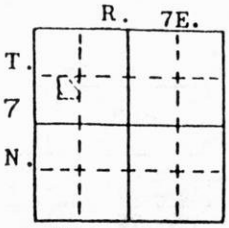
Sample Nos. All Retained

Well name Cross Plains Village Well #2

County: Dane

Owner.... Village of Cross Plains
Address.. P.O. Box 235
Cross Plains, WI 53528
Driller.. Egerer-Galloway Well Corporation
Engineer. Green Engineering Co., Inc.
Middleton, Wisconsin

Completed... 6/29/73
Field check.
Altitude.... 916'
Use..... Potable
Static w.l.. 30'
Spec. cap... 19 GPM/ft



Quad. Cross Plains 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
22"	0	116'				22"	Weld 86.61#	0	46'				
16"	116'	295'				16"	A-53 62.58#	+6'	116'				

Grout: Kind	from	to
Pure Cement Grout	0	116'

Samples from 0 to 295' Rec'd: 6/25/73 Studied by: R. M. Peters Issued: 1/12/82

Formations: Drift, Tunnel City Group, Wonewoc Sandstone.

Remarks: Well tested for 22 hours at 1050 GPM with 54 feet of drawdown.

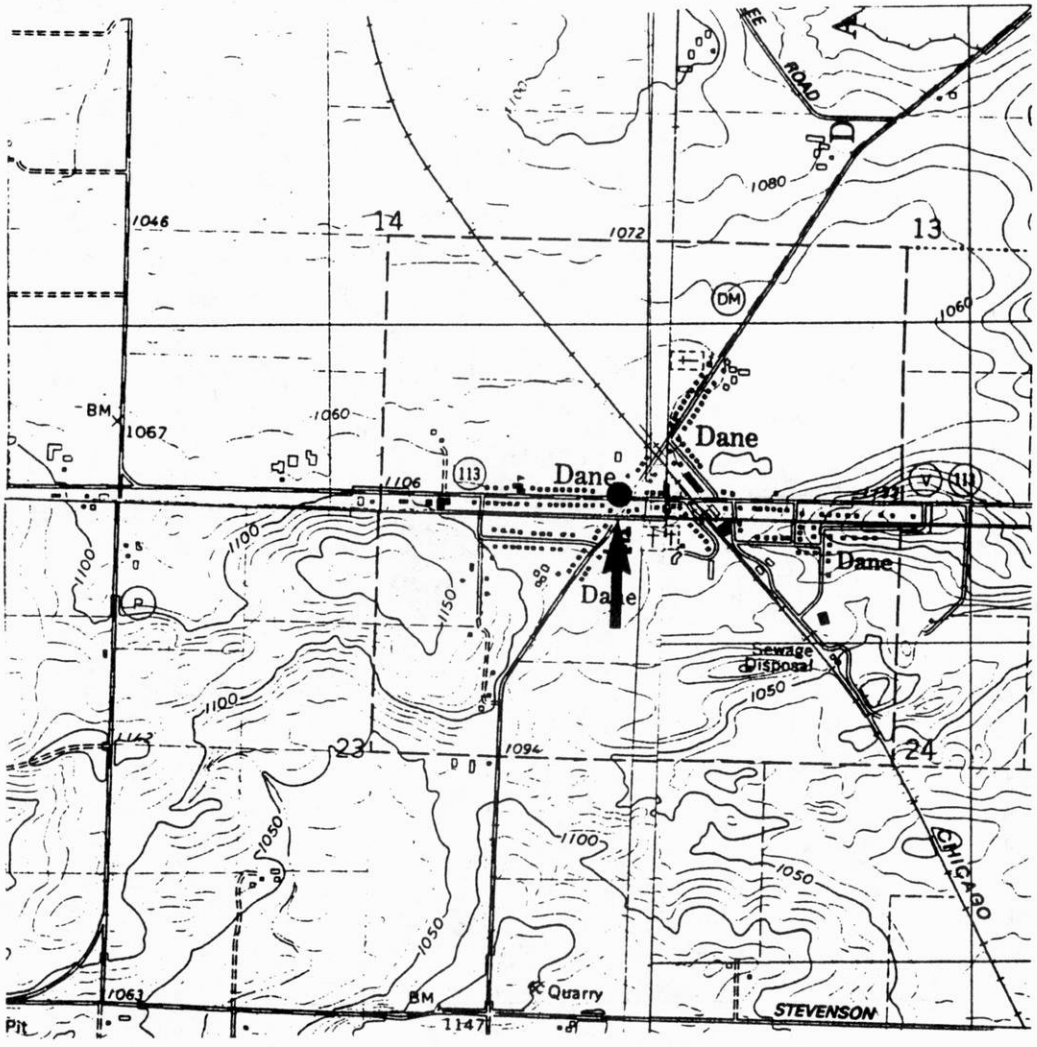
LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
DRIFT	0-5		Silt	Dk brown	--	--	Much sand. Trace gravel.
	5-10		"	"	--	--	Much sand. Trace granules.
	10-15		"	Dk yl bn	--	--	Much sand, gravel.
	15-20		"	"	--	--	Much sand. Little gravel.
	20-25		St & gravel	Mxd bn yl	S peb	Gran/M peb	Dol, granite, sandstone, trap, chert. Much sand.
	25-30		Gravel	Mxd v pl bn	"	Gran/L peb	Same plus little silt.
	30-35		Sand	"	Fn	Vfn/VC	Much gravel. Little silt.
	35-40		Gravel	"	S peb	Gran/M peb	Dol, fos dol, chert, sol cht, trap, ss, lim-cem ss, qtz. Mch snd.
45'	40-45		"	"	"	"	Dol, cht, trap, sandstone. Much sand. Little silt. Tr silt.
TUNNEL CITY Gp.	45-50		Sandstone	Olive	Fn	Vfn/C	Mch Vfn/M glau, dol cem. Tr pl gn sh, cvd mat, white cht (caved?).
	50-55		"	"	"	"	Mch Vfn/C glau. Ltl dol cem. Tr pl gn shale, caved material.
	55-60		"	Ol green	"	"	Mch Vfn/C glauconite. Little dol cement. Trace white chert.
	60-65		"	Gn olive	"	Vfn/M	Same.
	65-70		"	Pale olive	"	Vfn/C	Same but much dolomite cement.
	70-75		"	Yl olive	"	"	Same but little dolomite cement.
	75-80		"	Ol yellow	"	"	Mch Vfn/C glau, dol cem. Ltl sndy dol. Tr wht sol chts, fossils.
	80-85		"	"	"	"	Mch Vfn/C glau, dol cem, sndy dol. Tr wh, sol fos chts.
	85-90		"	"	"	Vfn/VC	Mch dol cem. Ltl Vfn/C glau, sandy dolomite. Tr white chert.
	90-95		"	Yellow	"	Vfn/C	Mch Vfn/C glauc, dol cement. Tr wh chert, sandy dolomite.
	95-100		"	"	"	Vfn/C	Same plus trace pale green shale, sandy dolomite.
	100-105		"	"	"	Vfn/VC	Mch dol cement. Little Vfn/C glauconite, sandy dolomite.
	105-110		"	"	"	Vfn/C	Mch dol cement. Little Vfn/M glauconite. Trace white chert.
	110-115		"	Pale yl	Vfn/Fn	Vfn/Fn	Ltl Vfn/M glauc. Tr dolomite cement, white chert.
	115-120		"	Yellow	Fn	Vfn/M	Ltl dol cem. Trace Vfn/M glauconite, white chert.
	120-125		"	Pl yellow	"	"	Ltl dol cem, Vfn/M glauc. Tr wh & bn yl sh matrix, white chert.
	125-130		"	"	"	Vfn/C	Mch Vfn/C glauc. Ltl dol cem. Trace lim cem, white shaly matx.
	130-135		"	"	"	Vfn/VC	Mch Vfn/M glauc, dol cem. Ltl sndy dol. Tr limonite cement.
	135-140		"	Yellow	"	Vfn/M	Ltl dol cem. Tr limonite cement, Vfn/M glauconite.
	140-145		"	Pl ol yellow	"	"	Mch Vfn/C glauconite. Ltl dolomite cement. Trace chert.
	145-150		"	Ol yellow	"	Vfn/VC	Much dol cement. Little Vfn/C glauconite.
	150-155		"	"	"	"	Same.
115'	155-160		"	Yl olive	"	Vfn/C	Little dolomite cement, Vfn/C glauconite.
160'							

Well name: Cross Plains Village Well #2

	Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
					Mode	Range	
WONEWOC SANDSTONE	160-165	G	Sandstone	Ol yellow	C	Vfn/VC	Much dol cement. Trace Vfn/M glauconite.
	165-170	G	"	"	M/C	"	Same.
	170-175	G G	"	Pl yellow	"	"	Ltl dol cem, Vfn/M glauconite.
	175-180	G	"	V lt yl gy	"	"	Tr dol cem, Vfn/M glauc, pale gn shale, silica cement.
	180-185	G	"	"	"	"	Same but no shale.
	185-190	G	"	"	"	"	Trace dol cement(ovd?), Vfn/M glauc, bn yellow, shaly matrix.
	190-195	G	"	"	M	"	Trace dol cement, Vfn/M glauconite.
	195-200	G	"	"	"	"	Trace silica cement, Vfn/Fn glauconite.
	200-205	G	"	Pl yellow	"	"	Same plus trace pale green shale.
	205-210	G	"	"	"	"	Mch dolomite cem. Trace Vfn/Fn glauconite, granules.
	210-215	G	"	"	"	"	Little dolomite cement. Trace Vfn/Fn glauconite.
	215-220	G	"	"	"	"	Trace dolomite&hematite cements, Vfn/Fn glauconite.
	220-225	G	"	Yellow	"	"	Mch dol cement. Tr calc cem, Vfn/M glauconite.
	225-230			NO SAMPLE. Driller reports sandstone.			
	230-235	G	Sandstone	Pl yellow	M	Vfn/VC	Much dolomite cem. Tr Vfn/Fn glauconite, granules.
	235-240		"	Yellow	"	"	Mch dolomite cement. Tr calcite&hematite cements.
	240-245		"	"	"	"	Tr dol, calcite&hematite cements, grans, pale green shale.
	245-250	G	Sandstone	Pl yellow	"	"	Trace dolomite cement, Vfn/Fn glauconite.
	250-255	G	"	Yellow	"	"	Little dolomite cement. Trace Vfn/glauc, hematite cement.
	255-260	G	"	"	"	"	Mch dol cement. Tr Vfn/Fn glauconite, hematite cement.
	260-265	G	"	"	"	"	Trace dolomite cement, Vfn glauconite, hematite cement.
	265-270	G	"	Pl yellow	"	"	Trace dol&hematite cements, Vfn/M glauconite.
	270-275	G	"	V lt yl gy	"	"	Trace Vfn glauconite, hematite cement.
	275-280	Hem	"	Pl yellow	"	"	Little hematite cement.
	280-285		"	"	"	Vfn/C	Trace hematite cement.
	285-290		"	"	Fn/M	"	Same.
135'	290-295	Hem	"	"	M	Vfn/VC	Little hematite cement.
295			END OF LOG				

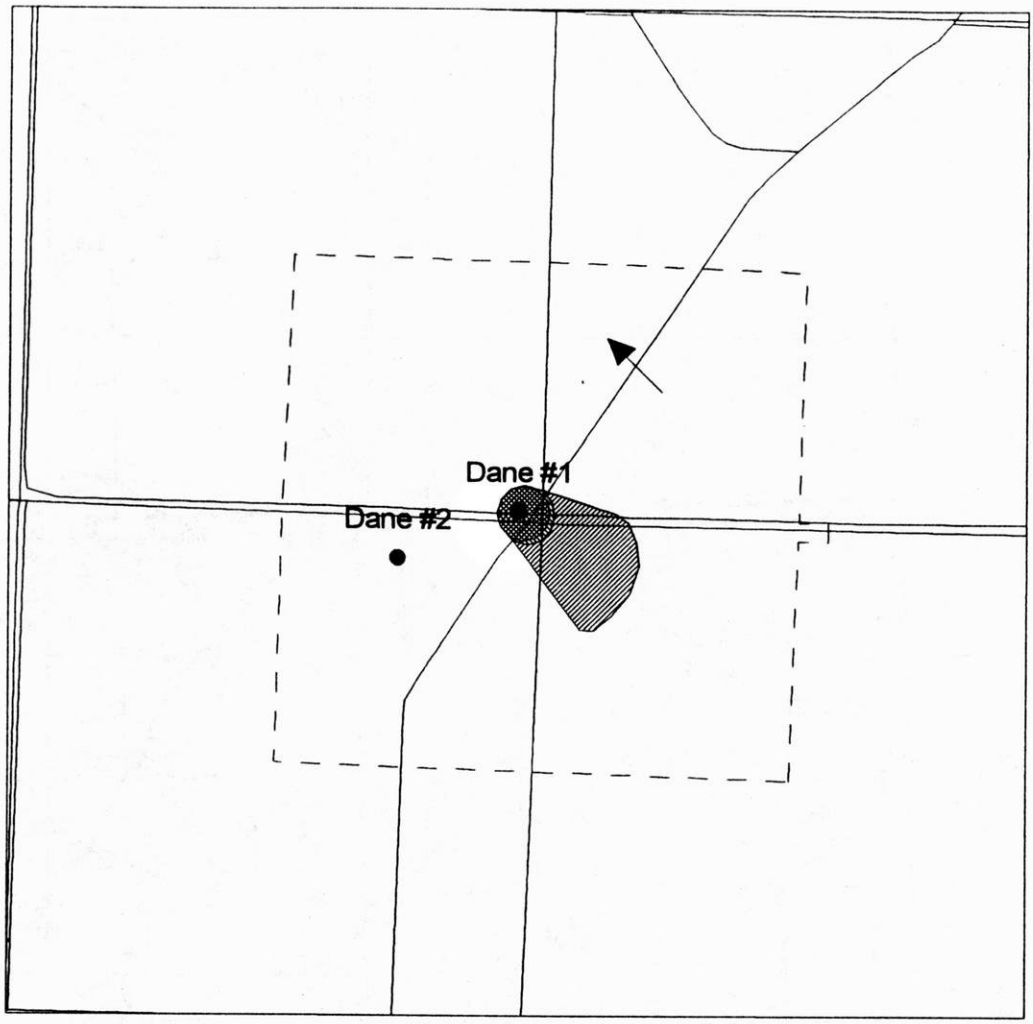
Dane Well Number 1



Dane Well Number 1 is located at 43° 15' 2.09" north latitude and 89° 30' 6.61" longitude. The well was installed in 1949 and has a pumping capacity of 200 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 23,000 gpd.

The well casing extends to a depth of 75 feet below ground surface, and water is drawn from the Franconia and Dresbach sandstones. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Dane, Well Number 1



Well Location

Latitude: 43° 6' 58.70"
Longitude: 89° 39' 18.90"

0 500 1000
(meters)

N

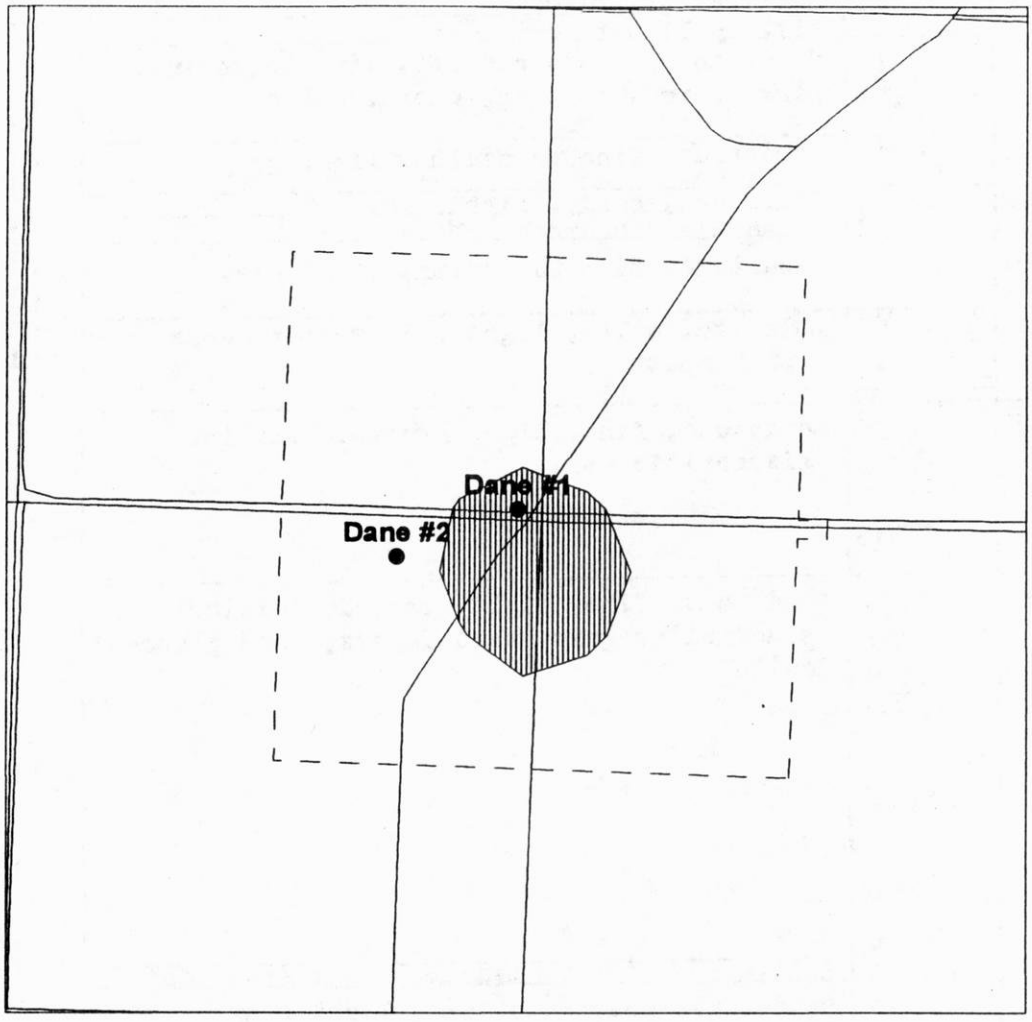
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Dane, Well Number 1



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

VILLAGE WELL, DANE, WIS.

SE,SW,SE,SE, SE¼SE¼ sec. 14, T. 9 N., R. 8 E.

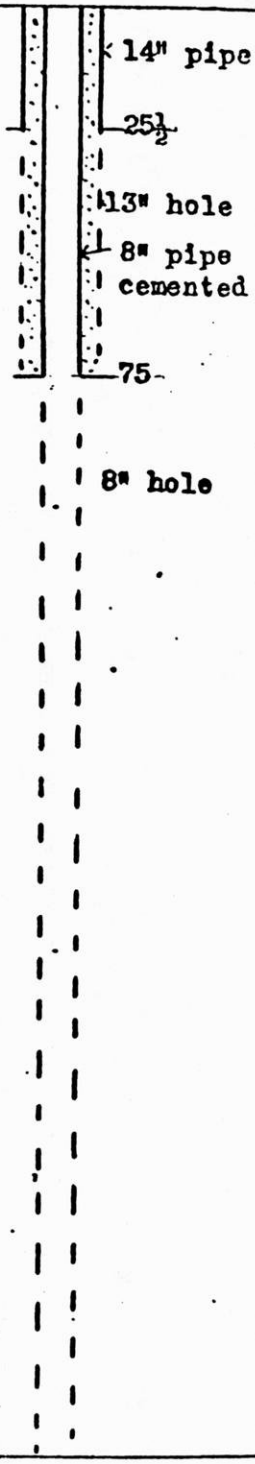
Geo. Reynolds & Son, Drillers, 1949

Samples examined by F. T. Thwaites, Nos. 147967-148025

Alt=1077 ETM

General Engineering Co., Engineers

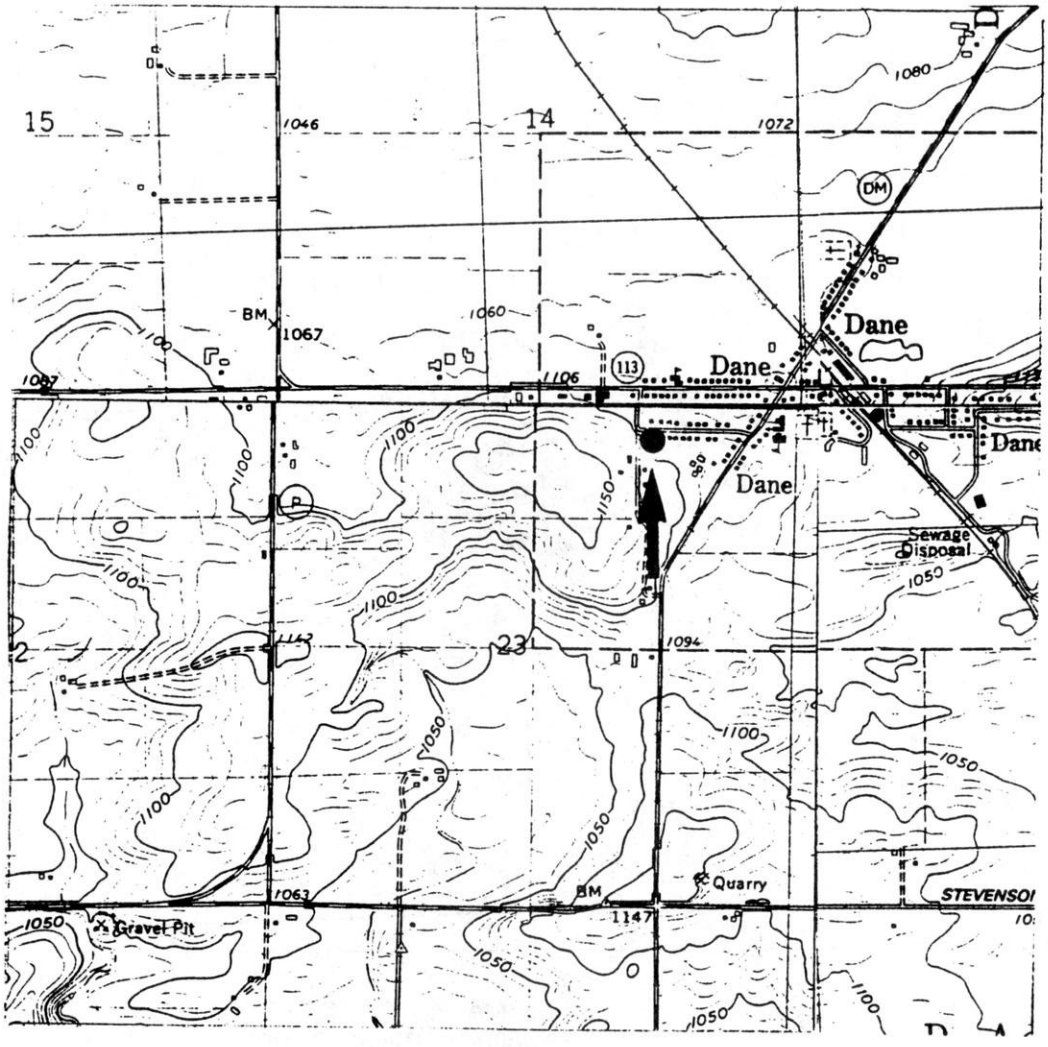
D	10	0-5	5	Soil, sandy, black
		5-10	5	Till, yellow-brown
S		10-30	20	Sand, and sandstone, soft, fine to medium, pink to red, pebbles, chert, white
T	20			
T		30-40	10	Sandstone, fine to medium, light gray
R		40-45	5	Siltstone, sandy, light gray
E		45-50	5	No sample "sandrock, white"
M		50-65	15	Sandstone, fine to medium, light gray
P		65-85	20	Dolomite, silty, light yellow-gray, some pink spots
E				
A				
L	55			
F		85-120	35	Sandstone, fine, light gray, dolomitic, glauconitic
R				
A		120-200	80	Sandstone, fine, light gray, dolomitic, some yellow-gray, hard layers, some glauconite
N				
C				
O				
N				
I				
A		200-205	5	Sandstone, fine to medium, light gray, dol.
		205-225	20	Sandstone, coarse to fine, light gray
	140			
D		225-230	5	Sandstone, medium to fine, light gray
R		230-270	40	Sandstone, medium to coarse, light gray
E				
S				
B				
A				
C		270-275	5	Sandstone, fine to medium, light gray
H		275-290	15	Sandstone, medium to fine, light gray
	75	290-295	5	Sandstone, medium to coarse, light gray
		295-300	5	Sandstone, medium to fine, light gray



Formations: Drift; St. Peter; Trempealeau; Franconia; Dresbach (Galesville)

Tested 10 hours at 400 g.p.m. specific capacity = 10.8 g.p.m./ft.

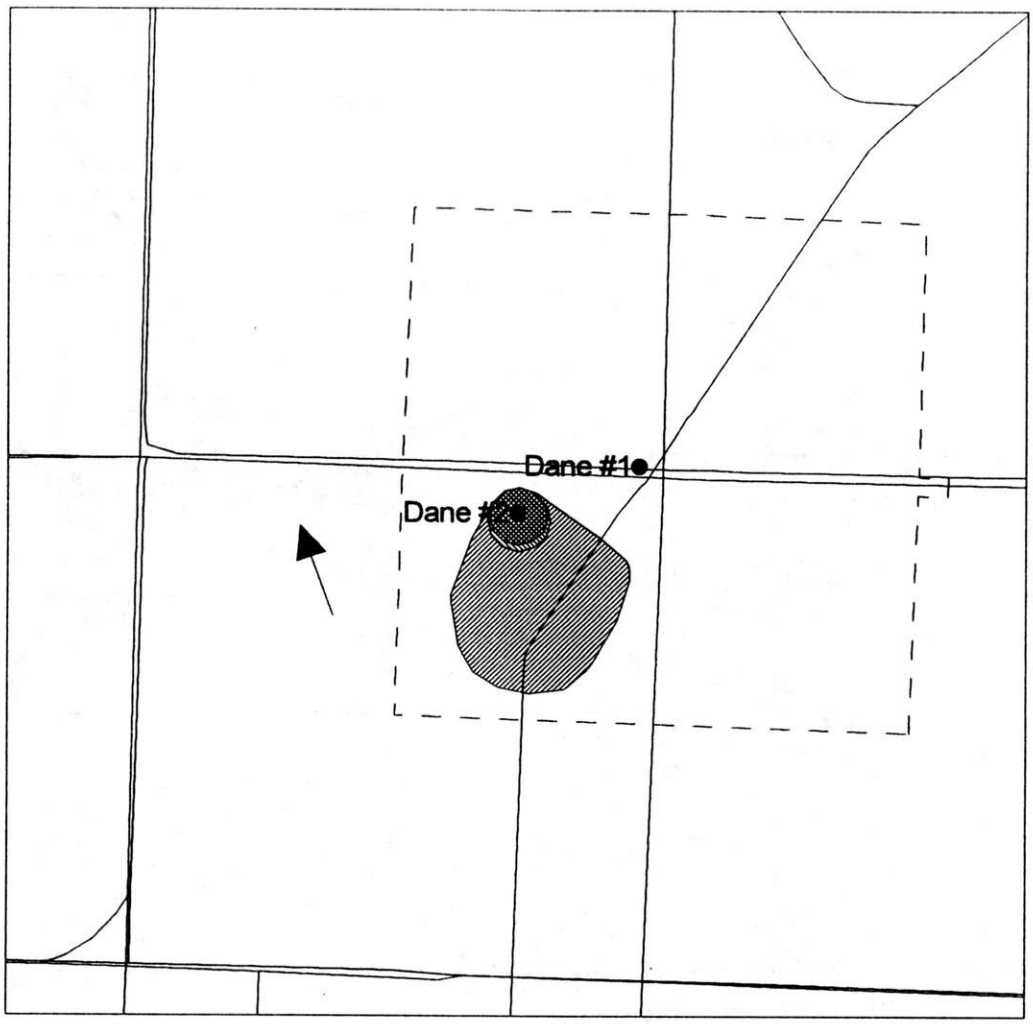
Dane Well Number 2



Dane Well Number 2 is located at 43° 14' 56.87" north latitude and 89° 30' 23.25" longitude. The well was installed in 1966 and has a pumping capacity of 300 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 30,000 gpd.

The well casing extends to a depth of 142 feet below ground surface, and the total depth of the well is 440 feet. Water is drawn from a combination of the Paleozoic bedrock units, including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Dane, Well Number 2



Well Location

Latitude: 43° 14' 56.87"
Longitude: 89° 30' 23.25"

0 500 1000
(meters)

N

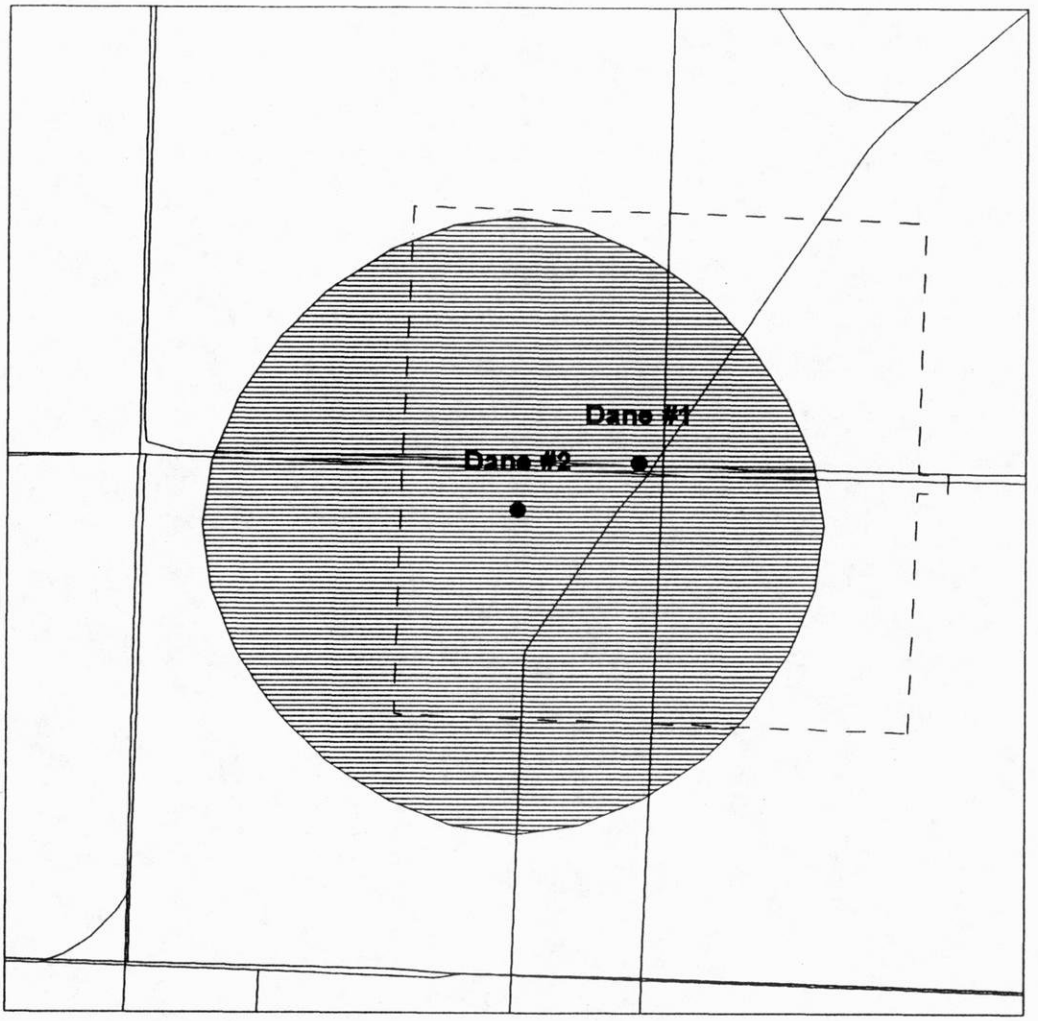
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zone of Influence for Dane, Well Number 2



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Da-950
Sample Nos. 270093-270181

County: Dane

Well name Village of Dane, Wisconsin, Well #2

Owner.... Village of Dane
Address.. Dane, Wisconsin

Completed... 10-10-66
Field check. ~~1075'~~ 1100'
Altitude.... 1114' ETM
Use..... Municipal
Static w. l. 185'
Spec. cap... 18.6

Driller.. Marvin Holzem, Ace Well Drilling
Engineer. Harold Vik, General Engineering Co.
Portage, Wisconsin

R. 8E
T. 9 N.
Sec. 23

LOCATION: SE, NW, NE, SE, NW, NE, Sec. 23, T9N, R8E

Quad. Springfield Corners 7.5'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
18"	0	140'				18"	Black steel O.D.	0	62'				
12"	140'	440'				12"	Black steel I.D.	+30"	142'				

Grout: Kind	from	to
Cement and water	0	140'

Samples from 0 to 440' Date received: 9-16-66 Issued: Oct., 1968
Examined by: J. Warren Date: 6-17-67

Formations: Drift, Prairie du Chien, Jordan, St. Lawrence, Tunnel City, Ironton, Elk Mound

Remarks: Well tested for 5 hours at 820 gpm with 44 feet of drawdown. Well located on southeast corner of the intersection of West & South Streets,

LOG OF WELL:

DRIFT		0-10	10	St, bn blk&bn, F srtg, ltl cl&org mat, tr fn&Vfn snd
		10-15	5	Gvl, gry or, fn&Vfn, ang, P srtg, mstly dol; mch st&Vfn snd, ltl fn/VC
		15-20	5	Snd, gry or, fn, Srnd, P srtg, mch M&Vfn, ltl C&VC; mch st, ltl cl, tr Vfn
		20-25	5	Snd, gry or&brt yl or, Vfn/C, Srnd, P srtg, ltl VC; mch st, fn&Vfn gvl, lt
		25-30	5	Snd, gry or, Vfn/C, ltl VC; mch st, ltl fn&Vfn dol&sndy dol gvl, ltl cl
		30-35	5	Gvl, gry or&mxd pl clr, M&fn, ang, P srtg mstly dol, ltl Vfn; ltl cl/M s
		35-40	5	Gvl, gry or&mxd pl clr, fn&Vfn, mstly dol&qtz; mch Vfn/M snd, ltl C&VC
	50	40-45	5	Snd, V pl or, fn&Vfn, ang, F srtg, ltl M/VC mstly dol&qtz; ltl st&cl
		45-50	5	Snd, V pl or, fn&Vfn, ang, P srtg, mch M, ltl C&VC; mch st, tr Vfn dol gv
PduC		50-55	5	Dol, yl or&yl gry, fn, V wea, por, ltl M; tr oolic cht, glauc&Vfn/C snd
		55-60	5	Dol, yl or&yl gry, fn, wea, sft, ltl M, tr sndy; mch fn/C snd, tr cht
	25	60-75	15	Dol, pl yl or, fn, wea, sft, tr M, ltl sndy; mch fn/C snd, tr cht&glauc
JORDAN		75-80	5	Ss, V pl yl or, M, Srnd, P srtg, mch P sft(wea?) dol-cem, mch fn, C&Vfn
		80-85	5	Ss, V pl yl or, M, Srnd, P srtg, mch P sft(wea?) dol-cem, mch fn&C
		85-90	5	Ss, V pl yl or, M&fn, Sang, mch P sft(wea?) dol-cem, mch Vfn, ltl C
		90-95	5	Ss, V pl yl or, M&fn, Sang, P srtg, ltl P sft dol-cem, ltl C&Vfn; sndy do tr cvd? cht
		95-115	20	Ss, V pl yl or, fn, Sang, P srtg, mch P sft dol-cem, mch Vfn, ltl M&C, tr V
		115-120	5	Ss, pl yl or, fn, Srnd, F srtg, mch P sft dol-cem, mch M&Vfn, tr C
		120-125	5	Ss, pl yl or, fn&Vfn, Sang, F srtg, mch P sft dol-cem, ltl M, tr C;
	55	125-130	5	Ss, pl yl or, fn, Srnd, F srtg, mch P sft dol-cem, mch M&Vfn, ltl C
		130-135	5	Dol, gry or, Vfn, dns, shly; mch dk rd mot gry&gn sh, tr st/M snd
		135-140	5	Dol, gry or mot pl yl or, fn, dns, V sndy(fn); ltl fn&M grnd glauc, tr
ST. L		140-145	5	Dol, gry or mot pl yl or, fn, sug, ltl sndy(fn); ltl-mch fn&M grnd gla
		145-150	5	Ss, pl yl or, M&fn, mch F pl yl or dol-cem, tr Vfn&C; mch fn&M grnd gl
TUNNEL		150-155	5	Ss, pl yl or, fn, ang, G srtg, tr P dol-cem, tr Vfn&M; mch fn/C grnd gl
		155-160	5	Ss, pl yl or, M&fn, ang, F srtg, mch F pl yl or dol-cem, mch fn&M grnd gl cem, tr Vfn&C; mch fn/C grnd gl
		160-175	15	Ss, pl yl or, M&fn, ang, P srtg, ltl P dol-cem, tr V fn, C&VC; ltl fn/C grnd glauc, tr st
		175-180	5	Ss, pl yl or, fn, Srnd, P srtg, mch P dol-cem, ltl M&Vfn, tr C; tr glauc
		180-185	5	Ss, pl yl or, M&fn, Srnd, P srtg, mch F dol-cem, tr Vfn&C; tr glauc&st

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

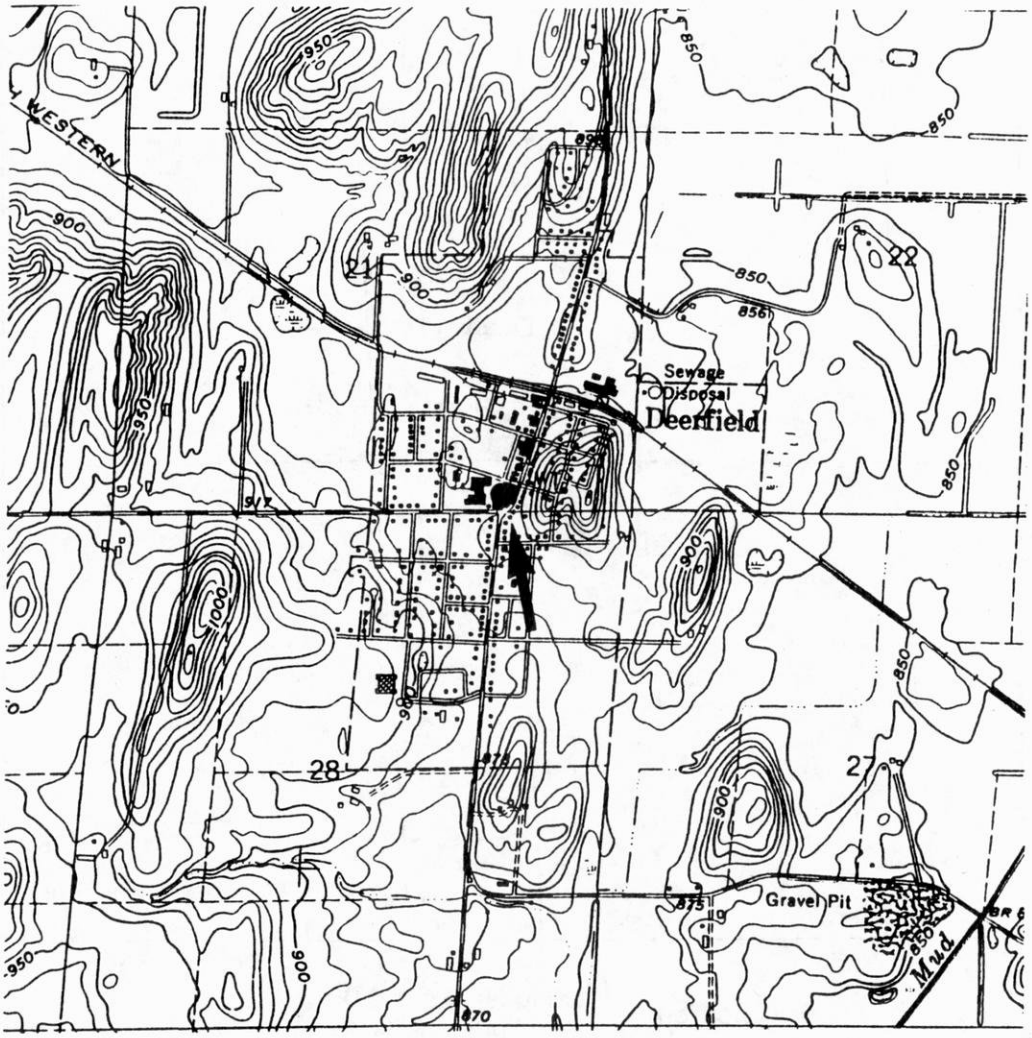
Log No. Da-950-

Well name Village of Dane, Wisconsin, Well #2
Sample Nos. 270093 to 270181

CITY	190-200	10		Ss,V pl yl or,M&fn,rnd,G srtg,tr P dol-cem,tr C&V fn
	200-205	5		Ss,V pl yl or,fn,rnd,G srtg,tr P dol-cem,ltl M&Vfn;tr glauc
	205-210	5		Ss,pl yl or,fn,rnd,G srtg,ltl P sft dol-cem,tr M&Vfn
	210-215	5		Ss,pl yl or,fn,Srnd,G srtg,ltl P sft dol-cem,ltl Vfn;tr st
	215-220	5		Ss,pl yl or,fn,Srnd,G srtg,ltl P sft dol-cem,ltl Vfn,tr M;ltl st
	220-225	5		Ss,pl yl or,fn&Vfn,Srnd,G srtg,mch P dol-cem,tr M&C;ltl st
	225-250	25		Ss,pl yl or,fn&Vfn,Srnd,G srtg,ltl P sft dol-cem,tr st
	250-255	5		Ss,pl yl or,fn,Sang,F srtg,ltl P sft dol-cem,ltl Vfn,tr M&C;tr st glauc
1	120 255-265	10		Ss,pl yl or,fn,Sang,F srtg,tr P sft dol-cem,ltl Vfn,tr M;tr st&gl
IRVING	265-285	20		Ss,V pl or,M,rnd,P srtg,mch fn,Vfn&C,ltl VC;tr dol&st
	285-290	5		Ss,V pl yl or,M,rnd,P srtg,ltl P dol-cem,mch fn,Vfn&C,ltl VC;ltl
	290-295	5		Ss,V pl yl or,M,rnd,P srtg,ltl P dol-cem,mch fn,Vfn&C,tr VC;ltl s
	295-300	5		Ss,V pl yl or,M,rnd,P srtg,ltl P dol-cem,mch fn,Vfn&C,ltl VC;tr s &gn sd
	300-310	10		Ss,V pl yl or,M,rnd,P srtg,ltl P dol-cem,mch fn,Vfn&C,tr VC;tr st
ELKMOUND	310-315	5		Ss,V pl yl or,M,rnd,P srtg,ltl P dol-cem,mch fn&C,ltl Vfn;tr st
	315-325	10		Ss,V pl yl or,M&C,rnd,P srtg,tr P dol-cem,mch fn,tr Vfn&VC;tr st
	325-330	5		Ss,pl yl or,M,rnd,P srtg,tr P dol-cem,mch C&fn,tr VC&Vfn;tr st
	330-335	5		Ss,yl or,M&C,rnd,P srtg,tr P dol-cem,ltl fn&Vfn,tr VC;ltl st
	335-340	5		Ss,yl or,M,rnd,P srtg,tr P dol-cem,mch fn,ltl C&Vfn;ltl st
Wonewoc	340-355	15		Ss,yl or,M,rnd,P srtg,tr P dol-cem,mch fn&C,ltl Vfn,tr VC;ltl st
	355-360	5		Ss,yl or,M&C,rnd,P srtg,tr P dol-cem,ltl fn,tr Vfn;tr st&dol-cem
	360-365	5		Ss,V pl yl or,M,rnd,P srtg,tr P dol-cem,mch C&fn,ltl Vfn;tr st&l
110'	365-370	5		Ss,pl yl or,M&C,rnd,P srtg,tr P dol-cem,ltl fn,tr Vfn;tr st
15'	370-375	5		Ss,pl yl or,fn,P srtg,tr P dol-cem,mch M&Vfn,ltl C,tr VC;mch st
EC	375-380	5		Ss,V pl yl or,fn,rnd,P srtg,tr P dol-cem,mch M&Vfn,ltl C;tr st
	380-385	5		Ss,V pl yl or,fn,rnd,P srtg,ltl P dol-cem,mch M&Vfn,ltl C,tr VC; ltl st,tr gn sh
	385-395	10		Ss,pl yl or,M&C,rnd,P srtg,tr P dol-cem,ltl fn&Vfn,tr VC;tr st
St. Simon	395-400	5		Ss,pl yl or,M&C,rnd,P srtg,ltl P dol-cem,ltl fn&Vfn,ltl st
	400-405	5		Ss,V pl yl or,M&C,rnd,F srtg,tr P dol-cem,tr fn&Vfn
	405-410	5		Ss,V pl yl or,M,rnd,F srtg,tr P dol-cem,tr C,fn&Vfn;tr st
	410-415	5		Ss,V pl yl or,M&C,rnd,P srtg,tr P dol-cem,ltl Vfn,tr fn;tr st
	415-420	5		Ss,V pl yl or,M,rnd,P srtg,tr P dol-cem,ltl Vfn&C,tr fn;tr st
	420-425	5		Ss,pl yl or,M&C,rnd,P srtg,tr P dol-cem,ltl fn,tr Vfn&VC;tr st
55'	425-430	5		Ss,pl yl or,M&C,rnd,P srtg,tr P dol-cem,ltl VC,tr fn&Vfn;tr st
175	430-440	10		Ss,pl yl or,M&C,rnd,P srtg,tr P dol-cem,tr fn,Vfn&VC;tr st

END OF WELL

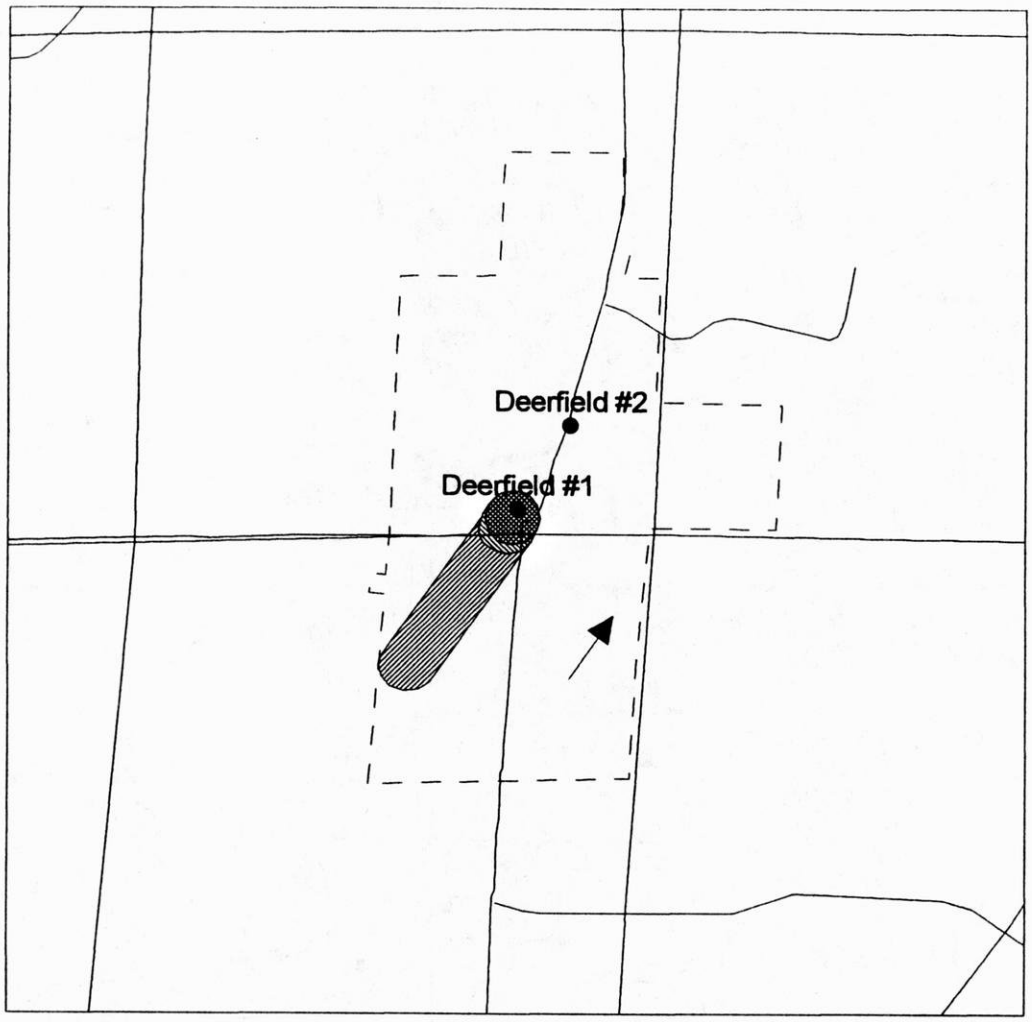
Village of Deerfield, Well Number 1



Village of Deerfield, Well Number 1 is located at 43° 3' 9.08" north latitude and 89° 4' 34.21" longitude. The well was installed in 1925 and has a pumping capacity of 330 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 162,400 gpd.

The well casing extends to a depth of 251 feet below ground surface, and the total depth of the well is 523 feet. Water is drawn from a combination of the shallow Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Deerfield, Well Number 1



Well Location

Latitude: 43° 3' 9.08"
Longitude: 89° 4' 34.21"

0 500 1000
(meters)

N

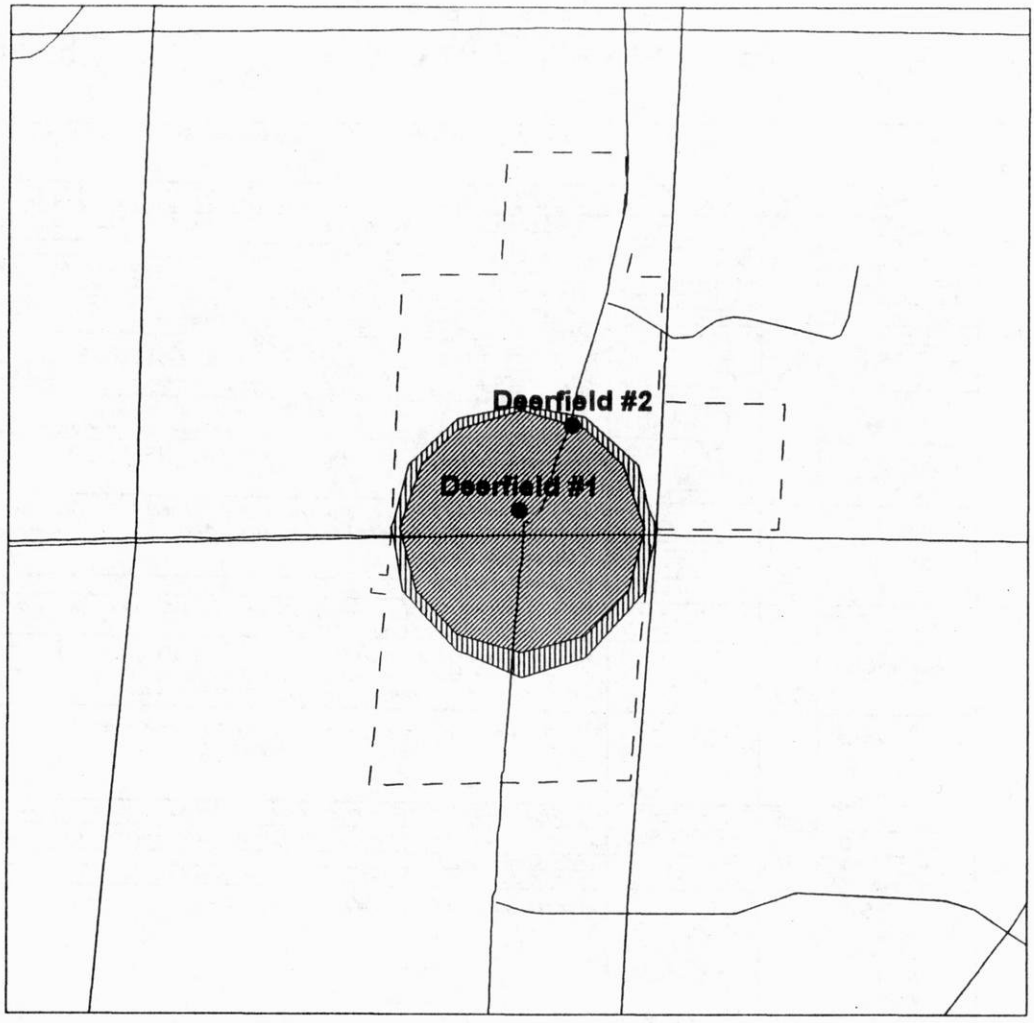
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Deerfield, Well Number 1



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

DN 65

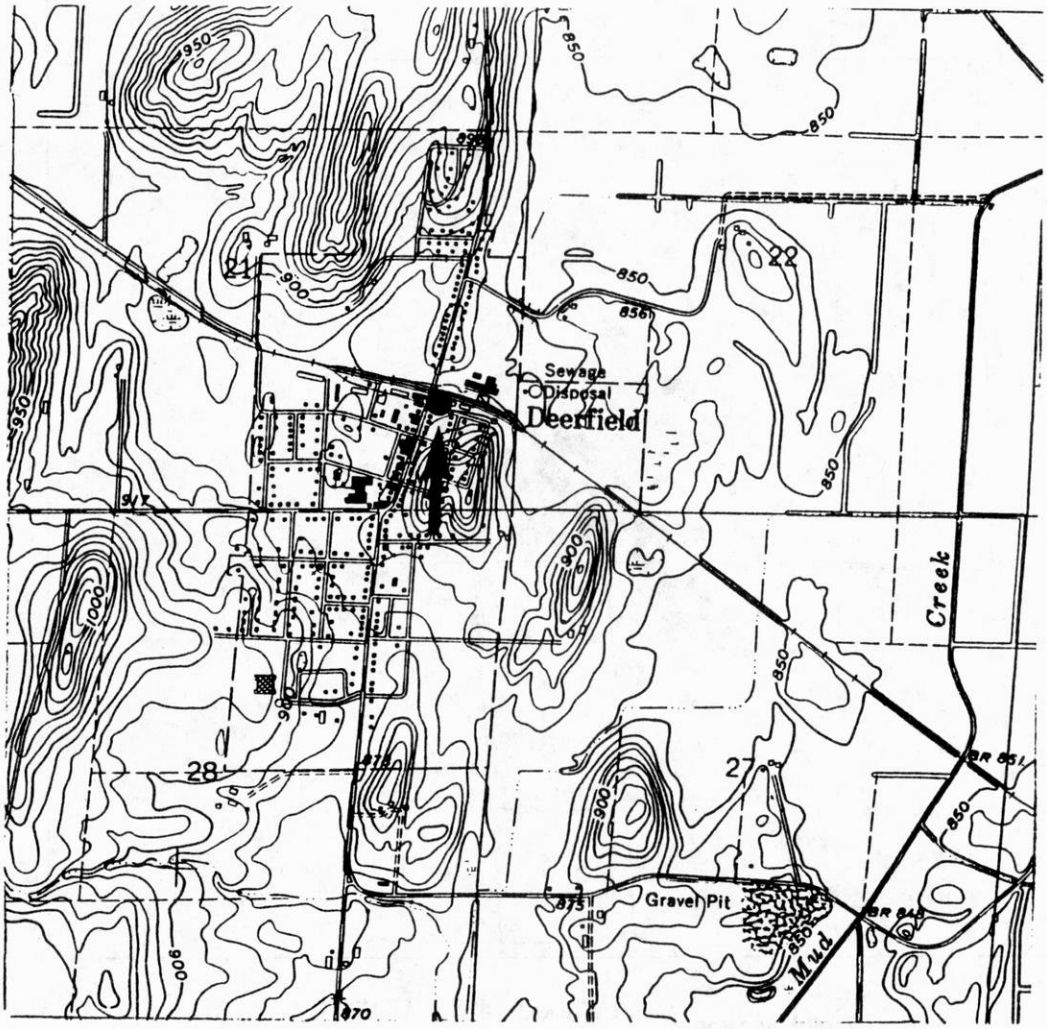
VILLAGE WELL, DEERFIELD, WIS.

W. G. Kirchoffer, Engineer
W. L. Thorne, Contractor, [redacted] 1925
Samples examined by F. T. Thwaites Nos. 75807-75890
~~Elevation about 850~~

[illegible] SE, ~~SW~~, SE, sec. 21, 7N, 12E. Alt. 885' ETM

DRIFT	30	0-30	30		Drift, no samples, rock at 24', no samples		
ST. PETER	50	30-45	15		Conglomerate, pebbles white chert in coarse gray sandstone (semi-quartzite yellow sandstone		
		45-60	15		Sandstone, fine, buff & gray, calcareous		
		60-65	5		No sample		
		65-80	15		Ss., fine to coarse, gray		
LOWER MAGN.	35	80-95	15		Dolomite, gray & buff, quartz-lined cavities, cherty		
		95-105	10		Dolomite, like above, sandy, green & gray shale, buff ss		
		105-110	5		Ss., medium to fine, buff, calc., greenshale, gray dol.		251' 8" pipe
		110-115	5		Dolomite, gray, greenspots, floating sand		
TREMPEALEAU	30	115-120	5		Dolomite, buff & gray, very sandy		
		120-130	10		Ss., fine, buff, very dolomitic, glauconitic		
		130-140	10		Dolomite, buff to gray	B.E.	10" hole
		140-145	5		Dolomite, red, buff spots, fine sand, glauconitic		
FRANCONIA	120	145-165		Vfn to M	Sandstone, ~~dark pink~~, very dolomitic, glauconitic; ~~some gray and green beds~~	Lodi	
		165-195	50	Fn	Ss, fine, red, glauc, very dol.	T.C.	
		195-240	45		Sandstone, fine to medium, light pink, some gray, very dolomitic, glauconitic. No sample 215-220	80	cement 251'
		240-245	5		No sample		
		245-265	20		Sandstone, coarse to fine, light gray, slightly calcareous, glauconitic	Iron	
DRESBACH	80	265-300	35		Sandstone, medium-coarse to fine, white, (some coarse grains, greenshale, and chips of dolomitic sandstone probably caved)		
		300-345	45		Sandstone, medium to fine, white		
EAU CLAIRE	178	345-360	15		Sandstone, medium to fine, white, some pink, calc., greenshale, streaks		
		360-370	10		Ss., fine, pink, gray & green, very dolomitic, greenshale		8" hole
		370-375	5		No sample		
		375-390	15		Ss., fine, pink & gray, very dolomitic, greenshale		
		390-490	100		Sandstone, medium, white		
		490-515	25		Sandstone, medium, white, layers of pink calcareous sandstone and greenshale		
		515-523	8		No sample, red shale?		

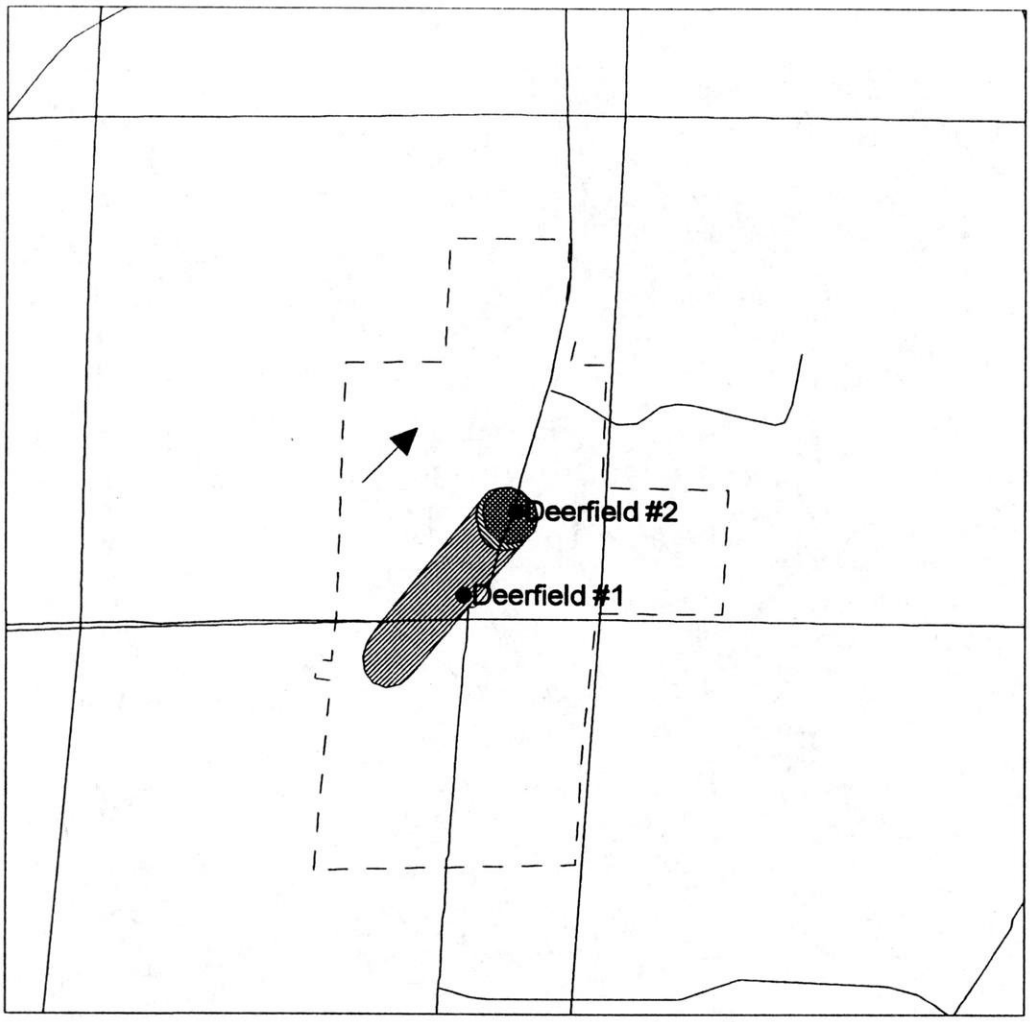
Village of Deerfield, Well Number 2



Village of Deerfield, Well Number 2 is located at 43° 3' 17.92" north latitude and 89° 4' 27.22" longitude. The well was installed in 1939 and has a pumping capacity of 525 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 9,114 gpd.

The well casing extends to a depth of 160 feet below ground surface, and the total depth of the well is 706 feet. Water is drawn from a combination of the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Deerfield, Well Number 2



Well Location

Latitude: 43° 3' 17.92"
Longitude: 89° 4' 27.22"

0 500 1000
(meters)

N

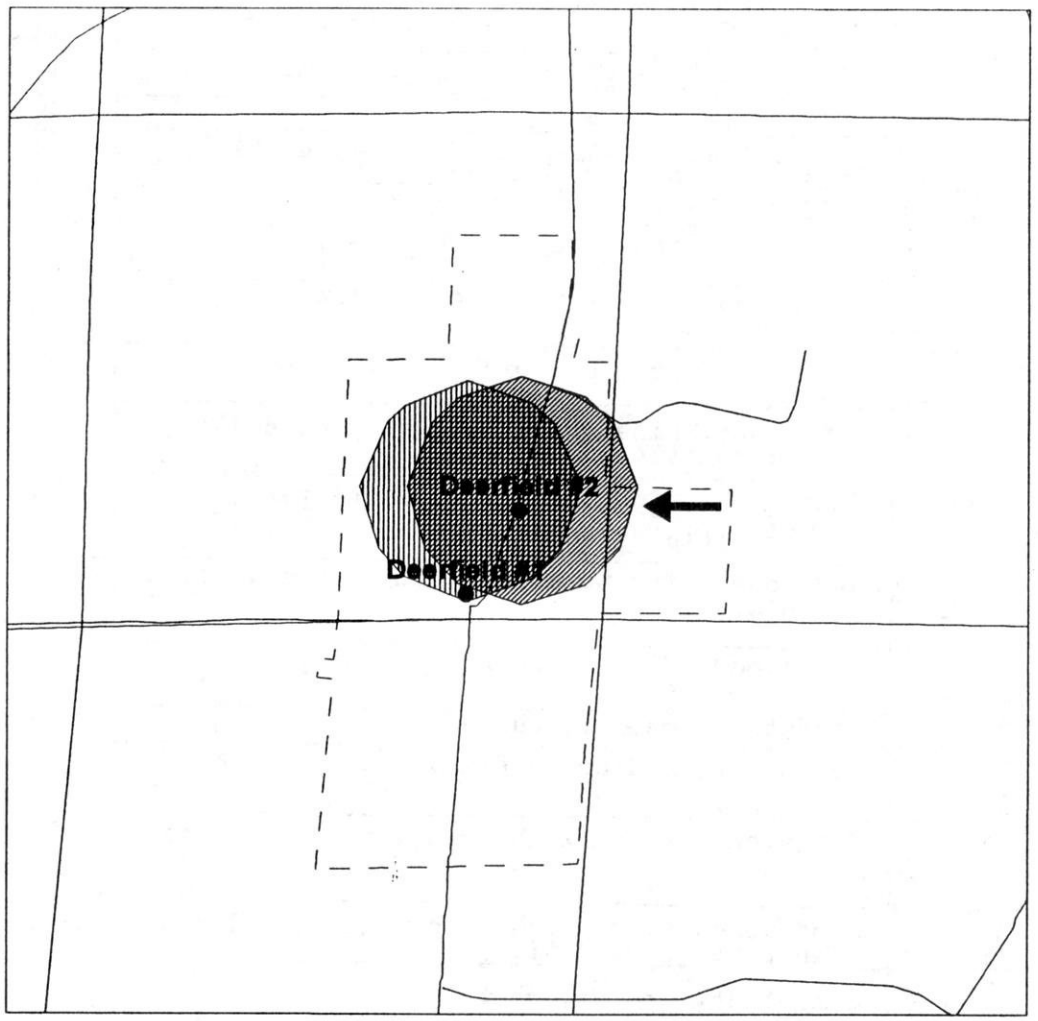
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Deerfield, Well Number 2



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

D2-66

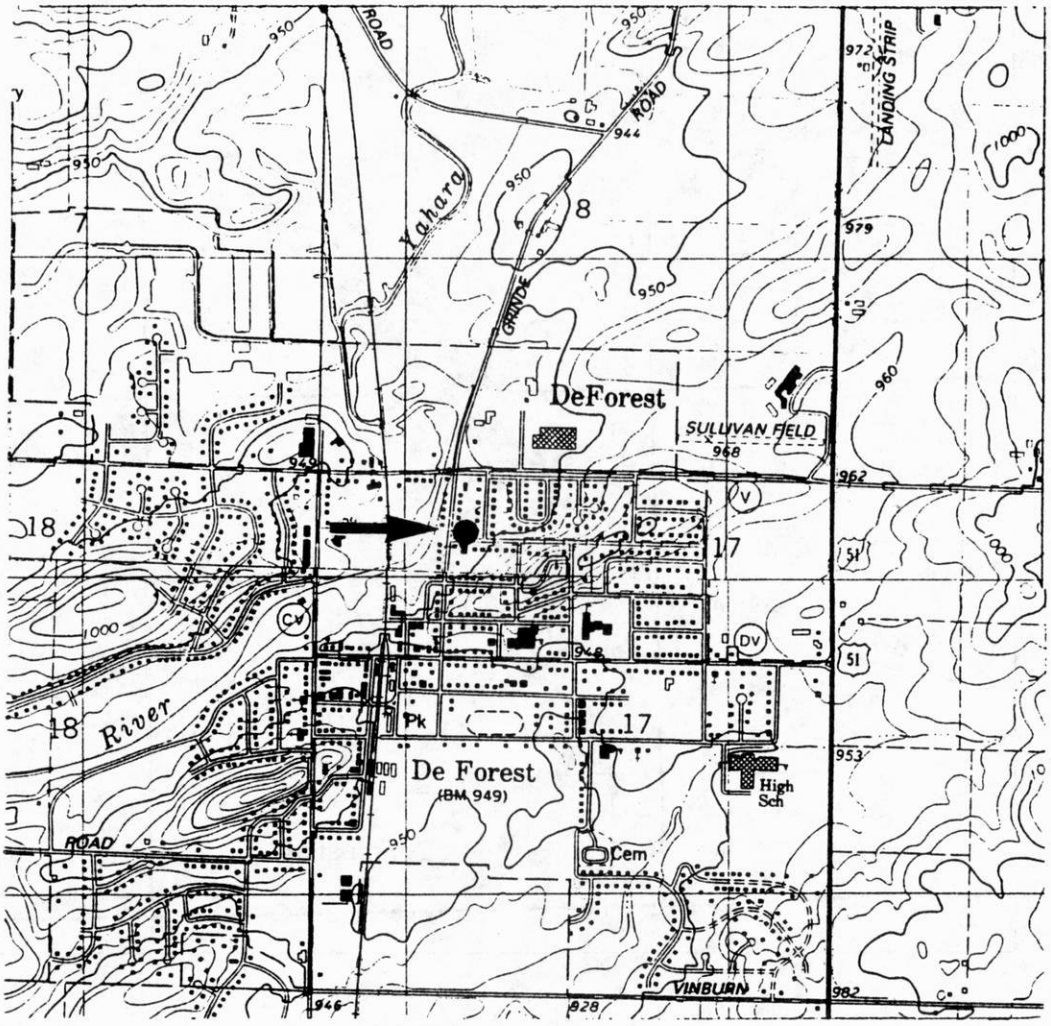
VILLAGE WELL NO. 2, DEERFIELD, WIS.
Degen Engineering Co.,
C. W. Varnor, Contractor. Completed Dec. 1, 1939
Samples examined by F. T. Thwaites, Nos. 106577-106679; 106757-106793
SW NE, NW SE, sec. 24 7N, 12E
ALT 865' ETM

0-20	20		Till, brownish-gray to gray, dolomitic
20-30	10		Gravel, coarse, sandy
30-35	5		Till, sandy, gray, dolomitic
35-55	20		Gravel, coarse, sandy
55-65	10		Sandstone, coarse, gray mixed with drift
65-75	10		Sandstone, medium to fine, light gray, pink
75-90	15		Conglomerate, chert peb. in ss, coarse, pink
90-115	25		Dolomite, light gray; chert, oolitic
115-140	25		Sandstone, coarse to fine, yellow-gray, dolomitic
140-165	25		Siltstone, gray and pink, very dolomitic
165-195	30		Sandstone, fine, dark red, very dolomitic, glauconitic
195-230	35		Sandstone, fine to medium, light pink, dolomitic, glauconitic
230-265	35		Sandstone, fine to medium, light gray, dolomitic
265-290	25		Sandstone, fine to coarse, light gray, dolomitic (Ironton)
290-305	15		Sandstone, medium, white
305-335	30		Sandstone, medium to fine, white
335-370	35		Sandstone, fine, light gray, very dolomitic
370-395	25		Sandstone, fine, light gray, pink, dolomitic, in part glauconitic
395-475	80		Sandstone, medium, white
475-520	45		Sandstone, fine, pink, light gray, dolomitic
520-535	15		Sandstone, fine, pink, white, dolomitic
535-545	10		Sandstone, fine, light gray, dolomitic
545-555	10		Sandstone, medium to fine, white
555-565	10		Sandstone, fine, light gray, dolomitic
565-570	5		Dolomite, light gray, sandy
570-585	15		Sandstone, medium to fine, light gray
585-595	10		Sandstone, medium to fine, light gray, dol.
595-605	10		Sandstone, fine to medium, light gray
605-620	15		Sandstone, medium to fine, white
620-625	5		Sandstone, fine, light gray
625-655	30		Sandstone, medium to fine, white
655-660	5		Sandstone, fine, light gray
660-706½	46½		Sandstone, medium to fine, light gray

15.5 water
17" pipe
55.7
12" pipe cemented
16" hole
160
165
T.C. Won
195'
12" hole
165'

Formations: Drift; St. Peter; Lower Magnesian (Prairie du Chien); Trempealeau; Franconia (formerly Mazomanie); Dresbach (Galesville); Eau Claire; Mt. Simon

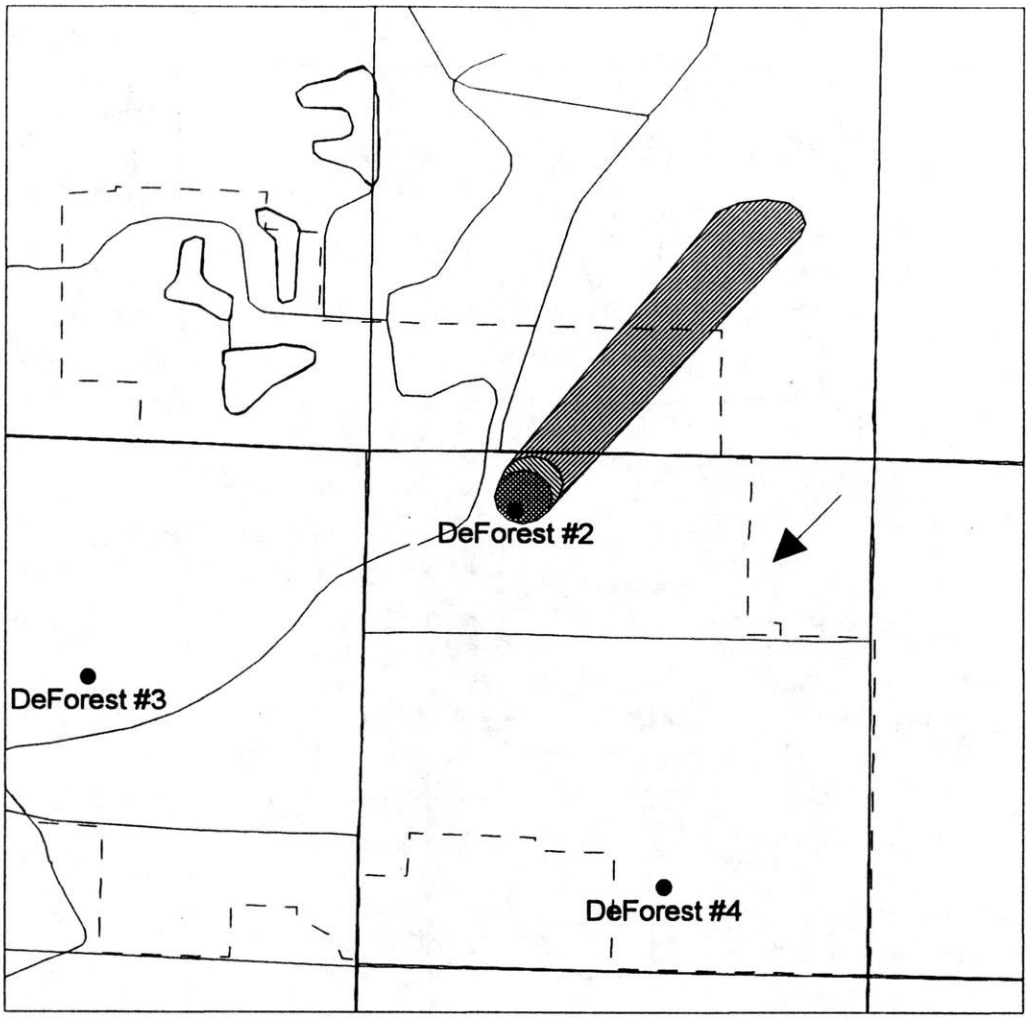
Deforest Well Number 2



Deforest Well Number 2 is located at 43° 15' 3.91" north latitude and 89° 20' 17.11" longitude. The well was installed in 1958 and has a pumping capacity of 350 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 97,420 gpd. The well produces less then one-half foot of drawdown in both the water table aquifer and the deep sandstone aquifer.

The well casing extends to a depth of 140 feet below ground surface, and the total depth of the well is 412 feet. Water is drawn from a combination of the Paleozoic bedrock units, including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southwest.

Zone of Contribution for Deforest, Well Number 2



Well Location

Latitude: 43° 15' 3.91"
Longitude: 89° 20' 17.11"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

DEFOREST VILLAGE WELL, DEFOREST, WISCONSIN #2
General Engineering Company, Engineers
Fasbender Brothers, Driller, June 1958
Sample Nos. 201213-201293 - Examined by J. B. Steuerwald
Alt.=942'ETM NW¼,SE¼,SW¼,NW¼,NE¼,NW¼,sec.17,T.9N.,R.10E.

DRIFT	135	1 - 75	75		Till, pink-brown-gray, sandy, stony, dolomitic, some silt and clay
		75 - 135	60		Gravel, very fine, brown-gray, of angular dolomite, some white chert and quartz sand, silty 85-90 till? Samples may have had the clay washed out of them.
FRANCONIA	65	135 - 155	20		Sandstone, very fine and fine grained, much buff dolomite
		155 - 175	20		Sandstone, fine grained, some medium grained, dolomitic, buff, little glauconite
		175 - 200	25		Sandstone, fine grained, buff, dolomitic
GALE	35	200 - 210	10		Sandstone, fine grained, very little coarse grained, white
		210 - 220	10		Sandstone, very fine and fine grained, very light tan
		220 - 235	15		Sandstone, very fine to medium grained, very light tan
EAU CLAIRE MT SI		235 - 310	75		Sandstone, medium grained, some fine grained, little coarse grained, buff, dolomitic
		310 - 350	40		Sandstone, fine to coarse grained, light buff-gray, slightly dolomitic
		350 - 380	30		Sandstone, medium grained, buff

cement grou
18" pipe
24' water
Dry hole to 140'
then hit water which rose to 22'
73'6"
12 " pipe
140'4"
12 " hole

			tan-gray		
177½					

412½ Total Depth

Well first pumped for 79 hours at which time it filled up with sand to 291'.
Well was cleaned out and tested for 5 hours at 200 g.p.m., 4 hours at 239 g.p.m., 3 hours at 275 g.p.m., 2 hours at 285 g.p.m., and 23 hours at 380 g.p.m., specific capacity at end of test = 63.3 g.p.m./ft of drawdown.

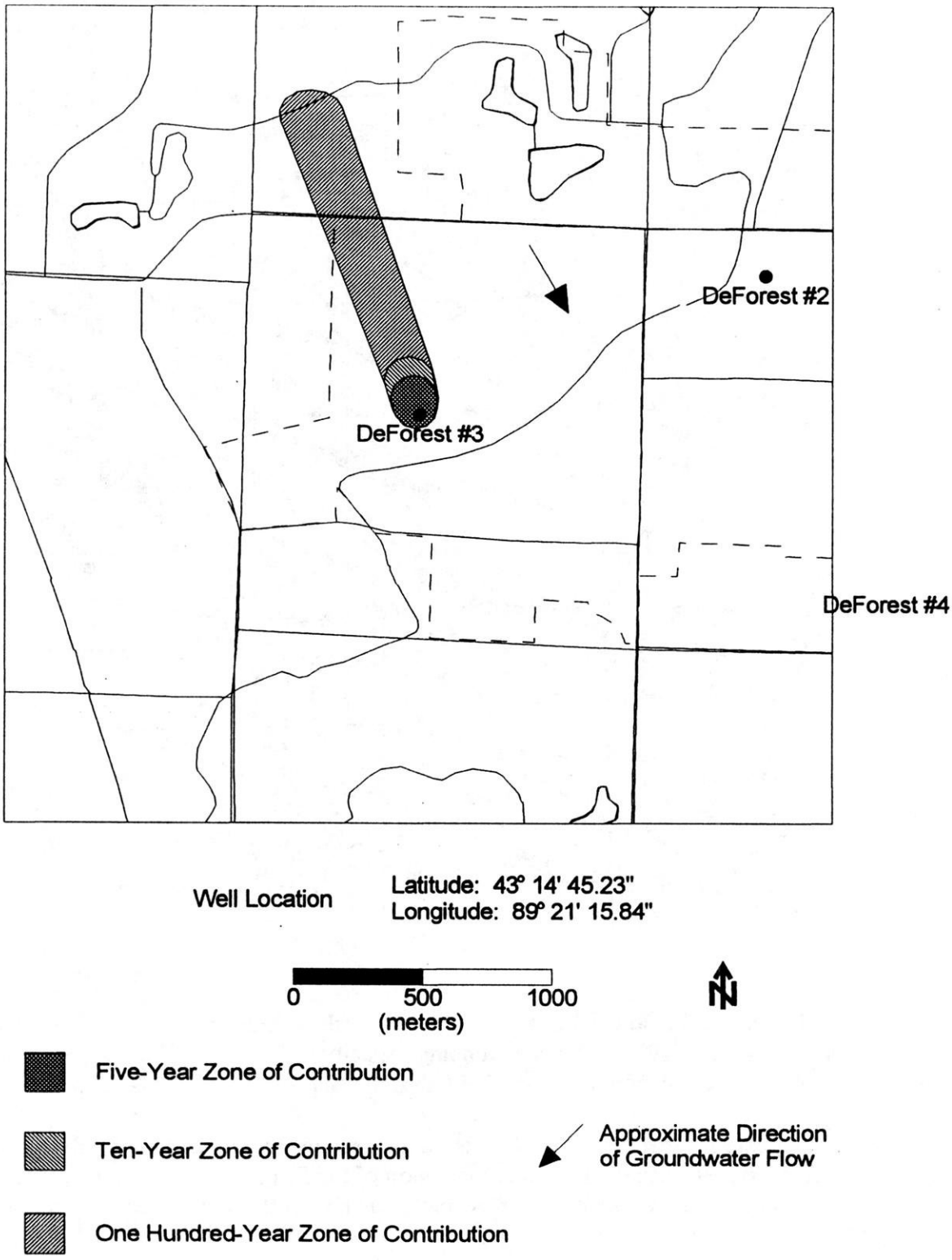
Deforest Well Number 3



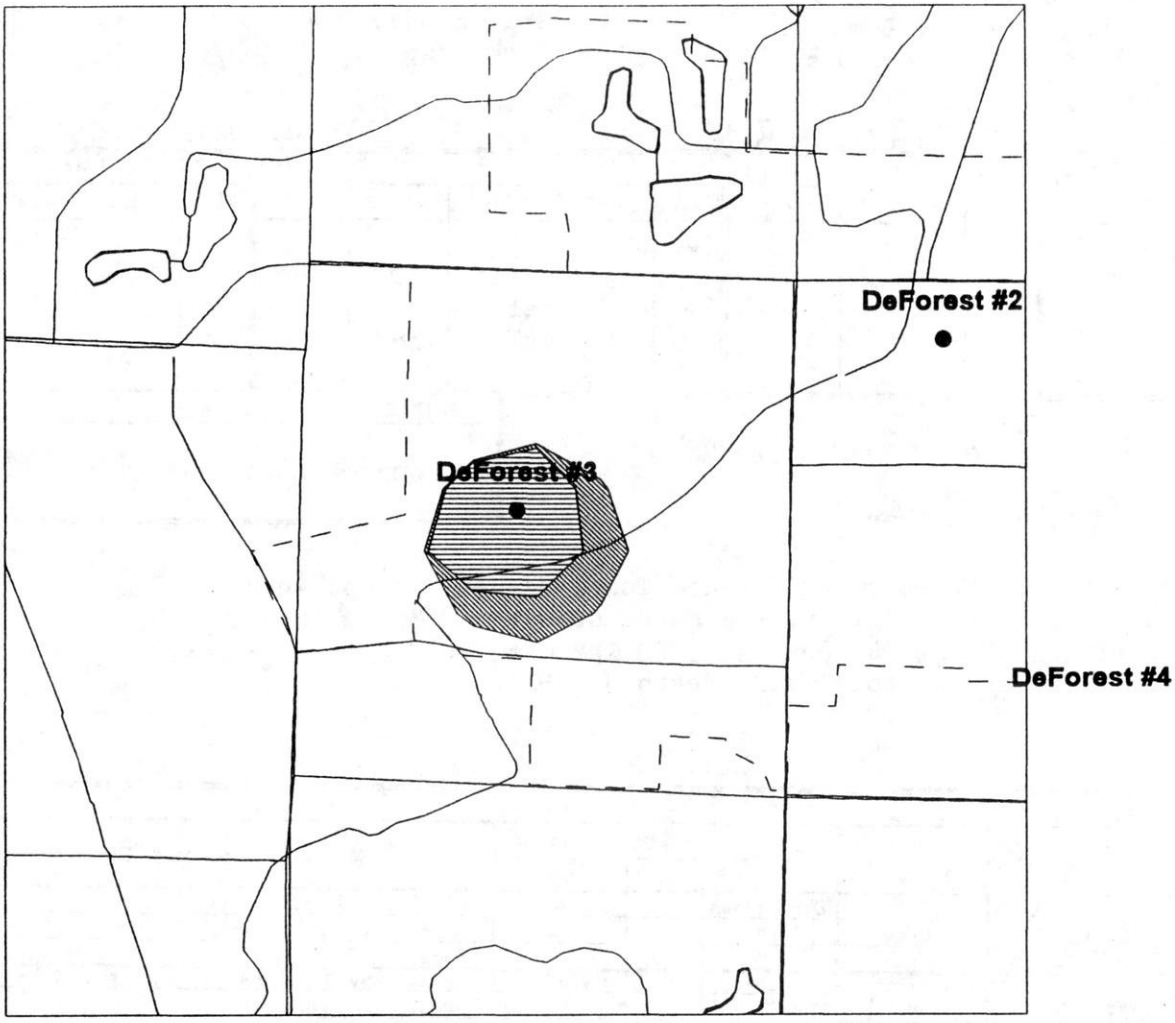
Deforest Well Number 3 is located at 43° 14' 45.23" north latitude and 89° 21' 15.84" longitude. The well was installed in 1978 and has a pumping capacity of 850 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 205,800 gpd.

The well casing extends to a depth of 127 feet below ground surface, and the total depth of the well is 661 feet. Water is drawn from a combination of the Paleozoic bedrock units, including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southeast.

Zone of Contribution for DeForest, Well Number 3



Zones of Influence for Deforest, Well Number 3



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

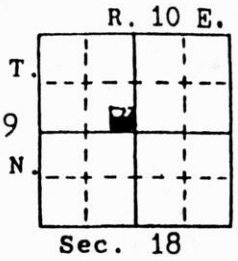
Log No. 1124-Dn-1139

Well name De Forest Village Well #3

County: Dane

Owner.... Village of De Forest
Address.. 113 S. Durkee St.
De Forest, WI 53562
Driller.. Milaeger Well & Pump Co.
Engineer. Lakeland Engineers, Inc.
Madison, Wisconsin

Completed... 6/78
Field check.
Altitude.... 940' ETM
Use..... Municipal
Static w.l.. 24'
Spec. cap... 44 GPM/ft



Location: S, SE, SE, NW, Sec. 18, T9N, R10E

Quad. De Forest 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
30"	0	127'				30"	bk. steel .375" wall	0	26'				
23"	127'	661'				24"	bk. steel 0.5" wall	+18"	127'				

Grout	from	to
Neat cement	0	127'

Drilling method: Cable Tool
Samples from 0 to 650' Rec'd: 8/7/78

Studied by: Mary J. Hartman

Issued: 8/14/84

Formations: Drift, St. Peter Sandstone (Tonti Member, Readstown Member), Tunnel City Group, Elk Mound Group.

Remarks: Well tested for 24 hours at 1500 GPM with 34 feet of drawdown. Driller reports total well depth of 661'.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Dft.	0-5		Silt	Dark brown	—	—	Little sand, siliceous clay.
	5-10		Clay	"	—	—	Much silt. Trace sand.
15'	10-15		"	"	—	—	Same.
T	15-20		Sandstone	Pink	M	Vfn/C	Srnd. Tr v G sil cem, mfc incl, sand from abv. Mny sec qtz grwths. Ltl fros.
O	20-25		"	"	"	"	Same.
N	25-30		"	"	"	"	"
T	30-35		"	"	"	"	"
I	35-40		"	White	Fn	"	Srnd. Tr v G silica cement, mafic incl. Mny sec quartz grwths.
30'	40-45			NO SAMPLE. Driller reports same as adjoining intervals.			
-?	45-50		Sandstone	Yl brown	Vfn	Vfn/C	Sang. Mch v G calc cem, rd & bn spklg. Tr rd bn mot, pl gn sh.
R	50-55		Shale	Bn yellow	—	—	Dolomitic. Much silt.
E	55-60		"	"	—	—	Dolomitic. Much silt. Little sand. Trace hematitic shale.
A	60-65		"	"	—	—	Dolomitic. Much silt. Little sand, hematitic shale.
D	65-70	Hem	"	Bn yl&wk rd	—	—	Dolomitic(bn yl). Hematitic(wk rd). Much silt. Trace sand.
S.	70-75	G	"	Lt olive	—	—	Dolic. Mch Fn sand, silt, Fn glauconite. Locally banded yl & gn.
	75-80	G	"	"	—	—	Same.
40'	80-85	G	"	"	—	—	Same plus trace hematitic shale. G dol cem, mfc incl.
	85-90	G	Sandstone	Lt yl bn	M	Vfn/C	Srnd. Ltl P dolic sh cem, Fn/M glauc. Mny sec qtz grwths. Tr v
	90-95	G	"	Ol yellow	"	"	Srnd. Tr v G dol cem, hemic sh, mfc incl. Mny sec qtz grwths.
T	95-100	G	"	"	"	"	Same but little glauconite. Mch Fn/M glauc.
U	100-105	G	"	"	"	Vfn/VC	Same but trace glauconite. Fn/M glauc, mfc incl. 60%C, 40%F
N	105-110	G	"	"	Fn & C	"	Sang(Fn). Rnd(C). Ltl P to v G dol cem. Mny sec qtz grwths. T
N	110-115	G	"	"	M	"	Srnd. Ltl P to v G dol cem. Mny sec qtz grwths. Tr Fn glauc.
E	115-120	G	"	Yellow	"	Vfn/C	Same. mfc incl.
L	120-125	G	"	"	"	"	"
	125-130	G	"	"	"	"	"
	130-135	G	"	"	"	Vfn/VC	"
	135-140	G	"	"	"	"	"
C	140-145	G	"	Bn yellow	"	Vfn/C	"
I	145-150	G	"	"	"	"	Same plus trace zircon grains.
T	150-155	G	"	"	"	"	Same.
Y	155-160	G	"	"	"	"	Same but no zircon grains.

Well name: De Forest Village Well #3

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
T.C. 160–165	G	Sandstone	Bn yellow	M	Vfn/C	Srnd. Ltl P to v G dol cem. Mny sec qtz grwths. Tr Fn glauc,
85' 165–170	G	"	"	"	Vfn/VC	Same. mfc incl.
170–175	G	"	Lt bn yl	M & C	"	Rnd. Tr P dol cem,wh sh,fros,mfc incl,Fn glauc. Mny sec qtz
175–180		"	"	"	"	Same plus trace green gray shale, zircon grains. grwths,
180–185	G	"	V pl brown	"	"	Same. Mny sec qtz grwths,
185–190	G	"	"	C	"	Rnd. Tr G sil cem,wh & gn gry sh,Fn glauc,zircon grns,mfc incl,
190–195	G	"	"	M	"	Srnd. Tr G sil cem,wh & gn gry sh,Fn glauc,mfc incl. Mny sec
195–200		"	"	"	"	Same. qtz grwths.
200–205	G	"	"	"	"	Same but no green gray shale.
205–210		"	"	"	"	Same plus trace green gray shale.
210–215	G	"	"	"	"	Same but no green gray shale.
215–220		"	"	"	"	Same.
220–225	G	"	"	"	"	Same plus trace zircon grains.
225–230	G	"	Lt yl bn	"	"	Srnd. Ltl P to v G sil cem. Mny sec qtz grwths. Tr Fn glauc,pl
230–235		"	"	"	"	Same but no pale green shale. gn & wh sh,fros,mfc incl.
235–240	G	"	"	"	"	Same plus trace zircon grains.
240–245		"	"	"	"	Same. Ltl fros.
245–250		"	Bn yellow	C	"	Wl rnd. Tr v G dol cem,wh cht,mfc incl, Mny sec qtz grwths.
250–255		"	"	"	"	Wl rnd. Tr v G dol cem,wh sh,mfc incl. Mny sec qtz grwths. Ltl
255–260		"	"	"	"	Same plus trace yellow dolomite. fros.
260–265		"	"	"	"	Wl rnd. Tr v G dol cem,wh & yl sh,mfc incl. Mny sec qtz grwths.
265–270		"	"	"	"	Rnd. Tr v G dol cem,wh & yl sh,wh cht,zircon grns. Ltl fros.
270–275		"	"	"	"	See end of log. mfc incl, Mny sec qtz grwths. Ltl fros.
275–280	G	"	"	"	"	Rnd. Tr v G dol cem,wh sh,Fn glauc,mfc incl. Mny sec qtz
280–285		"	"	M	"	Rnd. Tr v G dol cem,wh & yl sh,mfc incl. grwths, Ltl fros.
285–290		"	"	C	"	Same plus tr wh dolomite. Mny sec qtz grwths, Ltl fros.
290–295		"	"	"	"	Rnd. Tr v G dol & calc cem,wh & yl sh,mfc incl. Mny sec qtz
295–300		"	"	M	"	Same but no calcite cement. grwths. Ltl fros.
300–305	G	"	"	"	"	Same plus trace Fn glauconite.
305–310		"	"	C	"	Rnd. Tr v G dol cem,wh & yl sh,wh dol,zircon grns,mfc incl. Mny
310–315		"	"	M	"	Same but no white shale. sec qtz grwths. Ltl fros.
315–320	=	"	Yl brown	"	"	Rnd. Ltl P sil sh cem. Tr v G dol cem,wh sh,mfc incl. Mny sec
320–325		"	"	"	"	Same. qtz grwths.
325–330	= △	"	"	"	"	Same plus trace white chert.
330–335		"	"	"	"	Same.
335–340	△ =	"	"	"	"	" dol,mfc incl,cvd trap.
340–345	=	"	Lt yl bn	"	"	Rnd. Ltl P sil sh cem. Mny sec qtz grwths. Tr wh & pl gn sh,
345–350		"	"	"	"	Same. incl,cvd gvl.
350–355	= △	"	"	"	"	Rnd. Ltl P sil sh cem. Mny sec qtz grwths. Tr wh cht,dol,mfc
355–360	^	"	Bn yellow	"	"	Rnd. Ltl P sil cem. Mny sec qtz grwths. Tr wh sh,zircon grns,
360–365	^	"	"	"	"	Same but no zircon grains. mfc incl,dol.
365–370		"	"	"	"	Same.
370–375	^ △	"	"	"	"	Same plus trace green gray shale, white chert.
375–380		"	"	"	"	Same but no green gray shale.
380–385	△ ^	"	"	"	"	Same.
385–390	G	"	"	"	"	Rnd. Tr P sil cem,dol,Fn glauc,wh shale. Mny sec qtz grwths.
390–395		"	"	"	"	Same but no dolomite, glauconite.
395–400	△	"	"	"	"	Rnd. Tr P sil cem,dol,wh sh,wh cht,mfc incl. Mny sec qtz grwths.
400–405		"	V pl brown	"	"	Srnd. Tr P sil cem,wh shale,mafic incl. Mny sec quartz grwths.
405–410		"	"	"	"	Rnd. Tr P sil cem,rd bn sh,dol,mfc incl. Mny sec qtz grwths.
410–415		"	"	"	"	Rnd. Tr v G dol cem,dol,wh & pl gn shale,mfc incl,cvd gvl. Mny
415–420		"	"	"	"	Same. sec qtz grwths.
420–425		"	"	"	"	Rnd. Tr P sil cem,dol,mfc incl,cvd gvl. Mny sec quartz grwths.
425–430		"	Pl yellow	"	"	Same.
430–435		"	"	C	"	"
435–440		"	"	M	"	"
440–445	△	"	"	"	"	Rnd. Tr P sil cem,wh cht,zircon grns,wh sh,mfc incl. Mny sec
445–450	△	"	"	"	"	Same. qtz grwths.
450–455		"	"	"	"	Same plus trace dolomite.
455–460		"	"	"	"	Same but no white chert.
460–465		"	"	"	"	Same. Mny sec qtz grwths.
465–470		"	"	"	"	Rnd. Tr P to v G sil cem,v G dol cem,rd bn & pl gn sh,mfc incl.
470–475		"	"	"	"	Rnd. Tr P to v G sil cem,v G dol cem,rd bn & wh sh,mfc incl.
475–480		"	"	"	"	Same but no red brown shale. Mny sec qtz grwths.
480–485		"	"	"	"	Same.
485–490		"	"	"	"	Rounded. Trace poor silica cement, white shale, dolomite, mafic inclusions, Many secondary quartz grwths.

ELK MOUND GROUP

UNIVERGITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1315 University Avenue, Madison, Wisconsin 53706

Log No. I124-Dn-1139

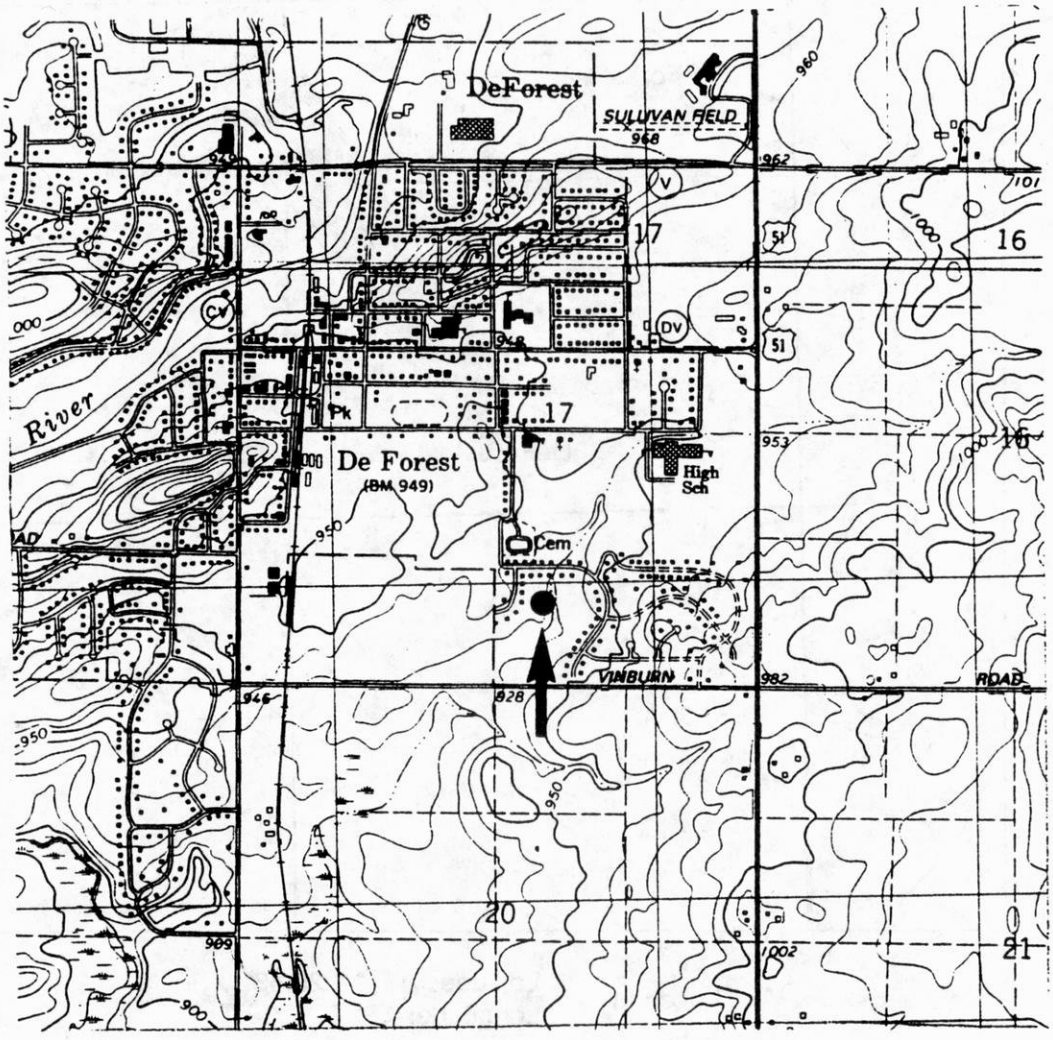
Well name: De Forest Village Well #3

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
490–495		Sandstone	Pl yellow	M	Vfn/VC	Rnd. Tr P sil cem,wh shale,dol,mfc incl. Mny sec qtz grwths.
495–500		"	"	"	"	Same.
500–505		"	"	"	"	" sec qtz grwths.
505–510		"	"	M/C	"	Rnd. Tr P sil cem,zircon grns,wh & rd bn sh,dol,mfc incl. Mny
510–515		"	Lt yl bn	"	"	Same. Ltl fros.
515–520		"	"	M	"	Rnd. Tr P sil cem,wh sh,ool cht,mfc incl. Mny sec qtz grwths.
520–525		"	"	M/C	"	Rnd. Tr P sil cem,mafic incl. Mny sec quartz grwths. Ltl fros.
525–530		"	"	"	"	Rnd. Tr P sil cem,zircon grns,wh sh,mfc incl. Mny sec qtz
530–535		"	"	"	"	Rnd. Tr P sil cem,wh cht,wh sh,mfc incl. grwths. Ltl fros.
535–540		"	"	"	"	Rnd. Tr P sil cem,wh sh,yl dol, Mny sec qtz grwths. Ltl fros.
540–545		"	"	C	"	Same. mfc incl, Mny sec qtz grwths, Ltl fros.
545–550		"	"	Fn&C	"	Rnd(C). Srnd(Fn). Tr P sil cem,mfc incl. Mny sec qtz grwths.
550–555		"	"	"	"	Same plus trace oolitic chert, Ltl fros.
555–560		"	"	C	"	Rnd. Tr P sil cem,mafic incl. Mny sec quartz grwths. Ltl fros.
560–565		"	"	"	"	Same.
565–570		"	"	"	"	"
570–575		"	"	"	"	" fros.
575–580		"	"	"	"	Wl rnd. Tr P sil cem,wh sh,mfc incl. Mny sec qtz grwths. Ltl
580–585		"	"	"	"	Wl rnd. Tr P sil cem,yl dol,mfc incl. Mny sec qtz grwths. Ltl
585–590		"	"	"	"	Same plus trace white shale. fros.
590–595		"	"	"	"	Same.
595–600		"	"	"	"	"
600–605		"	"	"	"	"
605–610		"	Pl yellow	Fn&C	"	Rnd(C). Srnd(Fn). Tr P sil cem,wh sh,mfc incl,fros. Mny sec
610–615		"	"	"	"	Same plus trace zircon grains. qtz grwths.
615–620		"	"	"	"	Same but no zircon grains.
620–625		"	"	"	"	Same plus trace zircon grains.
625–630		"	"	"	"	Same.
630–635		"	Lt yl bn	"	"	Same plus trace caved soil.
635–640		"	"	"	"	Same but no caved soil. grwths. Ltl fros.
640–645		"	"	C	"	Rnd. Tr P sil cem,wh sh,zircon grns,mfc incl. Mny sec qtz
645–650		"	V pl brown	Fn&C	"	Rounded (C). Subrounded (Fn). Trace P silica cement, white
		END OF LOG				shale, zircon grains, mafic inclusions, caved soil. Many secondary quartz growths. Little frosting.
270–275		Sandstone	Bn yellow	C	Vfn/VC	Rounded. Trace very good dolomite cement, white & pale green shale, zircon grains, mafic inclusions. Many secondary quartz growths. Little frosting.

ELK MOUND GROUP

480'

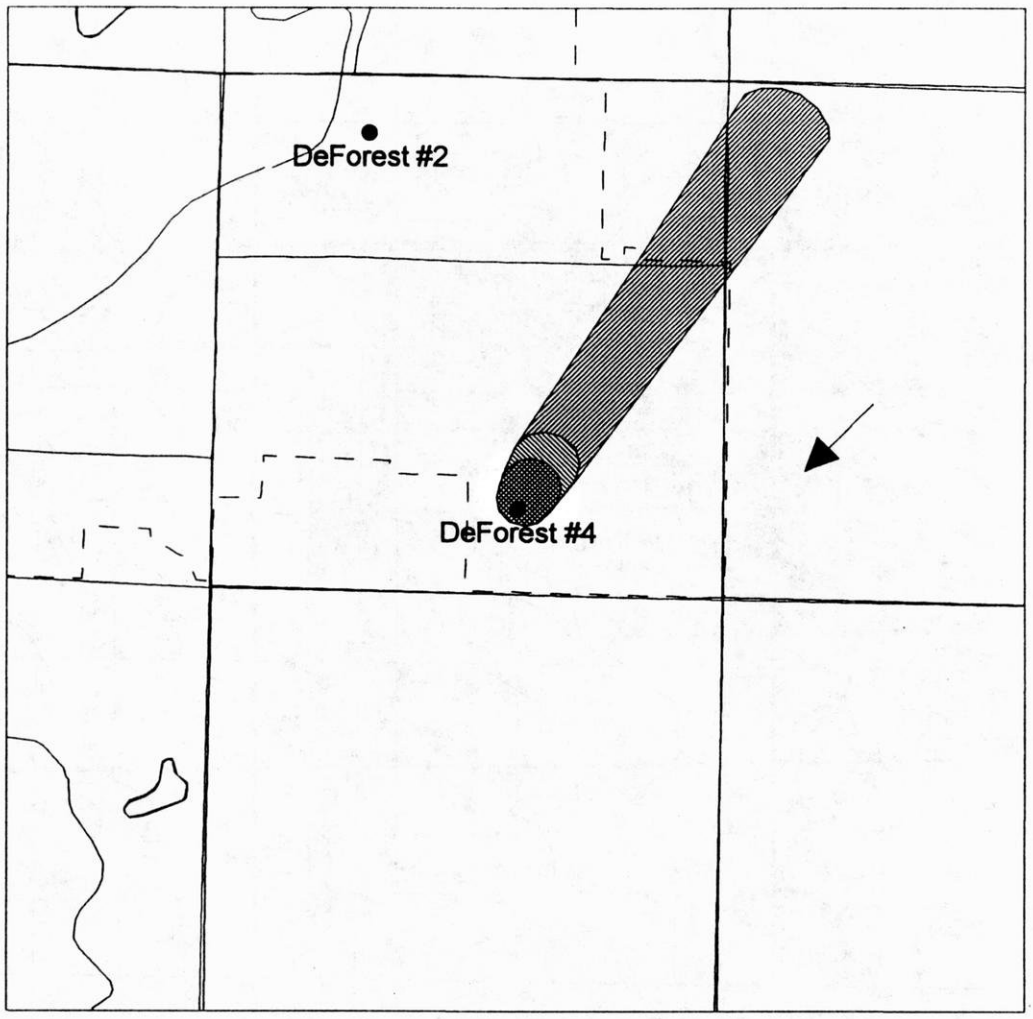
Deforest Well Number 4



Deforest Well Number 4 is located at 43° 14' 25.43" north latitude and 89° 19' 54.97" longitude. The well was installed in 1991 and has a pumping capacity of 1,200 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 317,350 gpd.

The well casing extends to a depth of 110 feet below ground surface, and the total depth of the well is 695 feet. Water is drawn from a combination of the Paleozoic bedrock units, including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southwest.

Zone of Contribution for DeForest, Well Number 4



Well Location

Latitude: 43° 14' 25.43"
Longitude: 89° 19' 54.97"

0 500 1000
(meters)

N

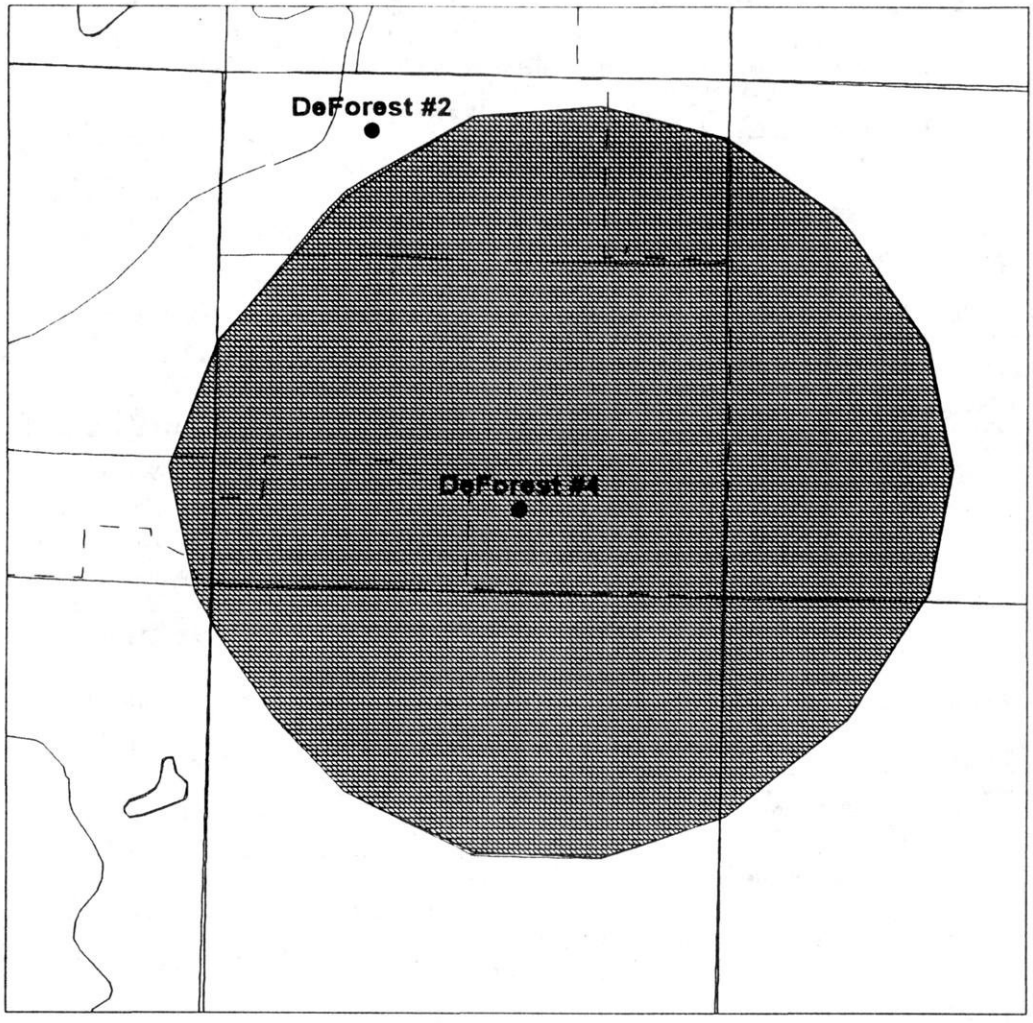
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Deforest, Well Number 4



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

*Note: Zone of influence in the water table aquifer is the same as the zone of influence in the deep sandstone aquifer for Deforest, Well Number 4

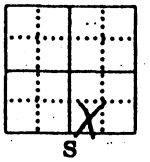
State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

Well Construction Report For WISCONSIN UNIQUE WELL NUMBER DR 424

Property Owner: Village of DeForest
Telephone Number: 608 846-4751
Mailing Address: 113 South Parker
City: DeForest
State: WI
Zip Code: 53532
County of Well Location: Dane
County Well Location Permit No.: W
Well Completion Date: 4/12/91 (M M D D Y Y)

Well Constructor (Business Name): Sams Rotary Drillers
Registration #: 370
Address: Box 150
City: Randolph
State: WI
Zip Code: 53956
Village Well No. 4

2. Mark well location in correct 40-acre parcel of section.
N / W / E / S — X



1. Location (Please type or print using a black pen.)
☒ Town ☐ City ☐ Village of DeForest
Fire # (if available):
Grid or Street Address or Road Name and Number (if available): Yorktown Rd
Subdivision Name: Lot #: Block #:
Gov't Lot #: ___ or SW ¼ of SE ¼ of Section 17; T 9 N; R 10 ☒ E ☐ W

3. Well Type ☒ New ☐ Replacement ☐ Reconstruction
of unique well # _____ constructed in 19 ___.
Reason for new, replaced or reconstructed well? municipal well

☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other

. Well serves 1 # of homes and/or municipal (ex: barn, restaurant, church, school, industry, etc.)
High Capacity Well? ☒ Yes ☐ No
High Capacity Property? ☒ Yes ☐ No

. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☒ Yes ☐ No If no, explain on back side.
Well Located in Floodplain? ☐ Yes ☒ No
Distance In Feet From Well To Nearest:
___ 1. Landfill
___ 2. Building Overhang
___ 3. Septic or Holding Tank
___ 4. Sewage Absorption Unit
___ 5. Nonconforming Pit
___ 6. Buried Home Heating Oil Tank
___ 7. Buried Petroleum Tank
___ 8. Shoreline/Swimming Pool
___ 9. Downspout/Yard Hydrant
___ 10. Privy
___ 11. Foundation Drain to Clearwater
___ 12. Foundation Drain to Sewer
___ 13. Building Drain ☐ Cast Iron or Plastic ☐ Other
___ 14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
___ 15. Collector or Street Sewer
___ 16. Clearwater Sump
___ 17. Wastewater Sump
___ 18. Paved Animal Barn Pen
___ 19. Animal Yard or Shelter
___ 20. Silo — Type _____
___ 21. Barn Gutter
___ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
___ 23. Other Manure Storage _____
Other NR 112 Waste Source
___ 24. _____

. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
29	surface	110
22	110	340
9¼	340	695

Method of constructing upper enlarged drillhole only.
☒ 1. Rotary — Mud Circulation
☒ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☐ 5. Cable-tool Bit _____ in. dia.
☐ 6. Temp. Outer Casing _____ in. dia.
Removed? ☐ Yes ☐ No
If no, explain _____
☐ 7. Other _____

9. Geology

DNR USE ONLY	Type, Caving/Noncaving, Color, Hardness, Etc.	From (ft.)	To (ft.)
	clay, sand + gravel	surface	76
	sand rock + shale	76	89
	sand rock	89	695
	DNR HCAP #: 00670		
	File #: 90-1335A		
	owner well #4		
	[redacted]		
	approval #: 90-1335A		
	written approval: 9-11-1990		

Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
30	.375 Wall VSP	surface	17
24	ASTM, A53-B, ERL-DRL M/HD, .500 Wall, 125.49 lbs/Ft	0	110
Dia. (in.)	screen type and material	From	To

10. Static Water Level spcap = 50.0
___ ft. above ground level
22 ft. below ground surface

11. Pump Test ~~spcap = 50.0 gpm/ft~~
Pumping Level 42 ft. below surface
Pumping at 1000 GPM for 4 hours

12. Well Is: 18 in. ☒ Above ☐ Below Grade
Developed? ☒ Yes ☐ No
Disinfected? ☒ Yes ☐ No
Capped? ☒ Yes ☐ No

Grout or Other Sealing Material
Method tremie

Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
Cement	surface	110	200

cc: SOD, WG & NHS, WELL LOG BOOK

13. Did you permanently seal all unused, noncomplying, or unsafe wells? ☐ Yes ☒ No If no, explain _____

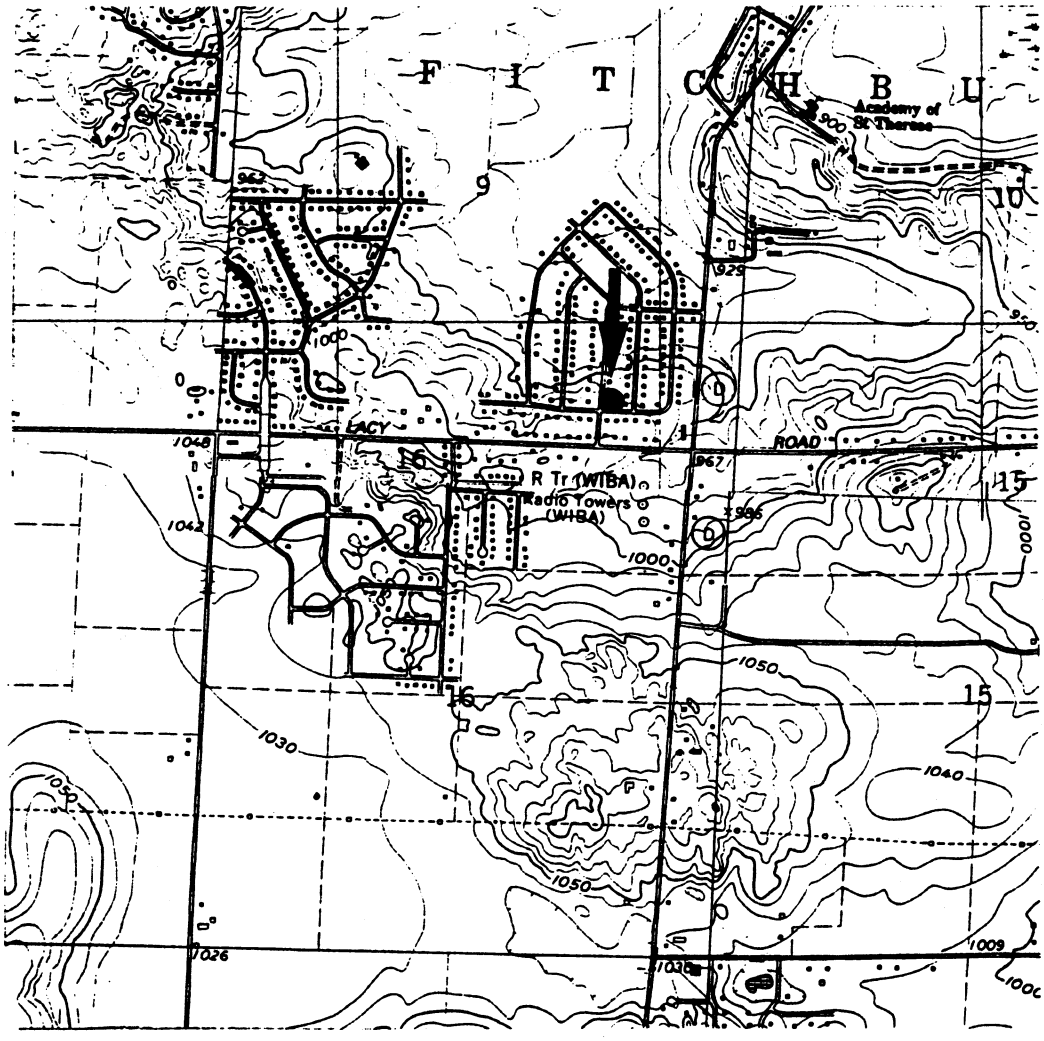
14. Signature of Point Driver or Registered Driller: [signature] Date Signed: 4/30/91
Signature of Drill Rig Operator: Jim Vander Galien Date Signed: 4/30/91

Make additional comments on reverse side about geology, etc.

WELL OWNER

WELL CONSTRUCTION REPORT
Form 3300-77A Rev. 9-88

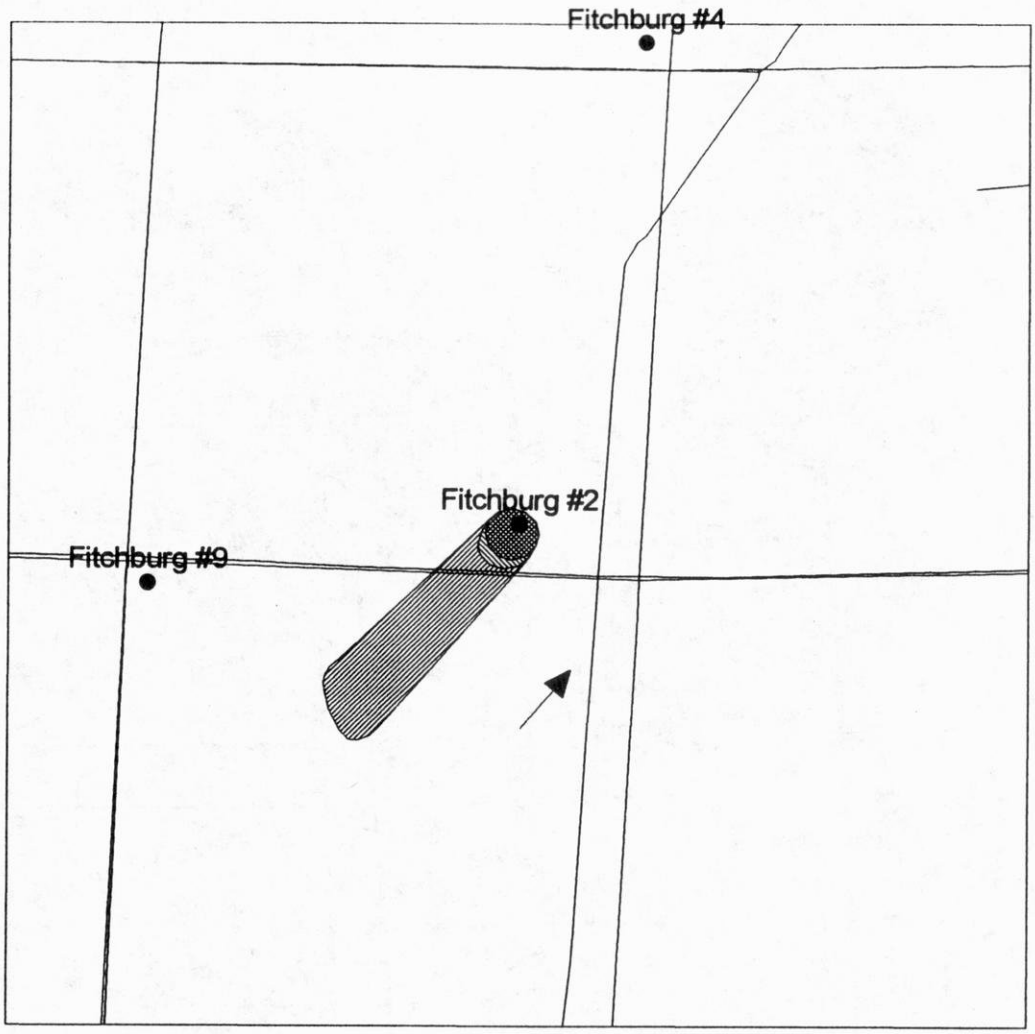
City of Fitchburg, Well Number 2



City of Fitchburg, Well Number 2 is located at 43° 0' 9.18" north latitude and 89° 25' 51.79" longitude. The well was installed in 1967 and has a pumping capacity of 500 gpm. The 1992 average daily use of the well was 145,675 gpd.

The well casing extends to a depth of 122 feet below ground surface, and the total depth of the well is 352 feet. Water is drawn from a combination of the Paleozoic bedrock units. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Fitchburg, Well Number 2



Well Location

Latitude: 43° 0' 9.18"
Longitude: 89° 25' 51.79"

0 500 1000
(meters)

N

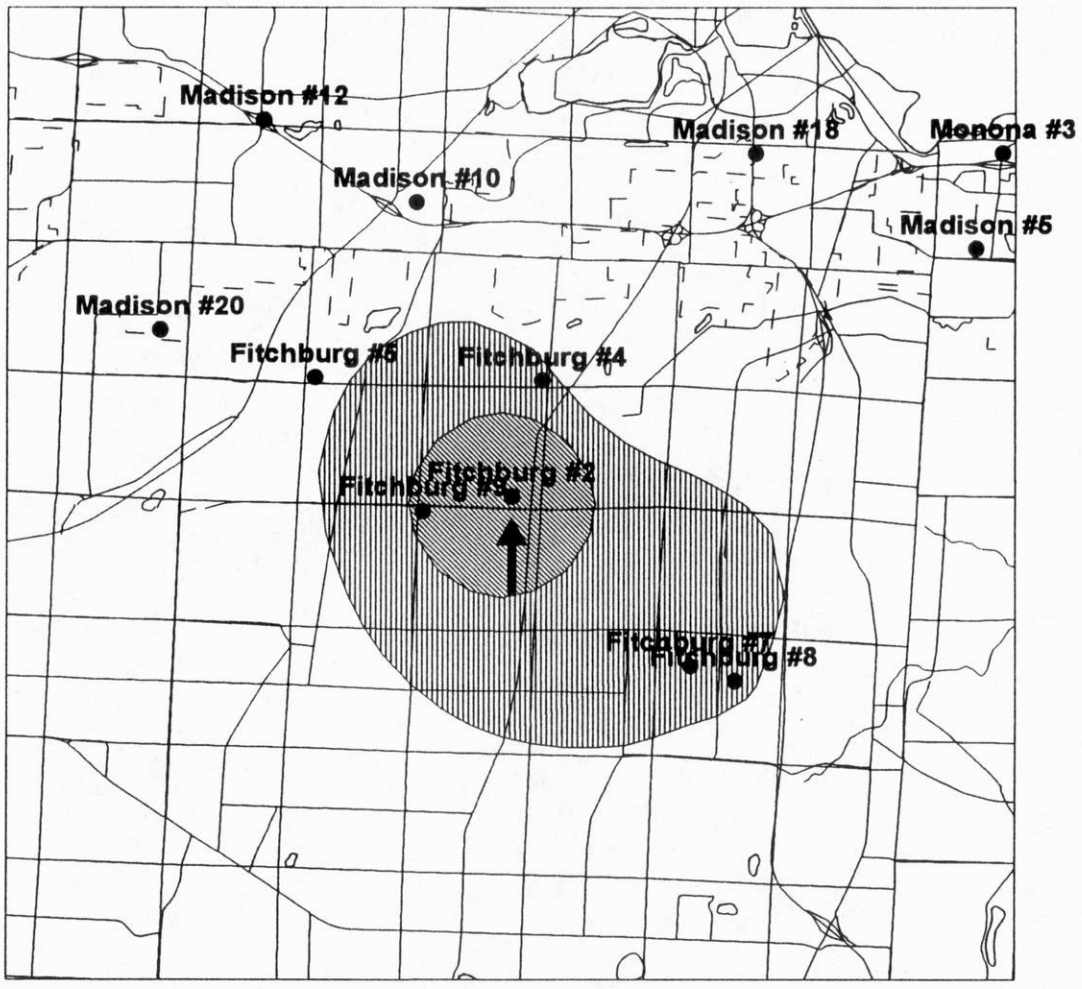
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Fitchburg, Well Number 2



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Fitchburg Utility District #1, Well #2 formerly
5608 Barbara Dr. Tower Hill Park Subdivision Well
Location: NW¼, SW¼, NW¼, SW¼, SE¼, SE¼, sec. 9, T6N, R9E
972' ETM Harold O'Connor, Driller - 9-1-64
Sample Nos. 254439-254513, Examined by M.E. Ostrom - 6-7-65

		0-2	2	St&Cl, Myl rd bn, Si: P, tr snd	+30"
		2-10	8	Snd, mxd, M, fn, S, nd, Psrtg, trC, VC, trVfn, fn gvl, cl mch cl	16"OD, 62# per ft
D		10-20	10	Snd, lt pl yl, rd bn, M, fn, Srnd, Psrtg, trC, VC, Vfn, M	
R	28	20-28	8	Snd, Myl rd, M, fn, rnd, Psrtg, tr snd, Vfn, ltl cl	29'
		28-35	7	Ss, lt yl rd, M, fn, rnd, Psrtg, tr snd	
		35-40	5	No Sample	
S		40-50	10	Ss, lt yl rd, M, fn, rnd, tr snd	
T		50-55	5	Ss, lt yl rd, M, fn, rnd, Psrtg, trC, tr cong	
P		55-75	20	Ss, Mrd (mxd Yl), M, fn, rnd, Psrtg, trC, tr cong	15"Hole
E		75-80	5	Ss, lt rd bn, M, fn, Srnd, Psrtg, trC, mch ch, ltl cong	
T		80-85	5	No Sample	
E		85-90	5	Ss, Mrd (mxd yl), M, C, Srnd, Psrtg, tr fn, mch ch, ltl cong	85' Water
R		90-95	5	Ss, lt yl pnk, M, fn, Srnd, Psrtg, trC, tr sh, ch	
		95-105	10	Ss, lt yl pnk, M, C, Srnd, Psrtg, tr fn, ltl sh, sts	10"std. pipe
		105-108	3	No Sample	
		108-112	4	Sh, dk rd mxd, Si, F, ltlSs, tr cong	
	92	112-120	8	Ss, lt rd bn, M, C, Srnd, Psrtg, tr fn, ltl cong, sh	121'
S		120-125	5	Ss, lt yl rd, M, fn, Srnd, Psrtg, Dolc: VG, trVfn, C, sts	
L	10	125-130	5	Ss, lt yl bn, M, fn, Srnd, Psrtg, Dolc: VG, trVfn, ltl sts	122'
		130-135	5	Ss, lt yl gn, fn, Vfn, Sang, Fsrtg, Dolc: P, mch glauc	
		135-140	5	Ss, Vlt yl bn, fn, Vfn, Sang, Fsrtg, Dolc: P, trM, mch glauc	
		140-155	15	Ss, lt yl bn, M, fn, Srnd, Fsrtg, Dolc: F, trVfn, ltl glauc	
E		155-170	15	Ss, lt yl bn, M, fn, Srnd, Fsrtg, Dolc: F, trVfn, tr glauc	
R		170-175	5	Ss, lt yl bn, M, fn, Srnd, Dolc: P, trVfn, tr glauc	
A		175-205	30	Ss, lt rd bn, Vfn, fn, Srnd, Fsrtg, Dolc: P, trM	
N		205-215	10	Ss, lt yl bn, M, fn, Sang, Fsrtg, mch dolc: P, tr glauc	10"Hole
C		215-225	10	Ss, ld yl bn, M, fn, Sang, Psrtg, mch dolc: P, trC, tr glauc	
O	100	225-230	5	Ss, lt yl bn, fn, Vfn, Sang, Psrtg, mch dolc: P, trM, Vfn, tr cong Ss	
N		230-240	10	Ss, lt yl bn, M, fn, Sang, Psrtg, mch dolc: P, trC,	
I		240-270	30	Ss, Vlt yl (wh), M, C, Srnd, Psrtg, tr fn	
A		270-285	15	Ss, lt yl, M, C, Srnd, Psrtg, Dolc: P, tr fn	
		285-290	5	Ss, lt yl, M, C, Srnd, Psrtg, Dolc: P, trVC	
I		290-300	10	Ss, lt yl, M, C, Srnd, Psrtg, Dolc: P, tr fn	
T		300-305	5	No Sample	
O		305-315	10	Ss, Vlt yl bn, M, C, Srnd, Psrtg, tr fn	
N		315-335	20	Ss, Vlt yl bn, M, fn, Srnd, Psrtg, trC	
G'		335-350	15	Ss, lt yl bn, M, fn, Srnd, Psrtg, trVfn	
V					
I					
L					

Fitchburg Utility District #1, Well #2 formerly
5608 Barbara Dr.
Sample Nos. 254439-254513

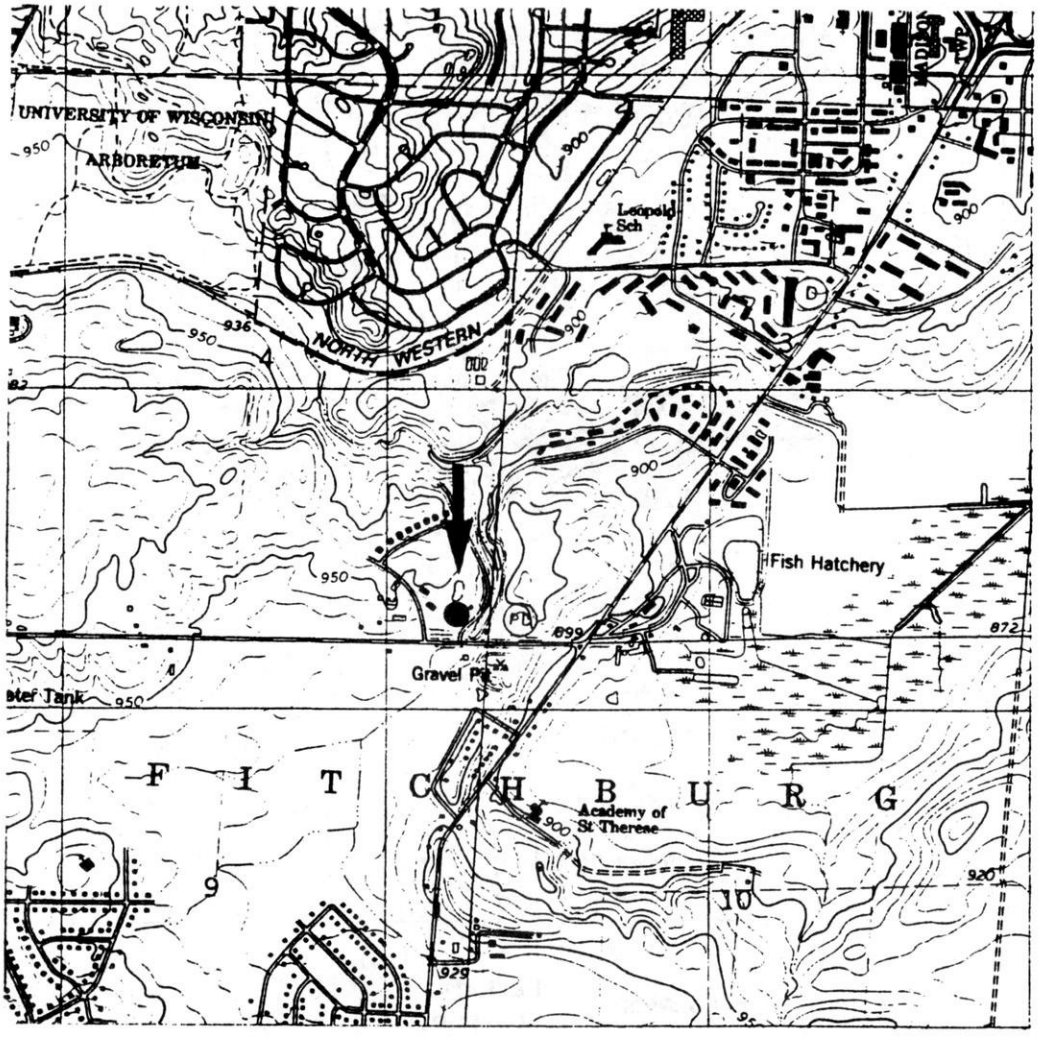
Tower Hill Park Sub. Well

I
G 122 | 350-352 | 2 | Ss,lt yl bn,M,fn,Srnd,Partg,trVfn | 352'

Formations: Drift, St. Peter, St. Lawrence, Franconia, Ironton-Galesville,

Well tested for 24 hrs. at 306 gpm with 27 ft. of drawdown.
Specific capacity = 11.3 gpm per ft. of drawdown.

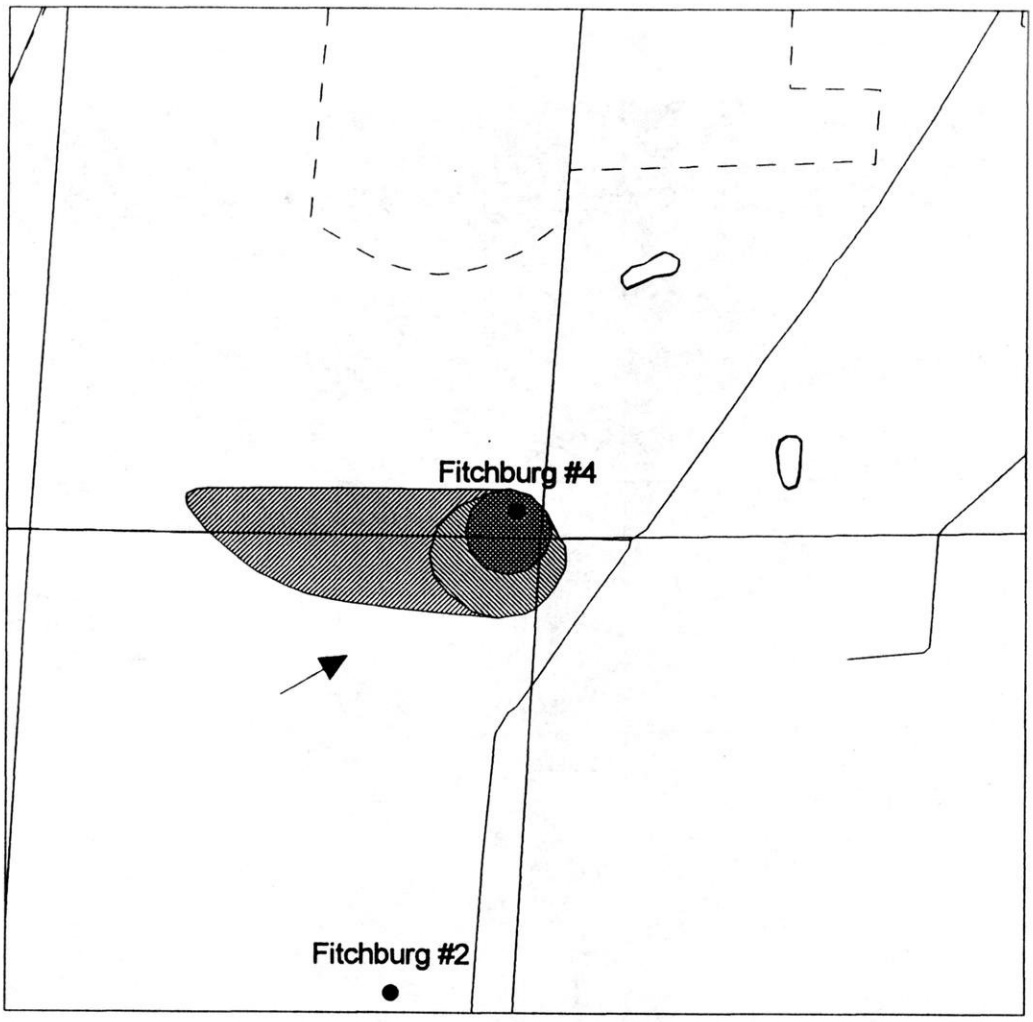
City of Fitchburg, Well Number 4



City of Fitchburg, Well Number 4 is located at 43° 0' 59.36" north latitude and 89° 25' 36.50" longitude. The well was installed in 1978 and has a pumping capacity of 1,450 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 614,000 gpd.

The well casing extends to a depth of 384 feet below ground surface, and the total depth of the well is 1000 feet. Water is drawn from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Fitchburg, Well Number 4



Well Location

Latitude: 43° 0' 59.36"
Longitude: 89° 25' 36.50"

0 500 1000
(meters)

N

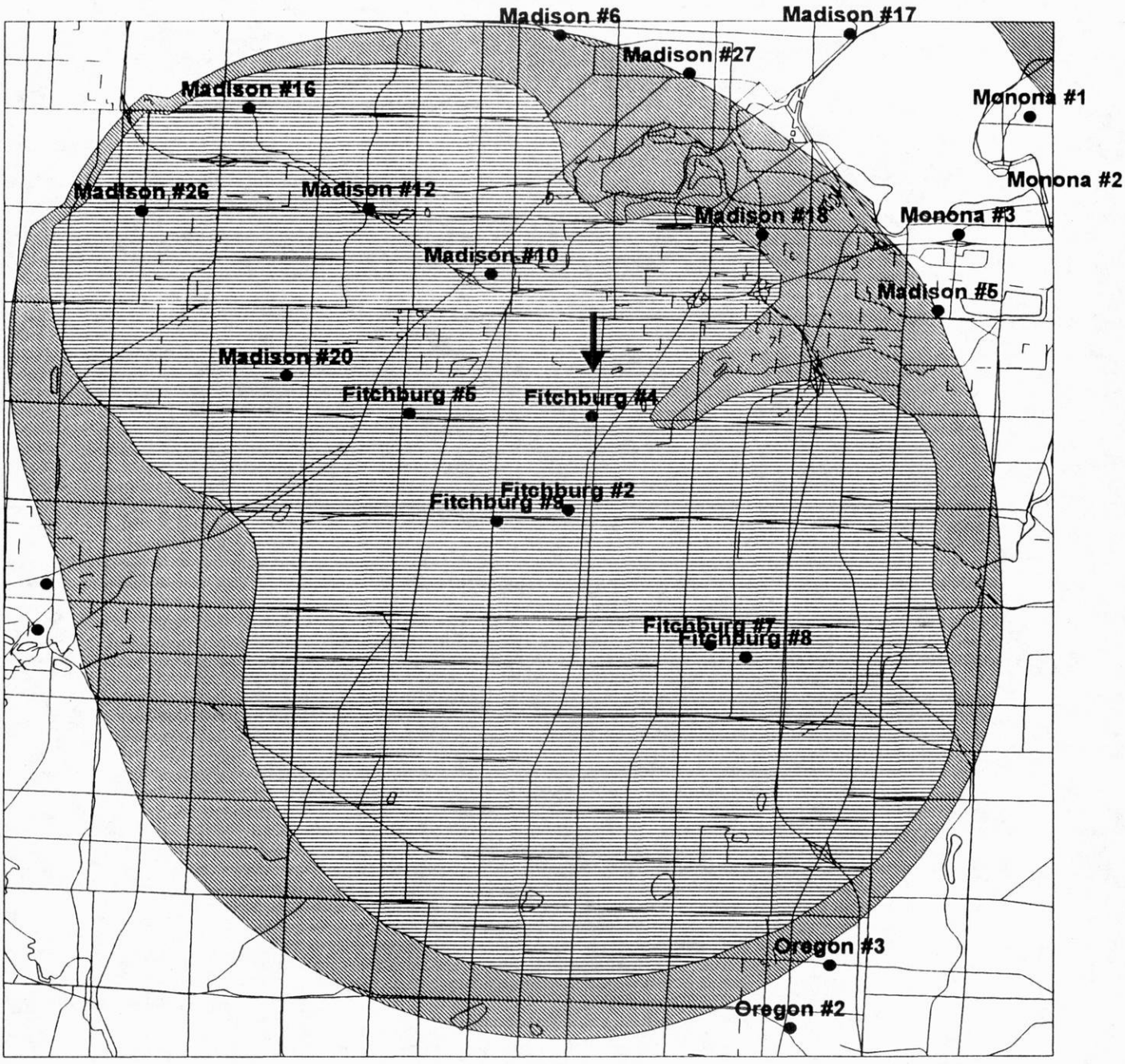
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Fitchburg, Well Number 4



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. A106-Dn-98
Sample Nos. All Retained

Well name Fitchburg Utility District #1 Well #4
Fitchburg Township
Owner.... Town of Fitchburg
Address.. Fish Hatchery Road
Madison, WI 53701
Driller.. Layne-Northwest Co.
Engineer. John A. Strand & Associates
Madison, Wisconsin
Location: NW¼,NW¼,SE¼,SE¼,SE¼,SE¼,sec. 4,T6N,R9E

County: Dane
Completed... 7/69
Field check. F.R.-W.G.S.
Altitude.... 933'ETM
Use..... Municipal
Static w.l.. 109'
Spec. cap... 10.6

R. 9E
T. 6 N.
Sec. 4

Quad. Madison West 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
24"	0'	48'	15¼"	384'	1000'	24"	A53 Gr. B welded new ½" wall	+2'	48'	18"	A53 Gr. B welded new .375 wall	+2'2"	384'
23"	48'	384'											

Grout: Kind	from	to
Neat cement	0'	384'

Samples from 0' to 1000' Rec'd: 3/13/69, 11/20/70 Studied by: M. Roshardt Issued: 5/71

Formations: Drift, St. Peter Sandstone, Jordan Sandstone, St. Lawrence Dolomite, Tunnel City Group, Wonewoc Sandstone, Eau Claire Sandstone, Mt. Simon, Weathered PC, Precambrian

Remarks: Well tested 19 hours at 1298 gpm with 122 feet of drawdown.
W.G.S. Resistivity & Gamma Logs - 7/28/69.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
DRIFT 50'	0-5		Clay	Orange bn	--	--	Calcareous. Little sand.
	5-10		"	"	--	--	Calcareous. Trace sand, gravel.
	10-15		"	"	--	--	Same
	15-20		"	"	--	--	Calcareous. Little gravel. Trace sand.
	20-25		"	"	--	--	Calcareous. Much gravel. Little sand.
	25-30		Gravel	"	Gran	Gran/M peb	Little clay. Trace sand.
	30-35		"	"	"	Gran/S peb	Little clay, sand.
	35-40		Sand	Yellow gry	C	Vfn/VC	Trace granules.
	40-45		Gravel	Yl gry mxd	Gran	Gran/S peb	Trace sand, clay.
	45-50		"	Ylorngmxd	S peb	Gran/L peb	Same
St.P. 10'	50-55		Sandstone	Red brown	M & C	Vfn/C	Much chert. Little silica cement, red shaly matrix.
	55-60		"	"	"	"	Same
JORDAN 35'	60-65		"	Orange bn	M	"	Trace dolomite-limonite cement, chert.
	65-70		"	"	M & C	"	Same
	70-75		"	Pnk or bn	M	Fn/C	--
	75-80		"	"	"	"	Trace dolomite-limonite cement, dolomite, chert.
	80-85		"	Pnk brown	M & C	Vfn/C	Trace chert, shaly matrix.
	85-90		"	"	"	"	Same
	90-95		"	"	"	"	"
St. LAW. 25'	95-100		Dolomite	Orange bn	Fn	--	Much "caved" cht, trap & snd. Ltl fltng Fn qtz, shy mat.
	100-105		"	"	"	--	Little Vfn glauconite, fn floating quartz, shaly matrix.
	105-110		"	"	"	--	Same
	110-115		"	"	"	--	"
	115-120		"	"	"	--	"
TUNNEL CITY	120-125		Sandstone	"	Fn &M	Vfn/C	Much fn/C glauconite. Little dolomite cement, shaly mat.
	125-130		"	Yl or bn	"	Fn/M	Same
	130-135		"	Yl tan	"	"	"
	135-140		"	"	"	"	"
	140-145		"	"	"	Vfn/M	Same but little glauconite.
	145-150		"	"	"	"	Same
	150-155		"	"	"	"	"
	155-160		"	"	"	"	"

Well name: Fitchburg Utility District #1 Well #4

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
TUNNEL CITY	160-165		Sandstone	Yl tan	Fn &M	Vfn/M	Little fn/C glauconite. Little dol cement, shaly matrix.
	165-170		"	"	"	"	Same but trace glauconite.
	170-175		"	"	Fn	"	Same
	175-180		"	"	"	"	"
	180-185		"	"	"	"	Little shaly matrix. Trace dolomite cement, glauconite.
	185-190		"	"	"	"	Same
	190-195		"	"	"	"	"
	195-200		"	"	"	"	Little shaly matrix, dolomite cement. Trace glauconite.
	200-205		"	"	"	"	Same
	205-210		"	"	"	"	Same but trace dolomite cement.
	210-215		"	"	"	Vfn/C	Same
100'	215-220		"	"	M	"	"
WONEWOC SANDSTONE	220-225		"	Yl gray	C	Fn/VC	Trace shaly matrix, dolomite cement.
	225-230		"	"	Fn &C	"	Same
	230-235		"	"	"	Vfn/VC	"
	235-240		"	"	C	"	--
	240-245		"	Pl yl gry	"	Vfn/C	--
	245-250		"	"	C &VC	Fn/VC	--
	250-255		"	Yl gray	M	Vfn/C	Trace dolomite cement.
	255-260		"	"	M & C	Vfn/VC	Trace dolomite cement, green shale.
	260-265		"	Yl or gry	"	"	Trace dolomite cement.
	265-270		"	Yl gray	"	"	Same
	270-275		"	"	C	"	"
	275-280		"	"	M	Vfn/C	"
	280-285		"	"	M & C	Vfn/VC	"
	285-290		"	"	M	Vfn/C	"
	290-295		"	"	"	"	"
	295-300		"	"	Fn &M	"	"
	300-305		"	"	M	"	"
	305-310		"	"	M & C	"	"
	310-315		"	"	M	"	"
	315-320		"	"	"	"	"
	320-325		"	"	"	"	--
	325-330		"	"	Fn &M	"	--
	330-335		"	"	"	"	--
	335-340		"	"	M	"	--
	340-345		"	"	Fn &M	"	Trace dolomite cement.
	345-350		"	"	"	"	Same
	350-355		"	"	"	"	"
	355-360		"	"	"	"	"
	360-365		"	"	Fn	"	"
147'	365-367		"	"	Fn &M	"	"
E.C.	367-375		Shale	Pl gn gry	--	--	Little sand. Trace pyrite, dolomite, glauconite.
18'	375-380		"	"	--	--	Same but little glauconite.
	380-385		Sandstone	Brown	M	Vfn/C	Little glauconite, dolomite cement. Trace green shale.
	385-390		"	Pink gray	C	"	Little shaly matrix, dolomite cement.
M T. SIMON SANDSTONE	390-395		"	"	"	"	Same
	395-400		"	"	"	Fn/C	Much dolomite cement. Little shaly matrix.
	400-405		"	"	"	"	Same
	405-410		"	"	"	"	Little dolomite cement, shaly matrix.
	410-415		"	"	"	"	Same
	415-420		"	Light gray	M & C	Vfn/C	Trace dolomite cement, shaly matrix.
	420-425		"	"	"	"	Trace dolomite cement.
	425-430		"	"	"	"	Same
	430-435		"	"	"	"	"
	435-440		"	"	"	"	Trace dolomite cement, pyrite.
	440-445		"	"	"	"	Trace dolomite cement.
	445-450		"	"	M	"	Same
	450-455		"	"	M & C	"	"
	455-460		"	"	"	"	"
	460-465		"	"	C	"	"
	465-470		"	"	"	"	"
	470-475		"	Pink gray	"	"	Trace dolomite cement, pyrite, green shale.
	475-480		"	"	M	"	Trace dolomite cement.
	480-485		"	"	M & C	"	Same
	485-490		"	"	"	"	Little dolomite cement.

Well name: Fitchburg Utility District #1 Well #4

MT SIMON SANDSTONE

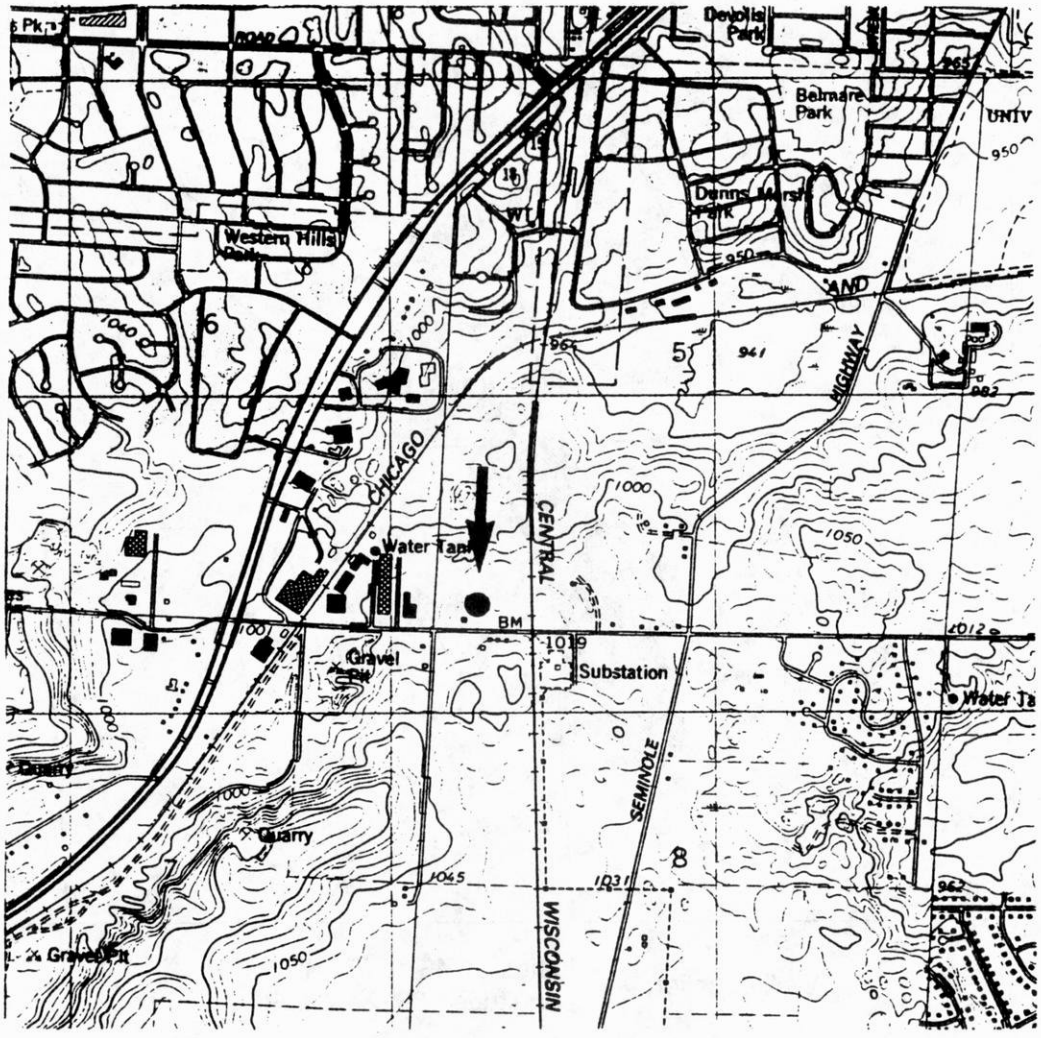
Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
490-495		Sandstone	Pink gray	M & C	Vfn/C	Trace dolomite cement.
495-500		"	"	M	"	Little dolomite cement.
500-505		"	"	"	"	Trace dolomite cement.
505-510		"	"	M & C	"	Little dolomite cement.
510-515		"	"	"	"	Same
515-520		"	"	"	"	Trace dolomite cement, green shale.
520-525		"	"	"	"	Little dolomite cement.
525-530		"	"	"	"	Same
530-535		"	"	"	"	Trace dolomite cement.
535-540		"	"	"	"	Little dolomite cement. Trace green shale.
540-545		"	"	M	"	Same
545-550		"	"	M & C	"	Trace dolomite cement.
550-555		"	Light gry	"	"	Same
555-560		"	"	C	Vfn/VC	"
560-565		"	"	"	"	"
565-570		"	Pink gray	M	Vfn/C	--
570-575		"	"	"	"	Trace dolomite cement.
575-580		"	"	M & C	"	Little dolomite cement.
580-585		"	"	"	"	Trace dolomite cement.
585-590		"	Light gray	M	"	Trace dolomite cement, green shale.
590-595		"	"	"	"	Trace dolomite cement.
595-600		"	"	"	"	--
600-605		"	Pl pnk gry	Fn &C	"	--
605-610		"	Light gray	"	"	Trace dolomite cement.
610-615		"	"	"	"	Same
615-620		"	Pink gray	"	"	Little dolomite cement. Trace shaly matrix.
620-625		"	"	"	"	Same
625-630		"	"	"	"	"
930-935		"	"	"	"	"
635-640		"	"	"	"	"
640-645		"	"	"	"	"
645-650		"	Light gray	"	Vfn/VC	--
650-655		"	"	"	"	--
655-660		"	"	"	"	--
660-665		"	"	M	Vfn/C	--
665-670		"	"	Fn &C	Vfn/VC	--
670-675		"	Pink gray	"	"	Little dolomite cement. Trace shaly matrix.
675-680		"	"	C	"	Same
680-685		"	"	"	"	"
685-690		"	"	"	"	"
690-695		"	Yl gray	Fn &C	Vfn/C	--
695-700		"	"	"	"	--
700-705		"	"	C	Vfn/VC	--
705-710		"	"	"	"	--
710-715		"	"	"	"	--
715-720		"	"	"	"	--
720-725		"	"	"	"	Trace green shale.
725-730		"	"	"	"	--
730-735		"	"	"	"	--
735-740		"	"	"	"	--
740-745		"	Red brown	M	"	Little red shaly matrix. Trace green shale.
745-750		"	Pl or tan	Fn &C	"	Little shaly matrix.
750-755		"	"	"	"	Same
755-760		"	Pale tan	C	"	Same plus trace green shale.
760-765		"	"	"	"	Same
765-770		"	Pl red bn	"	"	Much red shaly matrix. Trace dolomite cement.
770-775		"	"	"	"	Same plus little green micaceous shale.
775-780		"	"	"	"	Little shaly matrix.
780-785		"	Orange tan	VC	"	Same
785-790		"	"	C &VC	"	"
790-795		"	"	"	"	"
795-800		"	"	"	"	"
800-805		"	Yl tan	VC	"	Trace shaly matrix.
805-810		"	Yl gray	C &VC	"	Same
810-815		"	Orange tan	C	"	Little shaly matrix.
815-820		"	"	VC	"	Same

Well name: Fitchburg Utility District #1 Well #4

	Depths.	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
					Mode	Range	
M	820-825		Sandstone	Orange tan	C &VC	Vfn/VC	Little shaly matrix.
T	825-830		"	"	VC	"	Same
	830-835		"	"	C	"	"
S	835-840		"	"	"	"	"
I	840-845		"	Tan	"	"	Trace shaly matrix.
M	845-850		"	"	"	"	Trace shaly matrix, granules.
	850-855		"	"	"	"	Same
O	855-860		"	"	C &VC	"	"
N	860-865		"	"	VC	"	"
	865-870		"	"	C &VC	"	Trace shaly matrix.
S	870-875		"	Yl tan	"	"	Same
A	875-880		"	"	C	"	"
	880-885		"	"	"	"	"
N	885-890		"	"	"	"	Same plus trace granules.
D	890-895		"	"	Fn &C	"	Little shaly matrix.
S	895-900		"	Yl gray	VC	"	Many granules.
T	900-905		"	Orange tan	"	"	Little shaly matrix.
	905-910		"	"	C	"	Same
O	910-915		"	"	C &VC	"	"
N	915-920		"	"	C	"	"
E	920-925		"	"	"	"	Same plus trace granules.
	925-930		"	"	"	"	Same
	930-935		"	"	"	"	Little shaly matrix.
	935-940		"	"	"	"	Same
	940-945		"	"	"	"	"
	945-950		"	"	C &VC	"	"
	950-955		"	"	C	"	"
	955-960		"	"	"	"	"
	960-965		"	"	C &VC	"	"
	965-970		"	"	"	"	"
	970-975		"	Yl tan	C	"	"
597'	975-982		"	"	"	"	"
Wea	982-985		"	Red brown	"	Fn/VC	Much red shaly matrix. Trace granules.
P€	985-990		"	"	C &VC	"	Same
13'	990-995		"	"	"	"	"
P€	995-1000	XXXXXXX	Granite	"	C	--	--

END OF LOG

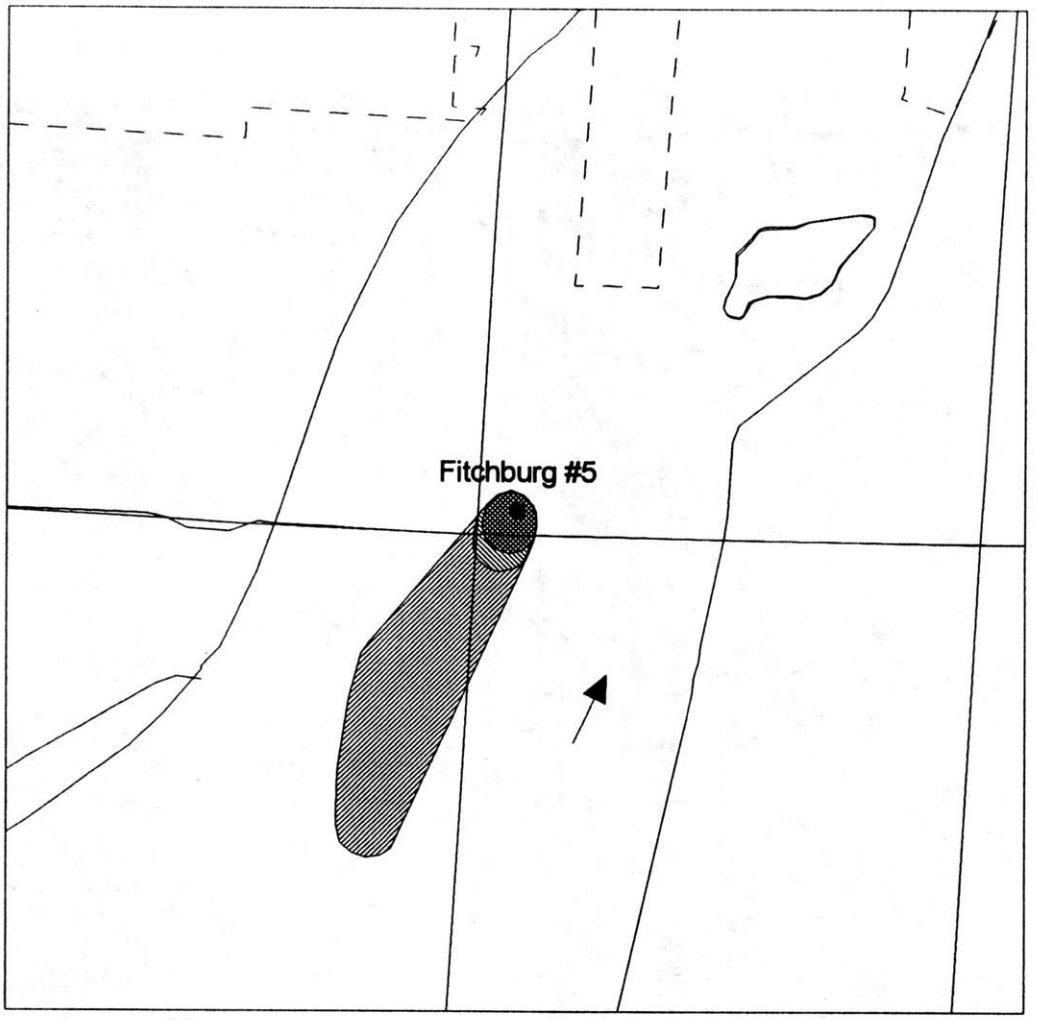
City of Fitchburg, Well Number 5



City of Fitchburg, Well Number 5 is located at 43° 0' 57.74" north latitude and 89° 27' 48.29" longitude. The well was installed in 1978 and has a pumping capacity of 1,000 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 726,000 gpd.

The well casing extends to a depth of 438 feet below ground surface, and the total depth of the well is 1031 feet. Water is drawn from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Fitchburg, Well Number 5



Well Location

Latitude: 43° 0' 57.74"
Longitude: 89° 27' 48.29"

0 500 1000
(meters)

N

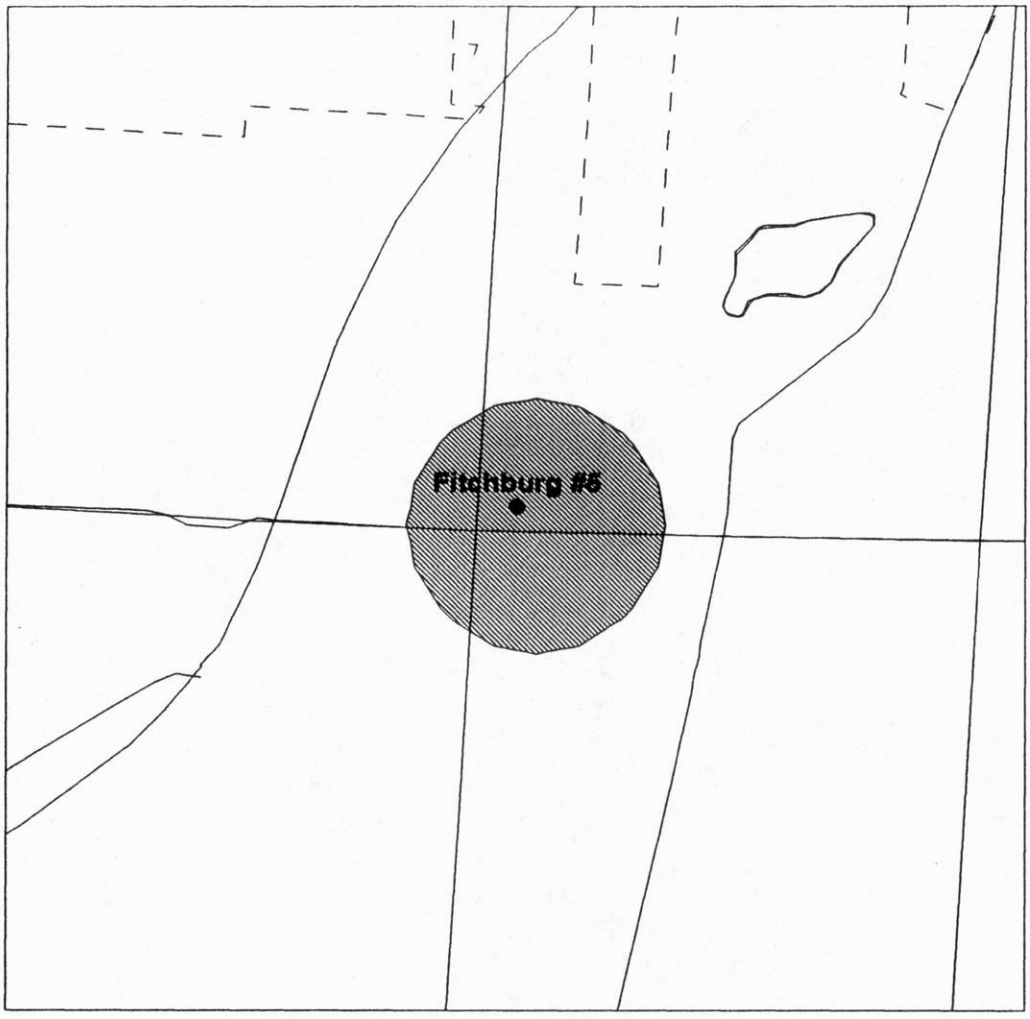
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Fitchburg, Well Number 5



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

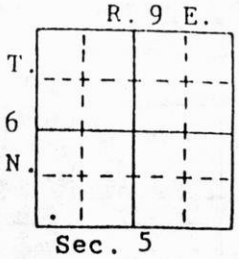
Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

1815 University Avenue, Madison, Wisconsin 53706

Well name Fitchburg City Well #5
Owner.....City of Fitchburg Utility District #1
Address.. 2377 S. Fish Hatchery Road
Madison, WI 53711
Driller.. Miller Well & Pump Co.
Engineer. Carl C. Crane, Inc.
Madison, Wisconsin
Location: center, SE¼, SW¼, SW¼, SW¼, sec. 5, T6N, R9E

County: Dane
Completed... 1978
Field check. RMP-WG & NHS
Altitude.... 1025' ETM
Use..... Municipal
Static w.l.. 193'
Spec. cap... 12.4 GPM/ft.



Quad. Madison West 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
24"	0	438'				24"	New Steel 500 wall A53GRB Welded U.S. Steel	0	34'	18"	New Steel 375 Wall A53GRB Welded U.S. Steel	+3½'	438'
17"	438'	1031'											

Drilling method: Cable Tool
Samples from 0 to 1031' Rec'd: 2/15/78

Studied by: R. M. Peters

Grout	from	to
Neat Cement	0	438'

Issued: 11/19/84

Formations: Surface, Drift, St. Peter Sandstone (Readstown Member), Prairie du Chien Group, Jordan Formation (Norwalk Member), St. Lawrence Formation (Black Earth Member), Tunnel City Group, Wonewoc Formation, Eau Claire Formation, Mt. Simon Sandstone.

Remarks: Well tested for 24 hours at up to 1450 GPM with 117 feet of drawdown.
Well shot at the following depths: 525', 555', 585', 610', 640', 690', 710', 745', 785', 850', 890' & 965'.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Sfc. 5'	0-5		Sand		M	Vfn/VC	Much soil, silt, gravel.
DRIFT 30'	5-10		Gravel	Mxd yl bn	M peb	Gran/L peb	Dolomite, Much sand, silt. Little clay.
	10-15		"	Mxd yl rd	"	Gran/M peb	Dolomite, chert, granite. Much sand, silt, clay.
	15-20		Sand	Mxd bn rd	M	Vfn/VC	Much silt, brown red clay, Little gravel.
	20-25		"	"	"	"	Same.
	25-30		"	"	"	"	"
	30-35		"	Yellow red	"	"	Much silt. Little gravel, clay. cvd snd,
READSTOWN 70'	35-40		Sandstone	Strg brown	"	Vfn/C	Rnd. Mch shly matx. Ltl st, dol & lim cem. Tr wh sil sh, wh cht,
	40-45		"	Bn orange	"	"	Rnd. Mch st, shly matx. Ltl cvd? dol, cvd snd. Tr wh cht, lim cem.
	45-50		"	"	"	"	Same plus little dolomite cement.
	50-55		"	Red orange	"	"	Rnd. Ltl dol cem. Tr wh cht, cvd? dol, st, cvd snd. Discolored by
	55-60		"	Bn orange	"	"	Rnd. Ltl st, sil cem. Tr wh cht, lim cem. rusty drill bit frags.
	60-65		"	"	"	Vfn/VC	Rounded. Little silt. Trace silica cement, shaly matrix.
	65-70		"	Yellow red	"	"	Rnd. Much shaly matrix. Little silt. Trace silica cement.
	70-75		"	"	"	"	Same plus little red brown to white shale.
	75-80		"	Dark red	"	"	Rnd. Mch shly matx & snd grn ctng, rd gry to wh sh. Ltl st, sil
	80-85		Shale	"	—	—	Mch Vfn/VC ss, snd grn coating, silt. Ltl sil cement. cem,
	85-90		Sh & ss	"	Fn/M	Vfn/VC	Rnd. Mch snd grn ctng, wh cht, silt. Little silica cement.
	90-95		Shale	"	—	—	Mch Vfn/VC ss, st, snd grn ctng, wh cht. Trace silica cement.
	95-100		Sandstone	"	Fn/M	Vfn/VC	Rnd. Mch shly matx, snd grn ctng, wh to gry cht, dk rd bn to wh sl
	100-105		Siltstone	"	—	—	See end of log. silt. Ltl sil cem,
P. du C. 25'	105-110		Dolomite	Mdyl & ltyl bn	M	Fn/M	Mch wh to gry cht, Vfn/VC qtz snd, qtz st, pnk shly matx(?). Tr rd
	110-115		"	"	"	"	Same but sand is Vfn/C plus tr msv qtz. bn sh, Vfn glauc.
	115-120		"	"	"	"	Same but little sand. Fn fltg sand.
	120-125		"	"	"	"	Mch wh cht, pnk shly matx(?), qtz st. Ltl Vfn/M qtz snd. Tr Vfn/
	125-130		"	"	"	"	Mch pnk shly matx(?), Vfn/C qtz snd, qtz st. Ltl wh cht. Tr ool
NOR.	130-135		Sandstone	"	Fn/M	Vfn/VC	Srnd. Mch dol cem, wh cht, dol, pnk shly matx(?), st. Ltl cht,
	135-140		"	Lt rd bn	Fn	"	See end of log. ool cht. Few ool. Tr v pl gn sh.
	140-145		"	Red brown	"	Vfn/M	Srnd. Mch lt rd bn shly matx, st, dol cem. Tr cvd dol, wh cht, ool.
	145-150		"	Lt rd bn	"	Vfn/VC	Srnd. Mch lt rd bn shly matx, st. Tr dol cem, cvd dol, rd bn sh.
	150-155		"	Pink	"	"	Srnd. Mch pnk shly matx, silt. Tr cvd? wh sil sh, rd bn sh.
	155-160		"	"	"	Vfn/C	Same plus tr cvd dol & no cement. wh cht, rd bn sh, sil cem.

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. 11-Dn-1066

Well name: Fitchburg City Well #5

	Depths	Graphic Section	Rock Type	Color	Grain Size: Mode	Grain Size: Range	Miscellaneous Characteristics
NOR. 55'	160-165		Sandstone	Pink	Fn/M	Vfn/VC	Srnd. Mch pnk shly matx, silt. Tr cvd? chert, dol & sil cem.
	165-170		"	Red brown	Fn	Vfn/C	Srnd. Mch rd bn shly matx, silt. Tr wh chert, dol & sil cem.
	170-175		"	Yellow red	"	"	Srnd. Mch rd bn shly matx,st,dol cem. Tr dol,pl gn & rd bn sh,
	175-180		"	"	Vfn/Fn	"	Srnd. Mch rd bn shly matx,st,dol cem. Tr rd bn / calcus cem.
	180-185		"	"	"	"	Same except no pl gn sh plus tr wh chert. / sh,pale gn shale.
B.E. 12.5'	185-190		Dolomite	"	Fn	Fn/M	Much Vfn/C ss, silt, rd bn shly matx. Tr wh chert, Vfn glauc.
	190-195		"	"	"	"	Much Vfn/C ss, silt, rd bn shly matx. Tr gry shale, Vfn/C glauc
	195-200		Dol & ss	Strg brown	Fn&Fn/M	Fn/M&Vfn/C	Srnd(ss). Mch st,bn shly matx. Ltl Vfn/M glauc(w/ss). Tr gry sh
TUNNEL CITY	200-205		Sandstone	Yl brown	Fn	Vfn/M	Srnd. Mch st,bn shly matx,dol,Vfn/C glauc. / Vfn glauc(w/dol).
	205-210		"	"	"	"	Same but no gray shale. / Ltl dol cem. Tr gry sh,wh cht,rd bn sh
	210-215		"	"	"	"	Srnd. Mch st,bn shly matx,Vfn/M glauc. Tr dol cem,dol,wh cht,rd
	215-220		"	"	"	"	Srnd. Mch st,bn shly matx. Ltl dol cem,Vfn/C glauc, / bn sh.
	220-225		"	Strg brown	"	"	See end of log. / cvd? dol. Tr rd bn sh.
	225-230		"	"	"	"	Srnd. Mch st,bn shly matx. Ltl Vfn/C glauc. Tr dol cem,purp &
	230-235		"	"	"	Vfn/C	Srnd. Mch silt,bn shly matx. Tr Vfn/M glauc,dol cem. / wh shs.
	235-240		"	"	"	Vfn/M	Same.
	240-245		"	Red yellow	"	"	Same plus trace purple & red brown shales. / gn shs.
	245-250		"	"	"	"	Srnd. Mch st,bn shly matx. Tr Vfn/Fn glauc,dol cem,rd bn & pl
	250-255		"	"	"	Vfn/C	Srnd. Mch st,bn shly matx. Ltl wh shly matx. Tr dol cem,Vfn/M
	255-260		"	"	"	Vfn/M	Same except no white shaly matrix. / glauc,rd bn sh.
	260-265		"	Yl brown	"	"	Srnd. Mch st,bn shly matx. Ltl pl gn shly matx. Tr dol cem,Vfn/
	265-270		"	"	"	"	Srnd. Mch st,bn shly matx. Ltl dol cem. Tr / M glauc,rd bn sh,
	270-275		"	"	"	"	Srnd. Mch st,bn shly matx. Tr dolomite / Vfn/Fn glauconite.
	275-280		"	Yellow	"	"	Same, / cement,Vfn/M glauconite.
	280-285		"	"	"	Vfn/C	Same plus trace red brown shale.
97.5'	285-290		"	Yl brown	"	"	Same.
	290-295		"	"	"	Vfn/VC	Srnd. Mch silt, bn shly matx. Tr dolomite cement, Vfn/Fn glauc.
WONEWOC	295-300		"	"	M	"	Rnd. Much silt, brown shaly matrix. Trace Vfn/M glauconite.
	300-305		"	Red yellow	"	"	Rnd, Mch st,shly matx. Tr Vfn/Fn glauc,cvd? dol cem ss,cvd rd
	305-310		"	"	"	"	Rnd. Mch st,shly matx. Tr Vfn/Fn glauc. Ltl cvd rd bn / bn sh.
	310-315		"	"	"	"	Rnd. Mch st,shly matx. Tr Vfn/Fn glauc,cvd dol cem / shale.
	315-320		"	"	"	"	Rnd. Mch st,shly matx. Tr Vfn glauc,pl gn sh. / ss,wh sil sh,
	320-325		"	"	M/C	"	Rnd. Much silt, shaly matrix. Tr Vfn/Fn glauconite, wh chert.
	325-330		"	"	"	"	Rnd, Much silt, shaly matrix, Tr Vfn glauconite, rd bn shale.
	330-335		"	Bn yellow	M	"	Rnd. Much silt, shaly matrix. Trace Vfn glauc, dolomite cement.
	335-340		"	"	"	"	Rounded. Much silt, shaly matrix. Trace Vfn/Fn glauconite.
	340-345		"	"	"	"	Same but no glauconite.
	345-350		"	"	"	"	Same plus trace white chert.
	350-355		"	"	"	"	Rounded. Much silt, shaly matrix. Trace Vfn glauconite.
	355-360		"	"	"	"	Same but no glauconite.
	360-365		"	"	"	"	Same.
	365-370		"	"	"	Vfn/C	"
	370-375		"	"	"	Vfn/VC	"
	375-380		"	"	"	Vfn/ C	Rounded. Much silt, shaly matrix. Trace Vfn glauconite.
	380-385		"	"	"	"	Same but no glauconite.
	385-390		"	Yellow	"	"	Rnd. Mch silt, shly matrix. Tr Vfn/Fn glauc, cvd? calcus cem ss.
	390-395		"	"	"	"	Rounded. Much silt, shaly matrix.
	395-400		"	"	"	"	Same plus trace Vfn/Fn glauconite.
	400-405		"	"	Fn	"	Same but subrounded.
	405-410		"	"	"	"	Paler in color. Subrounded. Much silt, shaly matrix.
	410-415		"	"	"	"	Same.
	415-420		"	"	"		Paler as above. Subrounded. Much silt. Little shaly matrix.
	420-425		"	"	M	"	Darker in color. Rnd. Mch silt, shly matrix. Tr pl gn shale.
	425-430		"	"	"	"	Rounded. Much silt, shaly matrix. Trace dolomite cement.
	430-435		"	"	"	"	Same but little dolomite cement.
145'	435-440		"	"	"	"	Same.
E. C.	440-445		Shale	Lt ol gray	—	—	Mch Vfn/C sand, silt. Tr dol cem sandstone, calcus grout, pyr.
	445-450		Sh & dol	Dark gray	Fn	Fn	Ltl qtz silt. Tr pyr, fos fragg, Vfn/Fn glauc, fltg Vfn/Fn snd,
	450-455		Shale	Gry green	—	—	Mch glaucic dol, Vfn/C sand, Vfn/M glauc, Ltl qtz silt. Tr pyr.
	455-460		"	"	—	—	Mch qtz st,Vfn/VC snd,Vfn/M glauc. Ltl glaucic dol,dol cem ss,
	460-465		Sh & ss	Green gray	M	Vfn/C	Rnd (ss). Mch silt. Ltl Vfn/Fn glauc, Tr pyr, pyric / Tr py
	465-470		"	"	"	"	Same but no gray shale. / gray shale
	470-475		"	"	"	"	Same but trace glauconite & no pyrite.
40'	475-480		"	"	"	"	Rounded (ss). Much silt. Trace Vfn glauconite.
MT. S.	480-485		Sandstone	Lt gn gray	M/C	Vfn/VC	Rounded. Much shaly matrix, silt. Trace Vfn glauconite.
	485-490		"	Lt gray	M	Vfn/C	Same plus trace dolomite cement.

Well name: Fitchburg City Well #5

MT. SIMON SANDSTONE

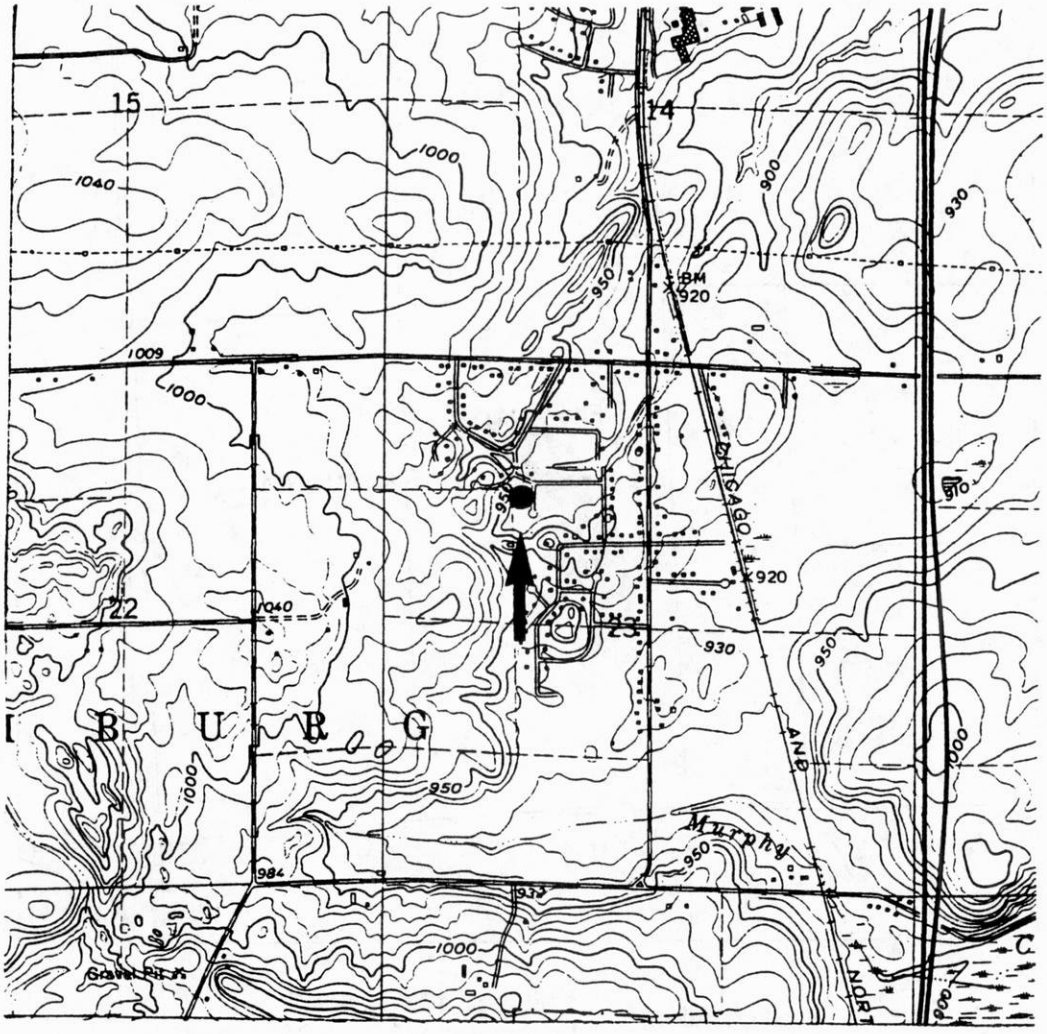
Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
490-495	G	Sandstone	Lt gray	M	Vfn/C	Rnd. Mch silt. Ltl shly matrix. Tr dol cem, Vfn glauc, pyrite.
495-500	G	"	Pl yellow	"	"	Rnd. Mch silt. Ltl dolomite cement, shly matrix. Tr Vfn glauc.
500-505		"	"	"	Vfn/VC	Rounded. Much silt, dolomite cement. Little shaly matrix.
505-510		"	"	"	Vfn/C	Rounded. Much silt, shaly matrix. Trace dolomite cement.
510-515		"	"	M/C	"	Same.
515-520		"	"	"	Vfn/VC	Rounded. Much dolomite cement. Little silt, shaly matrix.
520-525		"	"	"	"	Same but much silt, shaly matrix.
525-530		"	"	"	Vfn/C	Rnd. Mch dol cem, silt. Ltl shaly matrix. Tr pl gn sh, dolomite.
530-535		"	"	"	Vfn/VC	Rnd. Mch silt. Ltl dolomite cement, shaly matrix. Tr pyrite.
535-540		"	"	"	"	Rounded. Much silt, shaly matrix.
540-545		"	"	M	"	Rounded. Much silt. Little dolomite cement, shaly matrix.
545-550		"	V pl brown	M/C	"	Rounded. Much silt, dolomite cement. Trace shaly matrix.
550-555		"	"	"	Vfn/C	Rnd. Mch silt, dol cem. Ltl sndy dol, shly matx. Tr gry gn sh.
555-560		"	"	"	Vfn/VC	Rnd. Much silt, dol cem, shaly matrix. Ltl sndy dolomite.
560-565		"	"	"	"	Same but much sandy dolomite.
565-570		"	"	"	"	Same.
570-575		"	"	"	"	" cvd? wh cht.
575-580		"	Bn yellow	"	"	Rnd. Mch silt,shly matx. Ltl cvd? sndy dol,cvd? dol cem ss. Tr
580-585		"	"	C	"	Rnd. Mch silt, shaly matrix, sndy dolomite. Ltl dol cem ss.
585-590		"	V pl brown	M/C	"	Rnd. Mch silt,dolomite cement. Ltl sandy dolomite,shly matrix.
590-595		"	"	"	Vfn/C	Same but trace sandy dolomite.
595-600	G	"	"	"	Vfn/VC	Same plus trace Vfn glauconite.
600-605		"	"	"	"	Rnd. Mch silt,dolomite cement. Ltl shaly matrix. Tr granules.
605-610		"	Pl yellow	M	"	Rounded. Much silt, shaly matrix. Trace dolomite cement.
610-615		"	"	"	"	Rnd. Mch silt,shaly matrix,dolomite cement. Trace gry gn shale.
615-620		"	V pl brown	"	"	Same but no shale.
620-625	G	"	Pl yellow	"	"	Rnd. Mch silt, shaly matrix. Ltl dolomite cement. Tr Fn glauc.
625-630		"	"	"	"	Rnd. Mch silt, shaly matrix. Ltl dolomite cement. Tr sndy dol.
630-635		"	"	"	Vfn/C	Rounded. Much silt, shaly matrix. Trace dolomite cement.
635-640		"	V pl brown	"	Vfn/VC	Rounded. Much silt, shaly matrix, dolomite cement.
640-645		"	Pl yellow	"	"	Same.
645-650		"	"	"	"	Same but little cement.
650-655		"	"	"	"	Same but trace cement.
655-660		"	"	"	"	Rounded. Much silt, shaly matrix.
660-665		"	"	"	"	Rounded. Much silt, shaly matrix. Trace dolomite cement.
665-670		"	"	"	"	Same.
670-675		"	Pl yl&rd bn	Fn&C	"	Srnd & rnd. Much silt, dolomite cement. Ltl shaly matrix.
675-680		"	Pl yellow	M	"	Rounded. Much silt, shaly matrix. Tr dolomite cement.
680-685		"	"	"	"	Same.
685-690		"	"	Fn	"	Same but subrounded.
690-695		"	"	"	"	Same.
695-700		"	"	Fn&C	"	Srnd & rnd. Much silt, shaly matrix. Trace dolomite cement.
700-705		"	"	"	"	Same but little shaly matrix.
705-710		"	"	C	"	Rnd. Ltl silt. Tr shaly matrix,dol cem,gry gn glaucic shale.
710-715		"	"	Fn&C	"	Srnd & rnd. Much silt. Trace shaly matrix, dolomite cement.
715-720		"	"	"	"	Same.
720-725		"	"	M	"	Rnd. Much silt. Ltl shaly matrix. Trace dolomite cement.
725-730		"	"	"	"	Same but much shaly matrix plus trace pale green shale.
730-735		"	"	"	"	Same but no pale green shale.
735-740		"	"	"	"	Same.
740-745		"	"	Fn&C	"	Srnd & rnd. Much silt, shaly matrix. Trace dolomite cement.
745-750		"	"	M	"	Rounded. Much silt. Little shaly matrix.
750-755		"	"	"	"	Same but trace shaly matrix.
755-760		"	"	"	"	Same.
760-765		"	"	M/C	"	"
765-770		"	"	Fn&C	"	Srnd & rnd. Much silt. Trace shaly matrix, wh siliceous shale.
770-775		"	"	C	"	Same.
775-780		"	"	M	"	Rnd. Much silt. Little shaly matrix. Trace green gray shale.
780-785		"	"	"	"	Same but no green gray shale.
785-790		"	"	M/C	"	Rounded. Much silt. Trace shaly matrix.
790-795		"	Yl white	"	"	Same.
795-800		"	"	"	"	"
800-805		"	Pl yellow	M	"	Rounded. Much silt. Little shaly matrix.
805-810		"	Yellow	"	"	Rounded. Much silt, shaly matrix.
810-815		"	Brown	Fn	"	Srnd. Mch silt, shly matx. Tr pyr & sil cems. rd bn shale.
815-820		"	Lt brown	M	"	Rounded. Much silt, shaly matrix. Trace granules.

Well name: Fitchburg City Well #5

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
820-825		Sandstone	Lt brown	M	Vfn/VC	Rounded. Much silt, shaly matrix. Trace granules.
825-830		"	Lt yl bn	M&VC	"	Rounded to subrounded. Much silt, shaly matrix.
830-835		"	"	M/C	"	Rounded. Much silt, shaly matrix.
835-840		"	"	C	"	Same plus trace green gray shale.
840-845		"	"	C/VC	"	Rounded to subrounded. Much silt, shaly matrix.
845-850		"	"	VC	"	Subrounded. Much silt, shaly matrix. Trace granules.
850-855		"	"	"	"	Same.
855-860		"	Red yellow	C/VC	"	Rounded to subrounded. Much silt, shaly matrix.
860-865		"	"	C	"	Rounded. Much silt, shaly matrix.
865-870		"	"	"	"	Rnd to srnd. Much silt, shly matx. Tr grans, sil cem, pyr cem.
870-875		"	"	"	"	Same but no cements.
875-880		"	V pl brown	M/C	"	Same but no granules.
880-885		"	"	C	"	Same but trace granules.
885-890		"	Pl yellow	"	"	Rnd to srnd, Mch silt, Ltl shly matx, Tr grans, calcite cement.
890-895		"	"	"	"	Same.
895-900		"	"	C/VC	"	Rnd to srnd. Much silt, Few grans, Tr shly matx, pyrite cement.
900-905		"	V pl brown	M/C	"	Rounded to subrounded. Much silt, shaly matrix.
905-910		"	Red yellow	"	"	Same plus trace pale green & gray shales.
910-915		"	Pink	"	"	Rnd to srnd. Much silt, shaly matrix. Trace silica cement.
915-920		"	"	"	"	Same but no cement.
920-925		"	V pl brown	"	"	Same plus trace granules.
925-930		"	"	"	"	Same but no granules.
930-935		"	Yellow	M	"	Rnd to srnd. Much silt, Little shaly matrix, caved material.
935-940		"	"	"	"	Same but trace shaly matrix plus trace white siliceous shale.
940-945		"	"	"	Vfn/C	Rounded. Much silt, shaly matrix.
945-950		"	"	"	"	Same.
950-955		"	"	"	"	"
955-960		"	"	C/VC	Vfn/VC	Subangular. Much silt, shaly matrix. Many granules.
960-965		"	"	"	"	Same but few granules.
965-970		"	Red yellow	C	"	Same.
970-975		"	"	M/C	"	Subrounded. Much silt, shaly matrix. Trace granules.
975-980		"	Lt rd bn	C	"	Same.
980-985		"	Pink	"	"	"
985-990		"	"	M/C	"	"
990-995		"	"	"	"	Same but no granules.
995-1000		"	"	"	"	Same plus trace granules.
1000-1005		"	"	"	"	Same.
1005-1010		"	"	"	"	Subrounded. Much silt, shaly matrix.
1010-1015		"	"	"	"	Srnd to sang. Mch silt, shaly matrix. Trace wh siliceous shale.
1015-1020		"	Red yellow	"	"	Same but little silt plus trace granules.
1020-1025		"	"	"	"	Srnd to sang. Mch silt, shaly matrix. Trace wh siliceous shale.
1025-1027		"	"	VC	"	Sang. Ltl silt, shaly matrix. Mny granules. Tr silica cement.
1027-1031		"	Red brown	"	"	Sang. Ltl st, shly matx, sil cem, chlor. Mny grans. Tr sm pebs, wh sil sh, sap, feld, yl qtz
551' at 1031		"	Red yellow	"	"	Subangular. Much very good silica cement, Many granules, Few small pebbles, Trace chlorite, silt, feldspar, saprolite, white siliceous shale.
		END OF LOG				
		Duplicate Sample.				
at 1031		Cong	Red yellow	Gran	Gran/S peb	Subangular. Much very good silica cement. Vfn/VC sandstone. Trace caved pyrite, chlorite, silt, feldspar, saprolite, white siliceous shale.
		"See end of log"	samples.			
100-105		Siltstone	Dark red	—	—	Much Vfn/VC sandstone, shaly matrix, sand grain coating, white to gray chert. Little granular Fn dolomite with little intergranular siliceous clay.
135-140		Sandstone	Lt rd bn	Fn	Vfn/VC	Subrounded. Much light red brown shaly matrix, silt, dolomite cement. Little white shaly matrix, caved dolomite. Trace chert, oolites, red brown shale.
220-225		Sandstone	Strg brown	Fn	Vfn/M	Subrounded. Much silt, brown shaly matrix. Little dolomite cement, Vfn/M glauconite. Trace caved? dolomite, red brown shale.

MT. SIMON SANDSTONE

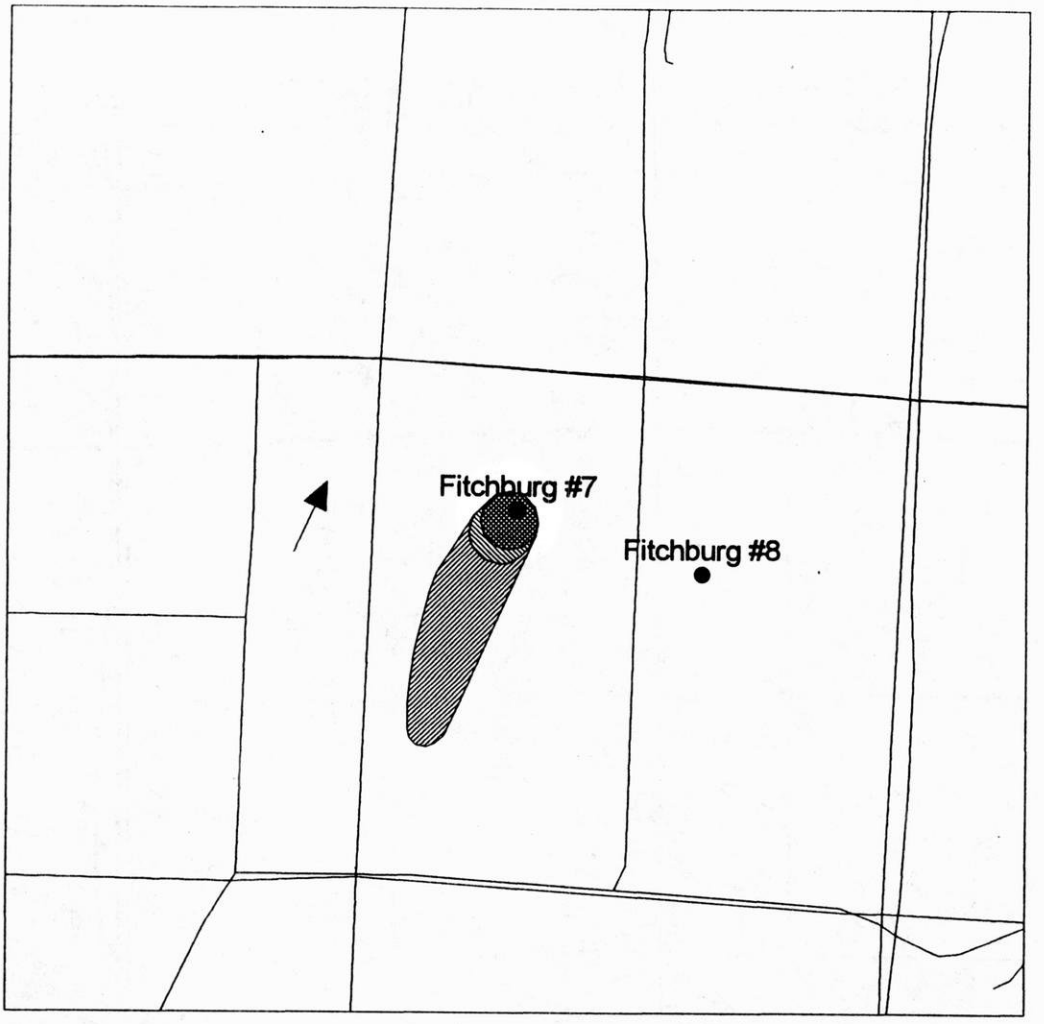
City of Fitchburg, Well Number 7



City of Fitchburg, Well Number 7 is located at 42° 58' 59.32" north latitude and 89° 24' 5.81" longitude. The well was installed in 1982 and has a pumping capacity of 350 gpm. The average daily use of the well between October 1994 and September 1995 was 10,000 gpd.

The well casing extends to a depth of 175 feet below ground surface, and the total depth of the well is 462 feet. Water is drawn from a combination of the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Fitchburg, Well Number 7



Well Location

Latitude: 42°58' 59.32"
Longitude: 89° 24' 5.81"

0 500 1000
(meters)

N

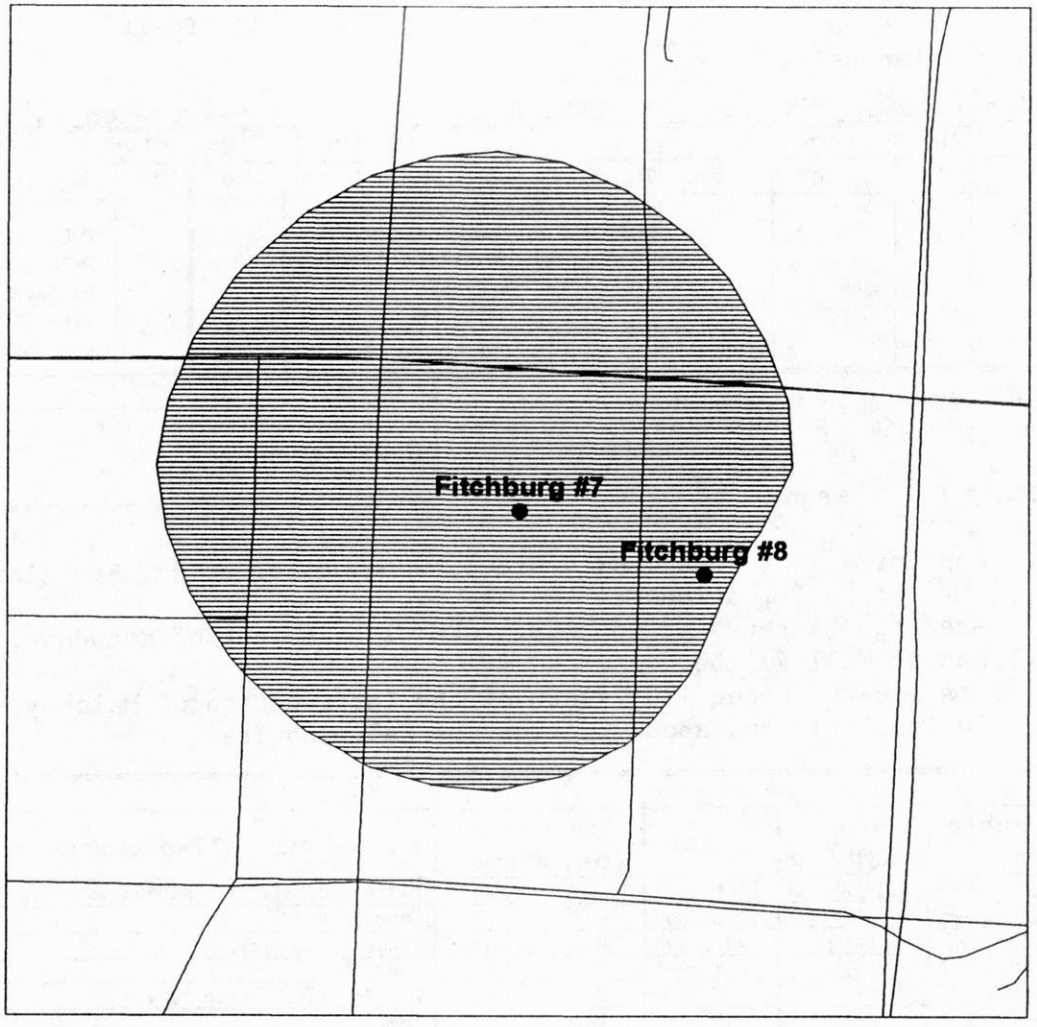
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Fitchburg, Well Number 7



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

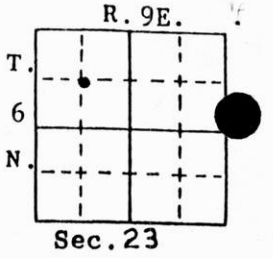
Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Well name Fitchburg City Well #7

County: Dane

Completed... 5/6/82
Field check.
Altitude.... 938' ETM
Use..... Municipal
Static w.l.. 67'
Spec. cap... 11 GPM/ft



Owner.... Fitchburg Utility District #1
Address.. 2377 S. Fish Hatchery Rd.
Fitchburg, WI 53711
Driller.. Ace Well Drilling, Inc.
Engineer. Carl C. Crane, Inc.
Madison, Wisconsin

Location: NW corner, SE¼, NW¼, sec. 23, T6N, R9E Quad. Oregon 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
12"	0	175'				12"	P.E. New Pipe .250" wall Valley Steel Pipe 33.38 lbs. per foot	0	73'	8"	P.E. 322" wall Prime pipe A53B Valley Steel Pipe 28.55 lbs. per foot	+3.5'	175'
8"	175'	462'											

Drilling method: Rotary
Samples from 0 to 462' Rec'd: 3/23/82, 4/28/82 & 5/7/82.
Studied by: Craig S. Schwandt

Grout	from	to
Neat cement	0	175'

Issued: 8/25/88

Formations: Horicon Formation, Tunnel City Group, Wonewoc Formation, Eau Claire Formation, Mt. Simon Formation.

Remarks: Well tested for 24 hours at up to 375 GPM with 34 feet of drawdown.
DNR Permanent Well #77150.
Well #7 is located about 130' south of the intersection of Maloney Drive and Palomino Trail and about 60' west of Palomino Trail.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
H	0-5		Silt & Clay	Lt bn gy	—	—	Siliceous, slightly micaceous. Trace sand, soil.
	5-10		"	Lt ol bn	—	—	Same.
O	10-15		Sand	Yl brown	M	Vfn/VC	Trace silt, clay.
R	15-20		"	"	"	"	Same.
	20-25		"	"	"	"	Little silt. Trace clay.
I	25-30		"	"	"	"	Same.
C	30-35		"	"	"	Vfn/C	Trace silt, clay.
O	35-40		"	"	"	"	Same.
N	40-45		"	"	"	"	"
	45-50		"	"	"	"	"
	50-55		"	"	"	Vfn/VC	"
60'	55-60		"	"	"	Vfn/C	"
	60-65		Sandstone	Yellow	Fn	Vfn/C	Subrounded. Approx. 40% dol grains, 3-5% lithics. Trace silt.
	65-70	G	"	Yl brown	"	"	Srnd.Well sorted.Tr poor dol cem,sndy dol,Fn-glauc,pl gn sh.
T	70-75	G	"	"	Vfn/Fn	"	Srnd.Well sorted.Tr F dol cem,Fn-glauc,dol.Ltl lt red Ltl st.
U	75-80	G	"	"	"	"	Same plus trace sandy dolomite. bn shale,silt.
N	80-85	G	"	"	"	Vfn/VC	Srnd.Well sorted.Tr P sil cem,F dol cem,Vfn/Fn-glauc,dol,cvd
N	85-90	G G G	"	"	"	Vfn/C	Srnd.Well sorted.Tr P sil cem,dol,red bn sil sh. snd.Ltl st.
	90-95	G G	"	Bn yellow	Fn	"	Srnd.Well sorted.Tr VG dol cem,dol, Mch Vfn/Fn-glauc.Ltl st.
E	95-100	G G	"	"	"	"	Same plus tr rd bn sil shale. cvd granules.Ltl st,Vfn/M-glauc.
L	100-105	G G	"	"	"	"	Same.
	105-110	G	"	"	"	"	Srnd.Well sorted.Tr F to G dol cem,cvd granules,rd bn sil sh.
	110-115	G	"	"	Fn/M	"	Srnd.Well sorted.Tr F to G dol cem,red bn Ltl Vfn/M-glauc,st.
C	115-120	G	"	"	Fn	"	Same. sil sh,Vfn/M-glauc.Ltl st.
I	120-125	G	"	"	"	"	"
T	125-130	G	"	"	"	"	"
	130-135	G	"	Yellow	"	"	"
Y	135-140	G	"	"	"	"	Srnd.Well sorted.Tr P dol cem,red bn sil sh,Vfn/M-glauc.Ltl
	140-145		"	"	"	"	Same.
	145-150	G	"	"	"	"	Same plus trace F sil cement.
	150-155	G	"	"	"	"	Srnd.Well sorted.Tr F sil cem,P dol cem,sndy dol,red bn sil sh,
	155-160		"	"	"	"	Srnd.Well sorted.Tr P dol cem,red Vfn/M-glauc,wh cht.Ltl st, bn sil shale,Vfn/M-glauc. Little silt.

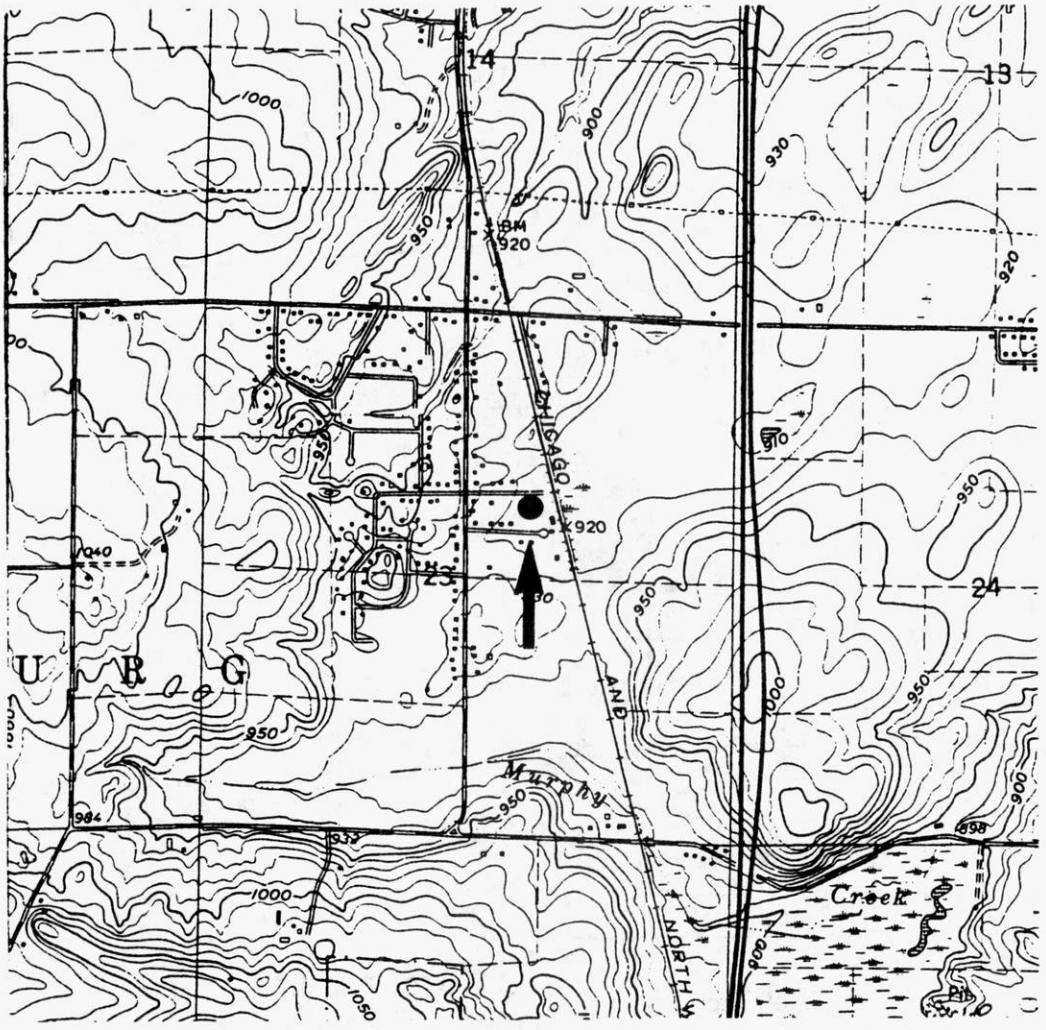
Well name: Fitchburg City Well #7

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
T. C. 112½'	160-165	G	Sandstone	Yellow	Fn	Vfn/C	Srnd.Well sorted.Tr P dol cem,red bn sil sh,Vfn/M-glauc,Ltl st.
	165-170		"	"	"	"	Same.
	170-175	G	"	"	Fn&M	"	Srnd&wrnd.Tr VG calc cem w/mch yl st matrix,red bn sil sh,Vfn/
WONEWOC FORMATION	175-180		"	White	M	Vfn/VC	Rnd.Ltl st.Tr frstg,Fn-zr,mafic incl,st,Ltl M-glauc,mafic incl,Ltl st,
	180-185		"	"	"	"	Same.
	185-190		"	"	"	"	incl, caved granules, wh shale.
	190-195		"	"	"	"	"
	195-200		"	"	Fn	"	Rnd.Tr P sil cem,st,cvd granules,mafic incl,wh sh,Ltl calcus
	200-205		"	Yellow	M	"	Srnd.Tr P to F sil cem,Vfn/Fn-zr,mafic incl,st,Ltl drllg mud.
	205-210		"	"	"	"	Rnd.Tr P sil cem,P dol cem,sndy pl gn sh w/a lyr wh shale.
	210-215		"	"	"	"	See end of log. of lim cemtd ss,st,mafic incl,dol(cvd?).
	215-220		"	"	"	"	Rnd.Tr P sil cem,silt,dol(cvd?),Vfn/Fn-zr. Little frosting.
	220-225		"	"	"	"	Rnd.Tr F sty dol cem,pl gn sh lyr between ss,mafic incl,Ltl
	225-230		"	"	"	"	Same. frstg.
	230-235		"	"	"	"	Rnd.Tr P sil cem,F sty dol cem,mafic incl. Little frosting.
	235-240		"	"	"	"	Same.
	240-245		"	"	Fn/M	"	"
	245-250		"	"	"	"	Rnd.Tr P sil cem,mafic incl,wh shale. Little frosting.
	250-255		"	"	M	"	Rnd.Ltl P sil cem,frstg,Tr Fn-zr,wh sh,mafic incl,dol.
	255-260		"	"	"	"	Wrnd. Little frosting. Trace mafic incl.
	260-265		"	"	Fn/M	"	Same.
	265-270		"	"	"	"	Rnd.Tr P sil cem,mafic incl.Little frosting.
	270-275		"	"	"	"	Rnd.Fair sorting.Trace P sil cement,mafic incl.Little frosting.
	275-280		"	"	"	"	Same.
	280-285		"	"	"	"	Rnd.Well sorted.Trace mafic incl,Fn-zircon.Little frosting.
	285-290		"	"	M	"	Same plus trace P sil cement.
	290-295		"	"	Fn	Vfn/C	Same.
	295-300		"	"	M	Vfn/VC	Srnd.Well sorted.Trace mafic incl.Little frosting.
	300-305		"	"	"	"	Rnd.Fair sorting.Tr P sil cem,Fn-zr,st,mafic incl,lim matrix.
137½'	305-310		"	"	Fn/M	"	Same plus trace pale blue green shale. Ltl frstg.
E. C. 10'	310-315		"	Lt yl bn	"	"	Same,
	315-320		"	Gy yellow	"	"	Rnd.Tr P sil cem,pl gn sh,mafic incl,st,lim coatgs.Ltl gy shly
MT. SIMON FORMATION	320-325	G	"	Lt yl bn	M	"	Rnd.Tr P sil cem,pl gn sh,mafic incl,st,pyr.Mch gy mic pyr sts.
	325-330		"	"	"	"	Srnd.Tr P sil cem,mafic incl,Vfn/M-glauc,sndy sts/sh,frstg.
	330-335		"	Yellow	"	"	See end of log. glauc dol.Ltl frstg,gy sh as abv,drllg Fe stns
	335-340		"	"	"	"	Rnd.Tr VG sty dol cem(M xtln),P sil cem,wh&gy sh,mafic &motlng.
	340-345		"	V pl bn	"	"	Same plus tr VG pyr cement. incl,st,lim motlng.Ltl frstg.
	345-350		"	"	"	"	Same.
	350-355		"	"	"	"	Rnd.Tr VG sty dol cem(M xtln),VG pyr cem,P to F sil cem,mafic
	355-360		"	"	"	"	Wrnd.Ltl VG sty pnk hem mot dol incl,pl gn sh,wh sh.Ltl frstg.
	360-365		"	"	"	"	Same. cem(M xtln),frstg.Tr VG pyr cem,Fn-zr,lim motlng,wh sh.
	365-370		"	"	"	"	Wrnd.Tr VG sty pnk hem mot dol cem(M xtln),VG pyr cem,wh sh.Mch
	370-375		"	"	"	Vfn/C	Same plus trace pale green shale. frstg.
	375-380		"	"	"	"	Same.
	380-385		"	"	"	"	Wrnd.Ltl VG sty pnk hem mot dol cem(M xtln),drllg:Fe stns&metal
	385-390		"	White	"	Vfn/VC	See end of log. frags.Tr VG pyr cem,wh sh. Much frosting.
	390-395		"	V pl bn	"	"	Wrnd.Tr VG pyrite cement,VG dol cem,pl gn pyric sh,wh sh.Mch
	395-400		"	"	"	"	Same. sh,wh sh,mafic incl,drllg Fe & stns.Mch frstg. frstg.
	400-405		"	"	"	Vfn/C	Wrnd.Ltl VG dol cem w/some pnk hem motlng(M xtln).Tr pl gn pyric
	405-410		"	White	"	"	Wrnd.Tr VG pnk hem mot dol cem,sndy dol,pl gn pyric sh,wh sh.
	410-415		"	V pl bn	"	"	Rnd.Same plus tr wh sh matrix w/Vfn grained pyr,to- Mch frstg.
	415-420		"	"	"	"	Wrnd.Ltl VG pnk hem mot dol cem.Tr VG gether acting like a cem.
	420-425		"	"	"	Vfn/VC	Same. pyr cem,wh sh,pl gn pyric sh,mafic incl.Much frosting.
	425-430		"	"	"	"	Wrnd.Tr VG dol cem,wh sh matrix,pl gn pyric sh matrix,sndy dol,
	430-435		"	"	"	"	Wrnd.Mch VG pnk hem mot dol cem & sndy dol,frstg,pyr.Mch frstg.
	435-440		"	Yellow	"	Vfn/C	Same. Tr Fn-zr,lim motlng,wh sh.
	440-445		"	V pl bn	"	Vfn/VC	Same plus tr VG pyr cem.Mch drllg iron & stains.
	445-450		"	White	"	"	Wrnd,Mch VG dol cem,frstg.Tr wh sh,Vfn/Fn-zr,pnk hem motlng,pl
	450-455		"	"	"	"	Wrnd.F to Well sorted.Tr VG sty dol cem,gn pyric sh,drllg rust.
	455-460		"	"	"	Vfn/C	Same plus tr red hem mottling. VG pyr cem,Fn-zr,wh sh,pl gn
142'	460-462		"	"	"	Vfn/VC	Same. sh matrix(conc).
							Wrnd.Fair sorting.Trace VG silty dol cement,wh sh,red hem mottling,pyrite,pale green pyritic shale.Much frosting.
				END OF LOG			

Well name: Fitchburg City Well #7

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
		"See end of	log" samples.			
205-210		Sandstone	Yellow	M	Vfn/VC	Round. Trace poor sil cement, silt, white shale, good dolomit cement, mafic inclusion, frosting.
325-330		Sandstone	Lt yl bn	M	Vfn/VC	Round. Trace poor sil cement, very good pink dolomite cement (M crystalline), Vfn/M glauconite, sndy glaucic dol, mfc incl. Little gray micaceous pyritic shale, frosting.
380-385		Sandstone	V pl bn	M	Vfn/C	Well rounded. Little very good silty pink hem mottled dolomit cement. Much frosting. Trace pale green pyritic shale, lim mottling, white shale.

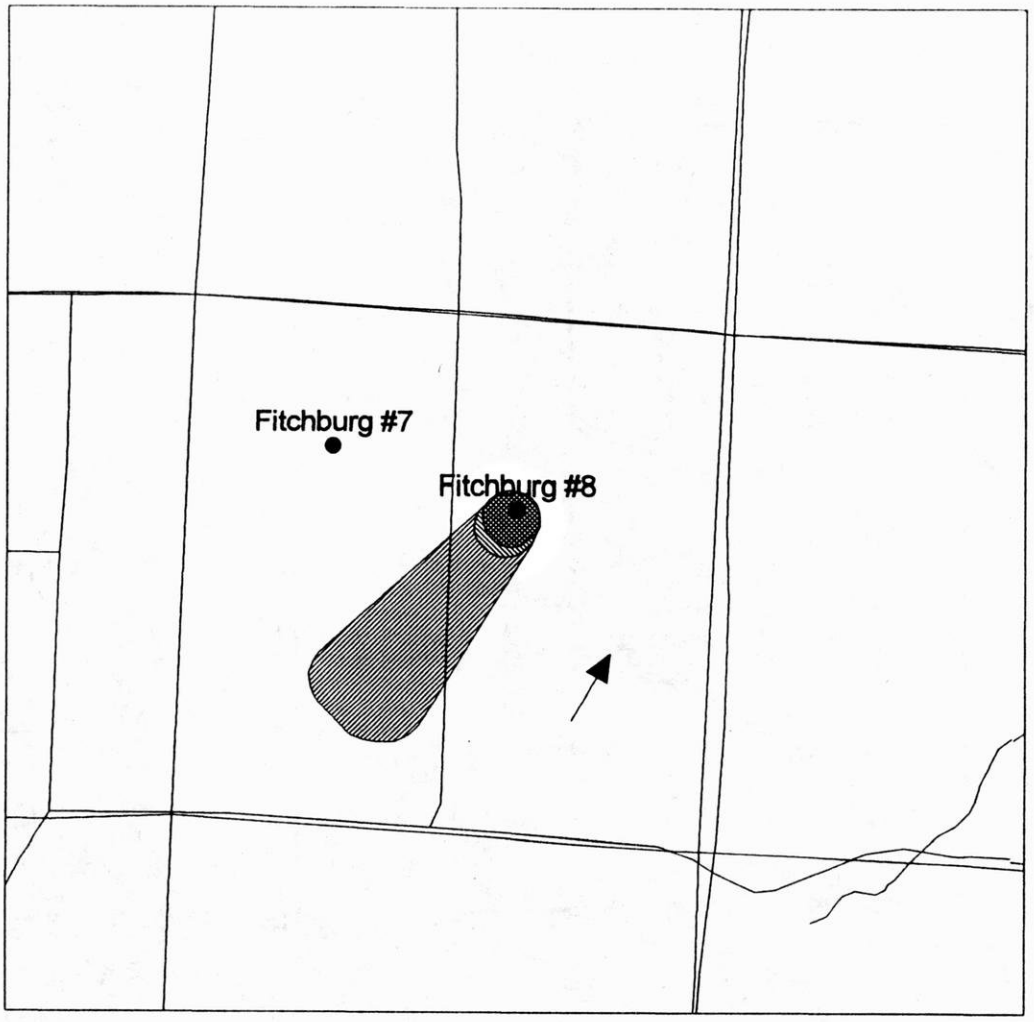
City of Fitchburg, Well Number 8



City of Fitchburg, Well Number 8 is located at 42° 58' 58.38" north latitude and 89° 23' 39.99" longitude. The well was installed in 1982 and has a pumping capacity of 250 gpm. The average daily use of the well between October 1994 and September 1995 was 11,000 gpd.

The well casing extends to a depth of 150 feet below ground surface, and the total depth of the well is 462 feet. Water is drawn from a combination of the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Fitchburg, Well Number 8



Well Location

Latitude: 42° 58' 58.38"
Longitude: 89° 23' 39.99"

0 500 1000
(meters)

N

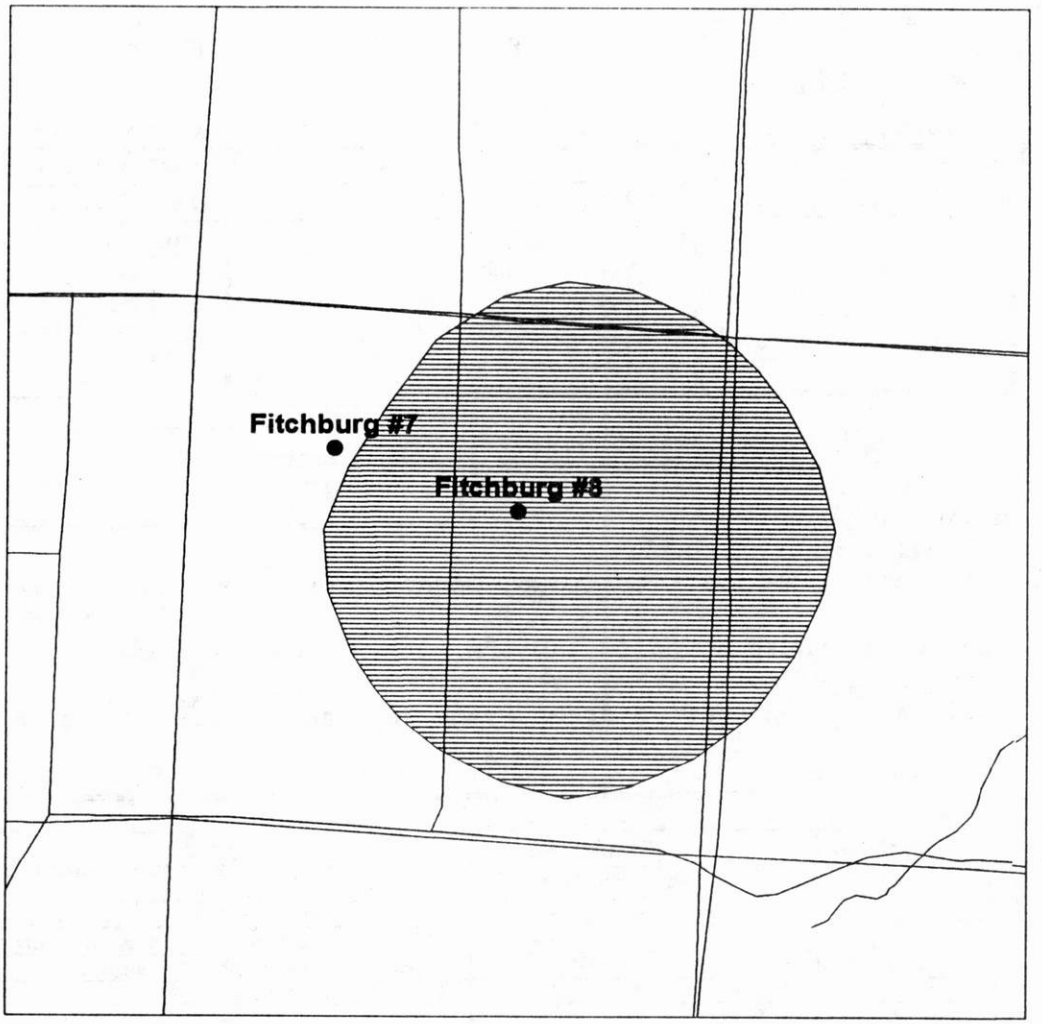
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Fitchburg, Well Number 8



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
3817 Mineral Point Road, Madison, Wisconsin 53705

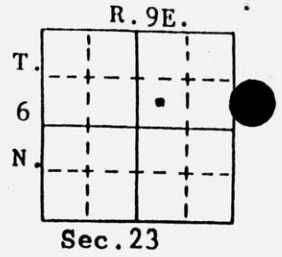
Log No. M222-Dq-1

Well name Fitchburg City Well #8

County: Dane

Owner.... Fitchburg Utility District #1
Address.. 2377 S. Fish Hatchery Rd.
Fitchburg, WI 53711
Driller.. Ace Well Drilling, Inc.
Engineer. Carl C. Crane,
Madison, Wisconsin

Completed... 3/16/82
Field check.
Altitude.... 919' ETM
Use..... Municipal
Static w.l.. 65'
Spec. cap... 10.3 GPM/ft



Location: SE¼, SE¼, NW¼, SW¼, NE¼, sec.23, T6N, R9E Quad. Oregon 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
12"	0	150'				12"	P.E. New pipe Valley Steel .250" wall 33 38 lbs per ft.			8"	.322" wall P.E. prime pipe A53B Valley Steel Pipe 28.55 lbs per ft.		
8"	150'	462'											

Grout	from	to
Neat Cement	0	150'

Drilling method:
Samples from 0 to 462' Rec'd: 3/2/82 & 3/17/82

Studied by: Tom Hanson (0-90')
Craig S. Schwandt (90'-462')

Issued: 8/24/88

Formations: Horicon Formation, Tunnel City Group, Wonewoc Formation, Eau Claire Formation, Mt. Simon Formation.

Remarks: Well tested for 24 hours at up to 380 GPM with 37 feet of drawdown.
DNR Permanent Well #77151.
Well #8 is located about 600' east of Syene Road and about 100' south of Hilltop Road.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	0-5		Silt	Ol brown	—	—	Siliceous. Much clay. Trace sand.
	5-10		Clay	Dk yl bn	—	—	Siliceous. Much silt. Trace sand, organics.
H	10-15		Silt & Clay	"	—	—	Siliceous. Trace sand, organics.
O	15-20		Sand	Yl brown	M	Vfn/VC	Little silt, clay.
R	20-25		"	"	"	"	Same.
	25-30		"	"	"	"	"
I	30-35		"	"	"	"	"
C	35-40		"	"	"	"	"
O	40-45		"	"	"	"	"
N	45-50		"	"	"	"	"
	50-55		"	"	"	"	Little silt, clay. Trace granules.
	55-60		"	"	"	"	Same.
	60-65		"	Lt yl bn	Fn	"	"
	65-70		"	"	M	"	Little silt. Trace granules, clay.
F	70-75		"	"	"	"	Same.
M.	75-80		"	"	"	"	Few granules. Little silt. Trace clay.
	80-85		"	"	"	"	Few granules. Little silt, clay.
	85-90		"	"	"	"	Many granules. Little silt, clay.
	90-95		Gravel	Mxd bn yl	S peb	Gran/M peb	Dol, carbonate cemtd ss, cht, qtz, trap, sh. Mch silt. Ltl sand.
	95-100		"	"	"	Gran/S peb	Cht, dol, sandstones of locally occuring type, trap. Mch snd. Ltl st.
105'	100-105		"	"	"	"	Same.
T.	105-110		Sandstone	Bn yellow	Fn	Vfn/C	Sang. Ltl cvd(?) granules & sand. Tr frosting. Vfn/M-glauc.
C.	110-115		"	"	"	"	Same plus little silt, plus tr red brown shale.
	115-120		"	"	"	"	Srnd. Ltl Vfn/M-glauc, silt. Tr red bn sh, frstg, cvd snd & gvl.
	120-125		"	"	"	"	Srnd. Tr G sty dol cem, drsy qtz, frstg, red bn sh, st. Ltl cvd(?)
25'	125-130		"	"	"	"	Srnd. Tr G calc cem, F sil cem, red bn sh, frstg, sec cht snd&gvl.
W	130-135		"	"	M	Vfn/VC	See end of log. qtz grwths. Ltl Vfn/M-glauc. Mch cvd(?) cht gvl
O	135-140		"	V pl bn	"	"	Same as 130'-135' except no glauconite.
N	140-145		"	"	"	"	Rnd. Tr VG sil cem, G lim cem, sec qtz grwths, pl gn sh. Mch frstg,
E	145-150		"	"	"	"	Rnd. Tr VG sil cem, Fn-zr, wh sh, cvd(?) cvd(?) cht gvl(Gr/SP).
W	150-155		"	"	"	"	Rnd. Tr F sil cem, wh sh, wh cht. Few sec qtz grwths. Ltl wh sh,
O	155-160		"	"	"	"	Same, pl gn sh, Vfn/Fn-zr, sec qtz grwths. Ltl frstg, drllg mud.
C							

Well name: Fitchburg City Well #8

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
WONEWOC FORMATION 145'	160-165		Sandstone	Yellow	M	Vfn/VC	Rnd.Tr G sty lim mot dol cem,F sil cem,sec qtz grwths,pl gn &
	165-170		"	"	"	"	Same. wh sh,Vfn-zr.Ltl lim motlng.
	170-175		"	"	Fn	"	Same but Subrnd.
	175-180		"	"	M	"	Rnd. Tr G sty lim mot dol cem,mafic incl,wh sh,pl gn sh. Ltl
	180-185		"	"	"	"	Same except no white shale or pale green shale. frstg.
	185-190		"	"	"	"	Same plus trace white shale.
	190-195		"	"	"	"	"
	195-200		"	"	"	"	Rnd. Tr G sty lim mot dol cem,F sil cem,st,wh sh. Ltl frstg.
	200-205		"	"	"	"	Rnd. Fair srtg. Tr lim motlng,mafic incl,wh sh. Ltl frosting.
	205-210		"	"	Fn	"	Srnd. Tr P sil cem,lim motlng,wh sh,mafic incl. Ltl frosting.
	210-215		"	"	"	"	Same plus trace fine zircon.
	215-220		"	"	"	"	Same.
	220-225		"	Lt yellow	"	Vfn/C	Srnd. Fair srtg. Tr Vfn-zr,lim motlng,pl yl sh. Ltl frosting.
	225-230		"	"	"	"	Same plus trace pale green shale.
	230-235		"	"	"	Vfn/VC	Srnd. Fair srtg. Tr P sil cem,Vfn-zr,lim motlng,wh sh. Ltl
	235-240		"	"	"	Vfn/C	Same plus trace yellow shale. frstg.
	240-245		"	"	"	"	Srnd. Tr F sil cem,G lim cem,wh sh,Vfn/Fn-zr.Ltl yl to pl gn
	245-250		"	V pl bn	"	"	Srnd. Tr P sil cem,wh sh,sndy pl gn sh,Vfn-zr.Ltl sh,frstg.
	250-255		"	"	"	Vfn/VC	Same plus trace G lim cement. yl to pl gn sh.
	255-260		"	"	"	"	Same.
	260-265		"	"	"	"	Srnd. Tr P sil cem,wh sh,gy sh,yl to pl gn sh,Vfn/Fn-zr. Ltl
	265-270		"	"	M	"	Rnd. Tr P sil cem,G lim cem, yl sh, Vfn/Fn-zr.Ltl frstg. frstg.
	270-275		"	"	Fn	"	Srnd. Tr P sil cem,G lim cem,pl gn sh,gy sh,wh sh,Vfn zr,Ltl frst
E.C. 10'	275-280	G M G	Ss & Shale	V pl bn & gy	M	"	Ss: Rnd.Mch VG dol cem,wh sh matx.Ltl frstg.Tr sndy sh,Vfn-zr.
	280-285	G G	Sandstone	Lt gn gy	M	Vfn/VC	See end of log. Sh; Silcs,Miccs,Tr Vfn/M-glauc,pyr.
MT. SIMON FORMATION	285-290	G	"	V pl bn	"	"	Wrnd. Ltl VG hem mot dol cem (M xtln),sh matx.Tr VG pyr cem,G
	290-295	G	"	"	"	"	Same plus tr drllg Fe stng & rust. to VG sil cem,lt gy sh,pl
	295-300		"	"	"	"	Wrnd. Ltl VG dol cem w/tr hem motlng gn sh,Vfn/M glauc,wh sh,
	300-305	G	"	"	"	"	Same. (M xtln),frstg.Tr VG pyr cem, conc of glauc & pyrite.
	305-310		"	"	"	Vfn/C	Same plus tr pl gn sndy sh. wh sh,Vfn/Fn-glauc,gray shale.
	310-315		"	V pl tn gy	"	"	Wrnd. Mch VG dol cem,frstg,Ltl wh sh matx,Tr hem motlng,gy sh,
	315-320		"	"	"	Vfn/VC	See end of log. pl gn sh,cvd(?) glauc ss,VG pyr cem.
	320-325		"	"	"	Vfn/C	Same as 315'-320' plus tr VG sil cem,pl gn pyritic shale.
	325-330		"	"	"	Vfn/VC	Wrnd. Ltl VG hem mot dol cem,frstg,drllg Fe motlng.Tr VG pyr
	330-335		"	"	"	"	Same. cem,pl gn sh,wh sh,pyr.
	335-340		"	"	"	Vfn/C	Wrnd. Ltl VG sty dol cem w/tr hem motlng,frstg.Tr VG pyr cem,
	340-345		"	"	"	"	Same. wh sh,pl gn pyric sh,drllg Fe motlng,
	345-350		"	"	"	"	Wrnd. Ltl VG dol cem w/mch sh matx,frstg.TrVG pyr cem,pl gn sh,
	350-355		"	"	"	Vfn/VC	Same. drllg Fe motlng,marc,Fn-zr.
	355-360		"	"	Fn/M	""	Wrnd. Tr VG dol cem,wh sh,drllg Fe motlng,frstg,cvd org,Fn-
	360-365		"	V pl bn	M	"	Rnd. Ltl VG dol cem w/mch pk sh matx,frstg.Tr glauc(cvd?).
	365-370		"	"	Fn	"	Same plus tr pl gn pyric sh. VG pyr cem,wh sh,
	370-375		"	"	Fn/M	Vfn/C	Same.
	375-380		"	"	"	"	"
	380-385		"	"	"	"	"
	385-390		"	"	M	Vfn/VC	Wrnd. Mch VG dol cem w/ltl pk sh matx.Tr VG pyr cem,pl gn pyric
	390-395		"	"	"	"	Same. sh,wh sh.Ltl frstg,
	395-400		"	"	"	"	"
	400-405		"	"	"	Vfn/C	Wrnd. Mch VG dol cem w/mch pk sh matx,drllg Fe motlng,Tr VG
	405-410		"	"	Fn/M	"	See end of log. pyr cem,gy sh,wh&pl gn shs.Ltl frstg.
	410-415		"	White	M	Vfn/VC	Same as 405'-410' plus trace secondary quartz growths,
	415-420		"	"	"	Vfn/C	Wrnd. Mch VG dol cem w/mch wh sh matx.Tr sec qtz grwths,mafic
	420-425		"	"	"	"	See end of log. incl,wh sh,hem motlng. Ltl frstg,drllg Fe motl
	425-430		"	V pl bn	"	"	Rnd. Mch VG dol cem w/ltl sh matx.Tr hem motlng,wh sh,pl gn sh,
	430-435		"	"	"	"	Wrnd. Ltl VG hem mot dol cem w/ltl Ltl frstg,drllg Fe motlng,
	435-440		"	"	"	"	See end of log. wh sh matx,frstg.Tr pyr,wh sh,Fn-zr.
	440-445		"	"	Fn	"	Srnd to rnd.Ltl VG dol cem,frstg.Tr hem motlng,wh sh matx,wh
	445-450		"	V pl gy	M	"	Rnd. Tr VG dol cem,sec qtz grwths,pl gn sh,pl gn pyric sh,
	450-455		"	"	"	"	Same plus much lt orange sh matrix, pyric sh,drllg Fe motlng.
	455-460		"	White	"	"	Rnd. Tr VG dol cem,lt or sh matx,pl gn sh,sec qtz Ltl frstg.
177'	460-462		"	"	Fn	Vfn/VC	Srnd to rnd. Ltl VG dol cem, grwths,Vfn-zr.Ltl frosting.
							frstg. Tr lt orange sh matrix,sec qtz grwths,pl gn & wh sh.
				END OF LOG			

Well name: Fitchburg City Well #8

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
		"See end of log" samples.				
130-135		Sandstone	Bn yellow	M	Vfn/VC	Rnd. Tr VG calcite cement, G sil cement, red brown shale, frosting, Vfn/M-glauc. Much caved chert(?) gravel (Gr/SP).
280-285		Sandstone	Lt gn gy	M	Vfn/VC	Rnd. Much VG hem mottled dol cement (M crystalline), gray gn shale. Little frosting, Vfn/M-glauc. Trace G sil cement.
315-320		Sandstone	V pl tn gy	M	Vfn/VC	Wrnd. Little VG dol cement, wh shale matrix. Trace VG pyrite cement, hem mottling, wh sh, gray sh, Fn-zircon. Mch frstg.
405-410		Sandstone	V pl bn	Fn/M	Vfn/C	Wrnd. Little VG dol cement w/much shale matrix, frosting. Tr white & gray shale, drilling iron mottling.
420-425		Sandstone	White	M	Vfn/C	Rnd. Trace VG shaly dol cement, marcasite, pale green & white shales. Little frosting.
435-440		Sandstone	V pl bn	M	Vfn/C	Rnd. Little VG dol cement, frosting, drilling iron mottling. Much shale matrix. Trace hem mottling, pale green & white shale, Vfn/Fn-zircon.

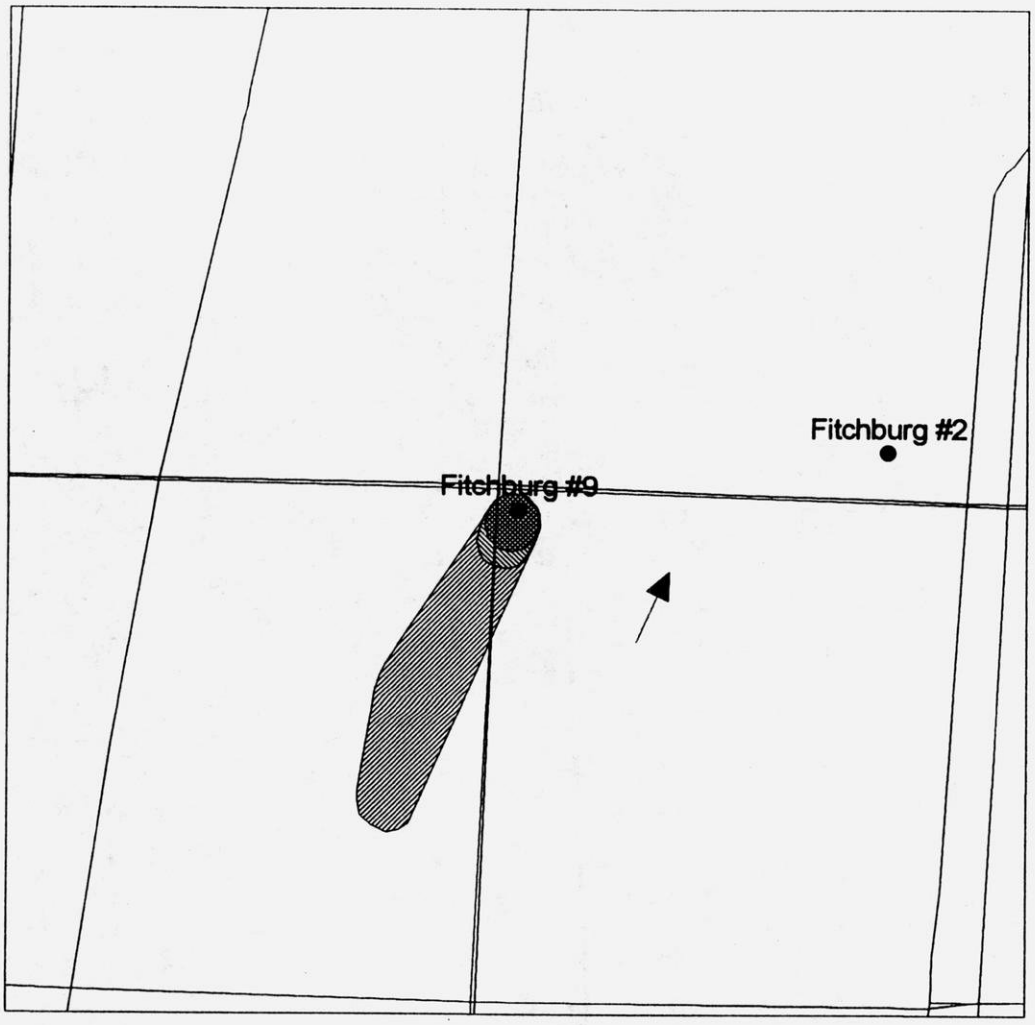
City of Fitchburg, Well Number 9



City of Fitchburg, Well Number 9 is located at 43° 0' 1.87" north latitude and 89° 26' 42.94" longitude. The well was installed in 1991 and has a pumping capacity of 1,000 gpm. The average daily use of the well between October 1994 and September 1995 was 337,000 gpd.

The well casing extends to a depth of 428.5 feet below ground surface, and the total depth of the well is 965 feet. Water is drawn from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Fitchburg, Well Number 9



Well Location

Latitude: 43° 0' 1.87"
Longitude: 89° 26' 42.94"

0 500 1000
(meters)

N

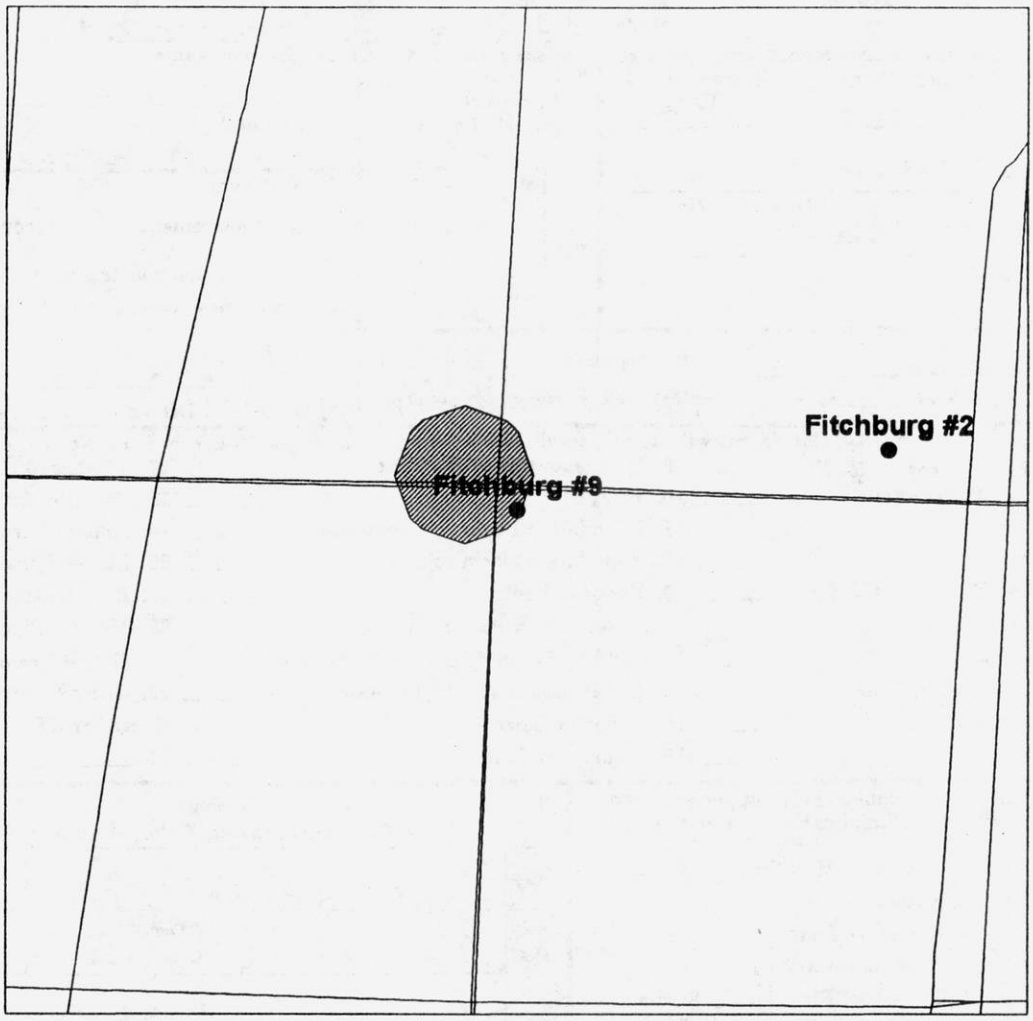
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Fitchburg, Well Number 9



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

First Water Quality Test For
WISCONSIN UNIQUE WELL NUMBER AX 013

State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

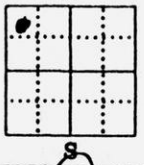
APR 24 1991

Property Owner: CITY OF FITCHBURG — Telephone Number: (608) 271-4551
Mailing Address: 6060 MC KEE RD.
City: FITCHBURG, WI 53711 — State — Zip Code
County: DANE — County Well Location Permit No.: W — Well Completion Date: 03/26/91 (MM DD YY)

(13)

Well Constructor (Business Name): MILAEGER WELL & PUMP — Registration #: 82
Address: 20950 ENTERPRISE AVE.
City: BROOKFIELD, WI 53045 — State — Zip Code
City Well No. 9
M

2. Mark well location in correct 40-acre parcel of section.



1. Location (Please type or print using a black pen.)
☐ Town ☒ City ☐ Village of FITCHBURG — Fire # (if available)
Grid or Street Address or Road Name and Number (if available): Mutchler Rd. at Lacy Rd
Subdivision Name — Lot # — Block #
Gov't Lot # ____ or NW ¼ of NW ¼ of Section 16; T 6 N; R 9 ☒ E ☐ W

3. Well Type ☒ New ☐ Replacement ☐ Reconstruction/Rehabilitation
of well constructed in 19 90 - 91
Reason for new, reconstructed, replaced, or rehabilitated well?
Add'l municipal supply
☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other ____

4. Well serves ____ # of homes and/or ____ (ex: barn, restaurant, church, school, industry, etc.)
High Capacity Well? ☒ Yes ☐ No
High Capacity Property? ☒ Yes ☐ No

5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☒ Yes ☐ No
Well Located in Floodplain? ☐ Yes ☒ No
Distance In Feet From Well To Nearest:

____ 1. Landfill	____ 9. Downspout/Yard Hydrant	____ 17. Wastewater Sump	
100' 2. Building Overhang	____ 10. Privy	____ 18. Paved Animal Barn Pen	
____ 3. Septic or Holding Tank	____ 11. Foundation Drain to Clearwater	____ 19. Animal Yard or Shelter	
____ 4. Sewage Absorption Unit	____ 12. Foundation Drain to Sewer	____ 20. Silo — Type ____	
____ 5. Nonconforming Pit	____ 13. Building Drain ☐ Cast Iron or Plastic ☐ Other	____ 21. Barn Gutter	
____ 6. Buried Home Heating Oil Tank	____ 14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other	____ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other	
____ 7. Buried Petroleum Tank	____ 15. Collector Sewer	____ 23. Other Manure Storage ____ Other NR 112 Waste Source	
____ 8. Shoreline/Swimming Pool	____ 16. Clearwater Sump	____ 24. ____	

Note DNR Perm#0053 owner well # approv. 5-11-9 municipal

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
30	0	13
24	~~surface~~ 1.7	180
20	0	207 ~~210~~
19 ~~16~~	0	~~428.5~~ 415
15.25"	428.5	965

Method of constructing upper enlarged drillhole. (If applicable ✓ more than one.)
☐ 1. Rotary — Mud Circulation
☐ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☒ 5. Cable-tool Bit 16 (30) in. dia.
☐ 6. Temp. Outer Casing ~~—~~ in. dia. Removed? ☐ Yes ☒ No
If no, explain cemented
☐ 7. Other ____

9. Geology

	Type, Caving/Noncaving, Color, Hardness	Etc.	From (ft.)	To (ft.)
YC	Sand, gravel & some clay		surface	207
N	Tunnel City (Jordan) Sand stone	JRDA	207	325
CS	Caving white sand		325	426
SHN	Grey shale, sandstone		426	493
N	Mt. Simon Sandstone	MNSN	493	965
	Orig to Public 7.19.91			
	cc: SOD, WGNHS, WELL LOG BOOK			

NOTE: TWO SETS OF HOLES WERE CUT IN THE 16" CASING AT A DEPTH OF 380' TO ALLOW THE GROUT TO FLOW INTO THE ANNULUS. INITIAL GROUTING BY HALLIBURTON METHOD.

7. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
24	Steel, ~~5#~~ wall, 125 #/,	surface	180
20	" , ~~5#~~ wall, 104 #/,	0	207 ~~210~~
16	ASTM A-53 " , .375 " , 62.6 #/,	0	~~428.5~~ 415
30	steel	0	13
Dia. (in.)	screen type and material	From —	To —

8. Grout or Other Sealing Material
Method Pump - Pressure

Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
Neat cement 0-13', Neat cement 0-180', Neat Cement grout	surface	207 ~~181~~	405
" " "	0	~~428.5~~ 415	1398 ~~1111~~

10. Static Water Level
____ ft. above ground level
135 ft. below ground surface

11. Pump Test (sp. cap = 7.7 gpm/ft)
Pumping Level 295 ft. below surface
Pumping at 1230 GPM for 28 hours

12. Well Is: COMPLETED BY TREMIE METHOD.
☒ Above ☐ Below Grade
24 in.
Developed? ☐ Yes ☒ No
Disinfected? ☒ Yes ☐ No
Capped? ☒ Yes ☐ No

13. Were all unused, noncomplying, or unsafe wells properly filled with seal? ☒ Yes ☐ No If no, explain ____

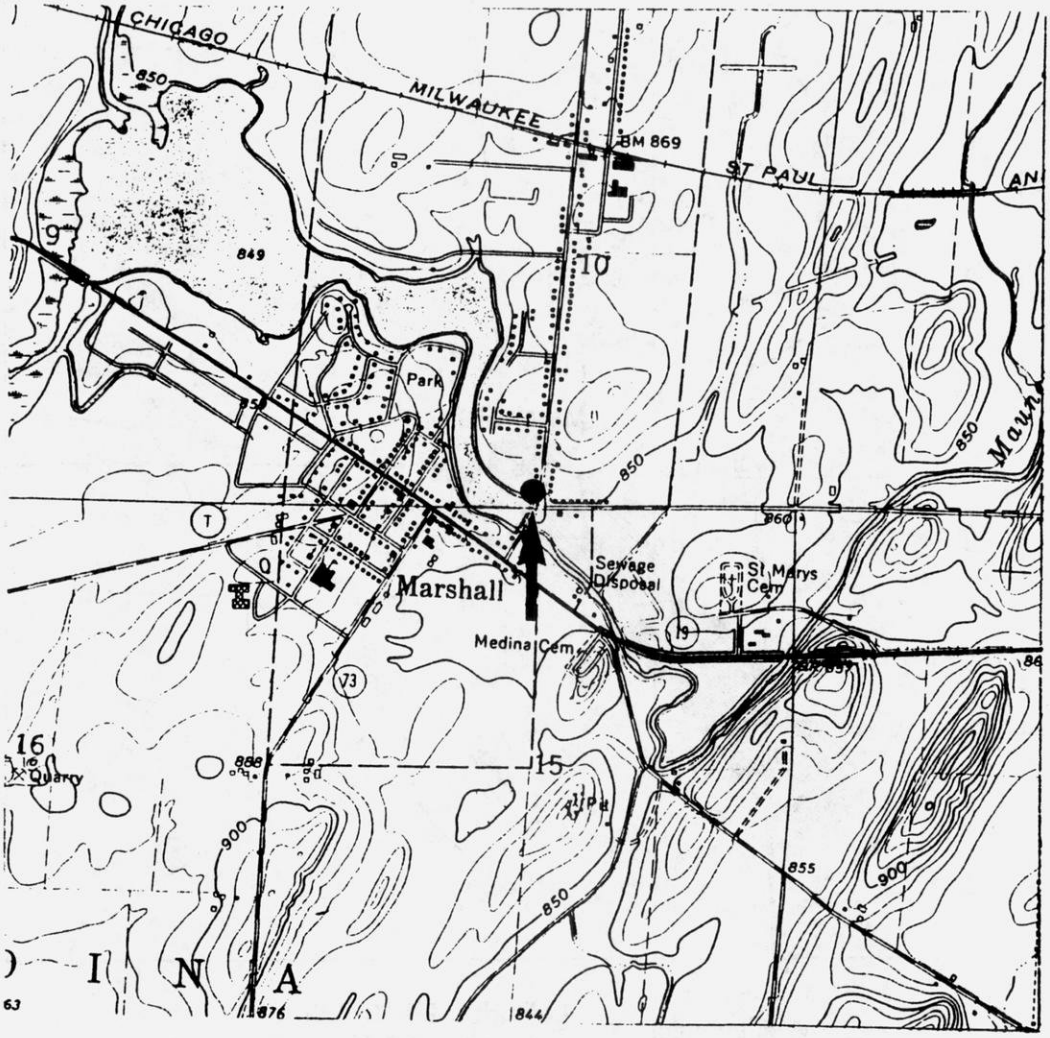
14. Signature of Well Constructor: [signature] MM — Date Signed: April 22, 1991
Signature of Drill Rig Operator: Gary Klemme GK — Date Signed: April 22, 1991

Make additional comments on reverse side about geology, etc.

DNR

WELL CONSTRUCTION REPORT
Form 3300-77A Rev. 1-88

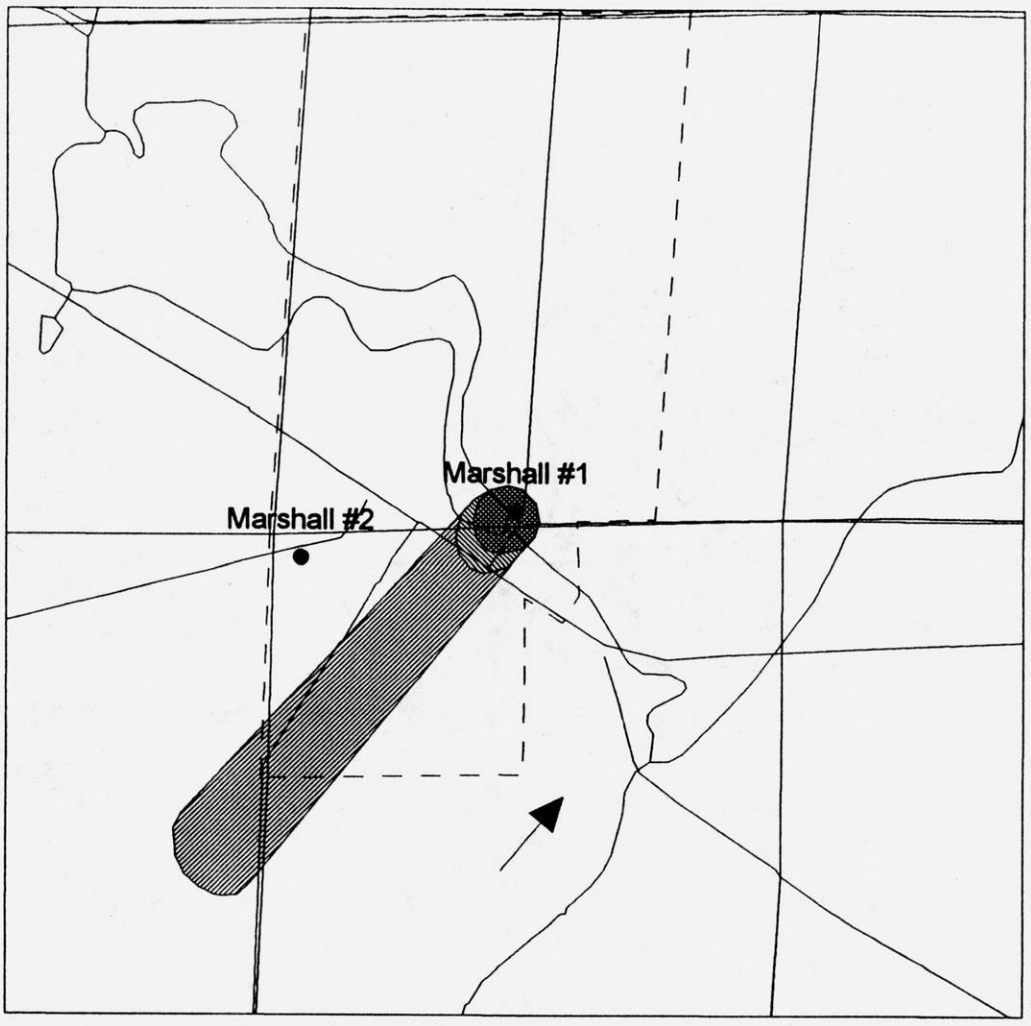
Village of Marshall, Well Number 1



Village of Marshall, Well Number 1 is located at 43° 10' 4.95" north latitude and 89° 3' 36.78" longitude. The well was installed in 1941, and has a pumping capacity of 343 gpm. The average daily use of the well over the period from October, 1994 through Spetember, 1995 was 247,000 gpd. The well produces less then one-half foot of drawdown in both the water table aquifer and the deep sandstone aquifer.

The well casing extends to a depth of 170 feet below ground surface, and the total depth of the well is 372 feet. Water is drawn from a combination of the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Marshall, Well Number 1



Well Location

Latitude: 43° 10' 4.95"
Longitude: 89° 3' 36.78"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

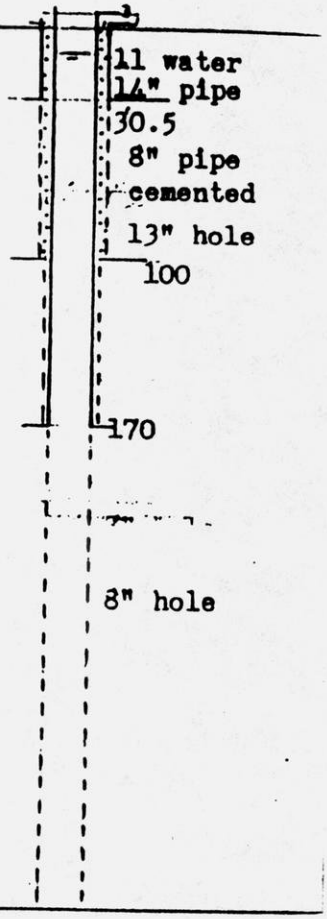
Approximate Direction of Groundwater Flow

DN-29

#1

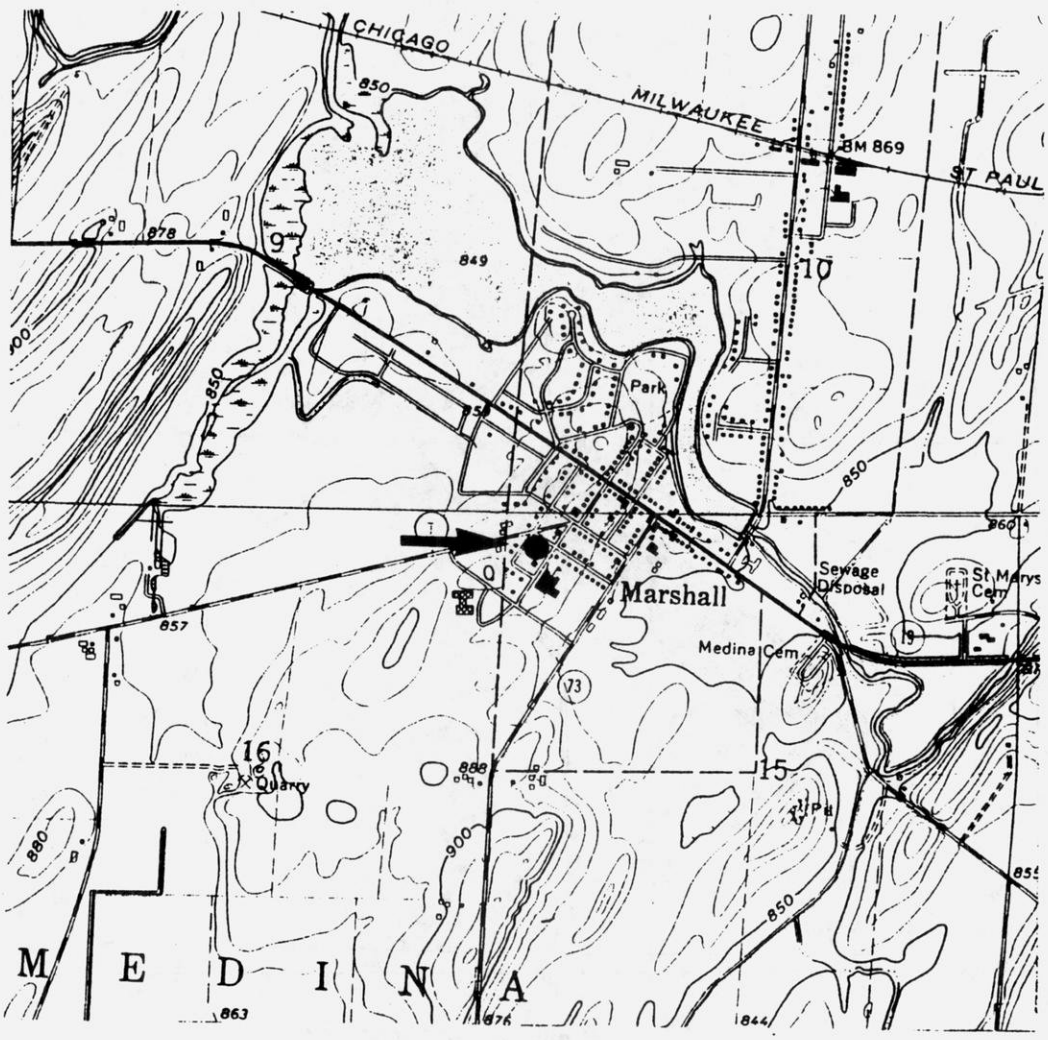
SUPPLY WELL, MARSHALL, WIS.
General Engineering Co., Engineers
Geo. Reynolds, Driller, 1941
Samples examined by F. T. Thwaites, Nos. 110023-110098
SE¼, SE¼, SW¼, sec. 10, T8N, R12E
853' ETM

D	25	0-25	25		Till, gray, dolomitic
L M	30	25-55	30		Dolomite, light gray, yellow-gray; chert, white; shale, green at base
TREMPE	90	55-65	10		Sandstone, medium to fine, lt.gray, dol.
		65-75	10		Sandstone, fine, light gray, very dolomitic
		75-95	20		Siltstone, purple, gray, very dolomitic
		95-100	5		Sandstone, very fine to silty, gray, dol.
		100-110	10		Siltstone, gray, dolomitic
		110-145	35		Siltstone, purplish-pink, dolomitic
T. C.	40'	145-160	15		Sandstone, medium to silty, pink, dol., glau.
		160-175	15		Sandstone, fine to medium, gray, dol., glauc.
		175-185	10		Siltstone, gray, dolomitic
WONEWOC	70'	185-195	10		Sandstone, fine to medium, gray, dolomitic
		195-200	5		Siltstone, gray, dolomitic
		200-210	10		Sandstone, fine to silty, gray, dolomitic
		210-230	20		Sandstone, medium to fine, white
		230-245	15		Sandstone, coarse to fine, pink, white, dol.
		245-255	10		Sandstone, medium to fine, pink, dolomitic
MT. SIMON	117'	255-275	20		Sandstone, medium to fine, white
		275-280	5		Sandstone, fine to medium, pink
		280-372	92		Sandstone, medium to fine, white



Formations: Drift, Lower Magnesian (Prairie d u Chien), Trempealeau (includes Madison and Jordan), Tunnel City Group, Wonewoc Formation, Mt. Simon Sandstone.
Tested 10 hours at 350 g.p.m. specific capacity = about 9.5 g.p.m.
Formations revised - RMP - 11/7/83.

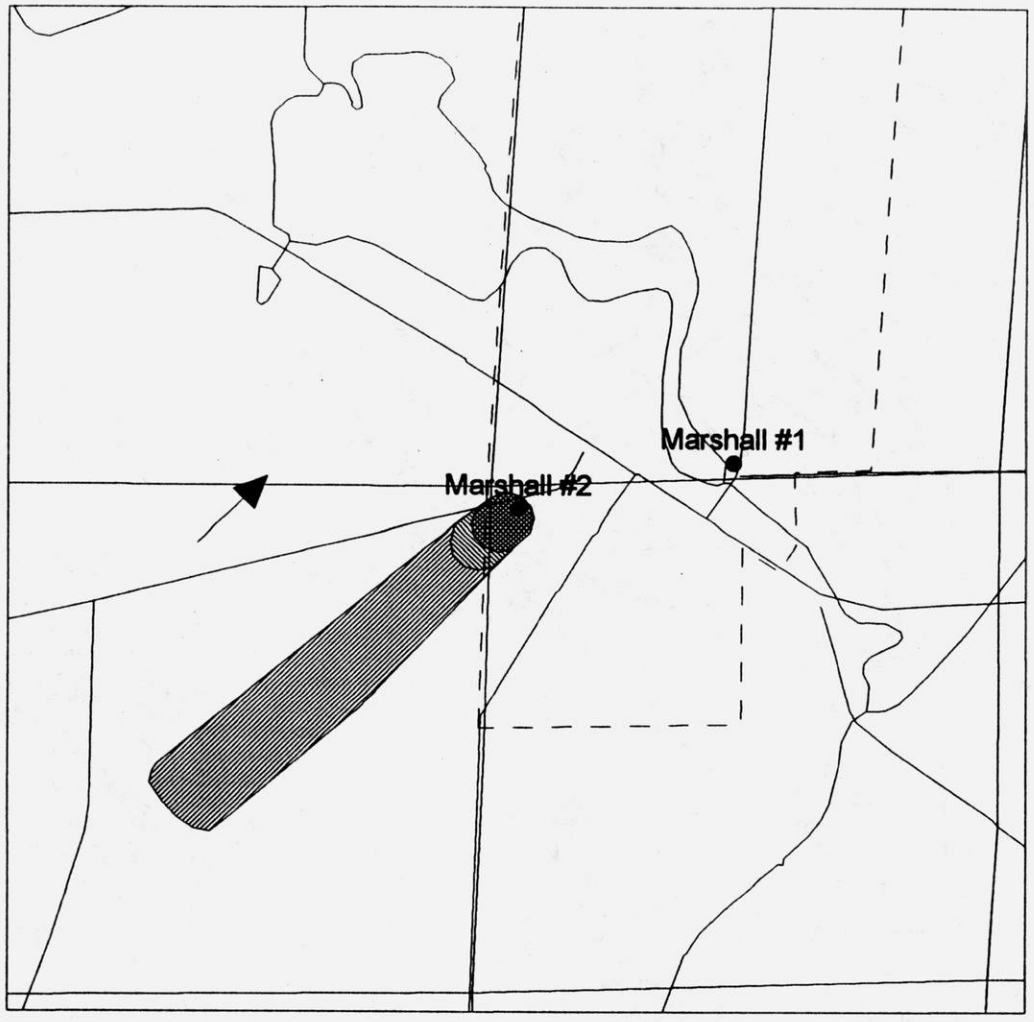
Village of Marshall, Well Number 2



Village of Marshall, Well Number 2 is located at 43 9' 59.58" north latitude and 89 4' 6.54" longitude. The well was installed in 1968, and has a pumping capacity of 500 gpm. The average daily use of the well over the period from October, 1994 through Spetember, 1995 was 230,000 gpd.

The well casing extends to a depth of 191 feet below ground surface, and the total depth of the well is 805 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Marshall, Well Number 2



Well Location

Latitude: 43° 9' 59.58"
Longitude: 89° 4' 6.54"

0 500 1000
(meters)

N

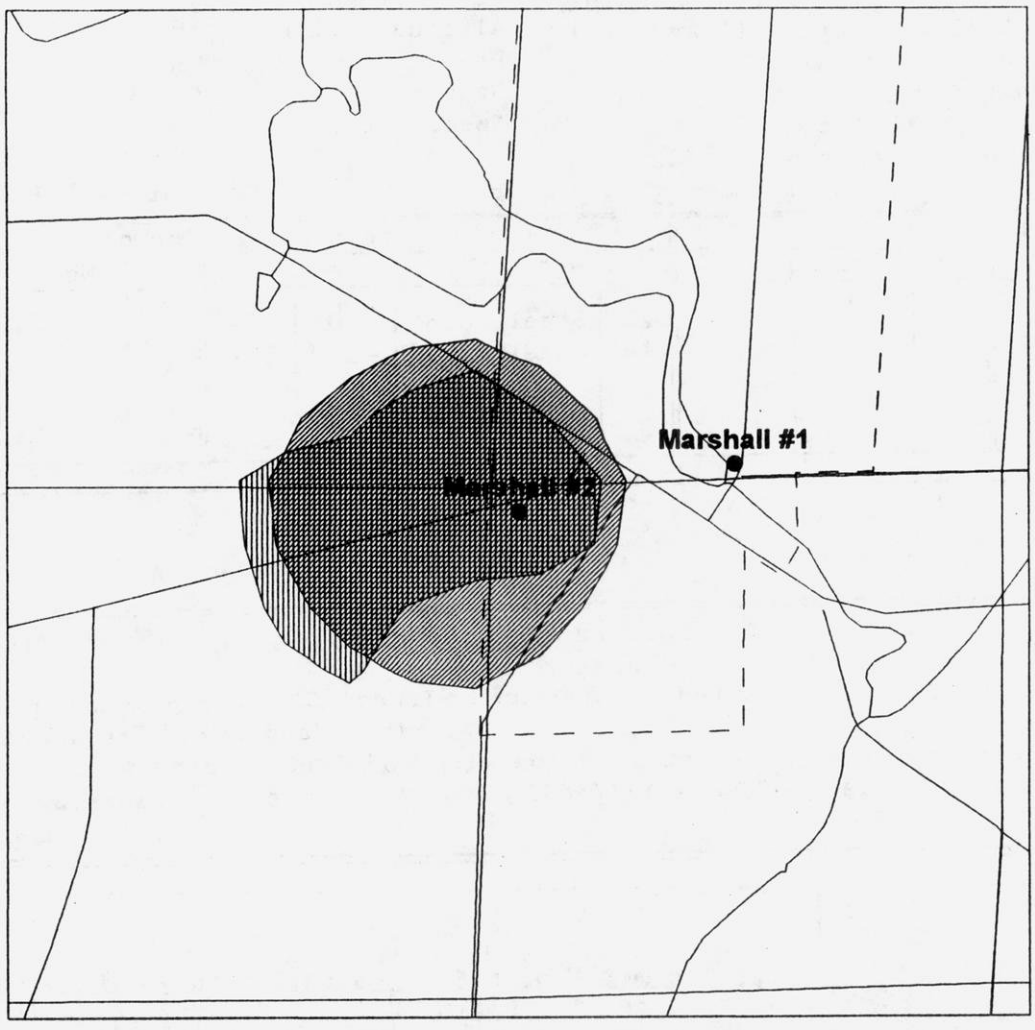
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Marshall, Well Number 2



Scale 1:24,000

0 500 1000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-957
Sample Nos. 283358-283518

County: Dane

Well name Village of Marshall, Wisconsin Well #2
Owner.... Village of Marshall, Wisconsin
Address.. c/o Village Clerk, Village Hall Marshall, Wisconin
Driller.. Milaeger Well & Pump Co., Inc.
Engineer. Mead & Hunt, Inc. Madison, Wisconsin

Completed... 2/29/68
Field check. --
Altitude.... ~~860'~~ 878' ETM
Use..... Municipal
Static w. l. -- 23'
Spec. cap... -- 9.7

R. 12E.
T. 8 N.
Sec. 15

LOCATION: C, NW, SE, NW, NW, NW, sec. 15 T5N, R12E
Quad. Marshall 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
20"	0	42'				20"	Steel 78.6#	0	42'				
19"	42'	191'				16"	Steel 62.5#	+36"	191'				
15"	191'	472'											
12"	472'	805'											

Grout: Kind	from	to
Cement	0	191'

Samples from 0 to 805'
Date received: 1/17/68
Examined by: J.M. Warren
Issued: 2/69
Date: 1/31/68

Formations: Drift, Prairie du Chien, Trempealeau, Tunnel City Group, Wonewoc Formation, Mt. Simon Sandstone, Precambrian.

Remarks: Well tested for 12 hours at 1016 gpm with 105 feet of drawdown.
Formations revised - RMP - 11/7/83. Lower Wonewoc shows reworking of the eroded Eau Claire Formation.

LOG OF WELL:

DRIFT 40'	0-20	20	St,gry or mot V pl or&bn,P srtg;ltl fn gvl,tr Vfn&M,tr Vfn/VC snd
	20-30	10	Snd,gry or&pl mxd clr,C,ang,P srtg,mch fn,M&VC,ltl Vfn,mstly dol& qtz,ltl ig;mch Vfn gvl&calcus st;ltl cl
	30-35	5	Snd,gry or&pl mxd clr,M&C,mch fn&Vfn,ltl VC;mch Vfn gvl,ltl calcus
	35-40	5	Gvl,gry or&pl mxd clr,fn&Vfn,mstly dol,tr ig&cht;mch fn/VC snd
PRAIRIE DU CHIEN 50'	40-45	5	Dol,pl or,gry or&or pnk,M&fn,slgt por,sug tex;tr wh cht,tr cvd snd
	45-55	10	Dol,gry or mot yl or,fn,dns,tr por,ltl Vfn,sug tex;mch wh cht,tr M&C qtz snd
	55-60	5	Dol,pl yl or,fn&Vfn,dns,tr por,sug tex;tr wh cht&oolic cht
	60-65	5	Dol,pl yl or,fn,dns,sug tex,ltl Vfn&M,tr oolic&tr sndy(fn/C);
	65-75	10	Dol,yl or&yl gry mot or pnk,fn,dns,tr por,yl or,V sndy(C/fn),yl gry-oolic,ltl M&Vfn;mch fn/C snd,tr oolic cht,cht&ools
	75-80	5	Ss ,V pl yl or,C,ltl yl or&rd or G dol-cem,mch M,ltl VC&fn,tr Vfn;
	80-85	5	Dol,rd or mot or pnk&V pl or,M&fn,dns,tr V por,ltl Vfn,tr C,
	85-90	5	Dol,or pnk mot yl gry,fn&Vfn,dns,tr por,ltl sndy(M&fn);mch fn&M
TREMPEALEAU 70'	90-100	10	Ss,or pnk,yl or,tr or&yl gry,M,rnd/ang,P srtg,ltl G snd,ltl C&VC dol-cem,mch fn,ltl C&VC,tr Vfn;mch xln dol,tr oolic,slgt tr cht
	100-105	5	Dol,pl rd mot yl or,fn&Vfn,dns,sug tex,tr M,sndy(fn&Vfn),glaucic
	105-110	5	Dol,yl or,yl gry&pl rd,Vfn,dns,tr por,ltl sty or wea,sndy(fn&Vfn)
	110-115	5	Dol,or pnk,yl or&rd or,fn&Vfn,dns,sug tex,sndy(Vfn/M),tr glaucic;
	115-125	10	Dol,V gry or mot pl rd&rd or,Vfn,dns,sndy(fn&Vfn); ltl Vfn/M snd slgt glaucic,ltl fn&Vfn snd,tr M/VC,slgt tr wh cht ools
	125-130	5	Dol,pl yl or,fn&Vfn,dns,tr fossif,tr mot purp;tr Vfn/C snd,gn&rd sh
	130-135	5	Sts,pl gry purp,dolic;mch yl or&gry rd sndy dol,ltl gry rd sh&M&C s
	135-140	5	Dol,gry rd,fn,dns,sty;tr Vfn grand glauc,tr oolic cht
	140-150	10	Dol,gry rd,Vfn,dns,ltl fn,V sty,ltl sndy(M/Vfn);tr glauc
	150-155	5	Sts,gry rd,dolic,ltl sft;mch dol as above,ltl gry rd&pl gry mica sh
	155-160	5	Dol,rd or fn&Vfn,dns,V sndy(fn&Vfn),ltl sty,ltl mica sh,mch fn snd
TUNNEL CITY	160-165	5	Ss,or pnk,M&fn,ltl G dol-cem,ltl C&VC,tr Vfn;mch sft M xln dol
	165-167	2	Ss,pl yl or,M,ltl G dol-cem,mch C,ltl fn,tr VC;dol-cem-M xln,mch
	167-170	3	NO SAMPLE brt gn sh
	170-175	5	Ss,rd or mot pl or,M&fn,ltl F dol-cem,tr C,VC&Vfn;tr glauc
	175-180	5	Ss,pl yl or,M,mch F-G dol-cem,mch fn,tr-ltl C,tr VC;tr glauc&st
	180-185	5	Ss,pl yl or mot or pnk,M&fn,mch F-G dol-cem,ltl C,tr Vfn;tr st
	185-190	5	Ss,yl or mot rd or,M&fn,mch F-G dol-cem,ltl C,tr Vfn&VC;tr glauc

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-957

Well name Village of Marshall, Wisconsin, Well #2
Sample Nos. 283358 to 283518

C	40'	190-195	5	Sts,lt gry,V G dol-or calc-cem;mch M/fn dol-cem,ltl Ss,tr glauc
		195-200	5	Ss,V pl yl or,M&fn,P M xln dol-cem,ltl Vfn,tr C;mch sts as above
WONEWOC		200-205	5	Ss,V pl yl gry,M&C,ang/rnd,P srtg,ltl fn&VC;tr st
		205-210	5	Ss,V pl yl gry,M,ang/rnd,P srtg,mch fn&C,ltl VC,tr Vfn;tr st
		210-215	5	Ss,V pl yl gry,M&fn,Srnd/ang,P srtg,ltl C,tr VC&Vfn;tr st,slgt tr glauc&dol
		215-225	10	Ss,V pl yl gry,M,Srnd/ang,P srtg,mch C&fn,ltl VC,tr Vfn; slgt tr st,lim&dol
		225-230	5	Ss,V pl yl gry,C,rnd,G srtg,mch M&VC,ltl fn;
		230-245	15	Ss,V pl yl gry,M,rnd,G srtg,mch C&fn,ltl VC;slgt tr gn sh
		245-250	5	Ss,V pl yl gry,M,mch C&fn,ltl VC,tr Vfn;mch st&pl yl gn sh,
		250-255	5	Ss,V pl or,M,Srnd,F srtg,ltl G dol-cem,mch C&fn,ltl VC;mch pl gry or sndy dol
	70'	255-270	15	Ss,V pl or,M,Srnd,F srtg,mch C,ltl-mch fn,tr-ltl VC;ltl gry or sndy dol
MT. SIMON		270-285	15	Ss,pl yl or,M,rnd,G srtg,tr-ltl fn&C;tr sndy dol
		285-290	5	Ss,V pl or,M&C,rnd,G srtg,ltl P dol-cem,tr fn;ltl yl or&rd or dol
		290-300	10	Ss,V pl or,M,rnd,G srtg,tr-ltl P dol-cem,mch fn&C;tr-ltl yl or&rd or dol
		300-330	30	Ss,V pl or pnk,M,rnd,G srtg,tr F dol-cem,mch fn&C,tr VC;tr rd or dol
		330-350	20	Ss,wh,M&C,rnd,G srtg,ltl fn,tr Vfn;V slgt tr st
		350-355	5	Ss,V pl or,M,Srnd&Sang,G srtg,ltl C&fn,slgt tr Vfn;
		355-410	55	Ss,V pl yl,M,Srnd&Sang,G srtg,mch C,ltl fn,slgt tr Vfn;
		410-415	5	Ss,V pl or,M&C,rnd,ltl fn,slgt tr VC;tr lim&pyr,slgt tr gn sh
		415-420	5	Ss,V pl yl gry,M&C,rnd,G srtg,tr fn;
		420-450	30	Ss,V pl yl gry,M,rnd,G srtg,mch fn,ltl C;V slgt tr pyr-cem
		450-455	5	Ss,V pl gry,M,rnd,G srtg,mch fn,tr C;tr grans&gn sh
		455-460	5	Ss,V pl gry,M&fn,rnd,G srtg,tr-ltl C;tr st&gn sh
		460-465	5	Ss,V pl or,M&fn,rnd,G srtg,ltl C;tr st,gn sh&grans
		465-470	5	Ss,V pl or,M&fn,rnd,F srtg,ltl C,tr VC&Vfn;tr st
		470-490	20	Ss,V pl yl,M&fn,rnd,F srtg,tr C&Vfn;tr st&gn sh
		490-520	30	Ss,V pl yl gry,M,rnd,G srtg,mch fn,ltl C;slgt tr st
		520-530	10	Ss,V pl yl gry,M,rnd,F srtg,mch fn&C,tr Vfn;slgt tr grans&st
		530-535	5	Ss,V pl yl gry,M,rnd/ang,F srtg,mch fn&C,tr Vfn&VC;tr grans
		535-540	5	Ss,V pl yl gry,M&C,rnd,ltl-mch fn,tr Vfn,slgt tr VC;slgt tr pyr-cem
		540-545	5	Ss,V pl yl gry,M,rnd,F srtg,mch C&fn,slgt tr Vfn;
		545-550	5	Ss,wh,M&C,rnd,F srtg,tr G pyr-cem,ltl fn,tr VC;slgt tr st
		550-555	5	Ss,wh,M,rnd,F srtg,mch C&fn,slgt tr VC&Vfn;slgt tr pyr-cem
		555-560	5	Ss,wh,fn&C,rnd,F srtg,ltl M,tr Vfn;

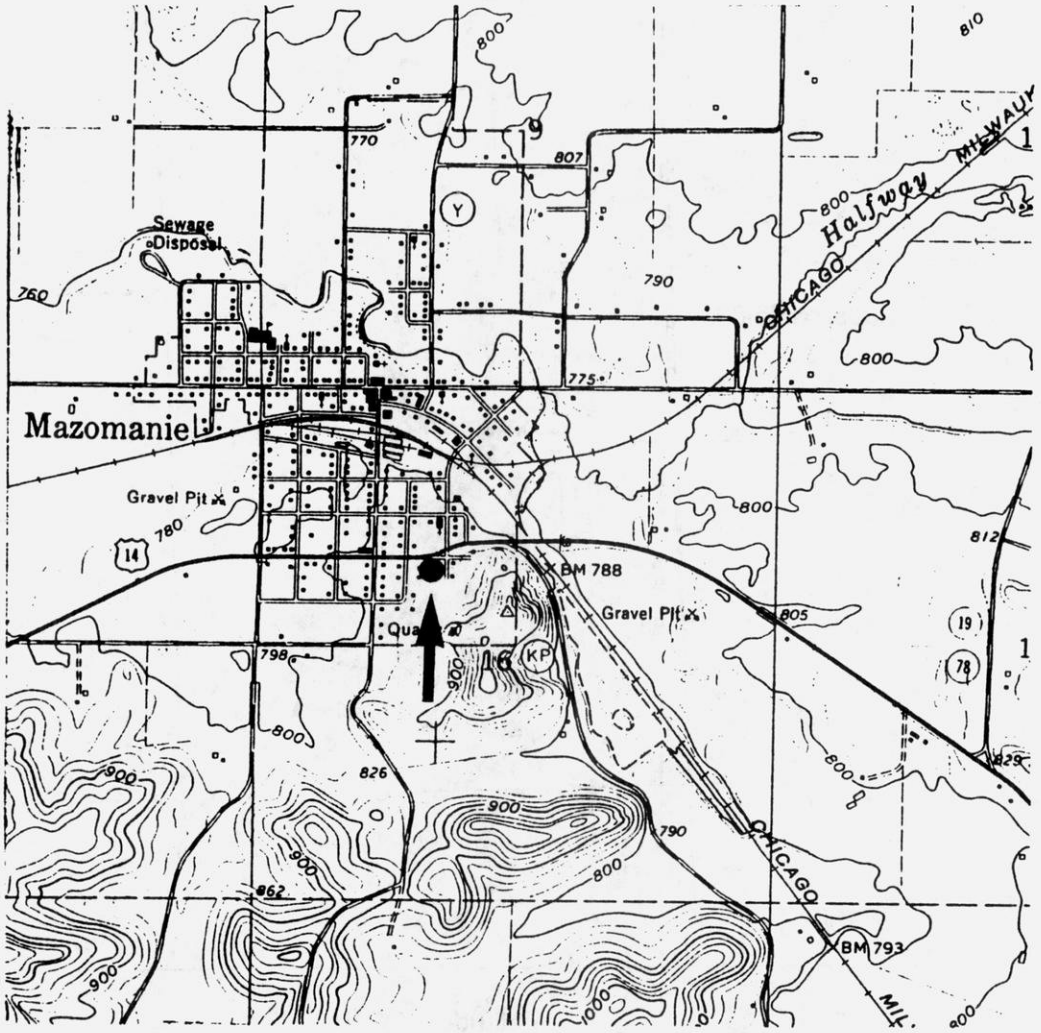
UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-957

Well name Village of Marshall, Wisconsin, Well #2
Sample Nos. 283358 to 283518

MT. SIMON SANDSTONE	560-565	5		Ss,V pl or,M&C,rnd/Srnd,F srtg,ltl fn,tr VC&Vfn;
	565-575	10		Ss,V pl yl or,fn&C,rnd/ang,F srtg,ltl M,tr Vfn;ltl Fe stn,tr st& pyr
	575-585	10		Ss,wh,M,Sang,F srtg,mch fn&C,tr Vfn&VC;slgt tr pyr-cem
	585-590	5		Ss,wh,fn&C,rnd/ang,F srtg,ltl M,tr Vfn;slgt tr lim&pyr&Fe stn
	590-595	5		Ss,V pl or,fn,rnd/Sang,F srtg,ltl M&C,tr Vfn;slgt tr lim&Fe stn
	595-600	5		Ss,rd or,fn,tr dsky yl&rd bn lim-cem, mch M&C,tr Vfn;tr lt rd
	600-610	10		Ss,gry or pnk,fn,ang,F srtg,tr dsky yl&rd bn lim-cem,mch M,ltl C;slgt tr pyr&dol \ mica sh&pyr,tr dol-cem
	610-635	25		Ss,V pl or,M&fn,ang&Sang,G srtg,slgt tr C;slgt tr st
	635-640	5		Ss,wh,M,Srnd&rnd,G srtg,tr F pyr-cem,mch C&fn;
	640-645	5		Ss,V pl or,M&fn,rnd/ang,G srtg,tr F pyr-cem,ltl C;
	645-655	10		Ss,V pl or,M,rnd&Srnd,F srtg,tr F lim-&pyr-cem,mch fn&C,tr VC; slgt tr rd bn sh
	655-660	5		Ss,V pl or,M&C,rnd,F srtg,ltl fn,tr Vfn&VC;
	660-670	10		Ss,wh,M,rnd,F srtg,slgt tr lim-&qtz-cem,ltl fn&C;
	670-675	5		Ss,V pl or,rnd/Sang,P srtg,slgt tr F lim-cem,mch fn,ltl C,tr Vfn& VC;slgt tr grans
	675-700	25		Ss,V pl or,M,rnd/Sang,P srtg,slgt tr lim-&qtz-cem,mch fn,ltl C,tr Vfn&VC;slgt tr pyr
	700-705	5		Ss,wh,M,rnd/Sang,F srtg,ltl fn&C,tr VC;
	705-740	35		Ss,V pl or,M,rnd&Srnd,F srtg,slgt tr F lim-cem,mch fn&C,slgt tr Vfn;tr st
	740-745	5		Ss,wh,M&fn,Srnd,G srtg,slgt tr F lim-cem,tr C;
	745-750	5		Ss,wh,M,rnd,G srtg,slgt tr F lim-cem,ltl C,tr fn;
	750-760	10		Ss,wh,M,rnd,F srtg,slgt tr F lim-cem,ltl fn&C,tr VC;
	760-770	10		Ss,V pl yl or,M,Srnd,P srtg,tr F lim-cem,ltl fn&C,tr Vfn&VC;tr st
	770-775	5		Ss,V pl or&V pl yl or,M&C,tr F lim-cem,mch fn&VC,ltl Vfn;few grans
	775-780	5		Ss,V pl or,M&fn,ang,P srtg,tr F lim-cem,mch C&VC,ltl Vfn;tr grans
	780-785	5		Ss,V pl or,M&C,ang,tr F lim-cem,mch M&fn,ltl Vfn;few grans,tr st
	785-790	5		Ss,V pl yl or,VC,Sang,tr F lim-cem,mch C,ltl M&fn,tr Vfn;few grans
	790-795	5		Ss,V pl yl or,M,Sang,tr F lim-cem,mch fn&C,tr Vfn&VC;tr grans&st
5300'	795-800	5		Ss,gry or pnk,fn,ang,F srtg,tr F lim-cem,ltl M,tr C,VC&Vfn;
P 5'	800-805	5		Otzt,gry or pnk,pl rd&lt rd,fn/VC,impure;ltl fn/VC snd
				END OF LOG
	80-85	5		Dol,V sndy(M&fn),tr oolic;tr cht,ools,oolic cht&fg snd
	105-110	5		Dol,tr glaucic;tr Vfn/VC snd

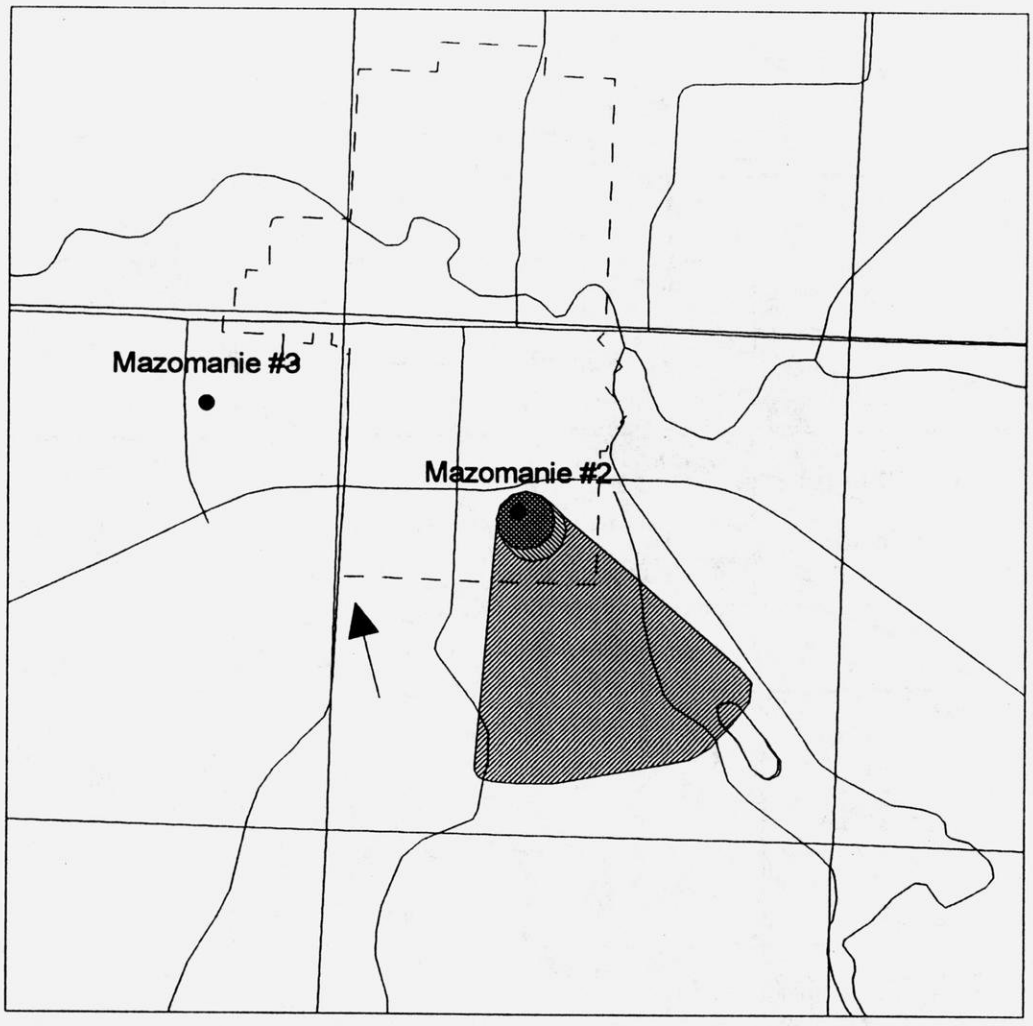
Mazomanie Village Well Number 2



Mazomanie Village Well Number 2 is located at 43° 10' 16.82" north latitude and 89° 47' 30.24" longitude. The well was installed in 1963, and has a pumping capacity of 500 gpm. The 1992 average daily use of the well was 26,250 gpd.

The well casing extends to a depth of 412 feet below ground surface, the total depth of the well is 640 feet. Water is drawn from the Paleozoic bedrock units, including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest .

Zone of Contribution for Mazomanie, Well Number 2



Well Location

Latitude: 43° 10' 16.82"
Longitude: 89° 47' 30.24"

0 500 1000
(meters)

N

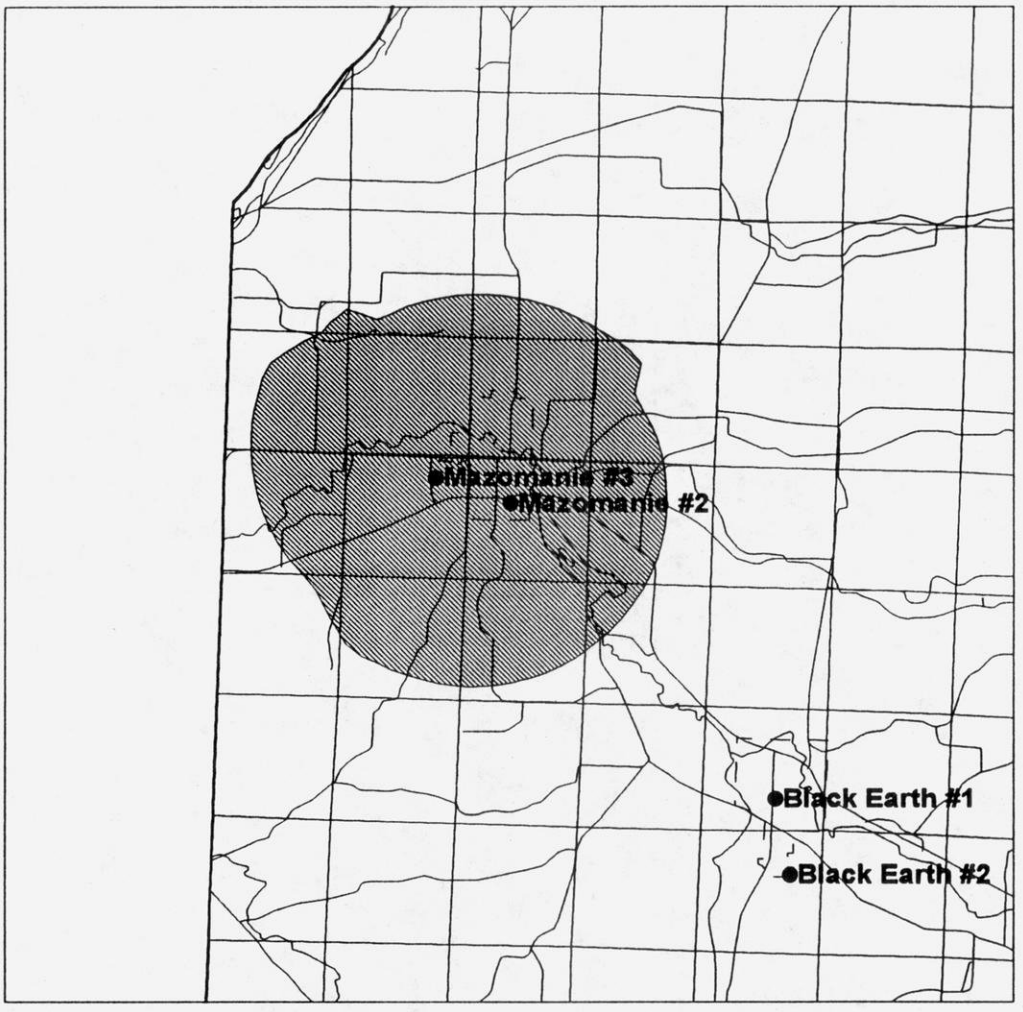
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Mazomanie, Well Number 2



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Mazomanie, Well No. 2, Mazomanie, Wisconsin

SE,SW,SE,NW, SE, NW, Sec. 16, T 8N, R 6E

Layne-Northwest Co., Driller - January, 1963

Sample Nos. 236786-236913 - Examined by M.E. Ostrom

+2'5"

+1'

SUR		0- 5	5	Snd,dk bn,M,Srnd,Fsrtg,ltl fn snd,ltl cl&st	18"Hole
		5-10	5	Snd,Vdk bn,fn,Srnd,Fsrtg,ltlMsnd,ltl cl&st	18" Pipe
	20	10-20	10	Snd,lt bn,M,dol,P,ltl fn snd,trCsnd,rock frag	
FRANCONIA		20-30	10	Ss,lt bn,M,Srnd,dol,P,ltl fn snd,trCsnd,rock fra	27'Water L
		30-35	5	Ss,lt bn,M,ltl fn&Csnd,3% glauc&Fe	
		35-40	5	Ss,lt gn bn,M,dol,F,ltl fn&Csnd,3%glauc &Fe	40'6"
		40-60	20	Ss,lt gn bn,fn,Sang,Gsrtg,dol,F,mchMsnd,tr st, 1%glauc	17½" Hole 12" Pipe
		60-65	5	Ss,lt gn bn,fn,Sang,Gsrtg,dol,F,ltlMsnd&st,1%Fe	
		65-70	5	Ss,lt gn bn,fn,dol,F,mchMsnd&st,ltlCsnd,1%Fe trCsnd,1%Fe	
	60	70-80	10	Ss,lt gn bn,M,Srnd,Fsrtg,dol,F,mch fn snd&st,	
		80-85	5	Ss,wh,M,rnd,dol,P,mchCsnd,tr fn snd,1%Fe	
		85-125	40	Ss,wh,M,rnd,Gsrtg,dol,P,mchCsnd,tr fn snd	93'
		125-130	5	Ss,Vlt bn,M,rnd,Gsrtg,dol,P,mchCsnd,tr fn snd	
		130-135	5	Ss,Vlt bn,dol,F,mchCsnd,tr fn snd,tr cl,tr limonite	
		135-140	5	Ss,Vlt bn,M,rnd,dol,F,mchCsnd,tr cl,trVCsnd snd,tr cl&limonite	
GALESVILLE		140-150	10	Ss,Vlt bn,M,rnd,Gsrtg,dol,F,mchCsnd,mod fn snd,tr limonite	
		150-160	10	Ss,Vlt bn,M,rnd,Gsrtg,dol,G,mchCsnd,mod fn	
		160-165	5	Ss,Vlt bn,M,Srnd,Gsrtg,dol,G,mch fn snd,trCsnd snd,tr st	
		165-175	10	Ss,Vlt bn,fn,Sang,Gsrtg,dol,F,mch fn snd,trC	
		175-180	5	Ss,Vlt bn,fn,rnd,Gsrtg,dol,P,ltlM&Csnd,tr st	
		180-185	5	Ss,wh,fn,Sang,Gsrtg,dol,P,ltlM&Csnd,tr st	
		185-190	5	Ss,wh,M,Srnd,dol,F,mch fn snd,trCsnd,tr cl	
		190-195	5	Ss,wh,M,dol,F,mch fn snd,trCsnd,tr cl,tr limonite	
		195-200	5	Ss,wh,M,Srnd,Dol,F,mch fn snd,trCsnd,mod cl	
		200-205	5	Ss,lt bn,mchCsnd,ltl fn snd,mod cl,tr limonite	
		205-210	5	Ss,lt bn,G,rnd,modMsnd,&cl,tr fn snd,tr limonite	
		210-215	5	Ss,lt bn,M,rnd,Gsrtg,dol,P,modCsnd,mch fn snd	
		215-225	5	Ss,wh,M-fn,dol,P,tr Cl&Csnd,ltl limonite	
		225-230	5	Ss,wh,M,dol,P,mch fn snd,ltlCsnd&cl,tr limonite	
		230-235	5	Ss,wh,fn,dol,P,mchMsnd,ltlCsnd&cl,tr limonite	
		235-240	5	Ss,wh,M,dol,P,mchCsnd,ltl fn snd&cl,tr limonite	
		240-245	5	Ss,Vlt bn,mchCsnd,ltl fn snd&cl,tr limonite	
		245-250	5	Ss,Vlt bn,dol,F, ltlC&fn snd,ltl cl,tr limonite	
		250-255	5	Ss,lt bn,C&M,rnd,Gsrtg,dol,F,tr limonite&cl	
		255-260	5	Ss,lt bn,M,dol,G,modC&fn snd,ltl cl&limonite Csnd,ltl limonite&pyr	
		260-270	10	Ss,lt gry,M,rnd, Gsrtg,dol,F,mch fn&ltl	
		270-275	5	Ss,lt bn,M,mch fn&ltlCsnd,ltl limonite&pyr	
	200	275-280	5	Ss,lt gry,C&M,mch fn&ltlCsnd,ltl limonite&pyr	282'
EAU CLAIRE		280-335	55	Sts,gry,dol,G,mch cl,mxd snd,tr limonite &pyr	12"Hole 10" Pipe
		335-340	5	Sh,gry,dol,G,mch dol&st	
		340-345	5	Sh,gry,dol,G,ltl st,dolic	
		345-350	5	Sh,gry,mch st, dolic	

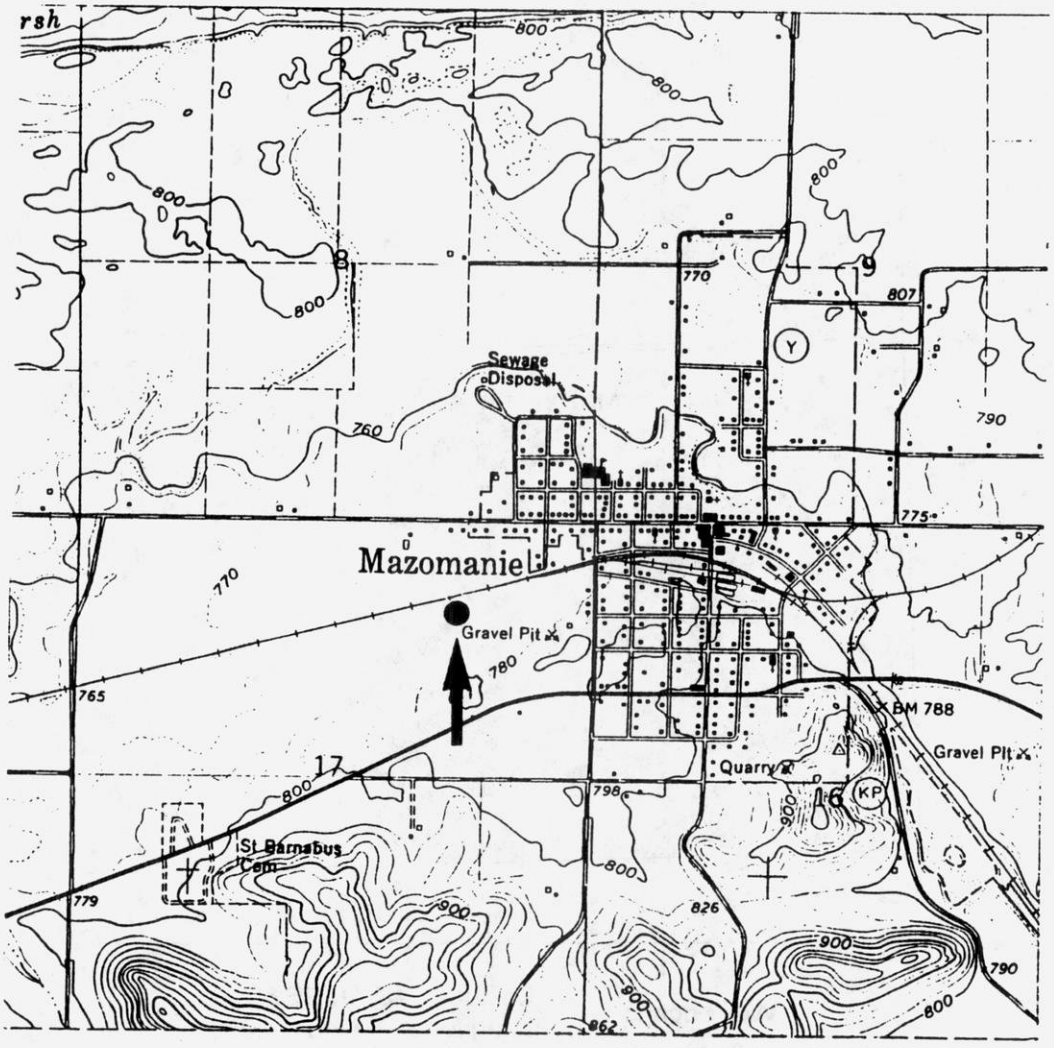
Mazomanie, Well No. 2, Mazomanie Wisconsin
Sample Nos. 236786-236913

EAU CLAIRE		350-360	10	Sts, gry, gn, dol, G, mch cl&fn snd, ltl pyr&Msnd	
		360-365	5	Sts, gry, gn, dol, G, mch, fn snd, ltl cl&pyr	
		365-370	5	Ss, gry, gn, fn, Sang, dol, F, mchMsnd&st, ltl cl&Csnd	
		370-375	5	Ss, gry, gn, fn, mchMsnd&st, ltl cl&Csnd, ltl pyr	
		375-380	5	Ss, gry, gn, fn, someMsnd&st, ltl cl&Csnd, ltl pyr	
		380-385	5	Sts, gry, gn, fn, Sang, dol, G, mch st, modMsnd	
		385-390	5	Ss, mot tan&gn, fn, dol, G, mch st&Msnd, tr Csnd, tr pyr, rock frag	
		390-400	10	Ss, mot tan&gn, fn, Srnd, Fsrtg, dol, G, mch st&Msnd, trCsnd, tr pyr, rock frag	
		400-410	10	Ss, mot tan&gn, fn, Srnd, Psrtg, dol, F, mch st&Msnd,	
		410-415	5	Ss, mot tan&gn, fn, Srnd, mch St&Msnd, trCsnd, tr pyr	412'
		415-420	5	Ss, mot gry&tan, mch st&Msnd, trCsnd, tr pyr,	
		420-425	5	Ss, lt gry, M&fn, Srnd, dol, P, ltlCsnd&st	
		425-430	5	Ss, lt gry, C&M, Srnd, dol, P, Vmch fn snd, some st	
		430-435	5	Ss, lt gry, C&M, Vmch fn snd, some st, tr limonite	
		435-445	10	Ss, lt gry, C&M, Srnd, Fsrtg, dol, P, some fn snd, some st, tr limonite, tr pyr	
		445-465	20	Ss, lt gry, , M, Srnd, Gsrtg, dol, P, mchC&fn snd, tr limonite&pyr	
		465-475	10	Ss, lt gry, M, Srnd, Fsrtg, dol, P, mchC&fn snd, tr limonite&pyr, rock frag	
		475-480	5	Sts, lt gry, dol, G, mch fn snd&cl	
		480-485	5	Ss, lt gry, fn, Sang, Gsrtg, dol, P, trCsnd&st	
		485-490	5	Ss, lt gry, dol, P, ltl M snd, tr st, tr limonite	10" Hole
		490-505	15	Ss, lt gry, M&fn, Srnd, Gsrtg, dol, P, tr st, tr limonite, tr pyr	
		505-510	5	Ss, lt gry, dol, P, ltl fn snd, tr st&limonite, trCsnd	
		510-520	10	Ss, lt gry, M, Srnd, Gsrtg, dol, P, ltl fn snd, tr st&limonite, mch Csnd	
		520-525	5	Ss, lt gry, M&fn, Srnd, Gsrtg, dol, P, ltlCsnd, tr pyr	
		525-530	5	Ss, lt gry, M, dol, P, mch fn&Csnd, ltl pyr&limonite	
		530-540	10	Ss, lt gry, M, Srnd, Gsrtg, dol, P, mch fn&Csnd, ltl pyr&limonite, sts frag	
		540-545	5	Ss, lt gry, fn, Sang, dol, F, mchMsnd&st, tr limonite	
		545-565	20	Ss, lt gry, M, Srnd, Fsrtg, dol, F, mch fn snd, tr limonite, trCsnd, tr pyr	
		565-570	5	Ss, lt gry, C, Srnd, Psrtg, dol, P, mchVC, M, &fn snd	
	295	570-575	5	Sts, mot gry, dol, F, tr fn&Msnd, ltl cl, pyr	
MT SIMON		575-590	15	Ss, mot gry, C, Srnd, Psrtg, dol, F, mxd snd&st, cl, rock frag, pyr	
		590-600	10	Ss, wh, C, rnd, Gsrtg, dol, F, ltlM&fn snd, tr pyr &limonite	
		600-620	20	Ss, wh, C&M, rnd, Gsrtg, dol, F, ltl fn&VCsnd, tr pyr &limonite	
		620-625	5	Ss, Vlt bn, C, rnd, mchVCsnd, ltlM&fn snd, tr limonite &st, tr limonite	
	65	625-640	15	Ss, Vlt bn, C&M, Srnd, Fsrtg, dol, P, mchVCsnd, tr fn	640'

Formations: Surface, Franconia, Galesville, Eau Claire, Mt. Simon

Well tested for 8 hrs. at 700 gpm with 71'6" of drawdown.
Specific capacity = 9.8 gpm per foot of drawdown.

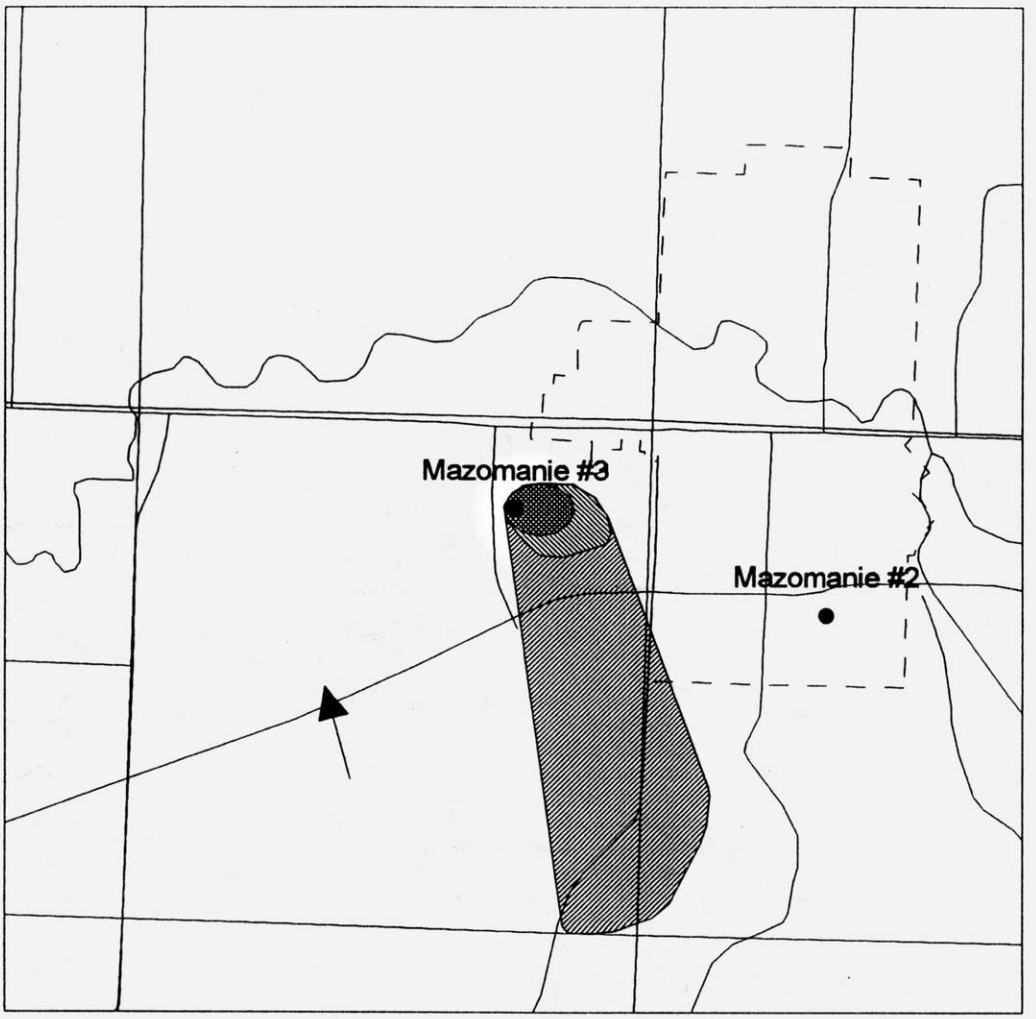
Mazomanie Village Well Number 3



Mazomanie Village Well Number 3 is located at 43° 10' 26.80" north latitude and 89° 48' 14.20" longitude. The well was installed in 1977, and has a pumping capacity of 600 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 136,000 gpd.

The well casing extends to a depth of 80 feet below ground surface, the well is screened over the interval from 80 to120 feet. Water is drawn from alluvial deposits, composed of mostly sand and gravel. Groundwater flow in the vicinity of the well is generally to the northwest .

Zone of Contribution for Mazomanie, Well Number 3



Well Location

Latitude: 43° 10' 26.80"
Longitude: 89° 48' 14.20"

0 500 1000
(meters)

N

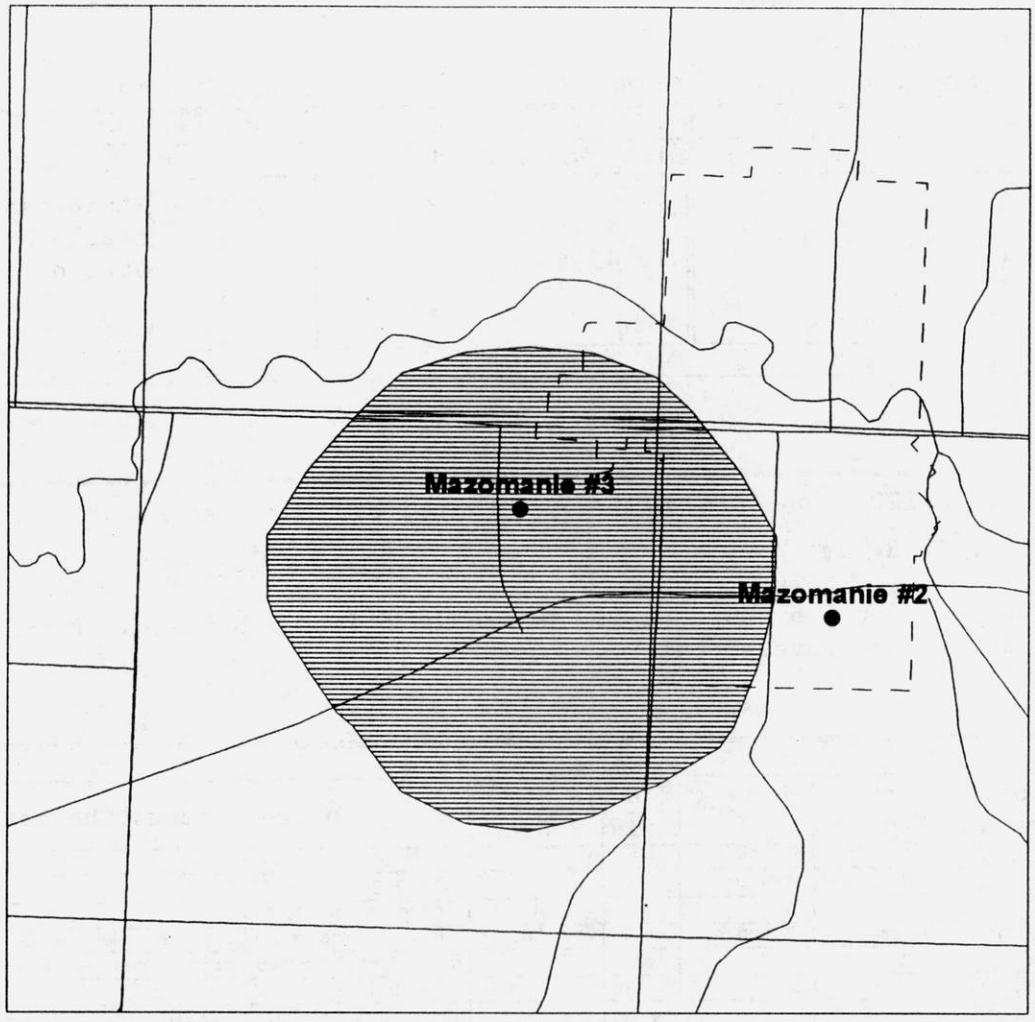
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Mazomanie, Well Number 3



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

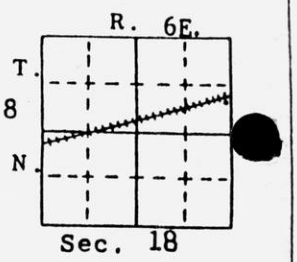
One-half foot drawdown in the deep sandstone aquifer

1815 University Avenue, Madison, Wisconsin 53706 Sample Nos. All Retained

Well name Mazomanie Village Well #3

County: Dane

Completed... 7/77
Field check.
Altitude.... 761' ETM
Use..... Municipal
Static w.l.. 27'
Spec. cap... 63 GPM/ft.



Owner.... Village of Mazomanie
Address.. 133 Crescent Street
Mazomanie, WI 53560
Driller.. Layne-Northwest Company
Engineer. Lakeland Engineers, Inc.
Madison, Wisconsin

Well location: SE, $SE\frac{1}{4}$, $NE\frac{1}{4}$, $SE\frac{1}{4}$, $NE\frac{1}{4}$, sec. 18, T8N, R6E Quad. Mazomanie $7\frac{1}{2}$'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
42"	0	120'				30"	A53B 3/8 wall welded	+2'	80'	16"	Stainless steel shutter screen	80'	120'
						16"	A53B 3/8 wall welded	+4.5'	80'				

Grout: Kind	from	to
Redi-Mix	0	$78\frac{1}{2}$'
Neat Cement	$78\frac{1}{2}$'	$79\frac{1}{2}$'
Sand Seal	$79\frac{1}{2}$'	80'

Samples from 0 to 120 Rec'd: 8/16/77 Studied by: Mark Ver Hoeve Issued: 4/8/82

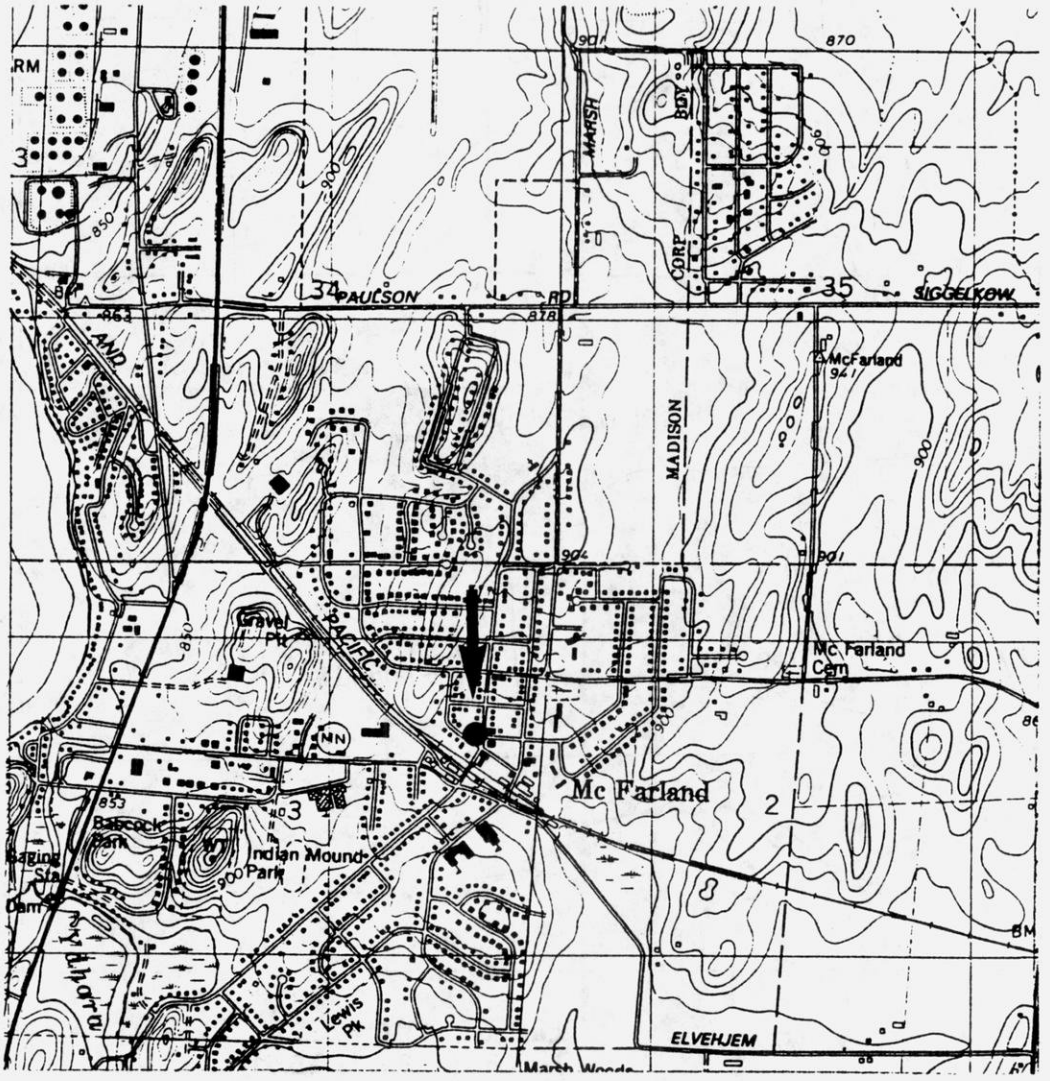
Formations: Surface, Alluvium

Remarks: Well tested for 8.5 hours at 990 GPM with 15 feet 7.5 inches of drawdown.
Well drilled by reverse rotary.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Sfc.	0-5		Sand	Mxd dk bn	C	Vfn/VC	Much gravel. Little silt, soil.
	5-10		Silt	Yellow	—	—	Trace granules, sand.
	10-15		Sand	"	M	Vfn/VC	Trace granules, silt.
	15-20		Gravel	Mixed	M peb	Gran/VL peb	Cht,dol,trap,granite,quartz. Much sand. Trace silt.
A	20-25		"	"	L peb	"	Dol,chert,trap,iron-oxide cemented sandstone,grnt.Ltl snd.Tr st.
L	25-30		"	"	S peb	Gran/L peb	Same but much sand.
L	30-35		"	"	"	"	Dol,chert,trap,qtz,ir-oxide cemtd ss,granite. Trace sand,silt.
U	35-40		"	"	M peb	Gran/VL peb	Same.
V	40-45		"	"	"	"	"
I	45-50		"	"	"	"	Cht,trp,grnt,dol,dol-cemtd ss,quartz. Trace sand, silt.
U	50-55		"	"	"	"	Dol,chert,grnt,trp,qtz,Baraboo qtzt. Trace sand, silt.
M	55-60		"	"	"	Gran/L peb	Dol,cht,grnt,trap,quartz,quartzite. Trace sand, silt.
	60-65		"	"	L peb	"	Dol,trap,cht,grnt,ool cht,qtzt,siltstone. Trace sand, silt.
	65-70		"	"	"	Gran/VL peb	Cht,dolomite,trap,granite, quartz. Trace sand, silt.
	70-75		"	"	"	"	Dol,chert,trap,granite,quartz,oolitic chert. Trace sand, silt.
	75-80		"	"	"	Gran/L peb	Cht,trap,ir-oxide cemtd ss,dol,qtzt,quartz,grnt. Trace snd,silt.
	80-85		"	"	S peb	Gran/VL peb	Cht,trap,qtz,grnt,qtzt,dolomite. Trace sand, silt.
	85-90		"	"	L peb	"	Chert,dolomite,trap,granite. Trace sand, silt.
	90-95		"	"	M peb	"	Dol,chert,trap,grnt,ool cht,ir-ox cemtd ss. Trace sand, silt.
	95-100		Sand	Mxd yellow	C	Vfn/VC	Trace granules, silt.
	100-105		"	"	"	"	Same.
	105-110		Sand	Mxd yellow	C	Vfn/VC	Trace granules, silt.
115'	110-115		"	"	"	"	Trace gravel, silt.
	115-120		"	"	"	"	Trace granules, silt.
			END OF LOG				

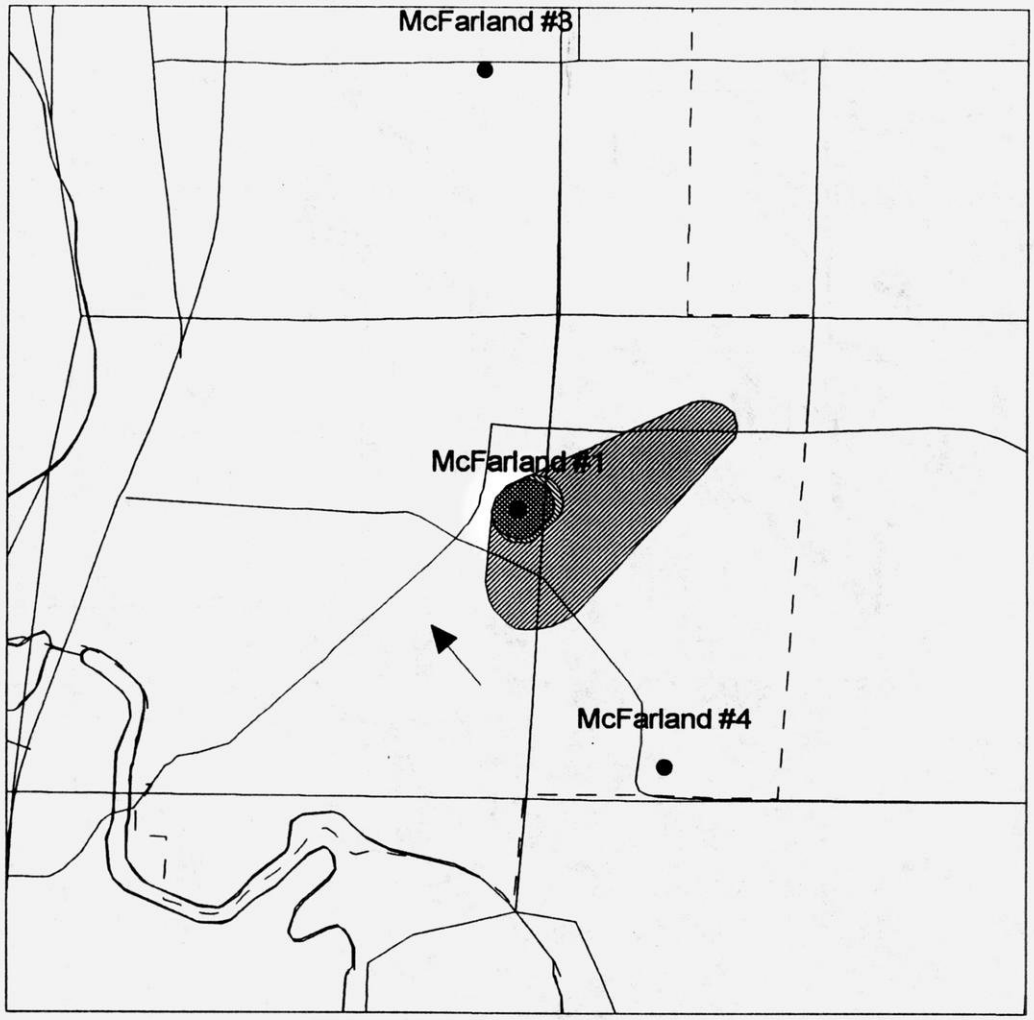
Village of McFarland, Well Number 1



Village of McFarland, Well Number 1 is located at 43° 0' 47.87" north latitude and 89° 17' 15.51" longitude. The well was installed in 1940 and has a pumping capacity of 600 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 188,560 gpd.

The well casing extends to a depth of 167 feet below ground surface, and the total depth of the well is 560 feet. Water is drawn from a combination of the Paleozoic bedrock units. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for McFarland, Well Number 1



Well Location

Latitude: 43° 0' 47.87"
Longitude: 89° 17' 15.51"

0 500 1000
(meters)

N

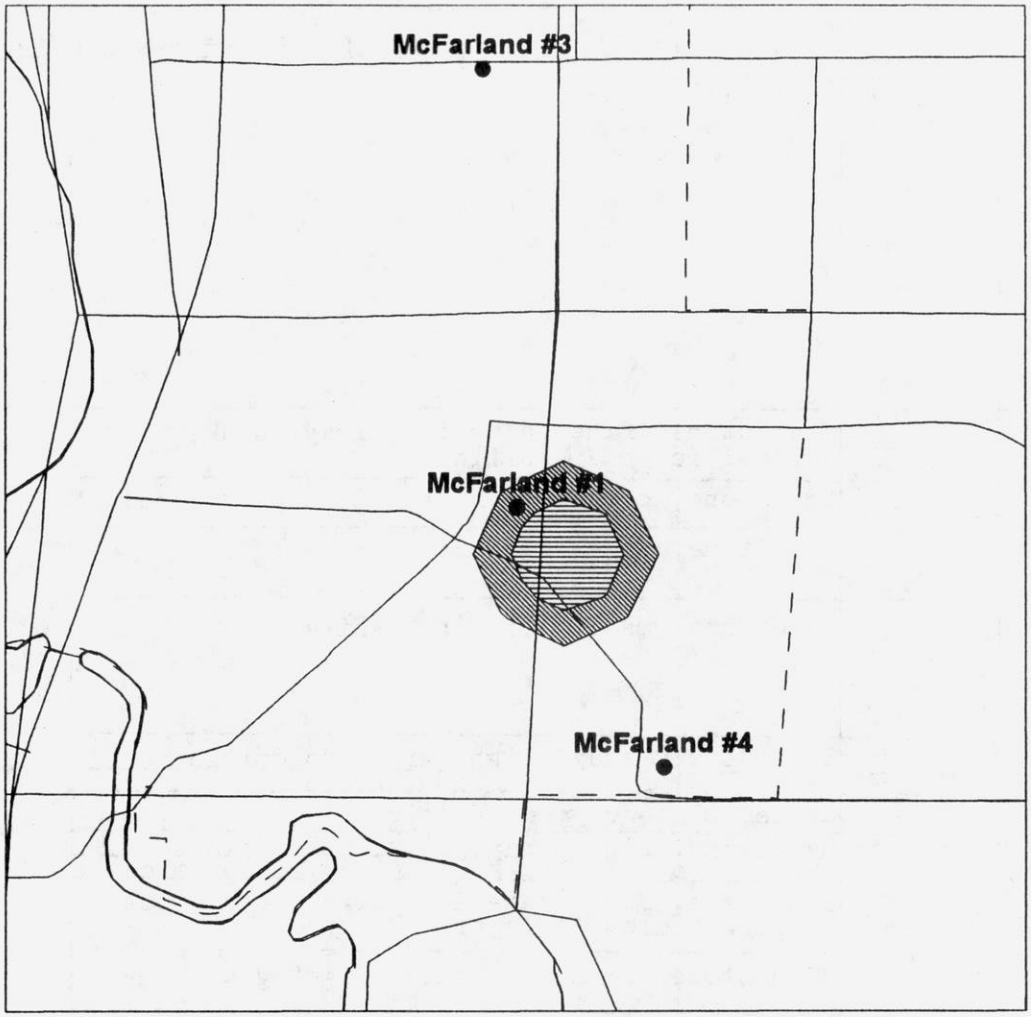
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for McFarland, Well Number 1



Scale 1:24,000

0 500 1000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

DN-13

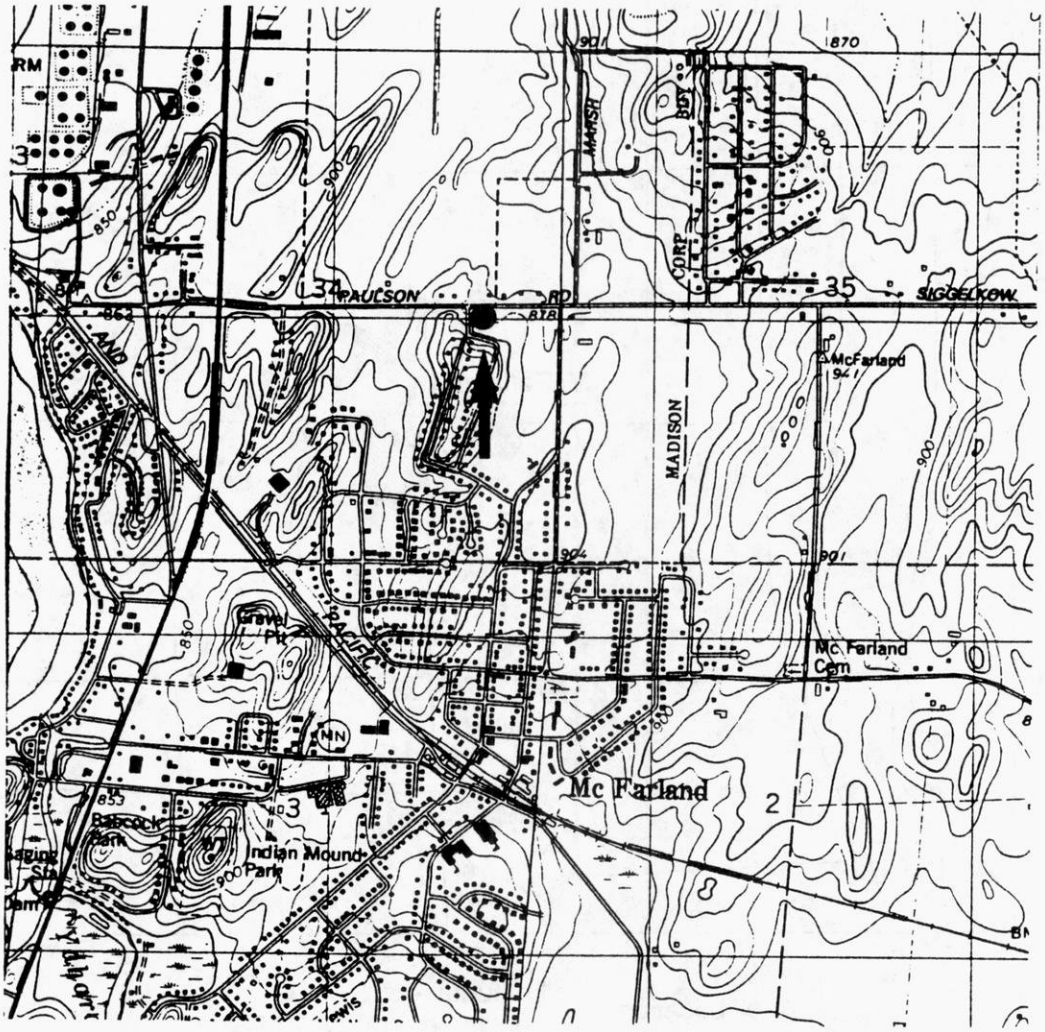
VILLAGE WELL, MC FARLAND, WIS.
W. G. Kirchoffer, Engineer
Milsaeger Well Drilling Co., Contractors, 1940
Samples examined by F. T. Thwaites, Nos. 109287-109369
Alt = 863' ETM
Well Location: NE, NW SE, SE, SE, NE, Sec. 3, 6N, 10E

DRIFT	145	0-145	145		Drift, no samples	20 water 16" pipe 10" pipe cemente 145 167
FRA	50	145-175	30		Sandstone, fine to medium, gray, pink, dolomitic, glauconitic	
		175-195	20		Sandstone, coarse to fine, light gray, dol.	
DRESBA	85	195-225	30		Sandstone, fine to coarse, white	
		225-280	55		Sandstone, medium to fine, white	10" hole
EAU CLAIRE	205	280-295	15		Siltstone, sandy, light gray, dolomitic	
		295-305	10		Sandstone, fine to medium, white	
		305-320	15		Shale, blue-gray, dolomitic	
		320-330	10		Sandstone, fine, gray, pink, dolomitic	
		330-335	5		Sandstone, fine to silty, gray, dolomitic	
		335-370	35		Sandstone, fine to medium, light gray, some pink, dolomitc layers	
		370-395	25		Sandstone, fine to medium, light gray	
		395-405	10		Sandstone, fine, gray, dolomitic	
		405-415	10		Sandstone, fine to medium, light gray	
		415-445	30		Sandstone, medium to fine, white	
		445-450	5		Sandstone, medium to coarse, light gray	
		450-480	30		Sandstone, medium to fine, light gray	
		480-485	5		Sandstone, fine to medium, lt.gy, pk dol. lay	
MT S	75	485-540	55		Sandstone, medium to fine, white	
		540-560	20		Sandstone, coarse to fine, light gray	

Formations: Drift; Franconia (formerly Mazomanie); Dresbach (Galesville); Eau Claire; Mt. Sim

Tested at 395 g.p.m. specific capacity 36 g.p.m.

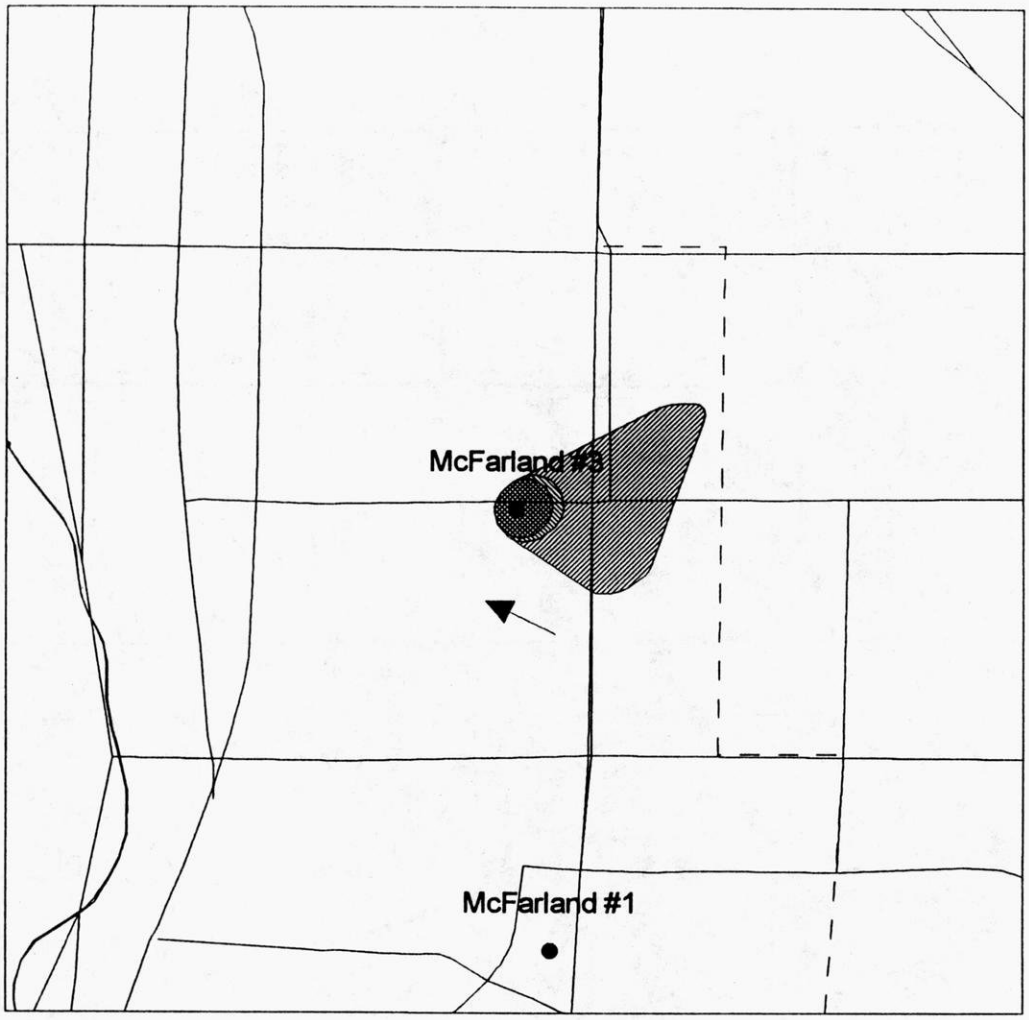
Village of McFarland, Well Number 3



Village of McFarland, Well Number 3 is located at 43° 1' 33.09" north latitude and 89° 17' 21.93" longitude. The well was installed in 1974 and has a pumping capacity of 1,020 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 146,420 gpd.

The well casing extends to a depth of 116 feet below ground surface, and the total depth of the well is 700 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for McFarland, Well Number 3



Well Location

Latitude: 43° 1' 33.09"
Longitude: 89° 17' 21.93"

0 500 1000
(meters)

N

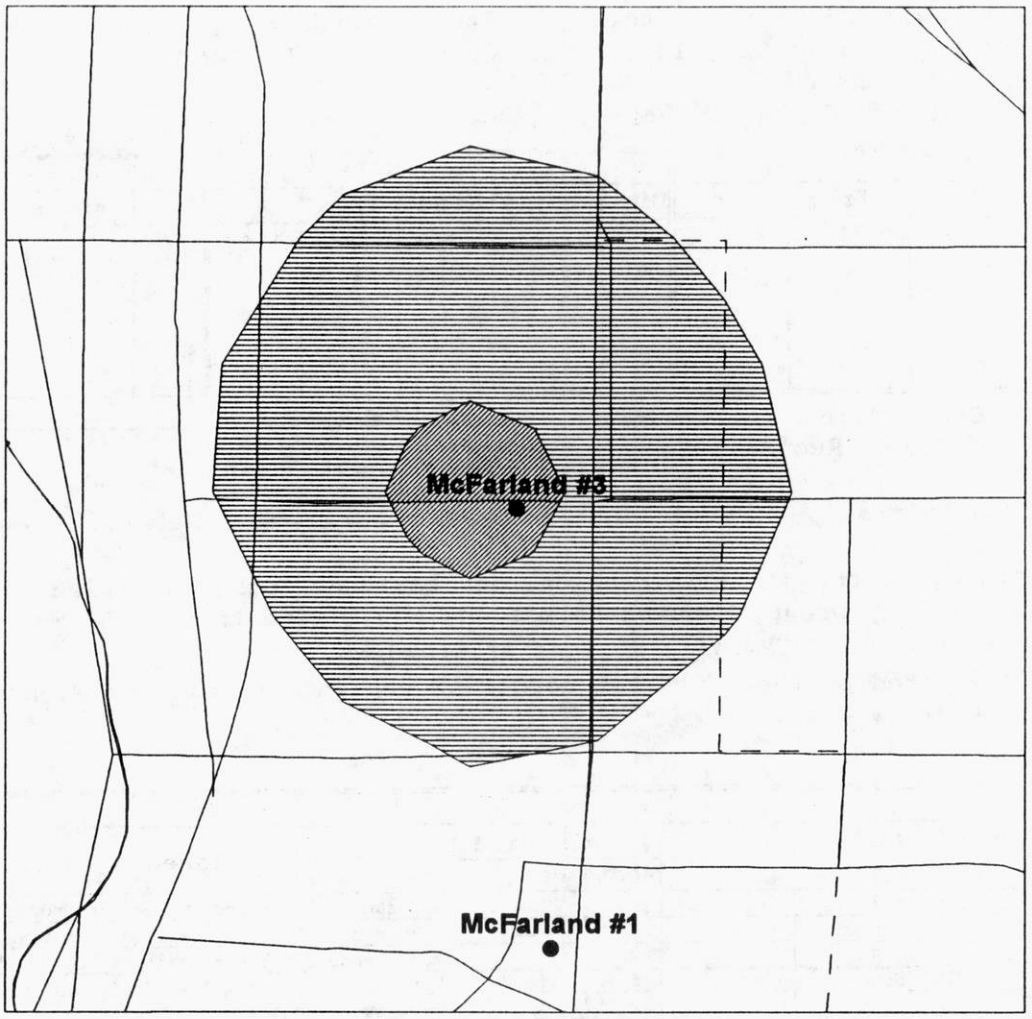
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for McFarland, Well Number 3



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

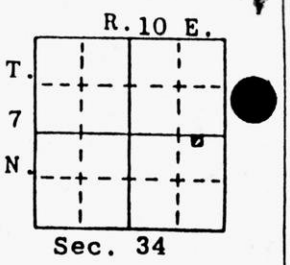
Log No. E3-Dn-1438

Well name McFarland Village Well #3

County: Dane

Owner.... Village of McFarland
Address.. P.O. Box 222
McFarland, WI 53558
Driller.. Milaeger Well & Pump Co., Inc.
Engineer. General Engineering Co., Inc.
Portage, Wisconsin

Completed...11/1/74
Field check.
Altitude.... 889' ETM
Use.....Municipal
Static w.l..45'
Spec. cap...11 GPM/ft



Well Location: NW, SE, NW, NE, NW, NE, SE, Sec 34, 7N, 10E

Quad. Madison East 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
24"	0	61.5'				24"	Steel - 3/8"	0	61.5'				
23"	61.5'	116'				20"	Steel - 3/8"	+1.5'	116'				
17"	116'	700'											

Drilling method: Cable Tool
Samples from 0 to 700' Rec'd: 1974

Studied by: R. M. Peters

Grout	from	to
Neat Cement	0	116'

Issued: 5/20/83

Formations: Surface, Drift, Jordan Formation, St. Lawrence Formation (Black Earth Member), Tunnel City Group, Wonewoc Formation, Eau Claire Formation, Mt. Simon Sandstone.

Remarks: Well tested at 1040 GPM with 95 feet of drawdown.
Well is located on the southeast corner of the intersection of N. Autumn Lane and Siggelkow Road.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Sfc.	0-5		Silt	Dark brown	---	---	Mch sand. Ltl bk org matter. Few rootlets. Tr soil, granules.
	5-10		"	"	---	---	Much sand. Little black organic matter. Few rootlets.
15'	10-15		"	"	---	---	Much sand. Ltl bk org matter. Few rootlets. Trace granules.
D	15-20		Sand	Mxd dk yl bn	C	Vfn/VC	Very poorly sorted. Much silt. Little gravel.
R	20-25		"	"	"	"	Same but much gravel.
I	25-30		"	Mxd yl bn	"	"	Same.
F	30-35		Gravel	Mixed	S peb	Gran/M peb	Dol, ss, ool cht, trap, cht, calc, qtz. Mch snd. Tr silt, clay.
T	35-40		"	"	"	Gran/L peb	Dolomite, sandstone, chert, trap. Mch sand. Ltl clay. Tr silt.
	40-45		"	"	"	Gran/M peb	Dol,ss,cht,trap,glauc ss,qtz grnt. Mch snd. Ltl clay. Tr silt.
35'	45-50		"	"	"	"	Dol,ss,cht,trap,mic sch,qtz,grnt. Mch sand. Ltl clay. Tr silt.
J	50-55		Sandstone	Yellow	M	Vfn/VC	Rnd. Mch dol cem. Tr cvd drift snd & gvl,st,cvd? Vfn glauc.
O	55-60		"	"	"	"	Same.
R.	60-65		"	"	"	"	"
	65-70		"	"	"	"	"
25'	70-75		"	"	"	"	Same but no glauconite. ss. Tr Vfn glauc,wh & tan cht,dend.
	75-80		Dolomite	"	Fn	---	V sty. Mch Vfn/VC fltg snd,loose Vfn/VC snd. Ltl Vfn/VC dol-cem
B.E.	80-85		"	"	"	---	V sty. Mch Vfn/C fltg snd,loose Vfn/VC snd. Ltl Vfn/C dol-cem
	85-90		"	"	"	---	Same but no shale. ss. Tr Vfn glauc,wh cht,dend,yl gn sh.
	90-95		"	Pl yl & wk rd	"	---	Mch sty dol,loose Vfn/VC snd. Ltl Vfn glauc,yl gn sh,Vfn/M dol-
27.5'	95-100		729"	"	"	---	Mch sty dol,loose Vfn/VC snd. Ltl Vfn cem ss. Tr wh cht,dend.
?	100-105		SEE END OF LOG.				glauc. Tr yl gn sh,wh cht,dend,mssv qtz,Vfn/M dol-cem ss,
T	105-110		Sandstone	Dk rd gy & yl	Vfn	Vfn/Fn	Srnd. Mch dol cem. Ltl Vfn/Fn glauc. Tr fos frags. V sty. Tr
U	110-115		"	WK red & yl	"	Vfn/C	Srnd. Mch dol cem,mic sh. Ltl Vfn/Fn glauc. V sty. mssv qtz.
N	115-120		"	Yellow red	Vfn/Fn	Vfn/VC	Srnd. Mch Vfn/C glauconite, silt, shale. Ltl dolomite cement.
N	120-125		"	"	Fn	Vfn/C	Srnd. Mch Vfn/M glauconite, silt, shale. Ltl dolomite cement.
E	125-130		"	"	"	"	Same.
L	130-135		"	"	"	"	Same but glauconite Vfn/C.
	135-140		"	Bn yl & lt bn	"	"	Srnd to rnd. Ltl Vfn/C glauc. Mch dol cem, silt, Trace shale.
C	140-145		"	"	"	"	Same but only subrounded.
I	145-150		"	"	"	"	Srnd to rnd. Ltl Vfn/C glauc,wh & rd bn sh. Mch dol cem,silt.
T	150-155		"	Bn yellow	Fn/M	"	Srnd to rnd. Mch dol cem. Ltl silt. Tr Vfn/M glauc, pyrolu?
Y	155-160		"	"	"	"	Same.

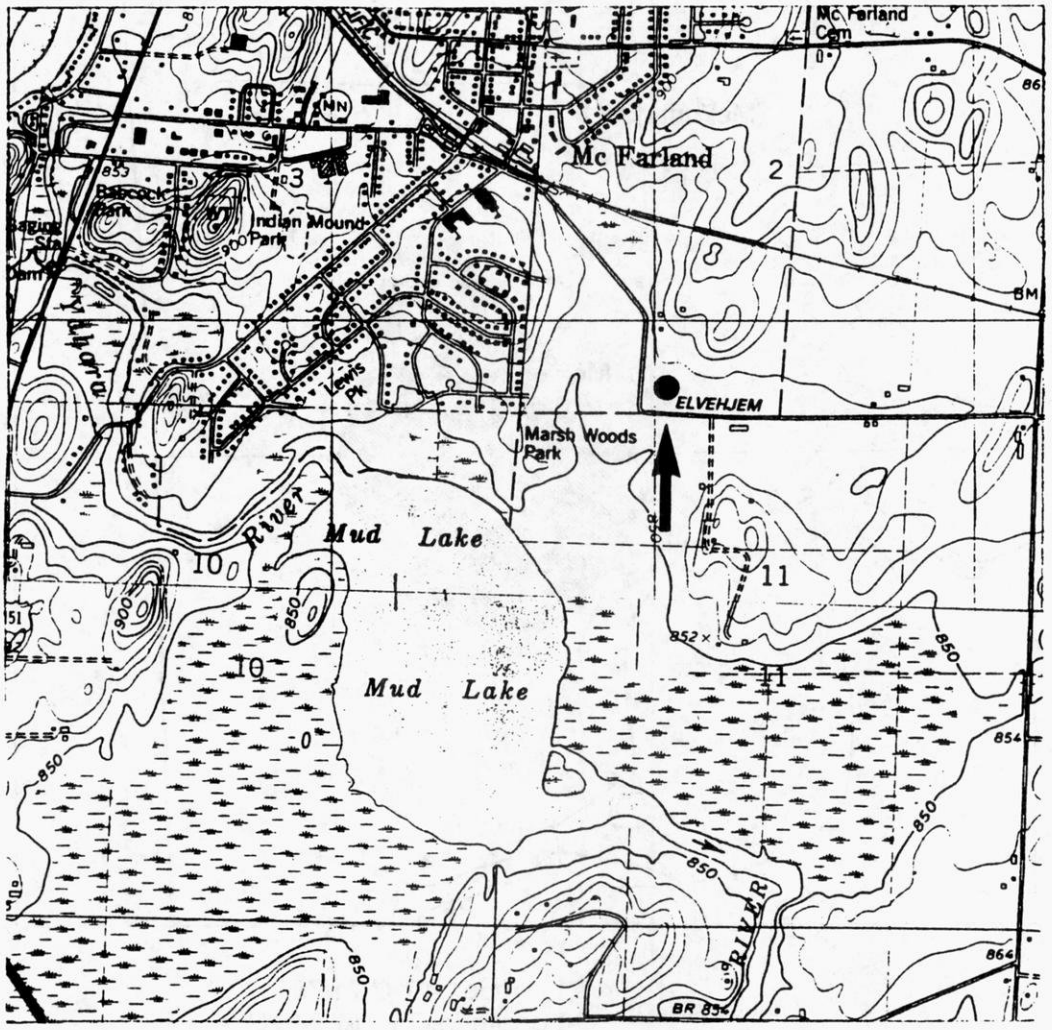
Well name: McFarland Village Well #3

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
TUNNEL CITY	160-165	G	Sandstone	Bn yellow	Fn/M	Vfn/C	Srnd to rnd. Mch dol cem, Ltl silt, Tr Vfn/M glauc, pyrolu?
	165-170	G	"	"	"	"	Same.
	170-175	G	"	"	Fn	"	Srnd to rnd. Ltl dolomite cement. Trace Vfn/M glauconite.
	175-180	G	"	"	Fn/M	"	Srnd to rnd. Mch dol cem. Tr Vfn/M glauc, pyrolu?, pl gn shale.
	180-185	G	"	"	"	"	Srnd to rnd. Mch dol cem. Tr Vfn/C glauc,pyrolu?,pl gn shly matx.
	185-190	G	"	"	"	"	Same plus trace pale green shale.
	190-195	G	"	"	Fn	"	Srnd to rnd. Mch dol cem. Ltl sndy dol. Tr Vfn/M glauc,pyrolu?,
	195-200	G	"	"	Fn/M	"	Same but glauconite Vfn/C & no shaly matrix. pl gn shly matx.
	200-205	G	"	"	"	"	Srnd to rnd. Mch dol cem. Ltl sndy dol. Tr pl gn & rd bn shly
107.5	205-210	G	"	"	"	"	See end of log. matx,pyrolu?,Vfn/C glauc,st.
WONEWOC	210-215	G	"	Pl bn yl	"	"	Srnd to rnd. Poorly sorted. Ltl cvd? dol-cem ss. Tr cvd? dol,Vf
	215-220	G	"	"	Fn	Vfn/VC	Srnd to rnd. Poorly sorted. Tr cvd? dol-cem ss, glauc,silt.
	220-225	G	"	"	"	Vfn/C	See end of log. Vfn/C glauc,st,cvd? dol.
	225-230	G	"	"	Fn/M	"	Srnd to rnd. Poorly sorted. Tr cvd? dol,dol cem,Vfn/M glauc,pl
	230-235	G	"	"	Fn&C	Vfn/VC	Srnd to rnd & rnd. Poorly sorted. Ltl dol cem. Tr gn sh,st.
	235-240	G	"	"	"	"	Same. Vfn/C glauc,sndy dol,pl gn sh,st.
	240-245	G	"	"	Fn	"	Srnd to rnd. Poorly sorted. Ltl dol cem. Tr Vfn/C glauconite.
	245-250	G	"	"	"	"	Same plus tr sndy dol & tr st. glauc,pl gn shly matx,st,pyrolu?
	250-255	G	"	"	Fn&C	"	Srnd to rnd & rnd. Poorly sorted, Mch dol cem. Tr sndy dol,Vfn/
	255-260	G	"	"	"	"	Srnd to rnd & rnd. Poorly sorted. Mch dol cem. Ltl Vfn/C glauc,
	260-265	G	"	"	"	"	See end of log. st. Tr sndy dol,lt gry cht,pyrolu.
	265-270	G	"	Yellow	M	Vfn/C	Rounded. Trace silt, Vfn glauconite.
	270-275		"	"	"	Vfn/VC	Rounded. Trace silt, limonite? cement.
	275-280	G	"	"	"	Vfn/C	Rounded. Trace silt, limonite? cement, Vfn/Fn glauconite.
	280-285	G	"	"	"	Vfn/VC	Same.
	285-290		"	"	"	"	Rounded. Trace silt, limonite? cement, pale green shale.
	290-295	G	"	"	M/C	Vfn/C	Rounded. Trace silt, limonite? cement, Vfn/Fn glauconite.
	295-300		"	"	"	"	Rounded. Trace silt, limonite? cement.
	300-305	G	"	"	"	Vfn/VC	Rounded. Trace silt, Vfn glauconite, pale green shale.
	305-310		"	"	"	"	Rounded. Trace silt, Vfn glauconite, limonite cement.
	310-315		"	"	"	"	Rounded. Trace silt, limonite cement.
110'	315-320		"	"	"	"	Same.
	320-325	G	"	Pnk & mxd	Fn	Vfn/C	Srnd. Mch pl gn,rd bn & purp gry shs,dol cem. Tr st,Vfn glauc.
E.C.	325-330	G	Shale	Lt bn gy&dk gy	--	--	Dolic. Fos. Sndy. Mch dol cem sts. Tr Vfn glauc,pyr. Ltl Vfn/C
	330-335	G G	Sandstone	Pnk & mxd	M	Vfn/VC	Rnd. Mch dol cem,pl gn,rd bn&purp gry shs, Ltl dol-cem snd.
20'	335-340	G G	"	"	"	Vfn/C	Same, sts,Vfn/Fn glauc. Tr st,pyr.
MT. SIMON SANDSTONE	340-345	G	"	Pink	"	Vfn/VC	Rnd. Mch dol cem. Ltl silt. Tr pyrite, shales, Vfn/M glauc,
	345-350	G	"	"	"	Vfn/C	Rnd. Mch dol cem, silt. Tr shales, pyrite, Vfn/Fn glauconite.
	350-355	G	"	"	"	"	Rnd. Mch dol cem. Ltl st. Tr gn gry sh, Vfn glauc, dol-cem sts.
	355-360	G	"	"	"	"	Rnd. Mch dol cem, silt. Tr gn gry shale,Vfn glauc,dol-cem sts,
	360-365	G	"	"	"	Vfn/VC	Rnd. Mch dol cem, st. Ltl sndy dol. Tr gn gry sh, Vfn glauc,
	365-370		"	"	"	"	Rnd. Mch dol cem. Ltl st, sndy dol. Tr gn gry & gry shales.
	370-375	G	"	"	"	Vfn/C	Rnd. Mch dol cem. Ltl st,sndy dol. Tr gn gry & purp gry shs,Vfn
	375-380		"	"	"	"	Rnd. Mch dol cem. Ltl st. Tr sndy dol,dol-cem sts. glauc,
	380-385		"	"	"	Vfn/VC	Rnd. Mch dol cem, st. Ltl sndy dol. Tr gn gry shale, pyrite.
	385-390	G	"	"	"	"	Rnd. Mch dol cem. Ltl silt. Tr Vfn/Fn glauconite.
	390-395	G	"	"	"	"	Rnd. Mch dol cem. Ltl fos dol, sndy dol, st. Tr Vfn glauconite.
	395-400	G	"	"	"	Vfn/C	Rnd. Mch dol cem. Ltl sndy dol, st. Tr gry shale, Vfn glauc.
	400-405		"	"	"	"	Same.
	405-410		"	Lt gray	"	"	Rounded. Trace silt.
	410-415	G	"	"	"	"	Same plus trace fine caved? glauconite.
	415-420		"	"	"	"	Rounded. Trace silt, caved? pink dolomite-cemented sandstone.
	420-425		"	"	"	"	Same.
	425-430		"	"	"	Vfn/VC	Rounded. Trace caved? pink dolomite-cemented sandstone.
	430-435		"	"	"	Vfn/C	Same plus trace silt.
	435-440		"	"	"	"	Same.
	440-445		"	"	"	"	"
	445-450		"	"	"	Vfn/VC	Same plus trace pale green shale.
	450-455		"	"	"	"	Same but no shale.
	455-460		"	"	"	"	Rounded, Trace silt, caved? pink dolomite-cemented sandstone.
	460-465		"	"	"	"	Same.
	465-470	G	"	"	"	Vfn/C	Rnd. Tr st,cvd? pnk pyric dol-cem ss,Fn glauc,wh chert.
	470-475		"	"	"	"	Rnd. Ltl silt. Tr caved? pnk dolomite-cemented sandstone.
	475-480		Dolomite	Mxd pnk gry	"	Fn/M	Mch fltg snd,Vfn/VC snd. Ltl dol-cem ss,st,pl gn sh. Tr pyrite.
	480-485		"	"	"	"	Mch fltg snd,Vfn/C snd. Ltl dol-cem ss,gn gry sh, Tr silt,pyr.
	485-490	G	"	"	"	"	Much floating sand, Vfn/C sand. Little dolomite-cemented sand- stone. Trace silt, pyrite, pale green shale, Vfn glauconite.

Well name: McFarland Village Well #3

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	490-495		Dolomite	Mxd pnk gry	M	Fn/M	Mch fltg snd, Vfn/VC sand. Ltl dol-cem ss. Tr pyr, pl gn shale.
	495-500		"	"	"	"	Mch fltg snd, Vfn/C snd. Ltl dol-cem ss, Tr pyr, pl gn sh, st.
	500-505		Sandstone	V pl brown	"	Vfn/VC	Rnd. Trace cvd? pnk & wh dol-cem sandstones, pyrite, silt.
MT.	505-510		"	"	"	Vfn/C	Same plus trace pale green shale.
	510-515	G	"	"	"	Vfn/VC	Rnd. Ltl cvd? pnk & wh dol-cem ss's, Tr st, pyr, Fn glauc.
	515-520	G	"	"	"	Vfn/C	Rnd. Tr cvd? pnk & wh dol-cem ss's, silt, pyrite, Fn glauc.
	520-525		"	"	"	"	Rnd. Ltl cvd? pnk & wh dol-cem ss's. Tr silt, pyrite, Fn/M glauc.
SIMON	525-530		"	Lt yl gray	"	Vfn/VC	Rounded. Poorly sorted. Much silt.
	530-535	G	"	"	"	"	Rnd. Poorly sorted. Little silt. Trace Fn glauc, lt gray shale.
	535-540		"	"	"	"	Rnd. Poorly sorted. Much silt. Trace pyrite cement.
	540-545		"	"	"	"	Same plus trace pale green shale.
	545-550		"	"	"	"	Rnd. Poorly sorted. Mch silt. Tr pale green shale, sil cement.
	550-555		"	"	"	Vfn/C	Same.
	555-560		"	"	"	"	Rounded. Much silt. Trace pale green shale, silica cement.
	560-565		"	"	"	Vfn/VC	Rounded. Much silt. Trace pyrite cement, silica cement.
	565-570	G	"	"	"	"	Rounded. Little silt. Trace silica cement, C glauconite.
	570-575		"	"	"	Vfn/C	Rounded. Much silt. Trace silica cement, pale green shale.
	575-580		"	"	"	"	Same.
	580-585	G	"	"	"	"	Same plus trace M glauconite, pyrite.
	585-590	G	"	"	"	Vfn/VC	Rnd. Mch silt. Tr silica cement, pl green shale, Fn glauconite.
	590-595		"	"	"	"	Rounded. Little silt. Trace silica cement, pale green shale.
	595-600		"	"	"	Vfn/C	Rounded. Little silt. Trace silica cement.
	600-605		"	"	"	"	Same.
	605-610		"	"	"	"	"
	610-615		"	"	"	"	Same but much silt.
	615-620		"	"	"	Vfn/VC	Rounded. Trace silt, silica cement.
	620-625		"	"	"	Vfn/C	Rounded. Much silt. Trace silica & pyrite cements, pyrolusite?
	625-630	G	"	"	"	Vfn/VC	Rnd. Ltl silt. Tr silica cement, Fn/M glauconite, pyrolusite?
	630-635		"	"	"	Vfn/C	Rounded. Little silt. Trace silica cement, pyrolusite?
	635-640	G	"	Bn yellow	"	"	Rnd. Trace silt, pl gn shale, Vfn glauconite, pyrolusite?
	640-645	G	"	"	"	Vfn/VC	Rnd. Mch silt. Tr Vfn glauc, pl gn & gry shales, pyrolusite?
	645-650		"	"	"	Vfn/C	Rounded. Much silt. Trace pale green shale, pyrolusite?
	650-655	G	"	Pl yellow	"	"	Rnd. Ltl silt. Tr pyrolusite?, Vfn glauconite, silica cement.
	655-660		"	"	M/C	Vfn/VC	Rounded. Little silt. Trace pyrolusite?, silica cement.
	660-665		"	"	"	"	Same but trace silt.
	665-670		"	"	"	"	Same.
	670-675		"	"	M	"	"
	675-680		"	"	"	"	"
	680-685		"	Lt bn yl	"	"	Rounded. Poorly sorted. Much silt.
	685-690		"	"	"	"	Same.
	690-695		"	"	"	"	Same plus trace pale green shale.
360	695-700		"	"	"	"	Rounded. Poorly sorted. Much silt. Trace pyrolusite, caved organic material.
			END OF LOG				
			Poor Sample				
	100-105		Silt	Yl brown	--	--	Silt as in interval 0-5', Much Vfn/VC sand. Little sandstone as in interval 50'-55'. Trace sandy dolomite, glacial? dolomite pebbles, irfs.
			End of log samples				
	205-210	G	Sandstone	Bn yellow	Fn/M	Vfn/C	Subrounded to rounded. Much dolomite cement. Little sandy dolo- Trace pale green shaly matrix, pale green shale, pyrolusite?, Vfn/C glauconite, silt.
	220-225	G	Sandstone	Pl bn yl	Fn	Vfn/C	Subrounded to rounded. Poorly sorted. Trace dolomite cement, Vfn/M glauconite, silt.
	260-265	G	Sandstone	Pl bn yl	Fn&C	Vfn/VC	Subrounded to rounded and rounded. Poorly sorted. Much dolomite cement. Little silt. Trace Vfn/C glauconite, pale green shale, pyrolusite?

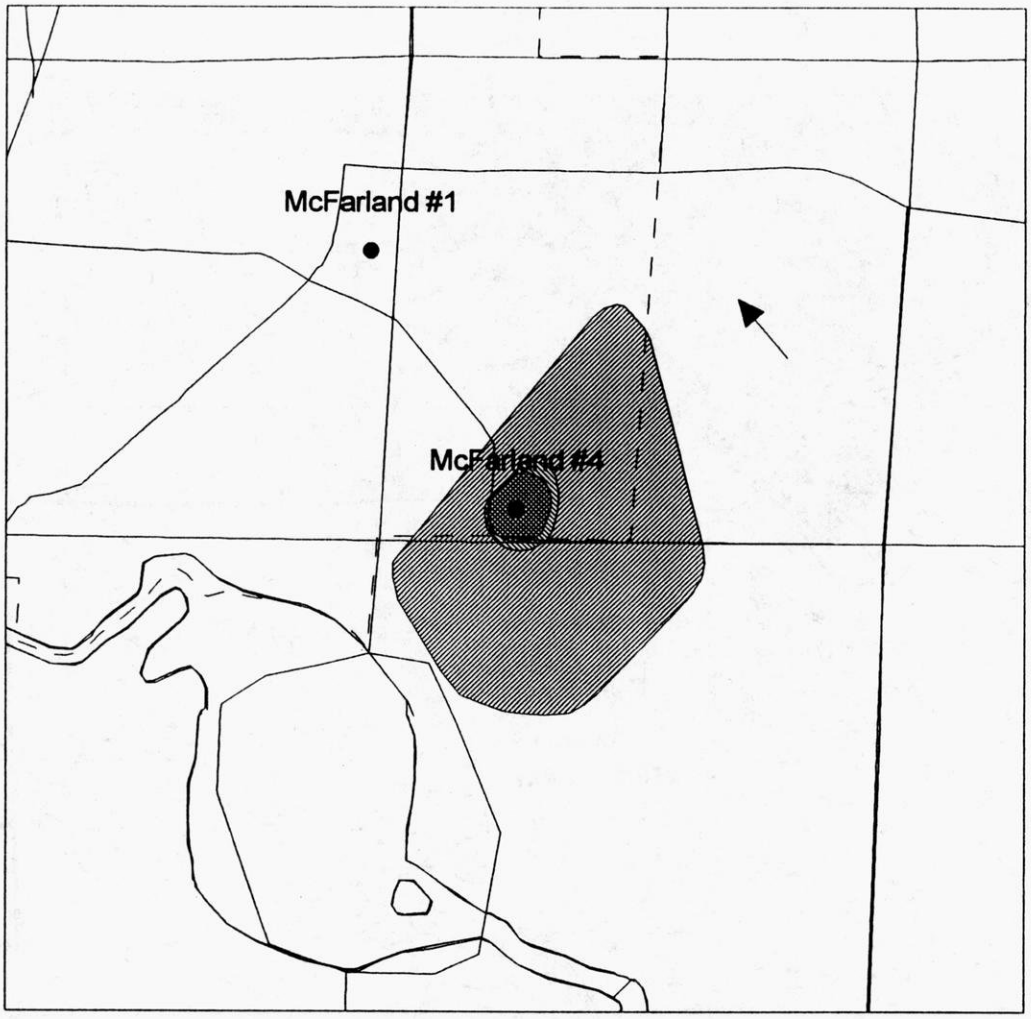
Village of McFarland, Well Number 4



Village of McFarland, Well Number 4 is located at 43° 0' 21.78" north latitude and 89° 16' 54.25" longitude. The well was installed in 1989 and has a pumping capacity of 1,150 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 391,280 gpd.

The well casing extends to a depth of 130 feet below ground surface, and the total depth of the well is 800 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for McFarland, Well Number 4



Well Location

Latitude: 43° 0' 21.78"
Longitude: 89° 16' 54.25"

0 500 1000
(meters)

N

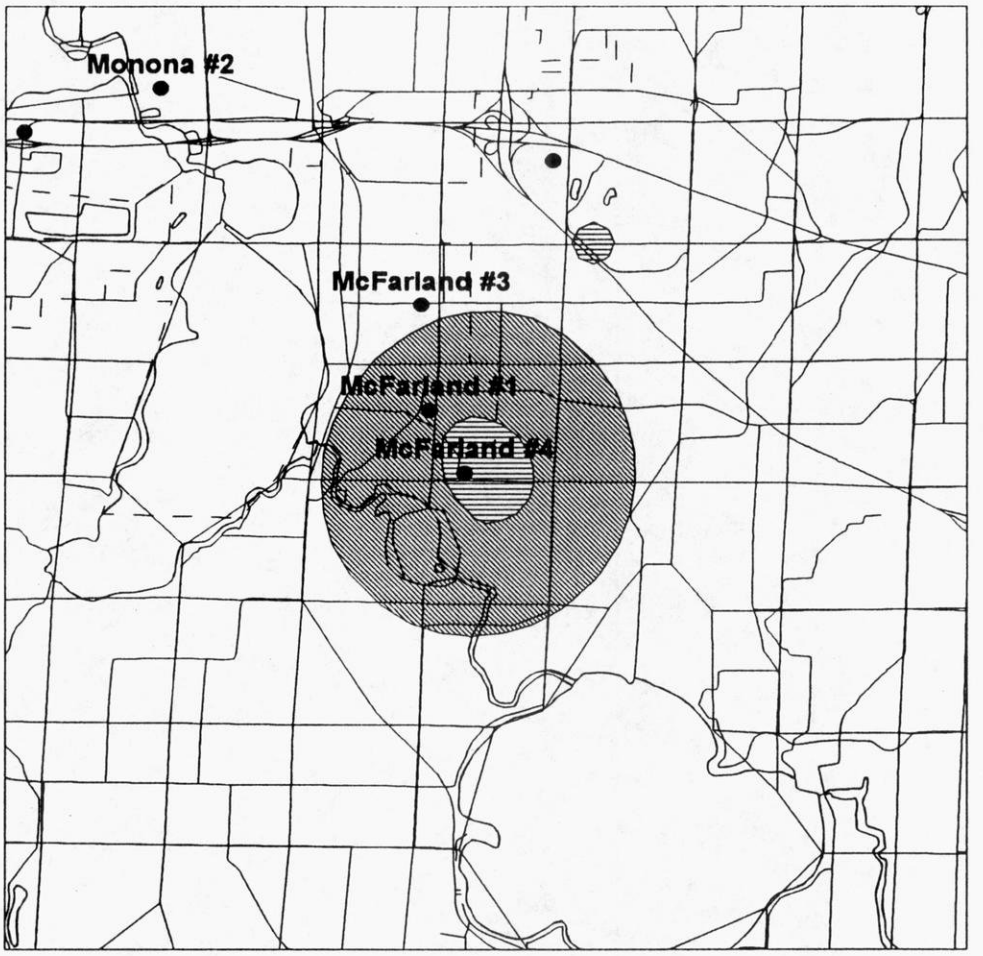
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for McFarland, Well Number 4



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Wisconsin Geological and Natural History Survey
3817 Mineral Point Road, Madison, WI 53705-5100

Geologic Log No: DN-1331-G,D

Site Name: McFarland Village Well #4
Owner: Village of Mc Farland
Address: Box 22
Mc Farland, WI 53558
Driller(s): Layne-Northwest Co. 7/28/1989
Engineer: Mead & Hunt, Inc.
Madison, WI 53719
Location: SW, SW,
Sec. 2, T6N, R10E
Topo Name: Madison East
Sample Nos: T288
Perm No.: 00 597
WI-Unique ID#:

County: DANE
Completed: 7/28/1989
Field Check:

Elevation: 860' +/- 10'
Well Use: Municipal
Static Level: 16'

R. 10 E.
T. 6 N.
Sec. 2

Pump Test:

Pumped at 1000 GPM for 8 hrs. with 19 ft. of drawdown.
Specific Cap: 52.6 GPM /ft.

Samples Rec'd
7/21/89 0' to 800'

Studied By:
Kathleen M. Massie-Ferch 0' to 800'

Formations:
Unpublished

Log Comments:

Published:
Printed:

Drill Hole Dimensions		
Diameter	From	To
24"	0'	131'
18"	131'	800'

Drilling Method		
Method	From	To
Rotary - Mud Circulation	0'	800'

Grout		
Type	From	To
Neat cement	0'	130'

Open Interval Characteristics			
Diameter	From	To	Opening Type
24"	130'	131'	Open Hole
18"	131'	800'	Open Hole

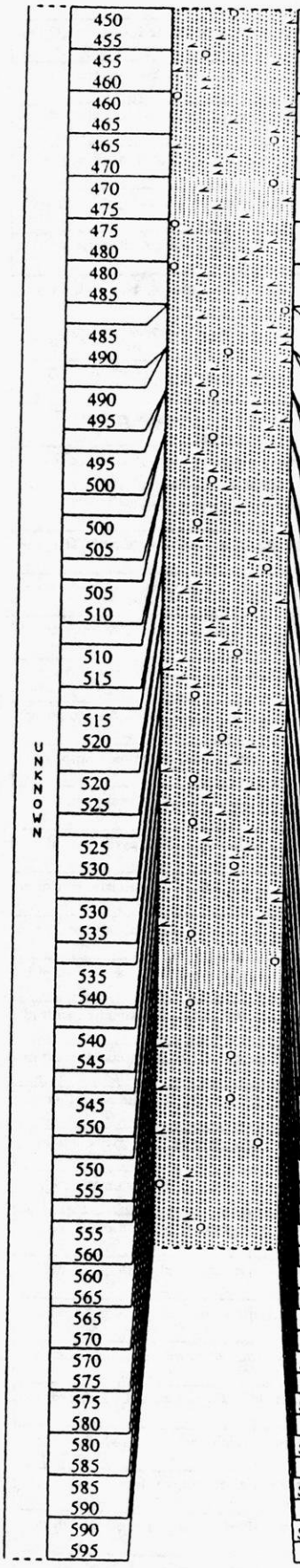
Casing & Liner Information				
Diameter	From	To	Casing	Weight
20"	0'	130'	Steel	78.6 lbs/ft

	Depths	Graphic	RockType Mode	Color Range	Miscellaneous Characteristics
UNKNOWN	0 5		Silt –	Yl bn –	Siliceous.Much sand,clay.Ltl gvl(Gr/LP).Tr organics.
	5 10		Silt & sand C	Mxd yl bn Vfn/VC	Siliceous(silt).Much gvl(Gr/MP),clay.
	10 15		Sand C/VC	Mxd bn Vfn/VC	Much gvl(Gr/MP-mostly grans).Ltl silt,clay.
	15 20		Gravel S peb	Mxd bn Gr/SP	Dolomite,chert,oolitic chert,ss,sts,granite,trap.Much sand.Ltl silt,clay.
	20 25		Gravel S peb	Mxd bn Gr/SP	Dolomite,chert,oolitic chert,ss,sts,granite,trap.Ltl sand,silt,clay.
	25 30		Gravel S peb	Mxd bn Gr/MP	Dolomite,chert,oolitic chert,ss,sts,granite,trap.Ltl sand,silt,clay.
	30 35		Gravel S peb	Mxd bn Gr/SP	Dolomite,chert,oolitic chert,ss,sts,granite,trap.Much sand,silt,clay.
	35 40		Gravel S peb	Mxd bn Gr/MP	Dolomite,chert,oolitic chert,ss,sts,granite,trap.Much sand.Ltl silt,clay.
	40 45		Gravel S peb	Mxd bn Gr/MP	Dolomite,chert,oolitic chert,ss,sts,granite,trap.Ltl sand,silt,clay.
	45 50		Gravel S peb	Mxd bn Gr/MP	Dolomite,chert,oolitic chert,ss,sts,granite,trap.Ltl sand,silt,clay.
	50 55		Gravel S peb	Mxd bn Gr/MP	Dolomite,chert,oolitic chert,ss,sts,granite,trap.Much sand,silt.Ltl clay.
	55 60		Dolomite M	Bn yl Fn/M	Much floating qtz sand(chips range from a sandy dol to a dolic ss),floating qtz silt,uncon(mostly gvl,over all-65% of sample).Tr lim.
	60 65		Dolomite M	Bn yl Fn/M	Much floating qtz sand(chips range from a sandy dol to a dolic ss),floating qtz silt,cvd mat & gvl(Gr/LP).Tr silt/Vfn-glauc,lim,wh fossil frags,wh chert,pl gn sh,clear cal xtals.
	65 70		Dolomite M	Bn yl Fn/M	Much floating qtz sand(chips range from a sandy dol to a dolic ss),floating qtz silt.Ltl cvd uncon. Tr silt/Vfn-glauc,lim,wh chert,pl gn sh,clear cal xtals.
	70 75		Dolomite M	Bn yl Fn/M	Much floating qtz sand(chips range from a sandy dol to a dolic ss),floating qtz silt.Ltl cvd uncon. Tr silt/Vfn-glauc,lim,wh chert,pl gn sh,clear cal xtals.
	75 80		Dolomite M	Lt yl bn to bn yl Fn/M	Ltl cvd uncon.Tr floating qtz sand(chips range from a sandy dol to a dolic ss),floating qtz silt, silt/Vfn-glauc,lim,wh chert,pyrolusite.

UNKNOWN	80 85	Dolomite M	Lt yl bn Fn/M	Much pur hem motteling.Ltl cvd mat.Tr floating qtz sand(chips range from a sandy dol to a dolic ss), floating qtz silt,silt/Vfn-glauc,lim,fossil molds,pyrolusite.
	85 90	Dolomite M	Lt yl bn Fn/M	Much rd bn hem motteling,cvd mat.Tr floating qtz sand(chips range from a sandy dol to a dolic ss), floating qtz silt,silt/Vfn-glauc,lim,pyrolusite.
	90 95	Siltstone –	Lt yl bn to rd bn –	Chips range from a sts to a sandy dol to a dolic ss.Much VG dolic cem,rd bn hem motteling,floating qtz sand,floating qtz silt,silt/Vfn-glauc.Tr lim,pyrolusite,wh fossil frags,mica,cvd mat.
	95 100	Siltstone –	Rd bn –	Chips range from a sts to a sandy dol to a dolic ss.Much VG dolic cem,floating qtz sand,floating qtz silt,silt/Vfn-glauc.Ltl rd bn hem sh,hem motteling.Tr lim,pyrolusite,wh fossil frags,mica,cvd mat.
	100 105	Siltstone –	Rd bn –	Chips range from a sts to a sandy dol to a dolic ss.Much VG dolic cem,floating qtz sand,floating qtz silt,silt/Vfn-glauc,rd bn hem sh,Ltl mica,Tr lim,pyrolusite,wh fossil frags,cvd mat.
	105 110	Siltstone –	Rd bn –	Chips range from a sts to a sandy dol to a dolic ss.Much VG dolic cem,floating qtz sand,floating qtz silt,silt/M-glauc,rd bn hem sh,Ltl mica,Tr wh fossil frags,pl gn sh,cvd mat.
	110 115	Siltstone –	Rd bn –	Chips range from a sts to a sandy dol to a dolic ss.Much VG dolic cem,floating qtz sand,floating qtz silt,silt/M-glauc,rd bn hem sh,cvd mat.Ltl mica.Tr wh fossil frags,pl gn sh.
	115 120	Sandstone Fn	Rd bn Vfn/C	Subang.Chips range from a sts to a dolic ss.Much VG dolic cem,qtz silt,rd bn hem sh.Ltl Vfn/M-glauc, cvd mat.Tr wh fossil frags,pl gn sh,mica,lim,pyro.
	120 125	Sandstone Fn	Rd bn Vfn/C	Subang.Much VG dolic cem,qtz silt,rd bn hem sh,Vfn/M-glauc,cvd mat.Tr wh fossil frags,pl gn sh.mica, lim.
	125 130	Sandstone Fn/M	Rd bn Vfn/C	Subang to subrnd.Much VG dolic cem,qtz silt,rd bn hem sh,Vfn/M-glauc.cvd mat.Tr wh fossil frags.pl gn sh,mica,lim.
	130 135	Sandstone Fn/M	Lt rd bn Vfn/C	Subang to subrnd.Much VG dolic cem,qtz silt,Vfn/M-glauc,cvd mat.Ltl rd bn hem sh.Tr wh fossil frags. pl gn sh,mica,lim.
	135 140	Sandstone Fn/M	Lt rd bn Vfn/C	Subang to subrnd.Much VG dolic cem,qtz silt,Vfn/C-glauc,cvd mat.Ltl rd bn hem sh.Tr G lim cem,wh fossil frags,pl gn sh,mica,lim.
	140 145	Sandstone Fn/M	Pk to lt yl bn Vfn/C	Subang to subrnd.Much VG dolic cem,frosting.Ltl qtz silt,Vfn/C-glauc,rd bn hem sh,sandy dol,cvd mat. Tr wh fossil frags,pl gn sh,mica,lim.
	145 150	Sandstone M	Bn yl Vfn/C	Subrnd to rnd.Much VG dolic cem,frosting.Ltl qtz silt,cvd mat.Tr Vfn/M-glauc,rd bn hem sh,drusy qtz. pl gn sh,mica,lim.
	150 155	Sandstone Fn/M	Bn yl to strong bn Vfn/C	Subang to rnd.Much VG dolic cem,frosting.Ltl mass/C-glauc,qtz silt,cvd mat.Tr spec hem,rd bn hem sh, pl gn sh,mica,lim.
	155 160	Sandstone Fn/M	Bn yl Vfn/C	Subang to rnd.Much VG dolic cem,frosting,cvd mat.Ltl silt/M-glauc,qtz silt.Tr rd bn hem sh,lim.
	160 165	Sandstone Fn/M	Bn yl Vfn/C	Subang to rnd.Much VG dolic cem,frosting,cvd mat.Ltl mass/C-glauc,qtz silt.Tr spec hem,rd bn hem sh, lim.
	165 170	Sandstone Fn	Lt bn Vfn/C	Subang.Ltl G lim cem,qtz silt.Much frosting,cvd mat.Tr G dolic cem,pl gn sh,Fn-glauc,lim.
	170 175	Sandstone Fn	Lt bn Vfn/C	Subang.Tr G lim cem,G dolic cem,pl gn sh,Fn-glauc,lim,spec hem.Much frosting,cvd mat.Ltl qtz silt.
	175 180	Sandstone Fn	Lt bn Vfn/C	Subang.Much F dolic cem,frosting.Tr F pyrite cem,M/C-glauc,spec hem,lim,cvd mat.Ltl qtz silt.
	180 185	Sandstone M/C	V pl bn Vfn/Gr	Subrnd to wrnd.Tr G dolic cem,F lim cem,mafic incl,qtz silt,rust from drilling.Much frosting.Ltl cvd mat.Few sec qtz growths.
	185 190	Sandstone M	Lt gy Vfn/Gr	Subrnd.Tr G silcs cem,lim,mafic incl,qtz silt,Fn-zir,wh sh,cvd mat,rust.Much frosting.Few sec qtz growths.
	190 195	Sandstone M/C	V pl bn Vfn/VC	Subrnd to wrnd.Ltl G silcs cem.Tr lim,mafic incl,qtz silt,Fn-zir,wh sh,pl gn sh.rust,cvd mat.Much frosting.Few sec qtz growths.
	195 200	Sandstone M	V pl bn Vfn/VC	Subang to subrnd.Ltl G to VG silcs cem.Much frosting.Few sec qtz growths.Tr wh sh,pl gn sh,mafic incl,qtz silt,rust from drilling.
	200 205	Sandstone M	V pl bn Vfn/VC	Subang to subrnd.Ltl G to VG silcs cem.Much frosting.Few sec qtz growths.Tr wh sh,pl gn sh,mafic incl,qtz silt,rust from drilling.
	205 210	Sandstone M	V pl bn Vfn/VC	Subang to subrnd.Ltl G to VG silcs cem,pl yl sandy dol.Much frosting.Few sec qtz growths.Tr wh sh,pl gn sh,mafic incl,qtz silt,rust from drilling.
	210 215	Sandstone M/C	V pl bn Vfn/VC	Subrnd to wrnd.Ltl G silcs cem,pl yl sandy dol.Much frosting.Few sec qtz growths.Tr wh sh,pl gn sh, mafic incl,qtz silt,rust from drilling.
	215 220	Sandstone M/C	V pl bn Vfn/VC	Subrnd to wrnd.Tr G silcs cem,pl yl sandy dol,wh sh,pl gn sh,mafic incl,qtz silt,rust from drilling. Much frosting,Few sec qtz growths.
	220 225	Sandstone M/C	V pl bn Vfn/VC	Subrnd to wrnd.Ltl G silcs cem.Much frosting,pl pk yl sandy dol/dolic cemtd ss.Tr wh sh,pl gn sh, mafic incl,qtz silt,rust from drilling,neat cem.Few sec qtz growths.
	225 230	Sandstone M/C	V pl bn to pl yl Vfn/VC	Subrnd to wrnd.Much pk yl dolic cem/sandy dol,frosting.Ltl G silcs cem.Few sec qtz growths.Tr lim,pl gn sh,qtz silt,mafic incl,wh sh,rust from drilling.
	230 235	Sandstone M/C	V pl bn to pl yl Vfn/VC	Subrnd to wrnd.Much pk yl to stng bn dolic cem/sandy dol(more than above),frosting.Ltl G silcs cem. Few sec qtz growths.Tr lim,pl gn sh,qtz silt,mafic incl,Fn/M-zir,wh sh,rust from drilling.
	235 240	Sandstone M/C	V pl bn to pl yl Vfn/VC	Subrnd to wrnd.Much pk yl to stng bn dolic cem/sandy dol,frosting.Few sec qtz growths.Tr G silcs cem. lim,pl gn sh,qtz silt,mafic incl,Fn/M-zir,wh sh,rust from drilling.
	240 245	Sandstone M/C	Lt yl bn Vfn/VC	Subrnd to wrnd.Much pk yl to stng bn dolic cem,frosting.Few sec qtz growths.Tr G silcs cem,G lim cem. pl gn sh,qtz silt,mafic incl,Fn/M-zir,wh sh,rust from drilling.
	245 250	Sandstone M/C	Strong bn Vfn/VC	Subrnd to wrnd.Much pk bn to stng bn dolic cem,frosting.Tr G silcs cem,G lim cem,qtz silt,mafic incl. Fn/M-zir,wh sh,rust from drilling.
	250 255	Sandstone M/C	Strong bn Vfn/VC	Subrnd to wrnd.Much pk bn to stng bn dolic cem,frosting.Tr G silcs cem,G lim cem,qtz silt,mafic incl. Fn/M-zir,wh sh,rust from drilling.
	255 260	Sandstone M/C	Strong bn Vfn/VC	Subrnd to wrnd.Much pk bn to stng bn dolic cem,frosting.Tr G silcs cem,G lim cem,qtz silt,mafic incl Fn/M-zir,wh sh,rust from drilling.
	260 265	Sandstone M/C	Lt bn yl Vfn/VC	Subrnd to wrnd.Ltl pk bn to stng bn dolic cem.Much frosting.Few sec qtz growths.Tr G silcs cem,G lim cem,qtz silt,mafic incl,wh sh,pyrite,rust from drilling.

265 270		Sandstone M/C	Strong bn Vfn/VC	Subrnd to wrnd.Ltl pk bn to stng bn dolic cem.Much frosting.Few sec qtz growths.Tr G silcs cem,G lim cem,qtz silt,mafic incl,wh sh,pyrite,rust from drilling.
270 275		Sandstone M	Lt gy Vfn/VC	Subrnd to rnd.Tr G pyrite cem,F silcs cem,qtz silt,pl gn pyritic sh,mafic incl,wh sh,cvd mat.Much frosting.
275 280		Sandstone M	Lt gy Vfn/Gr	Subrnd to rnd.Tr G pyrite cem,F silcs cem,qtz silt,pl gn pyritic sh,mafic incl,wh sh,cvd mat.Much frosting.
280 285		Sandstone M	Lt gy Vfn/Gr	Subrnd to rnd.Tr G pyrite cem,F silcs cem,qtz silt,pl gn pyritic sh,mafic incl,wh sh,cvd mat.Much frosting.
285 290		Sandstone M	Lt gy Vfn/VC	Subrnd to rnd.Tr G pyrite cem,F silcs cem,qtz silt,gn gy pyritic sh,mafic incl,wh sh,cvd mat.Much frosting.
290 295		Sandstone Fn/M	Lt gy Vfn/VC	Subrnd to rnd.Much F to G silcs cem,frosting.Ltl gn gy pyritic sh.Tr G pyrite cem,qtz silt,mafic incl,wh sh,Vfn-glauc,cvd mat.
295 300		Sandstone Vfn/Fn	Lt gy Vfn/VC	Subang to subrnd.Much G silcs cem,frosting,gn gy pyritic sh.Tr G pyrite cem,qtz silt,mafic incl,wh sh,Vfn-glauc,pk staining,cvd mat.
300 305		Sandstone Vfn/Fn	Lt gy Vfn/VC	Subang to subrnd.Much VG silcs to dolic cem,frosting,gn gy to gy pyritic sh.Tr G pyrite cem,qtz silt,mafic incl,wh sh,Vfn-glauc,wh fossil frags,pk staining,cvd mat.
305 310		Sandstone Vfn/Fn&C	Lt gy Vfn/VC	Subang to subrnd & wrnd.Much VG silcs to dolic cem(w/ fines),frosting,gn gy to gy pyritic sh.Tr G pyrite cem,qtz silt,mafic incl,wh sh,Vfn-glauc,tan fossil frags,pk staining,cvd mat.
310 315		Sh & sandstone Vfn/Fn	Dk gy & lt gy Vfn/VC	Sh:Silcs.Tr pyrite,fossil frags.Subang to subrnd.Much VG silcs to dolic cem,frosting,gn gy sh.Tr G pyrite cem,qtz silt,mafic incl,Vfn/M-glauc,hem,fossil frags,pk staining,cvd mat.
315 320		Sh & sandstone Vfn/Fn	Dk gy & lt gy Vfn/VC	Sh:Silcs.Tr pyrite,fossil frags.Subang to subrnd.Much VG dolic to silcs cem,frosting,gn gy sh.Tr G pyrite cem,G calcs cem(C),qtz silt,mafic incl,Vfn/M-glauc,rd bn hem staining,fossil frags,cvd mat.
320 325		Sandstone M	Pk to rd bn Vfn/VC	Subrnd to wrnd.Much VG rd bn dolic cem,frosting,gn gy & dk gy sh.Tr pyrite,qtz silt,mafic incl,M/C-glauc,rd bn hem,rd bn & pur sh,fossil frags(w/sh),cvd mat.
325 330		Sandstone M	Pk to rd bn Vfn/VC	Subrnd to wrnd.Much VG rd bn dolic cem,frosting.Ltl rd bn & pur sh,gn gy & dk gy sh(cvd?).Tr pyrite,qtz silt,mafic incl,M/C-glauc,rd bn hem,cvd mat.
330 335		Sandstone M/C	Pk to lt rd bn Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Ltl cvd mat(mostly sh).Few sec qtz growths.Tr rd bn & pur sh,pyrite,qtz silt,mafic incl,M/C-glauc,rd bn hem,wh sh,rust.
335 340		Sandstone M/C	Pk to lt rd bn Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Ltl cvd mat(mostly sh).Few sec qtz growths.Tr rd bn & pur sh,pyrite,qtz silt,mafic incl,M/C-glauc,rd bn hem,wh sh,wh fossil frags,rust.
340 345		Sandstone M/C	V pl pk bn Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Few sec qtz growths.Tr rd bn & pur sh,pyrite,qtz silt,mafic incl,M/C-glauc,rd bn hem,wh sh,rust,cvd mat.
345 350		Sandstone M/C	Gy pk Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh,rd bn to pur gy sh,wh fossil frags,mafic incl,rd bn hem staining,clear cal,qtz silt,cvd mat,rust.
350 355		Sandstone M/C	V pl bn Vfn/VC	Rnd to wrnd.Much VG dolic cem(less than above),frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh rd bn to pur gy sh,mafic incl,rd bn hem staining,clear cal,qtz silt,cvd mat,rust.
355 360		Sandstone M/C	V pl bn Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Few sec qtz growths.Ltl cvd mat.Tr G pyrite cem,pl gn sh,mafic incl,rd bn hem staining,clear cal,qtz silt,rust.
360 365		Sandstone M/C	Pink Vfn/VC	Rnd to wrnd.Much VG dolic cem(more than above),frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh mafic incl,rd bn hem staining,qtz silt,wh sh,rust,cvd mat.
365 370		Sandstone M/C	Pink Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh,mafic incl,rd bn hem staining,qtz silt,wh sh,rust,cvd mat.
370 375		Sandstone M/C	Pink grey Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh,mafic incl,rd bn hem staining,qtz silt,wh sh,rust,cvd mat.
375 380		Sandstone M/C	Pink grey Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh,mafic incl,rd bn hem staining,qtz silt,wh sh,clear cal,rust,cvd mat.
380 385		Sandstone M/C	Pink Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh,mafic incl,lt rd bn hem staining,qtz silt,wh sh,clear cal,rust,cvd mat.
385 390		Sandstone M/C	Pink Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh,mafic incl,lt rd bn hem staining,qtz silt,wh sh,clear cal,rust,cvd mat.
390 395		Sandstone M/C	Pink white Vfn/VC	Rnd to wrnd.Much G dolic cem(less than above),frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh,mafic incl,orange staining,qtz silt,wh sh,rust,cvd mat.
395 400		Sandstone M/C	Pink white Vfn/VC	Rnd to wrnd.Much G to F dolic cem(less than above),frosting.Few sec qtz growths.Tr G pyrite cem,pl gn sh,mafic incl,orange staining,qtz silt,wh sh,rust,cvd mat.
400 405		Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much G dolic cem,frosting.Few sec qtz growths.Ltl G pyrite cem.Tr pl gn sh,mafic incl,orange staining,qtz silt,wh sh,rust,cvd mat.
405 410		Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much G dolic cem,frosting.Few sec qtz growths.Ltl G pyrite cem.Tr pl gn sh,mafic incl,orange staining,qtz silt,wh sh,rust,cvd mat.
410 415		Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much G dolic cem,frosting.Few sec qtz growths.Ltl G pyrite cem.Tr pl gn sh,mafic incl,orange staining,qtz silt,wh sh,rust,cvd mat.
415 420		Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much G dolic cem,frosting.Few sec qtz growths.Ltl G pyrite cem.Tr pl gn sh,mafic incl,orange staining,qtz silt,wh sh,rust,cvd mat.
420 425		Sandstone M	Lt pk gy Vfn/VC	Rnd.Tr G dolic cem,G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat.Much frosting.Ltl rust.
425 430		Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Ltl G silcs cem,rust.Tr G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat.Much frosting.Few sec qtz growths.
430 435		Sandstone M/C	Lt gy Vfn/VC	Rnd to wrnd.Ltl G silcs cem,rust.Tr G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat.Much frosting.Many sec qtz growths.
435 440		Sandstone M	Lt gy Vfn/VC	Rnd to wrnd.Tr G silcs cem,G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Much frosting.Many sec qtz growths.
440 445		Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much G dolic cem,frosting.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Ltl rd to pk staining of the dolic cement.
445 450		Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much G dolic cem,frosting.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Ltl rd to pk staining of the dolic cement.

UNKNOWN



450 455	Sandstone M/C	Pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh, mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
455 460	Sandstone M/C	Pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh, mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
460 465	Sandstone M/C	Pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh, mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
465 470	Sandstone C	Pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh, mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
470 475	Sandstone M	Pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh, mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
475 480	Sandstone M/C	Pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh, mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
480 485	Sandstone M/C	Pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
485 490	Sandstone M/C	Pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
490 495	Sandstone M/C	Pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
495 500	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
500 505	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
505 510	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
510 515	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
515 520	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem(less than above),frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
520 525	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
525 530	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
530 535	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
535 540	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
540 545	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
545 550	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
550 555	Sandstone M/C	Lt pk gy Vfn/VC	Rnd to wrnd.Much VG dolic cem,frosting,rd bn to pk staining of the dolic cem.Tr G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,cvd mat,rust.Few sec qtz growths.Some chips are a slightly sandy dolomite.
555 560	Sandstone M/C	Pk gy Vfn/Gr	Subang to wrnd.Much VG dolic cem,frosting,rust.Tr G pyrite cem,pl gn sh.mafic incl,qtz silt,wh sh, mics,dusky rd hem sh,tan mic sh,cvd mat.Few sec qtz growths.
560 565	Sandstone M	Lt gy Vfn/VC	Subrnd to rnd.Tr G dolic cem,G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,rust,cvd mat,Few sec qtz growths.Much frosting.
565 570	Sandstone M/C	Lt gy Vfn/VC	Subrnd to wrnd.Tr G dolic cem,G silcs cem,G pyrite cem,pl gn sh.mafic incl,qtz silt,wh sh,Fn-zircon, rust,cvd mat.Few sec qtz growths.Much frosting.
570 575	Sandstone M/C	Lt pk gy Vfn/VC	Subrnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh, Fn-zircon,rust,cvd mat.Few sec qtz growths.Much frosting.
575 580	Sandstone M/C	Lt pk gy Vfn/VC	Subrnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh, Fn-zircon,rust,cvd mat.Few sec qtz growths.Much frosting.
580 585	Sandstone M/C	Lt pk gy Vfn/VC	Subrnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh, Fn-zircon,rust,cvd mat.Few sec qtz growths.Much frosting.
585 590	Sandstone M/C	Lt pk gy Vfn/VC	Subrnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh.mafic incl,qtz silt,wh sh, Fn-zircon,rust,cvd mat.Few sec qtz growths.Much frosting.
590 595	Sandstone M/C	Lt pk gy Vfn/VC	Subrnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh, Fn-zircon,rust,cvd mat.Few sec qtz growths.Much frosting.

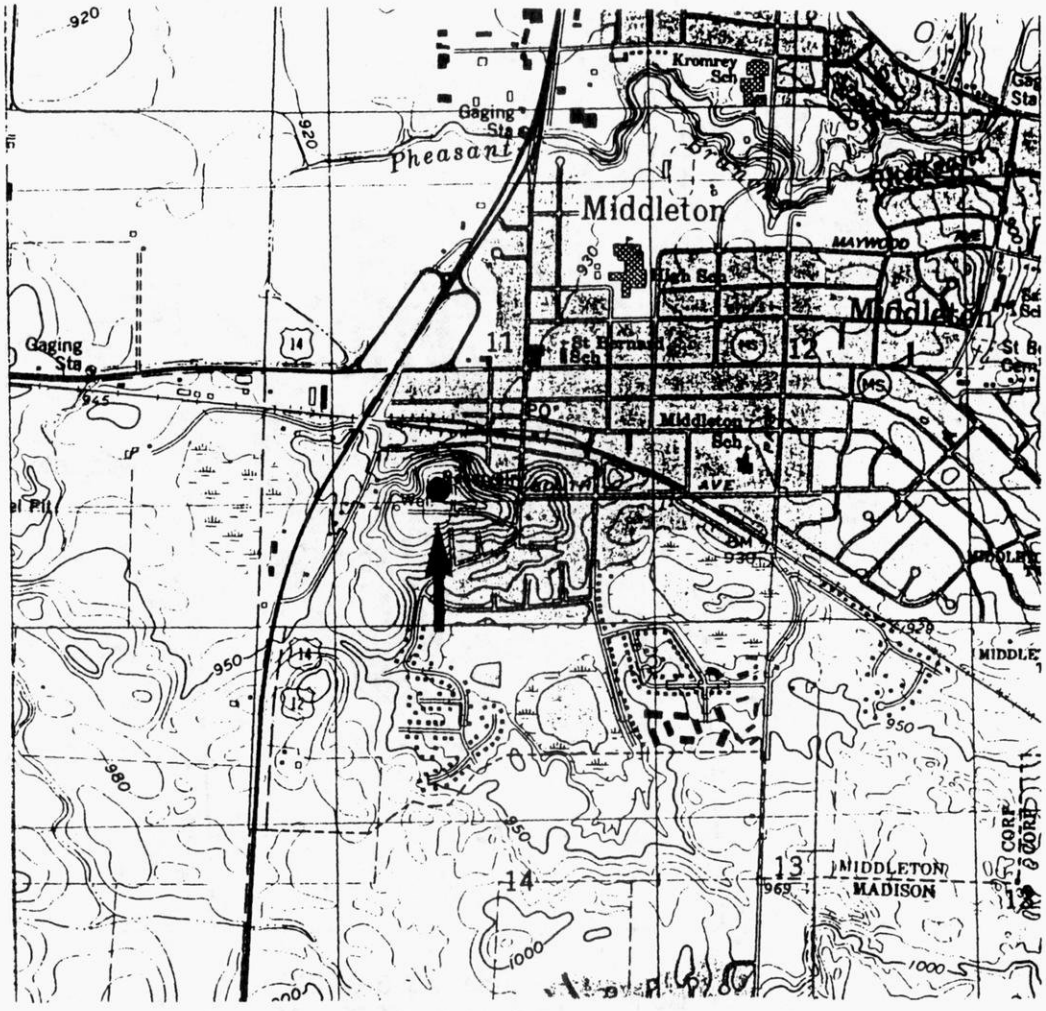
595		Sandstone	Lt pk gy	Subrnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,
600		M/C	Vfn/VC	Fn-zircon,rust,cvd mat.Few sec qtz growths.Much frosting.
600		Sandstone	Lt pk gy	Subrnd to wrnd.Tr G silcs cem,G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
605		M	Vfn/VC	rust.Few sec qtz growths.Much frosting.
605		Sandstone	Lt pk gy	Subrnd to wrnd.Tr G silcs cem,G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
610		M	Vfn/VC	rust.Few sec qtz growths.Much frosting.
610		Sandstone	Lt pk gy	Subrnd to wrnd.Ltl G silcs cem.Tr G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,
615		M	Vfn/VC	Fn-zircon,rust.Few sec qtz growths.Much frosting.
615		Sandstone	Lt pk gy	Subrnd to wrnd.Ltl G silcs cem.Tr G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,
620		M/C	Vfn/VC	Fn-zircon,rust.Few sec qtz growths.Much frosting.
620		Sandstone	Lt pk gy	Subrnd to wrnd.Ltl G silcs cem.Tr G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,
625		M/C	Vfn/VC	Fn-zircon,rust.Few sec qtz growths.Much frosting.
625		Sandstone	Lt pk gy	Subrnd to wrnd.Tr G silcs cem,G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
630		M	Vfn/VC	rust.Few sec qtz growths.Much frosting.
630		Sandstone	Lt pk gy	Subrnd to wrnd.Tr G silcs cem,G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
635		M	Vfn/VC	rust.Few sec qtz growths.Much frosting.
635		Sandstone	Lt pk gy	Subrnd to wrnd.Ltl G silcs cem.Tr G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,
640		M/C	Vfn/VC	Fn-zircon,rust.Few sec qtz growths.Much frosting.
640		Sandstone	Lt pk gy	Subrnd to wrnd.Tr G silcs cem,G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
645		M/C	Vfn/VC	rust.Few sec qtz growths.Much frosting.
645		Sandstone	V pl bn	Subrnd to wrnd.Tr G silcs cem,G dolic cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
650		M/C	Vfn/VC	rust.Few sec qtz growths.Much frosting.
650		Sandstone	V pl bn	Rnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
655		C	Vfn/VC	rust.Few sec qtz growths.Much frosting.
655		Sandstone	V pl bn	Rnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
660		C	Vfn/VC	rust.Few sec qtz growths.Much frosting.
660		Sandstone	V pl bn	Rnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
665		C	Vfn/VC	rust.Few sec qtz growths.Much frosting.
665		Sandstone	V pl bn	Rnd to wrnd.Ltl G dolic cem,rust.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,
670		C	Vfn/VC	Fn-zircon.Few sec qtz growths.Much frosting.
670		Sandstone	V pl bn	Rnd to wrnd.Ltl G dolic cem,rust.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,
675		C	Vfn/VC	Fn-zircon.Few sec qtz growths.Much frosting.
675		Sandstone	V pl bn	Rnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
680		C	Vfn/VC	rust.Few sec qtz growths.Much frosting.
680		Sandstone	V pl bn	Rnd to wrnd.Ltl G dolic cem.Tr G silcs cem,G pyrite cem,pl gn sh,mafic incl,qtz silt,wh sh,Fn-zircon,
685		C	Vfn/VC	rust.Few sec qtz growths.Much frosting.
685		Sandstone	V pl bn	Rnd to wrnd.Ltl G silcs cem.Tr G dolic cem,G pyrite cem,mafic incl,qtz silt.wh sh,Fn-zircon.Few sec
690		C	Vfn/VC	qtz growths.Much frosting,rust.
690		Sandstone	V pl bn	Rnd to wrnd.Much G silcs cem,frosting.Tr G dolic cem,G pyrite cem,mafic incl,qtz silt,wh sh,
695		C	Vfn/VC	Fn-zircon.Few sec qtz growths.Ltl rust.
695		Sandstone	V pl bn	Rnd to wrnd.Much G silcs cem,frosting.Tr G dolic cem,G pyrite cem,mafic incl,qtz silt,wh sh,
700		C	Vfn/VC	Fn/M-zircon.Few sec qtz growths.Ltl rust.
700		Sandstone	V pl bn	Rnd to wrnd.Much G silcs cem,frosting.Tr G dolic cem,G pyrite cem,mafic incl,qtz silt,wh sh,
705		C	Vfn/VC	Fn/M-zircon.Few sec qtz growths.Ltl rust.
705		Sandstone	V pl bn	Rnd to wrnd.Much G silcs cem,frosting.Tr G dolic cem,G pyrite cem,mafic incl,wh sh,qtz silt.Few sec
710		C	Vfn/VC	qtz growths.Ltl rust.
710		Sandstone	V pl bn	Rnd to wrnd.Much G silcs cem,frosting.Tr G dolic cem,G pyrite cem,mafic incl,wh sh,qtz silt.Few sec
715		C	Vfn/VC	qtz growths.Ltl rust.
715		Sandstone	V pl bn	Rnd to wrnd.Much G silcs cem,frosting.Tr G dolic cem,G pyrite cem,mafic incl,wh sh,qtz silt.Few sec
720		C	Vfn/VC	qtz growths.Ltl rust.
720		Sandstone	Lt bn	Rnd to wrnd.Much G silcs cem,frosting.Tr G dolic cem,G pyrite cem,mafic incl,wh sh,qtz silt,lt gy sh,
725		C/VC	Vfn/Gr	rd bn hem sh.Few sec qtz growths.Ltl rust.
725		Sandstone	Lt gy	Rnd to wrnd.Much G slightly dolic cem,frosting.Ltl G pyrite cem.Tr G silcs cem,mafic incl,wh sh,qtz
730		M/C	Vfn/VC	silt,lt gy sh,rd bn hem sh,rust.Few sec qtz growths.
730		Sandstone	Lt bn	Subang to wrnd but irregular.Much G slightly dolic cem,frosting.Tr G pyrite cem,G silcs cem,mafic
735		M/C	Vfn/Gr	incl,wh sh,qtz silt,lt gy sh,rd bn hem sh.Ltl rust.Many sec qtz growths.
735		Sandstone	V pl bn	Ang to rnd but irregular.Much G silcs cem,frosting.Tr G pyrite cem,G dolic cem,mafic incl,wh sh,qtz
740		C	Vfn/Gr	silt,cvd mat,rust.Many sec qtz growths.
740		Sandstone	V pl bn	Ang to rnd but irregular.Much G silcs cem,frosting.Tr G pyrite cem,G dolic cem,mafic incl,wh sh,qtz
745		C	Vfn/Gr	silt,cvd mat,rust.Many sec qtz growths.
745		Sandstone	V pl bn	Ang to rnd but irregular.Much G silcs cem,frosting.Tr G pyrite cem,G dolic cem,mafic incl,wh sh,qtz
750		C	Vfn/Gr	silt,cvd mat,rust.Many sec qtz growths.
750		Sandstone	V pl bn	Ang to rnd but irregular.Much G silcs cem,frosting.Tr G pyrite cem,G dolic cem,mafic incl,wh sh,qtz
755		C/VC	Vfn/Gr	silt,feldspar grains,cvd mat,rust.Many sec qtz growths.
755		Sandstone	V pl bn	Ang to rnd but irregular.Ltl G silcs cem.Much frosting.Tr G pyrite cem,G dolic cem,mafic incl,wh sh,
760		C/VC	Vfn/Gr	qtz silt,feldspar grains,cvd mat,rust.Many sec qtz growths.
760		Sandstone	V pl bn	Ang to rnd but irregular.Ltl G silcs cem.Much frosting.Tr G pyrite cem,G dolic cem,mafic incl,wh sh,
765		M/C	Vfn/Gr	qtz silt,feldspar grains,cvd mat,rust.Many sec qtz growths.
765		Sandstone	Pink	Ang to rnd but irregular.Much G silcs to dolic cem,frosting.Tr G pyrite cem.mafic incl,wh sh,qtz
770		M/C	Vfn/Gr	silt,feldspar grains,cvd mat.Ltl rust.Many sec qtz growths.
770		Sandstone	Pink	Ang to rnd but irregular.Much G silcs to dolic cem,frosting.Tr G pyrite cem,mafic incl,wh sh,qtz
775		M/C	Vfn/Gr	silt,feldspar grains,cvd mat.Ltl rust.Many sec qtz growths.
775		Sandstone	Lt bn	Ang to rnd but irregular.Much G silcs cem,frosting.Tr lim,feldspar grains,mafic incl,qtz silt,rd bn
780		M/C	Vfn/Gr	hem sh,cvd mat.Ltl lt gy to wh sh,rust.Many sec qtz growths.

UNKNOWN

UNKNOWN	780	PRECAMBRIAN	Sandstone	Lt bn	Ang to rnd but irregular.Much G silcs to dolic cem,wh to lt gy micaceous sh,frosting.Tr lim,Fn-zir,
	785		M/C	Vfn/VC	feldspar grains,mafic incl,qtz silt,cvd mat,Ltl rd bn hem sh,rust,Many sec qtz growths.
	785		Sandstone	Lt bn	Ang to rnd but irregular.Much G silcs to dolic cem,wh to lt gy micaceous sh,frosting.Tr lim,Fn-
	790		M/C	Vfn/VC	feldspar grains,mafic incl,qtz silt,cvd mat,Ltl rd bn hem sh,rust,Many sec qtz growths.
	790		Sandstone	Lt bn	Ang to rnd but irregular.Much G silcs to dolic cem,frosting.Tr wh to lt gy micaceous sh,lim,Fn-zir,
	795		M/C	Vfn/Gr	feldspar grains,mafic incl,qtz silt,rd bn hem sh,cvd mat,Ltl rust,Many sec qtz growths.
	795		Sandstone	Lt bn	Ang to rnd but irregular.Much G silcs to dolic cem,frosting.Tr wh to lt gy micaceous sh,lim,Fn-zir,
	800		M/C	Vfn/Gr	feldspar grains,mafic incl,qtz silt,rd bn hem sh,cvd mat,rust,Many sec qtz growths.

End Of Log

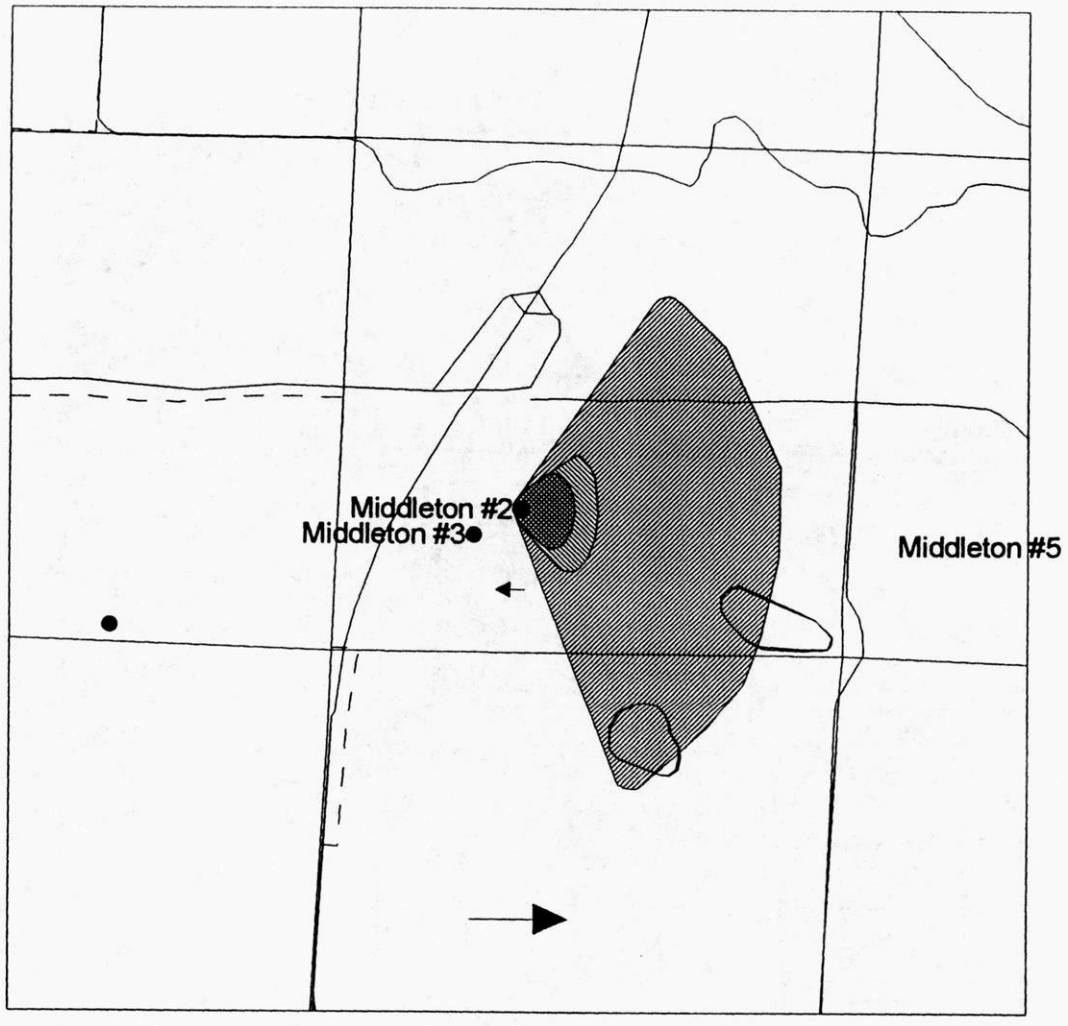
City of Middleton, Well Number 2



City of Middleton, Well Number 2 is located at 43° 5' 36.83" north latitude and 89° 30' 52.20" longitude. The well was installed in 1940, and has a pumping capacity of 350 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 416,200 gpd.

The well casing extends to a depth of 130 feet below ground surface, and the total depth of the well is 330 feet. Water is drawn from a combination of the Paleozoic bedrock units. Regional groundwater flow in the vicinity of the well is generally to the east. However, Middleton Well Number 2 causes a local reversal in the hydraulic gradient and is further influenced by Middleton Well Number 3 to the west.

Zone of Contribution for Middleton, Well Number 2



Well Location

Latitude: 43° 5' 36.83"
Longitude: 89° 30' 52.20"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

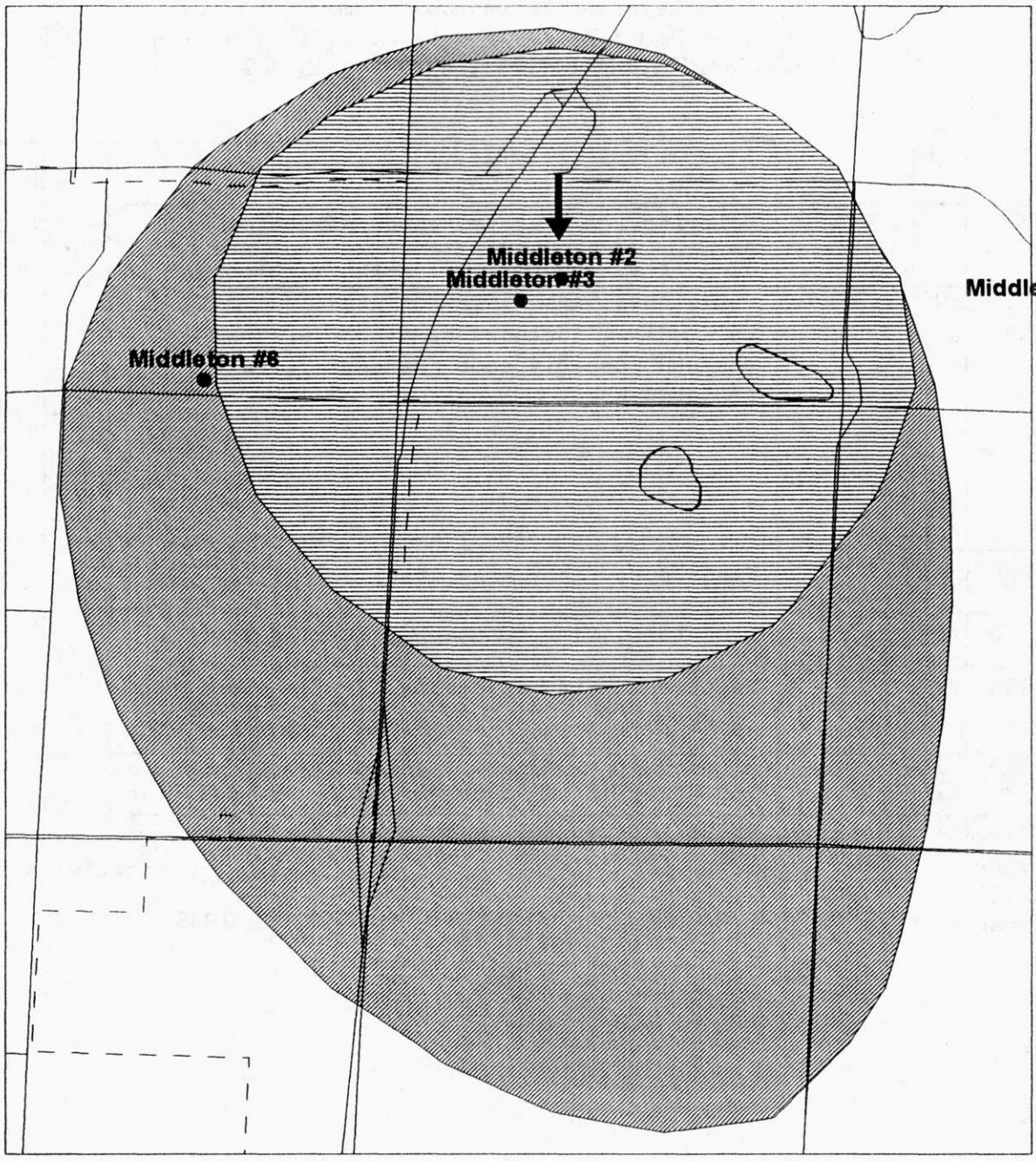
Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Regional Groundwater Flow

Direction of Groundwater Flow in the Vicinity of the Well

Zones of Influence for Middleton, Well Number 2



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

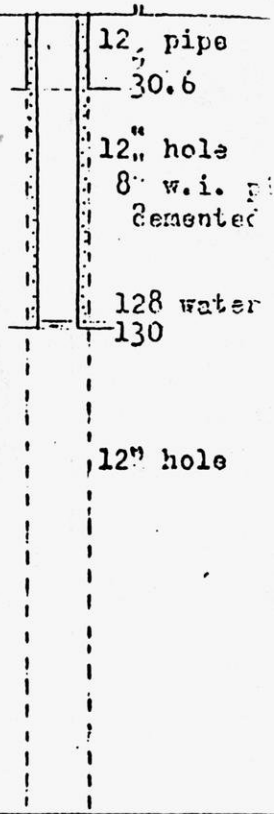
One-half foot drawdown in the deep sandstone aquifer

DN-56

VILLAGE WELL, MIDDLETON, WIS.
Layne-Northwest Co. reaming job, 1940
Samples examined by F. T. Thwaites, Nos. 108929-108948
SW¼, SE¼, SE¼, SW¼, NE¼, SW¼, sec. 11, T. 7 N., R. 8 E.

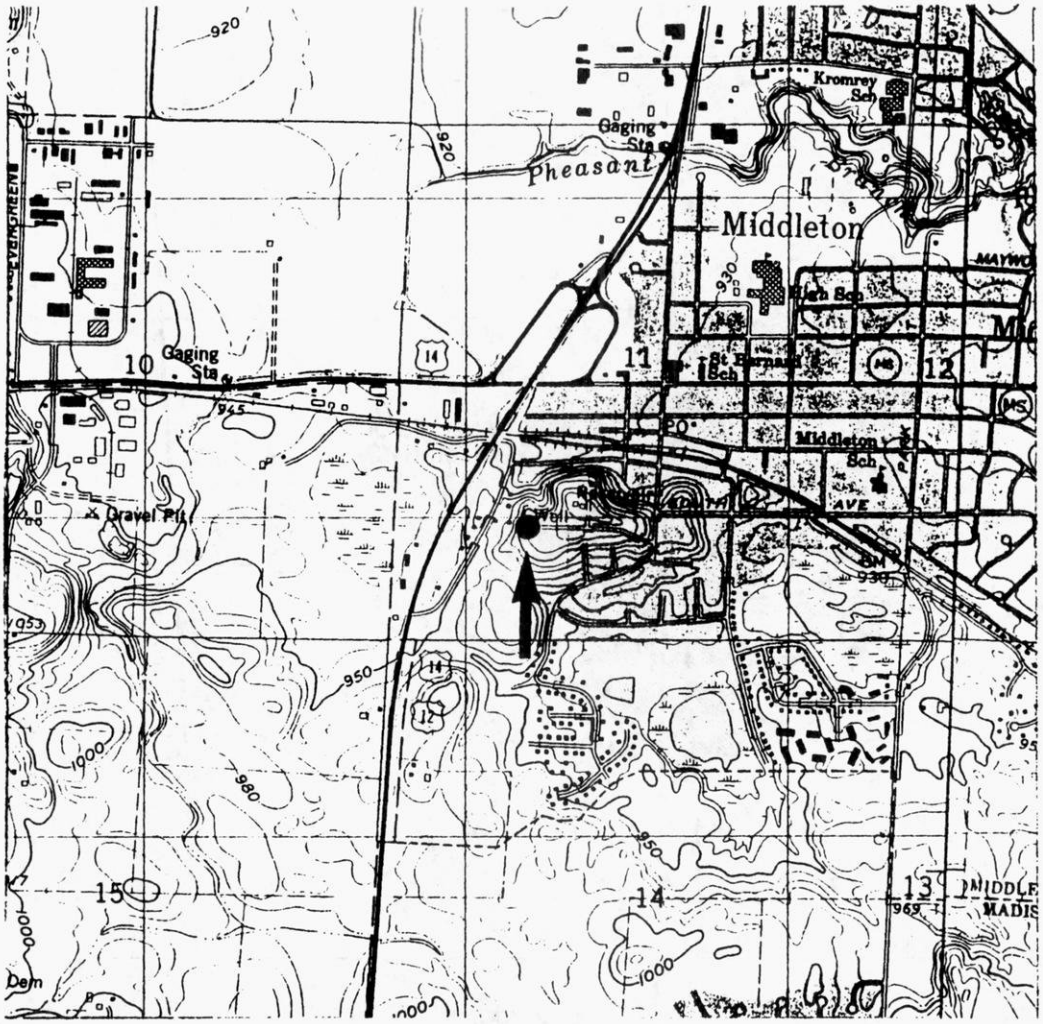
Alt.=1033'ETM

D	30	0-30	30		No samples, probably drift
LM	25	30-55	25		Dolomite, light gray, sandy at bottom
TREMPEALEAU FRANCONIA	265	55-70	15		Sandstone, medium, yellow-gray, dolomitic
		70-80	10		Sandstone, medium, yellow-gray, dolomitic
		80-195	115		No samples; includes remainder of Trempealeau and possibly some Franconia (see Crestwood well)
		195-225	30		Sandstone, fine, gray, very dolomitic
		225-250	25		Sandstone, fine to coarse, gray, dolomitic
		250-290	40		Sandstone, fine to coarse, gray, dolomitic, glauconitic
		290-300	10		Sandstone, fine, gray, dolomitic
		300-320	20		Sandstone, fine to coarse, lt.gray, dol, hard
D	10	320-330	10		Sandstone, medium, light gray



Formations: Drift; Lower Magnesian (Prairie du Chien); Trempealeau; Franconia; Dresbach (Galesville)
Specific capacity = 6.2 g.p.m. Reported as about 2 g.p.m./ft. in 1949

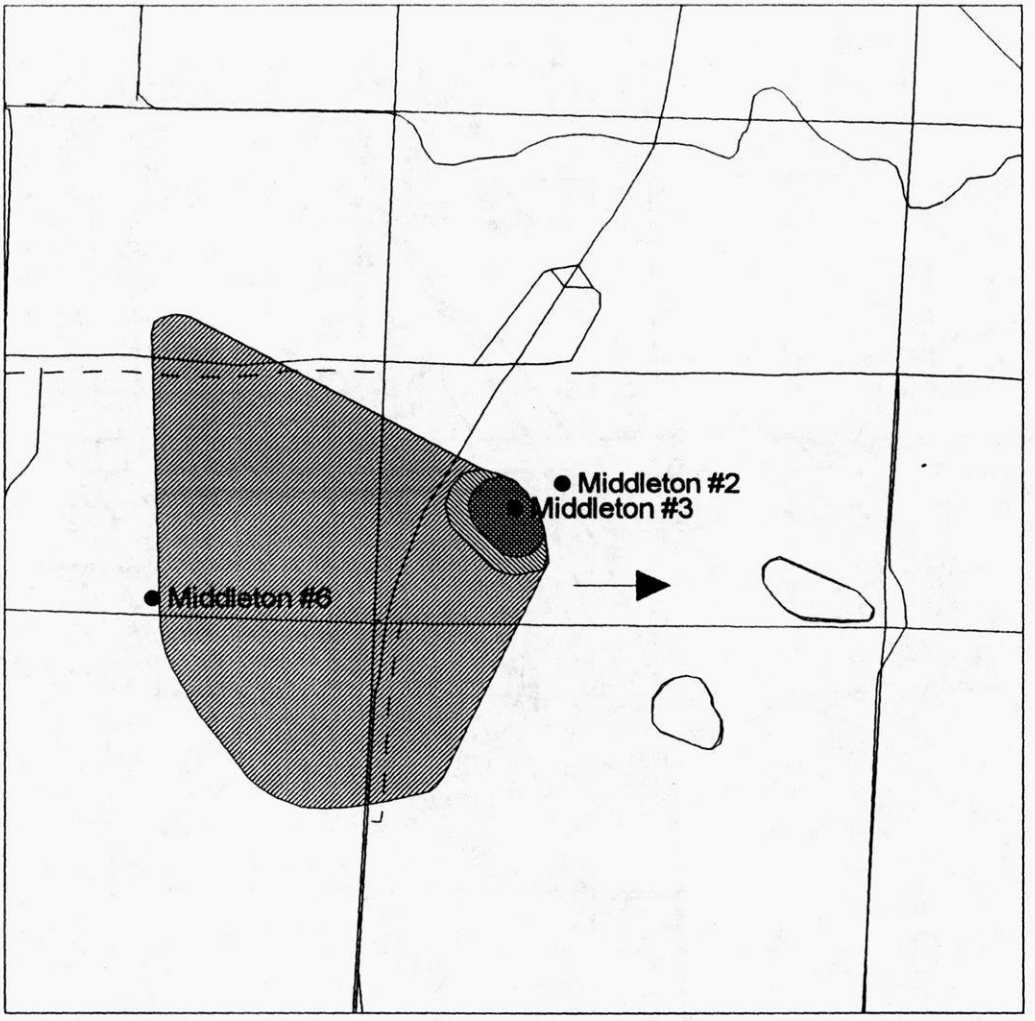
City of Middleton, Well Number 3



City of Middleton, Well Number 3 is located at 43° 5' 34.10" north latitude and 89° 30' 58.64" longitude. The well was installed in 1954, and has a pumping capacity of 1,060 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 416,200 gpd.

The well casing extends to a depth of 100 feet below ground surface, and the total depth of the well is 600 feet. Water is drawn from a combination of the Paleozoic bedrock units. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Middleton, Well Number 3



Well Location

Latitude: 43° 5' 34.10"
Longitude: 89° 30' 58.64"

0 500 1000
(meters)

N

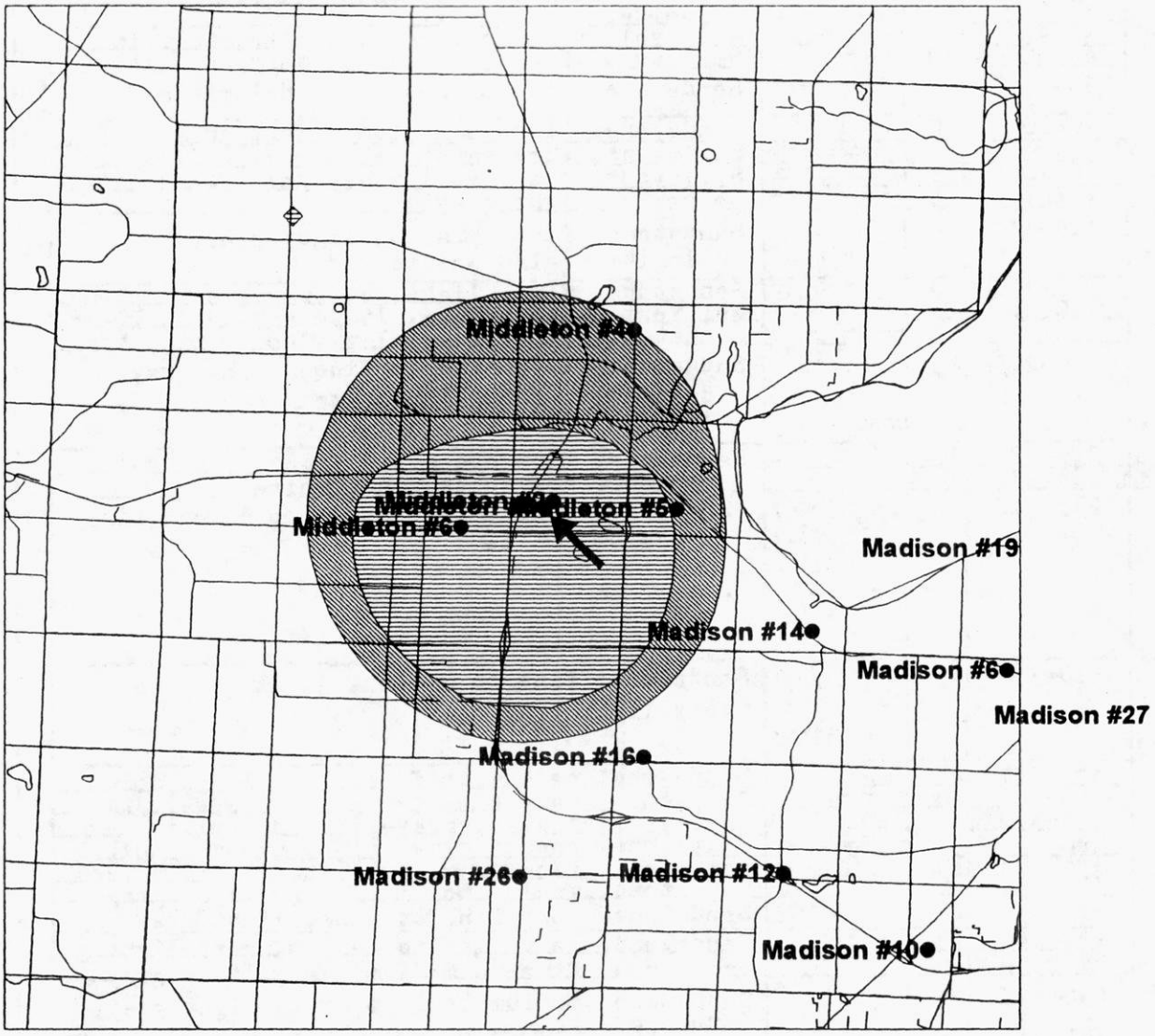
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Middleton, Well Number 3



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

VILLAGE WELL NO. 3, MIDDLETON, WIS.

SW¼, NW¼, NW¼, NW¼, SE¼, SW¼ sec. 11, T. 7 N., R. 8 E.

Green Engineering Co. Layne-Northwest Co., Contractors, 1954

Samples examined by F. T. Thwaites, Wisconsin Geological Survey, Nos. 163489-163537, 167926-167997

Alt.=1012'ETM

D	6	0-6	6	Soil, silty, brown; till, brown-gray, dol.
L		6-16	10	Dolomite, light gray, sandy; chert, white
M	34	16-35	19	Dolomite, light gray
		35-40	5	Dol, yel-gy, sandy; chert, white, oolitic
T		40-50	10	Sandstone, fine, yellow-gy, very dolomitic
R		50-70	20	Sandstone, fine, light gray, dolomitic
E		70-80	10	Sandstone, fine to medium, light gray
M		80-90	10	Siltstone, some sand, yellow-gy, red, dol.
P	70	90-105	15	Siltstone, gray, yellow-gy, dol., glauconitic
		105-110	5	Dolomite, light gray
F		110-140	30	Sandstone, fine, gray to light gray, dolomitic, glauconitic
R		140-150	10	Sandstone, fine, light yellow-gy, dol, glauc.
A		150-165	15	Ss, very fine to fine, lt.yel-gy, dol, glauc.
N		165-170	5	Sandstone, fine, lt. yel-gy, dolomitic, hard
C		170-215	45	Sandstone, very fine to fine, light gray, dolomitic, some glauconite
O				
N				
I				
A	125	215-225	10	Sandstone, fine to coarse, light gray, dol.
		225-235	10	Sandstone, coarse to fine, white
D		235-310	75	Sandstone, medium to fine, some layers fine to medium, white
R				
E				
S				
B				
A		310-355	45	Sandstone, fine to medium, light gray to very light gray
C				
H	120			
		355-365	10	Sandstone, medium to fine, lt.yel-gy, dol.
		365-375	10	Sandstone, very fine to fine, lt.gray, dol.
		375-390	15	Shale, light gray, gray-pink, dolomitic
E		390-395	5	Siltstone, sandy, gray, pink, glauc., dol.
A		395-405	10	Sandstone, fine to medium, lt.gy, glauc, dol.
U		405-415	10	Sandstone, medium to fine, very light gray
		415-430	15	Sandstone, very fine to fine, light gray
		430-440	10	Sandstone, very fine to medium, very light gray
C		440-450	10	Sandstone, fine to medium, very light gray
L		450-475	25	Sandstone, medium to fine, very light gray, some pyrite
A		475-485	10	Sandstone, fine to medium, light gray, pyrite
I		485-565	80	Sandstone, fine to medium, light gray; layersyellow-gray to gray, dolomitic
R				
E				
	215	565-570	5	Sandstone, very fine to fine, very light gray
M		570-600	30	Sandstone, medium to fine, part fine to medium, very light gray
S	30			

22" pipe 8

34" hole

16" pipe cemented 100

110 wate

113

15" hole

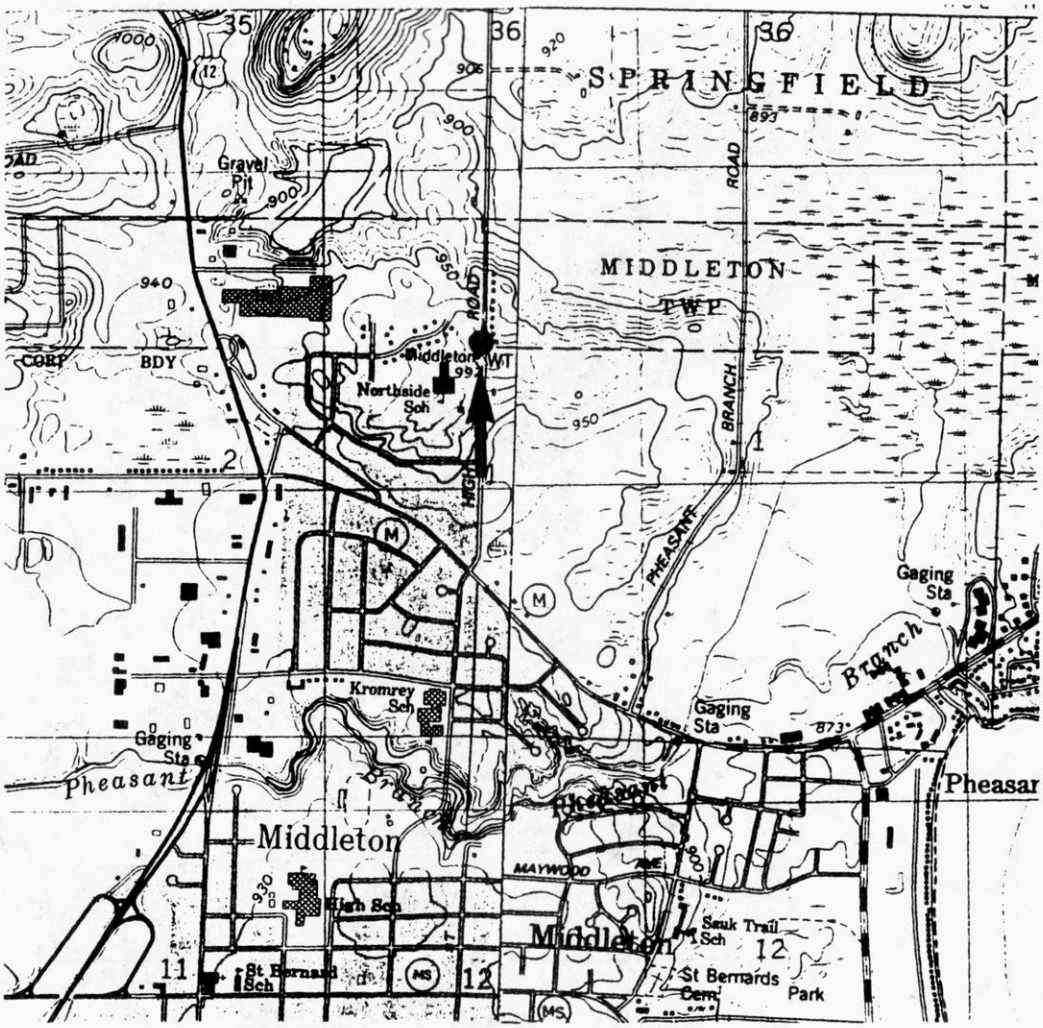
Formations: Drift; Lower Magnesian (Prairie du Chien); Trempealeau; Franconia; Dresbach (Galesville); Eau Claire; Mt. Simon

Tested 12 hours at 700 g.p.m. specific capacity = 10.45 g.p.m./ft.

Additional copies may be secured from Wisconsin Geological Survey, Science Hall, Madison 6, Wis.

Samples from 0 - 240' were collected during drilling of the test hole.(DN-107).

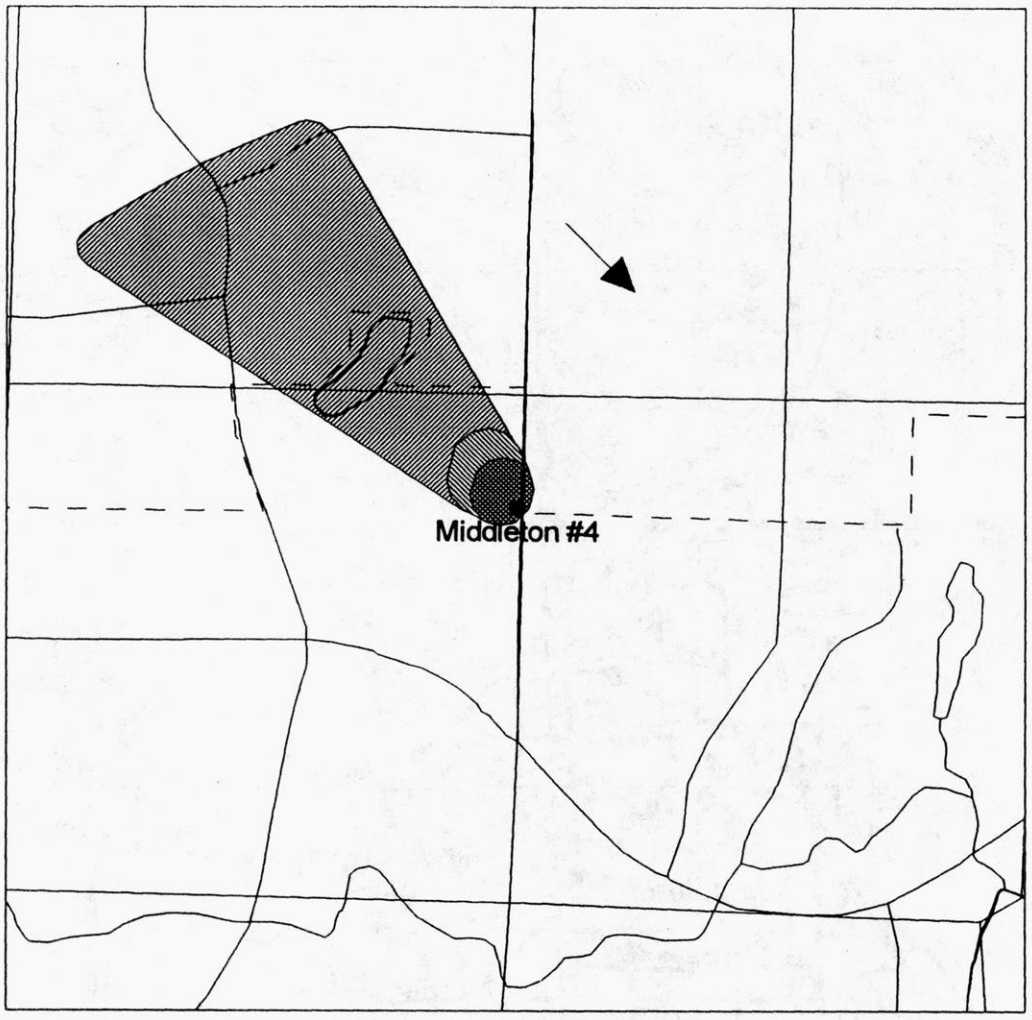
City of Middleton, Well Number 4



City of Middleton, Well Number 4 is located at 43° 6' 55.66" north latitude and 89° 30' 5.49" longitude. The well was installed in 1960, and has a pumping capacity of 1,070 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 440,540 gpd.

The well casing extends to a depth of 205 feet below ground surface, and the total depth of the well is 847 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southeast.

Zone of Contribution for Middleton, Well Number 4



Well Location

Latitude: 43° 6' 55.66"
Longitude: 89° 30' 5.49"

0 500 1000
(meters)

N

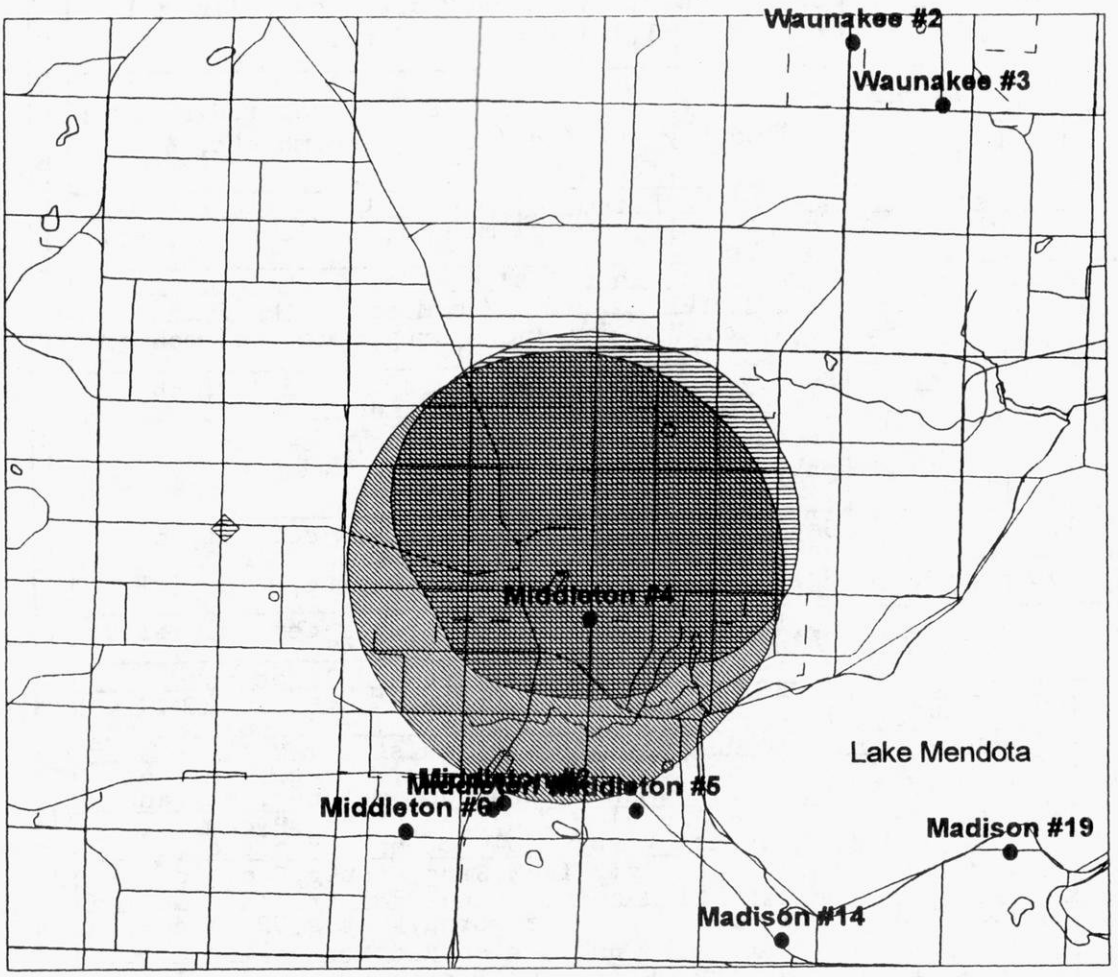
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Middleton, Well Number 4



Scale 1:100,000

0 1000 2000 3000 4000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Village of Middleton Well #4, Middleton, Wisconsin
SE¼, SE¼, SE¼, NE¼, NE¼, Sec. 2, T 7N, R 8E
Green Engineering Co.
Milaeger Well & Pump Co., Inc., driller 1960
Sample Nos. 215621-215793 - Examined by M. E. Ostrom

Elv 990' ET

+1.2'

20	0- 20	20		Snd,yl bn,Vfn-VC,Srnd,P srtg,mod dolic,mxd, mch st & cl,ltl Vfn-fn mxd gvl
25	20- 45	25		Cong,lt yl bn,M gvl. - Vfn snd,ang-rnd,P srtg, mxd,mostly qtz & dol,ltl glauc,wh cht, & sandy dol,few ools
	45- 50	5		Sts,rd bn,P cem dol,mch cl,ltl yl&bn sty dol
	50- 60	10		Sts,yl bn,P cem dol,mch cl,ltl lt bn sty dol, tr glauc
	60- 65	5		Sts,yl bn,mch cl,ltl sty dol & Vfn snd
	65- 70	5		Sts,lt ol bn,mch cl,Vfn-M snd & sty dol,ltl glauc
	70- 80	10		Ss,lt ol,Vfn-fn,Sang,F srtg,F cem dol,mch glauc ltl cl,st & sndy bn dol
	80- 90	10		Ss,gry ol,Vfn-M,Sang,P srtg,P cem dol,mch glauc & st,ltl cl & V sndy dol
	90-110	20		Ss,dusky yl,fn-M,Sang,F srtg,F cem dol,mot pnk,ltl glauc & Vfn & C snd
	110-120	10		Ss,lt yl bn,M-fn,Sang,F srtg,F cem dol,mot pnk,ltl Vfn & C snd,tr glauc
	120-130	10		Ss,lt dusky yl,M-Vfn,Sang,F srtg,P cem dol,ltl st & dol,tr glauc
	130-140	10		Ss,lt yl bn,M-fn,Sang,G srtg,P cem dol,ltl V sandy dol,mot pnk,tr glauc
	140-145	5		Ss,lt yl bn,M-fn,ltl V sndy dol,mot pnk
	145-150	5		Ss,dusky yl,Vfn-fn,mch st,ltl sndy dol,mot pnk
	150-155	5		Ss,dusky yl,M-Vfn,mch st,ltl sndy dol,mot pnk
	155-160	5		Ss,lt dusky yl,fn-Vfn,mch st,ltl M snd & sndy dol
145	160-170	10		Ss,lt dusky yl,Vfn-fn,Sang,P srtg,P cem dol, mch st,ltl Msnd & sndy dol,mot pnk,tr glauc
	170-180	10		Ss,lt dusky yl,M-Vfn,Sang,P srtg,P cem dol, mch st,ltl V sndy dol,mot pnk,tr glauc
	180-190	10		Ss,lt dusky yl,Vfn-M,Sang,P srtg,P cem dol, mch st,ltl V sndy mot pnk dol,tr glauc & C snd
	190-200	10		Ss,lt dusky yl,C-Vfn,Srnd,P srtg,VPcem dol, ltl st, & VC snd; tr sndy dol
	200-208	8		Ss,yl gry,C-Vfn,Srnd,P srtg,VP cem dol,ltl st & VC snd
	208-215	7		Ss,lt dusky yl,C-Vfn,ltl st,VC snd & sndy dol
	215-225	10		Ss,lt dusky yl,C-Vfn,rnd,P srtg,P cem dol,ltl st,VC snd & sndy dol
	225-230	5		Ss,lt dusky yl,VC-fn,ltl Vfn snd & sndy dol
	230-240	10		Ss,lt dusky yl,C-fn,rnd,P srtg,P cem dol,ltl Vfn & VC snd,some sndy dol,tr st
	240-250	10		Ss,lt dusky yl,C-Vfn,Srnd,P srtg,F cem dol, ltl st & VC snd,some sndy dol
	250-265	15		Ss,lt dusky yl,C-Vfn,Srnd,P srtg,P cem dol, ltl st & sndy dol
	265-275	10		Ss,lt dusky yl,C-fn,Srnd,P srtg,ltl VC snd, tr st
	275-280	5		Ss,lt dusky yl,C-Vfn,Srnd,P srtg,tr st & VCsnd
	280-300	20		Ss,lt dusky yl,C-Vfn,rnd,P srtg,tr st
	300-305	5		Ss,lt dusky yl,C-fn,rnd,P srtg,tr st & VC snd
125	305-315	10		Ss,lt dusky yl,C-fn,rnd,P srtg,tr st
	315-320	5		Ss,yl gry,VC-Vfn,VG cem dol,mot gn,banded,ltl st
	320-325	5		Ss,yl gry,C-fn,F cem dol,mot gn & pnk,foss frags
	325-330	5		Ss,yl gry,C-fn,C cem dol,mot gn & pnk
	330-340	10		Sh,dk gn gry,dolic,mch st,ltl Vfn-M snd & sndy pnk dol
	340-345	5		Sh,dk gn gry & dk gry,mch st & gry sh,ltl Vfn-C snd
	345-350	5		Ss,dk gn gry & dk gry,C-Vfn,C cem dol,mch st,sh & dol
	350-365	15		Dol,pl rd,Vfn-fn,mch glauc,C-Vfn snd & gn gry sh
	365-370	5		Ss,lt gry,C-fn,F cem dol,ltl sh & sndy glauclc dol
	370-375	5		Ss,lt gry,C-fn,mod st,ltl sndy dol

conc. footin.
½" x 30" O.D. Casi
30"hole
38.8'
½"x 24" O.D. Casi
110.0'
205.1'
23"hole

VILLAGE OF MIDDLETON WELL #4, Middleton, Wisconsin
Sample Nos. 215621-215793 (continued)

CLAIRE-MT SIMON

EAU CLAIRE-MT SIMON

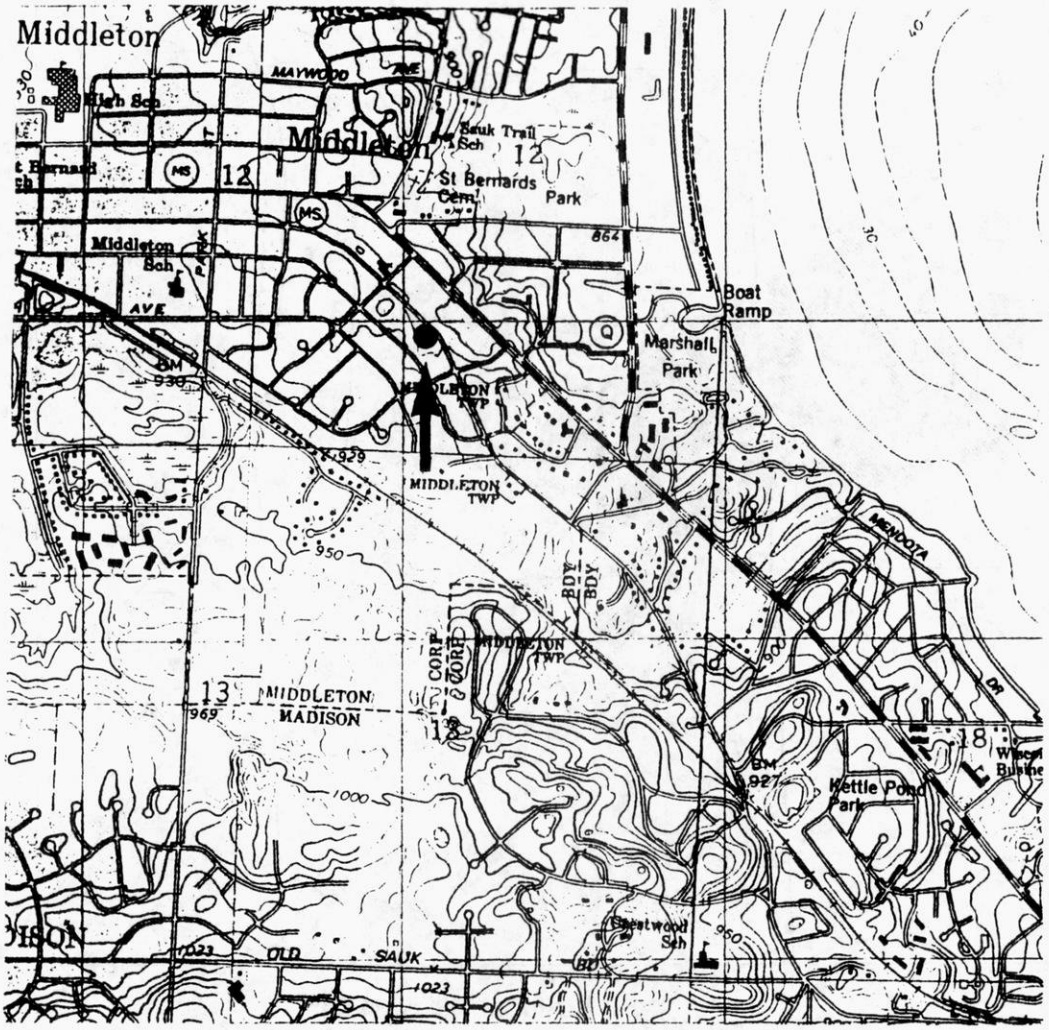
375-380	5		Ss,yl gry,C-fn,rnd,P srtg,ltl sndy dol,tr VC snd
380-385	5		Ss,yl gry,C-Vfn,F cem dol,some mot pnk,ltl st
385-395	10		Ss,yl gry,C-Vfn,rnd,P srtg,P cem dol,ltl sndy mot pnk dol,tr st & glauc
395-400	5		Ss,yl gry,C-Vfn,F cem dol,ltl sndy mot dol
400-410	10		Ss,yl gry,C-Vfn,rnd,P srtg,F cem dol,ltl sndy mot pl pnk dol,tr st & glauc
410-415	5		Ss,yl gry,C-Vfn,rnd,P cem dol,tr st & sndy mot dol
415-420	5		Ss,yl gry,C-Vfn,F cem dol,ltl st,tr sndy dol
420-425	5		Ss,yl gry,C-Vfn,F cem dol,ltl sndy dol,tr st
425-430	5		Ss,yl gry,C-Vfn,F cem dol,ltl sndy dol,tr st
430-435	5		Ss,yl gry,C-M,P cem dol,ltl VC & fn snd
435-445	10		Ss,yl gry,C-fn,rnd,F srtg,P cem dol,some pnk, ltl VC & Vfn snd,tr gry sh
445-455	10		Ss,lt yl bn,Vfn-C,Srnd,P srtg,F cem dol,mch st, ltl V sndy dol, few wh foss frags
455-475	20		Ss,yl gry,C-Vfn,rnd,P srtg,G cem dol,tr st & VC snd,mch sndy dol
475-485	10		Ss,yl gry,C-Vfn,rnd,P srtg,G cem dol,mch sndy dol,tr st,VC snd, & gn sh
485-495	10		Dol,pl bn,Vfn,dns,mot pnk,V sndy,fn-VC,tr glauc
495-500	5		Ss,yl gry,C-Vfn,F cem dol,ltl sndy dol,tr st
500-505	5		Ss,yl gry,C-Vfn,F cem dol,ltl sndy dol,tr st&VC snd
505-510	5		Ss,yl gry,C-Vfn,F cem dol,ltl st & sndy dol
510-520	10		Ss,yl gry,C-Vfn,G cem dol,mch sndy dol, tr VC & gn cl
520-525	5		Ss,yl gry,C-Vfn,P cem dol,mch st,tr sndy dol
525-530	5		Ss,yl gry,C-Vfn,F cem dol,mch sndy dol,tr st
530-535	5		Ss,yl gry,Vfn-C,mch st,ltl sndy dol,tr VC snd
535-540	5		Ss,yl gry,Vfn-C,ltlst & sndy dol,tr VC snd
540-545	5		Ss,yl gry,Vfn-C,P cem dol,ltl st & sndy dol
545-550	5		Ss,yl gry,VC-M,ltl fn snd & sndy dol,tr gn sh
550-555	5		Ss,yl gry,VC-fn,rnd,P srtg,P cem dol,ltl sndy dol
555-560	5		Ss,yl gry,C-fn,tr st & Vfn & VC snd,ltl sndy dol
560-565	5		Ss,yl gry,VC-fn,P cem dol,tr st & Vfn snd,
565-570	5		Ss,yl gry,C-Vfn,ltl sndy dol,tr st & VC snd
570-580	10		Ss,yl gry,Vfn-C,rnd,P srtg,P cem dol,ltl st, tr sndy dol & VC snd
580-585	5		Ss,lt yl bn,Vfn-C,P cem dol,ltl st & pnk sndy dol
585-595	10		Ss,yl gry,fn-C,rnd,P srtg,P cem dol,ltl Vfn & VC snd, & sndy dol,tr foss frags & glauc
595-615	20		Ss,yl gry,C-fn,rnd,P srtg,P cem dol,ltl Vfn & VC snd,tr foss,pnk dol & gn sh
615-620	5		Ss,yl gry,C-fn,ltl Vfn & VC snd & pnk sndy dol
620-625	5		Ss,yl gry,VC-fn,rnd,F cem dol,mch V sndy dol
625-630	5		Ss,yl gry,fn-VC,rnd,F cem dol,ltl V sndy dol
630-640	10		Ss,lt yl bn,Vfn-C,Srnd,P srtg,F cem dol,ltl st, ltl pnk sndy dol
640-645	5		Ss,lt yl bn,Vfn-C,F cem dol,ltl st & sndy dol
645-650	5		Ss,yl gry,Vfn-VC,P cem dol,ltl sndy dol,tr glauc
650-665	15		Ss,yl gry,Vfn-M,rnd,P srtg,few wh foss frags, ltl C snd
665-675	10		Ss,yl gry,Vfn-C,rnd,P srtg,few wh foss frags, ltl VC snd,tr glauc sh
675-680	5		Ss,yl gry,Vfn-C,rnd,tr gn sh,ltl VC snd
680-695	15		Ss,yl gry,Vfn-C,rnd,P srtg,tr VC snd
695-705	10		Ss,lt yl bn,VC-fn,rnd,P srtg,tr VC snd,few wh foss frags
705-715	10		Ss,lt yl bn,Vfn-C,rnd,P srtg,P cem dol,tr VC snd,few foss grags & gn sh
715-716	1		Ss,pl ol,mch st & Vfn snd,ltl VC snd
716-718	2		Ss,yl gry,Vfn-VC,rnd,ltl gn sh,few foss frags
718-719	1		Sh,dl ol,mch st & Vfn snd,ltl VC snd
719-725	6		Ss,yl gry,VC-M,ltl fn & Vfn snd & Vfn gvl
725-735	10		No sample
735-740	5		Ss,yl gry,VC-M,rnd,ltl fn & Vfn gvl & Vfn cgl

VILLAGE OF MIDDLETON WELL #4, Middleton, Wisconsin
Sample Nos. 215621-215793 (continued)

	740-755	15		Ss, lt yl bn, VC-Vfn, rnd, P srtg, ltl st & vfn gvl, tr gn sh, few wh foss frags			
	755-760	5		Ss, lt yl bn, VC-fn, ltl Vfn snd & Vfn gvl, tr sh			
	760-765	5		Ss, lt yl bn, VC-fn, ltl st & Vfn snd, tr Vfn gvl			
	765-775	10		Ss, yl gry, VC-fn, ltl Vfn snd & Vfn gvl, few wh foss frags			
	775-785	10		Ss, lt yl bn, M-Vfn, Sang, P srtg, P cem si, ltl C snd, few wh foss frags			
	785-790	5		No sample			
	790-795	5		Ss, dk rd bn, VC-Vfn, mch sh&st, tr Vfn gvl & foss			
	795-800	5		Ss, lt bn, VC-M, Srnd, mch Vfn gvl, tr sh & foss			
	800-805	5		Ss, lt bn, VC-Vfn, Srnd, ltl Vfn gvl, tr sh & foss			
	805-815	10		Ss, lt yl bn, VC-M, Srnd, P srtg, ltl Vfn gvl			
	815-820	5		Ss, lt yl bn, VC-M, Srnd, ltl Vfn gvl, few foss frags			
	820-830	10		Ss, lt bn, C-fn, Srnd, P srtg, ltl VC snd & Vfn snd, few wh foss frags			
	830-835	5		Ss, lt bn, VC-M, ltl fn snd & Vfn gvl, few foss frags			
	835-840	5		Ss, lt bn, fn-VC, ltl Vfn snd & Vfn gvl, few foss			
	840-845	5		Ss, lt bn, VC-fn, G cem si, ltl Vfn snd & Vfn gvl			
	844-845	1		Ss, lt bn, VC-fn, mot gry, yl, bn, ltl Vfn snd&Vfn gvl			835.3'
533	845-848	3		Ss, gry rd, fn-VC, ltl Vfn gvl, mch gry rd rhyolite			847'
3	848-851	3		Rhyolite, gry rd, very hematitic			concrete plug

Formations: Drift, St.Peter, Franconia, Galesville, Eau Claire-Mt. Simon, Precambrian.
Well tested for 92 minutes at from 2173 to 2257 gpm with 131 feet of drawdown, specific capacity approximately 16.91 gpm per foot of drawdown.

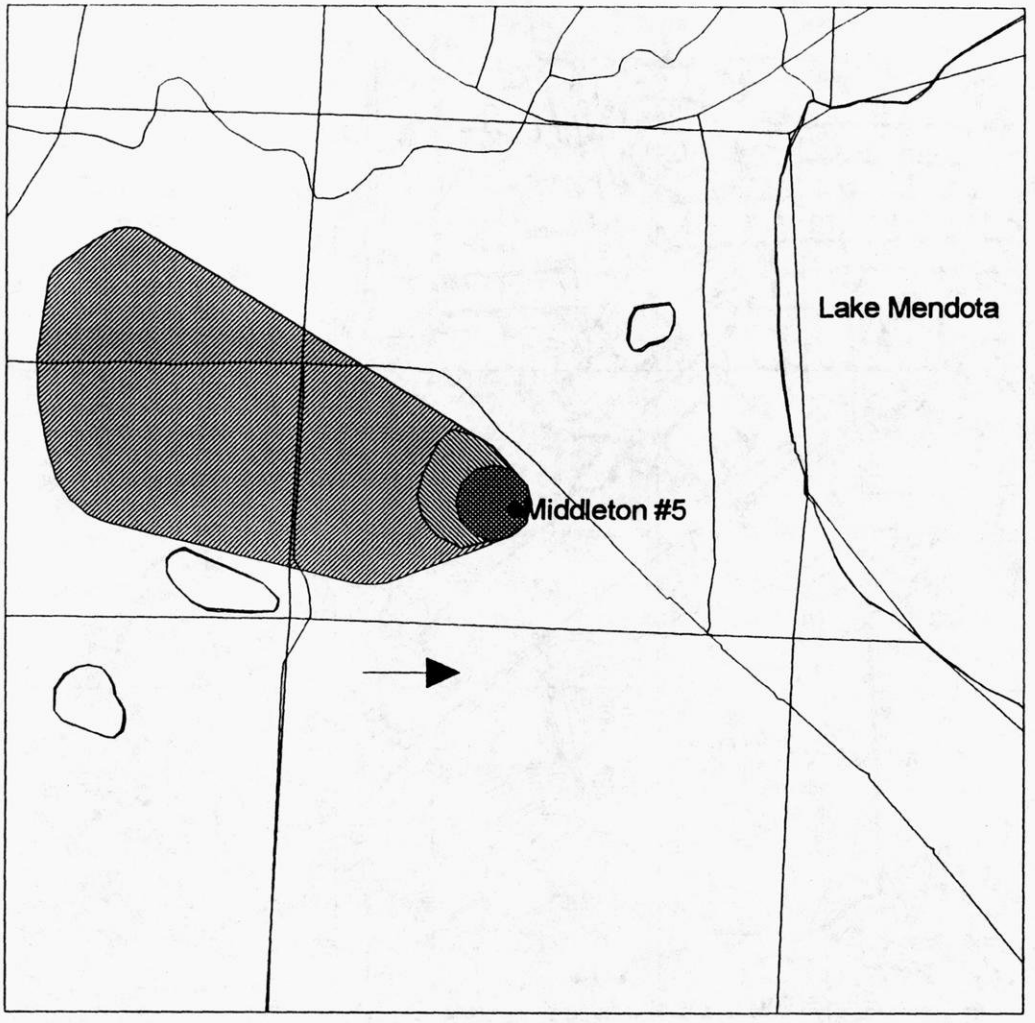
City of Middleton, Well Number 5



City of Middleton, Well Number 5 is located at 43° 5' 34.91" north latitude and 89° 29' 35.65" longitude. The well was installed in 1964, and has a pumping capacity of 1,325 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 518,230 gpd.

The well casing extends to a depth of 293 feet below ground surface, and the total depth of the well is 809 feet. Water is drawn primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Middleton, Well Number 5



Well Location

Latitude: 43° 5' 34.91"
Longitude: 89° 29' 35.65"

0 500 1000
(meters)

N

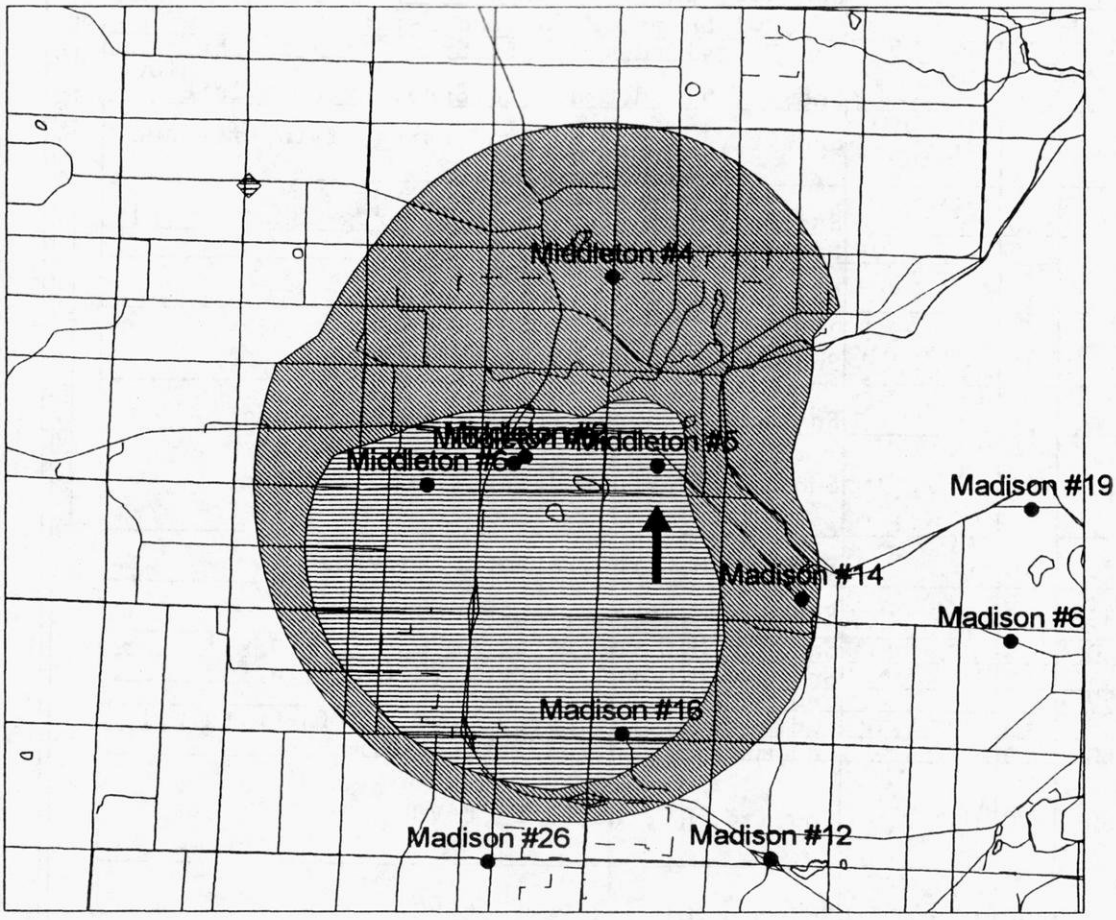
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Middleton, Well Number 5



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

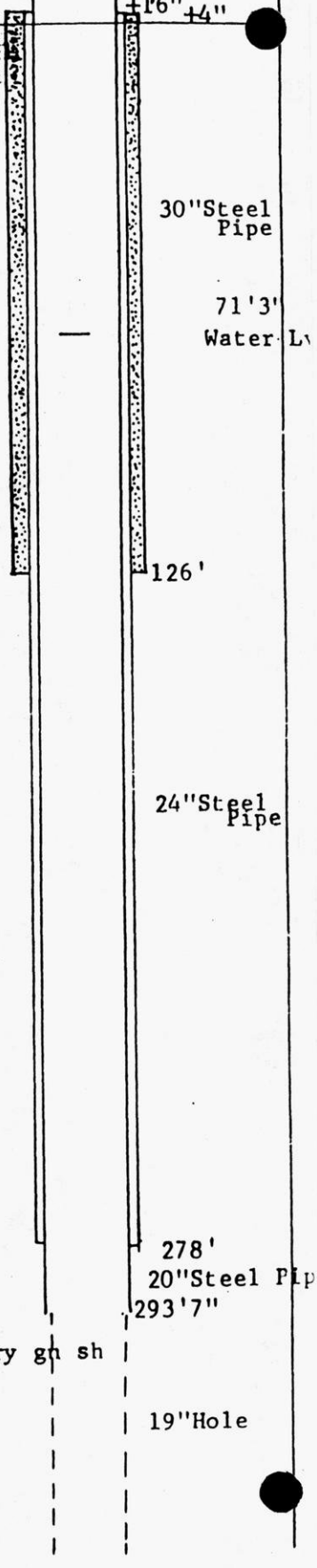
Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Middleton Well #5, Middleton, Wis.
SW¼, SW¼, SE, NE, SW, Sec. 12, T 7N, R 8E
Layne-Northwest, Driller - Aug., 1964
Sample Nos. 252612-252767, Examined by M. E. Ostrom - 3-5-65

Elev. =927' (ETM)

DRIFT	0-8	8		Snd &st, dk yl bn, M, fn, Srnd, Psrtg, Si:P, trC, tr c
	8-15	7		Snd, Myl bn, mxd, M, fn, Srnd, Psrtg, trC
	15-20	5		Snd, Vlt yl rd, mxd, M, fn, Srnd, Psrtg, trC, tr glauc
	20-30	10		Snd, Vlt yl rd, mxd, M, fn, Srnd, Psrtg, trVfn, tr glauc
	30-45	15		Snd, lt yl, mxd, M, fn, Srnd, Psrtg, trVfn, tr glauc
	45-55	10		Snd, lt yl, mxd, fn, Vfn, Srnd, Psrtg, trM, trVfn, cl
	55-60	5		Snd, Myl, M, fn, Srnd, Psrtg, trC
	60-70	10		Snd, lt yl, rd mxd, M, fn, Srnd, Psrtg, trC
	70-85	15		Snd, mxd, M, C, rnd, Psrtg, tr fn, VC
	85-95	10		Snd, mxd, M, fn, rnd, Psrtg, trVfn, tr glauc
	95-115	20		Snd, mxd, fn, Vfn, rnd, Psrtg, trM, tr glauc
	115-125	10		Snd, mxd, M, C, rnd, Psrtg, tr fn, Vfn
	125-135	10		Snd, mxd, M, fn, rnd, Psrtg, trC
	135-140	5		Snd, mxd, M, C, rnd, Psrtg, trVC, trVfn, fn gvl
	140-145	5		Snd, mxd, M, C, rnd, Psrtg, trVC, fn, trVfn, fn gvl
	145-150	5		Snd, mxd, M, C, rnd, Psrtg, trVC
	150-155	5		Snd, mxd, M, C, rnd, Psrtg, trVC, fn, Vfn, trVfn gvl
	155-160	5		Snd, mxd, fn, Vfn, rnd, Psrtg, trM, mch st
	160-180	20		Snd, mxd, M, C, rnd, Psrtg, trVC
	180-200	20		Snd, mxd, M, C, rnd, Psrtg, trVC
	200-210	10		Snd, Vlt yl bn, M, C, rnd, Psrtg, tr fn
	210-215	5		Snd, mxd, M, C, rnd, Psrtg, tr fn
	215-220	5		Snd, lt yl bn, M, C, rnd, Psrtg, tr fn
	220-225	5		Snd, Vlt yl bn, M, C, rnd, Psrtg, tr fn
	225-230	5		Snd, lt yl bn, M, C, rnd, Psrtg, tr fn, Vfn
	230-240	10		Snd, lt yl bn, M, C, rnd, Psrtg, tr fn
	240-265	25		Snd, lVlt yl bn, M, C, rnd, Psrtg, tr fn
275	265-275	10		Snd, Vlt yl bn, M, fn, rnd, Psrtg, trC
EC	275-295	20		Ss, lt yl bn, fn, Vfn, rnd, Psrtg, Dolic:P, trM
	295-297	2		Ss, lt rd, M, fn, rnd, Psrtg, Dolic:P, trM, mch sh
	297-302	5		Snd, lt rd, fn, Vfn, rnd, Psrtg, Dolic:P, trM, mch gry gn sh
	302-313	11		Sh, lt gry bn, Dolic:P, mch st, Ss, tr dol
	313-315	2		Sh, lt rd yl bn, Dolic:P, mch st, Ss, glauc
45	315-320	5		Sh, lt rd yl bn, Dolic:P, mch st, Ss, glauc, dol
MTS	320-340	20		Ss, Vlt yl bn, M, C, Srnd, Psrtg, tr fn, Vfn
	340-345	5		Ss, Vlt gry, M, C, Srnd, Psrtg, tr fn, Vfn
	345-350	5		Ss, Vlt gry, M, C, Srnd, Psrtg, Dol:P, tr fn



Middleton Well #5, Middleton, Wis.
Sample Nos. 252612-252767

MT. SIMON SANDSTONE

350-355	5		Ss, Vlt gry, M, C, Srnd, Dolc:P, tr fn
355-360	5		Ss, Vlt pnk bn, M, C, rnd, Psrtg, Dolc:P, tr fn
360-365	5		Ss, wh, M, C, rnd, Psrtg, Dolc:P, tr fn
365-400	35		Ss, wh, M, C, rnd, Psrtg, Dolc:P, tr fn, tr pyr
400-415	15		Ss, wh, M, C, rnd, Psrtg, Dolc:P, tr fn, Vfn, tr pyr, foss
415-450	35		Ss, Vlt pnk, M, fn, rnd, Psrtg, Dolc:F, trC, Vfn, mch dol, tr pyr
450-455	5		Ss, Vlt pnk, M, fn, rnd, Psrtg, Dolc:F, trC, mch dol, tr pyr, mch dol
455-465	10		Ss, Vlt pnk bn, M, fn, rnd, Psrtg, Dolc:F, trC, trVfn, tr dol, pyr
465-480	15		Ss, Vlt pnk bn, M, fn, rnd, Psrtg, Dolc:F, trC, Vfn,
480-485	5		Ss, Vlt or, M, fn, rnd, Psrtg, Dolc:F, trC, Vfn, tr dol
485-490	5		Ss, Vlt or, M, fn, Srnd, Psrtg, trVfn, C, mch lim-cem
490-505	15		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn, C, tr lim-cem, foss
505-510	5		Ss, wh, fn, Vfn, Srnd, Psrtg, Dolc:P, trM
510-520	10		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trC, Vfn, tr pyr, dol
520-530	10		Ss, wh, fn, Vfn, Srnd, Psrtg, D olc:P, trM, C, tr pyr
530-535	5		Ss, wh, fn, Vfn, Srnd, Psrtg, Dolc:P, trM, C, tr foss
535-545	10		Ss, wh, fn, Vfn, Srnd, Psrtg, Dolc:P, trM
545-550	5		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn, C, tr sh
550-555	5		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn, C, tr sh, foss
555-580	25		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn, C, tr dol, pyr
580-590	10		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn, C
590-595	5		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn, C, tr pyr
595-600	5		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn, C, tr pyr, sh
600-605	5		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn, C, tr pyr foss
605-615	10		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn, C, tr pyr, sh,
615-620	5		Ss, wh, fn, M, Srnd, Psrtg, Dolc:P, trVfn, C, tr pyr
620-635	15		Ss, wh, M, fn, Srnd, Psrtg, Dolc:P, trVfn
635-640	5		Ss, wh, M, fn, Srnd, Psrtg, trVfn, C
640-645	5		Ss, wh, M, fn, Srnd, Psrtg, trVfn
645-670	25		Ss, wh, M, fn, Srnd, Psrtg, trVfn, C
670-675	5		Ss, Vlt yl bn, M, fn, Srnd, Psrtg, trVfn, C
675-685	10		Ss, Vlt gry bn, M, fn, Srnd, Psrtg, trVfn, C, tr pyr, sh
685-690	5		Ss, Vlt yl rd bn, M, C, Srnd, Psrtg, trVfn, fn, tr pyr
690-695	5		Ss, Vlt yl rd bn, M, C, Srnd, Psrtg, trVfn, fn, VC, tr pyr,
695-700	5		Ss, Vlt yl rd bn, M, C, Srnd, Psrtg, Si:F, trVfn, fn

480'

15"Hole

Middleton Well #5, Middleton, Wis.
Sample Nos. 252612-252767

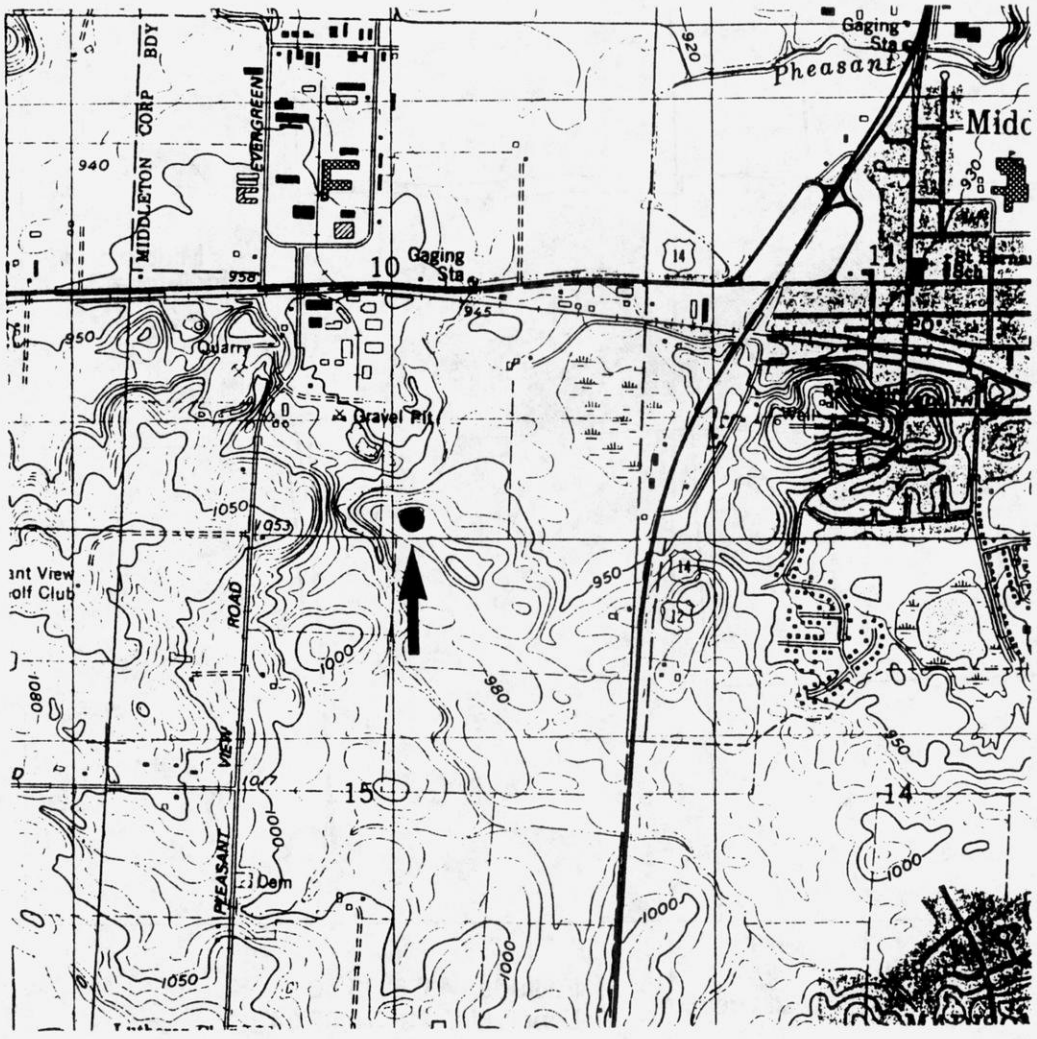
	700-710	10		Sh, Vlt yl bn, Si:F, mch st, Ss		
	715-735	20		Ss, Vlt yl bn, C, VC, Srnd&Sang, Psrtg, Si:F, tr fn, Vfn, M, tr cong		
MT.	735-745	10		Ss, Vlt yl bn, M, C, Srnd&Sang, Psrtg, tr fn, Vfn, M		
	745-755	10		Ss, Vlt yl bn, M, C, Srnd&Sang, Psrtg, tr fn, Vfn		
SIMON	755-760	5		Ss, Vlt yl bn, M, C, Srnd&Sang, Si:P, tr fn, Vfn, tr	foss	
	760-765	5		Ss, Vlt yl bn, M, C, Srnd&Sang, Si:P, tr fn, Vfn, VC		
	765-767	2		Ss, Vlt yl bn, M, C, Sang, Psrtg, tr fn, Vfn, VC, tr	cong	
	767-770	3		Ss, Vlt rd, M, C, Sang, Psrtg, tr fn, Vfn, VC, tr cong		
	770-780	10		Ss, Vlt yl, pnk bn, M, C, Sang, Psrtg, tr fn, VC, Vfn		
	780-785	5		Ss, Vlt yl, pnk bn, M, C, Sang, Psrtg, tr fn, VC, tr	cong	
	785-800	15		Ss, Vlt yl, pnk bn, M, C, Sang, Psrtg, tr fn, VC, Vfn,	tr sh	
	800-802	2		Ss, Vlt rd, M, C, Sang, Psrtg, tr fn, Vfn		
487'	802-807	5		Ss, mxd, M, C, Sang, Psrtg, tr fn, Vfn, VC, mch sh		809'

Formations: Drift, Franconia, Galesville, Eau Claire, Mt. Simon

Well tested for 48 hrs. at 1800 gpm with 127'3½" of drawdown.
Specific capacity = 14.1 gpm per ft. of drawdown.

Formations revised by R. M. Peters - 6/11/84.

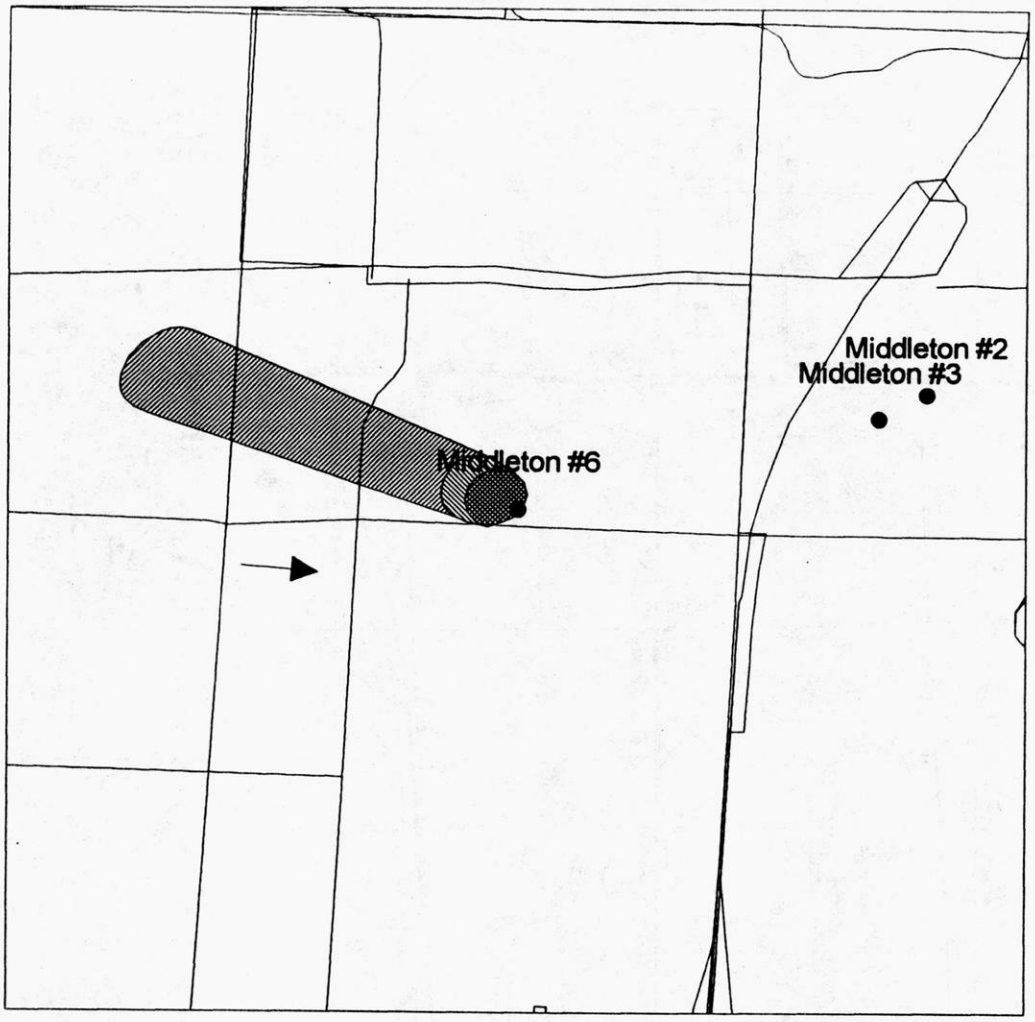
City of Middleton, Well Number 6



City of Middleton, Well Number 6 is located at 43° 5' 23.50" north latitude and 89° 31' 48.54" longitude. The well was installed in 1986, and has a pumping capacity of 1,550 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 750,730 gpd.

The well casing extends to a depth of 220 feet below ground surface, and the total depth of the well is 856 feet. Water is drawn from a combination of the Paleozoic bedrock units. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Middleton, Well Number 6



Well Location

Latitude: 43° 5' 23.50"
Longitude: 89° 31' 48.54"

0 500 1000
(meters)

N

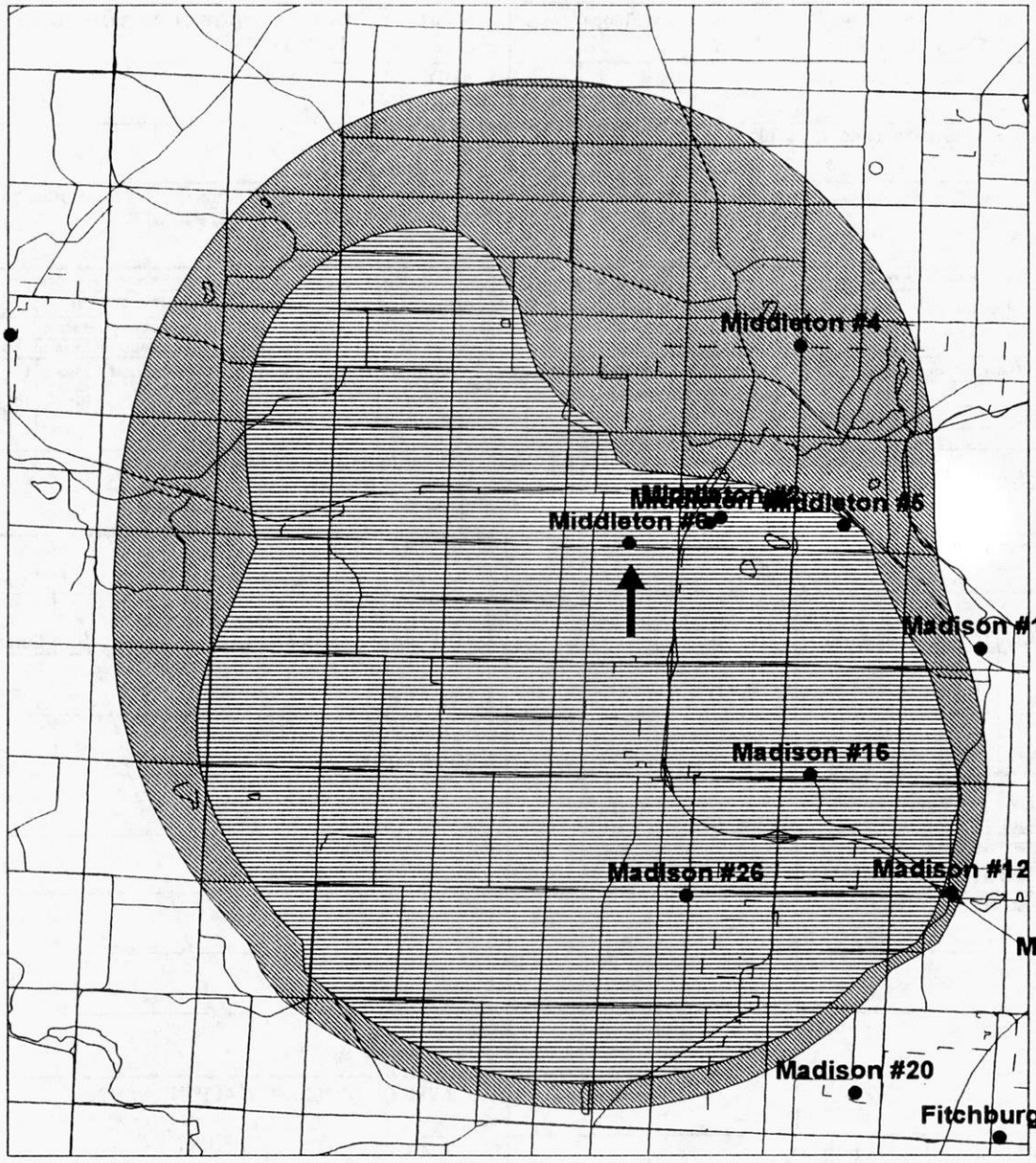
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Contribution for Middleton, Well Number 6



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300-15 Rev. 12-76

AUG 1 [illegible] 1985 DN-

1. COUNTY: Dane

CHECK (✓) ONE: ☐ Town ☐ Village ☒ City

Name: Middleton Well #6

2. LOCATION: W, SW, SE ¼ Section: NE¼ SW¼ Section: 10 Township: 7N Range: 8E

OR – Grid or Street No.: Pleasantview Rd. Street Name:

AND – If available subdivision name, lot & block No.:

3. NAME ☐ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: City of Middleton

ADDRESS:

POST OFFICE: Middleton

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain		Sanitary Bldg. Sewer		Floor Drain Connected To:		Storm Bldg. Drain		Storm Bldg. Sewer	
	C.I.	Other	C.I.	Other	C.I. Sewer	Other Sewer	C.I.	Other	C.I.	Other

Street Sewer		Other Sewers		Foundation Drain Connected to:				Sewage Sump		Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit	
San.	Storm	C.I.	Other	Sewer		Sewage Sump		C.I.	Other				Seepage Pit	
				Clearwater Dr.		Clearwater Sump							Seepage Bed	
													Seepage Trench	

Privy	Pet Waste Pit	Pit: Nonconforming Existing		Subsurface Pumproom	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit
		Well		Nonconforming Existing							
		Pump									
		Tank									

Temporary Manure Stack	Watertight Liquid Manure Tank	Solid Manure Storage Structure	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Other (Give Description)

5. Well is intended to supply water for: City Well No. 6

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
26	Surface	220	17	450	856
19	220	450			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification & Method of Assembly	From (ft.)	To (ft.)
26	Bl. New Steel P.E. A-53 136.2 1B Welding	Surface	51
20	Bl. New Steel P.E. A-53 78.60 1B Welding	"	220

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Neat Cement	Surface	220

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Sand & boulders	Surface	51
Limestone	51	75
Sandstone	75	856

10. TYPE OF DRILLING MACHINE USED

☒ Cable Tool ☐ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud
☐ Rotary-hammer w/drilling mud & air ☐ Rotary-hammer & air ☐ Reverse Rotary
☐ Jetting with ☐ Air ☐ Water

Well construction completed on March 30 19 85

11. MISCELLANEOUS DATA

Yield Test: 12 Hrs. at 2000 GPM

Depth from surface to normal water level 62 Ft.

Depth of water level when pumping 166 Ft. Stabilized ☒ Yes ☐ No

Well is terminated 18 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

Sp. cap = 19.2 gpm/ft

Water sample sent to Wisc. State Lab of Hygiene laboratory on March 20 19 85

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: Layne-Northwest
Wm Majeski
Registered Well Driller

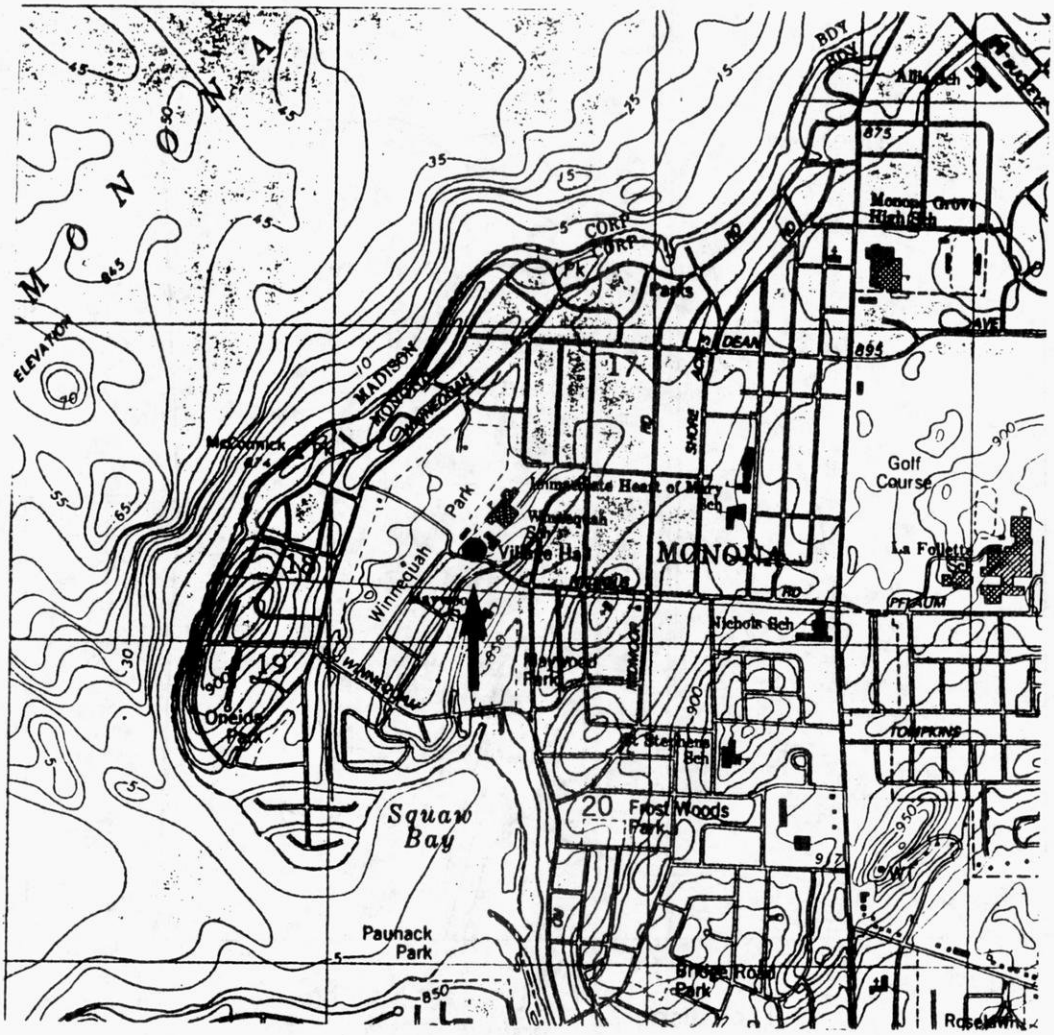
cc: SD
WELL LOG BOOK

Complete Mail Address:
6005 W. Martin Dr.
Milwaukee, WI 53213

plot

77234

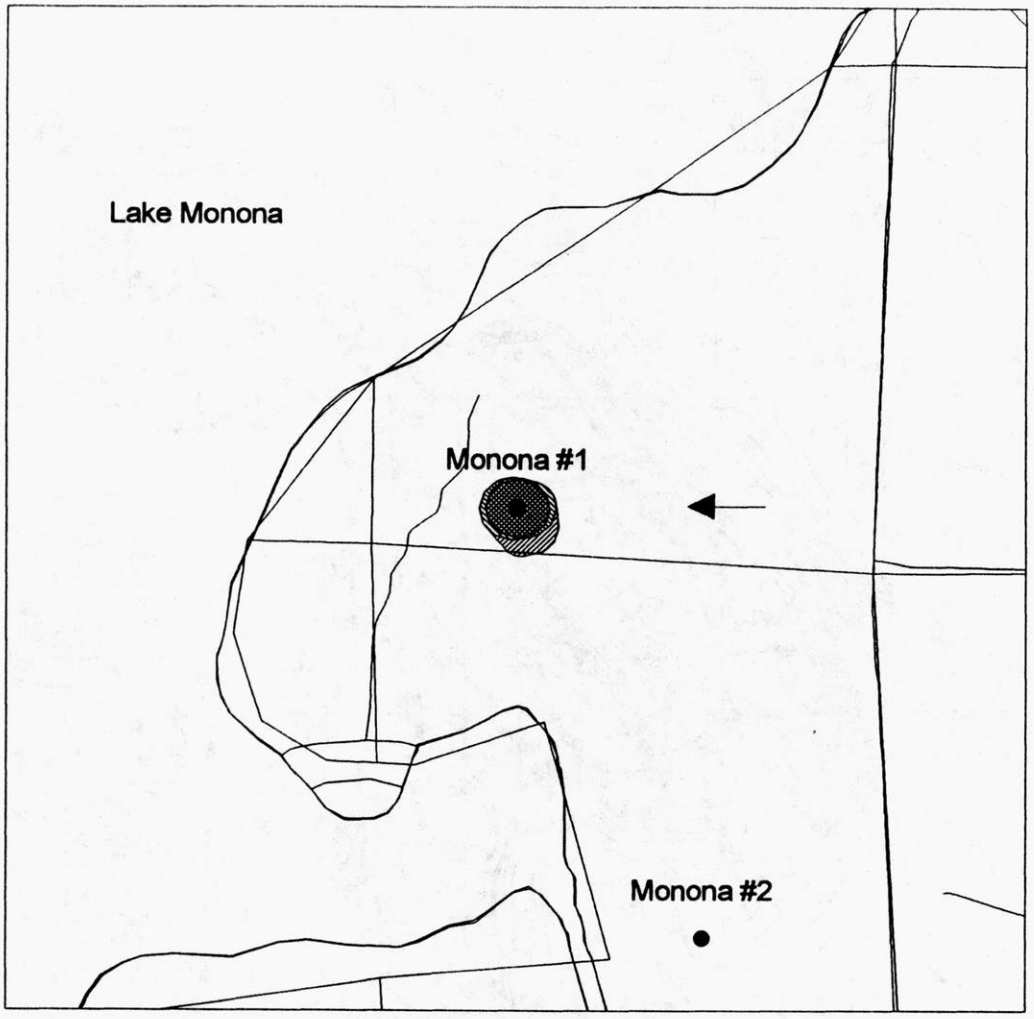
City of Monona, Well Number 1



City of Monona, Well Number 1 is located at 43° 3' 47.90" north latitude and 89° 20' 23.78" longitude. The well was installed in 1954 and has a pumping capacity of 800 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 355,700 gpd.

The well casing extends to a depth of 70 feet below ground surface, and the total depth of the well is 305 feet. Water is drawn from a combination of the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the west.

Zone of Contribution for Monona, Well Number 1



Well Location

Latitude: 43° 3' 47.90"
Longitude: 89° 20' 23.78"

0 500 1000
(meters)

N

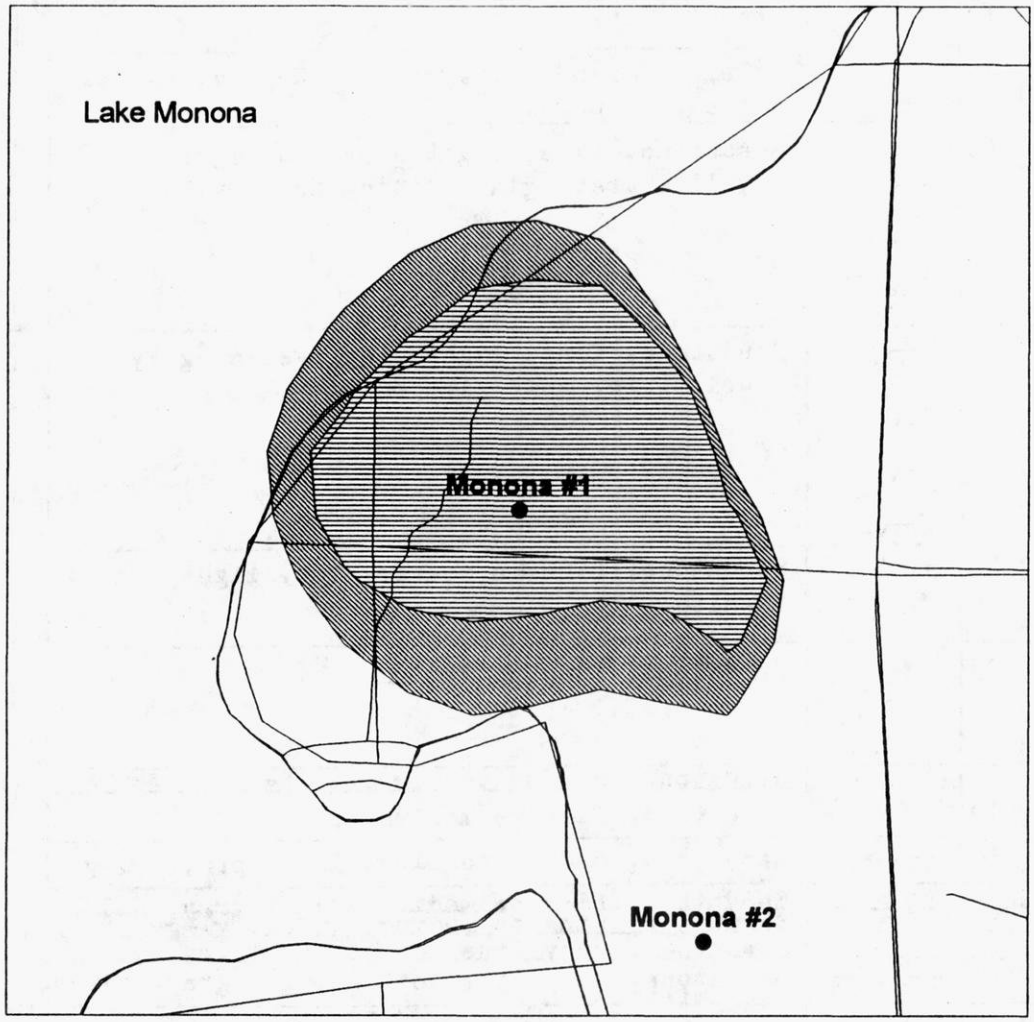
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Monona, Well Number 1



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Monona City Well #1

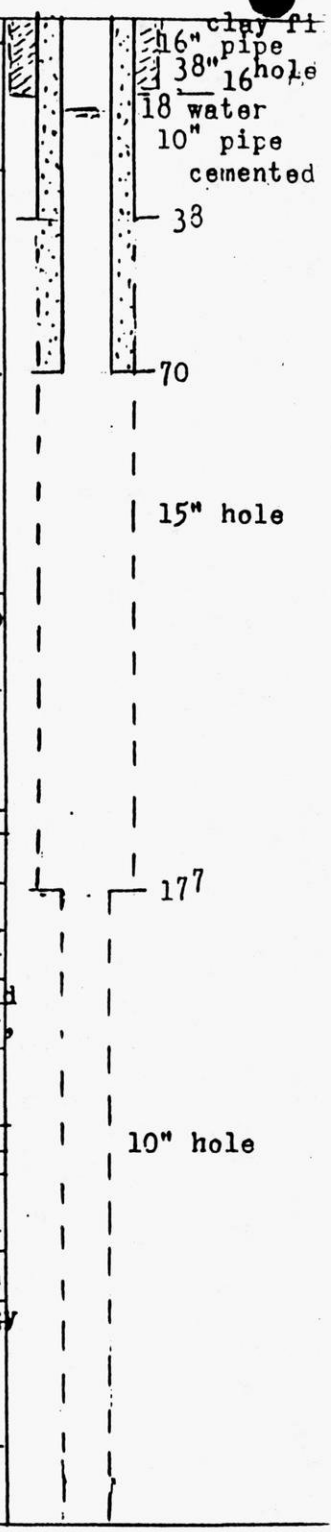
Location: center, SE¼, NW¼, SW¼, SE¼, SW¼, sec. 17, T7N, R10E

General Engineering Co. Layne-Northwest Co., Contractors, 1954

871'ETM

Samples examined by F. T. Thwaites, Wisconsin Geological Survey Nos. 167683-167743

DRIFT	15	0-5	5		Silt, yellow-brown, weathered
		5-15	10		Gravel, fine, stony
TREMPEALEAU	15	15-30	15		Dolomite, sandy, lt. gray, pink-gray, yellow-gray, glauconitic
FRANCONIA	105	30-70	40		Sandstone, fine, light gray and light yellow-gray, glauconitic, dolomitic
		70-115	45		Sandstone, fine, light gray, yellow-gray, dolomitic, some glauconitic
		115-135	20		Sandstone, fine to coarse, very light gray to white
DRESBACH	95	135-160	25		Sandstone, fine to medium, white
		160-165	5		Sandstone, medium to fine, white
		165-175	10		Sandstone, fine to medium, white
		175-185	10		Sandstone, medium to fine, light gray, yl-gy dolomitic
		185-190	5		Sandstone, fine to medium, light gray, dol.
		190-195	5		Sandstone, fine to medium, lt.gy, yl-gy, dol.
		195-200	5		Sandstone, very fine to medium, lt.gy, yl-gy, d
		200-210	10		Sandstone, very fine to fine, lt. gray, yl-gy, dolomitic
		210-225	15		Sandstone, medium to fine, light gray
		225-230	5		Sandstone, fine to medium, light gray
EAU CLAIRE	75	230-235	5		Sandstone, very fine to fine, light gray
		235-250	15		Sandstone, very fine to medium; light pink-gray, glauc., dolomitic; shale, gray, gn.gy
		250-260	10		Sandstone, fine to medium, light gray; sh, gn
		260-265	5		Sandstone, medium to fine, lt.gy; shale, gn-gy
		265-290	25		Sandstone, fine, to medium, very light gray, dolomitic; some shale, green-gray
		290-305	15		Sandstone, very fine to medium, very light gray



Formations: Drift; Trempealeau; Franconia; Dresbach (Galesville); Eau Claire

Corrected total depth = 301 Tested 8 hours at 517 g.p.m. specific capacity = 17.8 g.p.m./ft.

Additional copies may be secured from Wisconsin Geological Survey, Science Ha 11, Madison 6 W

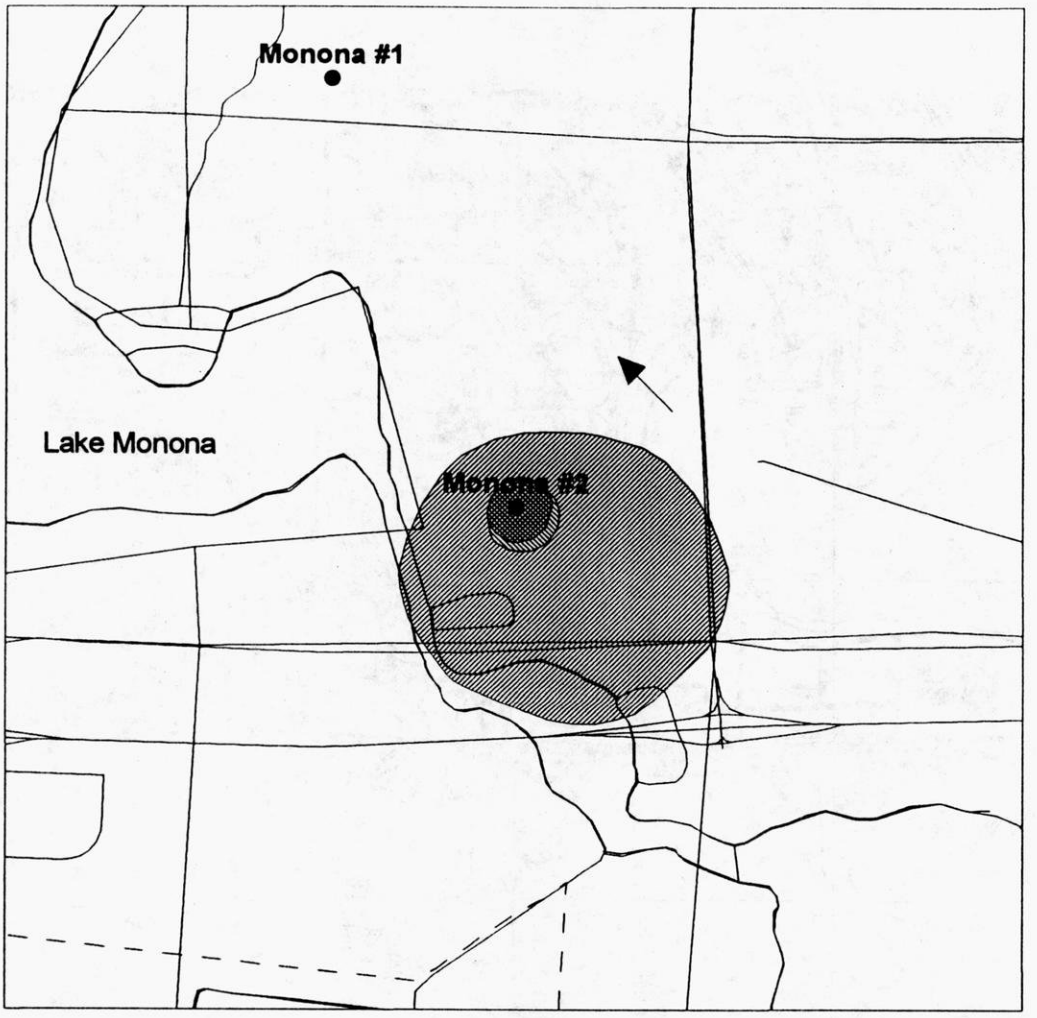
City of Monona, Well Number 2



City of Monona, Well Number 2 is located at 43° 3' 4.11" north latitude and 89° 19' 56.40" longitude. The well was installed in 1958 and has a pumping capacity of 1,400 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 404,400 gpd.

The well casing extends to a depth of 126 feet below ground surface, and the total depth of the well is 500 feet. Water is drawn from a combination of the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Monona, Well Number 2



Well Location

Latitude: 43° 3' 4.11"
Longitude: 89° 19' 56.40"

0 500 1000
(meters)

N

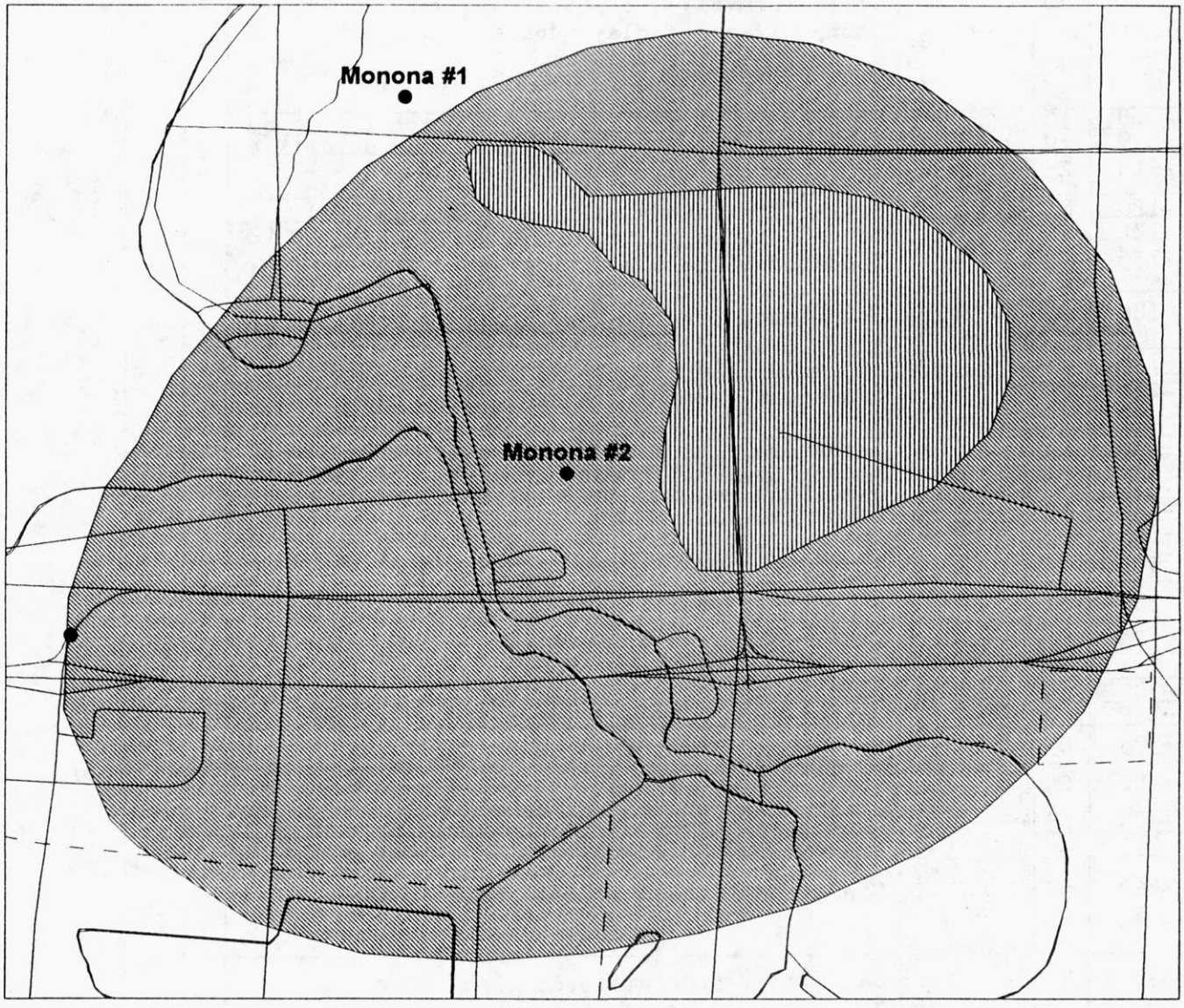
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Monona, Well Number 2



Scale 1:24,000

0 500 1000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

MONONA VILLAGE WELL NO. 2, MONONA, WISCONSIN
Location: SE¼, SE¼, SE¼, SW¼, NW¼, SE¼, sec. 20, T7N, R10E
Layne-Northwest Co., Driller, June 1958
General Engineering Co., Engineers
Sample Nos. 201830-201898, 202132-202162 - Examined by J. B. Stenerwald

85' ETM

	0 - 10	10		Loess, brown, not dolomitic
	10 - 70	60		Till, (gravel?), light brown, very sandy, stony, trace of clay, dolomitic
	70 - 80	10		Sand, med., & gravel, very fine, dolomitic, lt bn
	80 - 90	10		Till, pink-bn, sandy, stony, some clay, dolomitic
	90 -115	25		Sand, medium, few small pebbles of chert & dolomite, dolomitic, light brown
120	115 -120	5		Gravel, fine, sandy, silty, dolomitic (till?)
10	120 -130	10		Sandstone, fine gr. tan, dolo. Driller reports to rock 124'
	130 -155	25		Sandstone, fine & medium grained, light gray
	155 -180	25		Sandstone, fine to some coarse grained, light gray, crushed?
	180 -195	15		Sandstone, fine to coarse grained, buff, dolo.
	195 -220	25		Sandstone, medium grained, light tan-gray
90				
	220 -235	15		Sandstone, fine & med. grained, light tan, dolo.
	235 -240	5		Sandstone, med. & coarse gr., light tan, dolomitic
	240 -250	10		Sandstone, med. & fine gr., light tan, dolomitic
	250 -260	10		Sandstone, fine & med. gr., lt gy, dolo., lit. gn sh
	260 -265	5		Shale, gn, dolo., pyritic, & ss, fine gr., lt gy, dolo.
	265 -270	5		Sandstone, fine-med., dolo., glauc., lit. siltst. & sh.
	270 -275	5		Sandstone, fine-med., lt gy & pk, dolo., some dol.
	275 -335	60		Sandstone, fine & medium grained, light gray, pink & buff, very dolomitic
	335 -340	5		Sandstone, medium grained, white & pink, dolomitic
	340 -350	10		Sandstone, fine & med., wh. & lit. pk, slightly dolo.
	350 -375	25		Sandstone, fine & medium grained, tan
	375 -400	25		Sandstone, fine & medium grained, light tan, dolomitic, some pink very dolomitic sandstone
	400 -405	5		Sandstone, fine-med., lt gy, dolo., some red ss dol.
195	405 -415	10		Sandstone, fine & med. grained, light gray, dolo.
	415 -460	45		Sandstone, fine & medium grained, tan
	460 -500	40		Sandstone, fine grained, light gray
85				

18" pipe
44' 10"
92'
12" pipe
12 3/4" hole
126'
12" hole

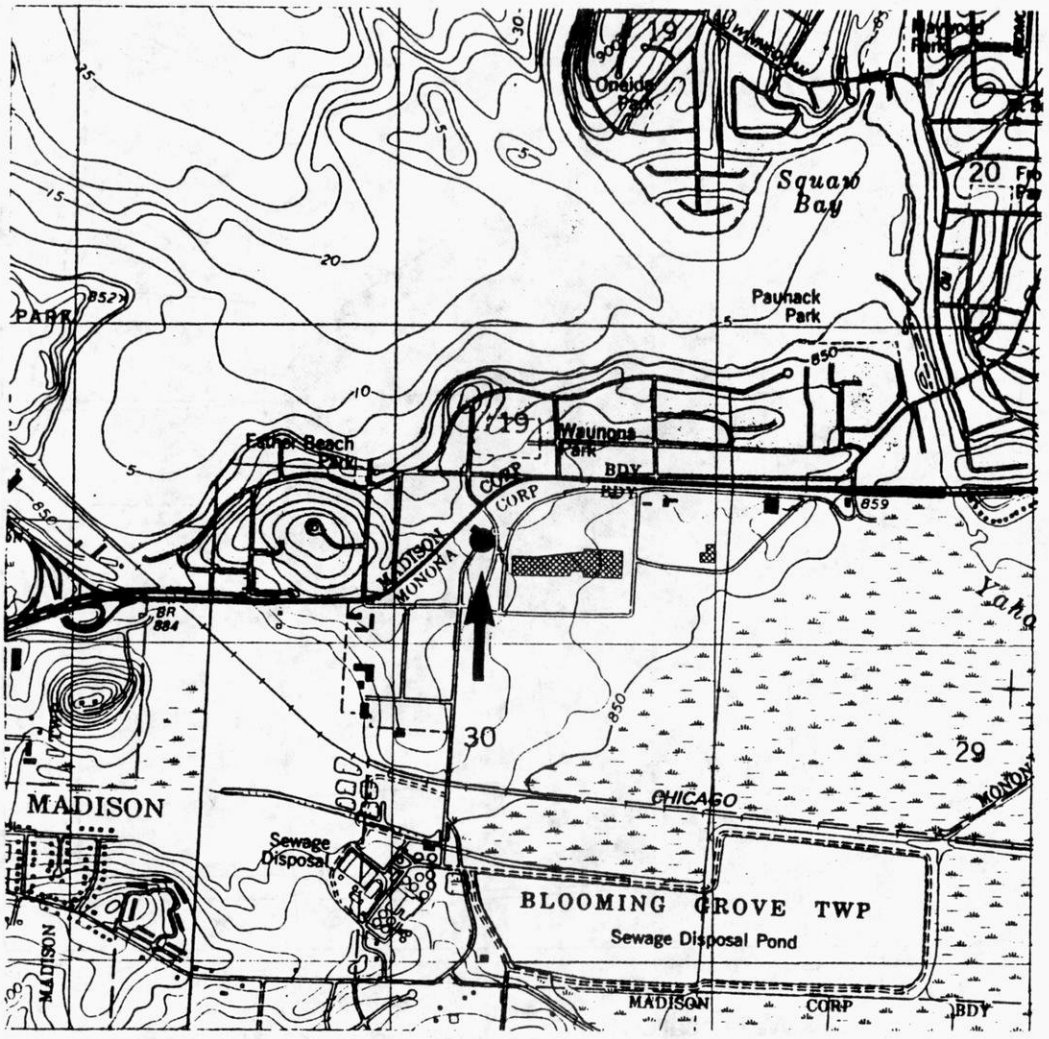
Formations: Drift, Franconia, Galesville, Eau Claire, Mt. Simon

Tested for 30 hours at varying rates up to 1300 g.p.m. and above, specific capacity - 40 g.p.m./ft of drawdown. First 4 hours tested at 870 g.p.m. with a specific capacity of about 22 g.p.m./ft. of drawdown. Much sand was pumped during test.

T331-DN-300-P. Sample pumped from well. Received 2/2/89. Examined by Kathleen Massie-Ferch.

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
pumped samp		Sand	Lt gray	M/C	Vfn/VC	Srnd to rnd. F srtg. Ss derived. Mch frstg. Tr dolic cem, rnd
						non-qtz grns, qtz st, scal/rust.

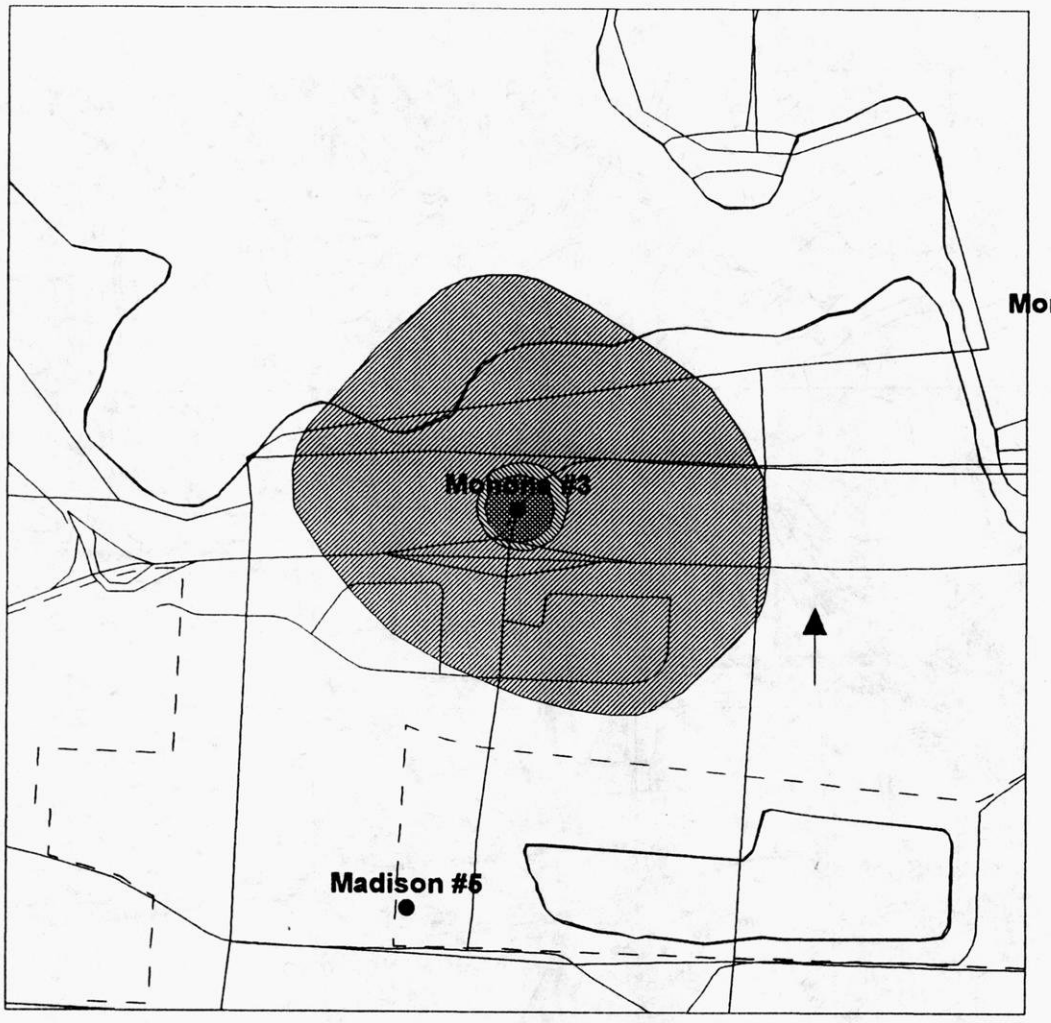
City of Monona, Well Number 3



City of Monona, Well Number 3 is located at 43° 2' 43.59" north latitude and 89° 21' 13.84" longitude. The well was installed in 1968 and has a pumping capacity of 1,200 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 490,900 gpd.

The well casing extends to a depth of 208 feet below ground surface, and the total depth of the well is 775 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone with a small percentage of water derived from downward leakage from Lake Monona. Groundwater flow in the vicinity of the well is generally to the north.

Zone of Contribution for Monona, Well Number 3



Well Location

Latitude: 43° 2' 43.59"
Longitude: 89° 21' 13.84"

0 500 1000
(meters)

N

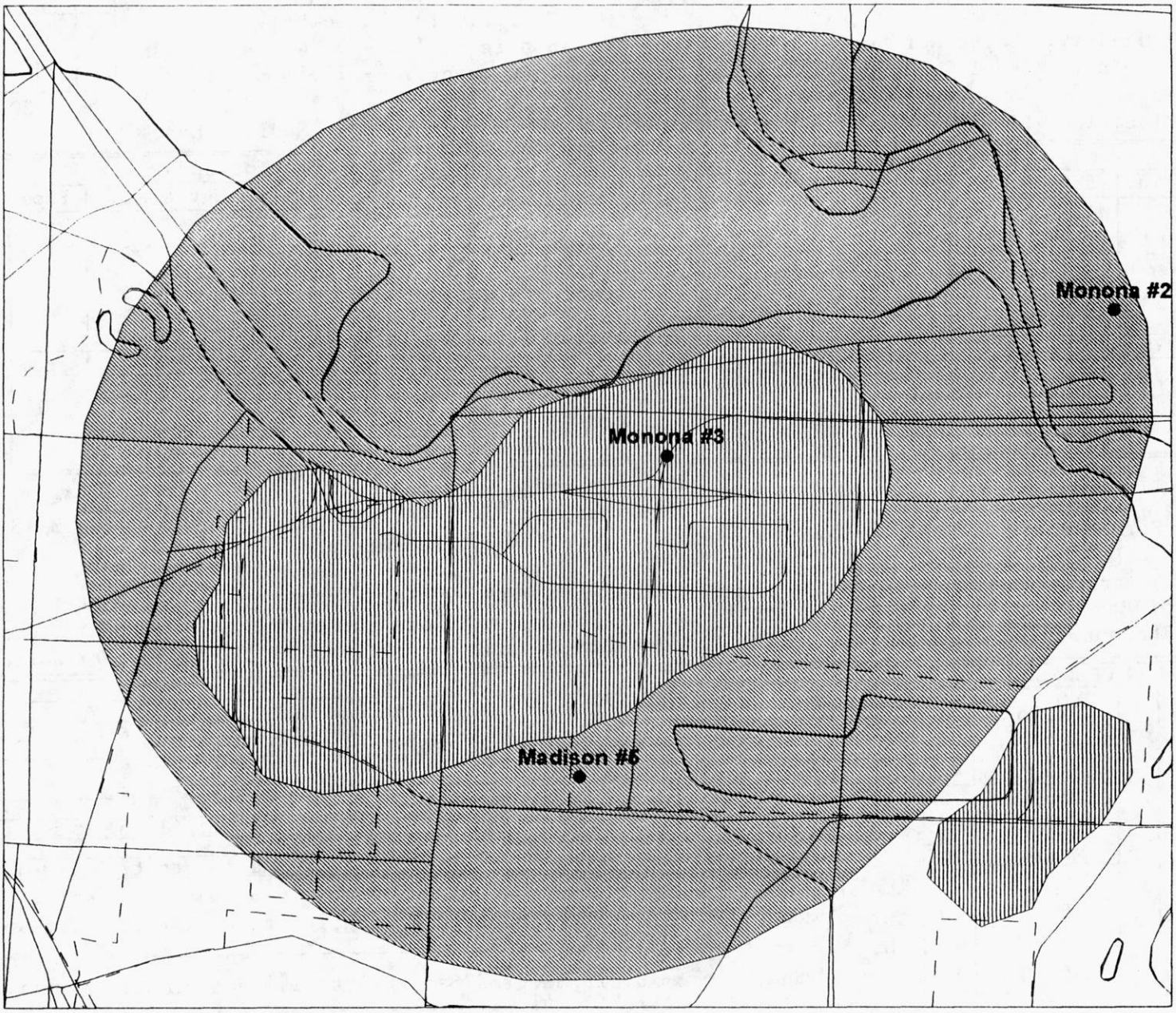
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Monona, Well Number 3



Scale 1:24,000

0 500 1000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-958
Sample Nos. 281430-281584

County: Dane

Well name Monona City Well #3
Blooming Grove Township
Owner.... Village of Monona, Wisconsin
Address.. c/o Village Clerk, Village Hall
Monona, Wisconsin
Driller.. Layne-Northwest Company
Engineer. Paul G. Rapp, Village Engineer
Monona, Wisconsin

Completed... 3/22/68
Field check. W.G.S.
Altitude.... 872' ETM
Use..... Municipal
Static w. l. -- 50'4"
Spec. cap... -- 15.1

R. 10E.
T. 7 N.
Sec. 30

Location: SE¼,SW¼,SW¼,SW¼,NW¼,NW¼,NE¼,sec. 30,T7N,R10E Quad. Madison East 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
24"	0	208'				18"	A53 grade B black welded steel 3/8 wall	+2'	208				
17¼'	208'	775'											

Grout: Kind	from	to
Neat cement	0	208

Samples from 0 to 775' Date received: 2/29/68
Examined by: J.M. Warren
Issued: Feb., 1971
Date: 3/18/68

Formations: Drift, Wonewoc, Eau Claire, Mt. Simon, Precambrian

Remarks: Well tested for 3½ hours at 1506 gpm with 99'8" of drawdown. Located at the corner of Raywood Road and Highways 12&18. Resitivity & Gamma Logs run by W.G.S., P.G.O.&M.E.O.3/14/6
The quartzite conglomerate in the Precambrian is continuous from 756' (E-log determination)**

LOG OF WELL:

	0-5	5		St,dk yl or,F srtg;ltl cl,tr Vfn snd
	5-10	5		Snd,dk yl or,M&fn,ang,mch Vfn,tr C&VC;mch st,tr dol&cht gvl&mica c
	10-15	5		Gvl,mxd clr,fn,rnd,G srtg,mstly dol,tr cht&ig,tr Vfn;
	15-25	10		Gvl,mxd clr,M&fn,rnd,G srtg,mstly dol,ltl cht,tr ig;
	25-30	5		Gvl,mxd clr,M&fn,rnd/ang,G srtg,mstly dol,tr ig;
	30-35	5		Gvl,mxd clr,M/Vfn,rnd/ang,mstly dol,tr ig&cht;ltl fn/VC snd,tr Vfn
	35-40	5		Gvl,mxd clr,M&C,rnd/ang,G srtg,mstly def;
	40-45	5		Snd,yl or&mxd clr,M&C,rnd&Srnd,tr fn&VC;mstly qtz,tr-ltl dol,ig&cht;
	45-65	20		Snd,yl or&mxd clr,M,rnd&Srnd,F srtg,ltl fn&C,slgt tr VC,mstly qtz, tr ig,dol&cht;
	65-80	15		Snd,yl or&mxd clr,M&C,rnd/Sang,F srtg,ltl VC&fn,mstly qtz,tr dol, ig&cht;tr Vfn gvl
DRIFT	80-95	15		Cl,lt ol gry,F srtg,hd,dolic;mch st&Vfn snd
	95-110	15		Cl,V pl yl bn,G srtg,hd,dolic;tr-ltl st&Vfn snd
	110-115	5		Cl,V pl yl bn,F srtg,hd,dolic;ltl-mch st&Vfn snd
	115-120	5		Snd,mxd clr,M&C,tr-ltl VC,tr fn,mstly qtz,tr dol,cht&ig;ltl dolic
	120-125	5		Gvl,mxd clr,M,rnd/ang,G srtg,mstly dol,tr cht;
	125-130	5		Gvl,mxd clr,fn,ltl Vfn,mstly dol&sndy dol,tr cht&oolic cht&ig;tr c
	130-135	5		Snd,mxd clr,C,rnd,mch VC,ltl M,mstly qtz,ltl ig&dol;tr-ltl gvl
	135-140	5		Snd,mxd clr,M,rnd/ang,ltl C,tr fn&VC;slgt tr Vfn gvl
	140-145	5		Snd,mxd clr,C,rnd/ang,mch M&VC;mch fn&Vfn gvl,tr M
	145-150	5		Gvl,wh&mxd clr,C,Srnd/ang,mstly qtz-cemtd ss,tr M&fn;tr cl/C s
	150-155	5		Cl,pl yl bn,G srtg,sft,slgt dolic;mch st
	155-165	10		Cl,pl yl bn,G srtg,mod hd,slgt dolic;mch st,tr VC snd
	165-170	5		Gvl,mxd clr,M,rnd/Sang,ltl fn,tr C,mstly dol,tr cht&ig;
	170-175	5		Gvl,mxd clr,fn,rnd/Sang,G srtg,ltl M&Vfn,mstly dol&cht;tr ig;
180'	175-180	5		Gvl,dk yl or&mxd clr,M&C,rnd/ang,G srtg,cht,wea,tr oolic;
W	180-190	10		Ss,wh,M&C,rnd,G srtg,ltl G V pl yl or dol-cem,tr VC&fn;

Well name Monona City Well #3
Sample Nos. 281430 to 281584

WONEWOC		190-195	5	Ss,wh,M&C,rnd,ltl G pl yl or dol-cem,ltl VC&fn,tr Vfn;tr yl or
		195-200	5	Ss,wh,M&fn,rnd&Srnd,ltl G pl yl or dol-cem,mch C,ltl VC,tr Vfn;
		200-205	5	Ss,dk yl or,M&fn,mch G dk yl or dol-cem,ltl C,tr Vfn;tr cvd rnd
		205-210	5	Ss,dk yl or,M&fn,mch G dk yl or dol-cem,ltl C,tr Vfn;mny lim?spk
		210-215	5	Ss,yl or&wh,M,rnd&Srnd,G srtg,mch C,ltl-mch VC,tr fn;slgt tr st&
		215-225	10	Ss,V pl yl or,M&fn,rnd&Srnd,F srtg,ltl C,tr VC&Vfn; lim?spk tr st
		225-235	10	Ss,pl yl or,fn,Srnd,F srtg,mch M,tr C&Vfn;tr(cvd)wood&lim
		235-240	5	Ss,pl yl or,fn&Vfn,Srnd&Sang,tr F yl or dol-cem,ltl M,slgt tr C&
		240-250	10	Ss,yl or,M,rnd,P srtg,ltl F-G yl or dol- VC;slgt tr st,tr wh
	75'			cem,mch C,ltl fn,tr Vfn&VC;tr lim&Vfn sug fex xln dol
		250-255	5	Ss,wh,C,rnd,G srtg,mch M,slgt tr VC;
E. C		255-260	5	Ss,yl or,Vfn,mch G yl or dol-cem;few lim?spks,ltl V pl gn gry hd
		260-265	5	Ss,yl or,Vfn,mch G yl or dol-cem,tr fn;stringers intercalated w/
		270-275	5	Ss,yl gry,fn&Vfn,ltl F yl gry dol-cem,ltl M,slgt tr C;mny string
		275-280	5	Sh,pl gn,slgt dolic,hd,tr dk rd bn sh at Ss/Sh contacts,mny *
	30'	280-285	5	Sh,gry gn,dolic,tr gry&pl gry rd,sty;mch fn&Vfn wh ss,ltl M,tr C
		285-290	5	Sh,gry gn mot gry,dolic,vrbl hdns;mch st,tr ss(Vfn/M),slgt tr py
		290-300	10	Ss,pl yl or,M&fn,tr F dol-cem,ltl C&Vfn;tr st,slgt tr gn sh
		300-305	5	Ss,yl gry,M,rnd,P srtg,slgt tr dol-cem,mch fn,mch C,ltl Vfn,tr V tr yl or dol,or pnk glaucic dol,gn sh
		305-310	5	Ss,yl gry,M,ltl G pl pnk,or pnk&yl gry dol-cem,mch fn,Vfn&C;ltl s
		310-315	5	Ss,yl gry,M,tr wh,yl gry&pl pnk G dol-cem,mch fn,Vfn&C;slgt tr w
		315-320	5	Ss,yl gry,M,mch C&fn,ltl Vfn,tr VC;slgt tr gn&gry sh,st&glauc
		320-325	5	Ss,gry pnk mot yl gry,M&fn,mch G gry or pnk&yl gry dol-cem,tr C&
		325-330	5	Ss,yl gry,M&fn,ltl yl gry&gry pnk G dol-cem,ltl C,tr Vfn;
		330-340	10	Ss,yl gry,M,tr G gry or pnk dol-cem,mch fn&C,tr Vfn&VC;tr st
		340-345	5	Ss,yl gry,M&fn,rnd&Srnd,F srtg,tr G V pl pnk dol-cem,ltl C,tr Vf tr st&sndy gn sh
		345-355	10	Ss,V pl yl or,M,mch C&fn,tr VC;ltl V lt bn sts,slgt tr V pl pnk
		355-360	5	Ss,V pl or,M&fn,rnd&Srnd,F srtg,tr-ltl G V pl pnk dol- dol-cem cem,ltl C,tr VC&Vfn;slgt tr V pl gn sh&st
		360-365	5	Ss,V lt yl gry,M,slgt tr G pyr-cem,mch fn&C,ltl VC;
		365-370	5	Ss,V pl or,M,rnd,F-G srtg,mch C,ltl fn,slgt tr VC&Vfn;
		370-375	5	Ss,pl or,fn,mch G V pl or&or pnk dol-cem,mch M,ltl C,tr Vfn&VC;
		375-380	5	Ss,V pl gry or,fn,tr-mch P-G dol-cem,mch M,ltl C,tr Vfn&VC;
		380-385	5	Ss,V pl gry or,M&fn,tr F dol-cem,ltl C&Vfn;ltl V lt bn sts
		385-390	5	Ss,V pl gry or pnk,M,mch F-G pl or dol-cem,mch C&fn,ltl Vfn,tr VC
		390-400	10	Ss,pl yl gry,M,ltl F-G V pl pnk dol-cem,mch fn&C,ltl Vfn,tr VC;
		400-415	15	Ss,pl yl gry,fn,Sang,P srtg,ltl F-G V pl pnk dol-cem,mch Vfn&M,tr C;tr pl gn sndy sh&V lt bn sts
		415-430	15	Ss,or pnk,fn,Srnd,F srtg,mch G or pnk dol-cem,ltl M,C&Vfn;tr pl g sh seams
		430-435	5	Ss,or pnk mot rd bn,fn,Srnd,P srtg,mch G or pnk&rd bn dol-cem,mch M,ltl yl bn sts,tr sndy gn sh seams
		435-440	5	Ss,pl yl gry,fn,mch M,ltl C,tr Vfn;tr pl yl bn sts&V pl gn sh
		440-445	5	Ss,pl or pnk mot yl gry,M&fn,mch G dol-cem,ltl C&Vfn;tr Vpl gn sh
		445-450	5	Ss,yl gry,M&fn,ltl C&Vfn;ltl sts,tr gn sh,glauc&dol-cem
		450-455	5	Ss,yl gry,M,ltl G dol-cem,mch fn&C,ltl Vfn;tr gn sh&pl bn sts
		455-465	10	Ss,yl gry,fn,ang,mch M&Vfn,tr C;mch pl bn shly dolic sts,tr dol-
		465-470	5	Ss,yl gry,M&fn,rnd,F srtg,ltl C,tr Vfn;tr sts& gn sh cem&yl gn
		470-490	20	Ss,yl gry,M&fn,rnd,ltl C,tr Vfn&VC;ltl-mch pl bn shly dolic sts
		490-500	10	Ss,V pl yl,M&fn,rnd/ang,F srtg,tr C&Vfn;tr gn sh,slgt tr pl bn st
		500-510	10	Ss,wh,M,Srnd,F srtg,ltl C,tr VC;slgt tr pl bn sts&gn sh
		510-515	5	Ss,wh,M,Srnd,F srtg,tr G qtz-cem,mch C&fn,tr VC&Vfn;slgt tr sts, lim&wh cl
		515-520	5	Ss,wh,fn,Srnd&Sang,ltl M,tr C,VC&Vfn;tr sft pl gn sh
		520-525	5	Ss,pl yl gry,M&fn,Srnd&Sang,ltl-mch C,tr Vfn&VC;tr wh cl&pl bn st
		525-530	5	Ss,pl yl gry,M,rnd&Srnd,mch fn&C,tr Vfn&VC;tr pl bn sts,sft gn sh
		530-535	5	Ss,yl gry,M,rnd/Sang,mch fn,ltl C,tr Vfn&VC;ltl pl bn sts,gn sh
		535-540	5	Ss,V pl or,fn,Srnd/ang,ltl M,tr Vfn,C&VC;tr pl gn sh,pl bn sts
		540-545	5	Ss,pl yl gry,M&C,rnd,ltl fn&VC;slgt tr pyr-cem,wh cl,gn sh&pl bn
		545-550	5	Ss,pl yl gry,M,rnd,mch fn&C,tr Vfn&VC;slgt tr st
		550-555	5	Ss,pl yl gry,fn,Srnd/ang,mch M,tr C&Vfn;tr sft sndy gn sh,tr lim
		555-560	5	Ss,pl yl gry,M&fn,rnd,ltl C&VC,tr Vfn;tr gn&gry sh
				Ss,pl or,M&fn,rnd,ltl C,tr Vfn;tr lim&Fe stn,slgt tr pyr-cem

MT. SIMON

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-958

Well name Monona City Well #3
Sample Nos. 281430 to 281584

MT. SIMON		560-565	5	Ss,pl or,M&fn,rnd,ltl C,tr Vfn&VC;tr lim,Fe stn&gn sh,slgt tr yl
		565-570	5	Ss,yl gry,fn&C,rnd/ang,mch M,ltl VC,tr Vfn;tr gn pyric sndy sh
		570-575	5	Ss,V pl or,fn,ang,ltl M,tr C,Vfn&VC;tr gn sh,slgt tr lim
		575-580	5	Ss,V pl or,M&fn,rnd/ang,ltl C,tr Vfn&VC;slgt tr gn sh&lim
		580-585	5	Ss,yl gry,M,rnd/Sang,mch fn&C,tr-ltl Vfn,tr VC;tr pl bn sts,gn sh
		585-595	10	Ss,yl gry,fn&C,rnd/ang,P srtg,mch M,ltl VC;tr gn&wh sh&pl bn sts
		595-600	5	Ss,yl gry,M&fn,rnd/ang,P srtg,ltl C,tr Vfn&VC;tr lim
		600-605	5	Ss,pl gry or,M&fn,rnd/ang,ltl C,tr Vfn&VC;ltl-mch gry or sts
		605-610	5	Ss,yl gry,fn&C,rnd/ang,P srtg,ltl M,Vfn&VC;ltl pl bn,shly dolic s
		610-615	5	Ss,yl gry,fn,ang,P srtg,ltl M/VC,tr Vfn;tr st&gn sh
		615-620	5	Ss,yl gry,M,rnd/ang,P srtg,mch fn&C,tr VC&Vfn;slgt tr glauc
		620-625	5	Ss,yl gry,fn&C,rnd/ang,ltl G qtz-cem,ltl M&VC,tr Vfn;tr wh sh
		625-645	20	Ss,V pl or,fn&C,rnd/ang,P srtg,tr G qtz-cem,ltl M&VC,tr Vfn;tr wh sh
		645-650	5	Ss,V pl or,fn&C,rnd/ang,P srtg,ltl M&Vfn,tr VC;tr grans&st
		650-655	5	Ss,V pl or,fn,rnd/ang,P srtg,ltl M&C,tr VC&Vfn;tr-few grans
		655-660	5	Ss,V pl yl or,M&fn,rnd/ang,P srtg,ltl C&VC,tr Vfn;tr st,grans&lim
		660-665	5	Ss,V pl or,fn,Sang&ang,tr G qtz-&F dol-cem,ltl M&C,tr Vfn&VC;
		665-670	5	MM Sh,pl gn,P srtg,mod hd,V mica;ltl or pnk fn grnd qtz-cemtd ss
		670-675	5	M Sh,rd bn mot pl gn,P srtg,vrbl hdns,mica;ltl Vfn/VC snd,tr fn&Vfn
		675-680	5	Ss,V pl or,M,slgt tr pyr-cem,mch fn&C,tr Vfn&VC;tr st,gn mica sh
		680-685	5	Ss,V pl or,C,tr F-G qtz-cem,mch M&VC,tr fn;tr M/Vfn qtz gvl
		685-690	5	Ss,V pl or,C,ltl G qtz-cem,mch M&VC,tr fn;tr fn&Vfn qtz gvl
		690-695	5	Ss,pl or,M,Srnd,P srtg,mch C&fn,tr-ltl VC;tr fn&Vfn gvl&st
		695-700	5	Ss,pl or,C&VC,mch G qtz-cem,mch M,tr-ltl fn;mch congl,slgt tr st
		700-705	5	Congl,pl or,fn&Vfn,tr-ltl G qtz-cem,mch M/VC snd,tr fn,V slgt tr
		705-710	5	Ss,V pl yl or,fn/VC,tr F dol-&qtz-cem,tr Vfn;tr ltl congl,tr wh s
		710-715	5	Lim Fe Ss,gry or,fn/VC,tr F qtz-cem,tr Vfn;tr -ltl congl,tr-ltl lim&Fe st
		715-720	5	Ss,V pl or,M,mch G qtz-cem,mch fn&C,tr Vfn&VC;slgt tr gry gn sh
		720-725	5	Ss,V pl or,M&fn,ang,G srtg,mch G qtz-cem,tr C;
		725-735	10	Ss,pl or,M&fn,ang,P srtg,ltl C,Vfn&VC;mch V pl gn shly sts,tr mot gry rd,slgt tr grans
		735-745	10	Congl,pl yl or,fn&Vfn,ang/rnd,P srtg,qtz;mch M/VC snd,tr fn,tr gn gry sh,slgt tr lim
	470'	745-750	5	G Ss,pl yl or,fn/VC,tr Vfn;ltl congl,tr st,slgt tr hd pl rd sh
		750-755	5	Ss,pl yl or,fn/VC,tr G qtz-cem,tr Vfn;ltl congl,tr st,pl rd&gn mic
PC		755-760	5	Qtz+,pl rd,yl or&trans,fn snd/fn gvl,mch G qtz-cem,mch fn/VC qtz-
		760-765	5	Qtz+Congl,gry,pl rd,yl or&mxd clr,fn snd/fn gvl,mch G qtz-cem;
	20'	765-775	10	Ss,V pl rd,M&fn,rnd,P srtg,tr Vfn&C;mch qtz&snd&gvl,tr mica sh& lim

END OF LOG

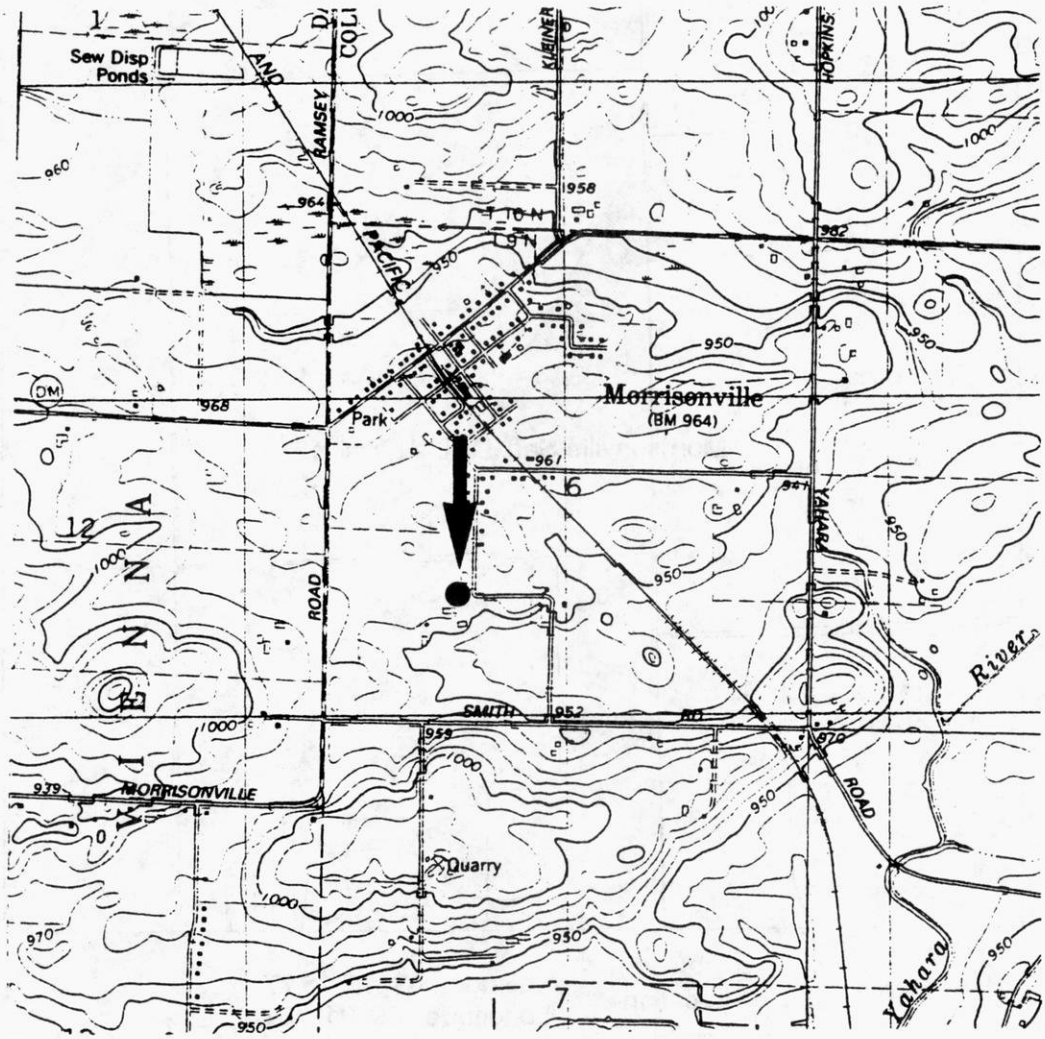
* Continued Descriptions

255-260	5	sh,w/mny Vfn dol rmbs,tr dolic ss incl in sh
260-265	5	V pl gn gry sh w/ dol rmbs,few Mn?dendrites
265-270	5	pl gn dolic sh
270-275	5	stringers ss,V pl or,fn,F dol-cem,ltl M&Vfn,tr C,ltl st
300-305	5	dns Vfn xln yl gn dol w/ sndy(M&fn)stringers slgt tr gn sndy sh&Vfn grnd glauc
700-705	5	rd bn&gn mica sh
755-760	5	cemtd ss,tr mica sh&dol-cem
760-765	5	tr pl rd&V pl gn mica sh,tr cvd snd

** Continued Remarks

to 775'. Due to the hardness of the material, the bagged sample collected was primarily sandstone coming from above the Precambrian Surface. Large samples collected, during drilling and from the drill stem after drilling was completed, are on file at the W.G.S. office.

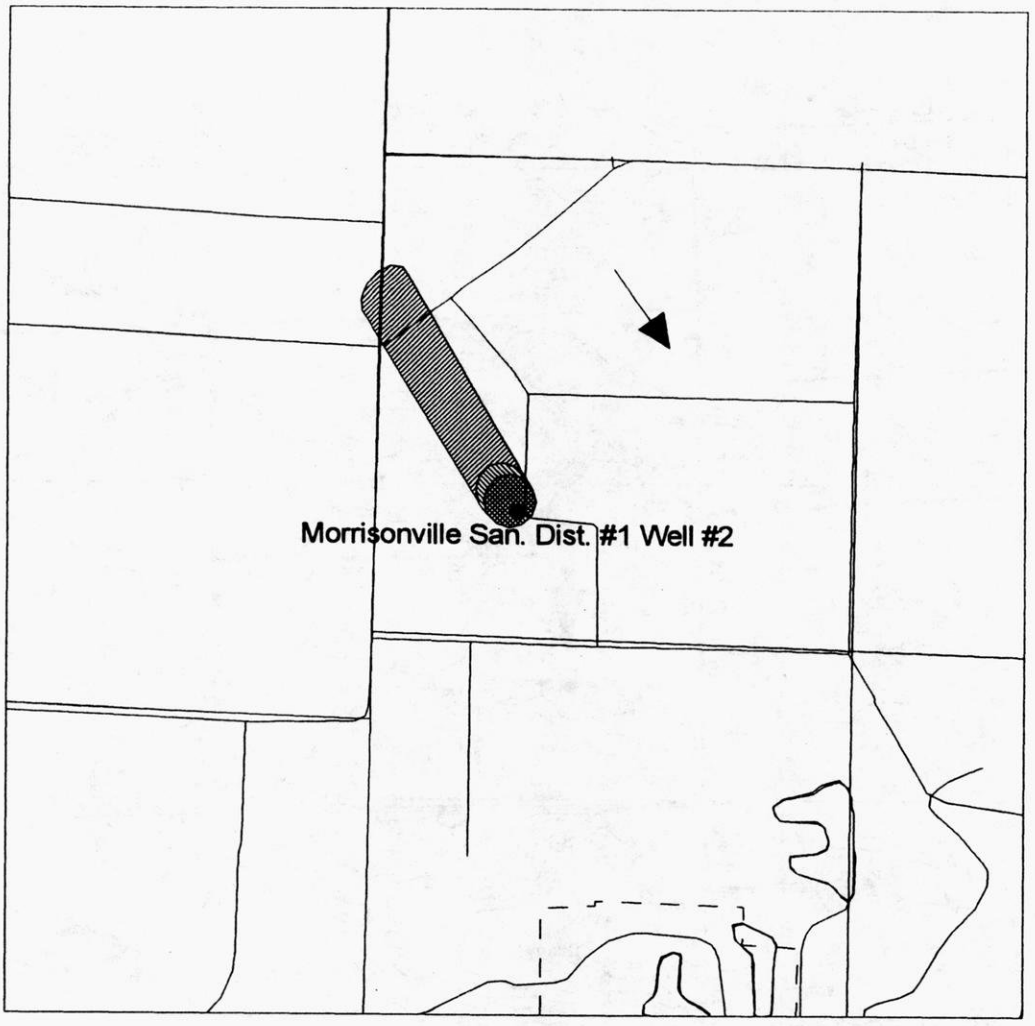
Morrison Sanitary District Number 1, Well Number 2



Morrison Sanitary District Number 1, Well Number 2 is located at 43° 16' 15.77" north latitude and 89° 21' 26.57" longitude. The well was installed in 1992 and has a pumping capacity of 500gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 27,300 gpd. The well produces less then one-half foot of drawdown in both the water table aquifer and the deep sandstone aquifer.

The well casing extends to a depth of 220 feet below ground surface, and the well is 470 feet deep. Water is drawn from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southeast.

Zone of Contribution for Morrison Sanitary District Number 1, Well Number 2



Well Location

Latitude: 43° 16' 15.77"
Longitude: 89° 21' 26.57"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

W15-DN-1358

Well Construction Report For WISCONSIN UNIQUE WELL NUMBER CN 875

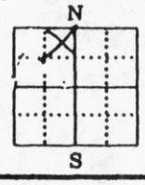
State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

MAY 6 1992

Property Owner: Morrisonville
Telephone Number: ( ) Well #2
Mailing Address: P.O. Box 97
City: Morrisonville
State: Wi.
Zip Code: 53571
County of Well Location: Dane
County Well Location Permit No.: W
Well Completion Date: 4 20 92 (M M D D Y Y)

13 Well Constructor (Business Name): Ace Well Drilling
Registration #: 393
Address: N9899 Hwy 23
City: Wi. Dells Wi.
State: Wi.
Zip Code: 53965
M Sanitary District No. 1 Well No. 2

2. Mark well location in correct 40-acre parcel of section.
N / W / E / S



1. Location (Please type or print using a black pen.)
☒ Town ☐ City ☐ Village
Fire # (if available): Windsor
of ~~Morrisonville~~
Grid or Street Address or Road Name and Number (if available): Clinton Rd. well 40 west of Clinton St.
Subdivision Name: Lot #: Block #:
Gov't Lot # ___ or NE ¼ of NW ¼ of
Section 6; T 9 N; R 10 ☒ E ☐ W

3. Well Type ☒ New ☐ Replacement ☐ Reconstruction
of unique well # _____ constructed in 19 ____.
Reason for new, replaced or reconstructed well?

4. Well serves ____ # of homes and/or _____
(ex: barn, restaurant, church, school, industry, etc.)
High Capacity Well? ☒ Yes ☐ No
High Capacity Property? ☒ Yes ☐ No

☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other _____

5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☒ Yes ☐ No If no, explain on back side.
Well Located in Floodplain? ☐ Yes ☒ No
Distance In Feet From Well To Nearest:
____ 1. Landfill
____ 2. Building Overhang
____ 3. Septic or Holding Tank
____ 4. Sewage Absorption Unit
____ 5. Nonconforming Pit
____ 6. Buried Home Heating Oil Tank
____ 7. Buried Petroleum Tank
____ 8. Shoreline/Swimming Pool
____ 9. Downspout/Yard Hydrant
____ 10. Privy
____ 11. Foundation Drain to Clearwater
____ 12. Foundation Drain to Sewer
____ 13. Building Drain ☐ Cast Iron or Plastic ☐ Other
____ 14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
____ 15. Collector or Street Sewer
____ 16. Clearwater Sump
____ 17. Wastewater Sump
____ 18. Paved Animal Barn Pen
____ 19. Animal Yard or Shelter
____ 20. Silo — Type _____
____ 21. Barn Gutter
____ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
____ 23. Other Manure Storage _____
Other NR 112 Waste Source
____ 24. _____

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
22	surface	220
15	220	470

Method of constructing upper enlarged drillhole only.
☒ 1. Rotary — Mud Circulation
☒ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☐ 5. Cable-tool Bit _____ in. dia.
☐ 6. Temp. Outer Casing _____ in. dia.
Removed? ☐ Yes ☐ No
If no, explain _____
☐ 7. Other _____

9. Geology

DNR USE ONLY	Type, Caving/Noncaving, Color, Hardness, Etc.	From (ft.)	To (ft.)
D	Drift	surface	125
N	Sandstone	125	470

Note: DNR Perm. Well # 00897
owner well #2
approved: 8-23-91
sp. cap. 9.6 GPM/ft
file: Municipal

7. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
16	new pipe P.E.	surface	220 ~~220~~
	ASTM A53		
	0.375" WALL		

Dia. (in.)	screen type and material	From	To

8. Grout or Other Sealing Material
Method: trene pipe

Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
Cement + Water	surface	220	350

cc: SOD, WG&NHS WELL LOG BOOK

10. Static Water Level
____ ft. above ground level
23 ft. below ground surface

11. Pump Test sp. cap. = 9.6 GPM/ft
Pumping Level 75 ft. below surface
Pumping at 500 GPM for 8 hours

12. Well Is: 36 in. ☒ Above ☐ Below Grade
Developed? ☒ Yes ☐ No
Disinfected? ☒ Yes ☐ No
Capped? ☒ Yes ☐ No

13. Did you permanently seal all unused, noncomplying, or unsafe wells? ☒ Yes ☐ No If no, explain _____

14. Signature of Point Driver or Registered Driller: Ace Well Drilling — Date Signed
Signature of Drill Rig Operator: Marvin Hagen — Date Signed: MH 4-20-92

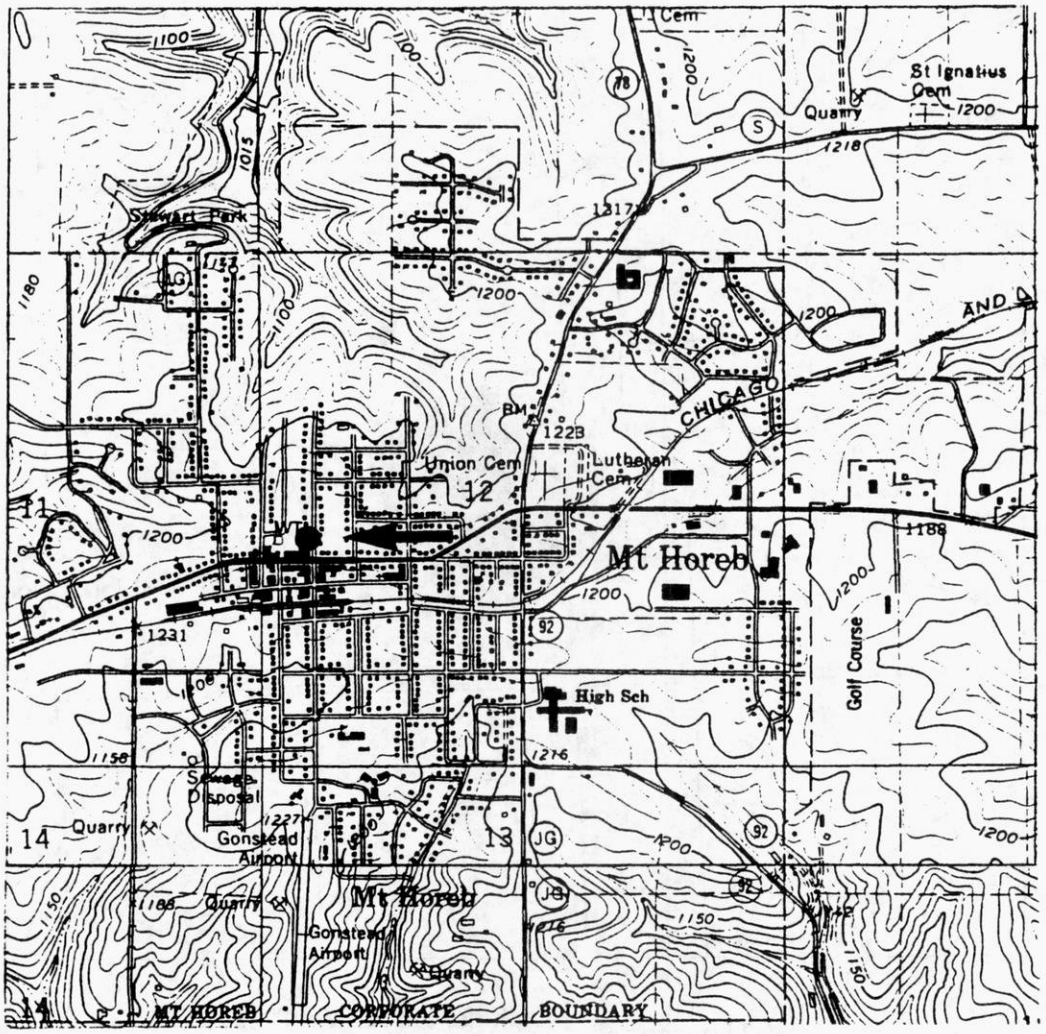
Make additional comments on reverse side about geology, etc.

DNR

WELL CONSTRUCTION REPORT
Form 3300-77A Rev. 9-88 179

WGNHS ORIGINAL

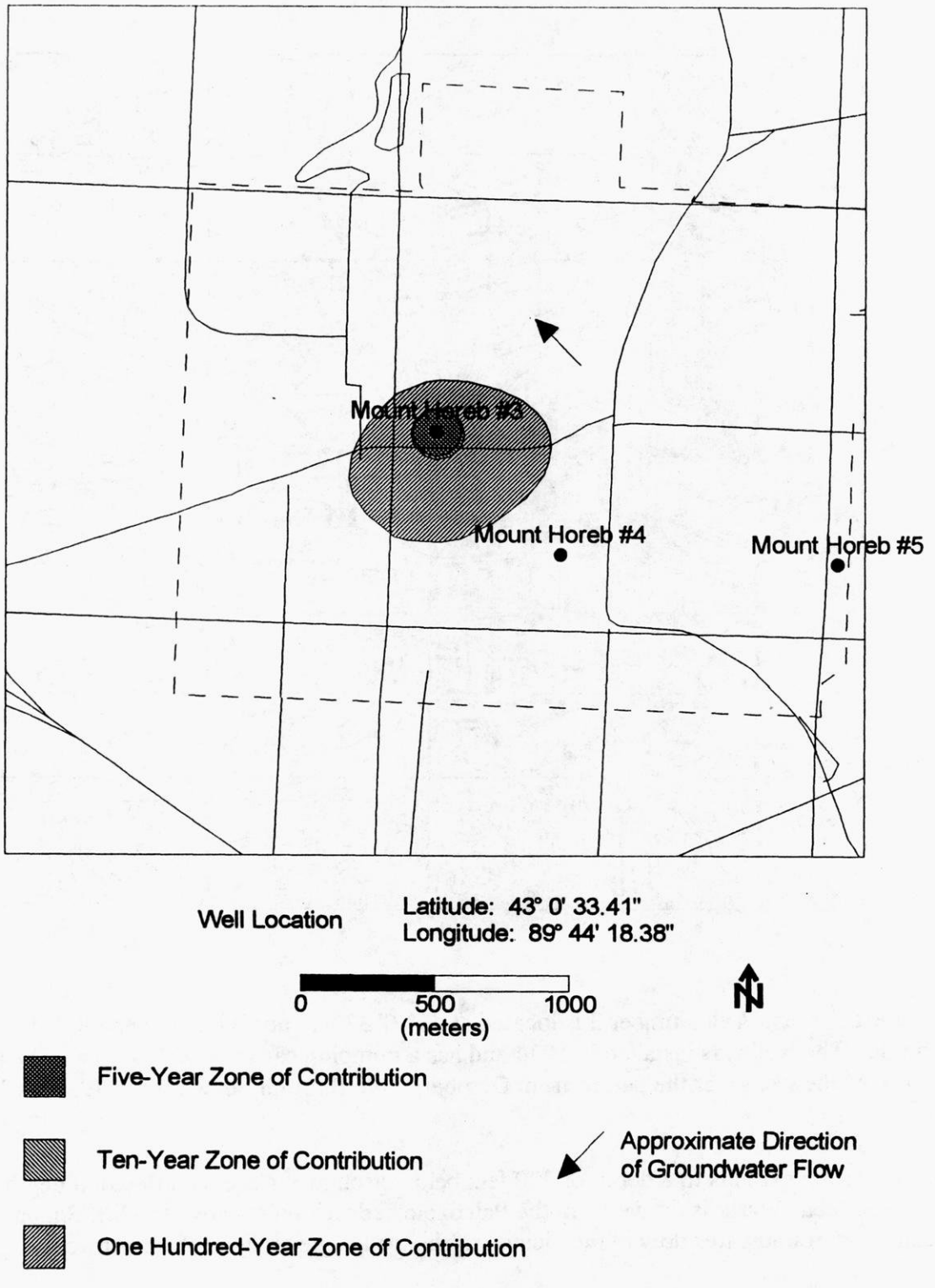
City of Mt. Horeb, Well Number 3



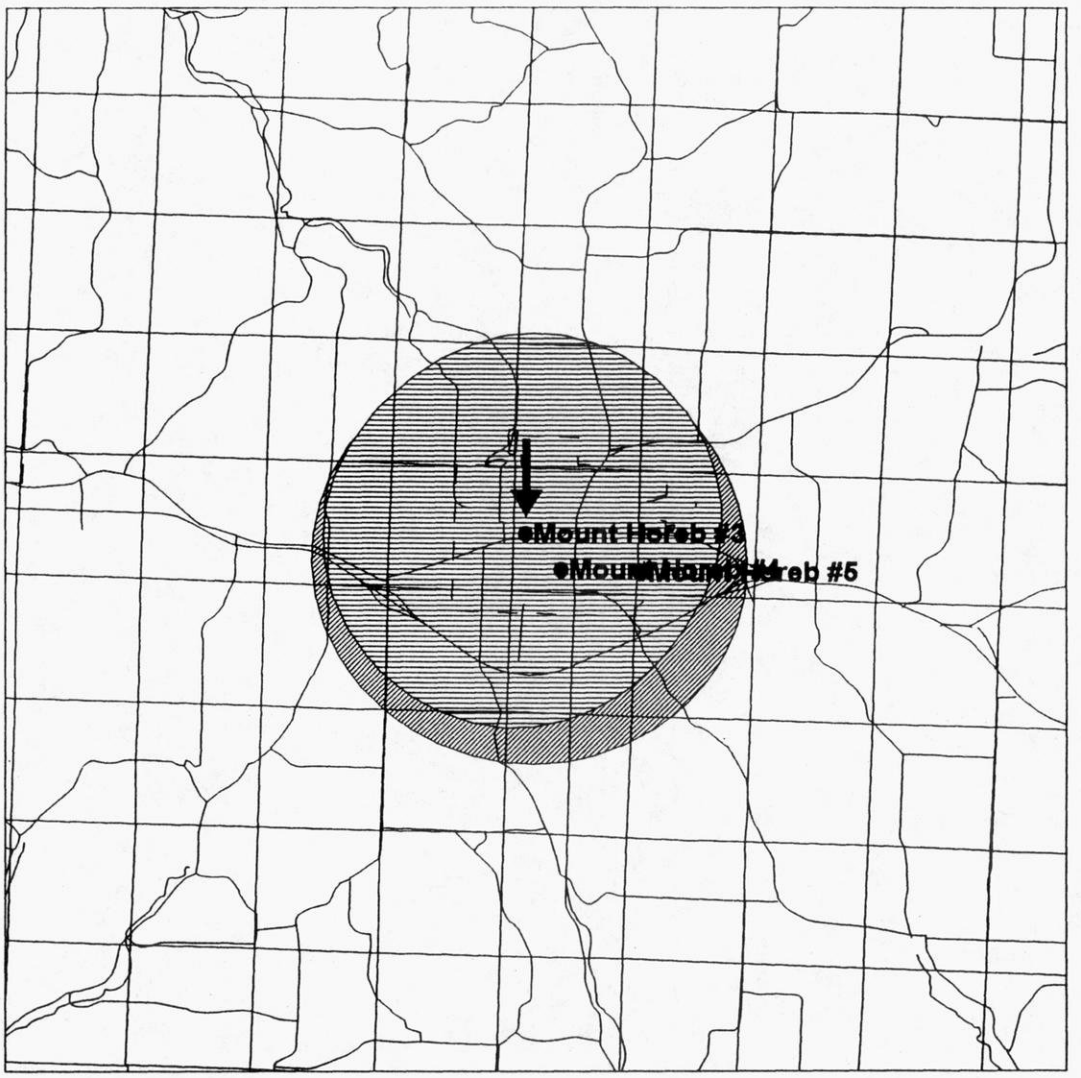
City of Mt. Horeb, Well Number 3 is located at 43° 0' 33.41" north latitude and 89° 44' 18.38" longitude. The well was installed in 1934 and has a pumping capacity of 450 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 160,000 gpd.

The well casing extends to a depth of 220 feet below ground surface, and the total depth of the well is 800 feet. Water is drawn from the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Mt. Horeb, Well Number 3



Zones of Influence for Mt. Horeb, Well Number 3



Scale 1:100,000

0 1000 2000 3000 4000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

CITY WELL NO. 3, MT. HOREB, WIS.

C, SW¼, NE¼, NW¼, NW¼, SW¼, sec. 12, T.6N., R.6E.
Jos. Egerer, Contractor, 1934-35
W. G. Kirchoffer, Engineer
Samples examined by F. T. Thwaites, Nos. 90921-91080

Alt. = 1250±5'

GALENA-PLATTEVILLE		0-95	95	Dolomite, light buff to light gray; large opening 48-51	19" hole 12" pipe grout
		95-110	15	Dolomite, light buff-gray and blue-gray	
		110-120	10	Limestone, blue	
		120-125	5	Limestone, light gray	
		125-145	20	Dolomite, gray	
		145-170	25	Limestone, light blue-gray to blue	
		170-185	15	Dolomite, light gray	180 flange
		185-190	5	Dolomite, light gray, very sandy	15" pipe
	201	190-195	5	Sandstone, fine to coarse, lt.gray, very dol.	210 water
		195-201	6	Sandstone, medium to coarse, lt.gray, dol.	
	14	201-207	6	Sandstone, medium, light buff	220
		207-215	8	Shale, greenish-gray	
		215-265	50	Dolomite, light gray	
		265-270	5	Sandstone, medium, lt.gray, very dol; shale,	
		270-295	25	Dolomite, light gray	15" hole
		295-300	5	Dolomite, light gray; chert, white	
		300-310	10	Dolomite, buff, light gray; chert, white	
		310-315	5	Dolomite, light gray	
		315-325	10	Dolomite, buff, lt.gray; chert, white	
		325-345	20	Dolomite, light gray	
		345-350	5	Dolomite, light buff, some sand	
		350-355	5	Dolomite, light gray, buff, some sand	
		355-410	55	Dolomite, light gray	
	203	410-418	8	Sandstone, coarse to medium, dol, buff; chert	
		418-425	7	Sandstone, medium, white	
		425-432	7	Sandstone, fine to medium, lt.gray, very dol.	
		432-440	8	Siltstone, yellow-gray dol; shale, blue-gray	
		440-450	10	Siltstone, pink, dolomitic	
		450-485	35	Siltstone, gray, very dolomitic	
		485-490	5	No sample	
	82	490-500	10	Dolomite, gray, buff, very sandy	
FRANCONIA		500-535	35	Sandstone, fine, gray, dolomitic, glauconitic	
		535-540	5	Sandstone, fine, white, dolomitic	
		540-560	20	Sandstone, fine, buff, dolomitic	
		560-565	5	Sandstone, fine, white, dolomitic	565 bit at side
		565-595	30	Sandstone, fine, buff, dolomitic	
		595-597	2	Sandstone, medium to fine, pink, dolomitic	600
		597-605	8	Dolomite, gray, sandy, glauconitic	
		605-615	10	Sandstone, fine, gray, dolomitic, glauconitic	
	125	615-625	10	Sandstone, coarse to fine, pink, dolomitic	
DESBHEAU		625-665	40	Sandstone, coarse to medium, light pink	12" hole
	80	665-705	40	Sandstone, fine to medium, very light pink	
		705-720	15	Sandstone, medium to fine, gray, dolomitic	
		720-740	20	Sandstone, fine to medium, pink, lt.gray	

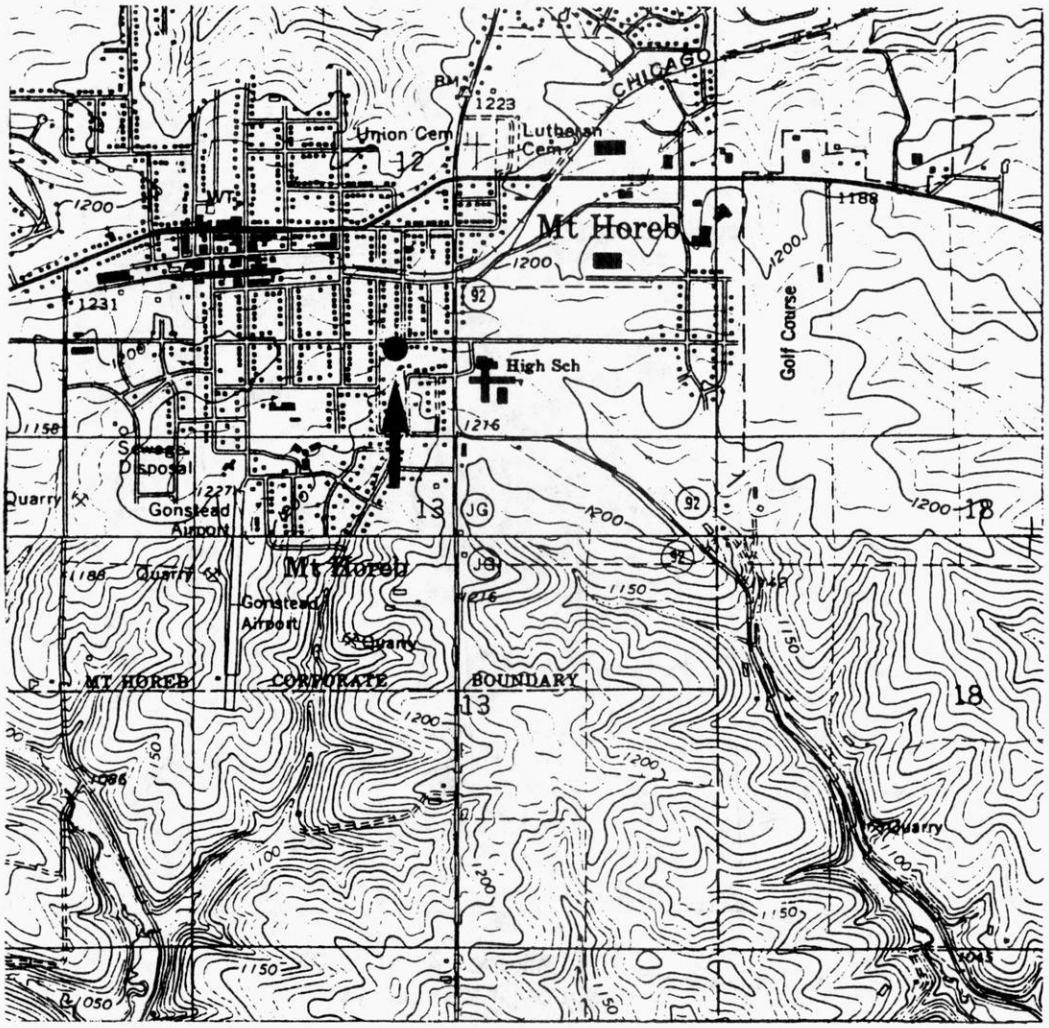
C L A					
	95	780-785	5		Sandstone, fine, light pink
		785-800	15		Shale, greenish-gray, dolomitic

Formations: Galena, Platteville, St. Peter, Lower Magnesian (Prairie du Chien), Trempealeau, Franconia, Dresbach, Eau Claire

Specific capicity 3.16 g.p.m. per foot of drawdown without shooting

Water level in Platteville and St. Peter= 85; in Jordan=213 to 185 (hole open)

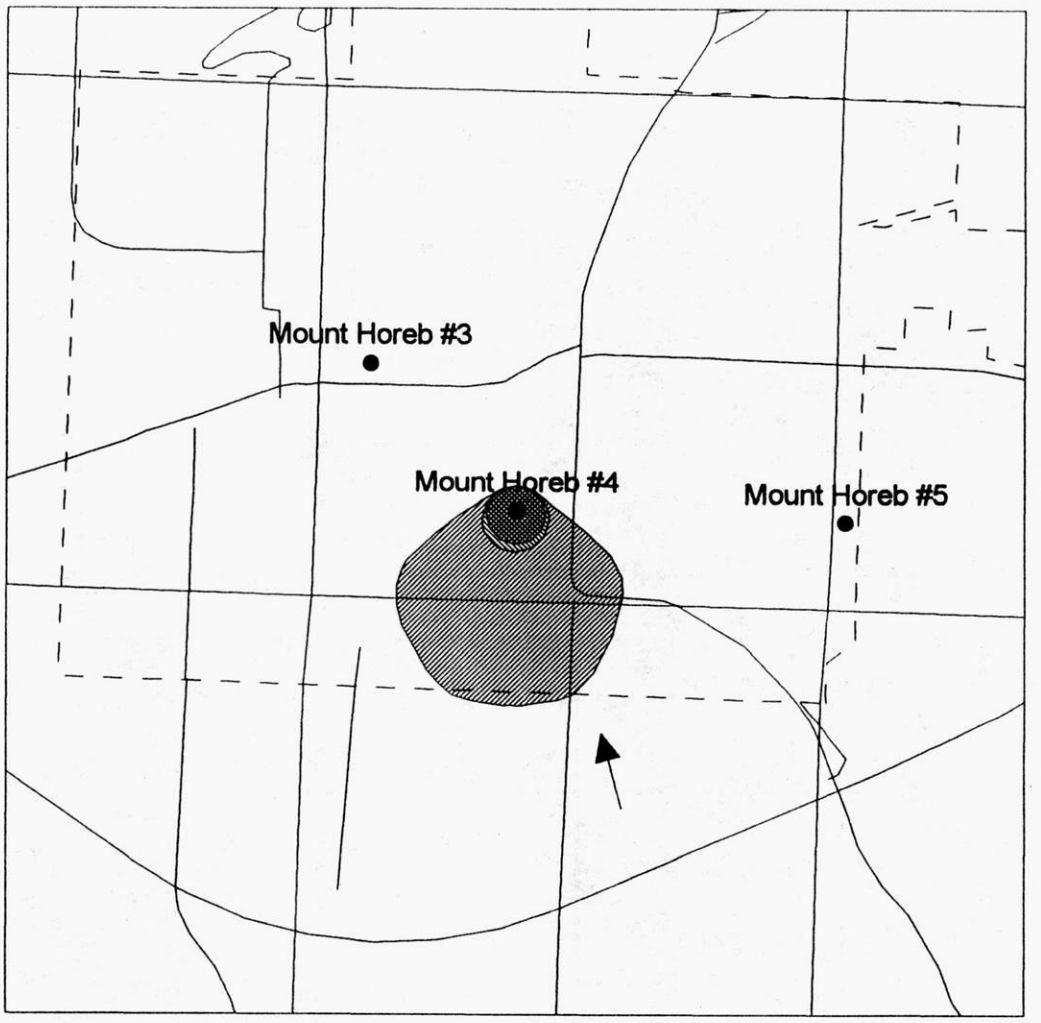
City of Mt. Horeb, Well Number 4



City of Mt. Horeb, Well Number 4 is located at 43° 0' 18.74" north latitude and 89° 43' 57.37" longitude. The well was installed in 1934 and has a pumping capacity of 500 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 159,667 gpd.

The well casing extends to a depth of 345 feet below ground surface, and the total depth of the well is 777 feet. Water is drawn from the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Mt. Horeb, Well Number 4



Well Location

Latitude: 43° 0' 18.74"
Longitude: 89° 43' 57.37"

0 500 1000
(meters)

N

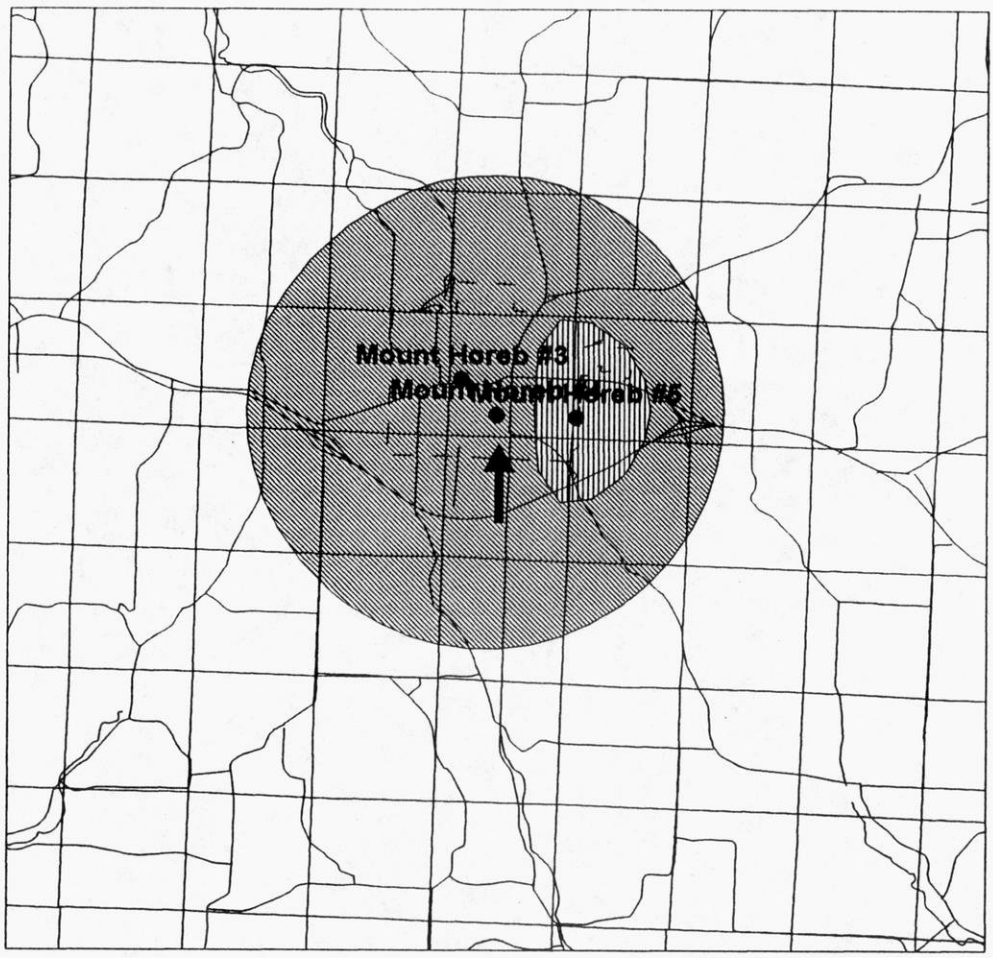
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Mt. Horeb, Well Number 4



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

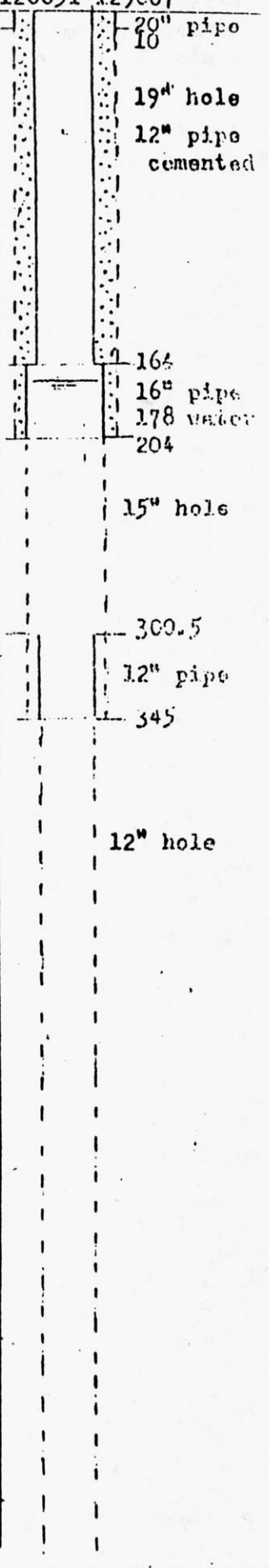
CITY WELL NO. 4, MOUNT HOREB, WIS.

NW¼, NW¼, SW¼, NE¼, SE¼SW¼ sec. 12, T. 6 N., R. 6 E. 2 blocks E., 4 blocks S, 34' lower than Well No. 3

Jos. Egerer, Contractor W. G. Kirchoffer, Engineer 1946

Elev. = 1228' ETM Samples examined by F. T. Thwaites, Nos. 128851-129007

ALENA-PLATTEV		0-50	50	Dolomite, yellow-gray, disintegrated
		50-75	25	Dolomite, yellow-gray
		75-80	5	Dolomite, gray, yellow-gray
		80-95	15	Dolomite, blue-gray, gray
		95-130	35	Dolomite, light gray
		130-140	10	Dolomite, blue-gray
		140-160	20	Dolomite, light gray
		160-170	10	Sandstone, coarse to fine, yellow-gray, dol.
	185	170-185	15	Sandstone, fine to medium, lt.gy, yel-gy, dol
ST PETER		185-210	25	Sandstone, fine to medium, light gray
		2 10-220	10	Sandstone, fine, gray
		220-245	25	Sandstone, medium to fine, light gray, pink-gray
		245-260	15	Sandstone, fine to medium, light gray
		260-270	10	Sandstone, medium to fine, light gray
		270-290	20	Sandstone, fine to medium, light gray
		290-305	15	Sandstone, fine, light gray
		305-310	5	Shale, red
		310-320	10	Sandstone, fine, pink
		320-385	65	Shale, red, some gray, green-gray
	205	385-390	5	Siltstone, pink
TREMP		390-415	25	Siltstone, pink, dolomitic
		415-460	45	Siltstone, light pink-gray, dolomitic
	80	460-470	10	Dolomite, gray, sandy
FRANCONIA		470-475	5	Sandstone, very fine, gn-gy, dol, glauconitic
		475-550	75	Siltstone, sandy, gray, dolomitic, glauconitic
		550-580	30	Sandstone, very fine, silty, gray, dolomitic, glauconitic
	130	580-600	20	Sandstone, very fine, silty, light gray
DRE		600-650	50	Sandstone, very fine to medium, much silt, light gray
	50			
UCLA		650-680	30	Siltstone, sandy, light gray, dolomitic
		680-690	10	Siltstone, sandy, light gray, slightly dol
		690-710	20	Sandstone, fine, silty, lt.gray, dolomitic
		710-740	30	Siltstone, sandy, light gray, dolomitic; no sample 725-730
		740-745	5	Sandstone, fine, silty, gray, dolomitic
		745-749	4	Siltstone, gray, dolomitic

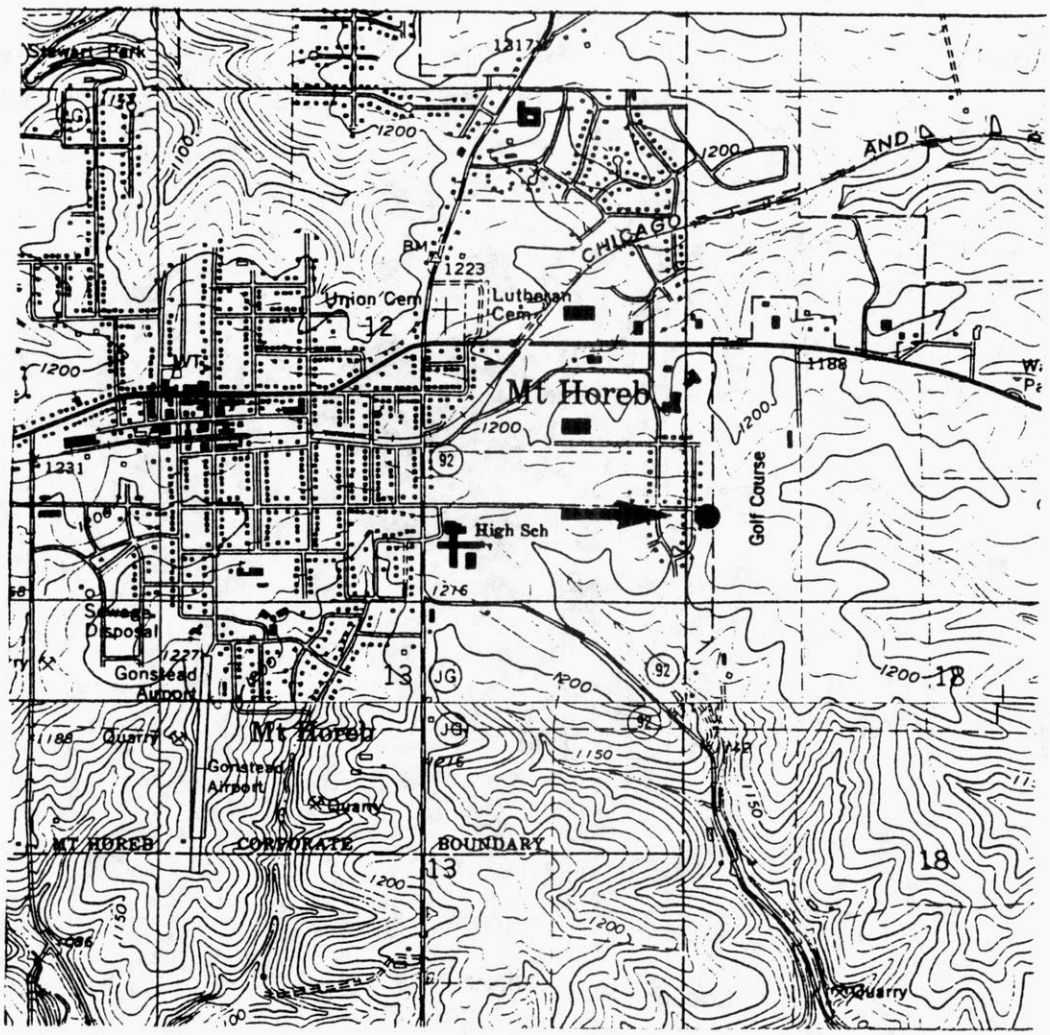


127	749-753	4		Sandstone, fine, light gray		
	753-777	24		Shale, gray, dolomitic		

Formations: Galena-Platteville; St. Peter; Trempealeau; Franconia; Dresbach (Galesville); Eau Claire

Tested 10 hours at 298 g.p.m. specific capacity = 5.53 g.p.m./ft.

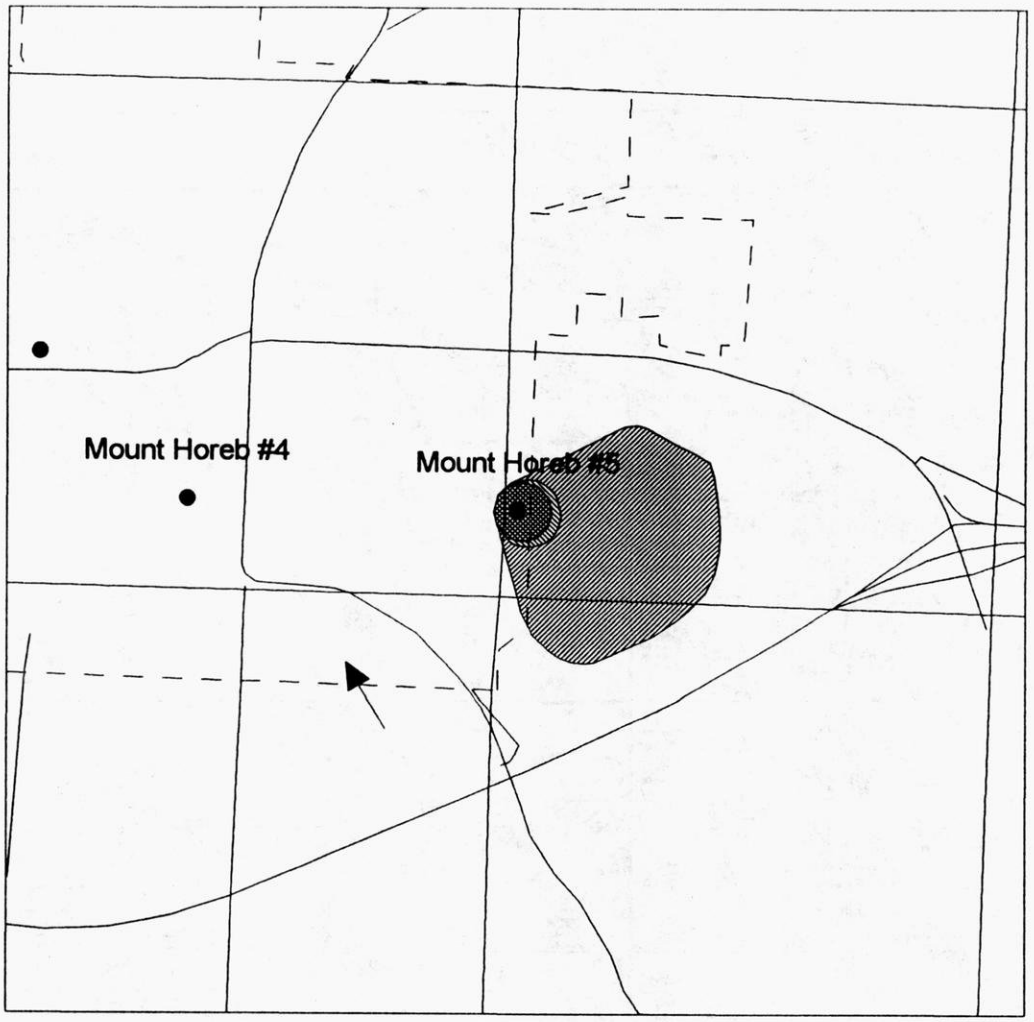
City of Mt. Horeb, Well Number 5



City of Mt. Horeb, Well Number 5 is located at 43° 0' 18.67" north latitude and 89° 43' 11.57" longitude. The well was installed in 1970 and has a pumping capacity of 750 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 156,666 gpd.

The well casing extends to a depth of 485 feet below ground surface, and the total depth of the well is 1395 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Mt. Horeb, Well Number 5



Well Location

Latitude: 43° 0' 18.67"
Longitude: 89° 43' 11.57"

0 500 1000
(meters)

N

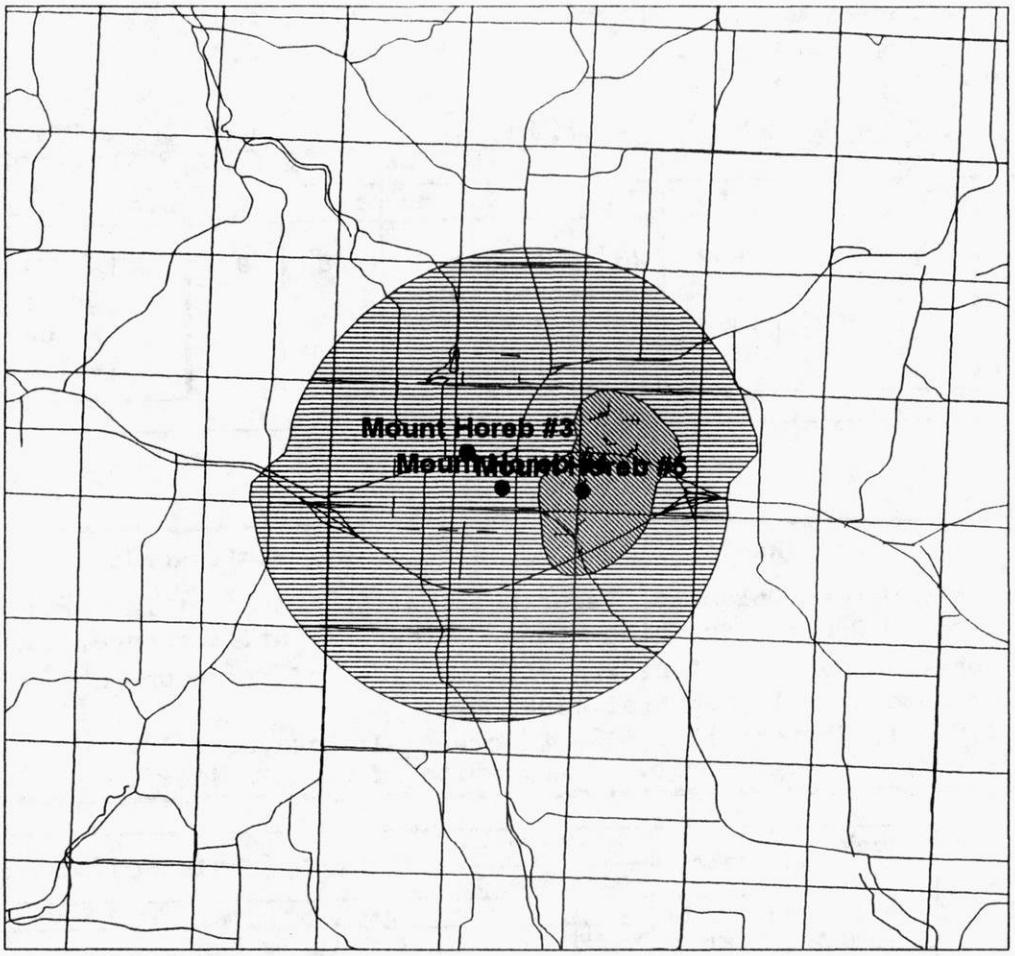
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Mt. Horeb, Well Number 5



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

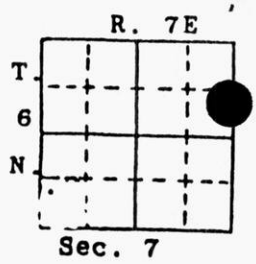
One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. A112-Dn-
Sample Nos. All Retained

Well name Mt. Horeb City Well #5
Springdale Township
Owner.... City of Mt. Horeb
Address.. 138 E. Main Street
Mt. Horeb, WI 53572
Driller.. Layne-Northwest Co.
Engineer. Lakeland Engineers, Inc.
Madison, Wisconsin

County: Dane
Completed... 7/70
Field check. RMP - WGS
Altitude.... 1230' ETM
Use..... Municipal
Static w.l.. 230'
Spec. cap... 5.8



Location: Just N of C, S½, NW¼, SW¼, SW¼, sec. 7, T. 6N., R. 7E. Quad. Cross Plains 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
26"	0'	9'	17¼"	215'	602'	26"	O.D. New steel welded 3/8 wall	+1'8"	9'	18"	ASTMA 53 Grade B welded 3/8 wall	+2'10"	215'
25"	9'	215'	15"	602'	1398'								

Grout: Kind	from	to
Neat	+1'8"	215'

Samples from 0' to 1395' Rec'd: 11/20/70 Studied by: M. Roshardt Issued: 5/71

Formations: Surface, Galena Dolomite, Decorah Formation, Platteville Formation, St. Peter Sandstone, Prairie du Chien Group, Jordan Ss, St. Lawrence, Tunnel City, Wonewoc, Eau Claire, Mt. Simon

Remarks: Well tested 8 hours at 1092 gpm with 187 feet of drawdown.
Driller reports well depth of 1398'.
W.G.S. Gamma, Resistivity, & Self Potential Logs, 8/5/70.
Driller reports "red shale, some granite" from 1393-1398'.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Sur.	0-5		Soil	Yellow bn.	--	--	Little dolomite gravel.
G	5-10		Dolomite	Yl tan	Fn &M	Fn/M	Much tan chert.
A	10-15		"	"	M	"	Trace tan chert.
L	15-20		"	"	"	"	--
E	20-25		"	"	"	"	Little drusy quartz.
N	25-30		"	"	"	"	Trace fossil fragments.
A	30-35		"	"	"	"	Same
	35-40		"	"	"	"	"
	40-45		"	"	"	"	--
	45-50		"	Pl yl bn	"	"	Little tan & white chert.
	50-55		"	"	"	"	Same
	55-60		"	"	"	"	--
	60-65		"	"	"	"	Little tan chert.
	65-70		"	"	"	"	--
	70-75		"	"	"	"	Little tan chert.
75'	75-80		"	"	"	"	Much tan chert.
	80-85		"	Gray	"	"	Slightly shaly. Few fossil fragments.
D	85-90		"	"	"	"	Same
E	90-95		Limestone	"	Fn	"	Slightly shaly. Many fossil fragments.
C.	95-100		"	Gry brown	Fn &M	"	Same plus trace calcite crystals.
25'	100-105		Dolomite	"	"	"	Very calcareous. Few foss frags. Tr pyr. Slightly shaly.
P	105-110		"	Brown	Fn	"	Trace pyrite.
L	110-115		"	"	"	"	Same
A	115-120		"	"	"	"	"
T	120-125		"	"	"	"	"
T	125-130		"	"	"	"	"
E	130-135		"	"	"	"	"
V	135-140		"	"	"	"	"
I	140-145		Limestone	Gry brown	"	"	Many fossil fragments. Trace pyrite.
L	145-150		"	"	"	"	Same
L	150-155		"	"	"	"	"
E	155-160		"	Brown	"	"	Few fossil fragments. Trace pyrite.

Well name: Mt. Horeb City Well #5

	Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
					Mode	Range	
Plat. 70'	160-165		Dolomite	Gry brown	Fn &M	Fn/M	Trace fossil fragments, pyrite.
	165-170		"	"	"	"	Few fossil fragments. Trace pyrite.
	170-175		"	"	"	"	Same
St. P. 25'	175-180	R	Sandstone	"	C	Fn/VC	Little pyrite cement, dolomite cement.
	180-185	P	"	Yl gray	M	Vfn/C	Little pyrite-dolomite cement.
	185-190	R	Shale	Yl gn gry	--	--	Pyritic. Trace pyrite, dolomite, sand.
	190-195	R	"	"	--	--	Pyritic. Little sand. Trace pyrite, dolomite.
	195-200		"	"	--	--	Same
PRAIRIE DU CHIEN GROUP	200-205		Dolomite	Light gry	Fn	Fn/M	Trace white chert, pyrite.
	205-210		"	"	"	"	Little floating quartz.
	210-215		"	"	"	"	Trace white chert, floating quartz, pyrite.
	215-220		"	Yl brown	"	"	Same
	220-225		"	Yl bn & gn	"	"	Little white oolitic chert, green shale. Tr floating qtz
	225-230		"	Brown & gn	"	"	Same
	230-235		"	"	"	"	Trace white oolitic chert, floating quartz, green shale.
	235-240		"	Lt brown	"	"	Same but little floating quartz.
	240-245		"	"	"	"	Same
	245-250		"	Orange bn	Fn &M	"	Trace white chert, floating quartz.
	250-255		"	"	"	"	Trace green shale, tan chert.
	255-260		"	"	"	"	--
	260-265		"	"	"	"	--
	265-270		"	"	M	"	--
	270-275		"	"	Fn &M	"	Trace white chert.
	275-280		"	"	"	"	--
	280-285	G	"	"	"	"	Little white chert. Trace glauconite.
	285-290	G	"	"	"	"	Same
	290-295	G	"	"	"	"	"
	295-300		"	Yellow bn	M	"	Little white chert.
	300-305		"	"	"	"	Trace white chert.
	305-310		"	"	"	"	Much white chert.
	310-315		"	"	Fn	"	Little white chert.
	315-320		"	"	"	"	Same
	320-325	G	"	"	"	"	Trace white chert, Vfn glauconite.
	325-330	G	"	Gry brown	"	"	Trace Vfn glauconite, floating quartz.
	330-335	G	"	Lt brown	Fn &M	"	Trace Vfn glauconite.
	335-340	G	"	"	"	"	Same
	340-345	G	"	"	"	"	Little white chert. Trace Vfn glauconite.
	345-350	G	"	"	"	"	Trace white chert, Vfn glauconite, drusy quartz.
	350-355		"	"	M	"	Trace white oolitic chert, drusy quartz.
	355-360		"	"	"	"	Trace white chert.
	360-365		"	"	"	"	Little white chert.
	365-370	G	"	"	"	"	Trace white chert, glauconite.
	370-375	G	"	"	"	"	Same
	375-380	G	"	"	"	"	Same plus trace floating quartz.
190'	380-385	G	"	"	Fn &M	"	Oolitic. Much oolic cht. Ltl floating qtz. Tr pyr, glau
	385-390	G	"	Gn or gry	Fn	"	Same plus little green shale.
Jor. 10'	390-395		Sandstone	Yl gray	M & C	Fn/C	Little silica-dolomite cement.
	395-400		"	"	"	"	Same
St. LAWRENCE	400-405		Dolomite	Orange bn	Fn	Fn/M	--
	405-410		"	"	"	"	--
	410-415		"	Yl brown	"	"	Much red mottling.
	415-420		"	"	"	"	Same
	420-425	G	"	"	"	"	Trace red mottling, Vfn glauconite.
	425-430		"	Gray	"	"	Same plus trace pyrite.
	430-435	G	"	"	"	"	Trace pyrite, Vfn glauconite, floating quartz.
	435-440	G	"	"	"	"	Little floating quartz. Trace pyrite, Vfn glauconite.
	440-445	G	"	"	"	"	Same
	445-450	G	"	"	"	"	Much floating quartz. Trace glauconite, pyrite.
	450-455	G	"	"	"	"	Same
	455-460	G	"	"	"	"	"
65'	460-465	G	"	"	"	"	"
	465-470	G G G	"	Green gry	"	"	Much fn/C glauconite. Little floating quartz. Tr pyrite.
	470-475	G G G	"	"	"	"	Same
City	475-480	G G G	"	"	"	"	Same plus little green shale.
	480-485	G G G	Sandstone	Lt green	M	Fn/C	Mostly glauc grains. Ltl gn sh. Tr dolomite cement.
	485-490	G G G	"	Green gray	"	"	Much dolomite cement, fn/C glauconite. Trace pyrite.

Well name: Mt. Horeb City Well #5

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
TUNNEL CITY	480-485		Sandstone	Green gray	M	Fn/C	Much dolomite cement, fn/C glauconite. Trace pyrite.
	485-500		"	"	Fn AM	"	Much fn/C glauconite. Little dolomite cement.
	500-505		"	Light gray	"	"	Same
	505-510		"	"	"	"	Same plus trace pyrite.
	510-515		"	"	"	"	Same but trace glauconite.
	515-520		"	"	"	"	Same but little glauconite.
	520-525		"	"	"	"	Same
	525-530		"	"	"	"	Same but trace glauconite.
	530-535		"	Green gry	"	"	Same
	535-540		"	Light gray	Fn	Fn/M	Same plus trace green shale.
	540-545		"	"	"	"	Same but little glauconite.
	545-550		"	"	"	"	Little glauconite, dolomite cement. Trace pyrite.
	550-555		"	"	"	"	Much fn/C glauconite, dolomite cem. Tr pyr, green shale.
	555-560		"	"	"	"	Same but little dolomite cement.
	560-565		"	"	"	"	Same but much dolomite cement.
	565-570		"	"	"	"	Same
115'	570-575		"	"	M	Fn/C	"
	575-580		"	"	"	"	"
WONEWOC SANDSTONE	580-585		"	"	Fn AC	Fn/VC	Little "caved?" Tunnel City. Trace sooty pyrite.
	585-590		"	"	C	"	Same
	590-595		"	"	C AVC	"	"
	595-600		"	Pink gray	C	"	--
	600-605		"	"	C AVC	"	--
	605-610		"	"	C	"	--
	610-615		"	"	M & C	Fn/C	--
	615-620		"	"	C	M/VC	--
	620-625		"	"	"	"	--
	625-630		"	"	"	Vfn/VC	--
	630-635		"	"	Fn AC	"	Trace dolomite cement.
	635-640		"	"	M & C	"	Same
	640-645		"	"	M	"	"
	645-650		"	"	"	Vfn/C	"
	650-655		"	"	"	"	"
	655-660		"	"	M & C	Fn/VC	"
	660-665		"	"	"	"	"
	665-670		"	Yl gray	"	Vfn/C	--
	670-675		"	"	"	"	--
	675-680		"	"	Fn	"	Trace dolomite cement.
	680-685		"	"	Fn AM	"	Same
	685-690		"	"	M	Fn/C	"
	690-695		"	"	"	"	"
	695-700		"	"	Fn	Vfn/M	--
	700-705		"	"	M	Vfn/C	Trace dolomite cement.
	705-710		"	"	"	"	Same
	710-715		"	"	Fn AM	"	Same plus trace glauconite.
	715-720		"	"	"	"	Same
150'	720-725		"	"	"	"	Trace dolomite cement.
	725-730		"	"	M	"	Trace dolomite cement, green shale, pyrite.
EAU CLAIRE	730-735		"	Tan gray	Fn	Vfn/fn	Much slightly dolomitic matrix. Trace pyrite.
	735-740		"	"	"	"	Same plus trace dolomite cement.
	740-745		"	"	"	"	Same
	745-750		"	"	"	Vfn/M	Same but no dolomite cement.
	750-755		"	"	"	"	Same plus trace sooty pyrite.
	755-760		"	"	"	"	Same plus little green shale.
	760-765		"	Green gray	"	"	Much dolomite cement. Little green shale. Trace pyrite.
	765-770		"	"	"	"	Same plus trace fossil fragments.
	770-775		"	"	"	"	Little dol cem. Tr gn sh, pyr, foss fragments, wh chert.
	775-780		Shale	"	--	--	Ltl dol-cemented glaucic ss, Tr pyr, foss fragments.
	780-785		"	"	--	--	Same
	785-790		"	"	--	--	Much glaucic fossiliferous dol. Ltl ss. Trace pyrite.
	790-795		NO SAMPLE. Driller reports sandstone.				
	795-800		Shale	Green gray	--	--	Same as 785-790.
80'	800-805		Dolomite	"	M	Fn/M	Very sandy. Mah fn/C glauc. Tr pyr, gn sh, foss fragments.
	805-810		"	"	"	"	Same
Mt. S.	810-815		Sandstone	"	M	Fn/VC	Much "caved"? Eau Claire.
	815-820		"	Light gray	"	Fn/C	Same

Well name: Mt. Horeb City Well #5

MT SIMON

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
820-825		Sandstone	Light gray	M	Fn/C	Little "caved"? Eau Claire.
825-830		"	"	"	"	Trace green shale.
830-835		"	"	"	Vfn/C	Trace green shale, dolomite cement.
835-840		"	"	"	"	Little green shale. Trace dolomite cement, pyrite.
840-845		"	"	"	"	Same
845-850		"	"	"	"	"
850-855	G	"	"	Fn	Vfn/fn	Trace green shale, sooty pyrite, glauconite.
855-860	G	"	"	"	Vfn/M	Same plus trace dolomite cement.
860-865		"	"	"	"	Same
865-870	G	"	"	M	Vfn/C	"
870-875	G	"	"	"	"	Same but little dolomite cement.
875-880		"	"	"	"	Same
880-885	G	"	"	"	"	Much dol cem. Tr gn sh, pyr, wh cht, glauconite.
885-890	G	"	"	"	"	Same but no chert.
890-895	G	"	"	"	"	Same plus trace white chert.
895-900	G	"	Pink gray	Fn &M	"	Trace white cht, gn sh, pyr, dolomite cement, glauconite.
900-905	G	"	"	M	"	Same
905-910	G	"	"	Fn	Vfn/M	Trace limonite, pyrite, green shale, glauconite.
910-915		"	"	"	"	Same
915-920		"	"	M	Vfn/C	Little dolomite cement. Trace green shale.
920-925	G	"	"	"	"	Trace dolomite cement, green shale, glauconite.
925-930	G	"	"	C	Vfn/VC	Same
930-935	G	"	"	M	"	Same plus trace pyrite.
935-940	G	"	"	M & C	"	Trace green shale, glauconite.
940-945	G	"	"	M	Vfn/C	Same
945-950	G	"	"	Fn	"	Trace pyrite, glauconite.
950-955	G	"	"	M	Vfn/VC	Trace green shale, pyrite, glauconite.
955-960		"	"	"	"	Same plus trace dolomite cement.
960-965	G	"	"	"	Vfn/C	Same
965-970		"	"	M & C	Vfn/VC	Trace green shale.
970-975		"	"	M	Vfn/C	Trace green shale, dolomite cement.
975-980	G	"	"	M & C	Vfn/VC	Little dolomite cement. Trace pyrite, green sh, glauc.
980-985	G	"	"	"	"	Same but trace dolomite cement.
985-990	G	"	"	Fn &C	"	Same
990-995		"	"	"	"	"
995-1000	G	"	"	C	"	"
1000-1005	G	"	"	Fn &C	"	"
1005-1010	G	"	"	M & C	Vfn/C	"
1010-1015		"	"	C	Vfn/VC	Trace green shale, pyrite.
1015-1020	G	"	"	M	Vfn/C	Same plus trace glauconite.
1020-1025		"	"	"	"	Same
1025-1030		"	"	M & C	"	Trace green shale, pyrite.
1030-1035		"	"	Fn &C	Vfn/VC	Same
1035-1040		"	"	Fn	Vfn/C	"
1040-1045		"	"	"	"	"
1045-1050	P	Shale	Green gray	--	--	Little pyrite, sand, dolomite-cemented sandstone.
1050-1055		Sandstone	Light gray	C	Vfn/VC	Trace green shale, pyrite, dolomite-pyr cem, sooty pyrite
1055-1060		"	"	"	"	Same
1060-1065	P	Shale	Green gray	--	--	Same as 1045-1050.
1065-1070	P	"	"	--	--	Same
1070-1075	P	"	"	--	--	"
1075-1080	P	Sandstone	Gray tan	M	Vfn/C	Much green & green-gry shale, silica cement, Ltl pyrite.
1080-1085		"	"	"	"	Little shale, silica cement. Tr pyrite, white chert.
1085-1090		"	Tan	C	Vfn/VC	Trace silica-dolomite cement, green shale, pyrite.
1090-1095		"	"	"	"	Same
1095-1100		"	"	M &VC	"	"
1100-1105		"	"	"	"	Trace green & brown shales, silica cement, pyrite.
1105-1110		"	"	"	"	Trace brown shale.
1110-1115		"	"	VC	Fn/VC	Trace green shale.
1115-1120		"	"	C	"	--
1120-1125		"	"	M	Vfn/VC	--
1125-1130		"	Orange tan	VC	"	Little shaly matrix.
1130-1135		"	"	C &VC	"	Same
1135-1140		"	"	"	"	"
1140-1145		"	"	C	"	Same plus trace green micaceous shale.
1145-1150		"	Tan	C &VC	"	Trace shaly matrix.

Well name: Mt. Horeb City Well #5

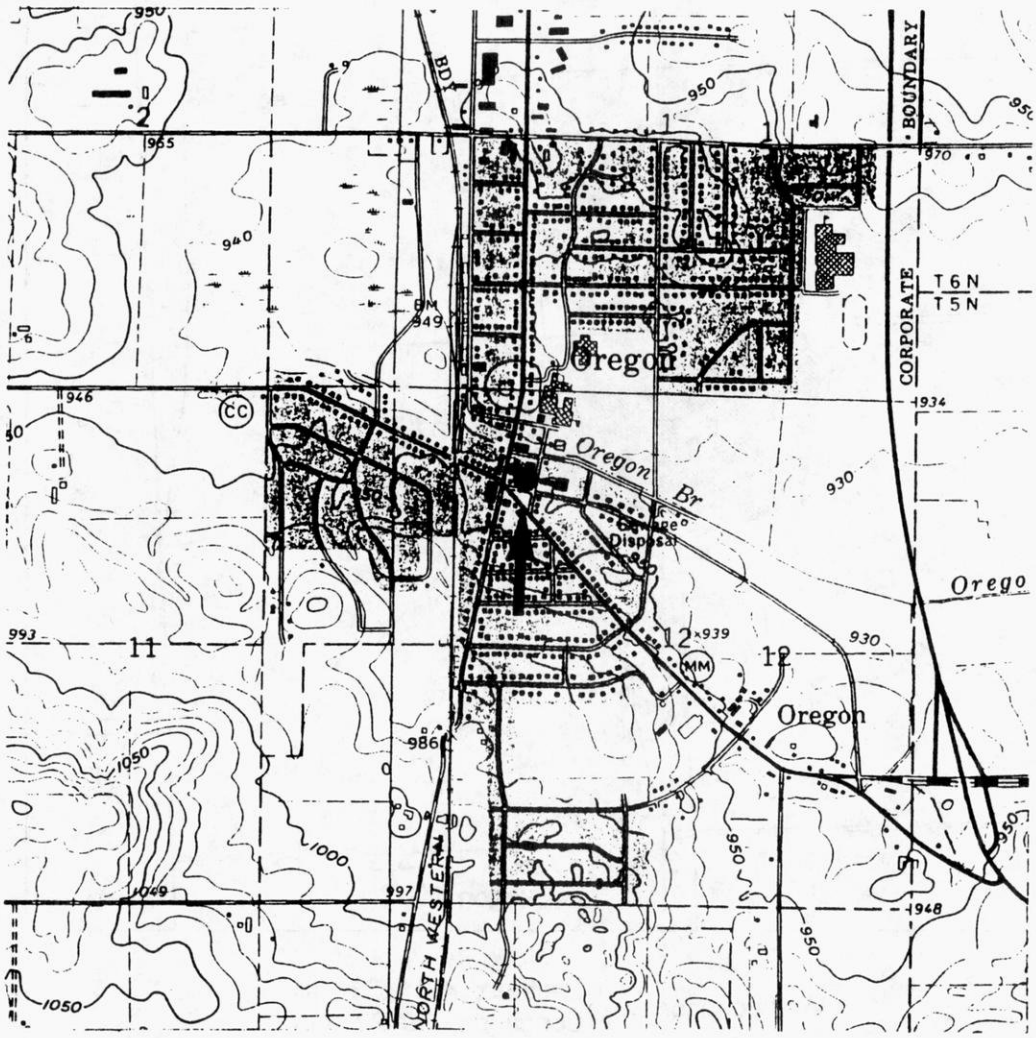
Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
1150-1155		Sandstone	Tan	C &VC	Vfn/VC	Trace shaly matrix, trace green shale.
1155-1160		"	"	VC	"	Same
1160-1165		"	"	"	Fn/VC	Same plus trace granules.
1165-1170		"	"	C &VC	"	Trace shaly matrix.
1170-1175		"	Yl gray	C	"	--
1175-1180		"	"	"	"	--
1180-1185		"	"	"	"	Trace shaly matrix, green shale.
1185-1190		"	Pnk or gry	"	"	Same plus trace red shale.
1190-1195		"	"	M	Vfn/C	Trace shaly matrix, white chert.
1195-1200		"	Yl pnk gry	C &VC	Vfn/VC	Same
1200-1205		"	"	"	Fn/VC	Trace shaly matrix.
1205-1210		"	"	"	"	Same
1210-1215		"	Pink gray	C	Vfn/VC	Little shaly matrix. Trace green shale.
1215-1220		"	"	"	"	Little shaly matrix.
1220-1225		"	"	"	"	Same
1225-1230		"	"	C &VC	Fn/VC	Same plus trace green shale.
1230-1235		"	Orange tan	C	"	Same
1235-1240		"	"	C &VC	"	Trace shaly matrix.
1240-1245		"	"	C	"	Same
1245-1250		"	Yl tan gry	C &VC	"	Little shaly matrix. Trace green shale.
1250-1255		"	"	"	Vfn/VC	Trace shaly matrix, green shale.
1255-1260		"	"	"	"	Trace shaly matrix.
1260-1265		"	"	"	"	Same
1265-1270		"	"	"	"	--
1270-1275		"	"	"	"	Trace shaly matrix.
1275-1280		"	"	C	"	Same
1280-1285		"	"	C &VC	"	Same plus trace green shale, white chert.
1285-1290		"	Yellow gry	C	"	Trace shaly matrix, green shale.
1290-1295		"	"	M	Vfn/C	Same
1295-1300		"	"	M & C	Vfn/VC	"
1300-1305		"	"	"	"	"
1305-1310		"	"	"	"	Trace shaly matrix.
1310-1315		"	Yl pnk gry	"	"	Same
1315-1320		"	Tan	"	"	Much shaly matrix. Trace white chert.
1320-1325		"	"	"	"	Much shaly matrix.
1325-1330		"	Yl pnk gry	M &VC	Fn/VC	--
1330-1335		"	"	C	"	--
1335-1340		"	"	C &VC	"	--
1340-1345		"	Orange tan	M	Vfn/C	--
1345-1350		"	"	"	"	Trace green & red shales, shaly matrix.
1350-1355		"	Tan	M & C	"	Trace shaly matrix.
1355-1360		"	Orange tan	C	Vfn/VC	Little shaly matrix.
1360-1365		"	Yl gray	"	"	Trace shaly matrix.
1365-1370		"	"	M & C	Fn/VC	Same
1370-1375		"	"	M	Vfn/C	Trace shaly matrix, green shale.
1375-1380		"	"	M & C	Vfn/VC	Trace shaly matrix, quartzite granules.
1380-1385		"	"	C	"	Same plus trace green shale.
1385-1390		"	"	"	"	Same
1390-1395		"	Red brown	C &VC	Fn/VC	Little red shaly mat. Tr gn shale, quartzite rock frags.

MT SIMON

585

END OF LOG

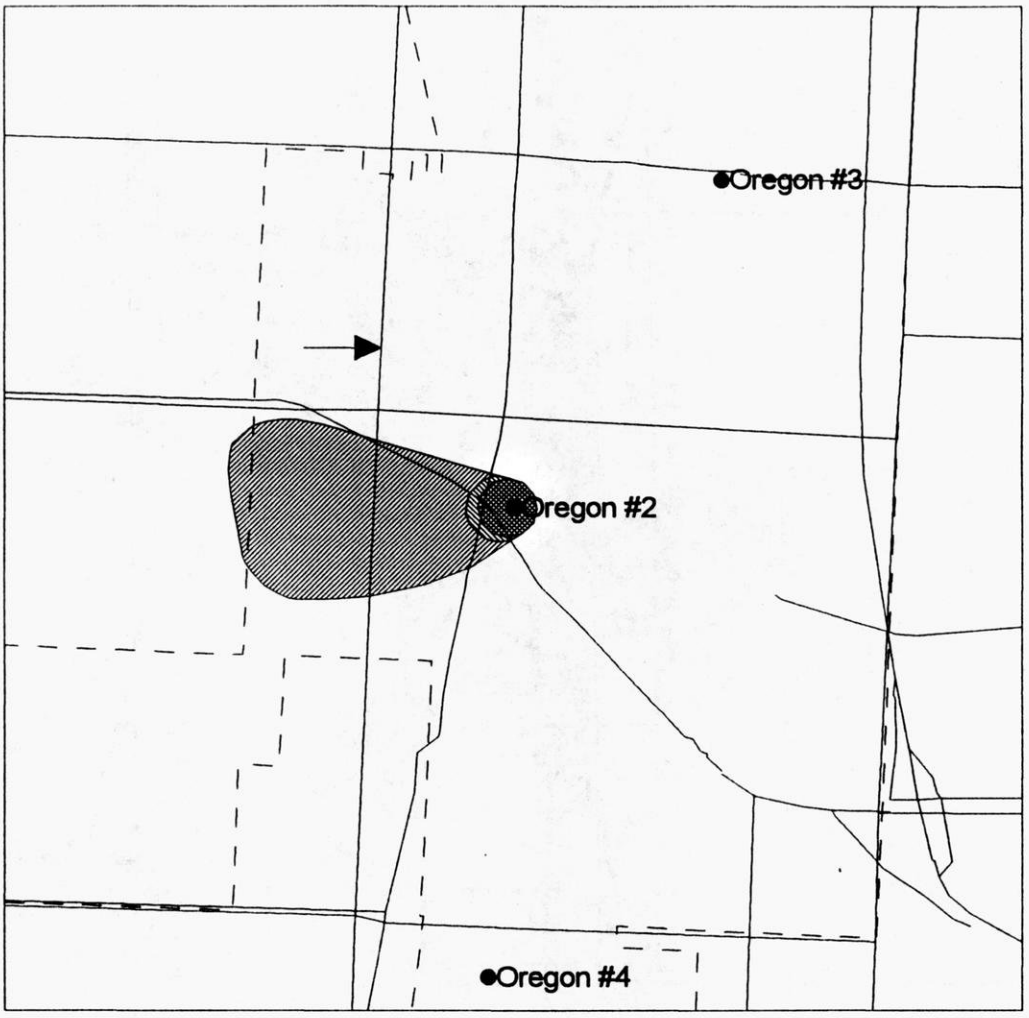
Village of Oregon, Well Number 2



Village of Oregon, Well Number 2 is located at 42° 55' 34.18" north latitude and 89° 22' 59.76" longitude. The well was installed in 1940 and has a pumping capacity of 350 gpm. The average daily use of the well between October 1994 and September 1995 was 14,950 gpd.

The well casing extends to a depth of 126 feet below ground surface, and the total depth of the well is 400 feet. Water is drawn from a combination of the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Oregon, Well Number 2



Well Location

Latitude: 42° 55' 34.18"
Longitude: 89° 22' 59.76"

0 500 1000
(meters)

N

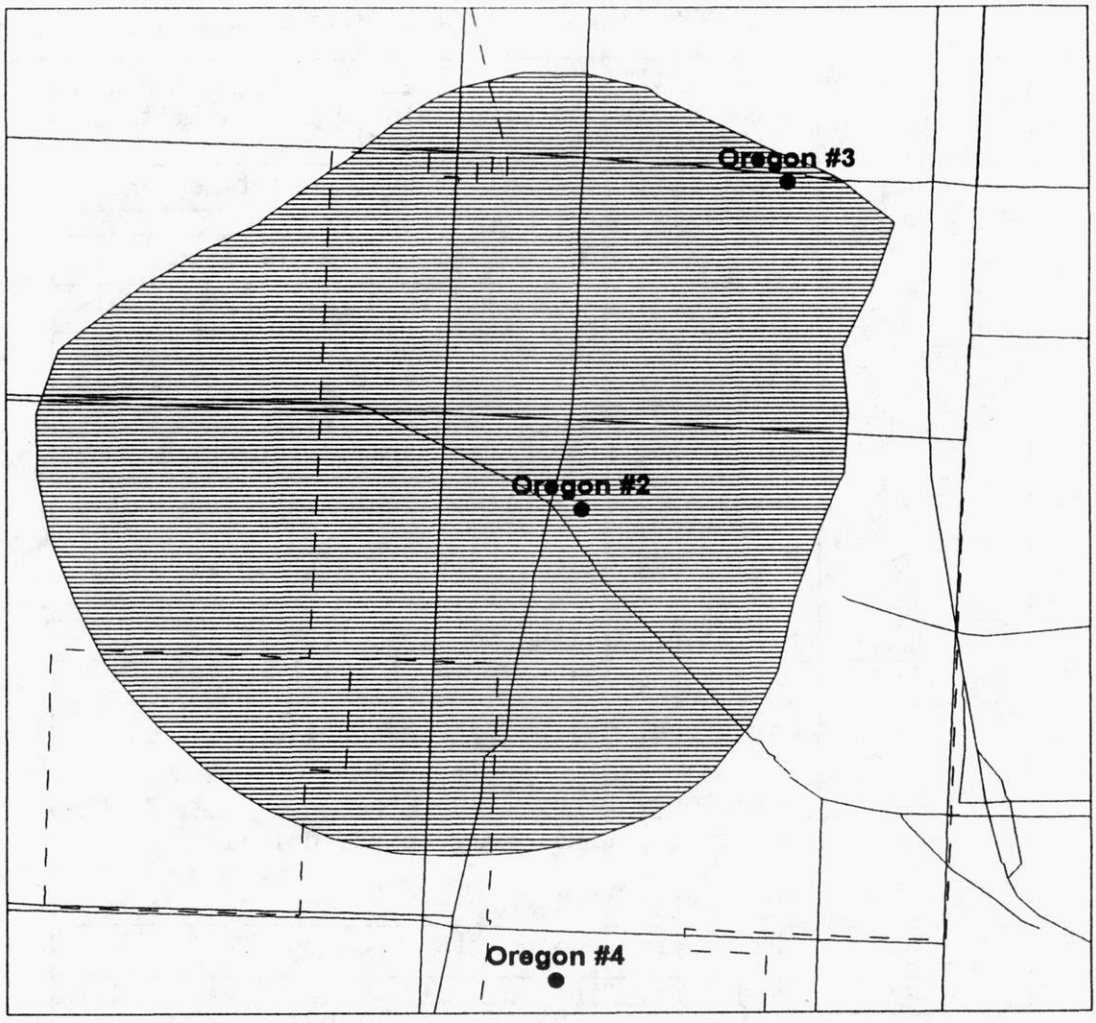
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Oregon, Well Number 2



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

DN-73

#2

VILLAGE WELL ~~NO. 3,~~ OREGON, WIS.
Mead, Ward and Hunt, Engineers, 1940
Ray Feuerborn, Contractor, 1940
Samples examined by F. T. Thwaites, Nos. 108849-108928
NE¼, SE¼, NE¼, SE¼, NW¼, NW¼, sec. 12, T.5N., R.9E.

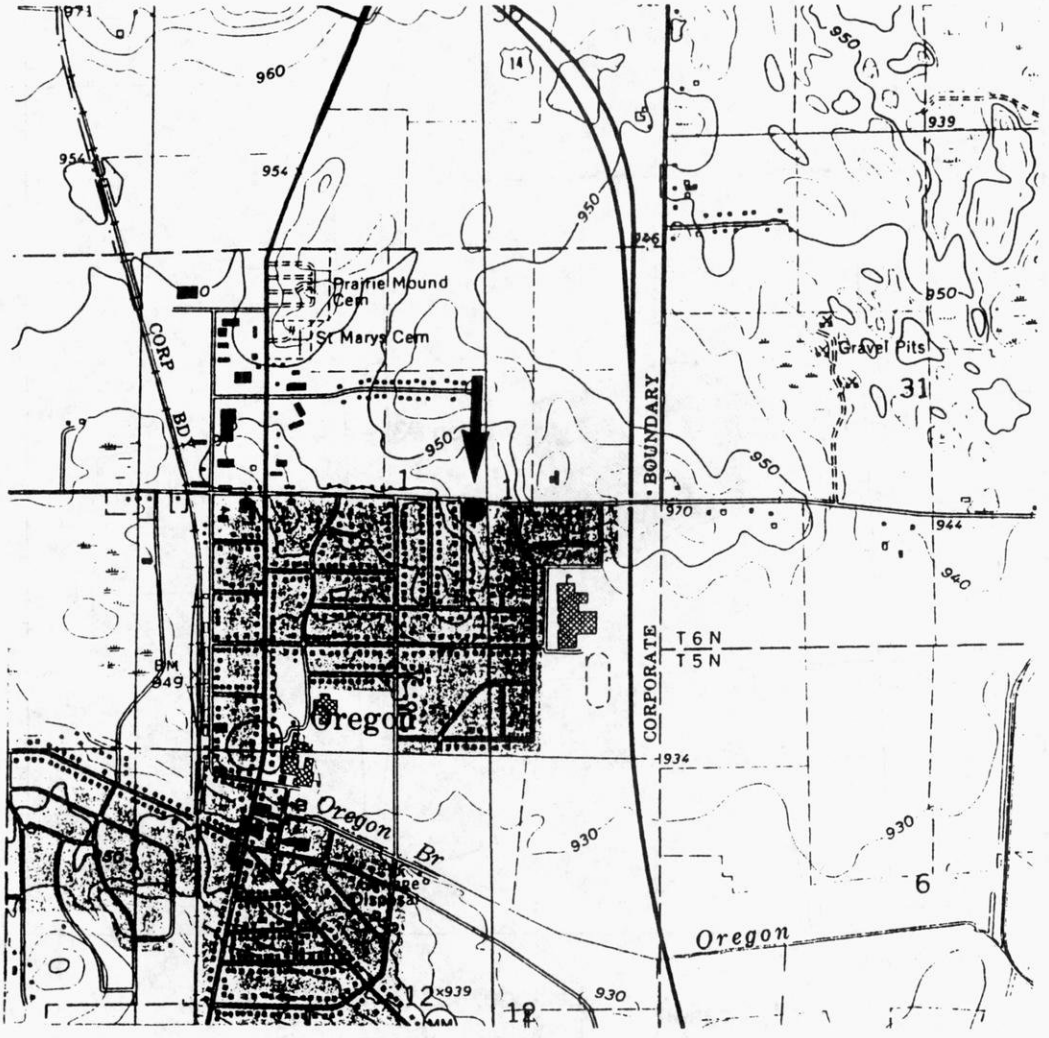
Alt.=941'ETM

SURF		0-15	15		Glacial till, gray
		15-45	30		Sand, medium to fine, pink-brown, dolmitic (disintegrated St. Peter)
	65	45-65	20		Gravel, few glacial stones, sandstone, chert
SP		65-75	10		Sandstone, medium to fine, lt.gy; chert, wh.
	30	75-95	20		Sandstone, fine to medium, yellow-gray
TRE		95-105	10		Sandstone, fine to medium, yellow-gray, dol.
		105-110	5		Siltstone, yellow-gray, very dolomitic
		110-120	10		Sandstone, medium to fine, yellow-gray, dol.
	50	120-145	25		Siltstone, gray, red, yellow, very dolomitic
FRANCO		145-155	10		Sandstone, fine to medium, yelgy, very dol., g.
		155-175	20		Sandstone, fine, light gray, glauconitic, dol
		175-200	25		Sandstone, very fine, light gray, very dol., glauconitic
	90	200-235	35		Sandstone, coarse to fine, light gray, dol.
DRESB		235-250	15		Sandstone, medium to fine, light gray
		250-270	20		Sandstone, medium to fine, light gray, dol.
		270-300	30		Sandstone, medium to fine, white
	80	300-315	15		Sandstone, fine, light gray
EAU CL		315-360	45		Sandstone, fine, gray, pink, dolomitic
		360-385	25		Shale, gray, dolomitic
		385-395	10		Sandstone, fine to medium, light gray, dol.
	85	395-400	5		Siltstone, light gray, very dolomitic



Well filled back to 394 after testing.
Formations: Surface, mainly disintegrated sandstone; St. Peter; Trempealeau; Franconia (formerl Mazomanie); Dresbach (Galesville); Eau Claire
Well tested at 349 to 747 g.p.m. specific capacity at highest rate about 10.8 g.p.m.

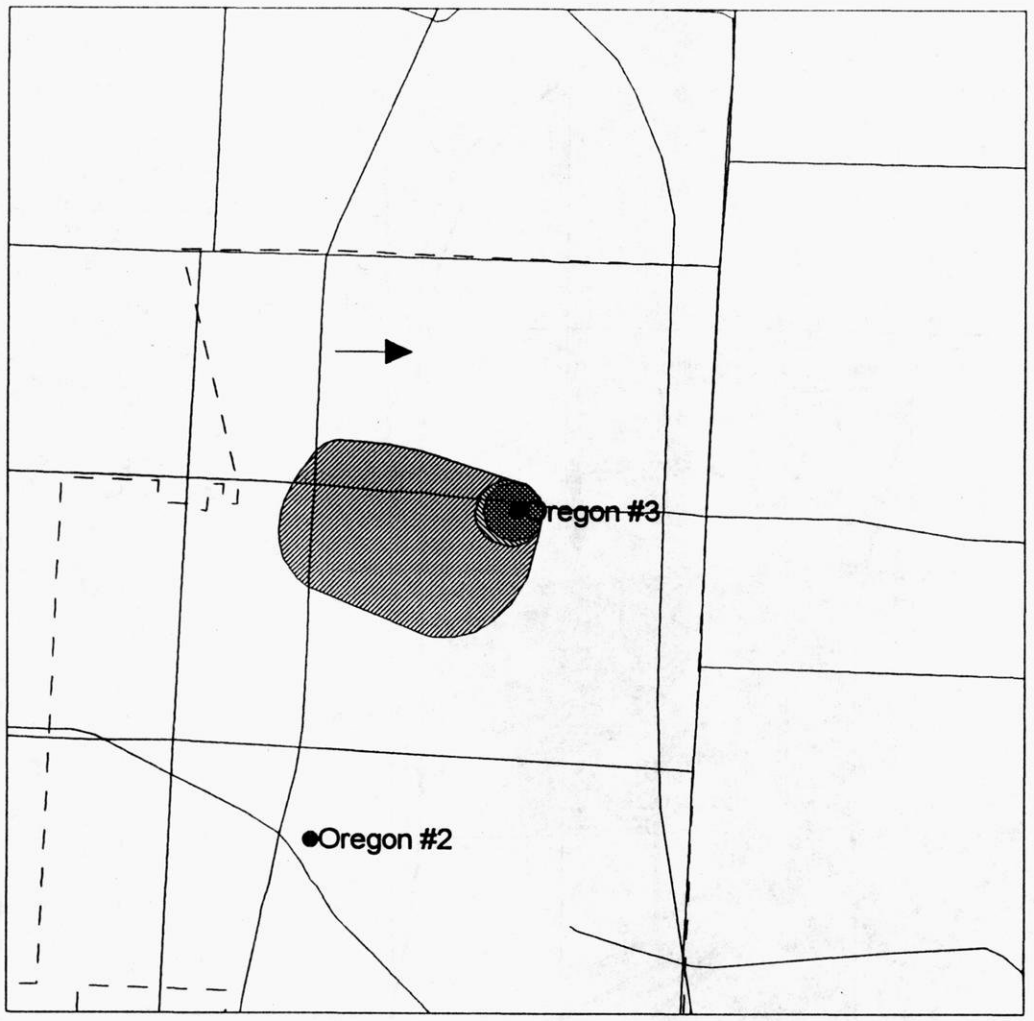
Village of Oregon, Well Number 3



Village of Oregon, Well Number 3 is located at 42° 56' 8.49" north latitude and 89° 22' 32.35" longitude. The well was installed in 1966 and has a pumping capacity of 900 gpm. The average daily use of the well between October 1994 and September 1995 was 6,000 gpd.

The well casing extends to a depth of 181 feet below ground surface, and the total depth of the well is 1030 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Oregon, Well Number 3



Well Location

Latitude: 42° 56' 8.49"
Longitude: 89° 22' 32.35"

0 500 1000
(meters)

N

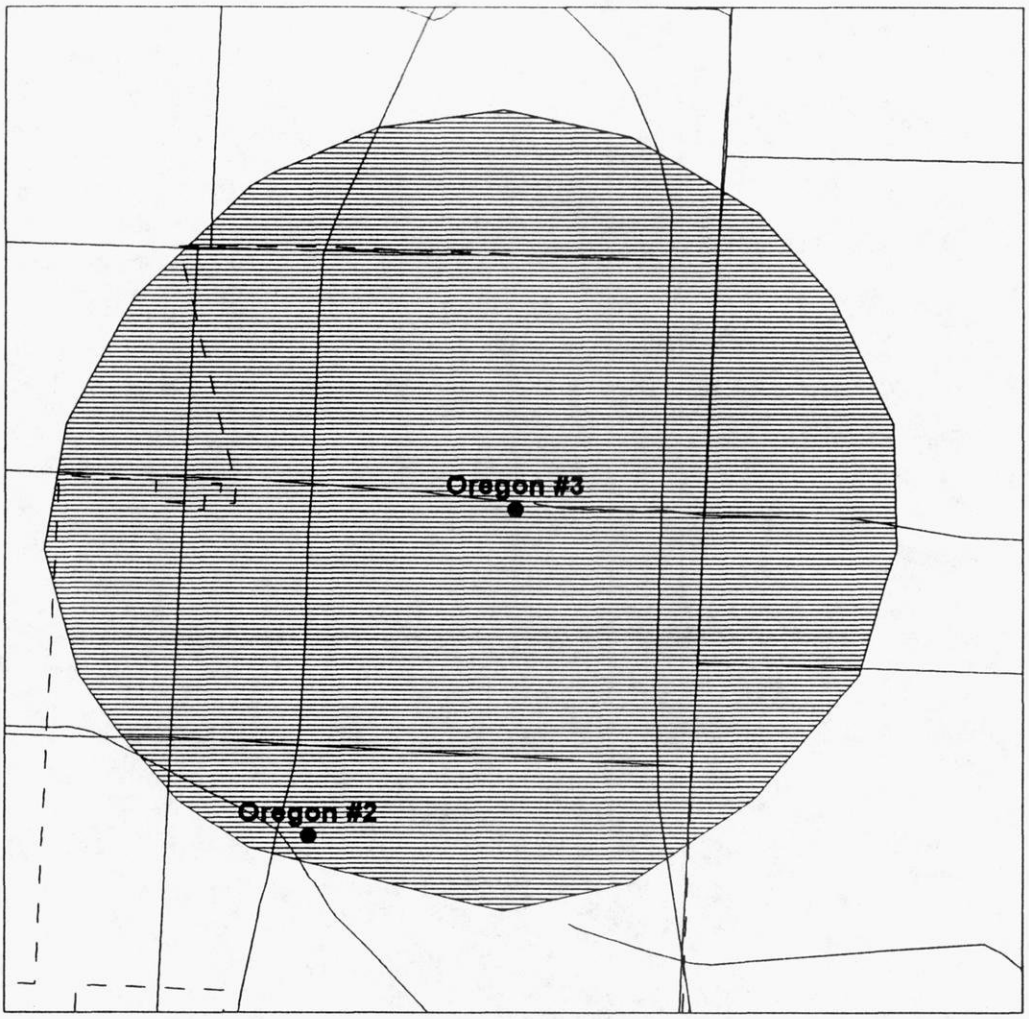
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Oregon, Well Number 3



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-934
Sample Nos. 261813-261844; 268369-268527

County: Dane

Well name Village of Oregon, Wisconsin, *Well No. 3
Owner.... Village of Oregon, Wis.
Address.. c/o Clerk, Village Hall, Oregon, Wisconsin
Driller.. Miller Well & Pump Co.
Engineer. Mead & Hunt, Inc., Madison, Wisconsin

Completed... 5/17/66
Field check.
Altitude.... 938'ETM
Use..... Municipal
Static w. l. -- 24
Spec. cap... -- 12.1

R. 9E
T. 5 N.
Sec. 1

Location: NW¼, NW¼, NW¼, NE¼, NW¼, SE¼, sec. 1, T.5N., R.9E. Quad. Oregon 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt. & Kind	from	to	Dia.	Wgt. & Kind	from	to
24"	0	40'6"	12"	382'	953'	24"	3/8" blk, steel astm A 53	+2'	40'6"	16"	3/8" blk. steel astm A 53	+6'	181'6"
23"	40'6"	181'6"											
15"	181'6"	382'											

Grout: Kind	from	to
Neat portland cement	+2'	40'6"

Samples from 0 to 953' Date received: 2/21/66 Issued: 12/68
Examined by: J. M. Warren Date: 1/31/67

Formations: Drift, St. Peter, Trempealeau, Tunnel City, Wonewoc, Eau Claire Mt. Simon

Remarks: Well tested for 61 hours at rates from 200 gpm to 1500 gpm with 124 feet of drawdown when pumping 1495 gpm. *Location: S.E. corner of Netherwood & Hillcrest Drive

LOG OF WELL:

DRIFT	35	0-5	5	St, dk&lt bn, P srtg; mch cl, ltl fn/VC snd
		5-10	5	St, dk&lt bn, P srtg; mch cl, ltl fn cht gvl
		10-15	5	Snd, lt or bn, M, Srnd, P srtg, mch C&fn, tr VC&Vfn; tr st&cl
		15-20	5	Snd, lt bn, M, Srnd, P srtg, mch C&fn, tr VC&Vfn; mch fn gvl, ltl st&cl
		20-25	5	St, lt bn, P srtg, mch cl, ltl Vfn/VC snd&fn cht gvl
		25-35	10	St, lt bn, P srtg, mch cl&Vfn/VC snd, ltl fn cht gvl
ST. P.	35	35-45	10	Ss, gry or, fn, Srnd, P srtg, mch M&C, ltl Vfn, tr VC, wea; ltl st&cl, tr fn gvl
		45-55	10	Ss, gry or, fn, Srnd, P srtg, mch M&C, ltl Vfn, wea; ltl st&cl, tr grans
		55-60	5	Ss, gry or, fn, Srnd, P srtg, mch M, ltl Vfn, tr C, wea; tr st&cl
		60-70	10	Ss, gry or, fn, Srnd, P srtg, mch M&Vfn, tr C, wea; ltl st&cl
TREMP	50	70-75	5	Ss, dk yl or, fn, Srnd, P srtg, ltl P Vsft dol-cem, mch M&Vfn, tr C; ltl st&cl
		75-90	15	Ss, pl yl or, fn, Srnd, P srtg, ltl P Vsft dol-cem, mch M&Vfn; tr C; mch ltl cl
		90-110	20	Ss, pl yl or, fn, Srnd, P srtg, ltl P Vsft dol-cem, mch M&Vfn, tr C; ltl st&cl, tr glauc
		110-115	5	Ss, pl rd bn, fn, Srnd, P srtg, ltl P Vsft dol-cem, mch M&Vfn, tr C; mch s
		115-120	5	Ss, pl rd bn, fn, Srnd, P srtg, ltl P Vsft dol-cem, mch M&Vfn, tr C; mch st, tr glauc, mch cl, tr gn sh
TUNNEL CITY		120-130	10	Ss, pl rd bn, fn&Vfn, Sang, F srtg, ltl P Vsft dol-cem, mch M, tr C; ltl st&cl, tr glauc
		130-160	30	Ss, lt yl bn, fn&Vfn, Sang, F srtg, ltl P Vsft dol-cem, tr M; ltl st&cl,
		160-165	5	Ss, dk yl or, fn, ang, F srtg, ltl P Vsft dol-cem, mch Vfn, tr glauc, ltl M, tr C; ltl st, tr fn grnd glauc
		165-180	15	Ss, gry or, fn, ang, F srtg, ltl P Vsft dol-cem, mch Vfn, tr M; ltl st, tr fn&M grnd glauc
		180-185	5	Ss, pl bn yl, fn, ltl P Vsft dol-cem, mch Vfn, ltl M; ltl st, ltl lt ol
		185-190	5	Ss, pl bn yl, fn, ang, F srtg, ltl P Vsft dol-cem, mch Vfn, tr gry mont

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-934

Well name Village of Oregon, Wisconsin, Well No. 3
Sample Nos. 261813 to 261844;
268369 to 268527

	190-195	5		Ss,pl bn yl,fn,ltl P Vsft dol-cem,mch Vfn&M;ltl C,tr VC;ltl st
80	195-200	5		Ss,pl bn yl,fn,ang,ltl P Vsft dol-cem,mch Vfn&M,ltl C,tr VC;ltl st
	200-205	5		Ss,V pl yl or,M,rnd,P srtg,tr P dol-cem,mch fn&C,ltl Vfn,tr VC;tr st&glauc
W	205-215	10		Ss,pl yl gry,M,rnd,P srtg,mch fn&C,tr Vfn&VC;tr st&Vpl gn sndy sh
O	215-220	5		Ss,pl yl gry,M,rnd,P srtg,mch fn&C,ltl VC,tr Vfn;tr st&Vpl gn sndy
25	220-225	5		Ss,Vpl or,M,rnd,P srtg,mch fn&C,ltl VC,tr Vfn;tr st&grans sh
N	225-230	5		Ss,gry or,M,rnd,P srtg,tr P dol-&lim-cem,mch C,ltl VC&fn,tr Vfn;tr
	230-235	5		Ss,gry or,M,rnd,P srtg,tr P dol-cem,mch fn,ltl C&Vfn;mch st,tr gn
E	235-240	5		Ss,gry or,M,ltl P dol-cem,tr lim-cem,mch fn,ltl C&Vfn,tr VC;ltl st
	240-245	5		NO SAMPLE tr gn sh
W	245-255	10		Ss,gry or,M,rnd,P srtg,ltl P dol-cem,tr lim-cem,mch fn & C,ltl Vfn tr VC;ltl st,mch fn&C,ltl Vfn,tr VC
O	255-265	10		Ss,Vpl yl or,C,rnd,F srtg,tr P dol-cem,mch M,tr VC&fn&Vfn;tr st
C	265-270	5		Ss,gry or,C,rnd,F srtg,tr P dol-cem,mch M,ltl fn,tr VC&Vfn;tr st
	270-285	15		Ss,yl or,M,rnd,P srtg,ltl P Vsft dol-cem,mch C&fn,tr Vfn;ltl st
	285-295	10		Ss,yl or,M&fn,rnd,P srtg,tr P sft dol-cem,ltl C,tr VC&Vfn;tr st
	295-300	5		Ss,gry or,fn,Srnd,F srtg,ltl P sft dol-cem,mch Vfn,tr M&C;ltl st
80	300-305	5		Ss,gry or,M&fn,Srnd,P srtg,ltl P sft dol-cem,ltl C&Vfn;mch st
E	305-310	5		Ss,yl or pnk,fn,Srnd,P srtg,ltl P sft dol-cem,mch Vfn&M;mch st
	310-315	5		Ss,pl yl or,fn,Srnd,P srtg,ltl P sft dol-cem,mch Vfn,ltl M,tr C&VC
A	315-320	5		Ss,gry or,fn,Srnd,P srtg,ltl P sft dol-cem,mch Vfn,ltl M,tr ltl st
	320-330	10		Ss,V pl yl or,fn,Srnd,P srtg,ltl P sft dol-cem,mch Vfn, C;ltl st ltl M,tr C;ltl st,tr pl gn sh
U	330-335	5		Ss,Vpl gry or,fn,Srnd,P srtg,mch P sft dol-cem,mch Vfn,ltl M&C;ltl st&pl gn sh,tr gry sh
C				
L	335-350	15		Sh,Vlt ol gry,F srtg,slgt dolic,tr sft mot or pnk;mch st/fn snd,lt
	350-355	5		Ss,yl gry,M,VP dol-cem,mch fn&C,ltl V M,tr C,tr gn sh,ltl gry dol
	355-360	5		Ss,yl gry,M,VP dol-cem,fn;mch st&yl gry sh,ltl dk gry hd sh,ltl Vf
	360-370	10		Ss,yl gry,M,rnd,P srtg,VP dol-cem,mch fn&C;mch st,ltl yl gry sh ltl Vfn,tr VC;ltl st,tr hd dk gry&gn sh
M	370-380	10		Ss,pl gry yl or,M,rnd,P srtg,ltl P sft dol-cem,mch fn&C,ltl Vfn, tr VC;ltl st,tr gn sh
T	380-385	5		Ss,Vpl yl or,M,rnd,P srtg,tr P-G dol-cem,mch C,ltl fn,tr Vfn&VC;tr
	385-390	5		Ss,Vpl yl or,M,rnd,ltl VP sft dol-cem,mch C&fn,ltl Vfn;ltl st
	390-395	5		Ss,pl gry or,M,rnd,P srtg,ltl P dol-cem,mch fn&Vfn,tr C;ltl st,tr gn s
S	395-405	10		Ss,pl yl or,M,rnd,P srtg,ltl P dol-cem,mch fn&C,ltl Vfn;ltl st,tr gn sh
I	405-420	15		Ss,pl gry or,M,rnd,P srtg,mch P sft dol-cem,mch fn&Vfn,ltl C;ltl st,tr gn sh
M	420-435	15		Ss,pl yl or,M,rnd,P srtg,ltl P sft dol-cem,mch fn&Vfn,ltl C;ltl st,tr gn sh&lim-cem
O	435-440	5		Ss,pl yl or,M,rnd,P srtg,ltl P sft dol-cem,mch fn,ltl C&Vfn;ltl st
N	440-445	5		Ss,pl yl or,M,rnd,P srtg,ltl P sft dol-cem,mch Vfn,fn&C,tr VC;ltl
	445-450	5		Ss,pl yl or,M,rnd,P srtg,ltl P sft dol-cem,mch Vfn,fn,ltl C;ltl st tr gn sh&lim-cem
	450-465	15		Ss,pl yl or,M,rnd,P srtg,ltl P sft dol-cem,mch Vfn,fn&C;ltl st,tr gn sh&lim-cem

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-934

Well name Village of Oregon, Wisconsin, Well No. 3
Sample Nos. 261813 to 261844;
268369 to 268527

MT SIMON

465-575	110	Ss,pl yl or,M,rnd,P srtg,ltl P sft dol-cem,mch Vfn&fn,ltl C;ltl st
575-580	5	Ss,pl gry or,fn,Srnd,P srtg,mch VP Vsft dol-cem,mch M&Vfn,ltl C; mch st
580-590	10	Ss,pl gry or,M,rnd,P srtg,mch VP Vsft dol-cem,mch fn,Vfn&C,tr VC; mch st
590-610	20	Ss,yl gry,M,Srnd,P srtg,ltl P sft dol-cem,mch fn&Vfn,ltl C,tr VC;
610-615	5	Ss,yl gry,fn,Srnd,P srtg,ltl P sft dol-cem,mch M&Vfn,ltl C,tr VC;ltl st,tr lim \ ltl st
615-700	85	Ss,yl gry,fn,Srnd,P srtg,tr P sft dol-cem,mch M&Vfn,ltl C;mch st, tr lim
700-710	10	Ss,ol gry,fn,rnd,P srtg,tr P Vsft dol-cem,mch M&Vfn,tr C;mch st
710-720	10	Ss,ol gry,fn&Vfn,P srtg,tr P Vsft dol-cem,ltl M,tr C,tr VC;mch st tr pyr-cem
720-730	10	Ss,ol gry,fn&Vfn,Sang,P srtg,ltl M,tr C;mch st
730-735	5	Ss,ol gry,C,rnd,P srtg,mch M,VC&Vfn,ltl fn;ltl st
735-740	5	Ss,lt ol gry,M,Srnd,P srtg,mch fn,ltl Vfn,C&VC;mch st
740-745	5	Ss,Vlt ol gry,M,Srnd,P srtg,mch fn&Vfn,ltl C,tr VC;ltl st&cl,tr py
745-750	5	Ss,Vlt ol gry,M,Srnd,P srtg,mch fn&Vfn,ltl C&VC;ltl st&cl
750-755	5	Ss,Vlt ol gry,M,Srnd,P srtg,mch fn,ltl Vfn,C&VC;ltl st&cl,tr grans
755-760	5	Ss,Vlt ol gry,M,Srnd,P srtg,mch fn,ltl Vfn&C,tr VC;ltl st&cl,tr gr
760-765	5	Ss,Vlt ol gry,M,Srnd,P srtg,mch fn,ltl Vfn&C,tr VC;mch st,ltl cl
765-770	5	Ss,pl or pl yl bn,fn,Sang,P srtg,mch M&Vfn,ltl C,tr VC;mch st,tr c
770-775	5	St,mot lt bn,G srtg;mch st,ltl Vfn snd,mch fn/VC,few grans,tr ig
775-790	15	Ss,V pl gry or,M,Srnd,P srtg,mch fn,ltl C,VC&Vfn;mch st,ltl cl,few
790-795	5	Ss,gry or pnk,M,Srnd,P srtg,mch fn,Vfn&C,ltl VC;mch st,tr grans,tr cl,ig,gn&bn sh
795-805	10	Ss,or pnk,M&C,Srnd,mch fn&Vfn,ltl VC;mch st,ltl cl,tr ig&lim
805-810	5	Ss,or pnk,M&C,Srnd,P srtg,VP dol-cem,mch fn,ltl Vfn,tr VC;mch st,l
810-815	5	Ss,V pl or,C,Sang,P srtg,mch M,fn&VC,ltl fn;mch st,tr cl,grans \cl
815-825	10	Ss,V pl or,C,Sang,P srtg,mch M,fn&Vfn,ltl VC;mch st,tr cl&lim
825-835	10	Ss,V pl yl or,M,Srnd,P srtg,mch C,fn&Vfn,ltl VC;mch st,tr grans&li
835-840	5	Ss,V pl or,M&fn,Sang,P srtg,mch Vfn,ltl C;mch stltl cl,tr lim
840-845	5	Ss,Vpl or,M&fn,Sang,P srtg,mch Vfn&C,tr VC;mch st
845-855	10	Ss,V pl or,M&fn,Sang,P srtg,mch Vfn,ltl C;mch st
855-860	5	Ss,V pl or,fn,Sang,P srtg,mch M,C&Vfn;mch st
860-865	5	Ss,V pl or,fn,ang,P srtg,mch M&C,tr VC;mch st,tr grans&V sft dol-c
865-875	10	Ss,pl or,M,ang,P srtg,mch fn;Vfn&C,ltl VC;mch st,tr grans&ig
875-880	5	Ss,Vpl or,M&C,ang,P srtg,mch fn&VC,tr Vfn;ltl Vfn gvl,tr fn,st&ig
880-885	5	Ss,pl or,M&fn,ang,P srtg,mch C&Vfn,tr VC;mch st,ltl cl,tr grans&ig
885-900	15	Ss,pl gry or,M,ang,P srtg,mch fn,Vfn&C,ltl VC;mch st,ltl cl
900-915	15	Ss,pl gry or,M,ang,P srtg,mch fn,Vfn&C,ltl VC;mch st,ltl cl&Vfn gv
915-920	5	Ss,V pl or,fn,ang,P srtg,mch Vfn&M,ltl C,tr VC;mch st,ltl cl,tr gr
920-925	5	Ss,V pl or,M,ang,P srtg,mch C,fn&Vfn,ltl VC;mch st,ltl cl,tr lim
925-930	5	Ss,V pl or,M&C,ang,P srtg,mch fn&Vfn,ltl VC;tr st&cl,ltl lim

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

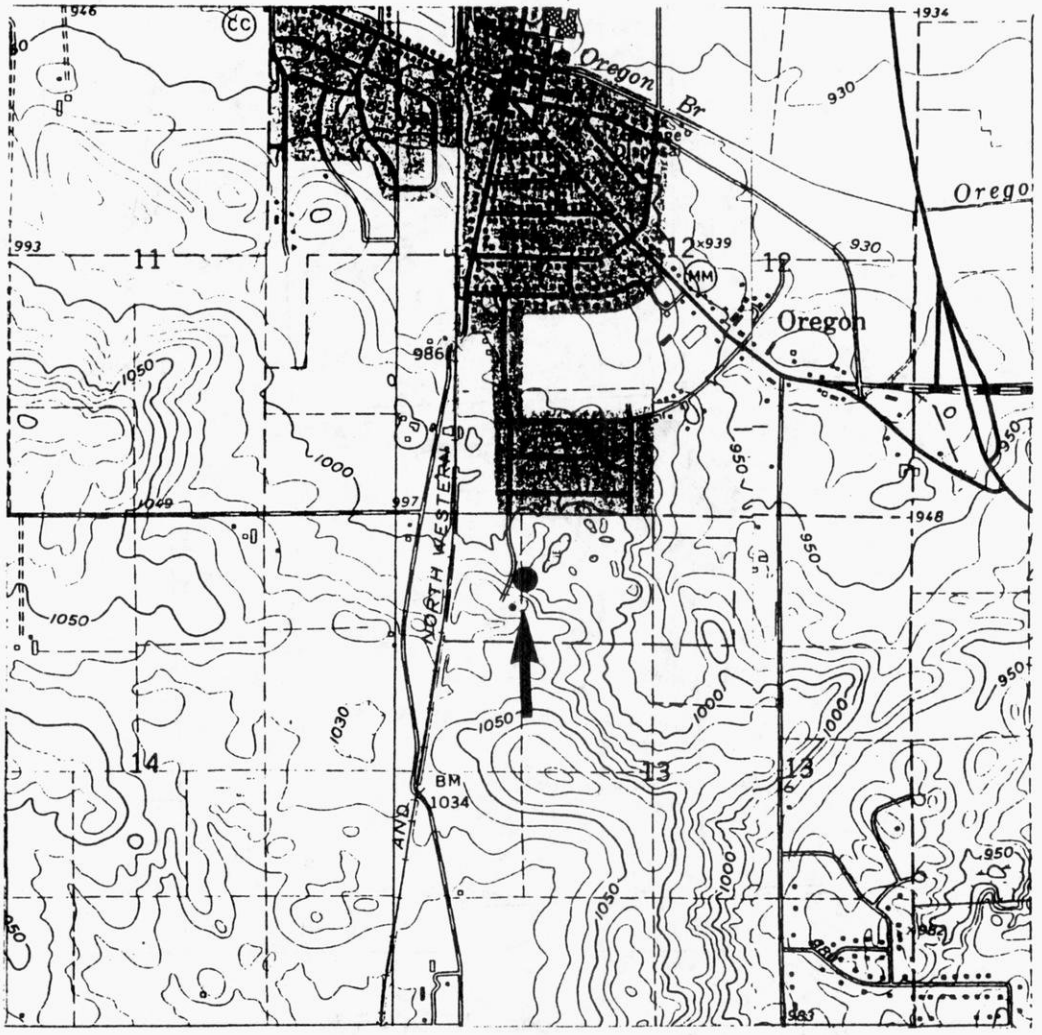
Log No. Dn-934

Well name Village of Oregon, Wisconsin, Well No. 3
Sample Nos. 261813 to 261844;
268369 to 268527

	930-935	5		Ss, V pl or, M&C, ang, P srtg, mch fn&Vfn, ltl VC; tr st, cl&lim
	935-945	10		Ss, gry or pnk, M, ang, P srtg, mch fn, C&Vfn, ltl VC; ltl st, tr cl
	945-950	5		Ss, V pl or, M, ang, P srtg, mch fn, C&Vfn, ltl VC; ltl st, tr cl, grans&ig
603	950-953	3		Ss, V pl or, M, ang, P srtg, mch fn, C&Vfn, ltl VC; ltl st, tr cl

END OF WELL

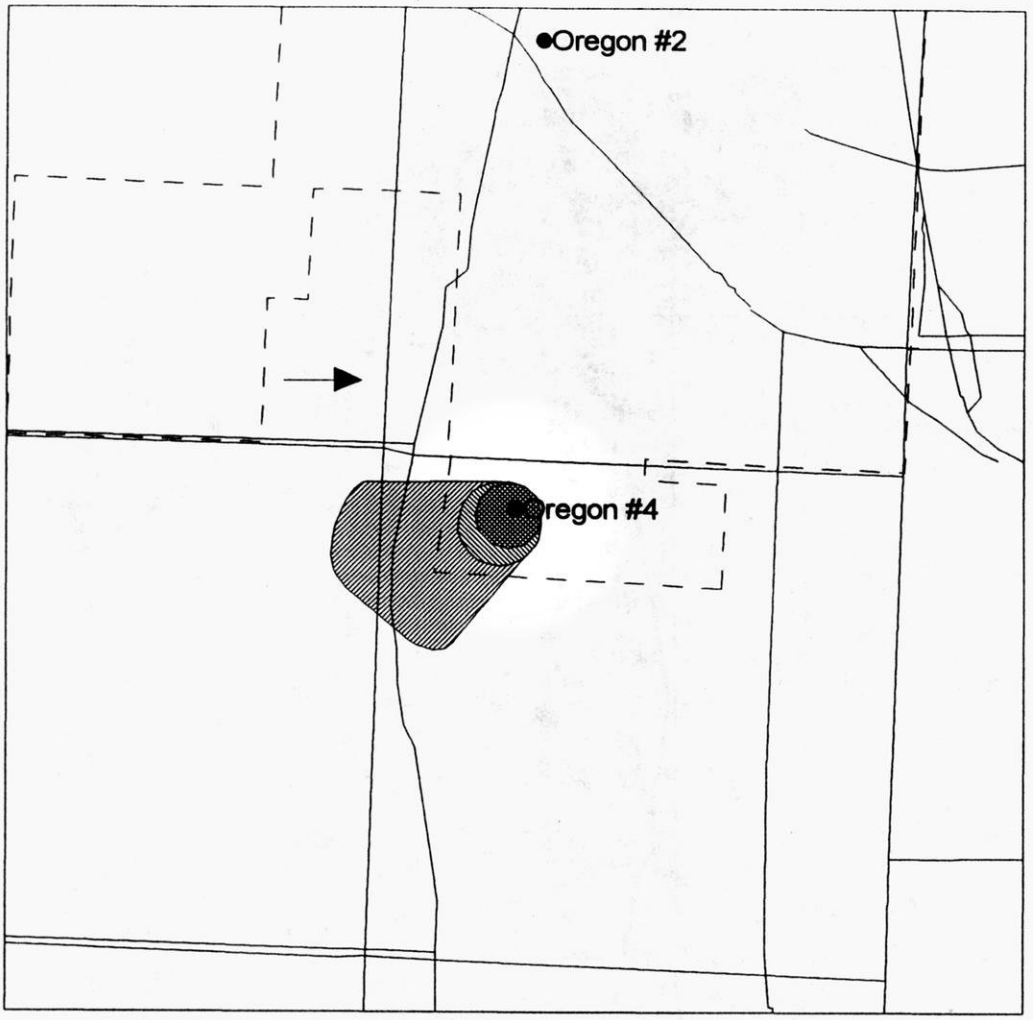
Village of Oregon, Well Number 4



Village of Oregon, Well Number 4 is located at 42° 54' 45.71" north latitude and 89° 23' 1.59" longitude. The well was installed in 1990 and has a pumping capacity of 850 gpm. The average daily use of the well between October 1994 and September 1995 was 583,000 gpd.

The well casing extends to a depth of 203 feet below ground surface, and the total depth of the well is 845 feet. Water is drawn from a combination of the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Oregon, Well Number 4



Well Location

Latitude: 42° 54' 45.71"
Longitude: 89° 23' 1.59"

0 500 1000
(meters)

N

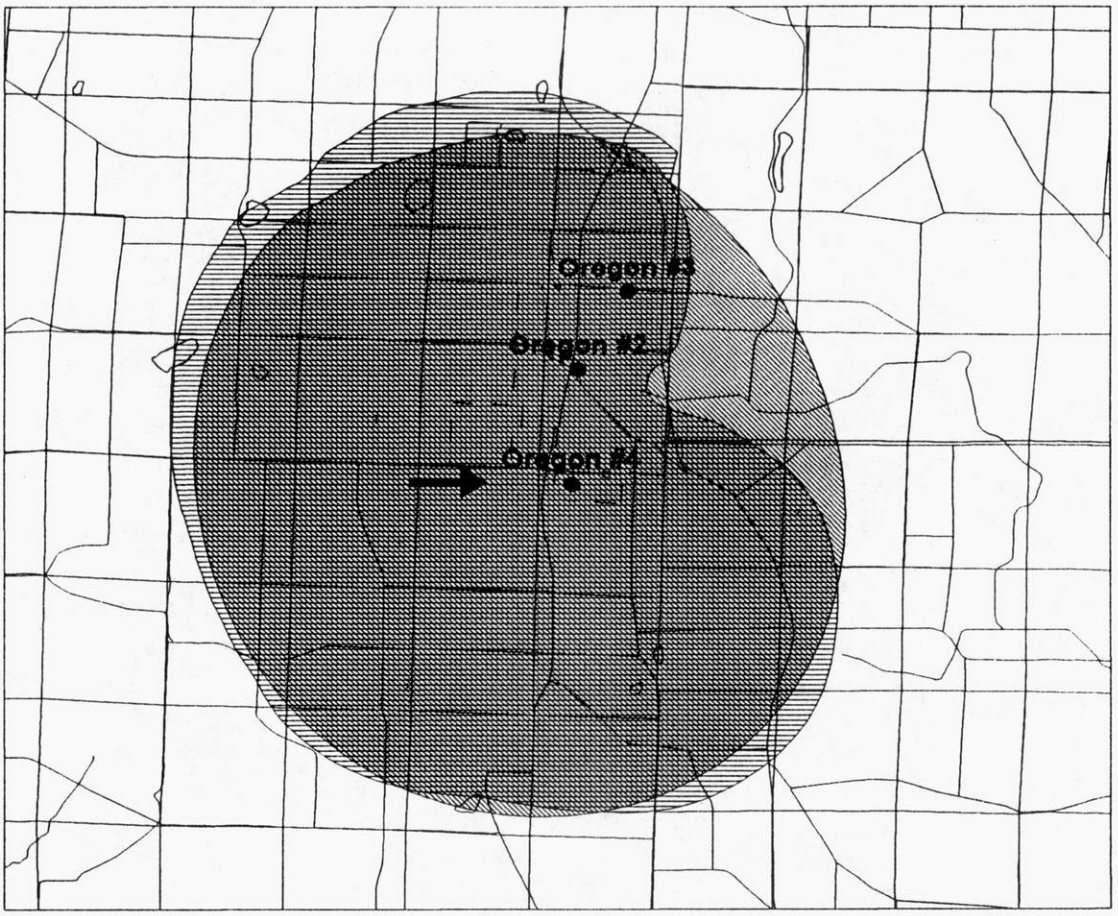
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Oregon, Well Number 4



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Wisconsin Geological and Natural History Survey
3817 Mineral Point Road, Madison, WI 53705-5100

Geologic Log No: DN-1,334-G,D

Site Name: Oregon Village Well #4
Owner: Village of Oregon
Address: 117 Spring Street
Oregon, WI 53575
Driller(s): Ace Well Drilling, Inc. 4/30/1990
Engineer: Donahue & Associates, Inc.
Plover, WI 54467
Location: NW, NW,
Sec. 13, T5N, R9E
Topo Name: Oregon
Sample Nos: T302
Perm No.: 00511
WI-Unique ID#:

Samples Rec'd
12/11/89 0' to 845'
4/30/90 0' to 845'

Studied By:
Kathleen M. Massie-Ferch 0' to 845'

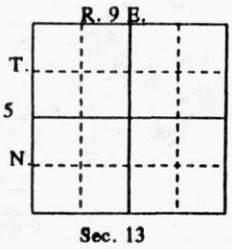
Formations:
Quaternary, Tonti Member, Readstown Member, Undifferentiated, Tunnel City Group, Wonewoc Formation, Eau Claire Formation, Undifferentiated, Mt. Simon Formation

Log Comments:

Published:
Printed:

County: DANE
Completed: 4/30/1990
Field Check:

Elevation: 1,020' +/- 20'
Well Use: Municipal
Static Level: 125'



Pump Test:
Pumped at 1,200 GPM for 24 hrs. with 66 ft. of drawdown.
Specific Cap: GPM /ft.

Drill Hole Dimensions		
Diameter	From	To
23"	0'	85'
21"	85'	200'
15"	200'	853'

Drilling Method		
Method	From	To
Rotary - Air & mud	0'	853'

Grout		
Type	From	To
Cement	0'	200'

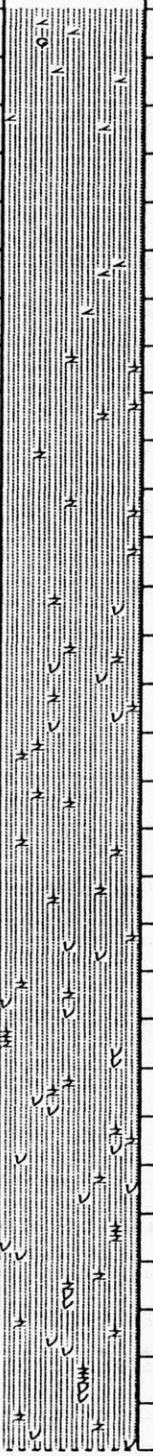
Open Interval Characteristics			
Diameter	From	To	Opening Type
15"	200'	853'	Open Hole

Casing & Liner Information				
Diameter	From	To	Casing	Weight
24"	0'	85'	Unknown	Unknown
22"	83'	95'	Unknown	Unknown
16"	+3'	200'	Unknown	Unknown

	Depths	Graphic	RockType Mode	Color Range	Miscellaneous Characteristics
QUATERNARY	0 5		Silt –	Dk bn –	Silceous.Much gvl(Gr/MP),snd,clay.Ltl soil.
	5 10		Silt –	Strong bn –	Silceous.Much gvl(Gr/MP),snd,clay.
	10 15		Sand C	Mxd bn Vfn/VC	Many ang rock frags.Few grans.Tr silt.
	15 20		Sand C	Mxd bn Vfn/VC	Many ang rock frags.Few grans.Tr silt.
	20 25		Sand C	Mxd bn Vfn/VC	Many ang rock frags.Tr grans,silt.
	25 30		Sand C	Mxd bn Vfn/VC	Many ang rock frags.Ltl silt.Tr grans.
	30 35		Sand C	Mxd bn Vfn/VC	Many ang rock frags.Ltl silt.Tr grans,clay.
	35 40		No Sample		
	40 45		Sand C	Mxd bn Vfn/VC	Many ang rock frags.Ltl silt.Tr grans,clay.
	45 50		Sand C	Mxd bn Vfn/VC	Many ang rock frags,grans.Tr silt,clay.
	50 55		Sand C	Mxd bn Vfn/VC	Many ang rock frags.Much gravel(Gr/SP).Tr silt,clay.
	55 60		Sand C	Mxd bn Vfn/VC	Many ang rock frags.Much gravel(Gr/SP).Tr silt,clay.
	60 65		Sand C	Mxd bn Vfn/VC	Many ang rock frags.Much gravel(Gr/SP).Tr silt,clay.
	65 70		Gravel Gran	Mxd bn Gr/MP	Chert,oolitic chert,dol,oolitic dol,ss(lim,hem & silcs-cemtd),druay qtz,volcs,trap,sts.Much snd.Tr silt,clay.

QUAT	70	Gravel	Mxd bn	Chert,oolitic chert,dol,oolitic dol,ss(lim,hem & silcs-cemtd),drusy qtz,volcs,trap,sts.Much snd.Tr silt,clay.Some of the snd grains look to be more closely derived from ss than above.
	75	Gran	Gr/MP	
	75	Gravel	Mxd bn	Chert,oolitic chert,dol,oolitic dol,ss(lim,hem & silcs-cemtd),drusy qtz,fossilif chert,volcs,trap, sts.Much snd.Tr silt,clay.Some of the snd grains look to be more closely derived from ss.
	80	Gran	Gr/MP	
	80	Sand	Mxd bn	Many rock frags mostly chert but others as above.Much gravel(Gr/MP).Tr silt,clay.Some of the snd grains look to be more closely derived from ss.
85'	85	C	Vfn/VC	
TONTI MEMBER	85	Sandstone	Brown yellow	Subrnd to rnd.Much G dolic to calcic cem(w/ fines),frosting,wh chert,dk bn silcs clay(sim to clay forming in caves).Ltl qtz silt.Tr G lim cem,pyro,Vfn-glauc,rust from drilling.
	90	Vfn & M	Vfn/VC	
	90	Sandstone	Brown yellow	Subrnd.Much G dolic to calcic cem(w/ fines),frosting,wh chert,dk bn silcs clay(sim to clay forming in caves).Ltl qtz silt.Tr G lim cem,pyro,Vfn-glauc,gn silcs sh,rust from drilling.
	95	Vfn/Fn	Vfn/VC	
	95	Sandstone	Brown yellow	Subrnd.Much G dolic to calcic cem(w/ fines),frosting,wh chert,dk bn silcs clay(sim to clay forming in caves).Ltl qtz silt.Tr G lim cem,pyro,Vfn-glauc,gn silcs sh,rust from drilling.
	100	Vfn/Fn	Vfn/VC	
	100	Sandstone	Brown yellow	Subrnd.Much G dolic to calcic cem(w/ fines),frosting,wh chert,dk bn silcs clay(sim to clay forming in caves).Ltl qtz silt.Tr G lim cem,pyro,Vfn-glauc,gn silcs sh,rust from drilling.
	105	Vfn/Fn	Vfn/VC	
	105	Sandstone	Brown yellow	Subrnd.Much G dolic to calcic cem(w/ fines),frosting,wh chert,dk bn silcs clay(sim to clay forming in caves).Ltl qtz silt.Tr G lim cem,pyro,Vfn-glauc,drusy qtz,gn silcs sh,rust from drilling.
	110	Vfn/Fn	Vfn/VC	
	110	Sandstone	Brown yellow	Subrnd.Much G dolic to calcic cem(w/ fines),frosting,wh chert,qtz silt.Ltl dk bn silcs clay(sim to clay forming in caves).Tr G lim cem,pyro,Vfn-glauc,drusy qtz,gn silcs sh,rust from drilling.
30'	115	Vfn/Fn	Vfn/VC	
READSTOWN MEMBER	115	Sandstone	Brown	Subrnd.Ltl G silcs cem,qtz silt.Much frosting,wh chert,dk bn silcs clay(sim to clay forming in caves).Tr G lim cem,pyro,drusy qtz,rust from drilling.
	120	Fn/M	Vfn/VC	
	120	Sandstone	Brown	Subrnd.Ltl G silcs cem,qtz silt.Much frosting,wh chert,dk bn silcs clay(sim to clay forming in caves).Tr G lim cem,pyro,drusy qtz,rust from drilling.
	125	Fn/M	Vfn/VC	
	125	Sandstone	Brown	Subrnd.Ltl G silcs cem,qtz silt,dk bn silcs clay(as above).Much frosting,wh chert.Tr G lim cem,pyro, drusy qtz,chert ooliths(cvd?),cvd dolic ss,rust.
	130	Fn/M	Vfn/VC	
	130	Sandstone	Lt yl bn	Subrnd.Tr G silcs cem,G lim cem,pyro,wh chert,dk bn silcs clay(as above),rust.Much frosting.Ltl qtz silt.
	135	Fn/M	Vfn/VC	
	135	Sandstone	Lt yl bn	Subrnd.Tr G silcs cem,G lim cem,pyro,wh chert,dk bn silcs clay(as above),rust.Much frosting.Ltl qtz silt.
	140	Fn/M	Vfn/VC	
	140	Sandstone	Lt yl bn	Subrnd.Ltl G silcs cem,qtz silt.Tr G lim cem,pyro,wh chert,dk bn silcs clay(as above),cvd ooliths, rust.Much frosting.
	145	Fn/M	Vfn/VC	
	145	Sandstone	Brown	Subrnd.Ltl G silcs cem,qtz silt.Tr G lim cem,pyro,cvd dol & ooliths,rust.Much wh chert,dk bn silcs clay(as above),frosting.
	150	Fn/M	Vfn/VC	
	150	Sandstone	Brown	Subrnd.Ltl G silcs cem,qtz silt.Tr G lim cem,pyro,cvd dol & ooliths,rust.Much wh chert,dk bn silcs clay(as above),frosting.
	155	Fn/M	Vfn/VC	
	155	Sandstone	Brown	Subrnd.Ltl G silcs cem,qtz silt.Tr G lim cem,pyro,cvd dol & ooliths,rust.Much wh chert,dk bn silcs clay(as above),frosting.
45'	160	M	Vfn/VC	
UNDIFFERENTIATED	160	Dol & Chert	Pl bn & white	Much free qtz snd.Ltl drusy qtz.Tr floating qtz sand,silt/Vfn-glauc,lim,cvd mat,rust.
	165	M	Fn/M	
	165	Dol & Chert	Pl bn & white	Much free qtz snd.Ltl drusy qtz.Tr floating qtz sand,silt/Vfn-glauc,lim,cvd mat,rust.
	170	M	Fn/M	
	170	Dol & Chert	Pl bn & white	Much free qtz snd.Ltl drusy qtz.Tr floating qtz sand,silt/Vfn-glauc,lim,cvd mat,rust.
	175	M	Fn/M	
	175	Dol & Chert	Pl bn & white	Much free qtz snd.Ltl drusy qtz.Tr floating qtz sand,lim,cvd mat,rust.
	180	M	Fn/M	
	180	Dol & Chert	Pl bn & white	Much free qtz snd(less than above).Ltl drusy qtz.Tr floating qtz sand,lim,cvd mat,rust.
	185	M	Fn/M	
	185	Dolomite	Pl bn	Much wh chert,free qtz snd(less than above).Ltl drusy qtz,rust.Tr lim,cvd mat.
	190	M	Fn/M	
	190	Dolomite	Pl bn	Much wh chert,free qtz snd.Ltl drusy qtz,rust.Tr lim,cvd mat.
	195	M	Fn/M	
	195	Dolomite	Pl bn	Much wh chert,free qtz snd.Ltl drusy qtz,rust.Tr lim,cvd mat.
	200	M	Fn/M	
	200	No Sample		
70'	230			
TUNNEL CITY	230	Sandstone	Lt yl bn	Subang.Much G to F dolic cem,Vfn/C-glauc.Ltl frosting,qtz silt.Tr G lim cem,rd bn hem sh,fossil
	235	Fn	Vfn/C	frags,pl gn sh,mica,cvd mat.
	235	Sandstone	Lt yl bn	Subang.Much G to F dolic cem,Vfn/C-glauc.Ltl frosting,qtz silt.Tr G lim cem,rd bn hem sh,fossil
	240	Fn	Vfn/C	frags,pl gn sh,mica,cvd mat.
	240	Sandstone	Lt yl bn	Subang.Much G dolic cem,Vfn/C-glauc.Ltl frosting,qtz silt.Tr G lim cem,rd bn hem sh,fossil frags,pl
	245	Fn	Vfn/C	gn sh,mica,cvd mat.
	245	Sandstone	Lt yl bn	Subang.Much G dolic cem,Vfn/C-glauc.Ltl frosting,qtz silt.Tr G lim cem,rd bn hem sh,fossil frags,pl
	250	Fn	Vfn/C	gn sh,mica,cvd mat.
	250	Sandstone	Pale brown	Subang.Much G dolic cem.Ltl Vfn/C-glauc,pk staining,frosting,qtz silt.Tr lim,wh silcs sh,fossil
	255	Fn	Vfn/C	frags,cvd mat.

TUNNEL CITY GROUP	255	Sandstone	Pale brown	Subang.Much G dolic cem.Ltl Vfn/C-glauc,pk staining,frosting,qtz silt.Tr lim,wh silcs sh,fossil
	260	Fn	Vfn/C	frags,cvd mat.
	260	Sandstone	Lt bn yellow	Subang.Much G dolic cem.Ltl Vfn/C-glauc,frosting,qtz silt.Tr lim,wh silcs sh,fossil frags,pk
	265	Fn	Vfn/C	staining,lt gn sh,Fn-zir,cvd mat.
	265	Sandstone	Lt bn yellow	Subang.Much G dolic cem.Ltl Vfn/C-glauc,frosting,qtz silt.Tr lim,wh silcs sh,fossil frags,pk
	270	Fn	Vfn/C	staining,lt gn sh,Fn-zir,cvd mat.
	270	Sandstone	Lt bn yellow	Subang.Much G dolic cem.Ltl Vfn/C-glauc,frosting,qtz silt.Tr lim,wh silcs sh,fossil frags,pk
	275	Fn	Vfn/C	staining,lt gn sh,Fn-zir,cvd mat.
	275	Sandstone	Lt bn yellow	Subang.Much G dolic cem.Ltl Vfn/C-glauc,frosting,qtz silt.Tr lim,wh silcs sh,fossil frags,pk
	280	Fn	Vfn/C	staining,lt gn sh,Fn-zir,cvd mat.
	280	Sandstone	Lt bn yellow	Subang.Much G to VG dolic cem.Ltl Vfn/C-glauc,frosting,qtz silt,lt gn sh.Tr lim,wh silcs sh,fossil
	285	Fn	Vfn/C	frags,pk staining,rd bn hem sh,Fn-zir,cvd mat.
	285	Sandstone	Lt bn yellow	Subang.Much G to VG dolic cem.Ltl Vfn/C-glauc,frosting,qtz silt,lt gn sh,rd bn hem sh.Tr lim,wh
	290	Fn	Vfn/C	silcs sh,fossil frags,pk staining,Fn-zir,cvd mat.
	290	Sandstone	V pl yl bn	Subang.Much G dolic cem(as above,cvd?).Ltl Vfn/C-glauc,frosting.Tr G silcs cem,lim,wh silcs sh,lt gn
	295	Fn/M	Vfn/C	sh,pk staining,Fn-zir,qtz silt,cvd mat.
	295	Sandstone	V pl yl bn	Subang.Ltl G silcs cem,G dolic cem,Vfn/C-glauc,frosting.Tr rd bn hem sh,lim,wh silcs sh,lt gn sh,
	300	Fn/M	Vfn/C	Fn-zir,qtz silt.
	300	Sandstone	V pl yl bn	Subang.Much G dolic cem.Ltl G silcs cem,Vfn/C-glauc,frosting.Tr rd bn hem sh,lim,wh silcs sh,lt gn
	305	Fn/M	Vfn/VC	sh,Fn-zir,qtz silt.
80'	305	Sandstone	V pl yl bn	Subang.Much G dolic cem.Ltl G silcs cem,Vfn/C-glauc,frosting.Tr lim,wh silcs sh,lt gn sh,Fn-zir,qtz
	310	Fn/M	Vfn/VC	silt,cvd mat.
	310	Sandstone	V pl bn	Subrnd to rnd.Tr F silcs cem,mafic incl,wh silcs sh,lt gn sh,Fn-zir,qtz silt,cvd mat(inc glauc),rust.
	315	M/C	Vfn/VC	Much frosting.
	315	Sandstone	V pl bn	Subrnd to rnd.Tr F silcs cem,mafic incl,wh silcs sh,lt gn sh,Fn-zir,qtz silt,cvd mat(inc glauc),rust.
	320	M/C	Vfn/VC	Much frosting.
	320	Sandstone	V pl bn	Subrnd to rnd.Tr F silcs cem,mafic incl,wh silcs sh,lt gn sh,Fn-zir,qtz silt,rust.Ltl cvd mat(esp
	325	M/C	Vfn/VC	glauc).Much frosting.
	325	Sandstone	V pl bn	Subrnd to rnd.Tr F silcs cem,mafic incl,wh silcs sh,lt gn sh,Fn-zir,qtz silt,rust,cvd mat(inc glauc).
	330	M/C	Vfn/Gr	Much frosting.
	330	Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G yl bn dolic cem,M-glauc,mafic incl,wh silcs sh,lt gn sh,Fn-zir,qtz
	335	M/C	Vfn/VC	silt,rust,cvd mat.Much frosting.
	335	Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G yl bn dolic cem,M-glauc,mafic incl,wh silcs sh,lt gn sh,Fn-zir,qtz
	340	M/C	Vfn/Gran	silt,rust,cvd mat.Much frosting.
	340	Sandstone	Lt yl bn	Subrnd to rnd.Much G yl bn dolic cem,frosting.Tr G silcs cem,M-glauc,mafic incl,wh silcs sh,lt gn sh,
	345	M	Vfn/VC	Fn-zir,qtz silt,rust,cvd mat.
	345	Sandstone	Lt yl bn	Subrnd to wrnd.Much G yl bn dolic cem,frosting.Tr G silcs cem,M-glauc,mafic incl,wh silcs sh,lt gn
	350	M/C	Vfn/VC	sh,Fn-zir,qtz silt,rust,cvd mat.
	350	Sandstone	Lt yl bn	Subrnd to wrnd.Much G yl bn dolic cem,frosting.Tr G silcs cem,M-glauc,mafic incl,wh silcs sh,lt gn
	355	M/C	Vfn/VC	sh,Fn-zir,qtz silt,rust.Ltl cvd mat(inc chert & dol).
	355	Sandstone	Lt yl bn	Subrnd to wrnd.Much G yl bn dolic cem,frosting.Tr G silcs cem,M-glauc,mafic incl,wh silcs sh,lt gn
	360	M/C	Vfn/Gr	sh,Fn-zir,qtz silt,rust.Ltl cvd mat(inc chert & dol).
	360	Sandstone	Lt yl bn	Subrnd to wrnd.Much G yl bn dolic cem,frosting,cvd mat(inc a Fn/M glaucic ss).Tr G silcs cem,M-glauc
	365	M/C	Vfn/VC	mafic incl,wh silcs sh,lt gn sh,Fn-zir,qtz silt,rust.
	365	Sandstone	Lt yl bn	Subrnd to wrnd.Much G yl bn dolic cem,frosting,cvd mat(inc a Fn/M glaucic ss).Tr G silcs cem,M-glauc
	370	M/C	Vfn/VC	mafic incl,wh silcs sh,lt gn sh,Fn-zir,qtz silt,rust.
	370	Sandstone	Lt yl bn	Subrnd to wrnd.Much G yl bn dolic cem,frosting,cvd mat(inc a Fn/M glaucic ss).Tr G silcs cem,M-glauc
	375	M/C	Vfn/VC	mafic incl,wh silcs sh,lt gn sh,Fn-zir,qtz silt,rust.
	375	Sandstone	V pl bn	Subrnd to wrnd.Tr G lim cem,G silcs cem,mafic incl,Fn-zir,qtz silt,rust,cvd mat.Much frosting.
	380	M	Vfn/VC	
	380	Sandstone	V pl bn	Subrnd to wrnd.Tr G lim cem,mafic incl,Fn-zir,qtz silt,rust,cvd mat.Much frosting.
	385	M	Vfn/VC	
	385	Sandstone	V pl bn	Subrnd to wrnd.Tr G lim cem,mafic incl,Fn-zir,qtz silt,rust,cvd mat.Much frosting.
	390	M	Vfn/VC	
	390	Sandstone	V pl bn	Subrnd to wrnd.Tr G lim cem,mafic incl,Fn-zir,qtz silt,pl gn sh,rust,cvd mat.Much frosting.
	395	M	Vfn/VC	
	395	Sandstone	V pl bn	Subrnd to wrnd.Tr G lim cem,mafic incl,Fn-zir,qtz silt,rust,cvd mat.Much frosting.
	400	M	Vfn/VC	
	400	Sandstone	V pl bn	Subrnd to wrnd.Tr G lim cem,mafic incl,Fn-zir,qtz silt,rust,cvd mat.Much frosting.
	405	M	Vfn/VC	
	405	Sandstone	V pl bn	Subrnd to wrnd.Tr G lim cem,mafic incl,Fn-zir,qtz silt,rust,cvd mat.Much frosting.
	410	M	Vfn/VC	
	410	Sandstone	V pl bn	Subrnd to wrnd.Tr G lim cem,mafic incl,Fn-zir,qtz silt,rust,cvd mat.Much frosting.
	415	M	Vfn/VC	
	415	Sandstone	V pl bn	Subrnd to wrnd.Tr G lim cem,mafic incl,Fn-zir,qtz silt,rust,cvd mat.Much frosting.
110'	420	M	Vfn/VC	
	420	Sandstone	V pl yl bn	Subrnd to wrnd.Much G yl bn dolic cem,frosting.Tr G lim cem,mafic incl,Fn-zir,qtz silt,lt gn sh,wh
	425	Fn/M	Vfn/VC	silcs sh,rust,cvd mat.Ltl Fn/M-glauc.
	425	Sandstone	V pl bn	Subrnd to wrnd.Ltl G yl bn dolic cem.Much frosting.Tr G lim cem,mafic incl,Fn-zir,qtz silt,lt gn sh,
	430	Fn/M	Vfn/VC	wh silcs sh,Fn/M-glauc,rust,cvd mat.
	430	Sandstone	Yellow bn	Ang to subrnd.Much G to VG dolic to calic cem,frosting,qtz silt.Ltl gn gy silcs sh.Tr Fn-glauc,
	435	Vfn/Fn	Vfn/VC	Fn-zir,lim,wh fossil frags,cvd mat,rust.
	435	Sandstone	Yellow bn	Ang to subrnd.Much G to VG dolic to calic cem,frosting,qtz silt.Ltl gn gy silcs sh.Tr Fn-glauc,
	440	Vfn/Fn	Vfn/VC	Fn-zir,lim,wh fossil frags,cvd mat,rust.

EAU CLAIR 40'	440		Sandstone	Yl bn to gn gy	Ang to subang.Much G to VG dolic to calic cem,frosting,qtz silt,gn gy to gy silcs sh.Ltl Fn-glauc.Tr
	445		Vfn/Fn	Vfn/VC	Fn-zir,lim,fossil frags,rd bn hem sh,rust.
	445		Sandstone	Yl bn to gn gy	Ang to subang.Much G to VG dolic to calic cem,frosting,qtz silt,gn gy to gy silcs sh.Ltl Fn-glauc.Tr
	450		Fn	Vfn/VC	Fn-zir,lim,fossil frags,rd bn hem sh,rust.
	450		Sandstone	Gy to dk gy	Ang to subang.Much G to VG dolic cem,frosting,qtz silt,gn gy to dk gy silcs sh.Ltl Fn-glauc.Tr
	455		Fn	Vfn/VC	Fn-zir,lim,fossil frags,rd bn hem sh,pyrite,rust.
	455		Sandstone	Gy to dk gy	Subang to subrnd.Much F to G dolic cem,frosting,qtz silt,gn gy to dk gy silcs sh.Ltl Fn-glauc.Tr
	460		Fn/M	Vfn/VC	Fn-zir,lim,fossil frags,pyrite,rust.
UNDIFF 10'	460		Sandstone	Gy to dk gy	Subrnd to wrnd.Tr F to G dolic cem,G lim cem,fossil frags,pyrite,qtz silt.Much glaucic gy dol,
	465		M/C	Vfn/VC	frosting,gn gy to dk gy silcs sh,Fn-glauc.
	465		Sandstone	Gy to dk gy	Subrnd to wrnd.Ltl F to G dolic cem.Tr G lim cem,fossil frags,pyrite,qtz silt.Much glaucic gy dol,
	470		M/C	Vfn/VC	frosting,gn gy to dk gy silcs sh,Fn-glauc.
MT SIMON FORMATION	470		No Sample.		
	475				
	475		Sandstone	Lt yl	Rnd to wrnd.Much G yl dolic cem,frosting.Tr G lim cem,mafic incl,Fn-glauc,qtz silt,wh silcs sh,rust,
	480		M	Vfn/VC	cvd mat.
	480		Sandstone	Lt yl	Rnd to wrnd.Much G yl dolic cem,frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,rust,cvd mat.
	485		M	Vfn/VC	
	485		Sandstone	Lt yl	Rnd to wrnd.Much G yl dolic cem,frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,rust,cvd mat.
	490		M	Vfn/VC	
	490		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,F silcs cem,mafic incl,qtz silt,wh silcs sh,rust,cvd mat.Much frosting.
	495		M	Vfn/VC	
	495		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,F silcs cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,rust,cvd mat.Much
	500		M	Vfn/VC	frosting.
	500		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic cem,frosting.Tr mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Ltl rust.
	505		M	Vfn/VC	
	505		Sandstone	V pl bn	Rnd to wrnd.Ltl G yl dolic cem.Much frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,
	510		M	Vfn/VC	cvd mat,rust.
	510		Sandstone	Yellow	Rnd to wrnd.Much G yl dolic to calcic cem,frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,pl
	515		M	Vfn/VC	gn sh,cvd mat.Ltl rust.
	515		Sandstone	Yellow	Rnd to wrnd.Much G yl dolic to calcic cem,frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,pl
	520		M	Vfn/VC	gn sh,cvd mat.Ltl rust.
	520		Sandstone	V pl bn	Rnd to wrnd.Ltl G yl dolic to calcic cem.Much frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,
	525		M	Vfn/VC	pl gn sh,cvd mat,rust.
	525		Sandstone	V pl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,pl
	530		M	Vfn/VC	gn sh,cvd mat,rust.
	530		Sandstone	V pl bn	Rnd to wrnd.Ltl G yl dolic to calcic cem.Much frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,
	535		M	Vfn/VC	pl gn sh,cvd mat,rust.
	535		Sandstone	Pl bn	Rnd to wrnd.Ltl G yl dolic to calcic cem,cvd mat(esp glauc).Much frosting.Tr G lim cem,mafic incl,
	540		M	Vfn/VC	qtz silt,wh silcs sh,pl gn sh,rust.
	540		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc).Tr G lim cem,mafic incl,qtz
	545		M	Vfn/VC	silt,wh silcs sh,pl gn sh,rust.
	545		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc).Tr G lim cem,mafic incl,qtz
	550		M	Vfn/VC	silt,wh silcs sh,pl gn sh,rust.
	550		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting.Ltl rust.Tr G lim cem,mafic incl,qtz silt,wh
	555		M	Vfn/VC	silcs sh,pl gn sh,cvd mat.
	555		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting.Ltl rust.Tr G lim cem,mafic incl,qtz silt,wh
	560		M	Vfn/VC	silcs sh,pl gn sh,cvd mat.
	560		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting.Ltl rust.Tr G lim cem,mafic incl,qtz silt,wh
	565		M	Vfn/VC	silcs sh,pl gn sh,cvd mat.
	565		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting.Ltl rust.Tr G lim cem,mafic incl,qtz silt,wh
	570		M	Vfn/VC	silcs sh,pl gn sh,cvd mat.
	570		Sandstone	V pl bn	Rnd to wrnd.Ltl G yl dolic to calcic cem.Much frosting,cvd mat(esp glauc).Tr G lim cem,mafic incl,
	575		M	Vfn/VC	qtz silt,wh silcs sh,pl gn sh,cvd mat,rust.
	575		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc).Ltl rust.Tr G lim cem,mafic
	580		M	Vfn/VC	incl,qtz silt,wh silcs sh,pl gn sh.
	580		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc).Ltl rust.Tr G lim cem,mafic
	585		M	Vfn/VC	incl,qtz silt,wh silcs sh,pl gn sh.
	585		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc).Ltl rust.Tr G lim cem,mafic
	590		M	Vfn/VC	incl,qtz silt,wh silcs sh,pl gn sh.
	590		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc).Ltl rust.Tr G lim cem,mafic
	595		M	Vfn/VC	incl,qtz silt,wh silcs sh,pl gn sh.
	595		Sandstone	V pl bn	Rnd to wrnd.Ltl G yl dolic to calcic cem.Much frosting,cvd mat(esp glauc).Tr G lim cem,mafic incl,
	600		M	Vfn/VC	qtz silt,wh silcs sh,pl gn sh.
	600		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc),rust.Tr G lim cem,mafic incl,
	605		M	Vfn/VC	qtz silt,wh silcs sh,pl gn sh.
	605		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc),rust.Tr G lim cem,mafic incl,
	610		M	Vfn/VC	qtz silt,wh silcs sh,pl gn sh.
	610		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc).Tr G lim cem,mafic incl,qtz
	615		M	Vfn/VC	silt,wh silcs sh,pl gn sh.Ltl rust.
	615		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc).Tr G lim cem,mafic incl,qtz
	620		M	Vfn/VC	silt,wh silcs sh,pl gn sh.Ltl rust.
	620		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,cvd mat(esp glauc).Tr G lim cem,mafic incl,qtz
	625		M	Vfn/VC	silt,wh silcs sh,pl gn sh.Ltl rust.

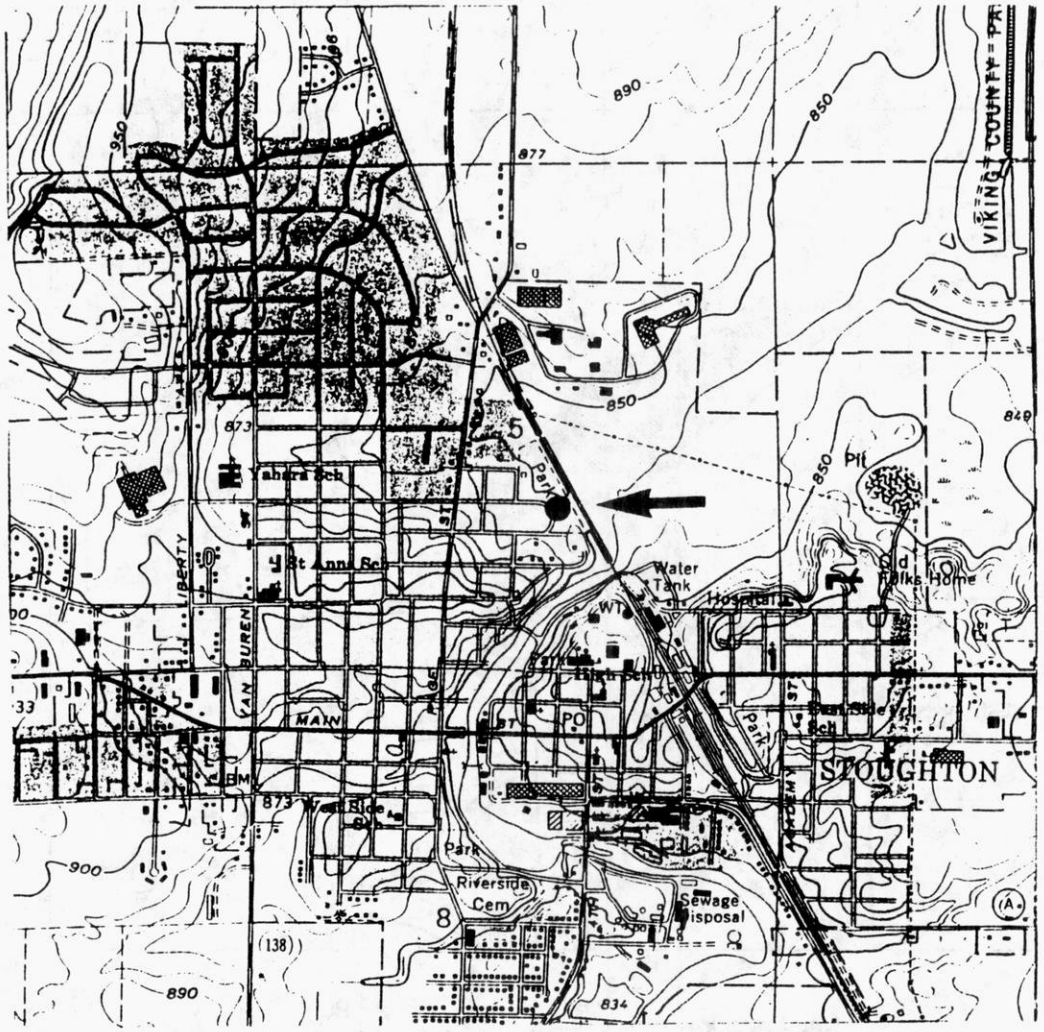
MT SIMON FORMATION

625		Sandstone	V pl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,pl
630		M	Vfn/VC	gn sh,rust,cvd mat.
630		Sandstone	V pl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting.Tr G lim cem,mafic incl,qtz silt,wh silcs sh,pl
635		M	Vfn/VC	gn sh,rust,cvd mat.
635		Sandstone	Yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,rust,cvd mat(esp glauc & cem?).Tr G lim cem,mafic
640		M	Vfn/VC	incl,qtz silt,wh silcs sh,pl gn sh.
640		Sandstone	V pl bn	Rnd to wrnd.Ltl G yl dolic to calcic cem,rust,cvd mat(esp glauc & cem?).Tr G lim cem,mafic incl,qtz
645		M	Vfn/VC	silt,wh silcs sh,pl gn sh.Much frosting.
645		Sandstone	Lt yl bn	Rnd to wrnd.Much G yl dolic to calcic cem,frosting,rust,cvd mat(esp glauc & cem?).Tr G lim cem,mafic
650		M	Vfn/VC	incl,qtz silt,wh silcs sh,pl gn sh.
650		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic to calcic cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,rust,cvd
655		M	Vfn/VC	mat.Much frosting.
655		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,rust,cvd mat.Much frosting.
660		M	Vfn/VC	
660		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,rust,cvd mat.Much frosting.
665		M	Vfn/VC	
665		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.Ltl rust.
670		M	Vfn/VC	
670		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,mafic incl,qtz silt,wh silcs sh,pl gn sh.Much frosting.Ltl rust,cvd mat.
675		M	Vfn/VC	
675		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,mafic incl,qtz silt,wh silcs sh,pl gn sh.Much frosting.Ltl rust,cvd mat.
680		M	Vfn/VC	
680		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,mafic incl,qtz silt,wh silcs sh,pl gn sh.Much frosting.Ltl rust,cvd mat.
685		M	Vfn/VC	
685		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.Ltl rust.
690		M	Vfn/VC	
690		Sandstone	V pl bn	Rnd to wrnd.Tr G yl dolic cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.Ltl rust.
695		M	Vfn/VC	
695		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat,rust.Much frosting.
700		M	Vfn/VC	
700		No Sample		
705				
705		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat,rust.Much frosting.
705		M	Vfn/VC	
710		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.
710		M	Vfn/VC	Ltl rust.
715		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.
715		M	Vfn/VC	Ltl rust.
720		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting,
720		M/C	Vfn/VC	rust.
725		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting,
725		M/C	Vfn/VC	rust.
730		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.
730		M/C	Vfn/VC	Ltl rust.
735		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.
735		M	Vfn/VC	Ltl rust.
740		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.
740		M	Vfn/VC	Ltl rust.
745		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.
745		M/C	Vfn/VC	Ltl rust.
750		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,cvd mat.Much frosting.Ltl pl gn
750		M/C	Vfn/VC	sh,rust.
755		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,cvd mat.Much frosting.Ltl pl gn
755		M	Vfn/VC	sh,rust.
760		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat,rust.Much
760		M	Vfn/VC	frosting.
765		Sandstone	V pl bn	Rnd to wrnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much frosting.
765		M	Vfn/VC	Ltl rust.
770		Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat.Much
770		Fn/M	Vfn/VC	frosting.Ltl rust.
775		Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat,rust.Much
775		Fn/M	Vfn/VC	frosting.
780		Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pl gn sh,cvd mat,rust.Much
780		Fn/M	Vfn/VC	frosting.
785		Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pyrite,pl gn sh,cvd mat,rust.
785		Fn/M	Vfn/VC	Much frosting.
790		Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,pyrite,pl gn sh,cvd mat,rust.
790		Fn/M	Vfn/VC	Much frosting.
795		Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,cvd
795		Fn/M	Vfn/VC	mat,rust,Much frosting.
800		Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,cvd
800		Fn/M	Vfn/VC	mat,rust,Much frosting.
805		Sandstone	V pl bn	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,cvd
		Fn/M	Vfn/VC	mat,rust,Much frosting.

MT SIMON FORMATION 375'	805 810		Sandstone Fn/M	V pl bn Vfn/VC	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,cvd mat,rust.Much frosting.
	810 815		Sandstone Fn/M	V pl bn Vfn/VC	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,cvd mat,rust.Much frosting.
	815 820		Sandstone Fn/M	V pl bn Vfn/VC	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,rust. Much frosting,Ltl cvd mat.
	820 825		Sandstone Fn/M	V pl bn Vfn/VC	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,rust. Much frosting,Ltl cvd mat.
	825 830		Sandstone Fn/M	V pl bn Vfn/VC	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,rust. Much frosting,Ltl cvd mat.
	830 835		Sandstone Fn/M	V pl bn Vfn/VC	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,rust. Much frosting,Ltl cvd mat.
	835 840		Sandstone Fn/M	V pl bn Vfn/VC	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,cvd mat.Much frosting,rust.
	840 845		Sandstone Fn/M	V pl bn Vfn/VC	Subrnd to rnd.Tr G silcs cem,G lim cem,mafic incl,qtz silt,wh silcs sh,Fn-zir,pyrite,pl gn sh,cvd mat.Much frosting,rust.

End Of Log

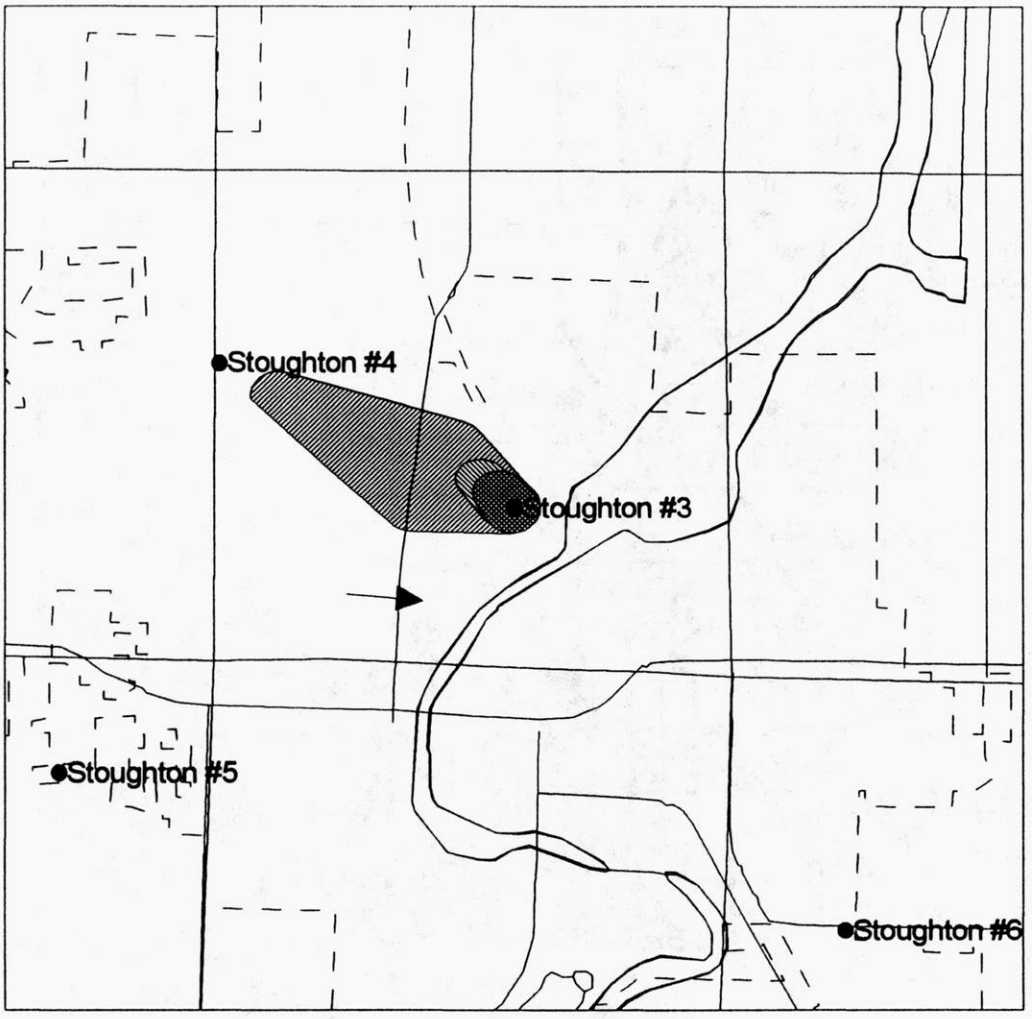
City of Stoughton, Well Number 3



City of Stoughton, Well Number 3 is located at 42° 55' 22.90" north latitude and 89° 13' 8.14" longitude. The well was installed in 1963 and has a pumping capacity of 525 gpm. The average daily use of the well between October 1994 and September 1995 was 149,000 gpd.

The well casing extends to a depth of 210.5 feet below ground surface, and the total depth of the well is 950 feet. Water is drawn from a combination of the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Stoughton, Well Number 3



Well Location

Latitude: 42° 55' 22.90"
Longitude: 89° 13' 8.14"

0 500 1000
(meters)

N

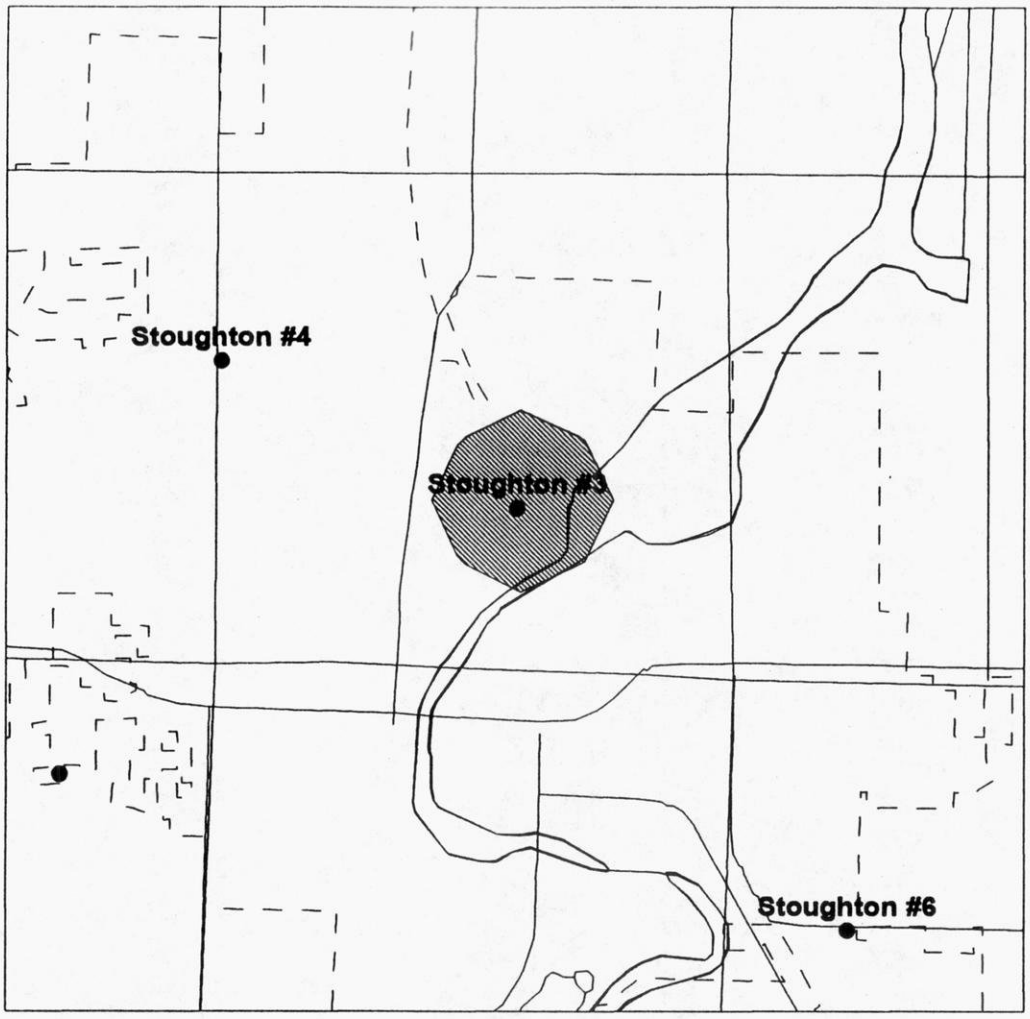
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Stoughton, Well Number 3



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

CITY WELL NO. 3, STOUGHTON, WIS.

NW¼, NE¼, SE¼, SW¼, NW¼ SE¼ sec. 5, T. 5 N., R. 11 E.

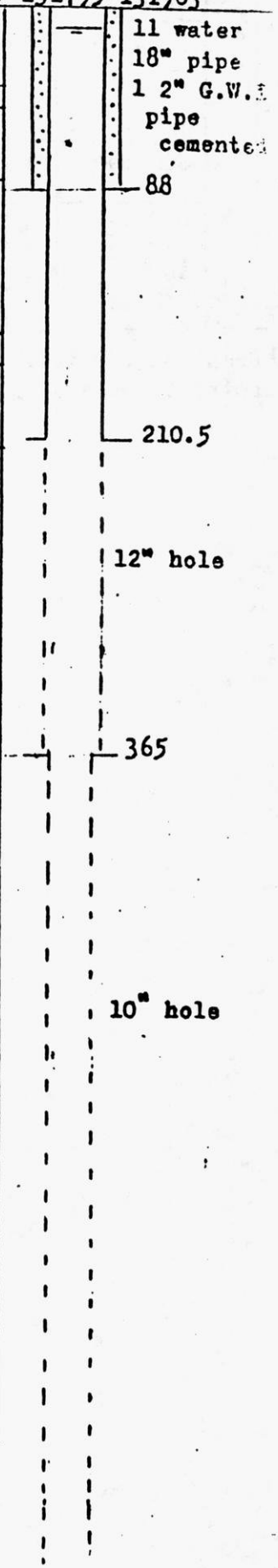
Ward and Strand, Engineers, 1947

J. P. Miller Artesian Well Co., Contractors

Alt.=843'ETM

Samples examined by F. T. Thwaites, Nos. 131795-131983

DRIFT	0-40	40		Till, yellow-gray, top weathered
	40-50	10		Till, gray
	50-85	35		Sand, fine to coarse, light gray
	85-160	75		Clay, gray, dolomitic
	160-175	15		Sand, medium to coarse, light gray
	175-210	35		Sand, very coarse to medium, light gray
	210			
FRAN	210-260	50		Sandstone, fine, light gray, dolomitic; top part contaminated with drift
	60			
	260-270	10		Sandstone, fine to coarse, light gray, dol.
DRE	270-320	50		Sandstone, medium to fine, white, slightly dolomitic
	50			
EAU CLAIRE	320-335	15		Shale, silty, glauconitic, gray, dolomitic
	335-420	85		Sandstone, medium to fine, light gray, some hard dolomitic layers
	420-435	15		Sandstone, fine, light gray, dolomitic
	435-465	30		Sandstone, fine, light gray
	465-525	60		Sandstone, fine to medium, light gray, pink, dolomitic, many hard layers
	205			
MT SIMON	525-535	10		Sandstone, medium to fine, light gray
	535-550	15		Sandstone, fine to medium, light gray
	550-560	10		Sandstone, fine to medium, light gray, dol.
	560-580	20		Sandstone, fine to medium, light gray
	580-590	10		Sandstone, fine, light gray
	590-600	10		Sandstone, medium to fine, light gray
	600-635	35		Sandstone, fine, light gray
	635-655	20		Sandstone, fine to medium, light gray
	655-660	5		No sample
	660-720	60		Sandstone, medium to fine, light gray
	720-730	10		Sandstone, medium to fine, pink
	730-745	15		Sandstone, medium to coarse, light gray



Dn-79 No. 3 city, Stoughton, p. 2

	745-755	10		Sandstone, medium to fine, light gray
	755-775	20		Sandstone, medium to coarse, light gray
	775-790	15		Sandstone, medium to fine, light gray
	790-800	10		Sandstone, coarse to fine, pink, gray
	800-860	60		Sandstone, medium to fine, pink-gray
	860-890	30		Sandstone, medium to coarse, light gray
	890-905	15		Sandstone, medium to fine, light gray
	905-925	20		Sandstone, fine to medium, light gray
	925-930	5		Sandstone, medium to coarse, light gray
415	930-940	10		Sandstone, fine to coarse, light gray
P 10	940-950	10		Granite, pink, top decomposed

Formations: Drift; Franconia; Dresbach (Galesville); Eau Claire; Mt. Simon; pre-Cambrian
Tested 6 hours at 585 g.p.m. specific capacity = 7.7 g.p.m./ft.

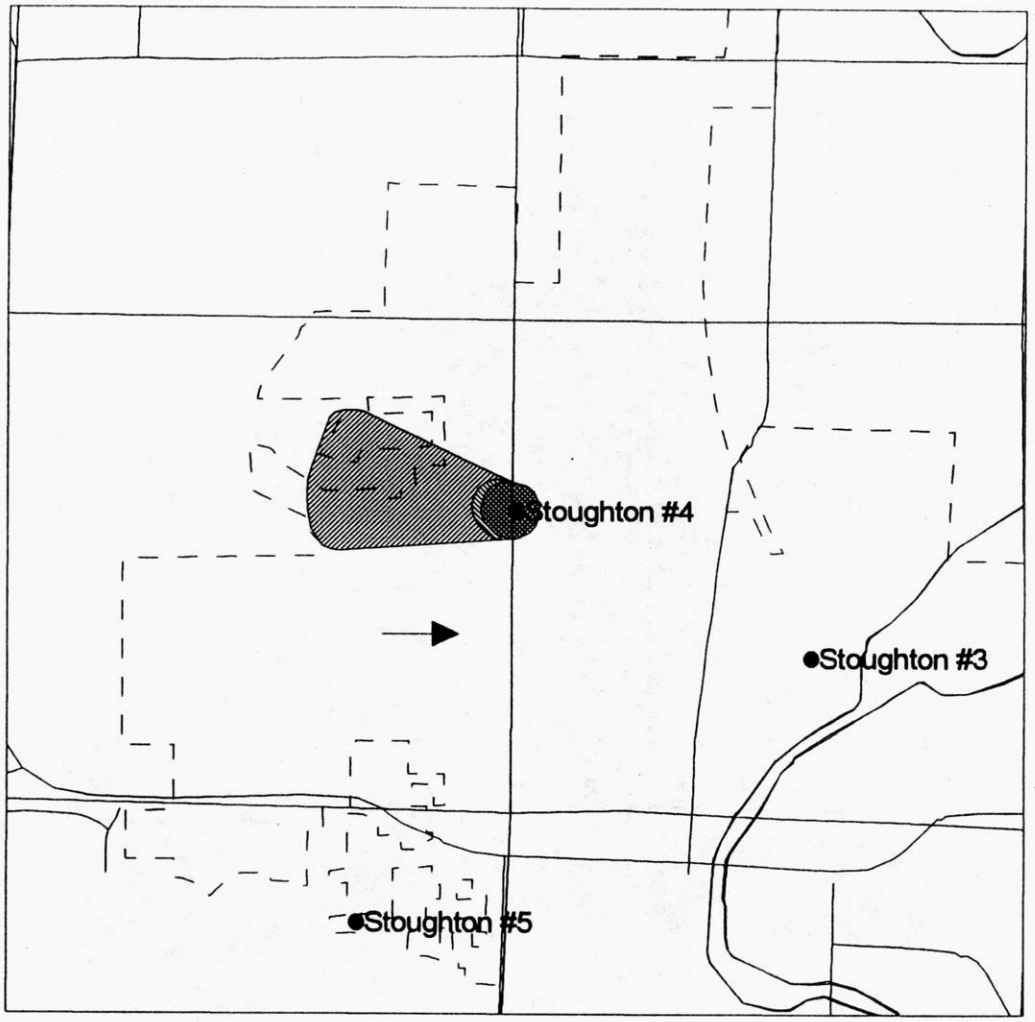
City of Stoughton, Well Number 4



City of Stoughton, Well Number 4 is located at 42° 55' 37.20" north latitude and 89° 13' 49.67" longitude. The well was installed in 1963 and has a pumping capacity of 1,140 gpm. The average daily use of the well between October 1994 and September 1995 was 450,000 gpd.

The well casing extends to a depth of 119 feet below ground surface, and the total depth of the well is 969 feet. Water is drawn from a combination of the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Stoughton, Well Number 4



Well Location

Latitude: 42° 55' 37.20"
Longitude: 89° 13' 49.67"

0 500 1000
(meters)

N

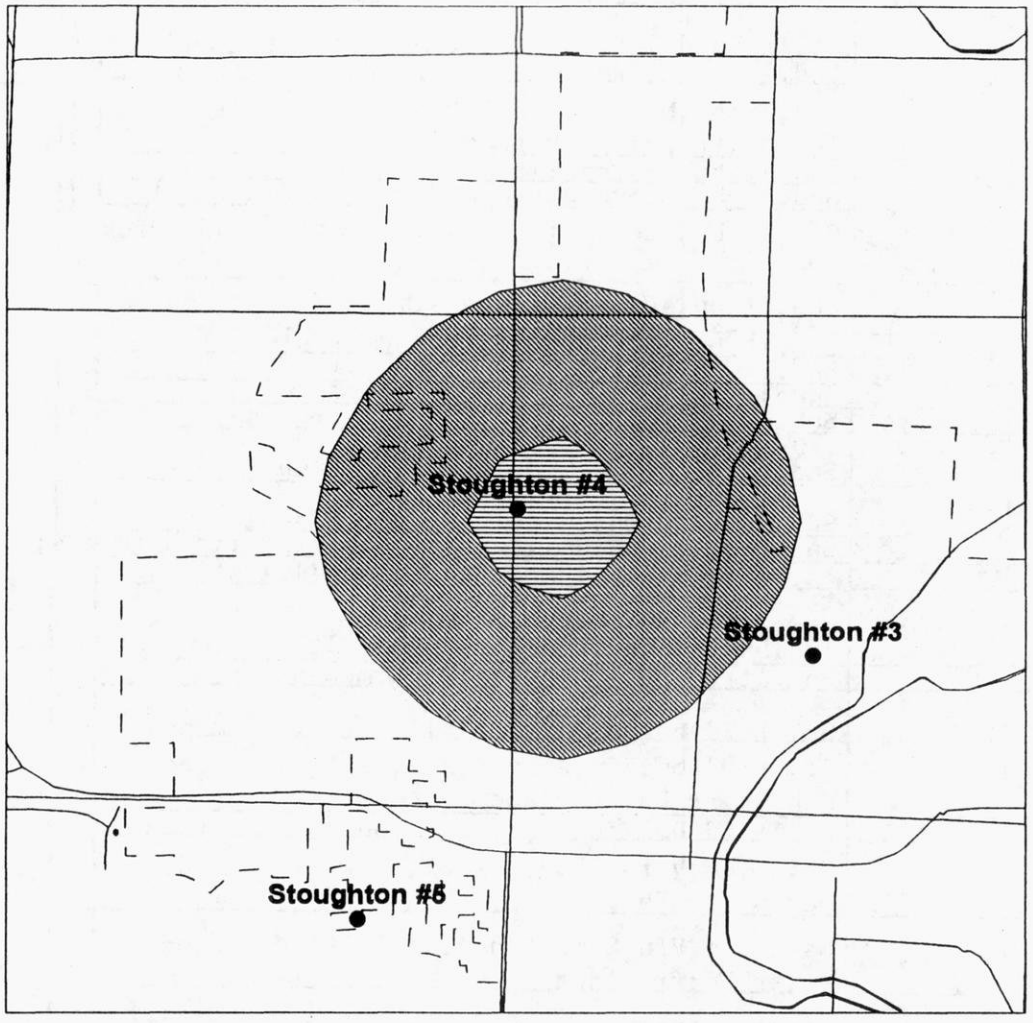
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Stoughton, Well Number 4



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

WISCONSIN GEOLOGICAL SURVEY, Science Hall, University of Wisconsin, Madison, Wis. Log No. Dn-900

Stoughton, Well No. 4, Stoughton, Wisconsin

NW¼, NW¼, SW¼, SW¼, SW 1/4, NW 1/4, Sec. 5, T 5N, R 11E

Miller Well & Pump Co., Driller - ~~August, 1963~~ 7/29/63

Sample Nos. 238614-238808 - Examined by M. E. Ostrom

Alt.=879'ETM

PLEISTOCENE	75	0- 5	5	Gvl,lt bn,Sang,P,mchM&fn snd;ltlCsnd;ltl cl
		5-15	10	St,lt bn,dol,P,mch cl;ltlM&fn snd;trCsnd;tr gvl
		15-20	5	Snd,lt bn,M,Srnd,mch st;ltl fn&C snd;tr gvl
		20-35	15	Snd,lt bn,M,Srnd,F,dol,P,mch C snd;ltl st & fn snd;tr gvl;rock frag
		35-40	5	Snd,lt bn,mchCsnd;ltl st&fn snd;mch cong
		40-45	5	Snd,lt bn,M,mch st&fn snd;tr C snd;ltl gvl
		45-60	15	Gvl,lt bn,Sang,P,tr C snd;mch st&fn snd; rock frag
		60-70	10	Snd,lt bn,VC,Srnd,P,mch st,fn,&M, snd;mch gvl;rock frag
		70-75	5	Snd,lt bn,M&fn,Srnd,F,trCsnd;tr st
		75-80	5	Snd,lt bn,M,Srnd,F,tr C snd; ltl fn snd
		80-85	5	Snd,lt bn-rd,M,rnd,G,dol,P,tr fn&C snd
		85-90	5	Snd,lt bn-rd,M&fn,rnd,G,dol,P,tr C snd
		90-100	10	Snd,rd,M&fn,rnd,G,dol,Fe,P,tr C snd
		100-110	10	Snd,rd,M&fn,rnd,G,dol,Fe,P,tr C snd;tr st
		110-115	5	Snd,bn,M,rnd,F,dol,Fe,P,trCsnd;ltl st;mch fn snd;
		115-120	5	St,bn,trCsnd;ltlMsnd;mch fn snd;ltl st
	65	120-135	15	Snd,bn,fn,Sang,F,dol,P,trCsnd;ltlMsnd;mch st
	140	135-140	5	Snd,lt rd-bn,trCsnd;ltlMsnd;mch st;tr gvl
FRANCONIA		140-150	10	Ss,lt rd-bn,fn,Sang,F,dol,Fe,P,ltlMsnd;mch st; tr Fe
		150-165	15	Ss,lt rd-bn,Vfn,Sang,F,dol,Fe,P,ltl M snd; mch st;tr Fe;tr glauc
		165-170	5	Ss,lt rd-bn,Vfn,Sang,ltlM snd;mch st;tr Fe
		170-185	15	Ss,lt bn,V fn,Sang,F, dol,Fe,P,ltl M snd; mch st;tr Fe
		185-200	15	Ss,lt bn,Vfn,Sang,F,dol,Fe,P,ltl M snd;mch st;tr Fe;tr glauc
		200-210	10	Ss,lt bn,M&fn,Srnd,F,dol,P,trCsnd;tr glauc; ltl st
		210-215	5	Ss,lt bn,M&fn,Srnd,F,trCsnd;tr Fe;ltl st
		215-220	5	Ss,lt bn,M&fn,Srnd,F,dol,P,trCsnd;tr st
		220-230	10	Ss,lt bn,M&fn,Srnd,F,dol,P,ltlCsnd;tr st
		230-240	10	Ss,lt bn,M,Srnd,F,dol,P,mchCsnd;tr st;ltl fn snd
		240-250	10	Ss,V lt bn,M&fn,Srnd,F,dol,P,mchCsnd;tr st; ltl fn snd
		250-260	10	Ss,Vlt bn,M&C,Srnd,F,dol,P,tr st;ltl fn snd
		260-270	10	Ss,Vlt bn,M,Srnd,F,dol,P,ltl C snd;tr st; ltl fn snd
		270-280	10	Ss,Vlt bn,C,Srnd,F,dol,P,ltl Msnd;tr st;ltl fn snd
	145	280-285	5	Ss,Vlt bn,M&C,Srnd,F,dol,P,tr st;ltl fn snd
GVILLE		285-290	5	Ss,wh,M,Srnd,ltlCsnd;tr st;ltl fn snd
		290-300	10	Ss,wh,M,Srnd,F,dol,P,tr fn&C snd
		300-305	5	Ss,wh,M,Srnd,F,dol,P,tr fn&C snd;tr VC snd
		305-315	10	Ss,wh,fn,Srnd,F,dol,P,tr M snd
	55	315-340	25	Ss,wh,fn,Srnd,F,dol,P,trMsnd;tr Fe
		340-345	5	Sts,lt gn,mch fn snd;ltl cl
		345-350	5	Sts,mot gn & bn,mch fn snd;ltl cl

+2'
+2'4"
+21.89' Water L
30",OD3/
Steel Dri
50' Pipe
24",OD1/
Steel Dri
Pipe
119'
23"Hole

Stoughton, Well No. 4, Stoughton, Wisconsin
Sample Nos. 238614-238808

EAU CLAIRE

350-355	5		Sts,lt bn,dol,P,tr glauc;tr limonite,ltlM&Csnd;	
355-360	5		Ss,lt bn,M,tr glauc;mchCsnd,ltl fnsnd;tr pyr;	
360-370	10		Ss,wh,M&C,Srnd,F,dol,F,tr glauc;trVCsnd;ltl fn snd;tr pyr	
370-380	10		Ss,wh,M,rnd,F,dol,F,ltl fn snd&st;trC snd; tr glauc	
380-385	5		Ss,wh,M&C,rnd,F,dol,F,tr Fe;tr fn snd	
385-390	5		Ss,wh,M&C,rnd,F,ltl fn snd;tr st;trVCsnd	390'
390-395	5		Ss,wh,M,rnd,F,ltl fn snd;tr st;mchCsnd;tr Fe	
395-400	5		Ss,wh,M,rnd,G,ltlC&fn snd;tr sf;tr Fe	
400-410	10		Ss,wh,M,rnd,G,dol,F,mch fn snd;tr st;ltl C snd;tr Fe	
410-415	5		Ss,wh,M,rnd,ltlC&fn snd;tr Fe& limonite	
415-440	25		Ss,wh,M&fn,Srnd,G,dol,P,tr C snd;tr Fe & limonite	
440-445	5		Ss,wh,M&fn,trCsnd;trFe&limonite;tr glauc	
445-475	30		Ss,wh,M,rnd,G,dol,P,tr C snd;tr Fe & limonite; ltl fn snd	
475-485	10		Ss,wh,M&fn,Srnd,G,dol,P,ltl C & fn snd	19"Hole
485-490	5		Ss, wh,M&fn,ltlCsnd;tr Fe&limonite	
490-505	15		Ss,wh,M&fn,Srnd,G,dol,F,ltl C snd;tr Fe & limonite	
505-520	15		Ss,V lt pnk,M&fn,Srnd,G,dol,F,ltl C snd;tr Fe & limonite;mch st	
520-525	5		Ss,wh,M&fn,ltlCsnd;trFe&limonite;mch st;pnk ss	
525-535	10		Ss,wh,M&fn,Srnd,G,dol,G,ltl C snd;tr Fe & limonite;mch st;pnk ss frag	
535-540	5		Ss,wh,trFe&limonite;ltl st;pnk ss frag	
540-560	20		Ss,wh,M,Srnd,G,dol,P,trFe&limonite;ltl st; pnk ss frag;ltl fn snd	
560-565	5		Ss,wh,M,Srnd,G,ltl st;pnk ss frag;ltl fn snd	
565-585	20		Ss,wh,M&fn,Srnd,G,dol,P,pnk ss frag;ltl st	
585-590	5		Ss,wh,fn,Sang,pnk ss frag;ltl st;mch M snd	588'
590-595	5		Ss,wh,fn,Sang,G,dol,P,ltl st;ltl M snd	
595-610	15		Ss,wh,fn,Sang,G,dol,P,tr Fe & limonite;ltl M snd	
610-620	10		Ss,wh,M&fn,Srnd,G,dol,P,tr Fe & limonite;ltl C snd	
620-630	10		Ss,V lt bn,M&fn,Sang,G,dol,F,tr Fe & limonite tr C snd	
630-640	10		Ss,wh,M&fn,Sang,G,dol,F,tr Fe & limonite;tr C snd	
640-645	5		Ss,wh,M&fn,Sang,ltlCsnd;tr Fe & limonite	
645-655	10		Ss,wh,M&fn,Sang,G,dol,F,ltl C snd;tr Fe & limonite;ltl sf	
655-660	5		Ss,wh,M,Sang,ltlCsnd;trFe&limonite;mch fn snd	
660-670	10		Ss,wh,M,Sang,G,dol,F,ltl fn&C snd;tr Fe & limonite	
670-675	5		Ss,V lt pnk,mch C snd;ltl fn snd;trFe&limonite	
675-685	10		Ss,wh,M&fn,Srnd,G,dol,P,tr C&fn snd;tr Fe & limonite	
685-695	10		Ss,wh,M&fn,Srnd,G,dol,P,tr C snd;ltl fn snd; tr Fe & limonite	

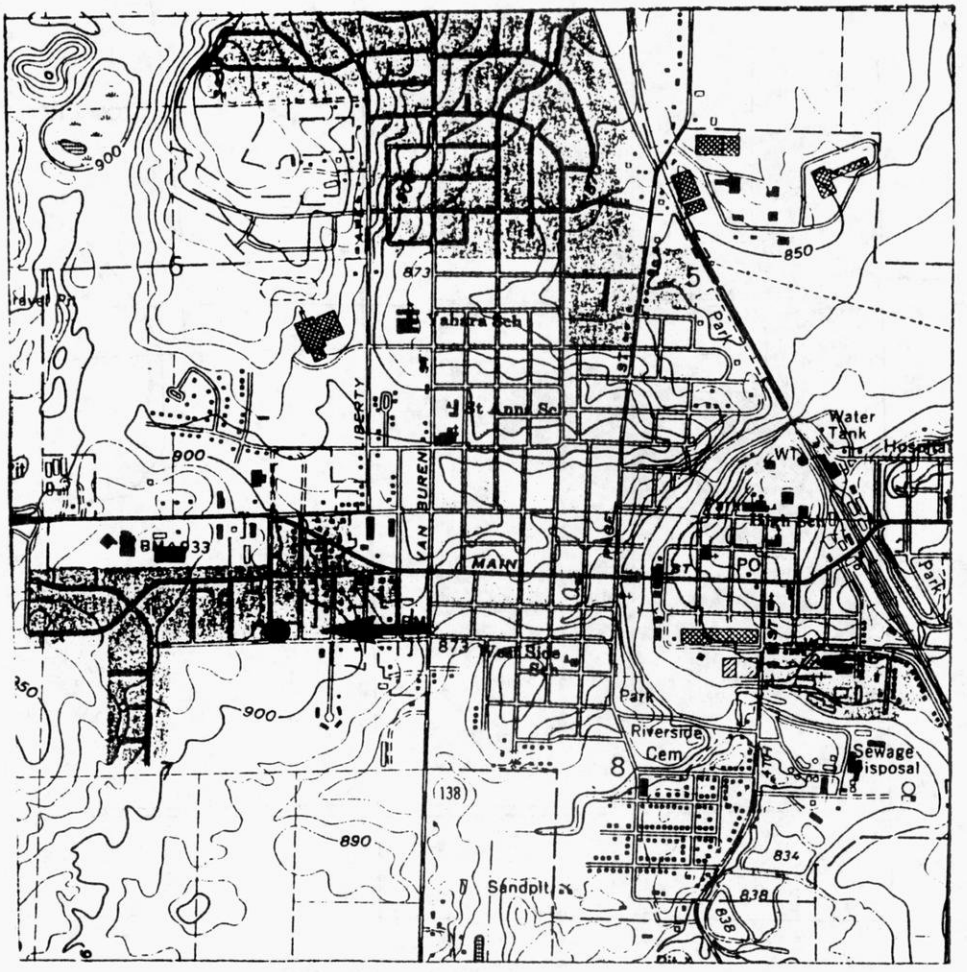
Stoughton, Well No. 4, Stoughton, Wisconsin
Sample Nos. 238614-238808

		695-705	10	Ss,wh,M&fn,Srnd,G,dol,P,ltl C&fn snd;tr Fe & limonite	
		705-715	10	Ss,wh,M,Srnd,G,dol,P,ltl C snd;tr fn snd;tr Fe & limonite	
		715-725	10	Ss,V lt gry,M&fn,Srnd,G,dol,P,trC&fn snd	
		725-730	5	Ss,Vlt gry,M&fn,Srnd,ltlCsnd;tr fn snd	
		730-735	5	Ss,Vlt pnk,M&fn,Srn,d,G,ltl C snd;tr fn snd	
		735-740	5	Sh,lt gry,mch st;ltl mxd snd	
		740-745	5	Sts,lt gry,dol,F,ltl cl;mch st	
	415	745-755	10	Sts,lt gry,dol,F,ltl Cl;Vmch fn&Msnd;trCsnd	
		755-760	5	Ss,lt gry,M,Srnd,G,dol,P,ltlCsnd;ltlMsnd	
		760-765	5	Ss,lt gry,M,mchCsnd;ltlVCsnd;tr fn snd	
		765-770	5	Ss,lt gry,M,mchCsnd;ltlVCsnd;ltl fn snd	
		770-775	5	Ss,lt gry,mchCsnd;ltlVCsnd;ltl fnsnd;tr cl	
		775-780	5	Ss,lt gry,mchCsnd;ltlVCsnd;trFe&limonite	
		780-785	5	Ss,lt gry,ltlCsnd;ltlVCsnd;trFe&limonite	
		785-790	5	Ss,lt gry,M&fn,Sang,ltlCsnd;trFe&limonite	
		790-795	5	Ss,lt gry,ltlC&VCsnd;ltl fn snd;trFe&limonite	
		795-800	5	Ss,lt gry,ltlCsnd;ltl fn snd;trFe & limonite	
		800-805	5	Ss,ltlCsnd;trVCsnd;ltl fn snd;trFe&limonite	15"Hole
		805-810	5	Ss,ltlCsnd;ltl fn snd;tr Fe&limonite;tr pyr	
		810-820	10	Ss,lt gry,M&C,Srnd,F,dol,P,ltlVCsnd;ltl fn snd;tr Fe&limonite;tr pyr	
		820-825	5	Ss,ltlVCsnd;ltl fn snd;trFe&limonite;tr pyr	
		825-830	5	Ss,mchC&fn snd;trVCsnd;trFe&limonite;tr pyr	
		830-835	5	Ss,Vlt rd,ltl fn snd;trVCsnd;trFE&limonite	
		835-840	5	Ss,Vlt rd,M,ltl fn&C snd;tr fe&limonite	
		840-845	5	Ss,Vlt rd,ltl fn&C snd;trFe&limonite;tr pyr	
		845-865	20	Ss,wh,M,Srnd,G,dol,P,ltl fn&C snd;tr Fe & limonite;tr pyr	
		865-870	5	Ss,Vlt bn,ltl fn&Csnd;trFe&limonite;tr pyr	
		870-875	5	Ss,Vlt bn,tr fn snd&st;trFe&limonite;tr pyr	
		875-890	15	Ss,Vlt bn,M&C,Sang,F,dol,P,tr fn snd&st;tr VCsnd;tr Fe&limonite;tr pyr	
		890-900	10	Ss,wh,M&C,Sang,F,dol,P,ltl fn snd;trVcsnd;tr Fe&limonite	
		900-905	5	Ss,wh,M&C,ltl fn snd;mchVCsnd;trFe&limonite	
		905-910	5	Ss,Vlt pnk,M&fn,mchC&VCsnd;trFe&limonite	
		910-915	5	Ss,Vlt pnk,M&fn,Sang,trC&VCsnd;trFe&limonite	
		915-920	5	Ss,ltl fn snd;trC&VCsnd;trFe&limonite;tr pyr	
		920-945	25	Ss,Vlt pnk,M,Sang,F,dol,P,ltl fn&Csnd;trVc snd;trFe&limonite;tr st;tr pyr	
		945-950	5	Ss,Vlt pnk,ltl fn&Csnd;trVCsnd;trFe&limonite	
		950-955	5	Ss,Vlt pnk,M,ltl fn&Csnd;trVCsnd;tr st	
		955-960	5	Ss,wh,M&C,ltl fn&VCsnd;trFe&limonite;tr pyr	
		960-963	3	Ss,ltlfn&VCsnd;trFe&limonite;trpyr;trst;ltlCsnd	
	212	963-967	4	Ss,rd,ltlVC snd;arkosic;biotite	969'
	2	967-969	2	Granite,red,xln,M,biotite	

Formations: Pleistocene, Franconia, Galesville, Eau Claire, Mt. Simon, Precambrian

Well tested for 25 hrs. at 1500 gpm with 91.09 feet of drawdown.
Specific capacity = 16.4 gpm per foot of drawdown.

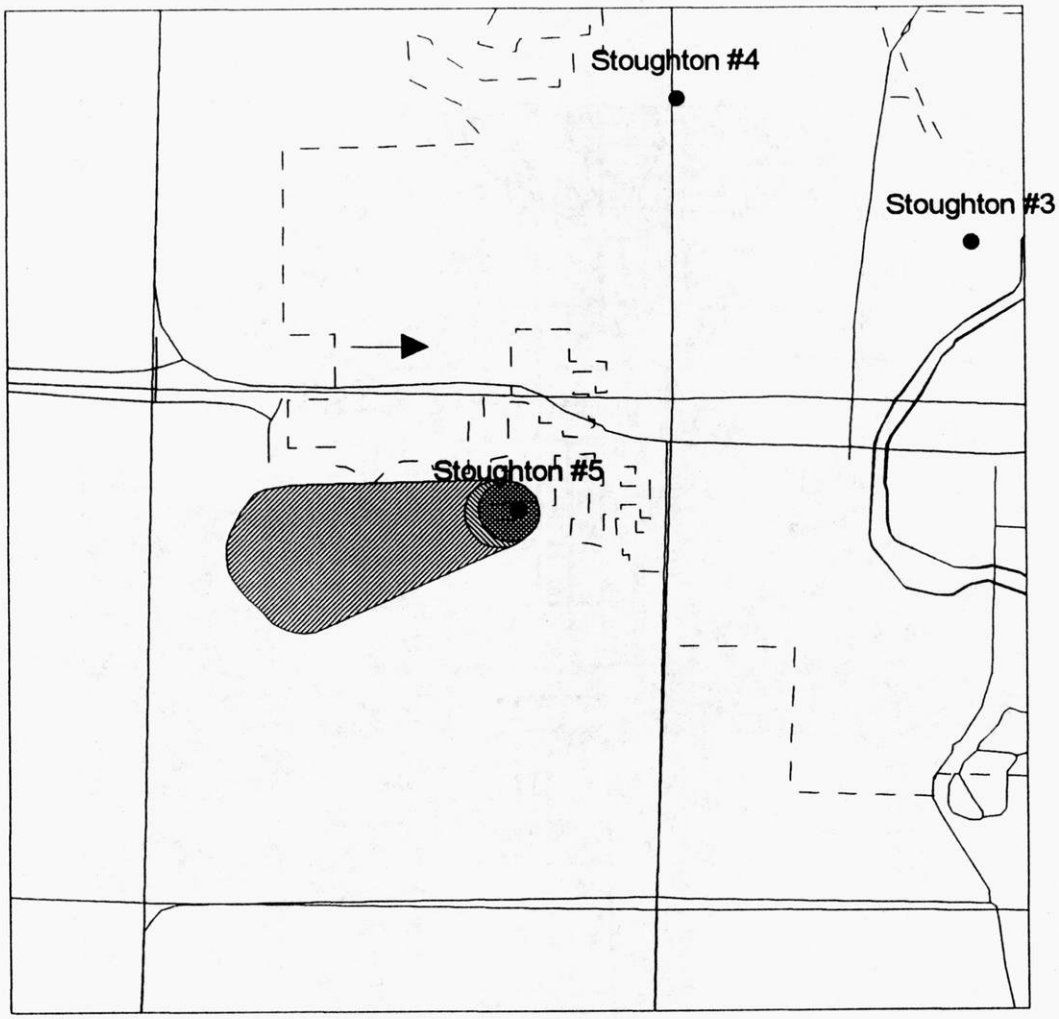
City of Stoughton, Well Number 5



City of Stoughton, Well Number 5 is located at 42° 54' 54.39" north latitude and 89° 14' 10.29" longitude. The well was installed in 1977 and has a pumping capacity of 1,025 gpm. The average daily use of the well between October 1994 and September 1995 was 298,000 gpd.

The well casing extends to a depth of 252 feet below ground surface, and the total depth of the well is 1113 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Stoughton, Well Number 5



Well Location

Latitude: 42° 54' 54.39"
Longitude: 89° 14' 10.29"

0 500 1000
(meters)

N

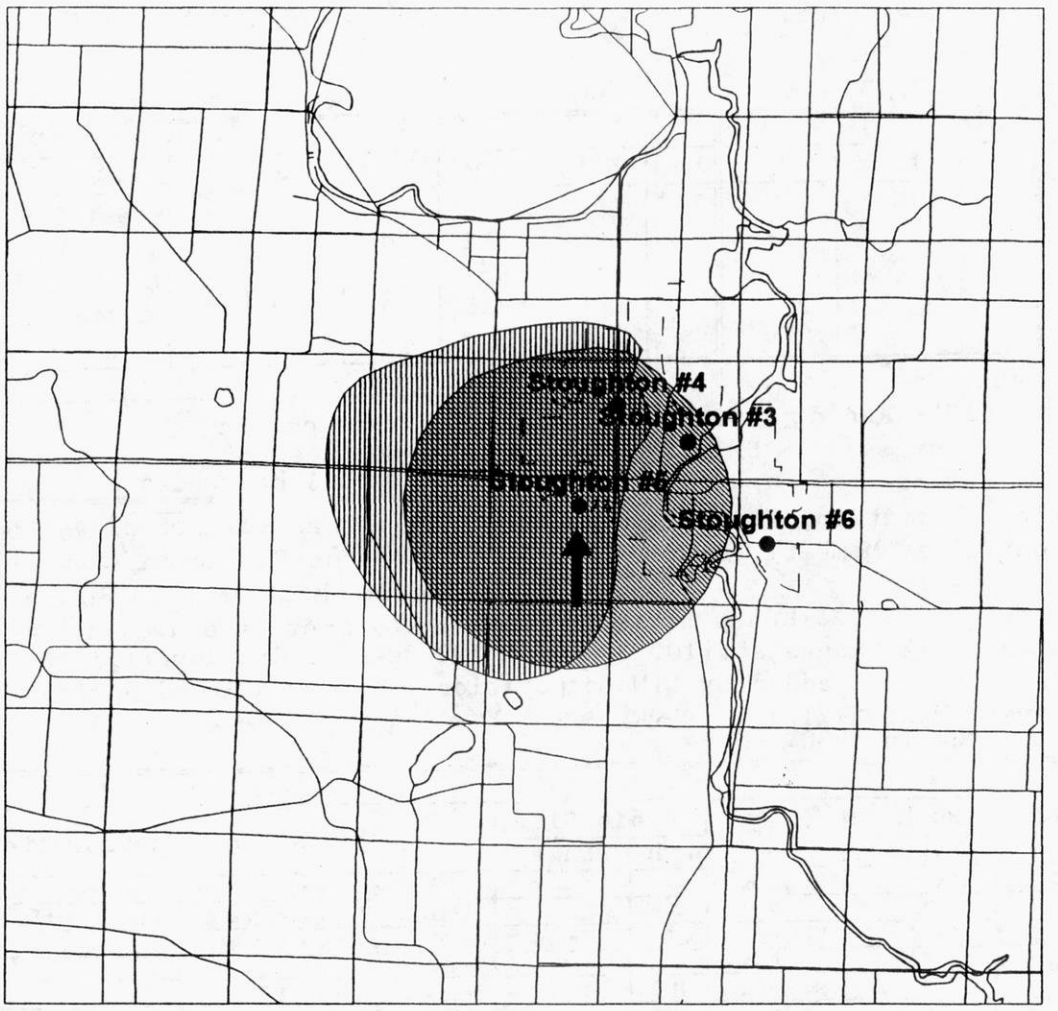
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Stoughton, Well Number 5



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Well name Stoughton City Well #5

County: Dane

Owner.... City of Stoughton
Address.. 211 Water St.
Stoughton, WI 53589
Driller.. Milaeger Well & Pump Co.
Engineer. Strand Associates, Inc.
Madison, Wisconsin

Completed...2/9/77
Field check. WG&NHS-K. Massie
Altitude....908' ETM
Use..... Municipal
Static w.l.. 53'(1977), 90' (1988)
Spec. cap... 9.3 GPM/ft (1977)

R. 11 E.
T. 5 N.
Sec. 7

Location: NE¼,SW¼,SE¼,SE¼,NW¼,NE¼,sec.7,T.5N.,R.11E.

Quad. Stoughton 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
30"	0	60'				30"	steel-1/2" wall	0	60'	18"	steel-3/8" wall	+1.5'	252'
23"	60'	401'				24"	steel-3/8" wall	0	92'	14" OD	0.25" A53B welded	+1'	432'
19"	401'	631'											
15"	631'	1113"											

Drilling method: Cable Tool
Samples from 0 to 1113' Rec'd: 11/2/76, 6/24/77

Grout	from	to
neat cement	0	60'
neat cement	+1'	380'
sand & bentonite	380'	432'

Studied by: R. M. Peters

Formations: Horicon Formation, Prairie du Chien Group, Jordan Formation (Coon Valley Member), Tunnel City Group, Wonewoc Formation, Eau Claire Fm, Mt. Simon Sandstone, Precambrian.

Published: 5/14/84
Republished: 8/20/90

Remarks: Well tested for 111.25 hours at 1000 GPM with 107 feet of drawdown (1977).
Well tested for 24 hours at 1100 GPM with 192 feet of drawdown(1988).
14" casing and grout added by CTW Corporation. Work completed 3/31/88.
DNR Permanent Well #77172& Dane Co. Municipal #21.
Caliper log run in 1986.

LOG OF WELL:

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
0-5		Silt	Dk yl bn	—	--	Trace sand, granules, organic matter.
5-10		"	"	—	--	Little sand. Trace gravel, organic matter.
10-15		Sand	Yl brown	M/C	Vfn/VC	Much silt. Trace gravel.
15-20		"	"	C	"	Same.
20-25		"	Bn yellow	M	"	Trace silt, gravel.
25-30		"	"	"	"	Little silt. Trace gravel.
30-35		"	"	"	"	Much silt. Trace gravel.
35-40		"	"	"	"	Same.
40-45		"	"	"	"	Little silt. Trace gravel.
45-50		"	"	M/C	"	Same.
50-55		"	"	"	"	"
55-60		"	"	"	"	"
60-65		"	"	"	"	Little silt, gravel.
65-70		Clay	Gray	—	--	Calcareous. Trace sand, gravel.
70-75		"	"	—	--	Calcareous. Little sand. Trace gravel.
75-80		Gravel	Mixed	M peb	Gran/L peb	Dolomite, chert, fos dolomite. Trace sand, silt.
80-85		"	"	"	"	Dolomite, chert. Trace sand, silt.
85-90		Dolomite	Lt yl bn	Fn	Fn/M	Trace white chert, floating sand.
90-95		"	"	"	"	Trace white chert.
95-100		"	"	M	"	Much floating sand.
100-105		"	"	"	"	Little floating sand.
105-110		"	"	"	"	Same.
110-115		"	"	"	"	Much floating sand.
115-120		"	"	"	"	Much floating sand. Little white & orange cherts.
120-125		"	Ol yellow	Fn	"	Mch floating sand. Ltl white oolitic chert. Tr white chert.
125-130		"	"	"	"	Much floating sand. Trace white oolitic & white cherts.
130-135		"	Yellow	"	Fn	Mch fltg sand. Tr wh ool & wh cherts, Vfn glauconite, pyrolu.
135-140		"	"	"	"	Mch fltg sand. Tr wh chert, Vfn glauc, pyrolu, pl gn shale.
140-145		"	"	"	"	Mch fltg sand. Tr white chert, Vfn glauconite, pyrolusite.
145-150		"	"	"	"	Same.
150-155		"	"	"	"	Mch fltg sand. Tr wh oolitic chert, Vfn glauconite, pyrolusite.
155-160		"	"	"	"	Same plus trace white chert.

Well name: Stoughton City Well #5

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
C.V.	160-165		Dolomite	Yellow	Fn	Fn	Mch fltg sand. Tr wh ool & wh chts, Vfn glauc, pyrolusite.
	165-170		"	"	"	"	Same.
80'	170-175		"	"	"	"	"
T	175-180		Sandstone	Yellow red	Vfn	Vfn/C	Sang to srnd. Much dolomite cement, Vfn/Fn glauconite, silt.
U	180-185		"	"	"	"	Same.
N	185-190		"	"	"	"	"
N	190-195		"	"	"	"	"
E	195-200		"	"	Vfn/Fn	"	Same plus trace pale green shale.
L	200-205		"	"	Vfn	Vfn/M	Same but shale is light brown.
	205-210		"	Strg brown	Fn	"	Subrounded. Mch dolomite cement, Vfn/C glauconite. Trace silt.
C	210-215		"	"	"	Vfn/C	Same plus trace red brown shale.
	215-220		"	"	"	Vfn/M	Same.
I	220-225		"	"	"	"	"
	225-230		"	"	"	"	"
T	230-235		"	"	"	"	Same plus trace pale green shale.
	235-240		"	"	"	"	Srnd. Mch dolomite cement, Vfn/C glauc. Tr silt, rd bn shale.
Gp.	240-245		"	"	"	Vfn/C	Same.
	245-250		"	"	Fn	Vfn/M	Same but little glauconite.
	250-255		"	"	"	"	Same.
85'	255-260		"	"	"	"	Same plus trace pale green shale.
	260-265		"	Bn pink	M	Vfn/VC	Rnd. Mch caved? material. Little Vfn/C glauconite. Trace silt.
	265-270		"	"	"	"	Same but glauconite Vfn/M.
	270-275		"	"	M/C	"	Same.
	275-280		"	White	C	"	Rounded. Trace silt, Vfn/M glauconite.
W	280-285		"	"	"	"	Same plus trace pale green shale.
O	285-290		"	"	"	"	Same but no shale.
N	290-295		"	"	"	"	Rounded. Trace silt, Vfn/C glauconite.
E	295-300		"	"	"	"	Rounded. Trace silt, Vfn/M glauconite, pale green shale.
W	300-305		"	Yellow	"	"	Rnd. Mch dolomite cement. Trace silt, Vfn/M glauconite.
O	305-310		"	"	"	"	Same but little silt.
	310-315		"	"	"	"	Same.
C	315-320		"	"	"	"	"
	320-325		"	"	"	"	"
	325-330		"	"	"	"	"
	330-335		"	"	"	"	"
	335-340		"	"	"	"	Same plus trace pale green shale.
	340-345		"	"	"	"	Same but no shale.
	345-350		"	"	"	"	Rounded. Much dolomite cement. Trace silt, Vfn/C glauconite.
	350-355		"	"	"	"	Same but glauconite Vfn/M.
	355-360		"	"	"	"	Rnd. Mch dolomite cement. Ltl silt. Tr Vfn/M glauc, pl gn shale.
	360-365		"	Pl yellow	M	"	Rnd. Mch dol cem. Ltl silt. Tr Vfn/M glauc, pl gn sh, rd bn sh.
	365-370		"	"	"	"	Same.
	370-375		"	"	"	"	Same but trace silt.
	375-380		"	"	Fn/M	Vfn/C	Srnd to rnd. Ltl dolomite cement. Tr silt, Vfn/M glauconite.
	380-385		"	"	"	"	Same.
	385-390		"	"	"	"	"
	390-395		"	"	"	"	Srnd to rnd. Tr dol & sil cems, silt, Vfn/M glauconite.
138'	395-398		"	"	"	"	Srnd to rnd. Mch pl gn sh, Ltl st. Tr dol & sil cems, pyrolu?
E.C.	398-405		Shale	Dark gray	—	—	Siliceous. Little silt. Trace sand. shale.
	405-410		Sandstone	Lt gy & dk gy	M/C	Vfn/VC	Rnd. Mch cvd? dk gry sh,cvd? dol-cem ss. Tr Vfn/C glauc,st,pl gn
	410-415		"	Light gray	"	"	Rnd. Ltl cvd? dol-cem ss. Tr dk gry & pl gn shs,Vfn/M glauc,wh
	415-420		"	V pl brown	M	Vfn/C	Rnd. Ltl st. Tr dol-cem ss,dk gry sh,Vfn/M glauc,silt. cht.
M	420-425		"	Red yellow	"	"	Rounded. Much silt. Trace dolomite-cemented sandstone,Vfn/Fn
T.	425-430		"	"	"	"	Rnd. Mch silt. Tr dol-cem ss,pl gn shale,Vfn/Fn glauc. glauc.
	430-435		"	"	"	"	Same.
S	435-440		"	V pl brown	"	"	Rounded. Much silt. Trace dolomite cement. Vfn glauconite.
I	440-445		"	"	"	"	Rounded. Much silt. Trace dolomite cement. Vfn/Fn glauconite.
M	445-450		"	"	"	"	Same but no glauconite.
O	450-455		"	"	"	"	Same plus trace Vfn glauconite.
N	455-460		"	"	"	"	Rounded. Much silt, clayey matrix. Trace dolomite cement.
	460-465		"	"	"	"	Same plus trace Vfn/Fn glauconite.
	465-470		"	"	"	"	Rounded. Much silt, clayey matrix. Little dolomite cement.
	470-475		"	"	"	Vfn/VC	Same but trace dolomite cement.
	475-480		"	"	"	Vfn/C	Rnd. Mch silt, cly matx. Tr dol cem, cvd? dk gry shale.
	480-485		"	"	"	"	Rnd. Mch silt, clayey matrix. Tr dol cem, Vfn/Fn glauconite.
	485-490		"	Pnk white	"	Vfn/VC	Rounded. Much dolomite cement. Trace silt.

Well name: Stoughton City Well #5

MT. SIMON SANDSTONE

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
490-495		Sandstone	Pink white	M	Vfn/VC	Rounded. Much dolomite cement. Trace silt.
495-500		"	"	"	"	Same but little cement, silt.
500-505	G	"	"	"	"	Same plus trace Vfn/Fn glauconite.
505-510		"	"	"	Vfn/C	Rounded. Little silt. Trace dolomite cement.
510-515		"	"	"	Vfn/VC	Same.
515-520		"	Pink	"	Vfn/C	Rounded. Much dolomite cement, silt.
520-525	G	"	"	"	Vfn/VC	Rnd. Mch silt. Ltl dol cem. Tr Vfn/Fn glauconite, wh chert.
525-530		"	"	"	"	Rounded. Much dolomite cement, silt.
530-535		"	"	"	"	Rounded. Much dolomite cement. Little silt.
535-540	G	"	"	"	Vfn/C	Rnd. Ltl dolomite cement, sandy dolomite, silt. Tr Vfn glauc.
540-545		"	Pink white	"	"	Rounded. Much dolomite cement. Little silt.
545-550		"	"	"	"	Rounded. Little dolomite cement. Trace silt.
550-555		"	"	"	"	Rounded. Much dolomite cement. Trace silt.
555-560		"	"	"	Vfn/VC	Same.
560-565		"	"	"	Vfn/C	"
565-570		"	"	"	"	"
570-575		"	"	"	"	Same plus trace sandy dolomite.
575-580		"	"	"	"	Same.
580-585		"	V pl brown	"	"	Rnd. Mch dolomite cement, silt, clayey matrix. Tr pl bn shale.
585-590		"	"	"	"	Same but shale is dark gray.
590-595		"	"	Fn/M	"	Srnd to rnd. Mch st, cly matx. Ltl dol cem. Tr pl bn sh, sndy dol.
595-600		"	"	M	"	Rounded. Much silt, clayey matrix. Little dolomite cement.
600-605		"	"	"	"	Same.
605-610		"	"	"	"	Same plus trace pale brown shale.
610-615		"	"	"	"	Same plus trace pale green shale.
615-620		"	"	"	"	Same but no pale green shale.
620-625		"	"	"	"	Rnd. Mch dol cem, silt, clayey matrix. Tr pale brown shale.
625-630	G	"	Pink white	"	Vfn/VC	Rnd. Mch sndy dol. Ltl dol cem. Tr silt. Vfn/Fn glauconite.
630-635		"	"	"	"	Rounded. Little sandy dolomite, dolomite cement, silt.
635-640		"	"	"	"	Same but trace silt.
640-645		"	V pl brown	"	"	Rnd. Ltl sndy dol. Mch silt, cly matrix. Tr dolomite cement.
645-650		"	Pink white	"	Vfn/C	Rnd. Mch silt. Ltl sndy dol. Tr cly matrix, dolomite cement.
650-655		"	"	"	"	Same but no clayey matrix.
655-660		"	"	"	"	Rnd. Mch silt. Ltl sndy dolomite. Tr dol cem, pl gn shale.
660-665		"	"	"	Vfn/VC	Rnd. Trace sandy dolomite, dolomite cement, silt.
665-670		"	"	"	Vfn/C	Same but little silt.
670-675		"	"	"	Vfn/VC	Same but no shale.
675-680		"	"	"	"	Same.
680-685		"	"	"	"	Rnd. Tr dol cem, sndy dol, pl gn sh, silt, white chert.
685-690		"	"	"	"	Rnd. Trace dolomite & silica cements, sandy dolomite, silt.
690-695		"	"	"	Vfn/C	Rounded. Little silt. Trace dolomite cement, sandy dolomite.
695-700		"	"	"	Vfn/VC	Rnd. Tr dolomite cement, sandy dolomite, silt, gn gray shale.
700-710		NO	SAMPLE. Driller reports same			as adjoining intervals.
						qtz.
710-715		Sandstone	Pk wh, rd bn, pl bn	M/C	Vfn/VC	Rnd. Mch dol cem, sndy dol. Ltl cvd? glauc sndy dol. Tr st, drsy
715-720	G G	"	Pk wh & rd bn	"	"	Rnd. Mch cvd? sndy dol, cvd? dol-cem ss. Ltl cvd? glauc sndy dol.
720-725	G	"	Red yellow	M	"	Rnd. Mch st, cly matx. Tr dol cem, Vfn glauc. st, Vfn/M glauc.
725-730		"	V pl brown	"	"	Rounded. Much silt, clayey matrix. Little dolomite cement.
730-735		"	Pink white	M/C	"	Rounded. Little dolomite cement. Trace silt.
735-740	G	"	V pl brown	M	"	Rounded. Much silt, clayey matrix. Trace Vfn/Fn glauconite.
740-745		"	White	M/C	"	Rnd. Tr silt, cvd? dk gry shale, cvd dolomite, cvd dol-cem ss.
745-750		"	"	"	"	Rounded. Little silt. Trace pale green shale.
750-755	G	"	"	M	"	Rounded. Trace silt, caved? Fn glauconite.
755-760		"	"	"	"	Same.
760-765	G	"	"	M/C	"	Rounded. Trace silt, caved? Vfn glauconite, silica cement.
765-770		"	"	"	"	Same but no cement.
770-775		"	"	"	"	Rounded. Trace silt, pale green shale, green gray shale.
775-780		"	"	"	"	Rnd. Tr sil, dol, & calc cems, pl gn shale, gn gry shale, silt.
780-785	G	"	Wh & gray	"	"	Rnd. Mch gn gry sh, silt. Tr cvd? M glauc, calc & sil cements.
785-790	G	"	"	C	"	Rnd. Mch gn gry sh. Ltl st. Tr grans, cvd? Fn glauc, calc & sil cems.
790-795		"	"	"	"	Rnd. Mch gn gry sh. Lt silt. Tr cvd? Vfn glauc, calc & sil cems.
795-800	G	"	Lt gray	"	"	Rnd. Mch silt. Tr shly matx, cvd? M glauc, grans, sil cement.
800-805		"	"	"	"	Rnd. Mch silt, lt gry sh. Few grans. Tr dk gry sh, calc & sil ce
805-810	G	"	White	M	"	Rounded. Much silt. Trace caved? Fn glauconite.
810-815		"	"	C	"	Rounded. Little silt. Trace granules.
815-820		"	Lt gray	M	"	Rounded. Poorly sorted. Much silt, clayey matrix. Few granules.

Well name: Stoughton City Well #5

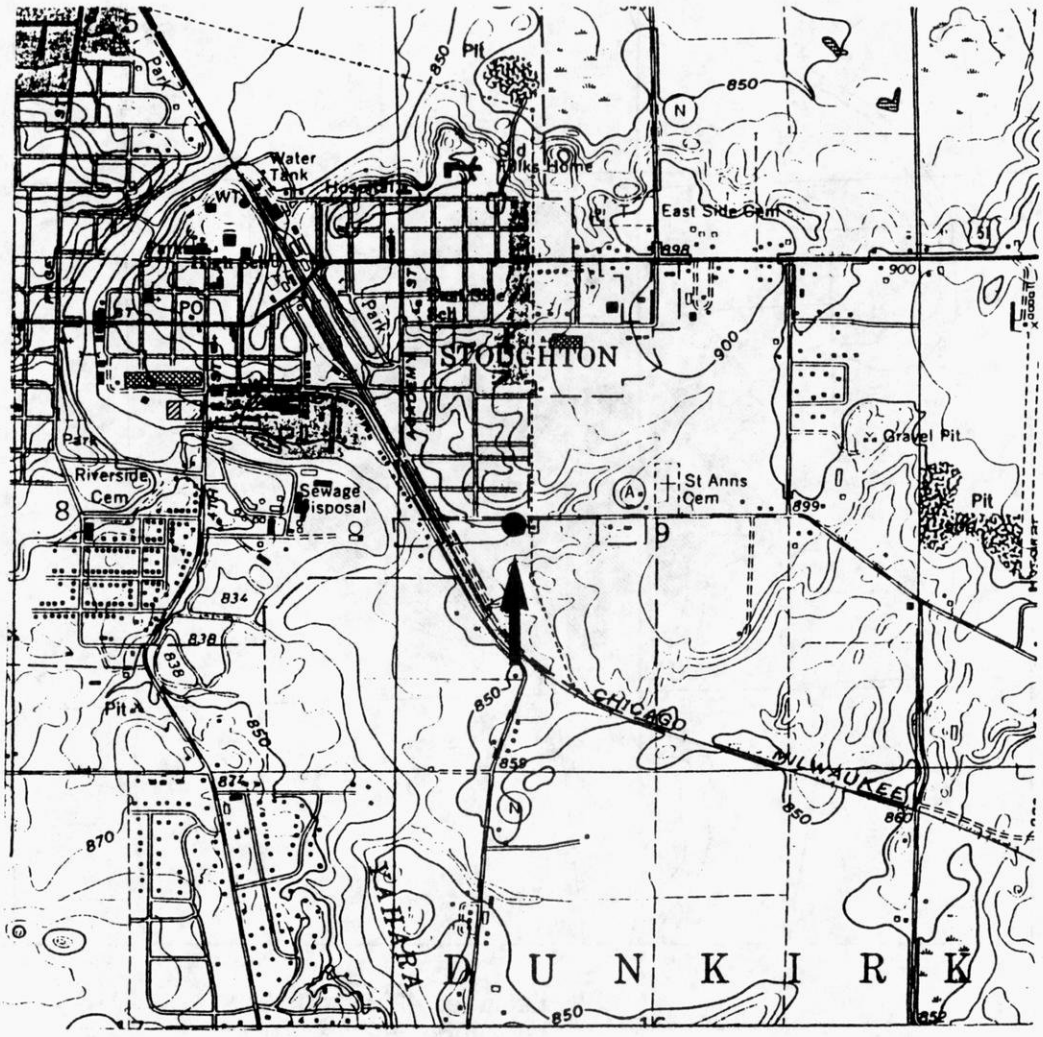
Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
820-825		Sandstone	Pl yellow	C	Vfn/VC	Rounded. Few granules. Tr silt, silica cement, pyrolusite?
825-830		"	"	"	"	Same but no pyrolusite.
830-835		"	"	"	"	Rnd. Few grans. Ltl v pl gn sh. Tr pyr, silt, calc & sil cems.
835-840		"	"	VC	"	Rnd. Mny grans. Tr v pl gn shale, pyr, silt, calc & sil cems.
840-845		"	"	"	"	Rnd. Mny grans. Ltl silt, cly matx. Tr v pl gn shale, pyrite.
845-850		"	"	"	"	Rnd. Many granules. Little silt. Trace very pale green shale.
850-855		"	"	C/VC	"	Rounded. Many granules. Little silt. Trace silica cement.
855-860		"	"	VC	"	Rounded. Many granules. Trace silt, silica cement.
860-865		"	"	"	"	Srnd to rnd. Few granules. Much silt. Trace shaley matrix.
865-870		"	"	"	"	Rnd. Many granules. Ltl very pale green shale. Tr silt. / cem
870-875		"	"	M&VC	"	Srnd to rnd. Mch sil cem, v pl gn sh. Few grans. Tr st, pyr, calc
875-880		"	"	M/C	"	Srnd to rnd. Ltl sil cem. Tr pyr, st, v pl gn sh, grans, calc cem.
880-885		"	"	"	"	Srnd to rnd. Ltl sil cem, v pl gn sh. Tr pyr, st, wh cht, dol cem.
885-890		"	"	C/VC	"	Rnd. Mny granules. Ltl silt. Tr v pl gn shale, silica cement.
890-895		"	Pink	VC	"	Rnd. Mny grans. Tr v pl gn sh, gn gry sh, st, calc & sil cems.
895-900		"	Pink brown	C/VC	"	Rnd. Mny grans. Tr v pl gn sh, silt, shly matx, dol & sil cems.
900-905		"	"	C	"	Rounded. Few granules. Little silt, silica cement. Trace pyrite.
905-910		"	V pl brown	"	"	Srnd to rnd. Few granules. Little silt, silica cement.
910-915		"	"	M	"	Rounded. Little silica cement. Trace silt.
915-920		"	"	M/C	"	Same.
920-925		"	"	"	"	Rounded. Much silica cement. Little silt. Trace granules.
925-930		"	"	"	"	Rounded. Little silica cement, silt. Trace granules.
930-935		"	"	VC	"	Srnd. Mny granules. Few small pebs. Ltl silt. Tr sil cem, pyr.
935-940		"	"	"	"	Same.
940-945		"	"	"	"	Srnd. Mny granules. Ltl silt. Tr small pebbles, silica cement.
945-950		"	"	"	"	Same but no small pebbles.
950-955		"	"	"	"	Srnd. Mny grans. Ltl silt. Tr silica cement, pyrite, wh chert.
955-960		"	"	"	"	Srnd. Mny grans. Tr small pebs, silt, shly matrix, sil cement.
960-965		"	"	"	"	Srnd. Mny grans. Tr small pebs, silica cement. Little silt.
965-970		"	Lt brown	"	"	Srnd. Mny grans. Ltl rd bn sh, silt, Tr shly matx, sil cement.
970-975		"	V pl brown	"	"	Srnd, Mny grans. Ltl st. Tr pur gry & v pl gn shs, sil cem. One
975-980		"	"	"	"	Srnd. Mny grans. Mch silt. Tr sh, sil cem. / 7mm sang qtz peb.
980-985		"	"	C/VC	"	Srnd. Many granules. Ltl silt, silica cement. Trace pyrite.
985-990		"	"	C	"	Srnd. Mch sil cement. Few granules. Little silt. Trace pyrite.
990-995		"	Lt yl bn	"	"	Srnd. Ltl sil cem. Few grans. Ltl st. / 6mm sang yl qtz peb.
995-1000		"	V pl brown	"	"	Srnd to rnd. Mch sil cem. Few grans. Tr small pebs, st, pyr. One
1000-1005		"	"	C/VC	"	Srnd. Mny granules. Ltl sil cem. Tr small pebs, silt, pyrite.
1005-1010		"	"	VC	"	Srnd. Mch st. Ltl shly matx. Mny grans. Tr small pebs, pyr, sil cem.
1010-1015		"	"	C	"	Rounded. Much silt. Trace granules, pyrite, silica cement.
1015-1020		"	"	"	"	Srnd to rnd. Ltl silt. Few grans. Tr small pebs, silica cement.
1020-1025		"	Lt red	"	"	Rnd. Ltl silt. Few grans. Tr shale, sil cem, pnk shly matrix.
1025-1030		"	"	"	"	Rnd. Mch silt. Ltl pnk shly matrix. Tr sh, sil cem, granules.
1030-1035		"	Pink	"	"	Rounded. Much silt. Little silica cement. Trace granules.
1035-1040		"	"	M/C	"	Srnd to rnd. Mch silt. Ltl silica cement. Tr grans, pl gn shale.
1040-1045		"	V pl brown	"	"	Srnd to rnd. Mch silica cement, Ltl silt, Trace granules.
1045-1050		"	"	"	"	Same.
1050-1055		"	"	C	"	Srnd to rnd. Mch silica cement. Mny grans. Tr shale, small pebs.
1055-1060		"	"	"	"	Srnd to rnd, Much silt. Little silica cement. Trace granules.
1060-1065		"	"	"	"	Same but little silt.
1065-1070		"	"	"	"	Same but much silica cement.
1070-1075		NO SAMPLE. Driller reports same				as preceding intervals.
1075-1080		Sandstone	V pl brown	C	Vfn/VC	Srnd to rnd. Few granules. Trace silica cement. silt.
1080-1085		"	Pink	"	"	Same but little silt.
1085-1090		"	"	"	"	Subrounded to rounded. Trace granules, silica cement.
1090-1095		"	"	"	"	Srnd to rnd. Mch sil cem. Few grans. Tr calc cement, pyrite.
1095-1100		"	"	M/C	"	Srnd to rnd. Mch sil cem, shale. Tr grans, calc cem. Ltl silt.
1100-1105		"	Lt rd bn & gy	M	"	Srnd. Mch sil cem, rd bn & pl gn shs. Mny mica flks. Tr silt.
1105-1110		Shale	Dk rd bn & pl gn	—	—	Trace sand & gravel.
1110-1112		Granite	Mxd rd bn	M	—	Wea. Mch caved silica-cemented sandstone, rd bn & pl gn shs, snd.
1112-1113		"	"	"	—	Weathered. Much caved silica-cemented sandstone, red brown and pale green shales, sand. Trace saprolite.
			END OF LOG			

MT. SIMON SANDSTONE

Well name: Stoughton City Well #5

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
		DUPLICATE SAMPLES.				
1065-1070		Sandstone	V pl brown	C	Vfn/VC	Subrounded to rounded. Much silt. Many granules. Little silica cement. Trace dark gray shale, calcite cement.
1100-1105		Sandstone	Pink	M	Vfn/VC	Subrounded to rounded. Much silica cement. Trace granules.
1105-1110		Sandstone	Dark red	C	Vfn/VC	Subangular to rounded. Much hematitic coating, red brown and pale green micaceous shales. Few granules. Trace mica flakes silica cement.
		Sample Q291-DN-1096-P pumped from Stoughton City Well #5. Received 7/11/86. Submitted by Robert Kardasz of Stoughton Water Utility.				
--		Sand	V pl bn	C	Vfn/VC	Well rounded. Well sorted. Much frosting. Little scale. Trace granules(non-quartz),quartz silt. Sandstone derived.
		Sample S149-DN-1096P pumped from Stoughton City Well #5 following installation of 14" liner. Received 4/14/88.				
--		Sand	Mxd V pl bn	Fn/M	Vfn/VC	Most of sample is a highly frosted white sand. Many other grains(quartz,igneous & metamorphic fragments,round). Few granules. Trace silt,rust(from drilling),organics.

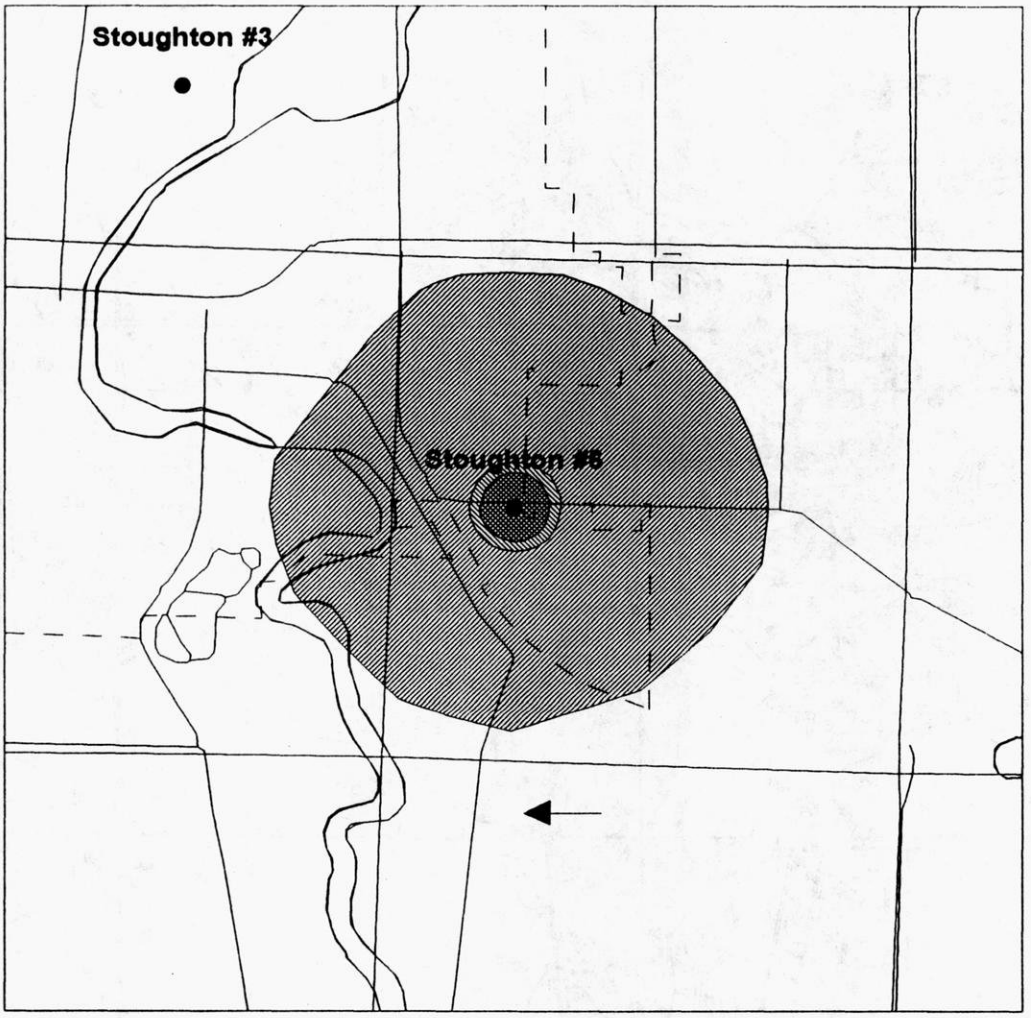
City of Stoughton, Well Number 6



City of Stoughton, Well Number 6 is located at 42° 54' 40.28" north latitude and 89° 12' 20.64" longitude. The well was installed in 1973 and has a pumping capacity of 1,010 gpm. The average daily use of the well between October 1994 and September 1995 was 522,000 gpd.

The well casing extends to a depth of 425 feet below ground surface, and the total depth of the well is 1132 feet. Water is drawn from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the west, although the well captures water from both sides of the Yahara River.

Zone of Contribution for Stoughton, Well Number 6



Well Location

Latitude: 42° 54' 40.28"
Longitude: 89° 12' 20.64"

0 500 1000
(meters)

N

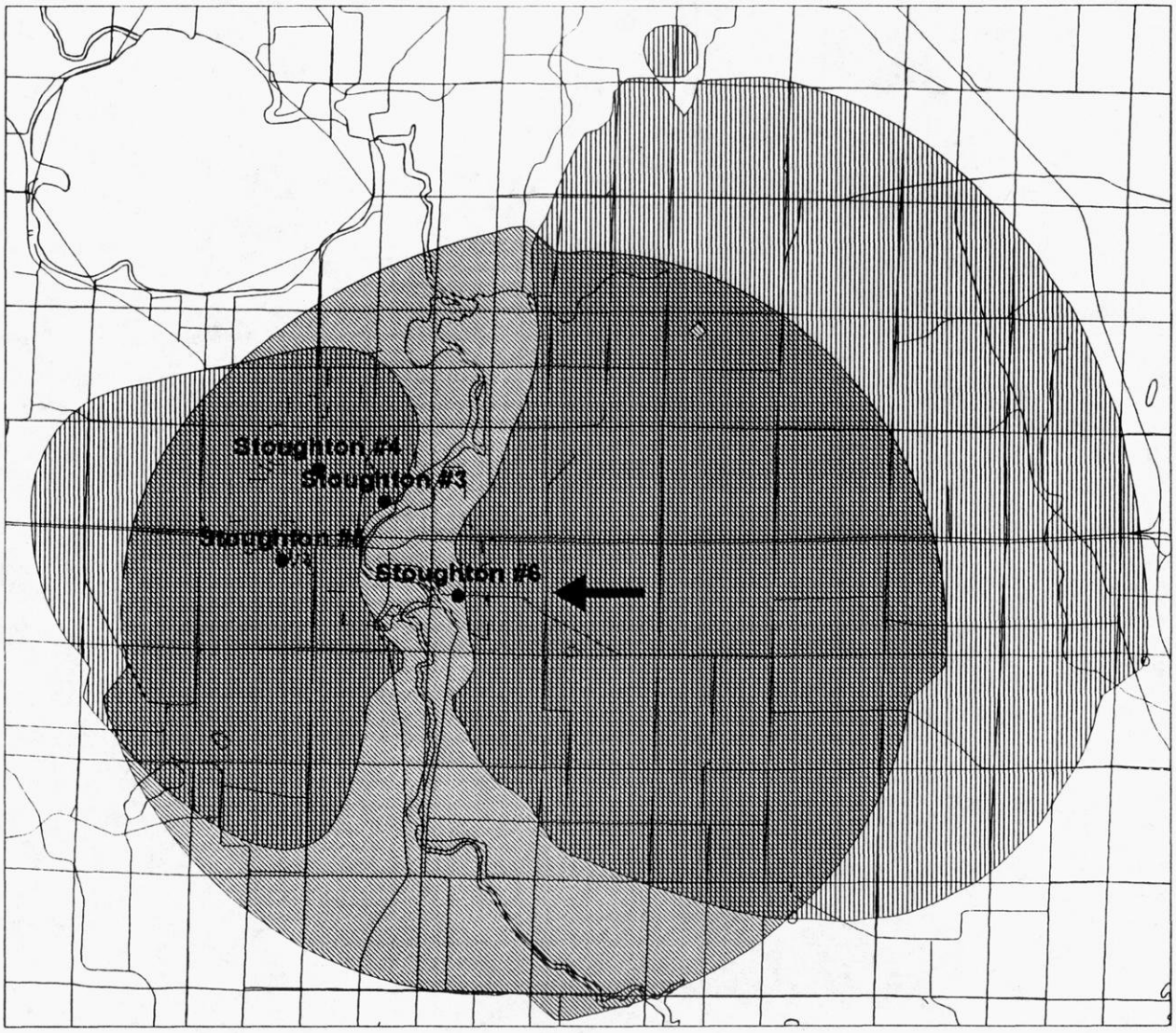
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Stoughton, Well Number 6



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
3817 Mineral Point Road • Madison, WI 53705

Log No. P23-Dn-1098

Well name

Owner....
Address..

Driller..
Engineer.

County:

Completed...
Field check.
Altitude....
Use.....
Static w.l..
Spec. cap...

R.
T.
N.
Sec.

Quad.

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to

Grout	from	to

Drilling method:
Samples from 0 to 1136' Rec'd: 3/19/85

Studied by: Tom Hanson (0-75')
Kathleen Massie-Ferch (75'-1136')

Issued:

Formations:

Remarks:

LOG OF WELL:

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
0-5		Sand	Dk yl bn	M	Vfn/VC	Little gravel(Gran/M peb),silt,soil. Trace organics.
5-10		"	"	"	"	Much silt. Little gravel(Gran/S peb). Trace soil,organics.
10-15		"	Ol gy bn	"	"	Little gravel(Gran/S peb). Trace silt,soil.
15-20		"	Dk gy bn	C	"	Little gravel(Gran/S peb). Trace silt.
20-25		"	"	M	"	Same.
25-30		"	"	"	"	Same plus trace caved soil.
30-35		"	"	"	"	Same.
35-40		"	"	"	"	"
40-45		"	"	"	"	Little gravel(Gran/S peb). Trace silt.
45-50		"	"	"	"	Much gravel(Gran/S peb). Trace silt.
50-55		Gravel	Yl brown	S peb	Gran/L peb	Dol,cht,oolic cht,trap,hem cemtd sts,sndy dol,grnt. Mch snd.
55-60		"	"	"	Gran/M peb	Same plus volcanics. Ltl st. Tr cvd soil.
60-65		Sand	"	M	Vfn/VC	Much gravel(Gran/S peb). Trace silt,caved soil.
65-70		"	Dark brown	"	"	Much gravel(Gran/L peb. Trace silt,caved soil & organics.
70-75		"	"	"	"	Much silt. Little gravel(Gran/L peb). Trace caved soil.
75-80		Dolomite	Lt yl bn	"	Fn/M	V limy. Mny ools(most qtz snd core cotd w/bn yl carb). Mch wh
80-85		"	"	"	"	Same but ltl drsy qtz(aa). to pl bn oolic cht,drsy qtz(some as
85-90		"		"	"	See end of log. a cem/matx). Ltl free qtz snd,
90-95		"	"	"	"	See end of log. uncons(gvl,snd & cl). Tr lim,pyrc
95-100		"	"	"	"	Limy. Mch free qtz snd/grans,cht(some oolic),drsy qtz. Ltl fltc
100-105		"	"	"	"	Same but ltl drsy qtz. qtz snd. Few ools(conc & snd cored). Tr
105-110		"	"	"	"	See end of log. st/Vfn-glauc,lim,pyro,calc,pl gn sh,br
110-115		Ls/ss	Bn yellow	M&Fn	Fn/M&Vfn/C	See end of log. sil cl,wh dol cemtd ss.
115-120		"	"	"	"	Same as 110'-115' but little glauconite,but trace cvd material.
120-125		"	Lt bn yl		- & Vfn/M	50% qtz snd, 50% carb,finer grnd than abv. Mch Vfn/M fltg qtz
125-130		"	"	"	"	Same. snd,VG ls cem. Ltl st/Fn-glauc. Tr lim,drsy qtz,cvd mat.
130-135		Limestone	Bn yellow	Fn	Fn/M	See end of log.
135-140		"	Yl brown	"	"	Same as 130'-135' plus tr wh fossil frags(in sandiest chips).
140-145		Siltstone	Yl bn&wk rd	—	—	Interlyrg of two colors on some chips. Mch VG ls cem,Vfn/Fn qtz
145-150		"	"	—	—	Same. snd,st/Vfn glauc,rd bn hem stng/mot. Tr pl gn sh,mica,wh
150-155		"	Yl bn&rd bn	—	—	Same but mch drsy qtz. fos frags,wh calc vug fillings,worm
155-160		"	"	—	—	See end of log. molds(filled w/sts),lim,wh drsy qtz.

Well name:

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
160–165		Siltstone	Red brown	—	—	drsy qtz. Tr yl bn sts,mica,lim,wh calc,hemic sh. Mch VG ls cem,Vfn/M snd,st/Fn-glauc,rd bn hem mot/stng. Ltl wh
165–170		Sandstone	"	Fn	Vfn/M	Sang. Mch G calc to dol cem,qtz st,rd bn hemic sh,Fn/M-glauc,
170–175		"	"	Fn/M	Vfn/C	Same. frstg. Ltl mica,cvd mat(mostly bn sil cl w/tr drsy qtz).
175–180		"	"	"	"	Same but more variety of caved material. Tr pl gn sh,lim,pyro,
180–185		"	"	"	"	Same but trace caved material.
185–190		"	"	"	"	Same.
190–195		"	"	"	"	"
195–200		"	"	"	"	Same though less hematitic shale than above.
200–205		"	Strg brown	"	"	Sang. Mch G dol to calc cement(nice xls about size of sand grns).
205–210		"		"	"	See end of log. frstg,Fn/M-glauc. Ltl rd bn hemic sh. Tr Fn-
210–215		"	"	"	"	See end of log. feld grns,lim,qtz st,mica,pl gn sh. Samp rng
215–220		"	Lt brown	"	"	See end of log. in color from yl to or(from ltl lim stng)
220–225		"	"	"	"	Same as 215'-220'. to rd bn(from hem stng).
225–230		"	V pl brown	M/C	Vfn/VC	Rnd to Wrnd. Tr F to G lim cem,pl gn sh,wh silcs sh,mfc incl,qtz
230–235		"	"	"	"	Same. st,cvd mat. Mch frstg.
235–240		"	"	"	"	Same but little caved material(mostly a pk yl sandy carbonate).
240–245		"	"	"	"	Same but tr cvd mat(aa). mot & im yl bn ools,tr cvd TC ss.
245–250		"	"	"	"	Same but ltl cvd mat. mostly a pk yl sndy carb w/rd bn hem
250–255		"	"	"	"	Same but tr cvd mat. Mch frstg,cvd mat(? on where cvd from.
255–260		"	"	"	"	Rnd to Wrnd. Tr F lim cem,qtz st,mfc incl,pl gn sh,wh silcs sh.
260–265		"	"	"	"	Same plus trace G yl dolomite cement(similar to caved material).
265–270		"	"	"	"	Rnd to Wrnd. Mch G yl dol to calc cem,frstg. Tr pl gn sh,mfc incl,
270–275		"	"	"	"	Same. qtz st,wh silcs sh,Fn-zr,pyro,lim,cvd mat,rust,
275–280		"	"	"	"	Same plus trace F to G limonite cement.
280–285		"	"	M	"	Same but rounded.
285–290		"	"	"	"	Same.
290–295		"	"	"	"	"
295–300		"	"	"	"	"
300–305		"	Lt yellow	M/C	"	Same but little good yellow dolomite to calcite cement.
305–310		"	"	Fn/M	"	Srnd to rnd. Mch G yl calc to dol cem,frstg. Tr F lim cem,pl gn
310–315		"	"	M	"	Same. sh,mfc incl,qtz st,wh silcs sh,Fn-zr,pyro,rust,cvd mat.
315–320		"	"	Fn/M	"	"
320–325		"	"	"	"	"
325–330		"	Off white	"	"	Rnd. Tr G yl calc to dol cem(cvd?),pl gn sh,wh silcs sh,mfc incl,
330–335		"	"	"	"	Same. qtz st,rust,cvd mat. Ltl hvy frstg. W srtd.
335–340		"	V pl yl bn	Fn	"	Srnd. Mch G to VG dolic to calcic yl bn cem(w/fines),frstg. Ltl
340–345		"	"	"	"	Same. qtz st. Tr pl gn sh,wh silcs sh,mfc incl,rust,cvd mat.
345–350		"	V pl brown	"	"	Same but little cement,plus trace Fn-glauconite. Well srtd.
350–355		"	"	"	"	Same.
355–360		"	"	Vfn/Fn	"	Sang. Mch G sil to slgtly dolic cem(wh),yl dol cem. Ltl silcs sh
360–365		"	"	"	"	See end of log. (pl gn to gy to rd gy),qtz st. Tr wh silcs sh,
365–370		Sh & ss	Dk gn gy&wh	"	Vfn/C	See end of log. mfc incl,Fn/M-glauc,rust,cvd mat. W srtd.
370–375		"	"	"	"	Same as 365'-370' plus trace pyrolusite.
375–380		"	"		Vfn/VC	See end of log.
380–385		"	"	M/C	"	Same as 375'-380' but only trace Vfn/Fn sandstone chips.
385–390		Sandstone	Pink gray	M	"	Rnd. Mch VG dol cem(lg xls),frstg,rd bn hem stng. Ltl dk gn gy to
390–395		"	"	"	"	Same. pl gn sh,qtz st. Few sec qtz grw. Tr Fn/C-glauc,G hem cem
395–400		"	White	M/C	"	Rnd to Wrnd. Ltl G dol cem(lg xls). Mch wh silcs sh,mfc incl.
400–405		"	"	"	"	Same plus tr pyr. frstg. Few sec qtz grw. Tr pk hem stng,pl gn
405–410		"	"	"	"	See end of log. sh,mfc incl,Fn-zr,wh silcs & dolic sh,M-glauc,
410–415		"	"	"	"	Rnd to Wrnd. Mch G dol cem(lg xls),frstg. Few sec qtz qtz st.
415–420		"	"	"	"	Same but tr cvd mat. grw. Tr pk hem stng,pl gn sh,mfc incl,Fn-
420–425		"	"	"	"	Same but ltl cement. zr,qtz st,wh silcs & dolic sh,rust. Ltl
425–430		"	"	"	"	Same plus much neat cement,but little rust. cvd mat(ss & sh).
430–435		"	"	"	"	Same.
435–440		"	"	"	"	"
440–445		"	"	"	"	"
445–450		"	"	"	"	"
450–455		"	"	"	"	Srnd. Ltl G dol cem. Few sec qtz grw. Mch frstg,rust. Tr wh silcs
455–460		"	"	"	"	Same plus tr cvd mat. sh,qtz st,pl gn sh,mfc incl,hem stng.
460–465		"	"	"	"	Same.
465–470		"	"	"	"	"
470–475		"	"	"	"	Srnd to Wrnd. Tr G dol cem,qtz st,pl gn sh,wh silcs sh,mfc incl,
475–480		"	"	"	"	Same. Fn-zr,rust. Mch frstg. Few sec qtz grw.
480–485		"	"	"	"	"
485–490		"	"	"	"	"

Well name:

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
490-495		Sandstone	White	M	Vfn/VC	Srnd to Wrnd. Tr G dol cem,qtz st,pl gn sh,wh silcs sh,mfc
495-500		"	V pl brown	"	"	Same but ltl qtz silt. incl,Fn-zr,rust. Mch frstg. Few sec qtz
500-505		"	"	"	"	Same but little dolomite cement. qrw.
505-510		"	"	"	"	Srnd to rnd. Mch F to G dol cem,frstg. Few sec qtz qrw. Ltl qtz
510-515		"	White	"	"	Same but ltl cem,but tr qtz st. st. Tr pl gn sh,wh silcs sh,
515-520		"	"	"	"	Same. Fn-zr,mfc incl,rust.
520-525		"	"	"	"	"
525-530		"	"	"	"	Same but little rust.
530-535		"	Pink gray	"	"	Srnd to rnd. Mch F pk dol cem,frstg. Ltl qtz st. Few sec qtz
535-540		"	"	"	"	Same. qrw. Tr wh dolic sh,pl gn sh,mfc incl,Fn-zr,rust.
540-545		"	"	"	"	"
545-550		"	"	"	"	Same but little rust.
550-555		"	"	"	"	Same.
555-560		"	Pink	"	"	"
560-565		"	"	"	"	"
565-570		"	"	"	"	"
570-575		"	"	"	"	"
575-580		"	"	"	"	"
580-585		"	"	"	"	"
585-590		"	"	"	"	Same but much rust.
590-595		"	"	"	"	Same.
595-600		"	"	"	"	"
600-605		"	White	"	"	Srnd. Ltl F sil cem,qtz st. Mch frstg. Few sec qtz qrw. Tr wh
605-610		"	"	"	"	Same but ltl wh silcs sh. silcs sh,pl gn sh,mfc incl,Fn-zr,
610-615		"	"	"	"	Same. rust,cvd dol cem.
615-620		"	"	"	"	Same but subangular to subrounded.
620-625		"	"	"	"	Same.
625-630		"	"	"	"	"
630-635		"	Pink gray	"	"	Srnd. Mch F pk dol cem,frstg. Ltl qtz st. Few sec qtz qrw. Tr
635-640		"	"	"	"	Same. pl gn sh,wh silcs sh,mfc incl,Fn-zr,rust.
640-645		"	"	"	"	Same but ltl dolomite cement,plus ltl F to P silica cement.
645-650		"	"	"	"	Same but trace silica cement.
650-655		"	"	"	"	Same.
655-660		"	"	"	"	"
660-665		"	"	"	"	"
665-670		"	"	"	"	"
670-675		"	White	"	"	"
675-680		"	"	"	"	"
680-685		"	Pink gray	"	"	"
685-690		"	"	"	"	" incl,qtz st,Fn-zr,rust. Mch frstg. Few sec qtz qrw.
690-695		"	White	"	"	Srnd to rnd. Tr F pk dol cem,P sil cem,pl gn sh,wh silcs sh,mfc
695-700		"	"	"	"	Same but little dolomite cement.
700-705		"	"	"	"	Same. incl,pyr,Fn-zr.
705-710		"	"	"	"	" Few sec qtz qrw. Tr pl gn sh,wh silcs sh,qtz st,mfc
710-715		"	Lt pk bn	"	"	Srnd to rnd. Mch G pk dol cem,frstg. Ltl pk wh dolic sh,rust.
715-720		"	White	M/C	"	Srnd to rnd. Ltl G pk dol cem. Mch frstg. Few sec qtz qrw. Tr F
720-725		"	"	"	"	Same. sil cem,pl gn sh,wh silcs sh,qtz st,mfc incl,Fn-zr,rust,
725-730		"	"	M	"	Same plus trace G pyrite cement.
730-735		"	"	"	"	Same but trace dolomite cement,minus pyrite cement.
735-740		"	"	"	"	Same.
740-745		"	"	"	"	"
745-750		"	"	"	"	"
750-755		Sts & ss		Vfn&C	Vfn/S peb	See end of log.
755-760		"	"		"	Same as 750'-755' but Vfn/Fn sandstone 10% of sample.
760-765		"	"	"	"	Same.
765-770		"	"	"	"	" incl,Fn-zr.
770-775		"	"	"	"	Same but siltstone 40% of sample. wh silcs sh,pl gn sh,mfc
775-780		"	"	"	"	Same. gvl(rnd,Gran/S peb),neat cem. Few sec qtz qrw. Tr pyr,
780-785		Sandstone	V pl brown	Fn&C	"	Sang & rnd. Mch G to F sil cem,frstg. Ltl sts(aa),qtz st,qtz
785-790		"	"	"	"	Same but even more G to VG sil cem,but mch gvl,but tr neat cem.
790-795		"	"	Fn/M	"	Sang to srnd. Mch F to G sil cem,frstg. Ltl rnd qtz gvl(Gran/S
795-800		"	"		"	See end of log. peb,qtz st,sts(aa). Few sec qtz qrw. Tr pyr
800-805		"	"	M/C	Vfn/Gran	See end of log. cem,pl gn sh,wh silcs sh,Fn-zr,mfc incl,neat
805-810		"	"	"	"	Sang to srnd. Mch G sil cem,frstg. Mny sec qtz qrw. Few cem.
810-815		"	"	M	"	Same. qtz grans. Tr pyr cem,wh silcs sh,pl gn sh,qtz st,Fn-zr,
815-820		"	"	"	"	" mica,sts,rust.

Well name:

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
820-825		Sandstone	Pink	C/VC	Vfn/Gran	Srnd to Wrnd but irg. Mch G pk sil cem,frstg. Few rnd qtz grans
825-830		"	"	"	"	See end of log. sec qtz grw. Tr G pyr cem,wh silcs sh,pl gn sh
830-835		"	"	"	"	Same as 825'-830'. Fn/M-zr,mfc incl,mica,rd bn hemic micus sh,
835-840		"	"	"	"	Same but ltl pl gn to pl yl gn shale. micus sts(cvd?),rust.
840-845		"	V pl brown	M/C	"	Sang to srnd but irg. Mch G sil,frstg. Few sec qtz grw,rnd qtz
845-850		"	"	"	"	Same. qtz grans,frac grns. Tr G pyr cem,wh silcs sh,pl gn sh,
850-855		"	"	"	"	" dsky rd hemic sh,mfc incl,mica,Fn-zr,rust.
855-860		"	"	"	"	"
860-865		"		"	"	Same but many secondary quartz growths. Color from cement.
865-870		"	V pl brown	"	"	Same but only trace pink cement.
870-875		"	"	M	"	Sang to srnd. Mch F to G sil cem,frstg. Mny sec qtz grw. Tr wh
875-880		"	"	M/C	"	Same. silcs sh,pyr,pl gn sh,dsky rd hemic sh,Fn-zr,mfc incl,pk
880-885		"	Pink	"	"	Same but mch pk stng,plus mny frac grns. stng of cem,rust.
885-890		"	"	"	"	Ang to srnd. Mch F to G sil cem,frstg. Mny sec qtz grw,frac
890-895		"	"	"	"	Same but ltl cem. grns. Ltl wh silcs sh. Tr pyr,pl gn sh,dsky
895-900		"	"	"	"	Same. rd bn stng,mfc incl,Fn-zr,rust,rd hemic sh.
900-905		"	"	"	"	Same but trace white siliceous shale,plus trace pyrite.
905-910		"	"	C	"	Ang to srnd. Ltl F to G sil cem. Mch frstg. Mny sec qtz grw. Tr
910-915		"	"	"	"	Same. pyr,pl gn sh,wh silcs sh,dsky rd hemic sh,Fn/M-zr,mfc
915-920		"	"	"	"	Same plus trace brown chert. incl,rd bn stng,rust.
920-925		"	"	"	"	Same.
925-930		"	"	"	"	Same minus chert.
930-935		"	Lt rd bn	"	"	Same.
935-940		"	"	"	"	"
940-945		"	"	"	"	"
945-950		"	"	"	"	"
950-955		"	V pl brown	M&VC	Vfn/S peb	Ang to rnd. Mch F to G sil cem(w/fines),frstg,qtz gvl(Gran/S
955-960		"	"	"	"	Same. peb). Mny sec qtz grw. Tr pl gn sh,wh silcs sh,pk hemic
960-965		"	"	C	"	" micus sh,feld grns,qtz st,mfc incl,rock frags,rust.
965-970		"	"	"	"	"
970-975		"	"	"	"	"
975-980		"	"	"	"	"
980-985		"	"	"	"	"
985-990		"	"	"	"	"
990-995		"	"	M/C	"	Same though slightly less cement.
995-1000		"	"	"	"	Same plus trace hematite staining.
1000-1005		"	"	"	"	Same.
1005-1010		"	"	"	"	"
1010-1015		"	"	"	"	"
1015-1020		"	"	"	"	"
1020-1025		"	"	"	Vfn/Gran	Same but trace quartz granules.
1025-1030		"	"	"	"	Srnd. Mch G to F sil cem,frstg. Mny sec qtz grw. Ltl wh silcs
1030-1035		"	"	"	"	Same. sh. Tr Fn-zr,qtz st,pl gn sh,mfc incl,rock frags,rust.
1035-1040		"	"	"	"	"
1040-1045		"	"	"	"	Same but little cement.
1045-1050		"	"	"	"	Same.
1050-1055		"	"	"	"	"
1055-1060		"	"	"	"	Same but trace cement,trace white shale.
1060-1065		"	"	"	"	Same.
1065-1070		"	"	"	"	"
1070-1075		"	"	"	"	" rust.
1075-1080		"	Lt pk bn	"	"	Same plus tr rd bn hem ctng,yl lim ctng. Mny sec qtz grw. Ltl
1080-1085		"	"	"	"	Same. bn lim ctng,qtz st,pl bn micus sh,mfc incl. Mch frstg.
1085-1090		"	Pink	"	"	Sang to srnd. Tr G to F sil cem,wh silcs sh,rd bn hem ctng,yl
1090-1095		"	V pl brown	M	"	Ang to srnd. Mch G to F sil cem,frstg. Mny sec qtz grw. Ltl wh
1095-1100		"	Pink	Fn/M	Vfn/VC	See end of log. silcs sh. Tr pk feld,mfc incl,qtz st,pl bn
1100-1105		"	Lt rd bn	M	"	See end of log. micus sh,lim & hem ctng,rust.
1105-1110		"	Red brown	M/C	Vfn/Gran	Same as 1100'-1105' but mch silica cement,but mch hemic shale.
1110-1115		"	"	"	"	Same but little pale green to green micaceous shale.
1115-1120		"	"	M	"	See end of log.
1120-1125		"	"	M/C	"	Same as 1115'-1120' but tr silica cem & even more rock frags.
1125-1130		"	Lt rd bn	"	"	Sang to rnd. Tr F to G sil cem,qtz st,wh silcs sh,pl gn m
1130-1135		Granite	Or & pk gy	M	Fn/M	See end of log. sh,mfc incl,rust,neat cem. Mny ang rock frags
1135-1136		"	"	"	"	See end of log. (25% of samp,or feld/grns). Mch frstg. Few
						sec qtz grw. Ltl bk & hem biot,dk rd bn
						hemic sh.

Well name:

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
		"See end of log" samples.				
85-90		Dolomite		M	Fn/M	V limy. Mch fltg & free qtz snd. Tr im ools,calc,st/Vfn-glauc,pl gn sh,cht,drsy qtz,lim,pyro,Fn-zr,cvd mat.
90-95		Dolomite		M	Fn/M	Limy. Mch free qtz snd. Ltl fltg qtz snd,cht(some oolic),drsy qtz. Few ools(conc & snd cored). Tr st/Vfn-glauc,lim,pyro,calc, pl gn sh.
105-110		Dolomite		M	Fn/M	Same as 100'-105' but mch fltg quartz sand,plus tr cvd material.
110-115		Ls/ss	Bn yellow	M&Fn	Fn/M&Vfn/C	50% qtz snd, 50% carb. Sang. Mch Vfn/M-fltg qtz snd,VG ls cem. Ltl cvd mat. Tr st/Fn-glauc,lim,drsy qtz.
130-135		Limestone	Bn yellow	Fn	Fn/M	Granular. Mch fltg qtz st/snd. Ltl st/Vfn-glauc,lim stng. Tr pyrc calc,rd bn hem stng,lim,cvd mat. Qtz snd & glauc are V conc in chips.
155-160		Siltstone	Yl bn&rd bn	—	—	Only ltl yl bn sts. Mch VG ls cem,Vfn/Fn-qtz snd,st/Vfn-glauc,rd bn hem mot/stng. Ltl wh drsy qtz. Tr wh fos frags,mica,lim,wh calc.
205-210		Siltstone		Fn/M	Vfn/C	Sang. Mch G calc to dol cem interlyrd w/ltl G hem cem & ltl rd bn to pur hemic sh. Mch frstg. Ltl lim stng,qtz st. Tr G lim cem,pyro,pl gn sh,mica,Fn/C-glauc,calc,Fn/M-feld.
210-215		Siltstone		Fn/M	Vfn/C	Same as 205'-210' but sang to srnd & even more carbonate cement.
215-220		Siltstone	Lt brown	Fn/M	Vfn/C	Sang to srnd. Mch G calc to dol rd yl cem interlyrd w/ltl rd bn hem cem & ltl rd bn hemic sh. Mch frstg. Ltl lim stng,Fn/C-glauc,qtz st. Tr pl gn sh,wh silcs sh,mica,calc,Fn/M-feld,Fn-zr,cvd mat. Overall samp color lighter than 210'-215' because of less cem.
360-365		Siltstone	V pl brown	Vfn/Fn	Vfn/VC	Sang. Mch G sil to slgtly dolic cem(wh),yl dol cem,silcs sh(pl gn to gy to rd gy to rd bn). Ltl qtz st. Tr wh silcs sh,mfc incl,Fn/M-glauc,rust,cvd mat. Well srtd.
365-370		Sh & ss	Dk gn gy&wh	Vfn/Fn	Vfn/C	Silcs. Sang. Mch G to VG sil to dolic cem(wh),pl gn silcs sh,qtz st,frstg. Tr Vfn/Fn-glauc,rd gy hemic sh,wh silcs sh,mfc incl, fos frags(?),cvd yl carb cem,mica,rust.
375-380		Sh & ss	Dk gn gy&wh		Vfn/VC	Samp is 55% ss(20% Vfn/Fn,35% M/C) & 45% sh. Silcs. Sang & rnd. Mch VG to F dol cem(lg xls),pl gn sh,frstg. Few sec qtz grw. Ltl qtz st,Fn/C-glauc. Tr G hem cem,rd bn hem stng,pyr,lim stng,wh silcs sh,fos frags,cvd mat.
405-410		Sandstone	White	M/C	Vfn/VC	Same as 400'-405' plus trace caved sandstone(including the glauconite).
750-755		Sts & ss		Vfn&C	Vfn/S peb	Sts 45% of samp. Mch VG sil cem,gn mica,Vfn/Fn qtz snd,qtz st. Tr rd bn hem stng/mot. Ss:Vfn 5% of samp. Ang & rnd. Ltl G sil cem(most w/Vfn ss),wrnd qtz gvl(Gran/S peb). Mch frstg. Few sec qtz grw. Tr wh silcs sh,mfc incl,pyr. The Vfn ss is lyrd more closely w/sts.
795-800		Sandstone	V pl brown		Vfn/S peb	Same as 790'-795' but much rounded gravel(Gran/S peb).
800-805		Sandstone	V pl brown	M/C	Vfn/Gran	Sang to srnd. Mch G sil cem,frstg. Mny sec qtz grw. Few qtz grans. Tr pyr cem,wh silcs sh,pl gn sh,qtz st,Fn-zr,mica,sts, rust.
825-830		Sandstone	Pink	C/VC	Vfn/Gran	Same as 820'-825' but many quartz granules,many fractured grains.
1095-1100		Sandstone	Pink	Fn/M	Vfn/Gran	Ang to srnd. Mch G pk sil cem,frstg. Mny sec qtz grw. Tr mica, feld,wh silcs sh,rock frags,qtz st,mfc incl,pl gn sh,rust.

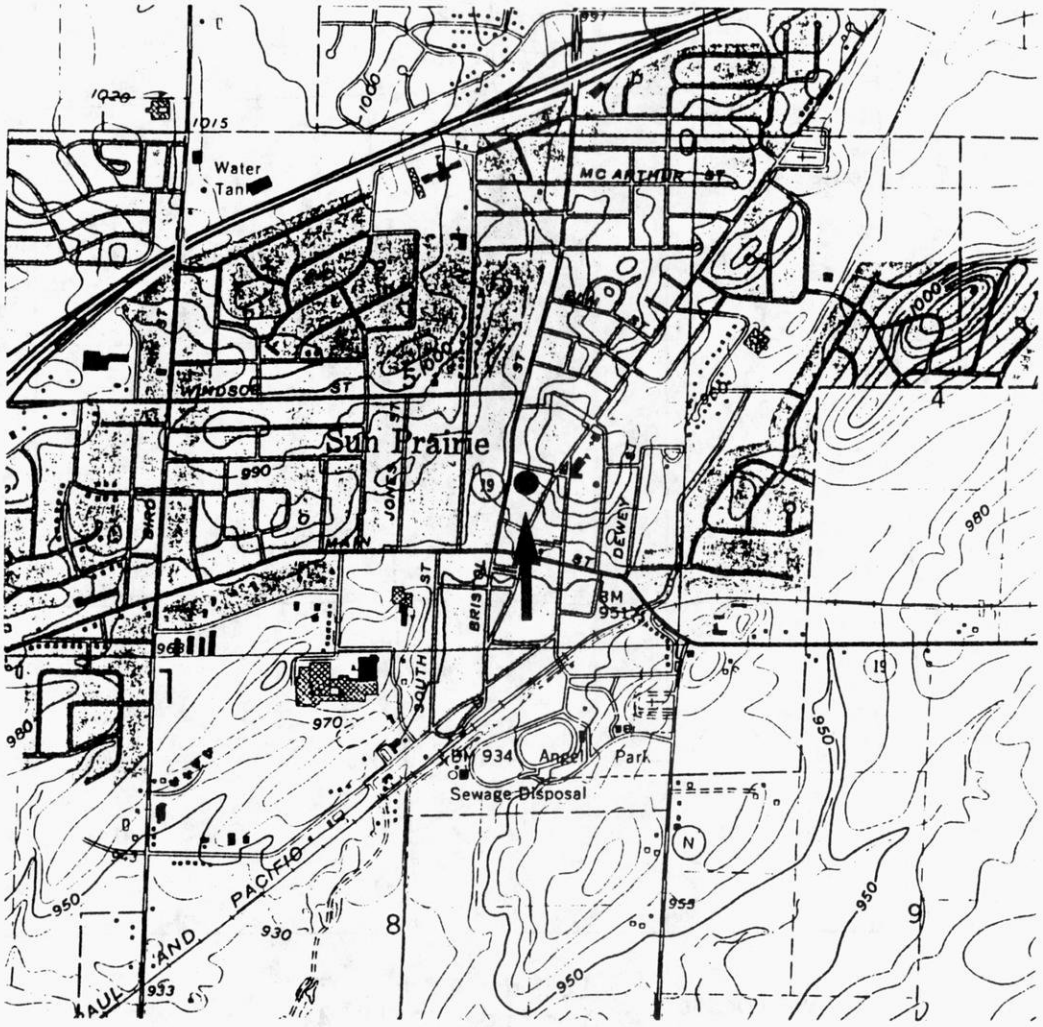
WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
3817 Mineral Point Road • Madison, WI 53705

Log No. P23-Dn-1098

Well name:

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
		"See end of log" samples.				
1100-1105		Sandstone	Lt rd bn	M	Vfn/VC	Sang to rnd. Ltl F to G sil cem,dk rd bn hemic sh. Mch frstg. Mny sec qtz grw. Tr G dol cem,pl gn to gn micus sh,wh silcs sh,qtz st,mfc incl,rust.
1115-1120		Sandstone		M	Vfn/Gran	Srnd to rnd. Ltl F to G sil cem,pl gn to gn micus sh. Mch frstg, dk rd bn hemic sh. Mny rock frags(mostly or feld/grnt). Few sec qtz grw. Tr G dol cem,wh silcs sh,mfc incl,qtz st,mica, neat cem,rust.
1130-1135		Granite	Or & pk gy	M	Fn/M	40% of samp is ang qtz & or feld,more qtz the feld. Mch rnd qtz grns. Ltl biot,rust. Tr wh silcs sh,pl gn silcs sh,rd bn hemic sh,hem stng of ang grns,mfc incl(of ang qtz),qtz st,neat cem.
1135-1136		Granite	Or & pk gy	M	Fn/M	Same but only 30-35% granite.
		Duplicate samples.				
990-994		Sandstone	V pl brown	M	Vfn/S peb	Sang to srnd. Mch VG to G sil cem,frstg. Mny sec qtz grw. Ltl wh silcs sh,qtz gvl(Gran/S peb). Tr mfc incl,qtz st,rock frags, rust.

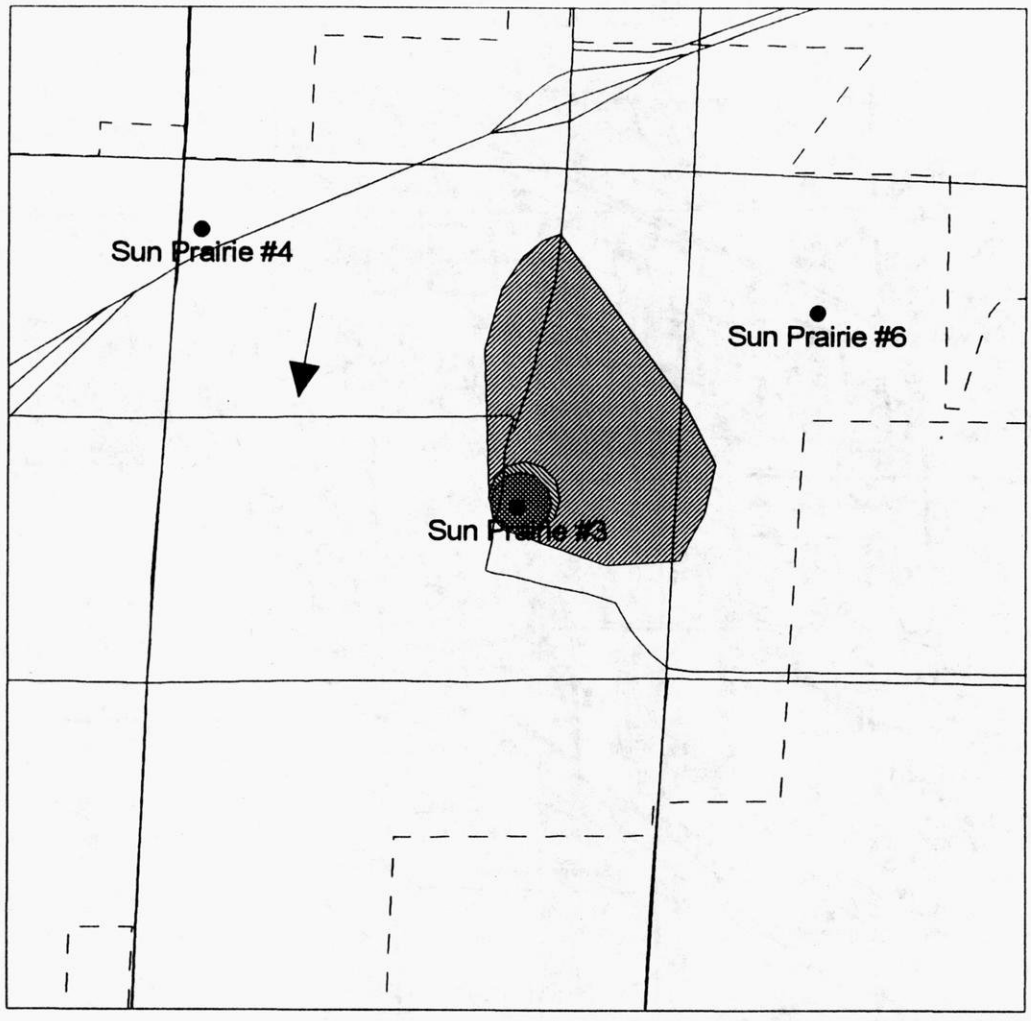
City of Sun Prairie, Well Number 3



City of Sun Prairie, Well Number 3 is located at 43° 11' 7.07" north latitude and 89° 12' 44.35" longitude. The well was installed in 1954, and has a pumping capacity of 1,000 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 460,000 gpd.

The well casing extends to a depth of 190 feet below ground surface, and the total depth of the well is 860 feet. Water is drawn from a combination of the Paleozoic bedrock units, including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the south.

Zone of Contribution for Sun Prairie, Well Number 3



Well Location

Latitude: 43° 11' 7.07"
Longitude: 89° 12' 44.35"

0 500 1000
(meters)

N

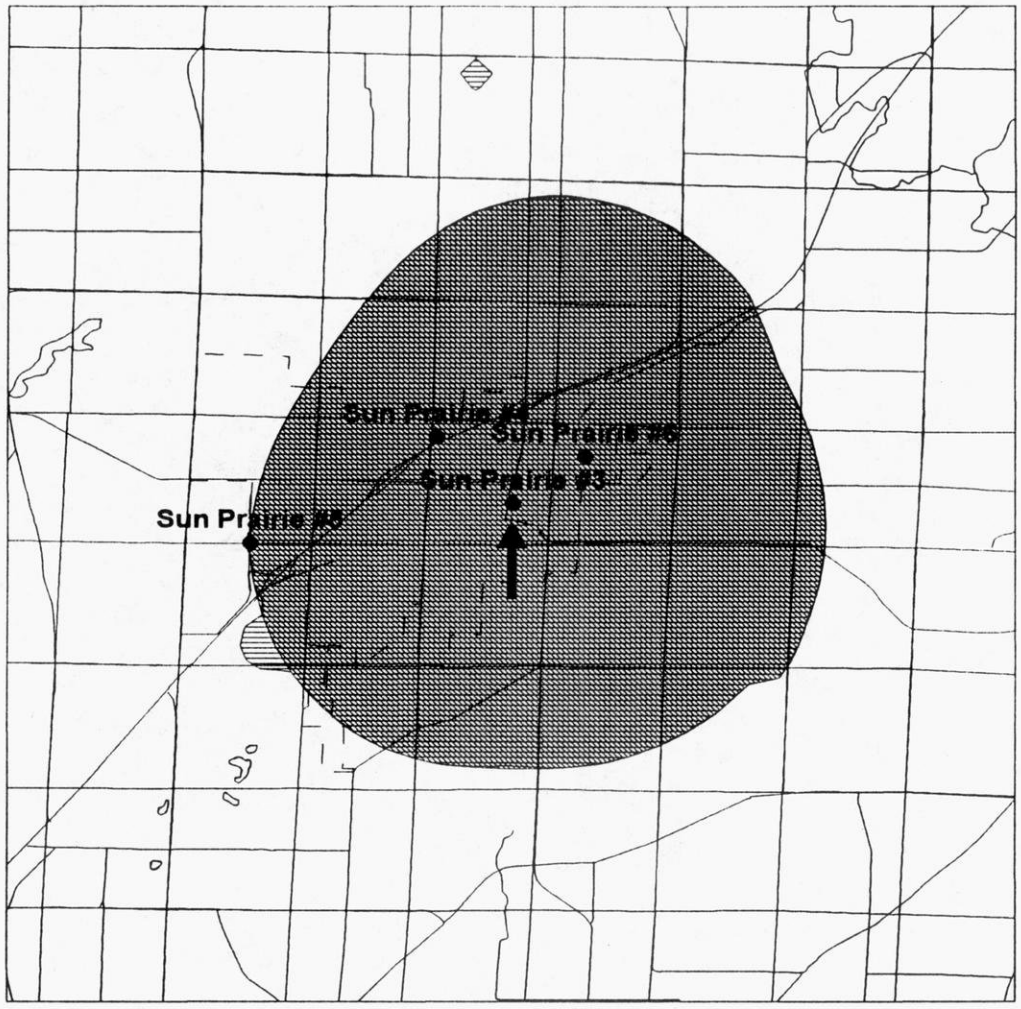
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Sun Prairie, Well Number 3



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

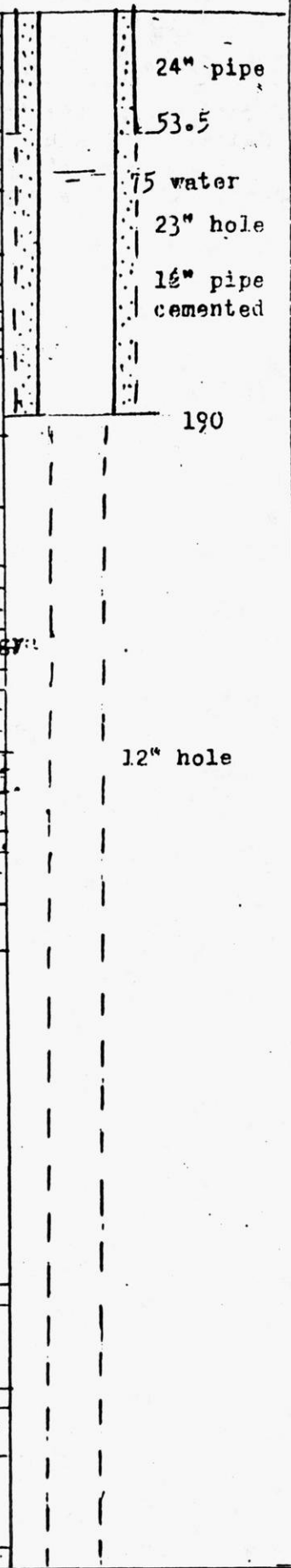
One-half foot drawdown in the deep sandstone aquifer

CITY WELL NO. 3, SUN PRAIRIE, WIS.

SE¼, NW¼, NE¼, SE¼, NW¼, SE¼, sec. 5, T. 8 N., R. 11 E.
Ward & nd Strand, Engineers, Egerer-Galloway Well Corp. Contractors, 1954 Samples examined by F. T. Thwaites, Nos. 169198-169367

Alt.=980'ETM

DRIFT	55	0-5	5	Till, light brown-gray
		5-25	20	Till, very light brown-gray, dolomitic
		25-50	25	Gravel and sand, light brown-gray
		50-55	5	Gravel, very sandy, clean, light gray
ELMAGN	85	55-75	20	Dolomite, light gray, drift sand
		75-85	10	Dolomite, light gray
		85-90	5	Dolomite, very light yellow-gray
		90-100	10	Dolomite, light gray, drift sand
		100-110	10	Dolomite, very light yellow-gray, drift sand
		110-130	20	Dolomite, light gray; no sample 125-130
		130-140	10	Sandstone, coarse to fine; chert, oolitic
TREMPEA	85	140-145	5	Sandstone, fine to coarse, lt.gy, qtz,
		145-165	20	Sandstone, fine to medium, lt.gray to yel-gy
		165-200	35	Siltstone, pink-gray, yellow-gray, very dolomitic, glauconitic
		200-235	35	Siltstone, sandy, glauconitic, pale red
FRANCONIA	130	235-270	35	Sandstone, fine to very fine, light orange-gray, dolomitic
		270-275	5	No sample
		275-280	5	Sandstone, fine, light pink-gray
		280-285	5	Sandstone, medium to fine, light pink-gray
		285-295	10	Sandstone, very fine to medium, light pink-gy
		295-300	5	Sandstone, very fine to medium, light gray
		300-310	10	Sandstone, medium to fine, light grey, lt.pk.
		310-320	10	Sandstone, fine to medium, light gray
		320-325	5	Sandstone, very fine to fine, lt.pink-gray
		325-330	5	Sandstone, very fine to medium, light gray
		330-355	25	Sandstone, very fine to medium, lt. yl-gy, do.
		355-360	5	Sandstone, medium to very fine, lt. yl-gy, dol.
		360-365	5	Sandstone, medium to coarse, lt.gy, dolomitic
DRESS	85	365-370	5	Sandstone, fine to very fine, lt.gy, dol.
		370-385	15	Sandstone, very fine to medium, light gray, d.
		385-390	5	Sandstone, medium to fine, lt.gy, dolomitic
		390-410	20	Sandstone, medium to fine, very light gray
		410-450	40	Sandstone, fine to medium, light gray
EAU CLAIRE		450-615	165	Sandstone, fine to very fine, light gray no sample 455-460
		615-620	5	Sandstone, fine to very fine, light pink-gray
		620-665	45	Sandstone, fine to very fine, light gray
		665-675	10	Sandstone, very fine to medium, vy. lt. gray
		675-695	20	Sandstone, very fine to medium, light pink-gy
		695-740	45	Sandstone, very fine to medium, light gray
		740-805	65	Sandstone medium to fine, light gray



MT SIMON	195	805-810	5	Sandstone, medium to fine, very light gray
		810-830	20	Sandstone, very fine to medium, light gray
		830-835	5	Sandstone, very fine to fine, light pink-gray
		835-840	5	Sandstone, very fine to fine, light gray
		840-860	20	Sandstone, very fine to fine, light pink-gy.

Formations: Drift; Lower Magnesian (Prairie du Chien); Trempealeau; Franconia; Dresbach (Galesville); Eau Claire; Mt. Simon

Tested 30 hours at 1500 g.p.m. specific capacity = 21.4 g.p.m./ft.

Additional copies may be secured from Wisconsin Geological Survey, Science Hall, Madison 6, Wis.

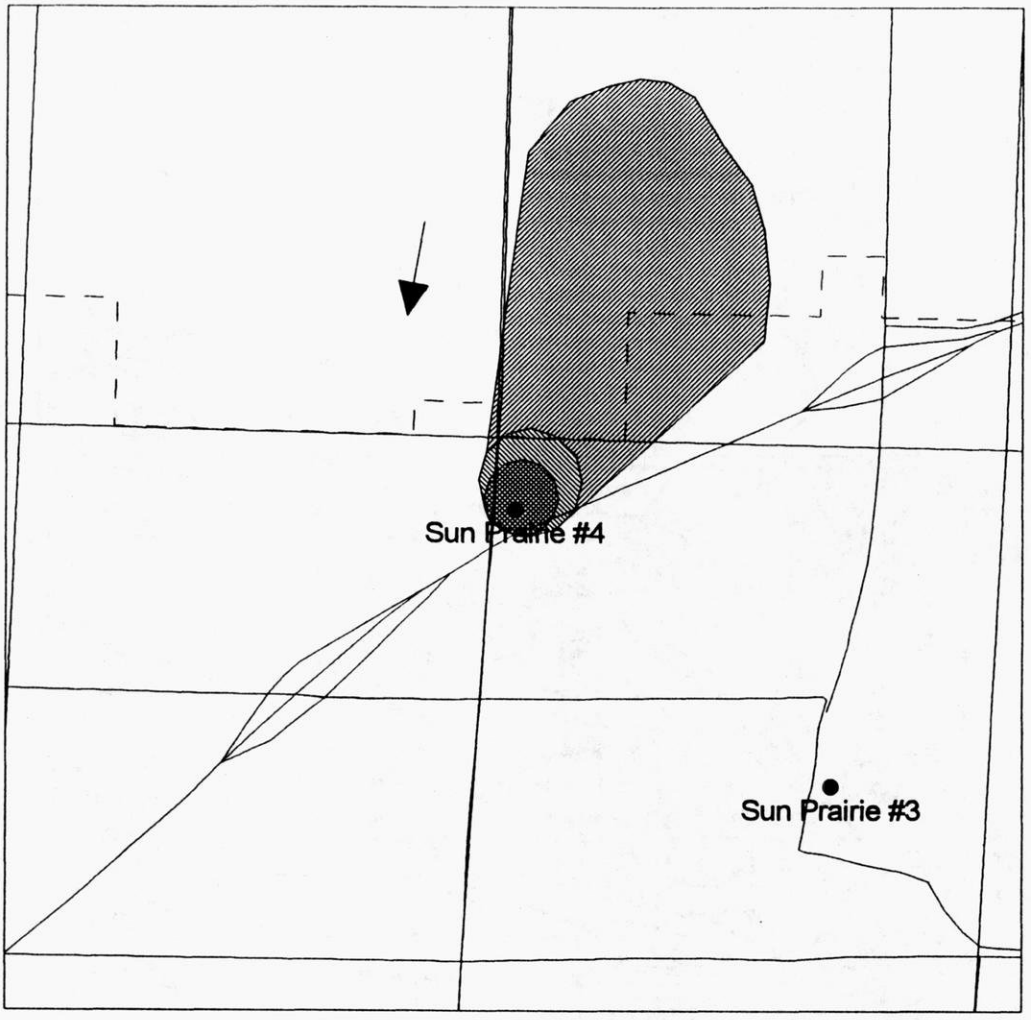
City of Sun Prairie, Well Number 4



City of Sun Prairie, Well Number 4 is located at 43° 11' 35.02" north latitude and 89° 13' 29.49" longitude. The well was installed in 1961, and has a pumping capacity of 1,200 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 753,000 gpd.

The well casing extends to a depth of 200 feet below ground surface, and the total depth of the well is 890 feet. Water is drawn from a combination of the Paleozoic bedrock units, including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the south.

Zone of Contribution for Sun Prairie, Well Number 4



Well Location

Latitude: 43° 11' 35.02"
Longitude: 89° 13' 29.49"

0 500 1000
(meters)

N

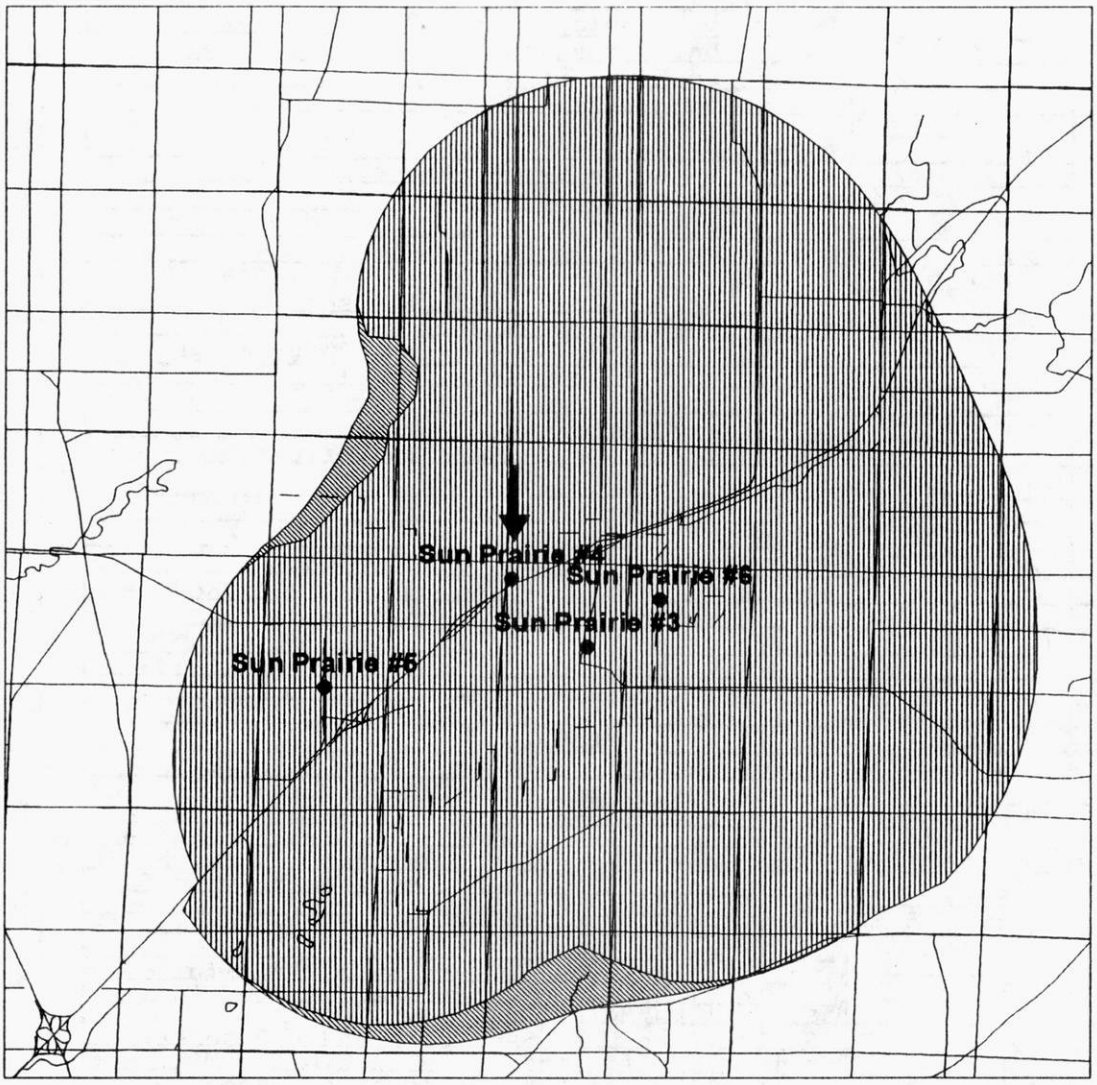
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Sun Prairie, Well Number 4



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Sun Prairie, Well #4, Sun Prairie, Wis.

NW,NE,NW,SW,NW,NW ~~Corner~~, Sec. 5, T 8N, R 11E

Niffenegger Well & Pump Co., Driller ~~1962~~

ALT 1013'ETM Sample Nos. 234391-234573 Examined by M. E. Ostrom, May 1962

PRAIRIE du CHIEN	0- 5	5		Dol,yl bn,M,oolc wh cht 3%
	5-10	5		Dol,yl bn,M,tr gn sh
	10-15	5		Dol,yl bn,M,wh cht 5%
	15-20	5		Dol,yl bn,M,wh cht 3%
	20-30	10		Dol,lt yl bn,fn
	30-35	5		Dol,lt yl bn,fn,tr wh cht
	35-40	5		Dol,lt yl bn,fn
	40-45	5		Dol,lt yl bn,fn,tr wh cht
	45-50	5		Dol,yl bn,fn
	50-60	10		Dol,yl bn,M,oolc wh cht,some snd
	60-65	5		Dol,yl bn,M,wh cht 3%,ltl snd
	65-70	5		Dol,yl bn,M,sndy,oolc wh cht 3%,tr gn sh
	70-75	5		Dol,yl bn,M,oolc wh cht 2%,ltl snd
	75-80	5		Dol,lt gry,fn
	80-85	5		Dol,lt gry,fn,tr pyr
	85-90	5		Dol,lt gry&ltlon,fn,some snd,tr pyr
	90-100	10		Dol,lt gry&lt bn,fn
	100-103	3		Dol,lt gry&lt bn,fn,ltl snd
	103-108	5		Dol,dk yl or,fn,sndy
	108-112	4		Dol,dk yl or,fn,Vsndy,oolc wh cht
	112-117	5		Sts,dk yl or,calc,P,sndy,mica flakes,nodules
	117-122	5		Dol,lt yl bn,M,oolc wh cht,some snd
	122-132	10		Dol,lt yl bn,M,wh cht 2%,tr snd
	132-135	3		Dol,lt yl bn,M,oolc wh cht 2%,tr snd
	135-140	5		Dol,lt yl bn,M,tr wh cht
	140-150	10		Dol,lt yl bn,M,wh cht 3%
	150-152	2		Dol,lt yl bn,MtoC,ltl wh cht
152	152-157	5		Ss,gry pnk,C,Srnd,Fsrtg,ltl fn,M&VC,
JORDAN	157-162	5		Ss,gry pnk,M,Sang,Fsrtg,ltlC&fn,ltlVC
	162-165	3		Ss,gry pnk,M,Sang,Psrtg,si C,someC,ltlVC&fn,
	165-170	5		Ss,gry pnk,M,Sang,someC,ltlVC&fn,oolc wh&bn cht
	170-175	5		Ss,gry pnk,M,Sang,Gsrtg,ltl fn,C&VC,tr wh cht
	175-177	2		Ss,gry pnk&yl bn,M,Sang,Gsrtg,calc,C,someC
	177-178	1		Ss,gry pnk&yl bn,M&C,calc,C,some fn&VC
	178-179	1		Ss,lt yl bn,C,Srnd,calc,C,mchVC,someM,ltl fn
	179-180	1		Ss,lt yl bn,M,calc,F,someC&fn,ltlVC
	180-185	5		Ss,lt yl bn,M,Sang,Gsrtg,calc,P,ltlC&fn
	185-190	5		Ss,lt yl bn,M,Sang,Gsrtg,calc,P,ltlC&fn
	190-195	5		Ss,lt yl bn,M&fn,Sang,Gsrtg,calc,F,trC
53	195-200	5		Ss,lt yl bn,M&fn,Sang,Gsrtg,calc,P,someVfn
STL	200-205	5		Ss,lt yl bn,fn,Sang,Fsrtg,calc,C,someM&Vfn,trC
	205-210	5		Ss,lt yl bn,Vfn,Sang,Gsrtg,calc,C,some fn,ltlM
	210-215	5		Ss,yl bn,fn&Vfn,Sang,someM,some st,ltl glauc
	215-220	5		Sts,rd or,calc,F,someVfn&fn snd,ltl glauc
	220-235	15		Sts,rd or,calc,F,some fn&Vfn snd
	235-240	5		Sts,rd bn,calc,F,some fn&Vfn snd,tr glauc
UNDIFFRG	240-245	5		Ss,rd bn,fn,Sang,Gsrtg,someVfn,some glauc
	245-250	5		Ss,rd bn,fn,Sang,Fsrtg,some fn,some st,some glauc
	250-255	5		Ss,rd bn,fn,Sang,Gsrtg,some fn,some st,some glauc
	255-260	5		Sts,rd bn,calc,P,some Vfn,fn&Msnd,tr glauc
	260-265	5		Ss,lt yl bn,fn,Sang,Psrtg,someVfn,M&C,mch st
	265-270	5		Ss,lt yl bn,M,Sang,calc,P,someVfn,fn&C,some st
	270-275	5		Ss,lt yl bn,M&C,Sang,Psrtg,calc,F,some fn,some st
	275-305	30		Ss,lt yl bn,M,Sang,Fsrtg,calc,P,some fn&C, ltl st
	305-310	5		Ss,gry or,M,Sang,Fsrtg,someC,trVC
	310-320	10		Ss,gry pnk,M&C,Sang,toSrnd,Fsrtg,someVC
	320-325	5		Ss,gry pnk,M&C,Sang to Srnd,someVfn,fn&VC
	325-330	5		Ss,gry pnk,M,Sang to Srnd,menC,some Vc&fn
	330-335	5		Ss,gry pnk,M,Sang to Srnd,some C&fn,ltlVC
	335-340	5		Ss,gry pnk,M&C,Sang to Srnd,Psrtg,someVC&fn

+3'
±1'

24" Pipe

15'

100' Water Lvl.

22" Hole

16" Pipe

200'

15½ Hole

270'

T.D.

Sun Prairie, Well #4, Sun Prairie, Wis.
Sample Nos. 234391-234573

340-345	10		Ss,gry pnk,C,Sang,toSrnd,mchM,some VC&fn
345-355	10		Ss,gry pnk,M,Sang to Srnd,Fsrtg,some fn,C,&VC
355-360	5		Ss,gry pnk,M,Sang to Srnd,mchC,some fn&VC
360-365	5		Ss,gry or,C,Srnd,Fsrtg,someM&VC
365-370	5		Ss,gry or,C,Srnd,Fsrtg,calc,P,someM&VC,1tl fn
370-380	10		Ss,lt yl or,C,Srnd,Fsrtg,calc,F,mchM,someVC&fn
380-385	5		Ss,lt yl or,C,Srnd,Gsrtg,calc,F,someM,VC,&fn
385-395	10		Ss,lt yl or,C,Srnd,Gsrtg,calc,VP, someVC,1tl M
395-400	5		Ss,lt yl bn,C,Srnd,calc,G,someVC&M,sndy dol frag
400-405	5		Ss,gry or,C&M,Srnd,calc,G,someVC&fn,sndy dol frag
405-420	15		Ss,gry or,C&M,Srnd,Psrtg,calc,G,someVC&fn
420-435	15		SS,gry or,C,Srnd,Fsrtg,someM&VC
435-445	10		Ss,lt yl bn,M&C,Srnd,Fsrtg,someVC
445-460	15		Ss,gry pnk,C,Srnd,Gsrtg,someM&VC
460-465	5		Ss,gry or,C,Srnd,Gsrtg,someM&VC
465-475	10		Ss,gry pnk,C,Srnd,Gsrtg,someVC,1tlM
475-480	5		Ss,gry pnk,C,Srnd,Gsrtg,someM&VC
480-485	5		Ss,gry pnk,C&M,Srnd,Fsrtg,someVC
485-490	5		Ss,gry pnk,C,Srnd,Gsrtg,someVC,1tlM
490-505	15		Ss,gry pnk,C&M,Srnd,Gsrtg,
505-520	15		Ss,gry pnk,M,Sangto Srnd,Fsrtg,mchC,someVC
520-525	5		Ss,gry pnk,M,Sang toSrnd,someC&VC,some st
525-580	55		Ss,gry pnk,M,Sang to Srnd,Psrtg,someVfn,fn,C. &VC,1tl st
580-585	5		Ss,gry pnk,M,Sang,Fsrtg,someC
585-595	10		Ss,gry pnk,M,Sang,Fsrtg,some fn&C,1tlVC
595-610	15		Ss,gry pnk,M,Sang,Fsrtg,someC&fn
610-615	5		Ss,gry pnk,M&C,Sang toSrnd,Psrtg,some fn,1tlVC
615-620	5		Ss,gry pnk,M,Sang to Srnd,Fsrtg,some fn&C,trVC
620-625	5		Ss,gry pnk,M,Sang toSrnd,Gsrtg,some fn,1tlG
625-705	80		Ss,gry pnk,M,Sang,Gsrtg,some fn,1tlG,tr st

12" Hole

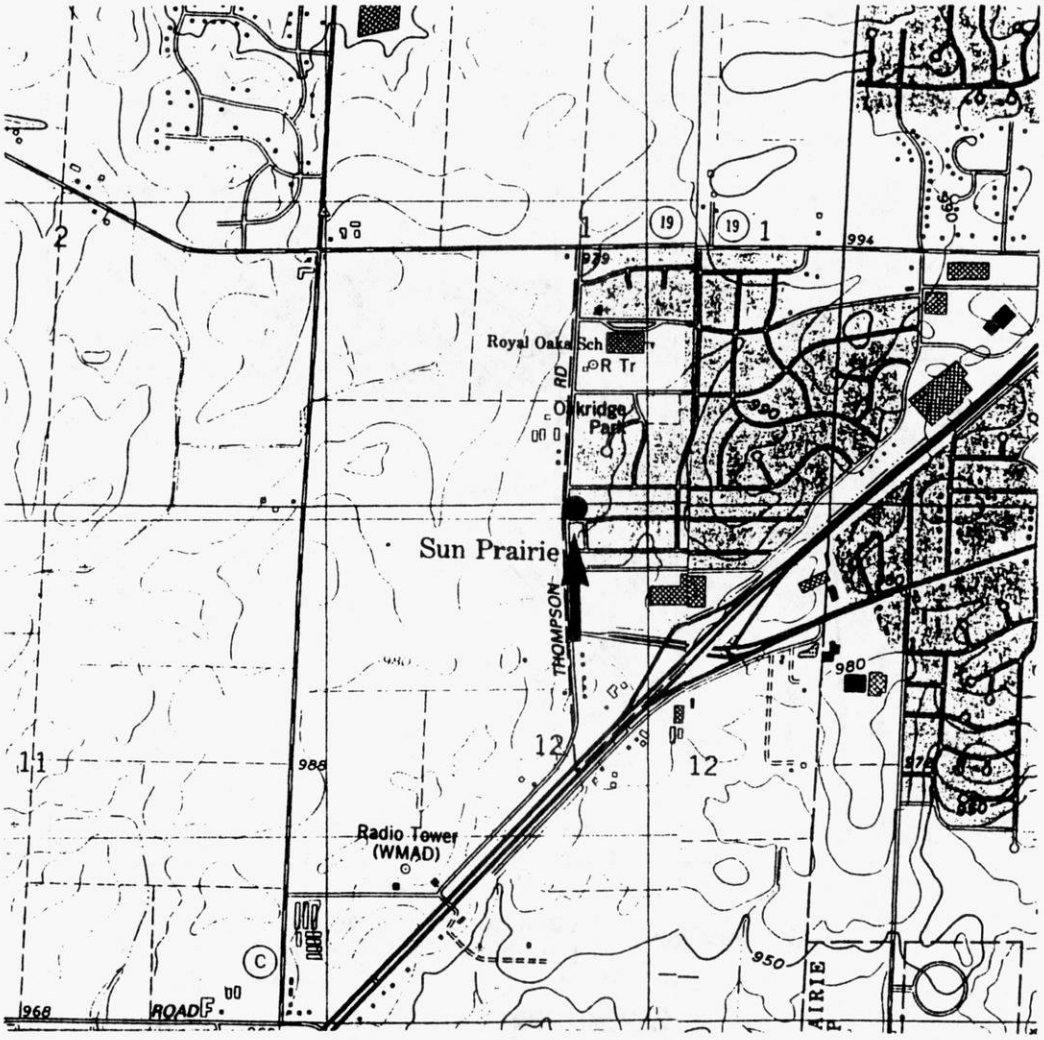
Sun Prairie, Well #4, Sun Prairie, Wis.
Sample Nos. 234391-234573

	705-715	10		Ss,gry or,M,Sang,Gsrtg,some fn,ltlC		
	715-730	15		Ss,gry or,M,Sang,Gsrtg,some fn,LtlC,tr st		
	730-735	5		Ss,gry pnk,M,Sang,Gsrtg,some fn,ltlC		
	735-745	10		Ss,gry pnk,M,Sang,Gsrtg,some fn&C		
	745-750	5		Ss,gry or,M,Sang,Gsrtg,some fn&C,trVC		
	750-760	10		Ss,gry or,M,Sang,Gsrtg,some fn&C		
	760-765	5		Ss,gry or,M,Sang,Fsrtg,mchC,some fn		
	765-770	5		Ss,gry or,M,Sang,Psrtg,mchC,some fn,ltlVC		
M	770-775	5		Ss,gry pnk,M&C,Sang,Psrtg,some fn,ltlVC		
T	775-785	10		Ss,gry pnk,M,Sang,Psrtg,mchC,some fn&Vfn		
S	785-800	15		Ss,gry pnk,M,Sang,Psrtg,mchC,someVC,fn&Vfn		
I	800-810	10		Ss,gry pnk,M,Sang,Fsrtg,someVC,C,&fn		
M	810-820	10		Ss,gry or,M,Sang,Fsrtg,someVC,C&fn		
O	820-825	5		Ss,gry pnk,M,Sang,Fsrtg,someC,fn&Vfn		
N	825-830	5		Ss,gry pnk,M,Sang,Fsrtg,someC,fn&Vfn,ltlVC		
	830-840	10		Ss,gry or,M,Sang,Fsrtg,someC,fn&Vfn,ltlVC,trFe		
	840-845	5		Ss,gry or,C&M,Sang,Fsrtg,someVC&fn,ltlVfn		
	845-850	5		Ss,gry or,M,Sang,Fsrtg,someC&fn,ltlVfn		
	850-855	5		Ss,gry or,M,Sang,Psrtg,some fn&Vfn,ltlC&st		
	855-860	5		Ss,gry or,M,Sang,Psrtg,some fn&Vfn,ltl C&VC		
	860-865	5		Ss,rd or,M,some fn&Vfn,ltlC&VC,ltl st		
	865-870	5		Ss,rd bn,mxd,VP,srtg,mch st,several grans		
	870-885	15		Ss,lt rd,mxd,VPsrtg,some st,several gran,Fe stn		
470	885-890	5		Ss,pnk,fn,Sang,Psrtg,mchVfn,ltlM&C,ltl st		900'

Formations: Prairie du Chien, Jordan, St. Lawrence, Undifferentiated Franconian-Galesvill
Eau Claire, Mt. Simon,

Well tested for 12 hrs. at 1809 gpm with 85 ft. of drawdown.
Spec. cap. = 21.3 pgm per ft. of drawdown.

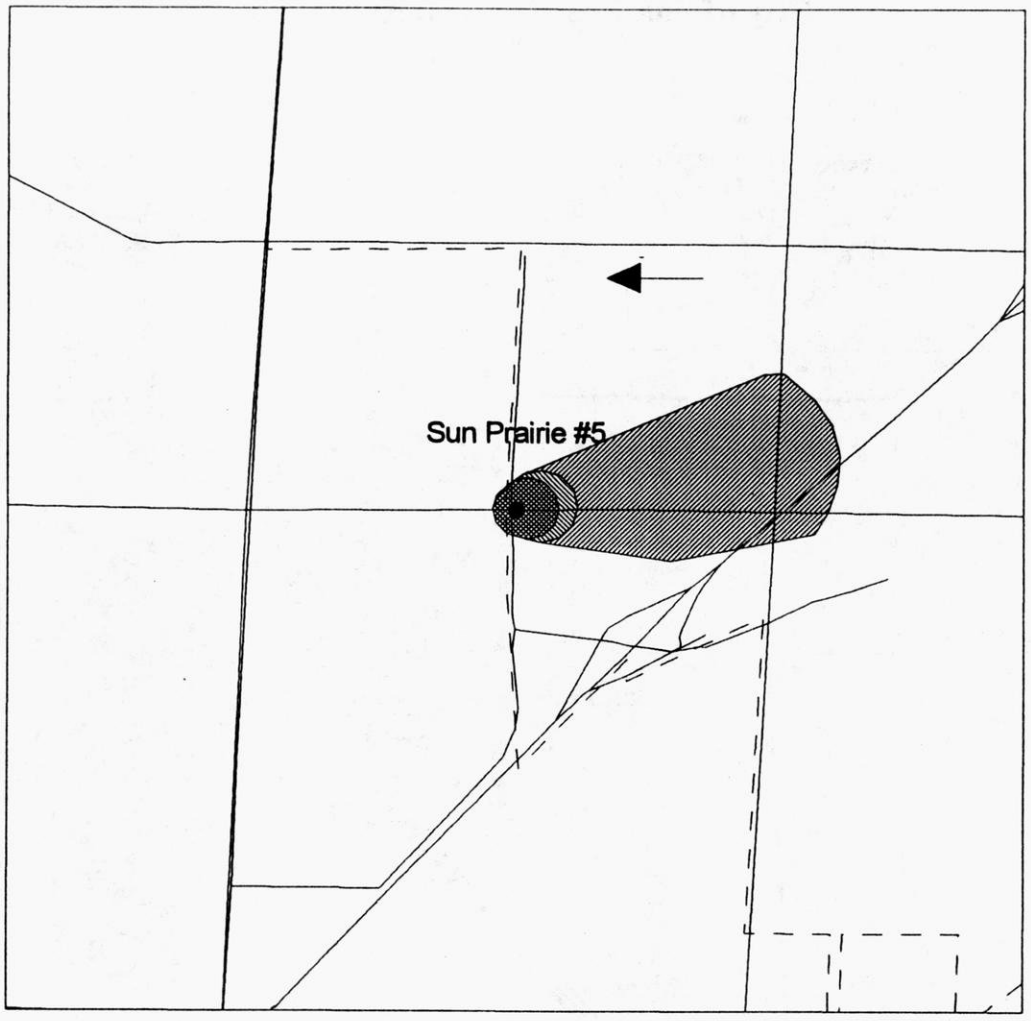
City of Sun Prairie, Well Number 5



City of Sun Prairie, Well Number 5 is located at 43° 10' 46.83" north latitude and 89° 15' 16.06" longitude. The well was installed in 1965, and has a pumping capacity of 1,200 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 182,000 gpd.

The well casing extends to a depth of 239 feet below ground surface, and the total depth of the well is 885 feet. Water is drawn from a combination of the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the west.

Zone of Contribution for Sun Prairie, Well Number 5



Well Location

Latitude: 43° 10' 46.83"
Longitude: 89° 15' 16.06"

0 500 1000
(meters)

N

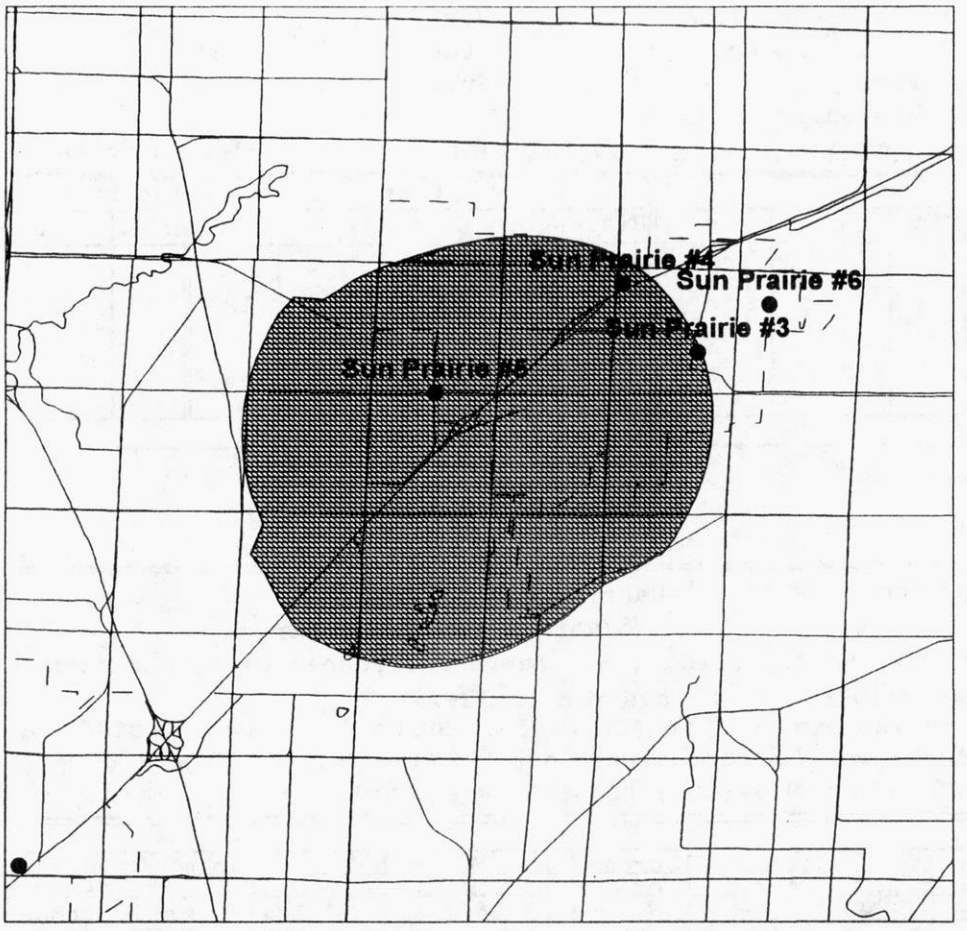
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Sun Prairie, Well Number 5



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

*Note: Zone of influence in the water table aquifer is the same as the zone of influence in the deep sandstone aquifer for Sun Prairie, Well Number 5

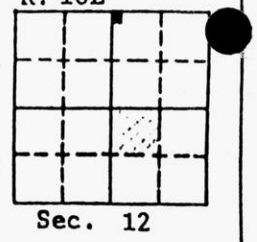
UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-941
Sample Nos. 265479-265655

County: Dane

Well name City of Sun Prairie, Wisconsin, Well #5*
Owner.... City of Sun Prairie, Wisc.
Address.. c/o Clerk, City Hall, Sun Prairie, Wisconsin
Driller.. Miller Well & Pump Co.
Engineer. Carl C. Crane Inc., Madison, Wisconsin

Completed... 3/22/66
Field check. WGS-RMP
Altitude.... 982' ETM
Use..... Municipal
Static w. l. -- 99'
Spec. cap... -- 19.0



Location: C of N½,N½,NW¼,NW¼,NE¼,Sec. 12, 8N, 10E Quad. De Forest 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt. & Kind	from	to	Dia.	Wgt. & Kind	from	to
24"	0	130'				24"	3/8" prime steel pipe	+24"	130'				
23"	130'	239'											
15"	239'	884'				16"	3/8" prime steel pipe	+24"	239'				

Grout: Kind	from	to
Neat cement	+24"	239'

Samples from 0 to 885' Date received: 3/30/66 Issued: 10/68
Examined by: J. M. Warren Date: 4/20/67

Formations: Drift, St. Peter, Jordan, St. Lawrence, Tunnel City, Elk Mound

Gamma Resistivity, & SP logs run 12-12-74.

Remarks: *Located on Thompson Rd. in the twp. of Burke, Well tested for 14 hrs. at 1900 gpm with 100 ft. of drawdown. Corrected well depth 884'. Well developed at following locations with 25# shots, 850-855', 830-835', 800-805', 765-770', 725-730', 610-615', 490-495', (Pg. #3)

LOG OF WELL:

DRIFT		0-5	5	Snd,yl or&mxd clr,M&C,mch VC,ltl fn,mstly qtz&dol,ltl cht;mch fn gvl
		5-10	5	Snd,yl or&mxd clr,M&C,Sang,mch VC,ltl fn,mstly qtz&dol,ltl cht
		10-15	5	Snd,yl or&mxd clr,M&C,mch VC,ltl fn,mstly qtz&dol,ltl cht;mch fn
		15-20	5	Snd,yl or&mxd clr,M&C,Sang,P srtg,mch VC,ltl fn,mstly qtz &dol,ltl cht \gvl&st
		20-30	10	Snd,yl or&mxd clr,M&C,Sang,P srtg, mch VC,ltl fn,mstly qtz&dol,ltl cht;mch fn gvl
		30-35	5	Gvl,yl or&mxd clr,M&fn,ang,P srtg,mstly dol,ltl ig;mch M/VC snd, ltl fn&st
		35-50	15	Gvl,yl or&mxd clr,fn,ang,P srtg,tr M,mstly dol,qtz&cht;tr oolic; mch M/VC snd,ltl fn,tr foss frags
		50-60	10	Snd,yl or&mxd clr,M&C,Srnd,P srtg,mch VC,ltl fn,mstly qtz&dol,ltl ig&cht;ltl fn gvl & st
		60-65	5	Snd,yl or&mxd clr,M&C,mch fn,ltl Vfn&VC,mstly qtz&dol,ltl ig&cht
		65-70	5	St,yl or&mxd clr,VP srtg,mch fn gvl,tr M,mch Vfn snd,ltl fn/VC
	75	70-75	5	Snd,yl or&mxd clr,M&C,mch fn&VC,ltl Vfn,mstly qtz&dol,ltl ig&cht;
ST. PETER		75-80	5	Ss,yl or,M&C,rnd,F srtg,ltl fn,tr VC;ltl cvd? mat- \ltl fn gvl&st cht,dol & ig
		80-90	10	Ss,yl or,M&C,rnd,F srtg,ltl fn,tr VC;tr cvd? mat&oolic cht
		90-100	10	Ss,pl rd or,Vfn/M,Srnd,P srtg,ltl st
		100-110	10	Ss,V pl rd or & trans,M&C,rnd,G srtg,
		110-125	15	Ss, pl rd or, M&C, rnd, G srtg, ltl G qtz-cem, mch VC, ltl fn, tr Vfn; ltl oolic cht, tr rd sh
		125-130	5	Ss,V pl or bn,M&C,G qtz-cem,mch VC,ltl fn,tr Vfn;mch cht,ltl oolic
		130-135	5	Ss,pl rd or,M&C,G srtg,tr-ltl G qtz-cem,ltl fn&VC;ltl cht&st,tr rd sh
		135-145	10	Ss,pl rd or,M,Srnd,P srtg,tr G qtz-cem,mch fn,ltl Vfn,tr VC;mch st
	80	145-155	10	Ss,V pl or,M&fn,Srnd,P srtg,slgt tr qtz-cem,ltl G,tr VC&Vfn;tr c
JOR		155-160	5	Ss,or pnk,fn&Vfn,ang,F srtg,ltl M;mch st
	15	160-170	10	Ss,gry or pnk,fn,ang,P srtg,tr-ltl G qtz-cem,mch Vfn,ltl M&C;ltl st
STL		170-180	10	Ss,pl rd bn,Vfn,ang,F srtg,ltl P dol-cem,tr fn&M;mch st,ltl cl
		180-185	5	Ss,rd bn mot yl or,fn&Vfn,ang,F srtg,mch G dol-cem,tr M;ltl glauc.
		185-190	5	Ss,rd bn,fn&Vfn,ang,P srtg,mch G-P dol-cem,ltl M&C,tr VC;ltl glauc, ltl rd sh, tr cht

Well name City of Sun Prairie, Wisconsin, Well #5
Sample Nos. 265479 to 265655

TUNNEL CITY	30	190-195	5	Dol,yl or mot rd bn,fn,ltl por;tr glauc
		195-200	5	Dol,rd bn mot yl or,fn,dns;ltl fn&M snd,tr C,ltl glauc
		200-210	10	Ss,rd bn,Vfn,Srnd,F srtg,ltl fn&M;ltl glauc,mch st,tr dol,ltl slgt dolic cl
		210-230	20	Ss,rd bn,fn&Vfn,Srnd,F srtg,ltl M;mch st,ltl glauc&slgt dolic cl
		230-235	5	Ss,lt or bn,M&fn,Srnd,P srtg,tr F dol-cem,ltl Vfn&C;mch st,tr glauc
		235-240	5	Ss,lt or bn,M&fn,Srnd,tr F dol-cem,ltl Vfn&C;mch st,ltl fn/C grnd
		240-245	5	Ss,lt or bn,M&fn,ltl P dol-cem,mch Vfn,tr C;mch st,tr fn/C glauc
		245-250	5	Ss,lt or bn,M&fn,Srnd,P srtg,mch F dol-cem,mch Vfn, grnd glauc
		250-255	5	Ss,lt or bn,M&fn,Srnd,mch F dol-cem,mch Vfn,tr C; tr C;mch st mch st
		255-265	10	Ss,lt or bn,M&fn,Srnd,G srtg,ltl P fn xln dol-cem,tr Vfn
		265-270	5	Ss,lt or bn,M&fn,rnd,F srtg,mch P fn xln dol-cem,tr Vfn,ltl C,tr
		270-275	5	NO SAMPLE VC;tr M&fn grnd glauc
		275-285	10	Ss,gry or,M&fn,Srnd,P srtg,ltl P dol-cem,mch Vfn,ltl C;ltl st,tr glauc
		285-300	15	Ss,V pl or,M&fn,rnd,F srtg,ltl C,tr Vfn;tr st&glauc
	105	300-305	5	NO SAMPLE
ELK MOUND		305-310	5	Ss,V pl or,M&fn,rnd/Sang,F srtg,mch C,ltl VC,tr Vfn;tr st
		310-315	5	Ss,V pl or,M&fn,rnd/Sang,F srtg,ltl C,tr Vfn&VC;tr st
		315-320	5	Ss,V pl yl or,M&fn,Srnd&rnd,F srtg,mch C,tr Vfn;tr gn sh
		320-325	5	Ss,V pl yl or,M&fn,Srnd&rnd,F srtg,mch C,ltl VC,tr Vfn;tr gn sh
		325-330	5	Ss,pl yl or,M,Srnd,P srtg,ltl P dol-cem,mch C,ltl fn,tr Vfn;tr st
		330-335	5	Ss,pl yl or,M,Srnd,P srtg,ltl P dol-cem,mch C,ltl fn,tr Vfn&VC;tr s
		335-340	5	Ss,pl yl or,M,Srnd,P srtg,ltl P dol-cem,mch C,ltl fn,tr Vfn;ltl st
		340-345	5	Ss,pl yl or,M&C,rnd,P srtg,ltl P dol-cem,ltl fn,tr Vfn;ltl st
		345-360	15	Ss,pl yl or,M&C,rnd,P srtg,tr P dol-cem,ltl fn,tr Vfn;tr st
		360-365	5	Ss,yl or,M&C,rnd,P srtg,tr P dol-cem,ltl fn,tr Vfn;ltl st
		365-380	15	Ss,yl or,M&fn,rnd,P srtg,ltl P dol-cem,mch C&Vfn;mch st
		380-400	20	Ss,V pl or,M,rnd,F srtg,tr P dol-cem,mch C&fn,tr Vfn;tr st&yl or do
		400-405	5	Ss,V pl or,M&C,rnd,G srtg,tr P dol-cem,tr fn&Vfn
		405-410	5	Ss,V pl or,M&C,rnd,P srtg,ltl P dol-cem,ltl fn,tr Vfn;tr st
		410-425	15	Ss,V pl or,M&C,rnd,P srtg,ltl fn,tr Vfn;ltl st
		425-435	10	Ss,pl yl or,M&C,rnd,F srtg,ltl P dol-cem,tr fn&Vfn;tr st
		435-450	15	Ss,V pl or,M&C,rnd,P srtg,ltl fn&Vfn,tr VC;tr st&dol-cem
		450-455	5	Ss,V pl or,M&C,rnd,F srtg,ltl fn,tr Vfn&VC;
		455-465	10	Ss,wh,M,rnd,P srtg,mch fn&C,ltl Vfn
		465-475	10	Ss,wh,M,rnd,P srtg,mch fn,ltl C&Vfn;tr st
		475-495	20	Ss,wh,M,rnd,P srtg,mch fn&C,ltl Vfn;mch st,tr dol
		495-505	10	Ss,wh,M&fn,rnd/ang,P srtg,mch Vfn,ltl C;ltl st&cl
		505-510	5	Ss,wh,M,rnd,P srtg,mch fn,C&Vfn;ltl st&cl
		510-520	10	Ss,wh,M&C,rnd,P srtg,mch fn&Vfn;tr st
		520-530	10	Ss,wh,M,rnd,P srtg,mch fn&Vfn,ltl C;mch st
		530-540	10	Ss,wh,M&fn,Srnd/ang,P srtg,mch Vfn,ltl C;mch st
		540-545	5	NO SAMPLE
		545-555	10	Ss,wh,M&fn,Srnd/ang,P srtg,mch Vfn,ltl C;mch st

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-941

Well name City of Sun Prairie, Wisconsin, Well #5
Sample Nos. 265479 to 265655

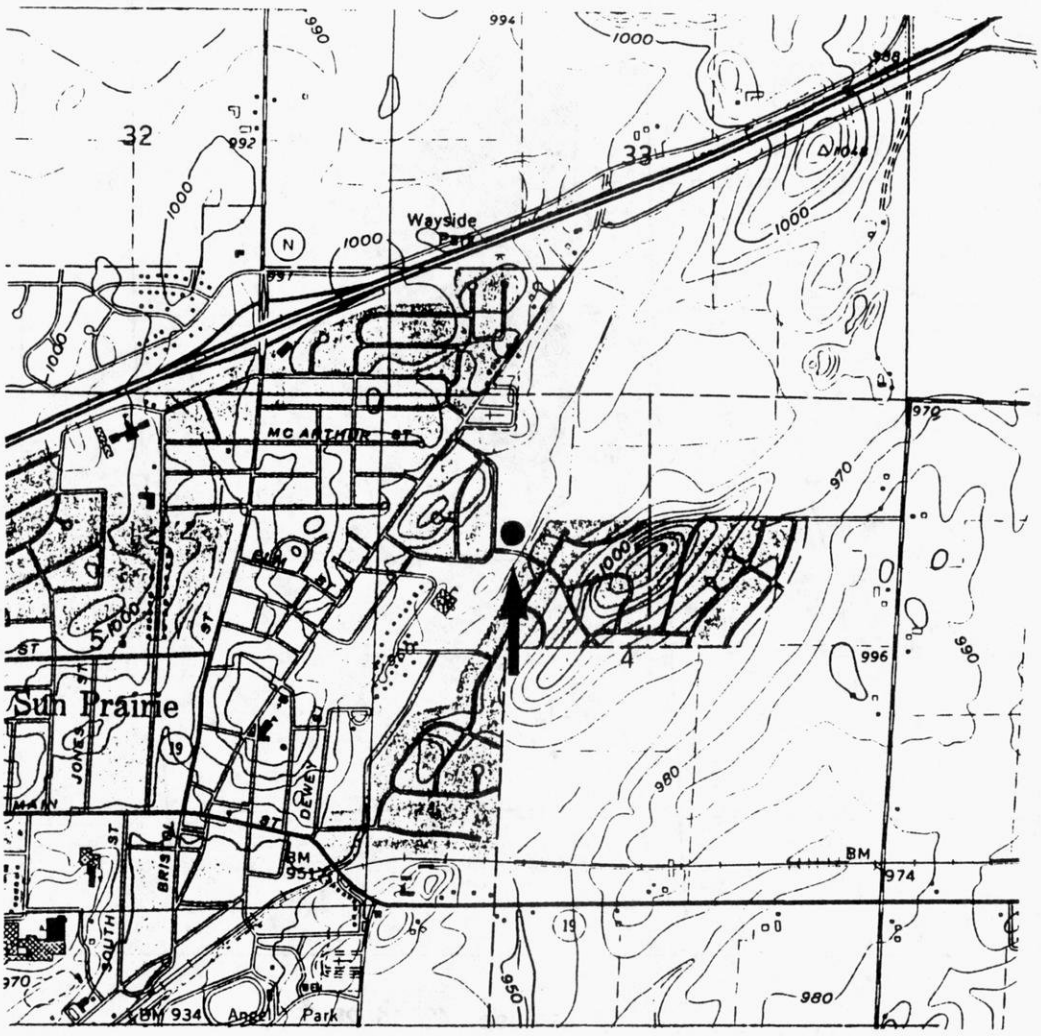
ELK MOUND

555-570	15	Ss,V pl or,M&fn,Sang,P srtg,mch Vfn&C;mch st
570-615	45	Ss,wh,fn/C,Srnd/ang,P srtg,mch Vfn;mch st,ltl cl
615-625	10	Ss,V pl or,M&fn,Sang,P srtg,mch Vfn,ltl C,tr VC;mch st,ltl cl
625-635	10	Ss,pl yl or,M&fn,Sang,P srtg,mch Vfn&C,tr VC;ltl st,tr Fe stn
635-650	15	Ss,pl yl or,M&fn,Sang,P srtg,mch Vfn&C,tr VC;tr st&Fe stn
650-675	25	Ss,V pl or,M&fn,Sang,P srtg,mch Vfn,ltl C,tr VC;ltl st&cl,tr Fe stn
675-680	5	Ss,V pl yl or,M&fn,Sang,P srtg,mch Vfn,ltl C,tr VC;ltl st&cl,tr Fe stn
680-715	35	Ss,V pl yl or,M&fn,Sang,P srtg,mch Vfn&C,tr VC;ltl st,tr Fe stn
715-725	10	Ss,V pl or,fn/C,Sang,P srtg,mch Vfn;mch st
725-755	30	Ss,V pl or,M&fn,Sang,P srtg,mch Vfn,ltl C,tr VC;ltl st,tr cl
755-760	5	Ss,V pl or,fn/C,Sang,P srtg,mch Vfn,tr VC;ltl st,tr cl
760-770	10	Ss,V pl or,fn/C,Sang,P srtg,mch Vfn,ltl VC;tr st&cl
770-815	45	Ss,or pnk,M,Sang,P srtg,mch C&fn,ltl Vfn,tr VC;ltl st,tr cl
815-820	5	Ss,V pl pnk,M&fn,Sang,P srtg,ltl Vfn,tr C;ltl st,tr cl
820-830	10	Ss,V pl pnk,M&fn,Sang,P srtg,mch Vfn&C,tr VC;ltl st,tr cl
830-835	5	Ss,V pl M&fn,Sang,P srtg,mch Vfn&C,ltl VC;ltl st,tr cl
835-840	5	Ss,V pl or pnk,M&fn,Sang,P srtg,mch Vfn,C&VC;ltl st,tr cl
840-850	10	Ss,V pl or pnk,M&fn,Sang,P srtg,mch Vfn,C&VC;ltl st,tr cl&cong
850-855	5	Ss,V pl or pnk,M&fn,Sang,P srtg,mch Vfn&C,ltl VC;ltl st,tr cl
855-865	10	Ss,V pl yl,C&VC,Sang,P srtg,mch M,ltl fn&Vfn;ltl st&cong
865-870	5	Ss,V pl or,M&fn,Sang,P srtg,mch C&Vfn,ltl VC;ltl st,tr cl&cong
870-875	5	Ss,V pl or pnk,M,Sang,P srtg,mch C,VC&fn,ltl Vfn;ltl st,tr cl&cong
875-880	5	Cong,or pnk,fn,ang,P srtg,qtz;mch M/VC snd,tr fn,tr dk rd mica,sh
880-882	2	Cong,dk or pnk&dk rd,fn,qtz;mch M/VC snd,tr fn,ltl-mch dk rd mica,
580 882-885	3	Sh,dk rd bn,G srtg,mica;mch cong,ltl M/VC snd sh

END OF WELL

Contd. from Pg.1, 780-785', 515-520', 450-455', 420-425'.

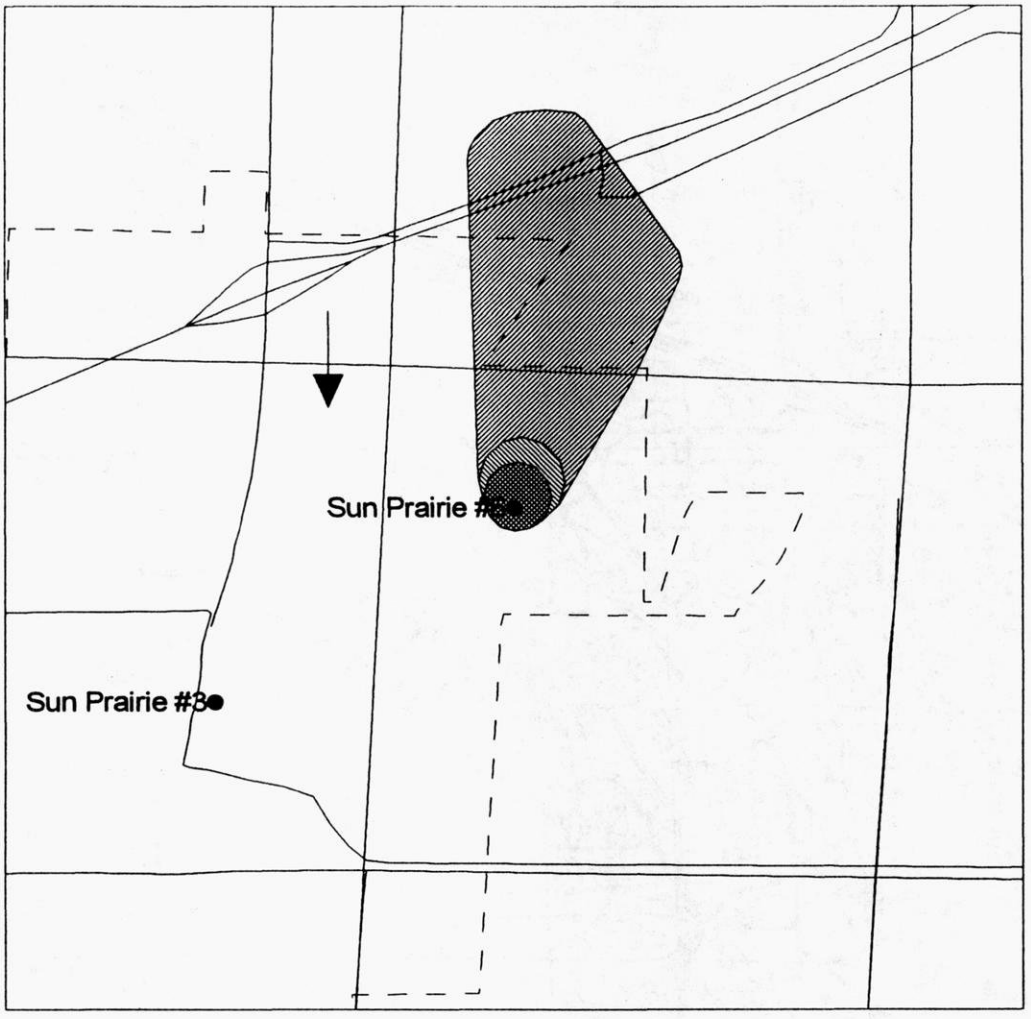
City of Sun Prairie, Well Number 6



City of Sun Prairie, Well Number 6 is located at 43° 11' 28.03" north latitude and 89° 12' 3.32" longitude. The well was installed in 1973, and has a pumping capacity of 1,200 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 801,000 gpd.

The well casing extends to a depth of 235 feet below ground surface, and the total depth of the well is 866 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the south.

Zone of Contribution for Sun Prairie, Well Number 6



Well Location

Latitude: 43° 11' 28.03"
Longitude: 89° 12' 3.32"

0 500 1000
(meters)

N

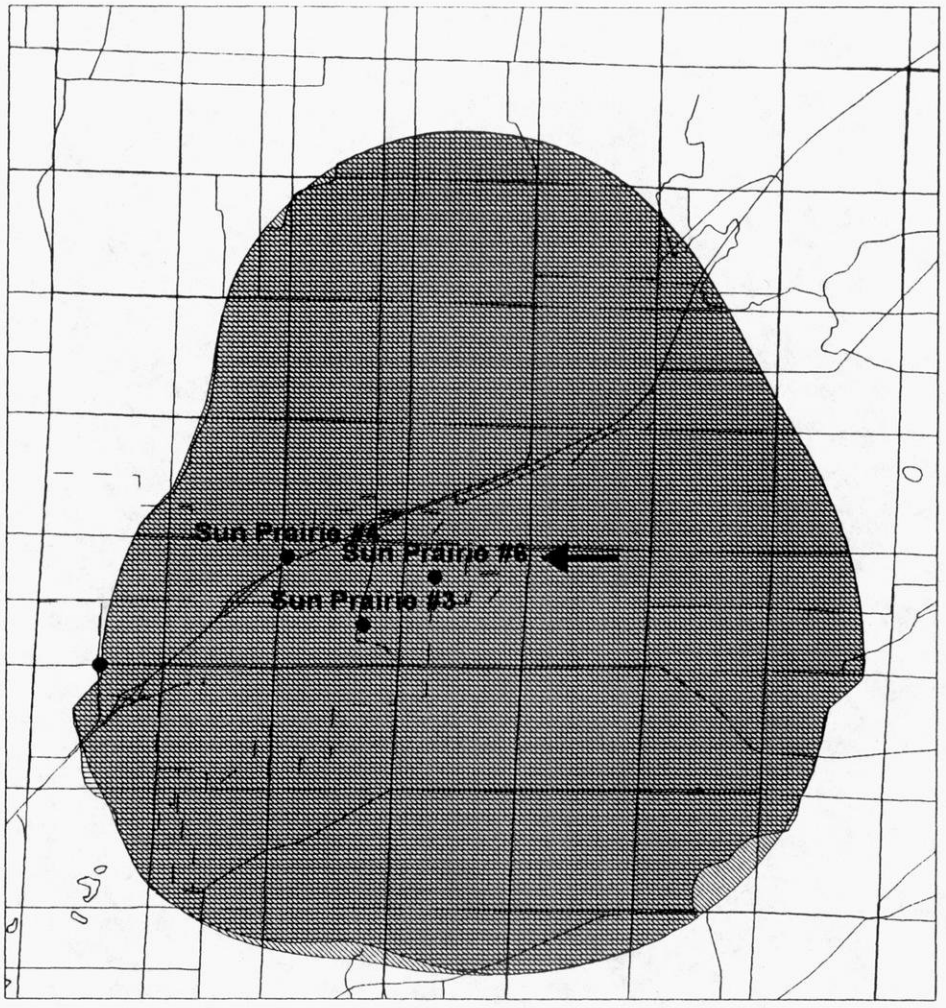
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Sun Prairie, Well Number 6



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

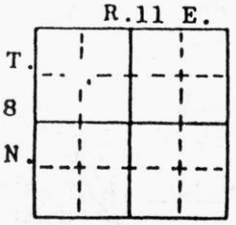
Log No. D7-Dn-1091

Well name Sun Prairie City Well #6

County: Dane

Owner.... City of Sun Prairie
Address.. 124 Columbus St.
Sun Prairie, WI 53590
Driller.. Layne-Northwest Co.
Engineer. Carl C. Crane, Inc.
Madison, Wisconsin

Completed... 6/73
Field check.
Altitude....963' ETM
Use..... Municipal
Static w.l.. 63'
Spec. cap... 15 GPM/ft



Location: SW¼,NE¼,NW¼,NW¼,SE¼,NW¼,sec.4,T.8N.,R.11E. Quad. Sun Prairie 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
24"	0	66'9"				24"	New steel welded	+1'6"	66'9"				
23"	66'9"	235'4"											
15"	235'4"	866'				16"	A53B welded 3/8" wall	+1'2"	235'4"				

Grout	from	to
Neat Cement	+1'2"	235'4"

Drilling method: Cable Tool
Samples from 0 to 866' Rec'd:4/6/73, 4/24/73

Studied by: Kathleen Massie

Issued: 1/2/84

Formations: Surface, Drift, St. Peter Sandstone (Tonti Member, Readstown Member), Tunnel City Group, Wonewoc Formation, Mt, Simon Ss, Precambrian.

Remarks: Well tested for 4 hours at 2100 GPM with 140 feet of drawdown.
Well is located 150' north of Musket Ridge and 250' east of Laura Street.
Spontaneous potential, resistivity and gamma logs run - 4/24/73.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
3'	0-3		Soil	Black	—	—	Little organic material.
	3-8		Clay	Bn yellow	—	—	Dolomitic. Much silt. Little sand. Trace gravel.
D	8-18		"	Lt yl bn	—	—	Dolomitic. Much gravel, sand, silt.
R	18-23		Sand & clay	"	C	Vfn/VC	Dolomitic (clay). Much silt. Little gravel.
I	23-28		"	"	"	"	Same.
F	28-33		Gravel	Mxd yl bn	S peb	Gran/L peb	Fos dol, dol, cht, ool cht, trap, dior, qtz, grnt. Much sand.
T	33-38		"	"	"	"	Same but trace silt, clay. Ltl silt, clay.
	38-43		Sand & clay	Lt yl bn	M	Vfn/VC	Dolomitic (clay). Much gravel, silt.
	43-45		"	"	"	"	Same.
	45-50		Gravel	Mxd yl gry	Gran	Gran/L peb	Dol, fos dol & cht, grnt, trap, qtz, biot, cht, ss, Mch sand.
52'	50-55		Sand & clay	Yl brown	M	Vfn/VC	Dolomitic. Much silt. Little gravel. Ltl silt, Tr clay.
T	55-59		Sandstone	Yellow red	"	"	Srnd. Tr dol cem, wh ool cht, cvd gvl, Ltl sh, Mny or coated
O	59-64		"	"	"	"	Same. grains.
N	64-69		"	"	"	"	"
T	69-74		"	"	"	"	"
I	74-79		"	"	"	"	Same but no caved gravel.
29'	79-84		"	Red yellow	"	"	Srnd. Trace dolomite cement, wh chert, or coated sand grains.
	84-90		Shale	Red brown	—	—	Siliceous. Much sandstone. Trace white chert.
?	90-96		"	"	—	—	Same plus little soft white clay.
E	96-101		"	"	—	—	Siliceous. Much sandstone. Trace wh chert, soft white clay.
A	101-106		"	Red	—	—	Siliceous. Much sandstone. Tr sft wh clay, dusky rd & wh shale.
D	106-112		"	Lt rd bn	—	—	Siliceous. Little sandstone, white chert.
S	112-117		"	Red	—	—	Siliceous. Much sandstone. Tr wh chert, dusky rd & wh shale.
T	117-123		"	"	—	—	Same.
O							
W	123-129		Shale	Red	—	—	Same plus much silt.
N	129-135		"	"	—	—	Same.
	135-141		"	"	—	—	"
	141-146		"	"	—	—	"
71'	146-152		"	"	—	—	"
?	152-155		Sandstone	"	Fn/M	Vfn/C	Srnd. Tr sil cement, dusky rd shale, wh cht, Mch silt, shale.
c.	155-162		NO SAMPLE.		Driller reports same as adjoining intervals.		

Well name: Sun Prairie City Well #6

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
TUNNEL CITY Gp.	162-167		Sandstone	Yl brown	Fn	Vfn/C	Sang. Mch G dol cem, st. Ltl yl bn sh, Vfn-qlauc, dusky rd & wh sh
							Tr pl gn sh, wh & pnk cht.
	167-174		Ss & shale	Red yellow	Vfn/Fn	"	Dolic(sh). Sang. Tr dol cem, Vfn-qlauc, rd bn shale, Mch silt.
	174-180		"	"	Vfn	"	Same plus trace muscovite.
	180-186		"	Brown	"	"	Same but little dolomite cement.
	186-191		"	Red brown	"	Vfn/M	Dolic(sh). Sang. Tr dol cem, Fn-glauc, wh chert. Much silt.
	191-197		Shale	"	—	—	Dolomitic. Much sandstone, silt. Trace wh sil shale, Fn-glauc.
	197-203		"	"	—	—	Same.
	203-209		Shale	Red brown	—	—	Same.
	209-215		Ss & shale	"	Vfn	Vfn/M	Dolic(sh). Sang. Trace dol cem, wh sil shale, Fn-glauc. Mch silt.
	215-220		"	"	Fn/M	Vfn/C	Same plus trace muscovite, subrounded.
	220-225		"	"	"	"	Same.
	225-231		"	Yellow red	"	"	"
	231-236		"	Red yellow	M	"	Dolic(sh). Srnd. Tr dol cem, wh sil shale, Fn-glauc, musc, pl gn
	236-241		"	"	"	"	Same. sh. Mch silt.
	241-246		"	"	"	"	"
	246-250		Sandstone	Yellow	Fn	"	Sang. Trace dol cement, wh chert, Fn-glauc, musc. Mch sh, silt.
	250-255		"	"	"	"	Same.
	255-260		"	"	"	"	Same plus trace dolomite.
	260-265		"	"	"	"	Same.
115'	265-270		"	"	M	"	"
WONEWOC	270-275		"	V pl yl	"	Vfn/VC	Srnd. Trace dol cement, Vfn-glauc. Little shale, Much silt.
	275-280		"	V pl brown	"	"	Srnd. Trace silica cement, shale, wh sil shale. Much silt.
	280-285		"	"	"	"	Same but little shale.
	285-290		"	"	"	"	Srnd. Trace sil & dol cem, wh sil shale. Ltl shale. Much silt.
	290-295		"	"	"	"	Same.
	295-300		"	"	"	"	"
	300-306		"	"	"	"	"
	306-312		"	Pnk white	"	"	"
	312-315		"	Red yellow	"	"	Srnd. Trace sil & lim cem, wh chert. Little shale. Much silt.
	315-320		"	Pink	C	"	Subrounded. Trace silica cement. Little shale. Much silt.
	320-326		"	"	M	"	Same.
	326-331		"	V pl brown	C	"	Rounded. Little silt. Trace shale.
	331-336		"	White	"	"	Same but no shale.
	336-342		"	"	"	"	Rounded. Trace silt.
	342-347		"	Yellow	"	"	Rounded. Trace dolomite cement, shale, silt.
	347-352		"	"	M	"	Same but little silt.
	352-358		Sandstone	Yellow	C	"	Rounded. Trace dolomite cement. Little shale. Much silt.
	358-364		"	"	"	"	Same but much shale.
	364-370		"	"	"	"	Rounded. Trace dolomite cement. Little shale. Much silt.
	370-376		"	"	"	"	Same but much shale.
	376-381		"	"	"	"	Rounded. Trace dolomite cement, shale. Much silt.
	381-385		"	"	"	"	Same.
	385-390		"	"	"	"	Same but little shale.
	390-394		"	"	"	"	Rounded. Little dolomite cement, shale. Much silt. Tr wh chert.
130'	394-400		"	"	"	"	Rounded. Ltl dol cement, shale. Mch silt. Tr pl gn shale.
MT. SIMON	400-405		"	V pl brown	M	"	Rounded. Trace dolomite cement. Much silt.
	405-410		"	Yellow	"	"	Same.
	410-415		"	"	"	"	"
	415-420		"	V pl brown	"	"	"
	420-425		"	White	"	"	Rounded. Much silt.
	425-430		"	"	"	"	Rounded. Little silt.
	430-435		"	"	"	"	Rounded. Trace silica cement. Little silt.
	435-440		"	"	"	"	Same.
	440-445		"	"	"	"	"
	445-451		"	"	"	"	Rounded. Trace silica cement. Much silt.
	451-457		"	"	"	"	Same.
	457-462		"	"	"	"	Subrounded. Trace silica cement. Much silt.
	462-467		"	"	"	"	Same.
	467-472		"	"	C	"	Same plus trace shale.
	472-477		"	"	"	"	Subrounded. Much silt. Little shale. Trace pyrite.
	477-482		"	"	"	"	Same plus trace silica cement.
	482-487		"	"	M	"	Same.
	487-491		"	"	"	"	"

Well name: Sun Prairie City Well #6

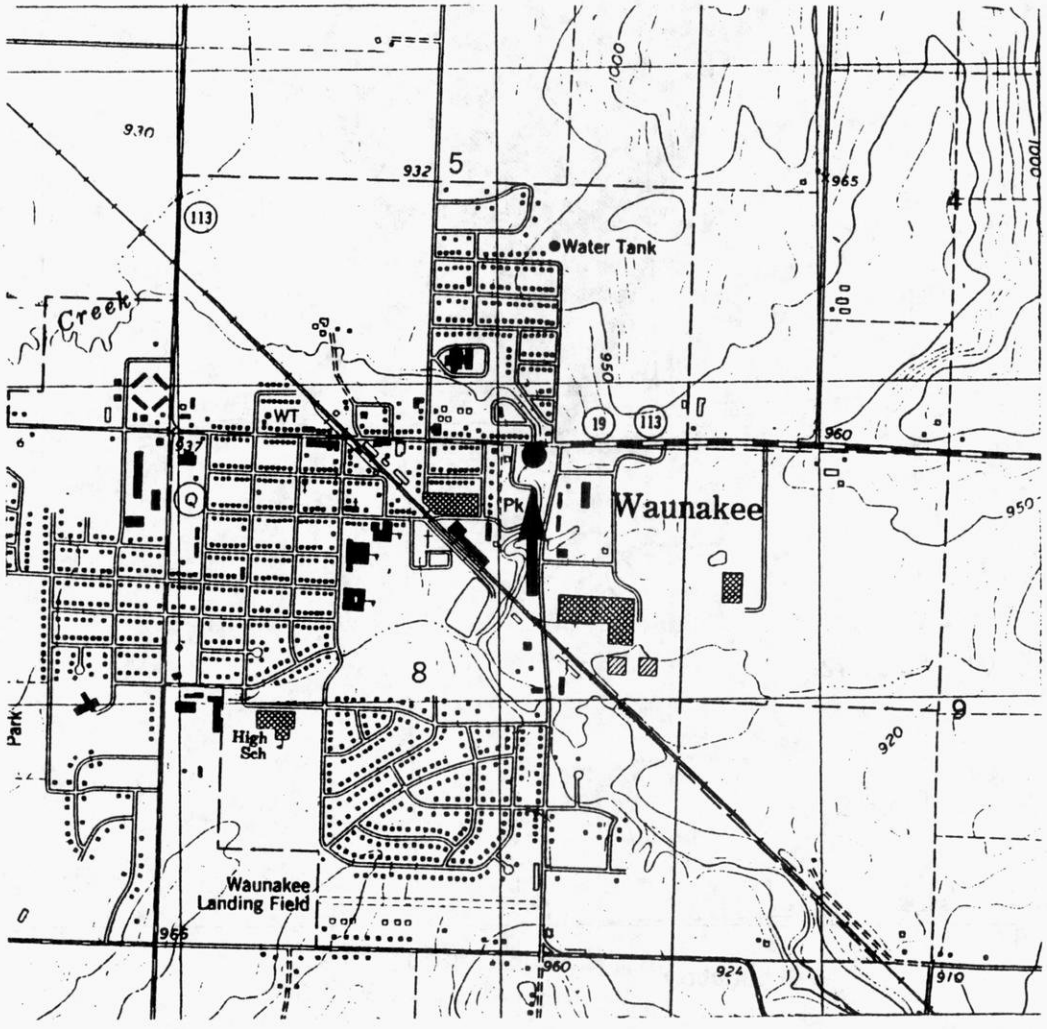
Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
491-497		Sandstone	White	M	Vfn/VC	Srnd. Mch silt. Ltl shale. Trace pyrite, silica cement.
497-502		"	"	"	"	Srnd. Tr sil cem, pyr, or coated grns, Ltl shale, Much silt.
502-508		"	"	"	"	Same.
508-513		"	"	"	"	"
513-515		"	"	"	"	"
515-520		"	"	"	"	Subrounded. Trace silica cement. Little shale. Much silt.
520-525		"	"	"	"	Same.
525-530		"	"	"	"	Same but little silt.
530-535		"	"	"	"	Subrounded. Trace silica cement. Little shale. Much silt.
535-540		"	V pl brown	"	"	Srnd. Ltl P sil cement, shale. Mch silt. Trace wh sil shale.
540-545		"	"	"	"	Same.
545-550		"	"	"	"	"
550-555		"	"	"	"	"
555-560		"	"	"	"	"
560-565		"	"	C	"	Subrounded. Trace silica cement. Little shale. Much silt.
565-570		"	Pink	Fn/M	"	Subangular. Little poor silica cement, shale. Much silt.
570-575		"	"	M	"	Same but trace shale.
575-580		"	"	"	"	Same.
580-585		"	"	"	"	Subangular. Little poor silica cement, shale. Much silt.
585-590		"	"	"	"	Same plus trace white siliceous shale.
590-594		"	"	"	"	Srnd. Trace P sil cement, wh sil shale. Little shale. Mch silt.
594-600		"	"	"	"	Same.
600-605		"	"	Fn/M	"	Srnd. Trace sil cement, shale, or stng, wh sil shale. Mch silt.
605-609		"	"	M	"	Srnd. Trace silica cement, wh siliceous shale, Mch shale, silt.
609-613		"	"	"	"	Same.
613-618		"	Red yellow	"	"	Same plus trace pink staining.
618-623		"	"	"	"	Srnd. Tr sil cem, wh sil shale, or stng. Ltl shale. Much silt.
623-631		"	Pink	"	"	Same.
631-636		"	"	"	"	"
636-641		"	"	"	"	"
641-646		"	"	"	"	"
646-651		"	"	"	"	"
651-656		"	"	"	"	Subrounded. Trace silica cement. Much silt.
656-661		"	"	"	"	Same plus trace shale.
661-667		"	"	"	"	Subrounded. Trace silica cement. Little shale, silt.
667-673		"	"	"	"	Same.
673-678		Sandstone	Pink	M	Vfn/VC	Srnd to sang. Trace sil cem, wh sil shale. Mch shale, silt.
678-685		"	Red yellow	M/C	"	Srnd. Trace sil cement, wh sil shale, shale, or stng. Mch silt.
685-690		"	Pink	M	"	Same.
690-695		"	"	"	"	Same but little shale.
695-700		"	"	"	"	Same but no orange staining.
700-705		"	"	"	"	Same.
705-711		"	"	"	"	"
711-716		"	"	C	"	"
716-721		"	"	"	"	"
721-727		"	"	M	"	Srnd. Trace sil cement, wh sil shale, shale. Much silt.
727-733		Sandstone	Pink	M	Vfn/VC	Srnd. Trace sil cement, wh sil shale, shale. Much silt.
733-740		"	"	"	"	Same but little shale.
740-745		"	Pnk white	"	"	Same but trace shale.
745-750		"	"	"	"	Subrounded. Trace silica cement. Little shale. Much silt.
750-756		"	"	"	"	Same but trace shale.
756-761		"	"	"	"	Same.
761-766		"	Pink	"	"	Same but little shale.
766-771		"	"	"	"	Srnd. Trace silica cement, shale, wh sil shale. Much silt.
771-776		"	"	"	"	Same.
776-781		"	"	"	"	Same but little shale.
781-786		"	"	"	"	Same.
786-791		"	"	Fn/M	"	"
791-795		"	Pink white	"	"	Same but trace shale.
795-799		"	"	"	"	Same.
799-804		"	"	M	"	Srnd. Ltl P sil cement. Mch silt. Tr shale, white sil shale.
804-809		"	Pink	"	"	Same but little shale.
809-813		"	Pink white	"	"	Srnd. Tr P sil cement, wh sil shale. Little shale. Mch silt.
813-820		"	Pink	"	"	Same but much shale.

MT. SIMON

Well name: Sun Prairie City Well #6

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
MT. SIMON	820-824		Sandstone	Pink	C	Vfn/VC	Subrounded. Trace poor silica cement, pyrite. Mch shale, silt.
	824-829		"	"	"	"	Same plus trace quartz granules.
	829-834		"	"	"	"	Same.
	834-839		"	"	"	"	Same but little shale.
	839-844		"	"	"	"	Srnd. Tr P silcem, qtzt(?), qtz gvl (Gran/M peb). Ltl sh. Mch silt.
	844-850		"	"	"	"	Same but gravel (Gran/S peb).
	850-855		"	"	"	"	Same.
	855-860		"	Red yellow	"	"	Srnd. Tr P silcem, qtzt(?), qtz grans. Much shale. Ltl silt.
464'	860-864		"	"	"	"	Same plus trace white siliceous shale.
PC	864-865		Shale & ss	Strg brown	"	"	Subrounded. Dolomitic (sh). Little silt. Very weathered.
2'	865-866		Shale	Dk rd bn	—	—	Siliceous. V wea volc. Tr xln structure still visible.
			END OF LOG				
			Additional samples				
			Labeled "2nd to last foot"				
			Shale	Yl brown	—	—	Siliceous. V wea volc. Tr xln structure still visible.
			Labeled "Last foot"				
			Shale	Dk rd bn	—	—	Siliceous. V wea volc. Tr xln structure still visible.

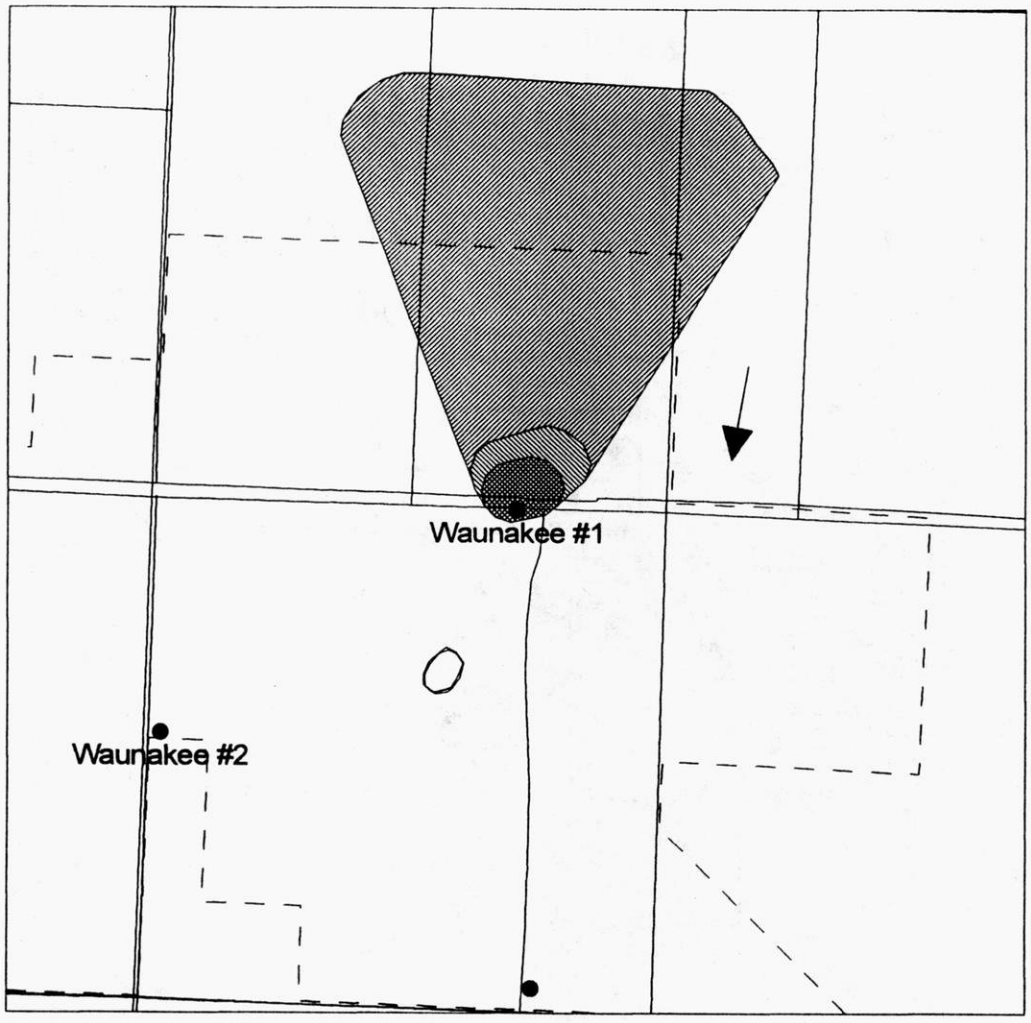
Waunakee Village Well Number 1



Waunakee Village Well Number 1 is located at 43° 11' 29.91" north latitude and 89° 26' 51.57" longitude. The well was installed in 1927, and has a pumping capacity of 850 gpm. The 1992 average daily use was 186,841 gpd.

The well casing extends to a depth of 95 feet below ground surface, and the total depth of the well is 305 feet. Water is drawn from the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southeast.

Zone of Contribution for Waunakee, Well Number 1



Well Location

Latitude: 43° 11' 29.91"
Longitude: 89° 26' 51.57"

0 500 1000
(meters)

N

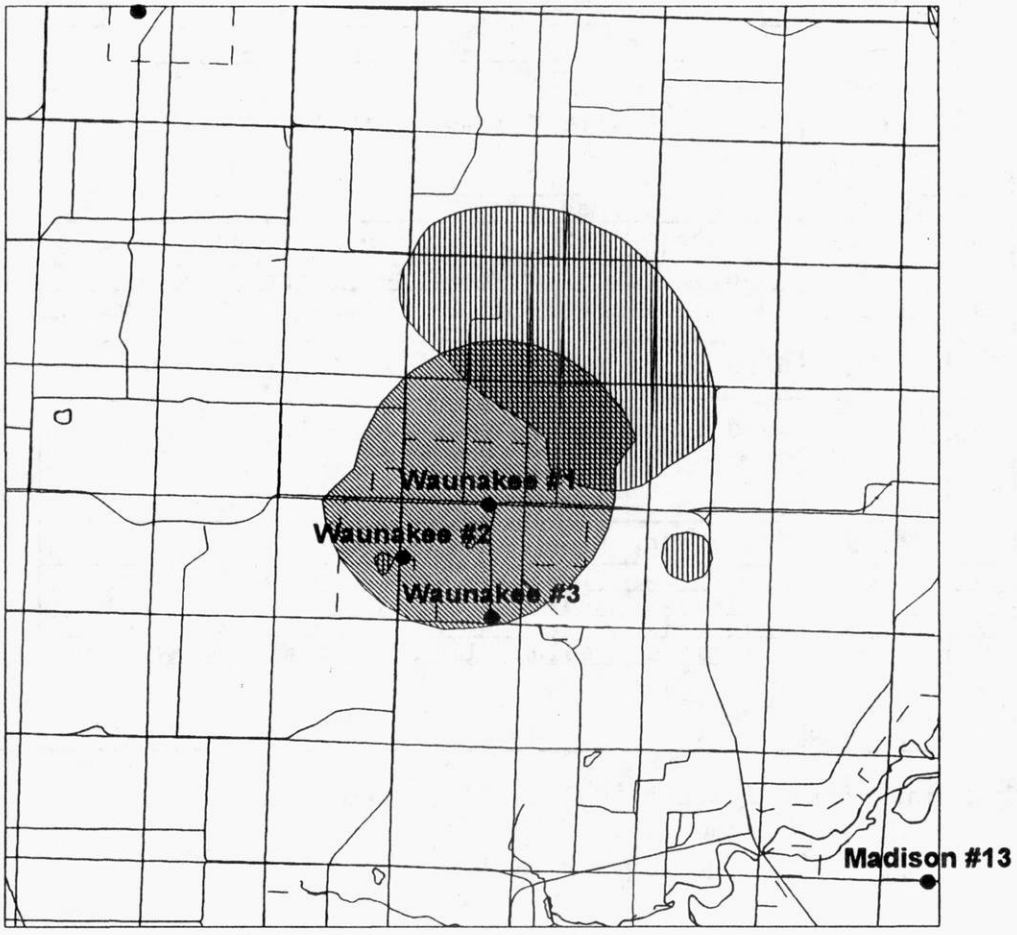
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Waunakee, Well Number 1



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

VILLAGE WELL, WAUNAKEE, WIS. #1

Gray Well Drilling Co., Contractors

Drilled Sept. 10-Oct. 20, 1927

Samples examined by T. T. Knobles, Nos. 78675-78734

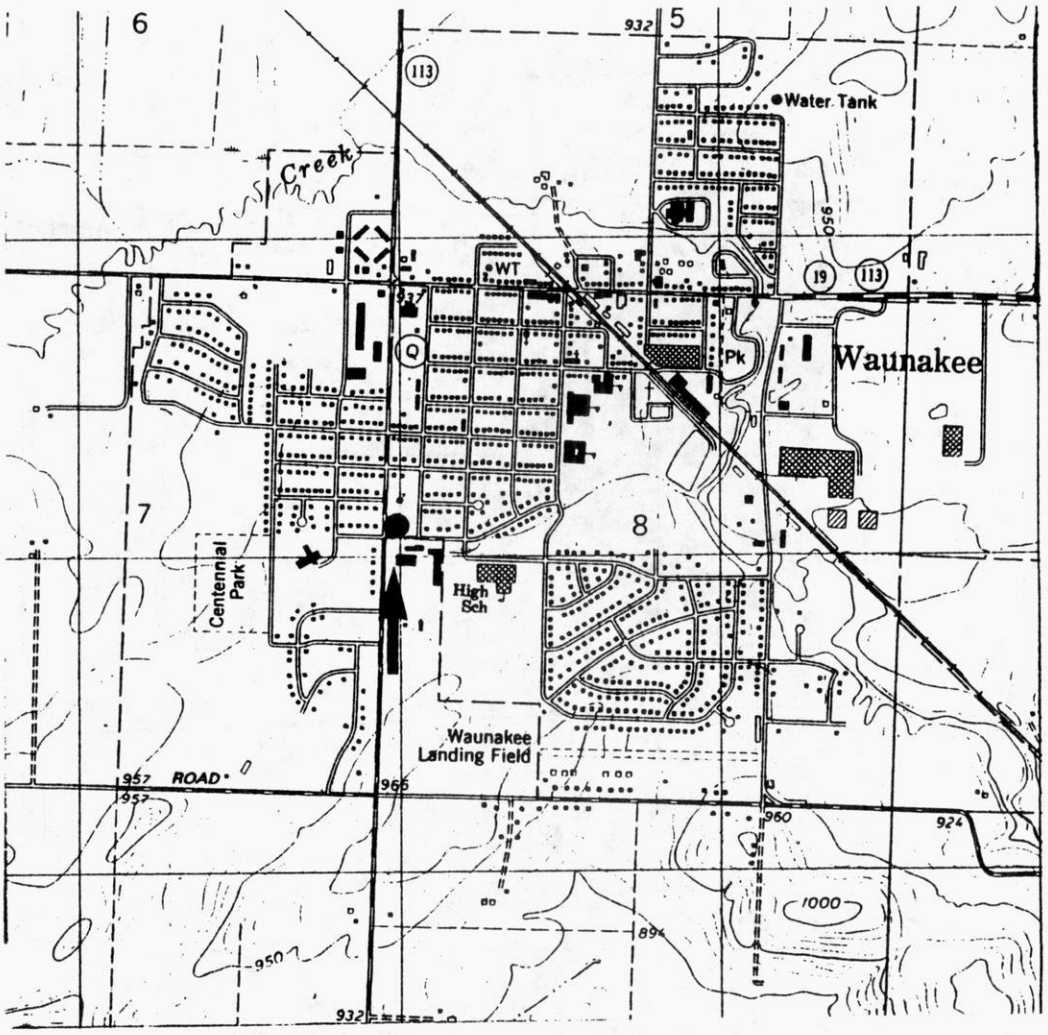
NW¼, NW¼, NE¼, NE¼, NW¼, NE¼, sec. 8, T. 8N., R9E.

Alt.=910'ETM

DRIFT	90	0-5	5		Soil, black, sandy		
		5-25	20		Clay, gray, dolomitic		
		25-35	10		Sand, very fine, light yellow, dolomitic		
		35-80	45		Glacial till, gray to yellowish gray		94'8" of 12" steel drive pipe
		80-90	10		Gravel, coarse		Shoe 95
FRANC	75	90-115	25		Sandstone, fine, yellowish gray, dolomitic, glauconitic		
		115-120	5		Sandstone, medium to fine, light gray		
		120-130	10		Sandstone, fine, gray, yellowish gray, dol.		
		130-135	5		No sample		
		135-165	30		Sandstone, fine to coarse, light gray		
DRES.	65	165-215	50		Sandstone, medium to fine, white		12" hole
		215-230	15		Sandstone, fine, white		
EAU C	75	230-240	10		Sandstone, fine, light yellowish gray, dol.		
		240-250	10		Sandstone, medium to fine, gray, yel., dol.		
		250-260	10		Sandstone, very fine, gray, dolomitic		
		260-270	10		Sandstone, medium, light yellowish gray, dol.		
		270-305	35		Sandstone, fine, white		

Formations: Drift; Franconia; Dresbach (Galesville); Eau Claire

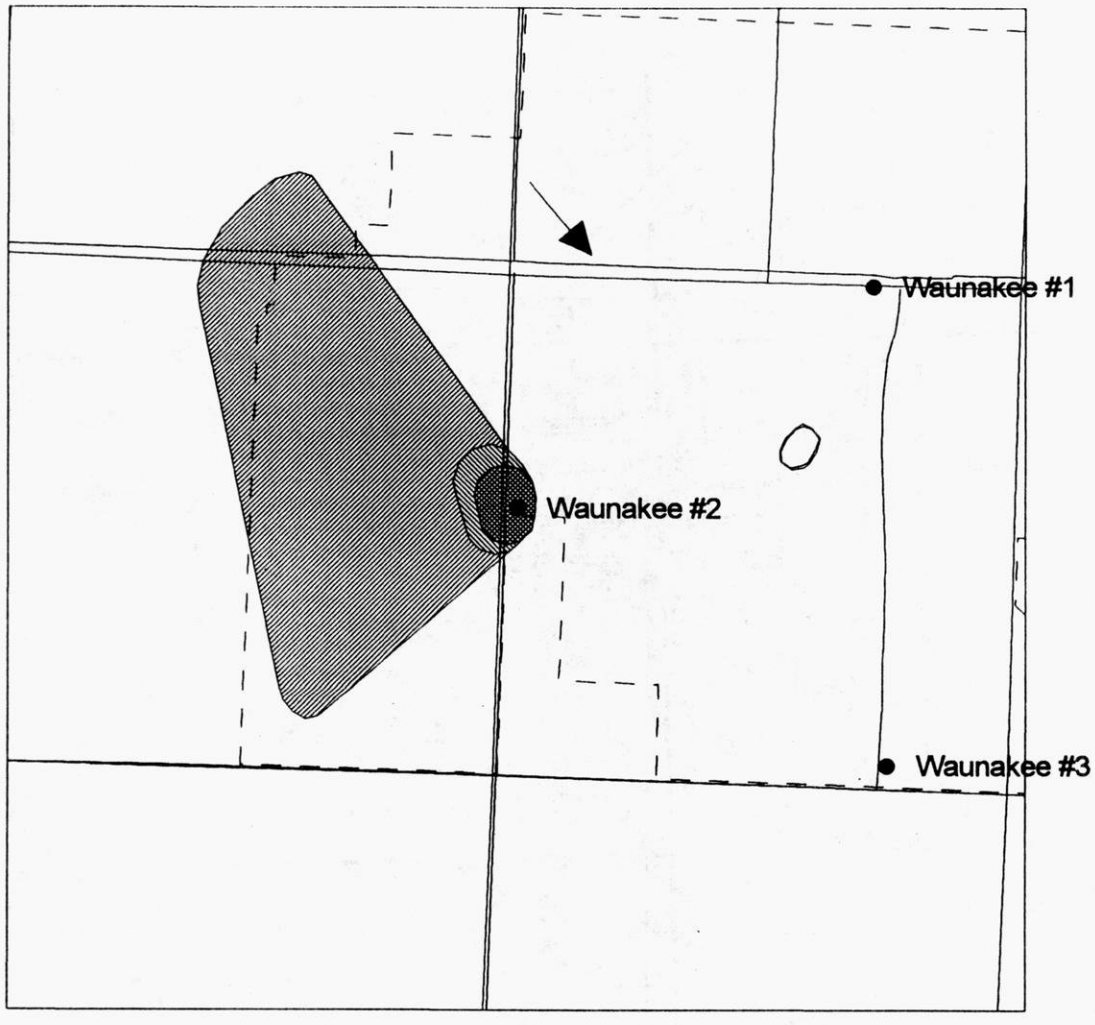
Waunakee Village Well Number 2



Waunakee Village Well Number 2 is located at 43° 11' 5.91" north latitude and 89° 27' 40.27" longitude. The well was installed in 1964, and has a pumping capacity of 1,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 600,000 gpd.

The well casing extends to a depth of 170 feet below ground surface, and the total depth of the well is 420 feet. Water is drawn from the Paleozoic bedrock units above the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southeast.

Zone of Contribution for Waunakee, Well Number 2



Well Location

Latitude: 43° 11' 5.91"
Longitude: 89° 27' 40.27"

0 500 1000
(meters)

N

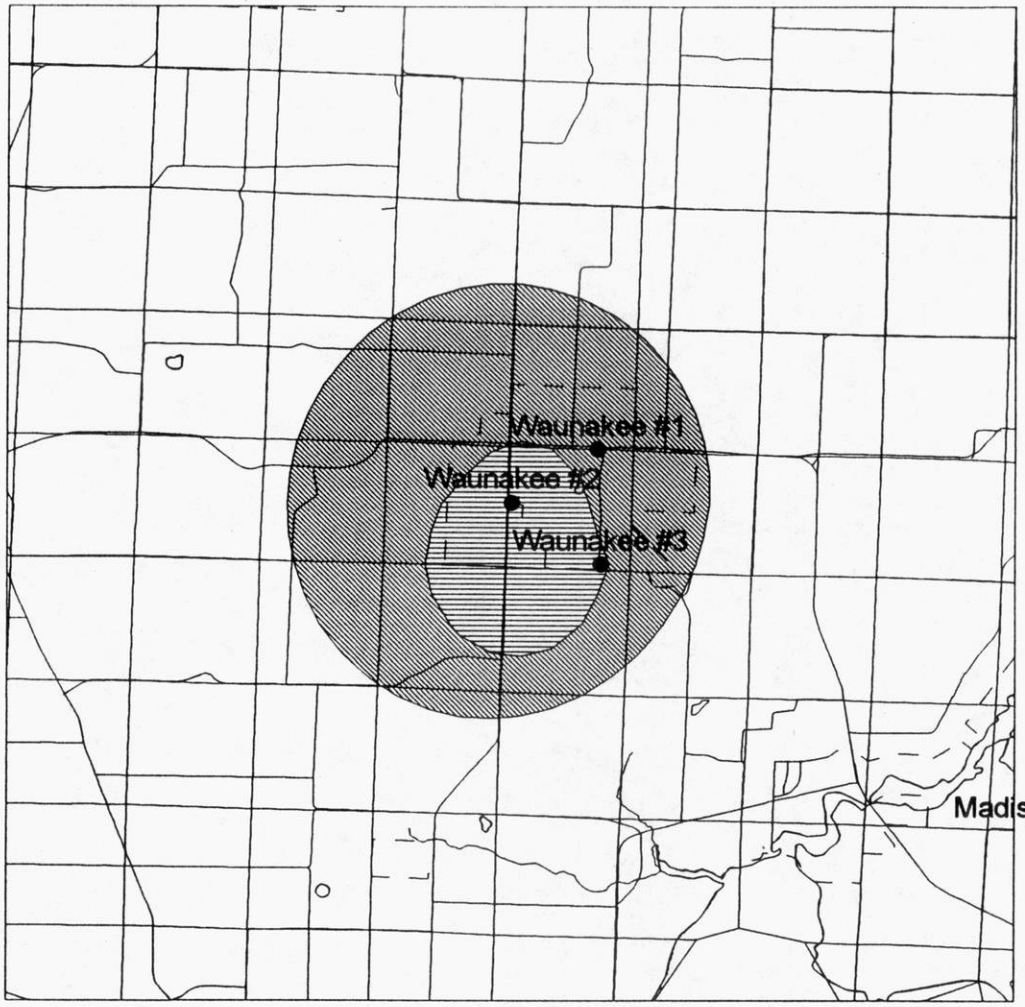
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Waunakee, Well Number 2



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Waunakee Well #2, Waunakee, Wis.
Co. Hwy. "Q", ~~NW¼, Sec. 8, T8N, R9E~~
Egerer-Galloway - Driller - July, 1964
Sample Nos. 247068-247151, Examined by M.E. Ostrom Sept. 18, 1964

ALT. 930' ETM

NW, SW, SW, SW, SW, NW Sec 8, T8N, R9E

DR		0-5	5	Sl dk bn Dol,VP mch dol,Ss	#30
		5-10	5	Gvl mxd Vfn,fn Srnd Sang F mostly dol,mch,snd	24" Hole
		10-15	5	Gvl mxd fn,M Sang F mostly dol,mch snd	24" steel pipe
	25	15-20	5	Gvl mxd Vfn,fn Sang F mostly dol,trM,mch snd	
		20-25	5	Gvl mxd Vfn,fn Sang F mostly dol,trm,cly,snd	
TR		25-30	5	Sts mxd Dol,Vp mch sh,tr snd	31'
	15	30-40	10	Sol mxd fn,M dns,mch sts,Ss,glauc	
FRANCONIA		40-50	10	Ss lt yl bn fn Sang F Dol,G trVfn,M,mch,sts, glauc,dol	23" hole 16",3/8" steel pipe (A-53)
		50-60	10	Ss Vlt yl bn fn Sang F Dol,F trM,slt trVfn mch glauc	
		60-70	10	Ss lt yl mxd M,fn Sand F Dol,F slt trVfn,mch glauc	
		70-75	5	Ss lt yl mxd M,fn Sang F Dol,G slt trVfn,mch,glauc	cement grout
		75-80	5	SsVlt yl or fn Sang F Dol,F,slt trVfn,trM,trglauc	
		80-105	25	SsVlt yl or fn Sang F Dol,G,trVfn,slt,trM,trglauc sh	
		105-115	10	Ss Vlt yl or fn Sang F Dol,G trVfn,slt trM,tr	120'
		115-120	5	Ss Vlt yl or fn Sang F Dol,FtrVfn,slt,trM,trsh	123'
		120-125	5	Ss Vltylorfn SangF Dol,FtrVfn,slt,tr,glauc	125'
		125-130	5	Ss Vltylorfn SangF Dol,FtrVfn,slt trM,Slt trglauc	
		130-135	5	SsVltylorfn Sand P Dol,GtrVfn,M,C,slt tr glauc	
	100	135-140	5	SsVltylorfn Sang P Dol,GtrVfn,M,C,slt trglauc,sh	15" hole
GALESVILLE		140-150	10	Ss Vlt yl or M Srnd F Dol,P trVfn,fn,C	
		150-155	5	Ss wh M,C Srnd P Dol,P tr fn	
		155-190	45	Ss wh M Srnd P tr fn,C	170' 12" hole
		190-200	10	Ss Vlt yl M Srnd P Dol,P tr fn,C,Slt trVfn	
		200-220	20	Ss Vlt yl M Srnd P Dol,P tr fn,C,slt,trVfnslt trsh	
		220-230	10	Ss Vlt yl M,C Srnd F Dol,P tr fn,slt trVfn	
		230-240	10	Ss Vlt yl M Srnd F Dol,P tr fn,C	
		240-245	5	Ss Vlt yl M Srnd F Dol,Ptrfn,slt trC,slt trglauc	
		245-255	10	Ss Vlt yl M,C Srnd F Dol,VPslt trVfn,tr dol	
		255-260	5	Ss lt yl M,C Srnd F Dol,P slt trVfn,tr dol	
		260-265	5	Ss Vlt yl M,C Srnd P Dol,P trVfn	
	140	265-280	15	Ss Vlt yl mxd M Srnd F Dol,P trVfn,fn,tr sh	
ECL		280-285	5	Sts mxd Dol,VG mchSs,sh	
		285-290	5	Sts mxd Dol,VG mst Ss,mch sh,tr pyr	
		290-295	5	Ss mxd M rnd F Dol,P tr fn,Vfn,tr pyr,sts,sh	
		295-300	5	SsVlt or bnMrnd F Dol,Ptr fn,Vfn,slt tr glauc,sh	
		300-305	5	Ss Vlt or bn M rnd F Dol,P tr fn,Vfn	
		305-310	5	Ss Vlt or bn M rnd F Dol,P tr sh	
		310-320	10	Ss Vlt yl bn M rnd F tr fn,tr sh	
		320-330	10	Ss wh M rnd F	
		330-340	10	Ss wh M rnd F slt trC,slt tr Sh	

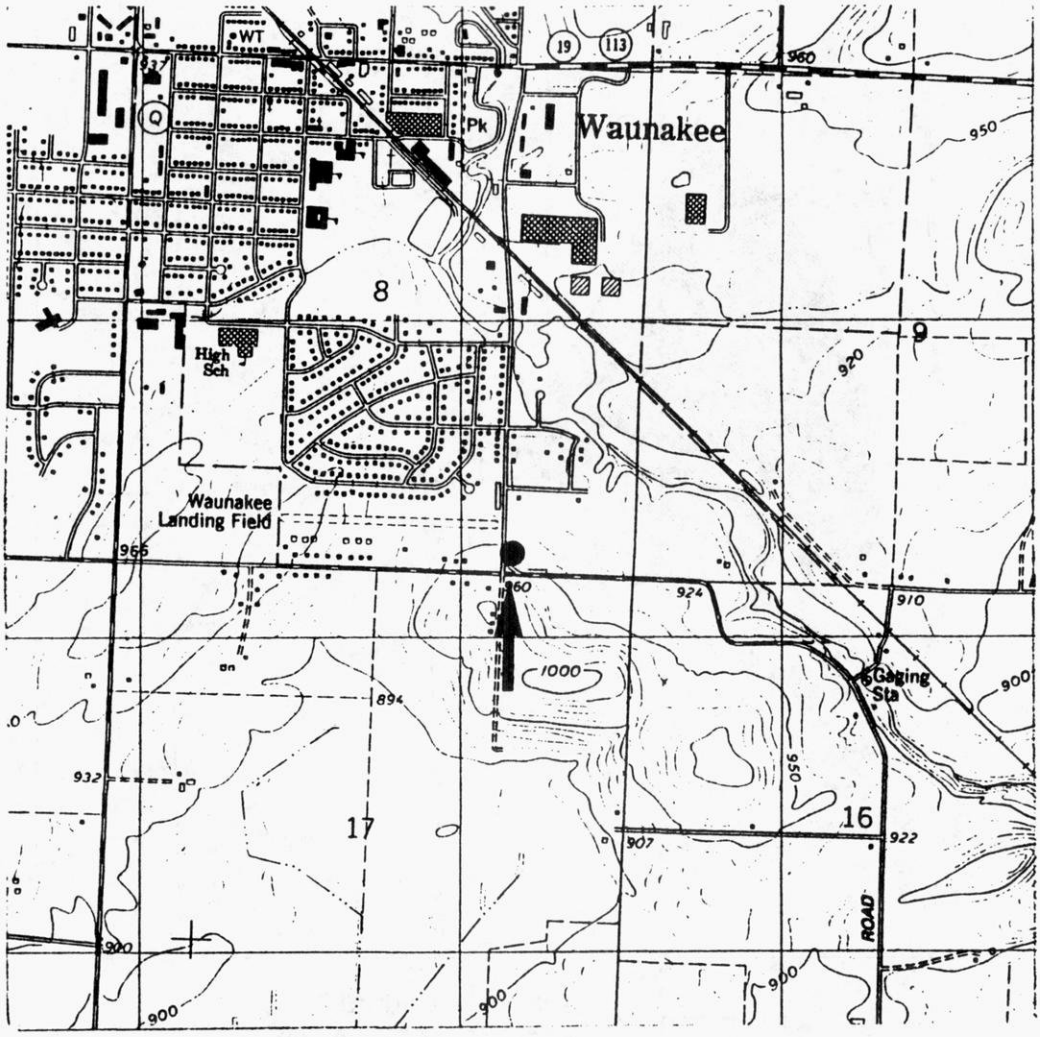
Waunakee Well #2
Egerer-Galloway - Driller - July, 1964
Sample Nos. 247068-247151

	340-365	15		Ss Vlt yl bn M rnd F slt tr fn,tr sh		
	355-360	5		Ss Vlt yl bn M rnd F slt tr fn,Slt tr sh,dol		
EAU	360-370	10		Ss Vlt yl bn M rnd F slt trC,tr dol,sh		
	370-380	10		Ss Vlt yl bn M rnd F slt trC,tr dol foss		
CLAIRE	380-390	10		Ss wh M rnd F tr fn		
	390-405	15		Ss Vlt yl bn M rnd F slt tr fn,C,tr por,dol		
140	405-420	15		Ss Vlt yl bn M rnd F slt tr fn,C,Vfn,por,dol		420'

Formations: Drift, Trempealeau, Franconia, Galesville, Eau Claire,

Well tested for 24 hours at 1500 gpm with 112 ft. of drawdown.
Specific capacity = 13.4 gpm per ft. of drawdown.

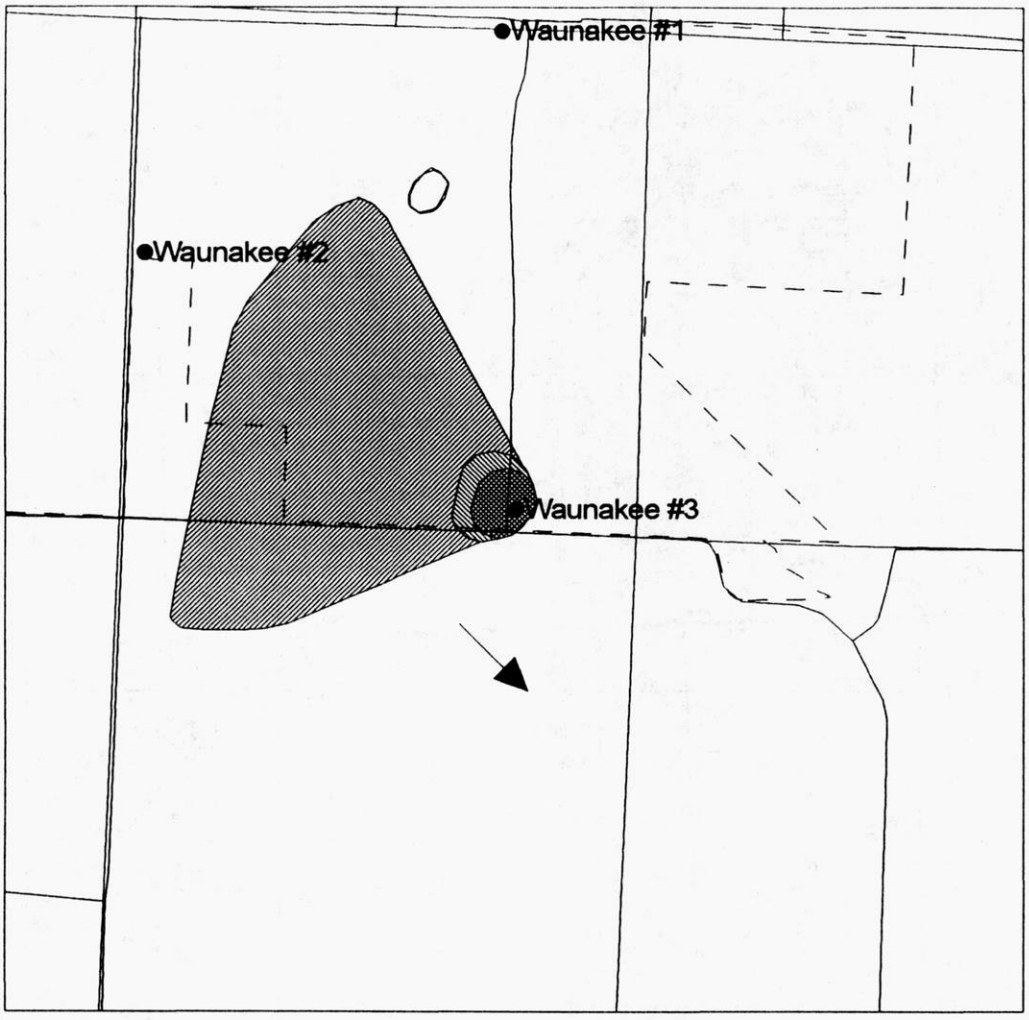
Waunakee Village Well Number 3



Waunakee Village Well Number 3 is located at 43° 10' 40.59" north latitude and 89° 26' 47.66" longitude. The well was installed in 1983, and has a pumping capacity of 1,200 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 652,000 gpd.

The well casing extends to a depth of 176.5 feet below ground surface, and the total depth of the well is 600 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarly from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southeast.

Zone of Contribution for Waunakee, Well Number 3



Well Location

Latitude: 43° 10' 40.59"
Longitude: 89° 26' 47.66"

0 500 1000
(meters)

N

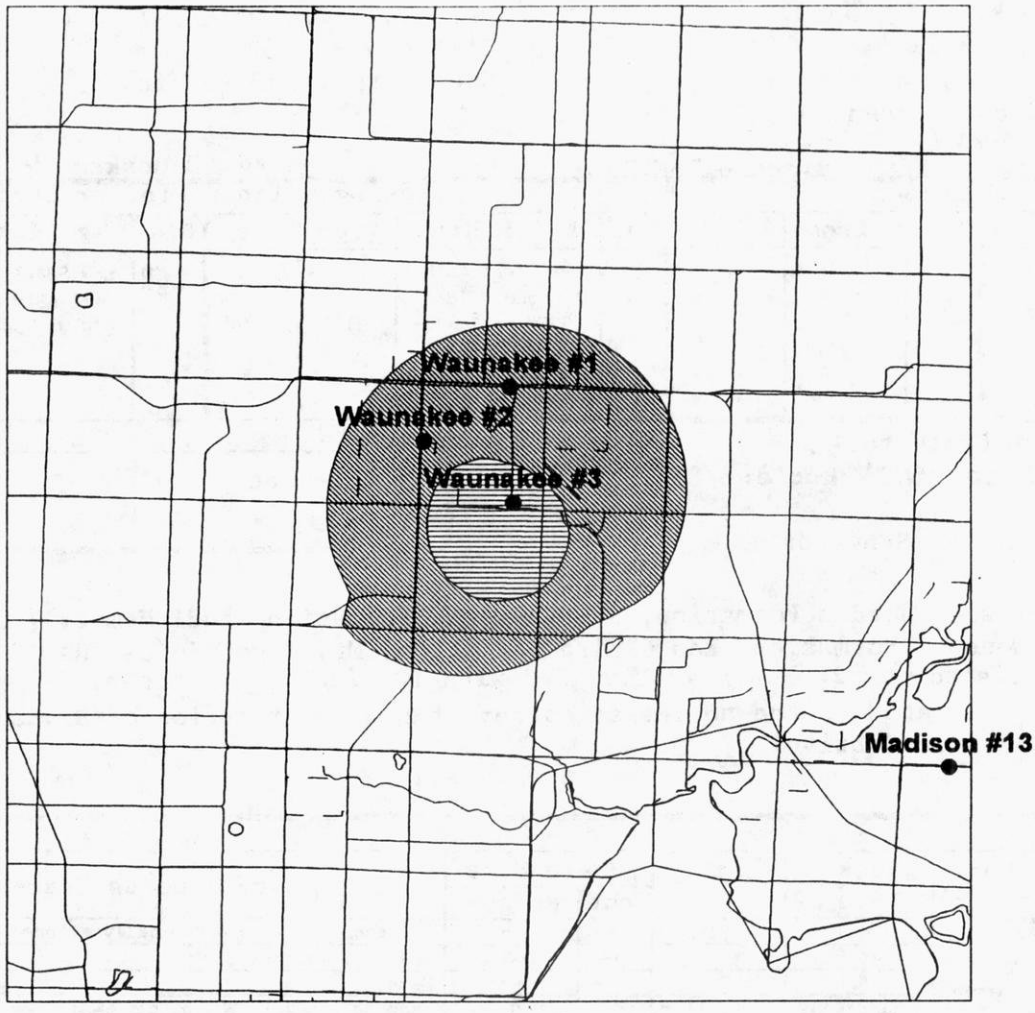
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Waunakee, Well Number 3



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
3817 Mineral Point Rd., Madison, Wisconsin 53705

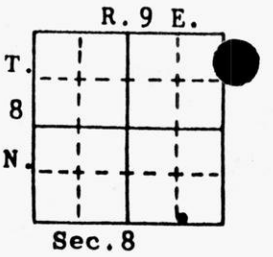
Log No. N107-Dn 1275

Well name Waunakee Village Well #3

County: Dane

Owner.... Village of Waunakee
Address.. 401 W. Second Street
Waunakee, WI 53597
Driller.. Miller Well & Pump Co.
Engineer. Carl C. Crane
Madison, Wisconsin

Completed... 7/26/83
Field check.
Altitude.... 948' ETM
Use..... Municipal
Static w.l.. 52'
Spec. cap... 15 GPM/ft.



Location: ~~SW corner~~ SW, NW, SW, SW, SE¼, SE¼, sec 8, T8N, R9E

Quad. Waunakee 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
20"	0	177'				20"	New Steel ASTM A53 GRB Welded .375" Wall	0	22'	16"	New Steel .375" Wall ASTM A53 GRB Welded	+18"	176'6"
15"	177'	600'											

Grout	from	to
Neat cement	0	176

Drilling method: Cable tool
Samples from 0 to 600' Rec'd: 6/83, 7/83

Studied by: Craig S. Schwandt

Issued: 2/7/86

Formations: Surface, Jordan Formation, St. Lawrence Formation (Lodi Member), Tunnel City Group, Wonewoc Formation, Eau Claire Formation, Mt. Simon Sandstone.

Remarks: Well tested for 24 hours at 1500 GPM with 101 feet of drawdown.
Well is located on the northeast corner of the intersection of Division Street and Woodland Drive.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Sfc. 15'	0-5		Soil	Dk yl bn	—	—	Siliceous. Mostly organically altered silt. Little sand.
	5-10		"	"	—	—	Same but much sand.
	10-15		"	"	—	—	Same.
JOR. 30'	15-20		Sandstone	Bn yellow	Fn	Vfn/C	Sang to srnd. Tr VG dol cem, F sil cem, cvd dol gran, cvd lithic snd, frstg, Mch st.
	20-25		"	"	"	"	Same.
	25-30		"	"	"	"	"
	30-35		"	V pl bn	"	"	Srnd. Tr F sil cem, cvd gravel (Gran/S peb), wh sh, bn mica. Ltl st.
	35-40		"	Yellow	Vfn/Fn	"	Same.
	40-45		"	Rd yellow	Vfn	"	Sang, Mch G calc cem, st. Tr Vfn zircon, siltstone, hem mottling.
LODI 15'	45-50		Siltstone	"	—	—	Very sandy. Siliceous. Trace hem matrix mottling.
	50-55		"	Strg bn	—	—	Same plus trace G calcite cemented sandstone.
	55-60		Sts & Ss	Rd yellow	Vfn	Vfn/C	Silt: Silcs, Sang. Ltl VG calc cem. Tr Vfn glauc, mica, hem matrix mottling.
TUNNEL CITY GROUP	60-65		Sandstone	Yl & Gn	Fn/M	"	Sang. Well sorted. Ltl G dol cem, rd hemic sts. Mch
	65-70		"	Pl yellow	Fn	"	Srnd. Well sorted. Ltl G dol cem, mssv glauc, V mch Vfn/M glauc.
	70-75		"	"	"	Vfn/M	Same but no rd hem sts. \ rd hem siltstone. Mch yl st, Vfn/M glauc.
	75-80		"	Lt yl bn	"	"	Sang to srnd. Well sorted. Trace G dol cement. Mch Vfn/M glauc.
	80-85		"	"	"	"	Same plus trace dol (M crystalline). \ yl silt.
	85-90		"	"	"	"	Same.
	90-95		"	Ol yellow	"	Vfn/VC	Srnd. Fair sorting. Mch G dol cem, yl st. Ltl Vfn/M glauc. Tr
	95-100		"	"	"	"	Same plus trace red hem siltstone. \ dol.
	100-105		"	"	"	"	Same.
	105-110		"	"	"	Vfn/C	Same but trace Vfn/M glauc.
	110-115		"	"	"	"	Same.
	115-120		"	Yellow	"	"	"
	120-125		"	"	"	"	Srnd. Well sorted. Ltl G dol cem. Mch st. Tr Vfn/M glauc, Vfn zr.
	125-130		"	"	"	"	Same.
	130-135		"	"	"	"	Same but much G dol cement.
	135-140		"	"	"	"	Same but little G dol cement.
	140-145		"	"	"	"	Same.
	145-150		"	"	"	"	Same but much G dol cement.
	150-155		"	Pl yellow	"	"	Srnd. Well sorted. Ltl G dol cem. Mch st. Tr Vfn/M glauc, Vfn zr.
	155-160		"	"	"	"	Same.

Well name: Waunakee Village Well #3

T.C. 105'	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	160-165		Sandstone	Pl yellow	Fn/M	Vfn/VC	Srnd to rnd. Ltl G dol cement. Mch silt. Tr Vfn/M glauc. Vfn zr.
	165-170		"	"	Fn & M/C	"	Same.
	170-175		"	V pl bn	"	"	"
W	175-180		"	Lt gray	M	"	Rnd. Mch calcus drilling mud. Mny drllg metal frags. Tr frstg.
O	180-185		"	"	"	"	Same.
N	185-190		"	Lt tan gy	"	"	Rnd. Tr F dol cem, drllg mud, frosting, silt, drllg metal frags.
E	190-195		"	"	"	"	Same plus trace pale green shale.
W	195-200		"	"	"	"	Rnd. Tr F sil cem, wh sh/sts matrix, st, pl gn sh, sec qtz grwths,
O	200-205		"	"	"	"	Same. \ bronze mica, Vfn zr. Ltl frstg.
C	205-210		"	"	"	"	Same plus trace drilling mud.
	210-215		"	Pl yellow	"	"	Rnd. Tr F dol cem, F sil cem, pl gn sh, silt. Little frosting.
	215-220		"	"	"	"	Same.
F	220-225		"	"	"	"	"
	225-230		"	Yellow	"	"	Rnd. Mch VG lim mottled dol cement. Ltl frosting. Trace silt.
O	230-235		"	"	"	"	Same but trace VG lim mottled dol cement.
R	235-240		"	"	"	"	Wrnd. Ltl G dol cement, yl staining, frosting. Trace silt.
M	240-245		"	"	"	"	Same plus trace white shale/siltstone.
A	245-250		"	"	"	"	Same.
T	250-255		"	"	"	"	Same but trace F dol cement.
I	255-260		"	"	"	"	Rnd. Ltl G dol cem, frstg. Tr silt, bn lim matrix mot, yl stng.
O	260-265		"	"	"	"	Same.
N	265-270		"	"	"	"	Same but much G dol cement.
	270-275		"	"	Fn/M	Vfn/C	Srnd to rnd. Tr G dol cem, silt. Ltl frstg, yl staining.
	275-280		"	Lt yellow	"	"	Same plus much P to F dol cement.
	280-285		"	"	M	"	Same but no P to F dol cement.
	285-290		"	"	Fn/M	"	Same.
130'	290-295		"	"	"	"	Same plus Vfn zircon.
E.	295-300		Siltstone	Pink	—	—	Silcs. V sndy (Vfn qtz). Mch free qtz snd, ss (VG sty dol cem). Tr
C.	300-305		"	"	—	—	Same plus tr ss w/VG pyr cem. \ hem matrix mot, pl gn sh matrix.
15'	305-310		Sandstone	V pl bn	Fn	Vfn/C	Srnd, Tr G dol cem, hem matrix mot, frstg, Vfn/Fn zr, pl gn sh. Mch
	310-315		"	"	M	"	Rnd. Ltl G dol cem, frstg, st. Tr F sil cem, hem matrix mot, \ silt,
	315-320		"	"	"	"	Same. \ pl gn sh, lim matrix mot.
M	320-325		"	"	"	"	Same but trace G dol cement, silt.
T.	325-330		"	"	"	"	Same.
	330-335		"	Lt yellow	"	"	"
	335-340		"	"	"	"	Wrnd. Fair sorting. Tr F sil cem, silt. Little frosting.
S	340-345		"	"	"	"	Same plus trace lim matrix mottling.
I	345-350		"	"	"	"	Same.
M	350-355		"	"	"	"	"
	355-360		"	"	"	"	"
O	360-365		"	"	"	"	"
N	365-370		"	"	"	"	Same plus trace F dol cement.
	370-375		"	"	Fn/M	"	Same.
S	375-380		"	"	M	"	"
	380-385		"	"	"	"	"
A	385-390		"	"	"	"	"
N	390-395		"	"	"	"	"
D	395-400		"	V pl bn	"	"	Wrnd. Fair sorting. Tr F sil cement, lim matrix mot, st. Ltl
S	400-405		"	"	"	"	Same. \ frosting.
T	405-410		"	"	"	"	"
O	410-415		"	"	"	"	Same but little lim mottling. Plus trace Vfn/Fn zircon.
N	415-420		"	"	Fn	"	Rnd. Fair sorting. Tr G dol cem, F sil cement, silt. Ltl frosting.
E	420-425		"	"	Fn/M	"	Same but little G dol cement. \ yl lim matrix mottling.
	425-430		"	Yellow	"	"	Same.
	430-435		"	"	"	"	"
	435-440		"	"	"	"	"
	440-445		"	"	"	"	"
	445-450		"	"	"	"	"
	450-455		"	"	M	"	Same but little silt.
	455-460		"	"	"	"	Same.
	460-465		"	"	"	"	Rnd. Ltl G dol cem, frstg. Mch silt. Tr yl lim matrix mottling.
	465-470		"	"	Fn/M	"	Same.
	470-475		"	"	M	"	"
	475-480		"	"	Fn/M	"	"
	480-485		"	"	M	"	"
	485-490		"	"	"	"	"

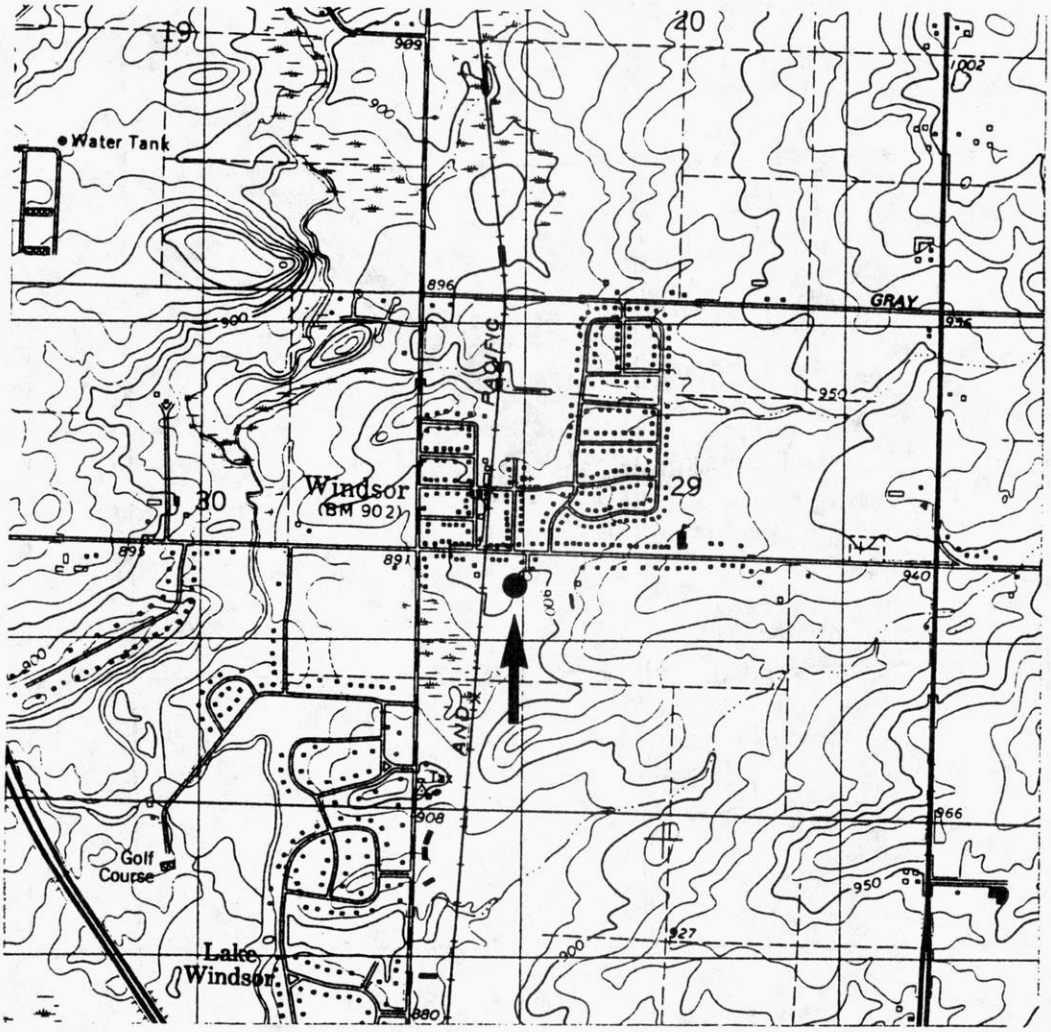
UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
3817 Mineral Point Rd., Madison, Wisconsin 53705

Log No. N107-Dn-127

Well name: Waunakee Village Well #3

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
M	490-495		Sandstone	Yellow	Fn	Vfn/C	Srnd. Ltl G dol cem,silt. Tr frosting,yl lim matrix mottling.
T.	495-500		"	"	Fn/M	"	Same but much silt.
	500-505		"	"	Fn	"	Same.
S	505-510		"	"	"	"	Same but little silt,plus trace G bn lim cement.
I	510-515		"	"	"	"	Same.
M	515-520		"	"	"	"	"
	520-525		"	"	"	"	"
O	525-530		"	"	"	"	Same but trace G dol cement. Plus much silt.
N	530-535		"	"	"	"	Same.
	535-540		"	"	"	"	"
S	540-545		"	Lt yellow	"	Vfn/VC	"
A	545-550		"	V pl bn	"	"	Sang to srnd. Tr P to F sil cem,Vfn/Fn zircon. Ltl fratg,silt.
N	550-555		"	"	"	"	Same.
	555-560		"	"	"	"	"
D	560-565		"	"	"	"	"
S	565-570		"	Pk white	"	"	"
T	570-575		"	"	"	"	"
O	575-580		"	White	"	"	"
	580-585		"	V pl bn	"	"	"
N	585-590		"	"	"	"	"
E	590-595		"	"	"	"	"
290'	595-600		"	Pk white	"	"	Same plus trace pale green shale & white shale matrixes.
				END OF LOG			

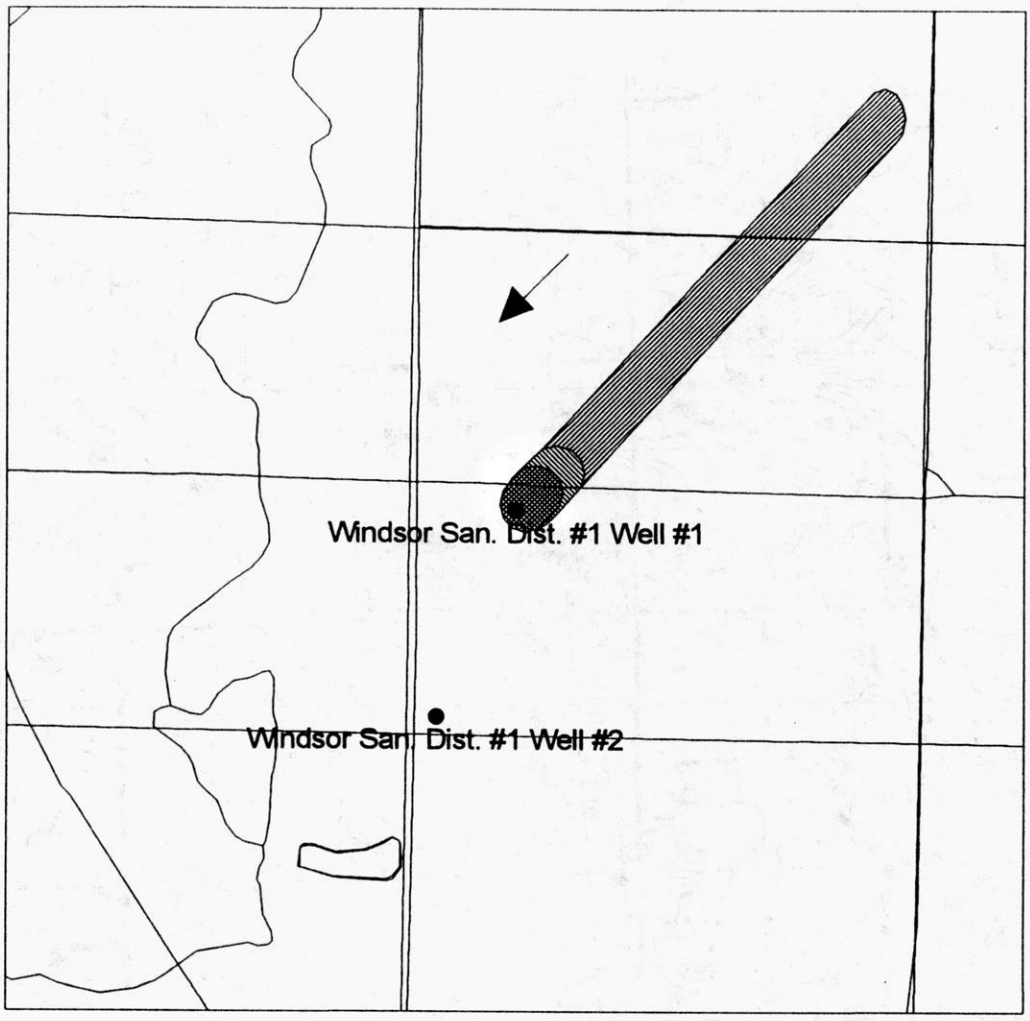
Windsor Sanitary District Number 1, Well Number 1



Windsor Sanitary District Number 1, Well Number 1 is located at 43° 12' 55.8" north latitude and 89° 20' 21.62" longitude. The well was installed in 1961, and has a pumping capacity of 500 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 155,370 gpd.

The well casing extends to a depth of 107 feet below ground surface, and the total depth of the well is 400 feet. Water is drawn from the Paleozoic bedrock units, including the Mt. Simon sandstone. Regional groundwater flow in the vicinity of the well is generally to the southwest.

Zone of Contribution for Windsor Sanitary District Number 1, Well Number 1



Well Location

Latitude: 43° 12' 55.8"
Longitude: 89° 20' 21.62"

0 500 1000
(meters)

N

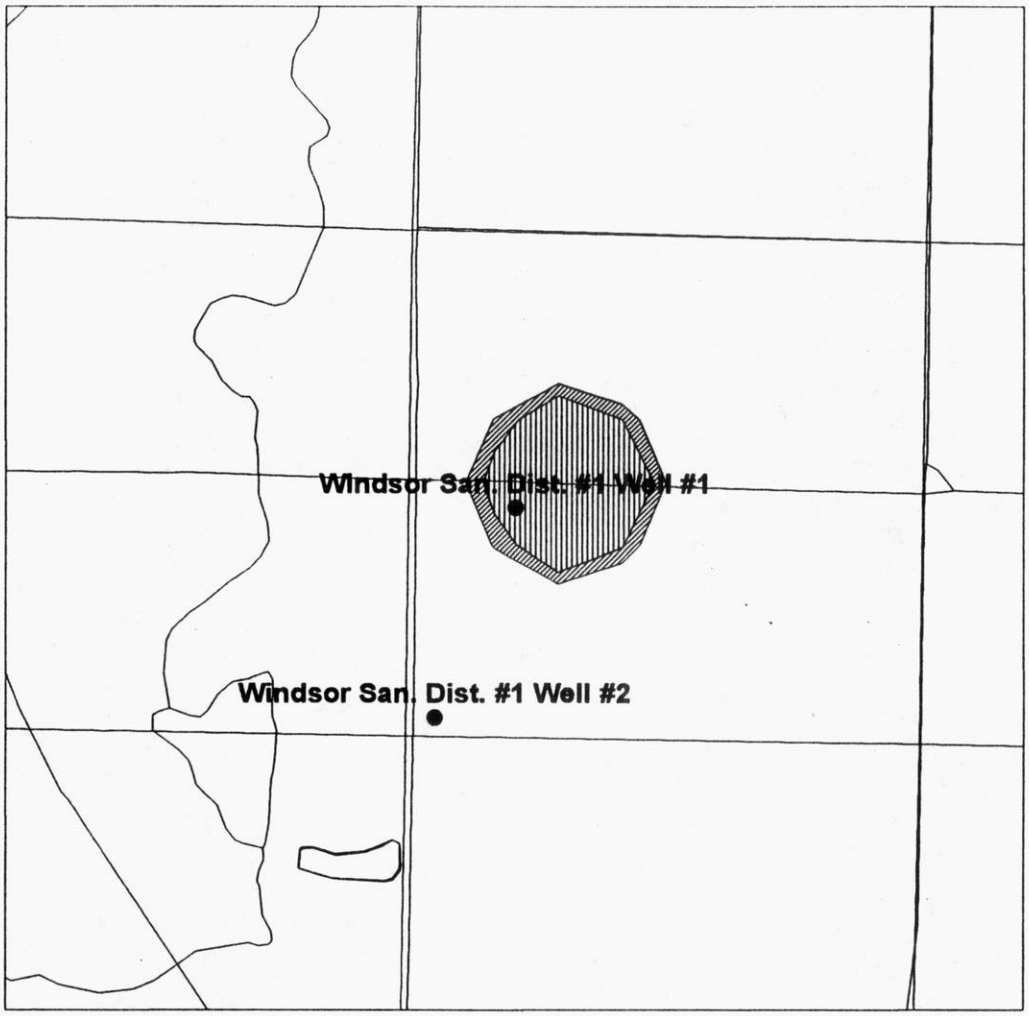
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Windsor Sanitary District Number 1, Well Number 1



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Sanitary District No. 1, Windsor, Wisconsin
NE, NW¼, SW¼, Sec. 29, T 9N, R 10E, (south side of road, 300 ft., about 3/4 mi. west of Hwy. 51)
Lakeland Engineering Co., Engineer
Niffenegger Drilling Co., Driller, July 1961
Sample Nos. 225338-225417 - Examined by M. E. Ostrom
Alt. 900' E TM

	0- 5	5	Silt, bn gry, slgt dolic, ltl Vfn snd, tr cl
	5- 20	15	Snd, bn, M, Srnd, P srtg, ltl Vfn-VC, ltl st, tr fn gvl
	20- 35	15	Snd, bn, M, Srnd, P srtg, ltl Vfn-VC, ltl st&cl, ltl Vfn-fn gvl
	35- 90	55	Snd, bn, M, Srnd, P srtg, ltl Vfn-VC, mch st&cl, ltl Vfn-fn gvl
	90-100	10	Snd, yl bn, M, Srnd, P srtg, mch Vfn-VC, mxd; mch mxd Vfn-fn gvl
105	100-105	5	Snd, yl bn, M, Srnd, mch Vfn-VC; ltl mxd Vfn-fn gvl
	105-110	5	Ss, lt yl bn, fn, VP cem pnk dol, mch Vfn, mch st
	110-115	5	Ss, lt yl bn, fn, VP cem pnk dol, mch Vfn, mch st
	115-120	5	Ss, lt yl bn, M, Sang, P cem pnk dol, ltl fn; tr glauc
30	120-135	15	Ss, lt yl bn, M, Sang, P srtg, P cem pnk dol, ltl fn, mch st; tr glauc
	135-150	15	Ss, yl gry, M, Srnd, P srtg, VP cem dol, ltl VC, C, fn, & Vfn; tr glauc
	150-155	5	Ss, yl gry, M, Srnd, VP cem dol, ltl VC, C, fn, & Vfn
	155-170	15	Ss, yl gry, M, Srnd, P srtg, VP cem dol, ltl VC, C, & fn, tr Vfn; tr glauc & foss
	170-175	5	Ss, yl gry, M, Srnd, VP cem dol, ltl VC, C, fn, & Vfn
	175-180	5	Ss, yl gry, M, Srnd, P srtg, ltl VC, c, & fn
	180-185	5	Ss, yl gry, M, Srnd, ltl VC, C, & fn; tr yl & gn cl
	185-190	5	Ss, yl gry, M, Srnd, P srtg, ltl VC, M, fn, & Vfn
	190-195	5	Ss, yl gry, M, Srnd, G srtg, ltl M, tr VC & fn
	195-215	20	Ss, yl bn, C, Srnd, VP srtg, P cem dol, ltl VC, M, fn, & Vfn
	215-230	15	Ss, yl bn, C, Srnd, P srtg, F cem dol, ltl VC, M, fn, & Vfn; mch st
	230-235	5	Ss, yl bn, C, F cem pnk dol, ltl VC, M, fn, & Vfn
	235-240	5	Ss, yl bn, C, F cem pnk dol, ltl VC, M, fn, & Vfn
	240-245	5	Ss, yl bn, C, F cem pnk dol, ltl VC, M, fn, & Vfn
	245-250	5	Ss, yl gry, C, rnd, F srtg, ltl M & VC
	250-255	5	Ss, yl gry, M, rnd, F srtg, ltl C & fn
	255-260	5	Ss, lt yl bn, M, rnd, F cem pnk dol, ltl C & fn
	260-265	5	Ss, lt yl bn, M, F cem pnk dol, ltl C&fn, tr VC, Vfn&st
	265-270	5	Ss, lt yl bn, M, VP cem dol, ltl C & fn
	270-275	5	Ss, lt yl bn, M, rnd, VP cem dol, ltl C, fn, Vfn
	275-280	5	Ss, vlt gry, C, rnd, F srtg, mch M, tr fn
	280-285	5	Ss, lt yl bn, C, rnd, F srtg, VP cem dol, mch M, tr fn
	285-290	5	Ss, lt yl bn, C, rnd, F srtg, P cem dol, mch M, tr VC&fn
	290-295	5	Ss, lt yl bn, M, rnd, P cem dol, mch M, ltl fn, tr VC
	295-300	5	Ss, lt yl bn, M, Srnd, P cem dol, mch C, fn, &Vfn, ltl st
	300-305	5	Ss, lt yl bn, C, VP cem dol, mch M & fn, tr VC&Vfn
	305-310	5	Ss, lt gry, C, VP cem dol, mch M & fn, tr VC & Vfn
	310-315	5	Ss, lt gry, M, Srnd, P srtg, mch C&fn, tr VC&Vfn
	315-325	10	Ss, yl gry, M, Srnd, P srtg, mch C&fn, tr VC&Vfn; ltl sndy dol
	325-330	5	Ss, gry or pnk, M, G cem pnk dol, mch C, fn, & Vfn
	330-335	5	Ss, lt yl gry, M, P cem pnk dol, mch C, fn, & Vfn; ltl st
	335-340	5	Ss, gry or pnk, M, F cem pnk dol, mch C, fn, & Vfn
	340-345	5	Ss, gry or pnk, M, G cem pnk dol, mch C, fn, & Vfn
	345-350	5	Ss, gry or pnk, M, Srnd, F cem pnk dol, mch C, fn, & Vfn
	350-355	5	Ss, gry or pnk, M, F cem pnk dol, mch C, fn, & Vfn
	355-370	15	Ss, gry or pnk, M, Srnd, P srtg, G cem pnk dol, mch C, fn, & Vfn; tr st

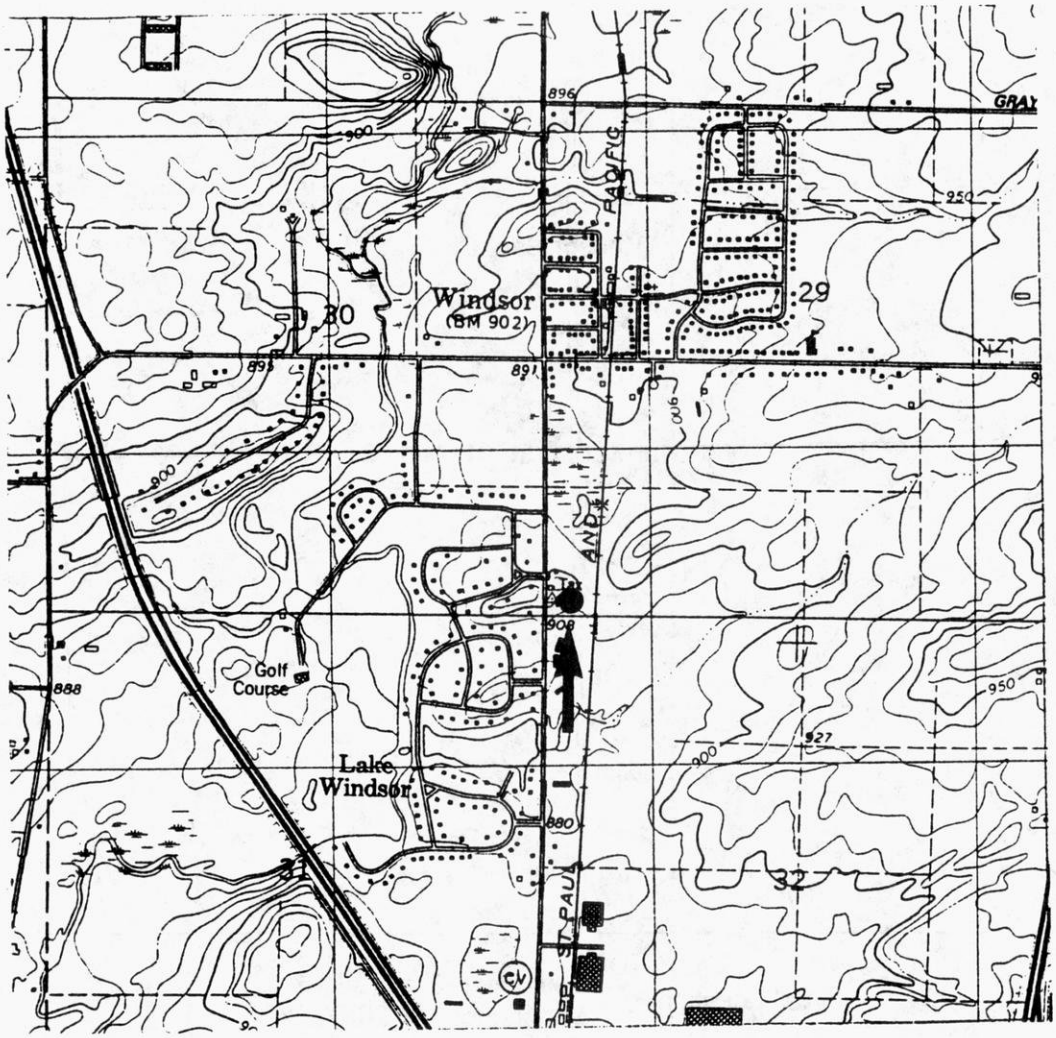
Sanitary District No. 1, Windsor, Wisconsin

DRESBACH		370-395	25		Ss, lt gry, M, Srnd, P srtg, mch C, fn, & Vfn; tr st
	265	395-400	5		Ss, lt gry, M, Srnd, P cem pnk dol, mch C, fn, & Vfn

Formations: Drift, Franconia, Dresbach-Ironton

Samples received July 6, 1961. Information concerning water level, well construction, and results of pumping tests not received as of May 29, 1962.

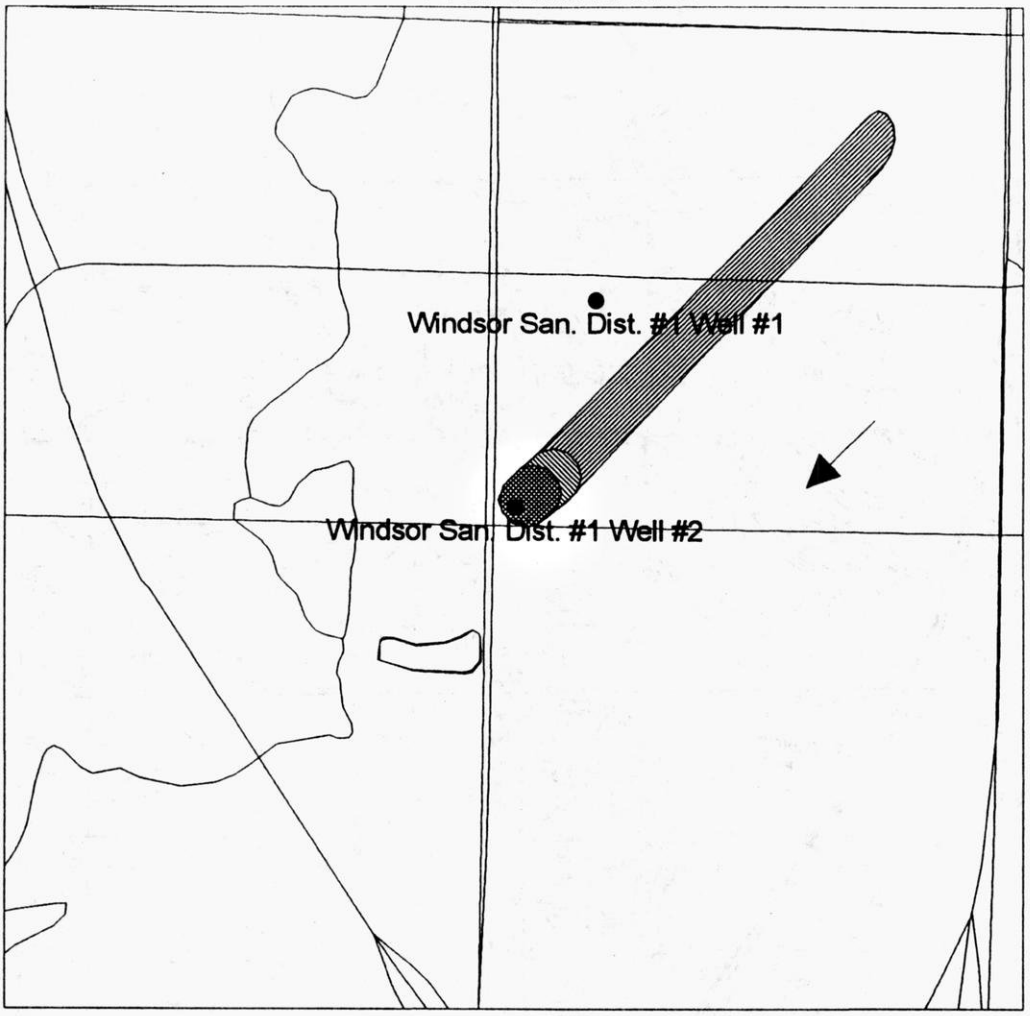
Windsor Sanitary District Number 1, Well Number 2



Windsor Sanitary District Number 1, Well Number 2 is located at 43° 12' 34.16" north latitude and 89° 20' 32.04" longitude. The well was installed in 1973, and has a pumping capacity of 500 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 174,650 gpd.

The well casing extends to a depth of 108 feet below ground surface, and the total depth of the well is 555 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Regional groundwater flow in the vicinity of the well is generally to the southwest.

Zone of Contribution for Windsor Sanitary District Number 1, Well Number 2



Well Location

Latitude: 43° 12' 34.16"
Longitude: 89° 20' 32.04"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Windsor Sanitary District Number 1, Well Number 2



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

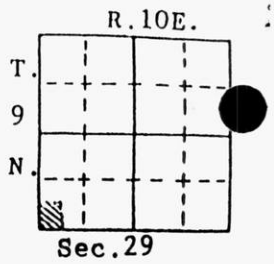
Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

1815 University Avenue, Madison, Wisconsin 53706

Well name Windsor Sanitary District #1 Well #2
Town of Windsor
Owner.... Windsor Sanitary District #1
Address..
Windsor, WI 53598
Driller.. Ace Well Drilling
Engineer. Lakeland Engineers, Inc.
Madison, Wisconsin

County: Dane
Completed... 1/26/73
Field check.
Altitude.... 900' ETM
Use..... Municipal
Static w.l.. 8'
Spec. cap... 25 GPM/ft



Quad. De Forest 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
18"	0	104'				18"	New Bk Steel P.E. 70.59 lbs / ft	0	101'	12"	New Bk Steel P.E. 49.56 lbs / ft	+2'	108'
12"	104'	555'											

Grout	from	to
Neat cement	0	104'

Drilling method: Cable Tool
Samples from 0 to 555' Rec'd: 3/16/73

Studied by: Kathleen Massie

Issued: 5/20/83

Formations: Drift, Tunnel City Group, Wonewoc Formation, Mt. Simon Sandstone.

Remarks: Well tested at 828 GPM with 33.5 feet of drawdown.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
DRIFT	0-5	M	Silt	Dk yl bn	--	--	Siliceous. Micaceous. Mch clay. Ltl snd(Vfn). Tr org material.
	5-10		"	"	--	--	Same.
	10-15		Gravel	Mxd yl bn	M peb	Gran/L peb	Dol, trap, qtz, cht, grnt. Much sand, silt. Trace clay.
	15-20		"	"	"	"	Same but little clay.
	20-25		"	"	"	"	Same.
	25-30		"	"	"	"	Dol,fos dol,sil cem ss,grnt,ool cht,cht. Mch snd,silt. Ltl clay.
	30-35		"	"	SP&LP	"	Same.
	35-40		"	"	M peb	"	"
	40-45		"	"	S peb	"	"
	45-50		"	"	M peb	"	"
	50-55		"	"	"	"	"
	55-60		"	"	S peb	"	"
	60-65		Snd & clay	Yl brown	M	Vfn/VC	Dolomitic (clay). Much gravel, silt.
	65-70		"	"	"	"	Same plus trace glauconitic sandstone gravel.
	70-75		Snd & silt	"	"	"	Much gravel, clay.
	75-80		Gravel	"	M peb	Gran/L peb	Dol,grnt,trap,cht,fos cht,qtz. Mch sand, silt. Little clay.
	80-85		Sand	Lt yl bn	M	Vfn/VC	Much gravel, silt.
	85-90		"	"	"	"	Same.
100'	90-95		"	Rd yellow	"	"	Much gravel (most wh ool cht some stnd pnk). Little silt.
	95-100		"	Bn yellow	M/C	"	Same plus trace clay. dolic silt.
TUNNEL CITY 45'	100-105	G	Sandstone	"	Fn	Vfn/C	Wea. Srnd. Tr G dol cem,cvd drift gvl & snd,Fn-glauc. Mch
	105-110	G	"	"	"	"	Same but not weathered.
	110-115	G	"	Yellow	"	"	"
	115-120		NO SAMPLE. Driller reports sandstone.				
	120-125	G	Sandstone	Yellow	Fn	Vfn/C	Srnd. Tr good dol cem, Fn-glauc, cvd gvl. Mch dolic silt.
	125-130	G	"	"	"	"	Same.
	130-135	G	"	"	"	"	"
	135-140	G	"	"	"	"	Same plus trace muscovite.
	140-145	G	"	"	"	"	Same.
WONEWOC	145-150	G	"	Pl yellow	M/C	Vfn/VC	Srnd to rnd. Tr fair dol cem, Vfn/Fn-glauc. Mch st(but less
	150-155	G	"	"	Fn/M	"	Same. than above).
	155-160	G	"	"	M	"	"

Well name: Windsor Sanitary District #1 Well #2

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	160-165		Sandstone	Pl yellow	Fn/M	Vfn/VC	Srnd to rnd. Tr fair dol cem, Vfn/Fn-glauc. Mch st (as in 145' - 150').
	165-170		"	Yellow	"	"	Same.
WONEWOC	170-175		"	"	"	"	"
	175-180		"	"	"	"	"
	180-185		"	White	M	"	Rounded. Trace silica cement, pale green shale, silt.
	185-190		"	V pl brown	"	"	Same.
	190-195		"	"	"	"	Rounded. Trace silica cement, pale green shale.
	195-200		"	Yellow	C	"	Rounded. Trace dolomite cement. Little silt.
	200-205		"	Bn yellow	M/C	"	Same.
	205-210		"	"	M	"	Rounded. Trace dolomite cement. Little clay.
	210-215		"	"	"	"	Same.
	215-220		"	"	"	"	Rounded. Trace dolomite cement. Little dolomitic silt.
	220-225		"	"	"	"	Same.
	225-230		"	"	"	"	Rounded. Ltl P to G dol cem. Mch dolic st. Tr pink staining.
	230-235		"	"	M/C	"	Rnd. Ltl G to F dol cem, dol. Tr dolic silt, pyrolusite.
	235-240		"	"	"	"	Rnd. Ltl G to F dol cem. Mch dolic silt. Tr pyrolu, pnk stng.
	240-245		"	"	"	"	Rnd. Ltl G dol cem. Mch dolic silt. Tr dol, pnk stng, pyrolu.
	245-250		"	"	"	"	Rnd. Ltl G dol cem, dol. Mch dolic silt. Tr pnk stng, pyrolu.
110'	250-255		"	"	"	"	Same.
	255-260		"	Pl yellow	M	"	Rnd. Trace good dolomite cement stained pink, silt.
	260-265		"	"	"	"	Same.
	265-270		"	"	"	"	"
MT.	270-275		"	"	"	"	"
	275-280		"	"	"	"	Same plus trace dolomite.
	280-285		"	"	"	"	Rnd. Tr good dol cem stained pink, pl gn shale, caved gravel.
	285-290		"	"	"	"	Same.
SIMON	290-295		"	"	"	"	Rnd. Tr good dolomite cement(some stnd pink), silt, caved gvl.
	295-300		"	"	"	"	Same.
	300-305		"	"	"	"	"
	305-310		"	"	"	"	"
	310-315		"	"	"	"	Same plus trace pale green shale.
	315-320		"	"	"	"	Same.
	320-325		"	White	"	"	Rnd. Tr good dol cem (some stained pink), pyrite cement.
	325-330		"	"	"	"	Same but slightly more dolomite cement.
SANDSTONE	330-335		"	Pl yellow	"	"	Rnd. Tr good dol cem(some stnd pink), caved gvl, pl gn shale.
	335-340		"	White	"	"	Rounded. Trace good dolomite (some stained pink).
	340-345		"	V pl pink	"	"	Same plus trace silt.
	345-350		"	"	Fn/M	"	Same but little silt.
	350-355		"	"	"	"	Same but trace silt.
	355-360		"	White	M	"	Rnd. Trace good dolomite cement (some stnd pink), silt.
	360-365		"	"	"	"	Same.
	365-370		"	"	"	"	Same plus trace pyrite.
	370-375		"	"	"	"	Rnd. Tr good dol cem (some stnd pink), silt, pale gn shale.
	375-380		"	"	"	"	Same.
	380-385		"	"	"	"	"
	385-390		"	"	Fn/M	"	"
	390-395		"	"	M	"	"
	395-400		"	"	Fn/M	"	"
	400-405		"	Pink	M	"	Rnd. Ltl good dol cem (stnd pnk to rd bn), silt. Tr pnk dol,pyr.
	405-410		"	"	"	"	Same.
	410-415		"	"	"	"	"
	415-420		"	"	"	"	Same but slightly less cement.
	420-425		"	"	"	"	Same.
	425-430		"	"	"	"	"
	430-435		"	"	"	"	"
	435-440		"	"	"	"	Srnd to rnd. Tr dol cem(some stnd pnk), pnk stng, pyr, pl gn sh.
	440-445		"	"	"	"	Same.
	445-450		"	"	Fn/M	"	"
	450-455		"	White	M	"	Rounded. Trace pyrite & silica cement.
	455-460		"	"	Fn/M	"	Rounded. Trace silica cement.
	460-465		"	"	"	"	Same plus trace pyrite cement.
	465-470		"	"	"	"	Same.
	470-475		"	"	M	"	"
	475-480		"	"	"	"	Rounded. Trace fair dolomite cement, good pyrite cement.
	480-485		"	"	"	"	Same.
	485-490		"	"	Fn/M	"	Rounded. Trace silica & pyrite cement.

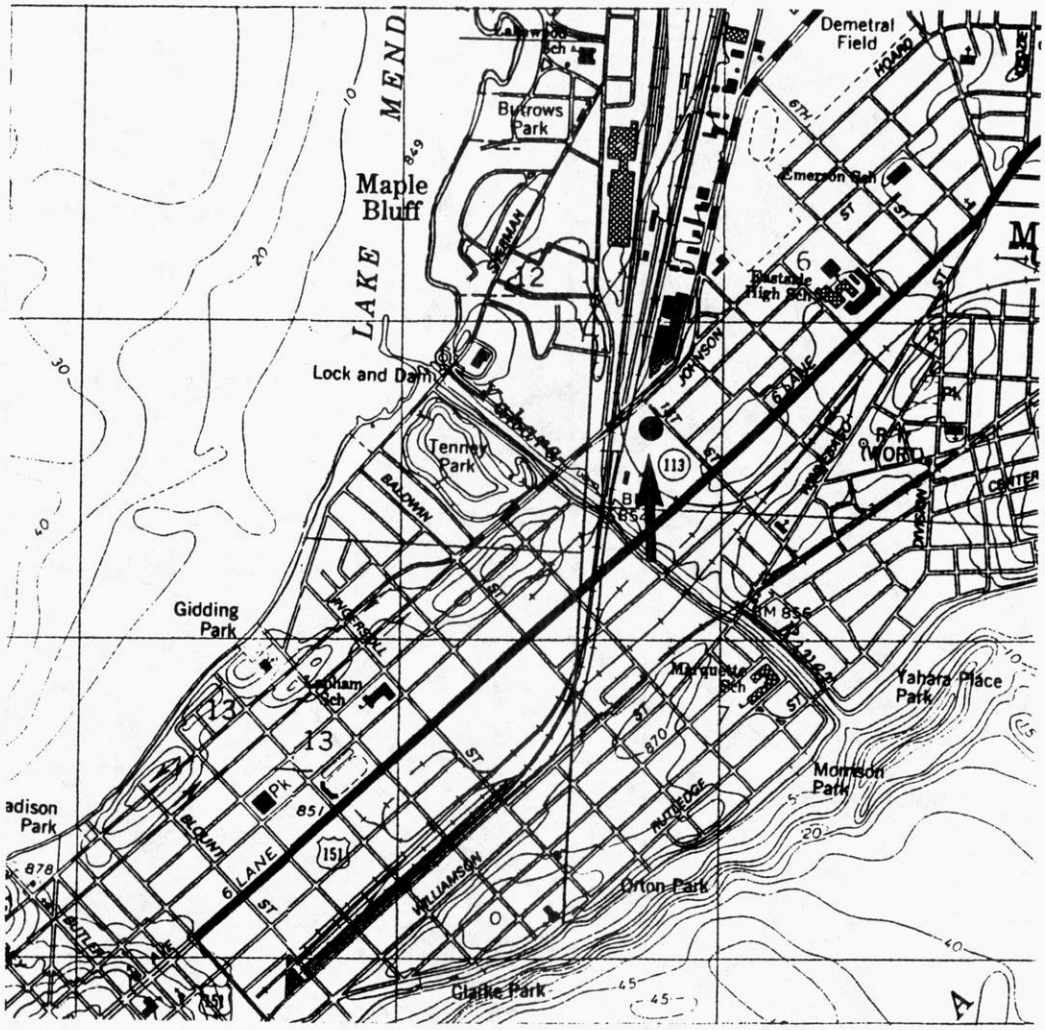
UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1315 University Avenue, Madison, Wisconsin 53706

Log No. D99-Dn-[07(illegible)

Well name: Windsor Sanitary District #1 Well #2

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	490-495		Sandstone	White	Fn	Vfn/VC	Subrounded to rounded. Trace silica cement.
Mt.	495-500		"	"	Fn/M	"	Same.
	500-505		"	"	M	"	"
S	505-510		"	"	Fn&C	"	"
I	510-515		"	"	C	"	Rounded. Trace silica cement.
M	515-520		"	"	M	"	Same but subrounded.
O	520-525		"	"	"	"	Same.
N	525-530		"	"	C	"	Subrounded. Trace silica cement.
	530-535		"	"	Fn/M	"	Same.
	535-540		"	"	M&C	"	"
	540-545		"	"	M	"	"
	545-550		"	"	Fn	"	"
300'	550-555		"	"	"	"	"
			END OF LOG				

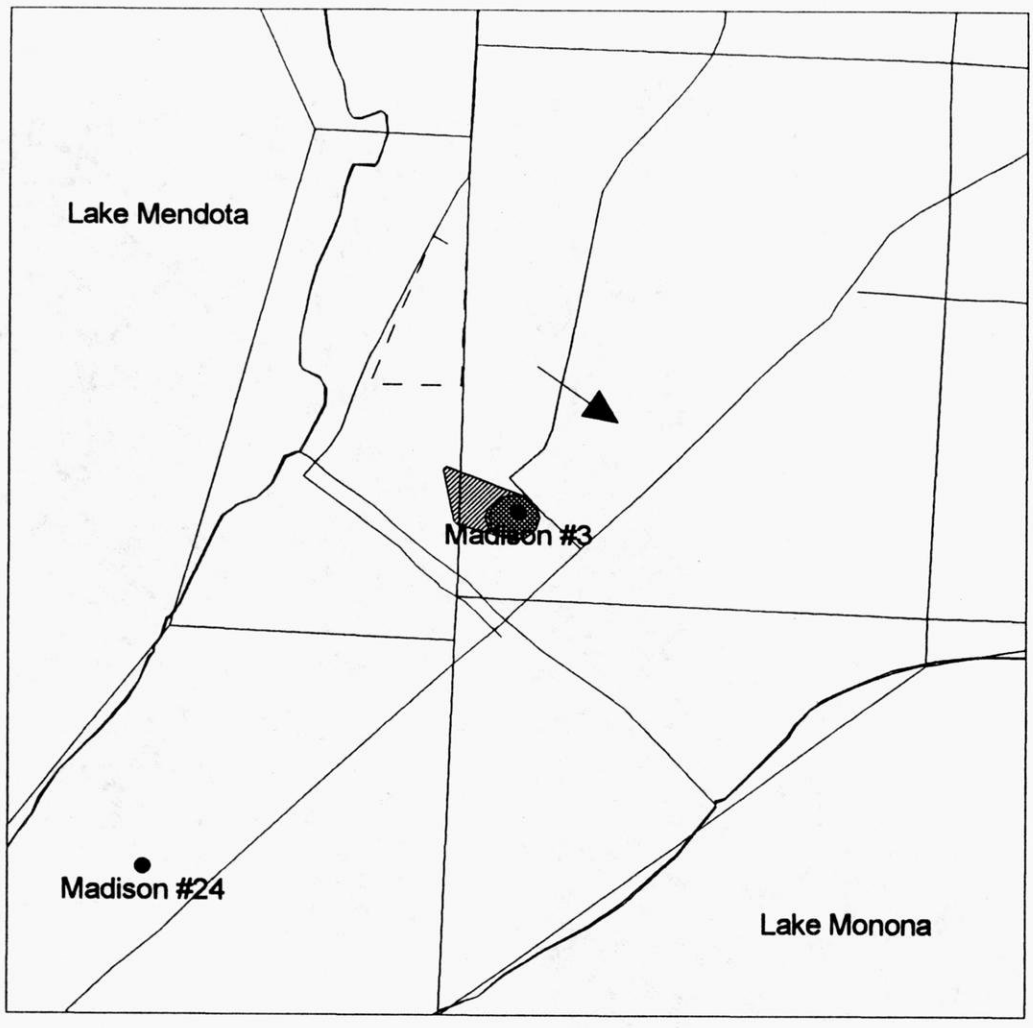
City of Madison, Well Number 3



City of Madison, Well Number 3 is located at 212 North First Street, and at 43° 5' 36.17" north latitude and 89° 21' 42.34" longitude. The well was installed in 1928, and has a pumping capacity of 1,847 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 540,000 gpd.

The well casing extends to a depth of 147 feet below ground surface, and the total depth of the well is 840 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southeast.

Zone of Contribution for Madison, Well Number 3



Well Location

Latitude: 43° 5' 36.17"
Longitude: 89° 21' 42.34"

0 500 1000
(meters)

N

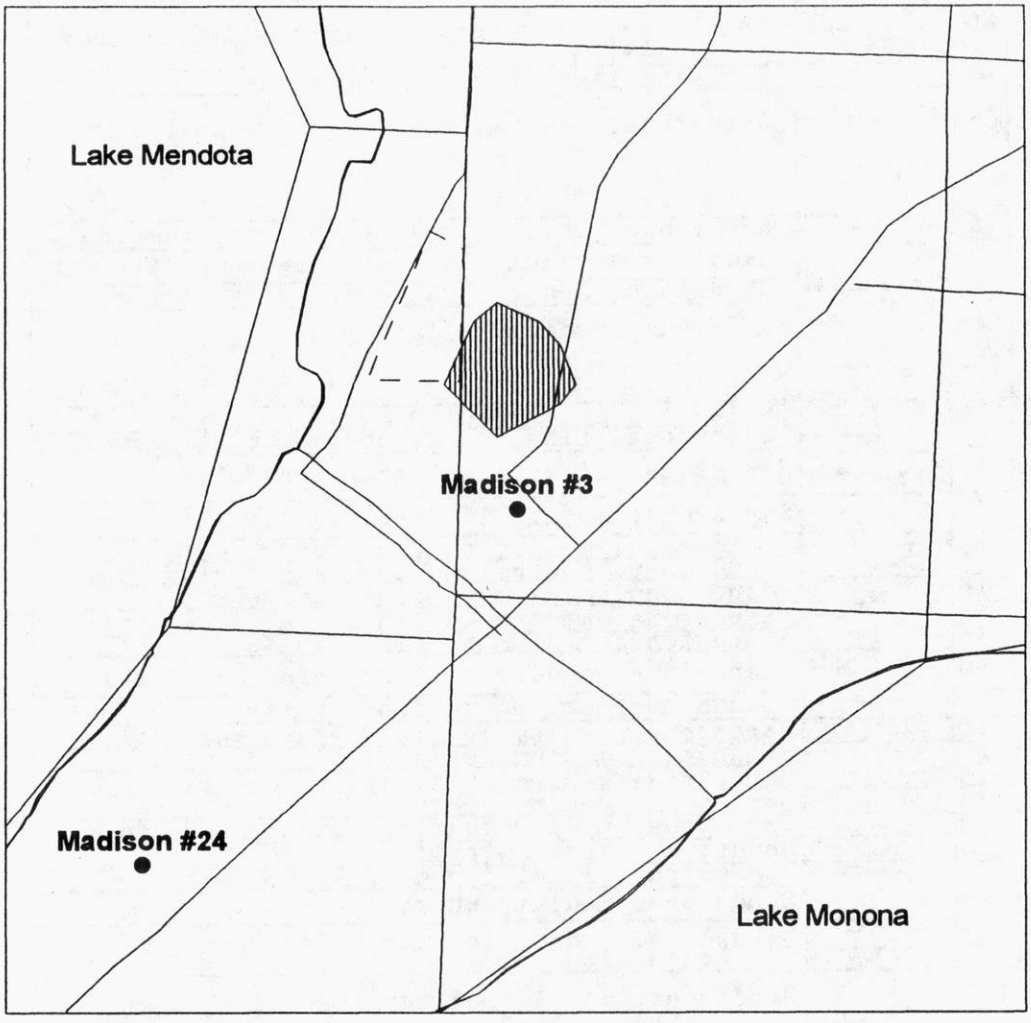
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 3



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

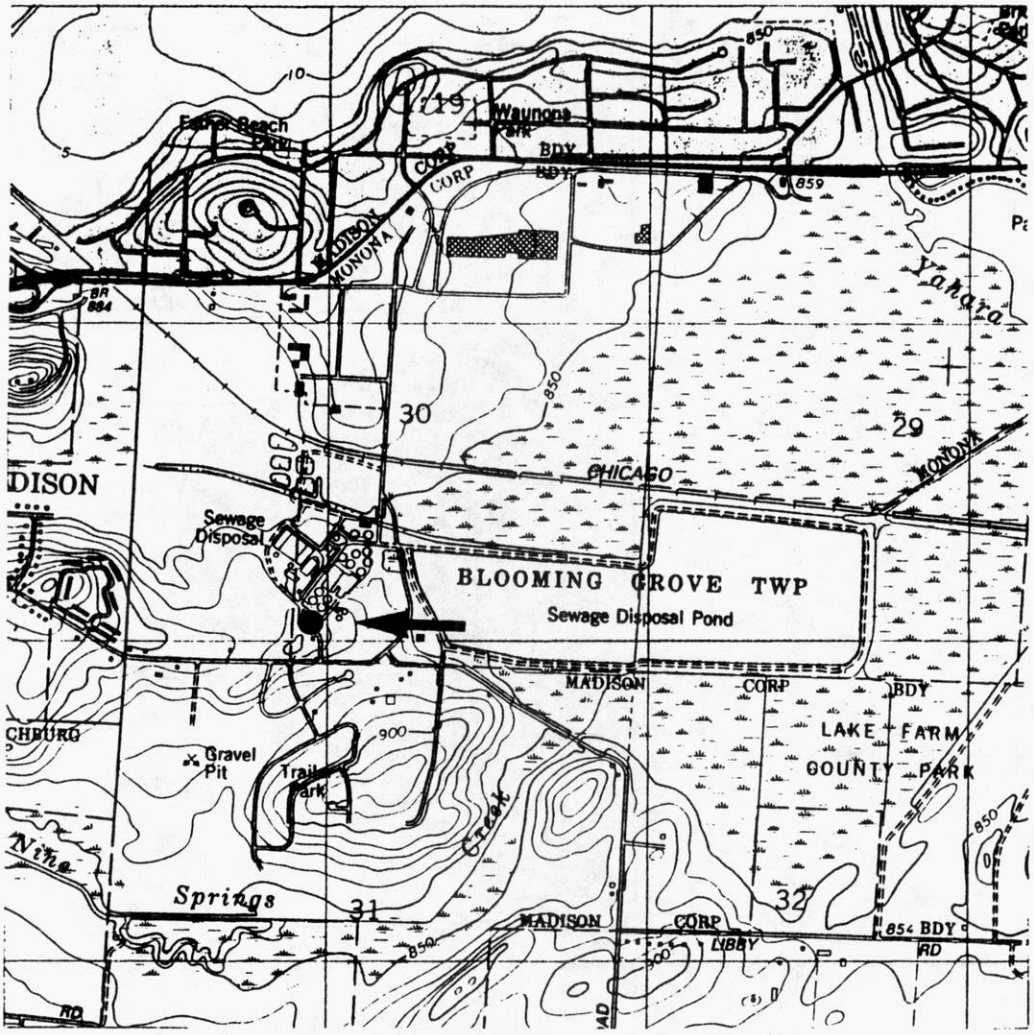
Wisconsin Geological & Natural History Survey, 3817 Mineral Point Rd, Madison Geologic Log No. DN-3

Madison City Well #3
center, S½, SE¼, NW¼, NE¼, SW¼, SW¼, sec. 6, T7N, R10E
McCarthy Well Co., 1928
Samples examined by F. T. Thwaites, Nos.81774-81925 Altitude = 852' ET

DRIFT	52	0-5	5	Cinders, made land	
		5-10	5	Sand, gray, marly	
		10-15	5	Sand, yellowish gray, dolomitic, glacial	
		15-40	25	Clay, gray, dolomitic	
		40-52	12	Gravel, coarse	20" pipe Cemented
TUNNEL CITY GROUP	38	52-80	28	Sandstone, fine, gray, light yellowish gray, dolomitic	53'10"
		80-90	10	Sandstonelike above, glauconitic	81' 6"
WONEWOC	130	90-145	55	Sandstone, medium, white	19¼" hole 16" g.w.i. pipe
		145-150	5	Sandstone, medium, yellowish gray, some dol.	147'11"
		150-170	20	Sandstone, medium, light yellowish gray	
		170-175	5	Sandstone, medium, yellowish gray, dolomitic	
		175-220	45	Sandstone, medium, light gray	
EAU CLAIRE	235	220-230	10	Shale, red and greenish gray, dolomitic	
		230-235	5	Sandstone, fine, pink, dolomitic, glauconitic	
		235-260	25	Sandstone, fine, light gray, dolomitic	
		260-275	15	Sandstone, medium to fine, white	
		275-280	5	Sandstone, medium to fine, gray, dol., hard	15¼" hole
		280-295	15	Sandstone, medium to fine, light gray, dol.	
		295-305	10	Sandstone, medium to fine, white	
		305-310	5	Sandstone, medium to fine, gray, dolomitic	
		310-325	15	Sandstone, medium to fine, white	
		325-345	20	Sandstone, medium to fine, gray, very dol.	
		345-350	5	Sandstone, medium to fine, white	
		350-360	10	Sandstone, medium to fine, gray, very dol.	
		360-365	5	Sandstone, medium, white	
		365-380	15	Sandstone, medium, gray, pink, dolomitic	
		380-390	10	Sandstone, medium, white	
		390-400	10	Sandstone, medium to fine, light gray, dol.	
		400-410	10	Sandstone, medium to fine, white	
		410-415	5	Sandstone, fine, light gray, dolomitic	
		415-435	20	Sandstone, medium, white	
		435-455	20	Sandstone, medium to fine, light gray, pink, dolomitic	
MT. SIMON	275	455-600	145	Sandstone, mostly medium, some fine, some coarse, white	
		600-610	10	Sandstone, very coarse to medium, light gray	
		610-615	5	Sandstone, fine to medium, light pink	
		615-625	10	Sandstone, coarse to fine, light gray	
		625-635	10	Sandstone, very coarse to fine, light gray	
		635-640	5	Sandstone, fine to medium, light pink	
		640-650	10	Sandstone, fine to coarse, light gray	
		650-690	40	Sandstone, medium, white	
		690-695	5	Sandstone, medium to coarse, light gray	
		695-695	2	Shale, red and gray	
		695-700	5	Sandstone, coarse to fine, pink	
		700-715	15	Sandstone, very coarse to medium, light gray	
		715-730	15	Sandstone, medium to fine, light gray	
PRE-C.	23	730-753	23	Felsite, red, schistose, weathered	

Formations: Drift, Tunnel City Group, Wonewoc Formation, Eau Claire Formation, Mt. Simon Formation, Precambrian.

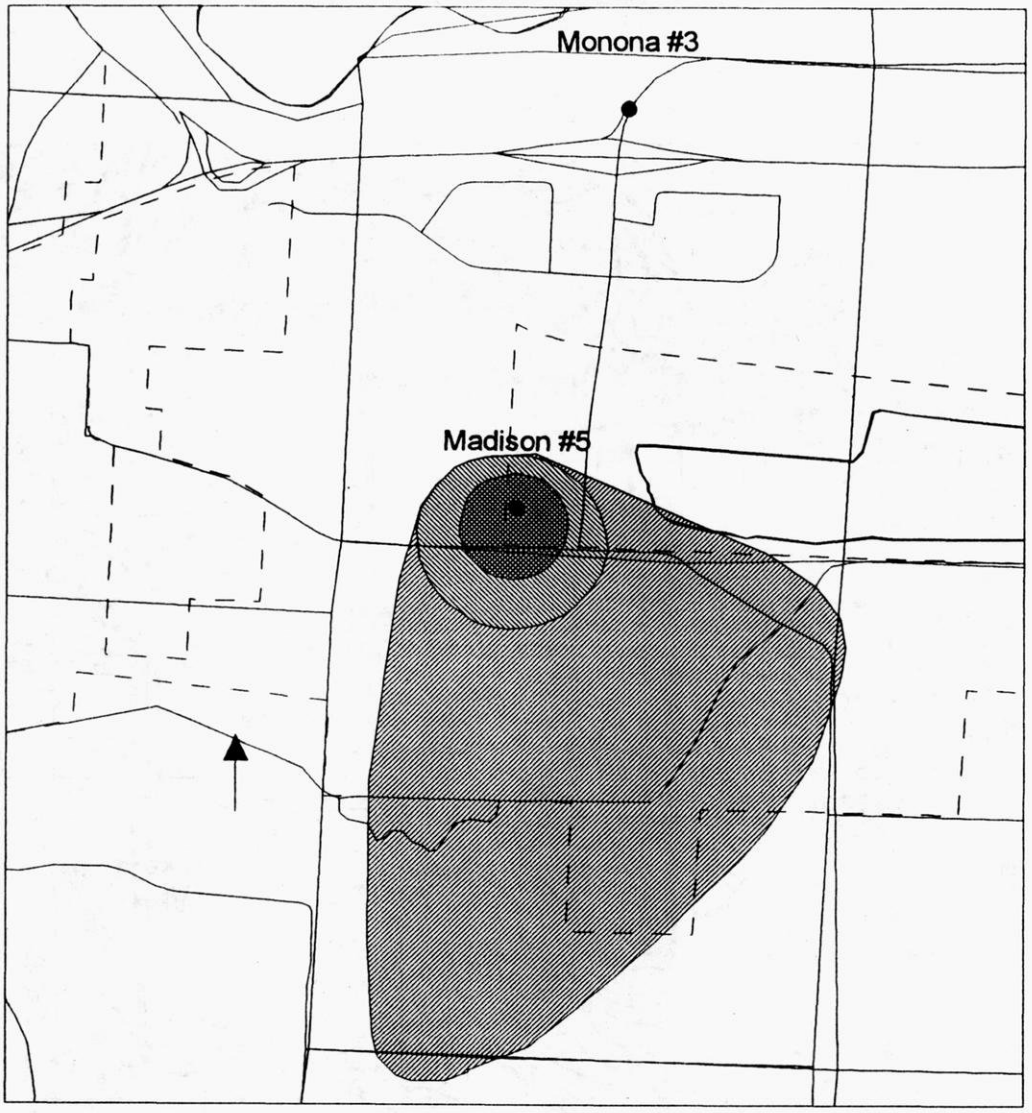
City of Madison, Well Number 5



City of Madison, Well Number 5 is located at 1520 Moorland Road and at 43° 2' 1.98" north latitude and 89° 21' 27.54" longitude. The well was installed in 1926 and has a pumping capacity of 1,300 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 1,198,000 gpd.

The well casing extends to a depth of 226 feet below ground surface, and the total depth of the well is 828 feet. Water is drawn primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the north.

Zone of Contribution for Madison, Well Number 5



Well Location

Latitude: 43° 2' 1.98"
Longitude: 89° 21' 27.54"

0 500 1000
(meters)

N

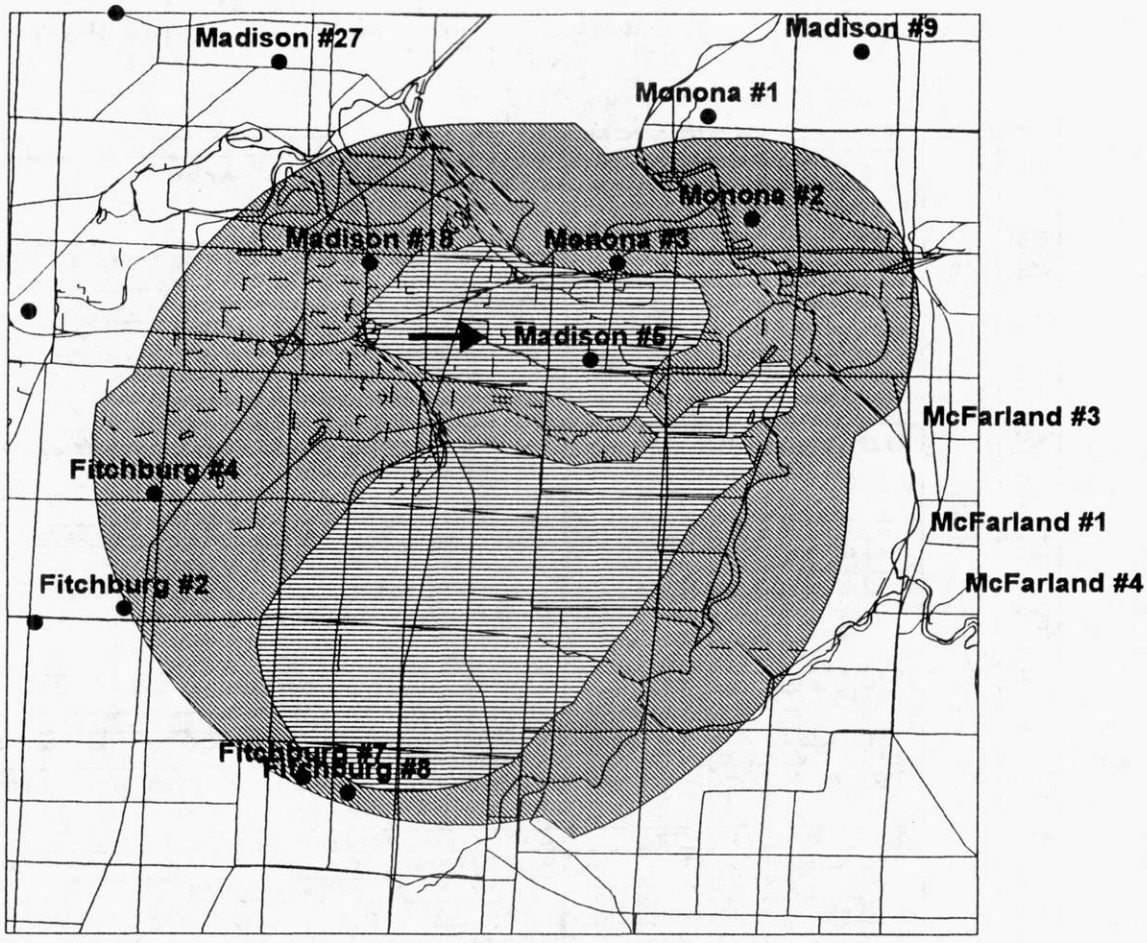
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 5



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

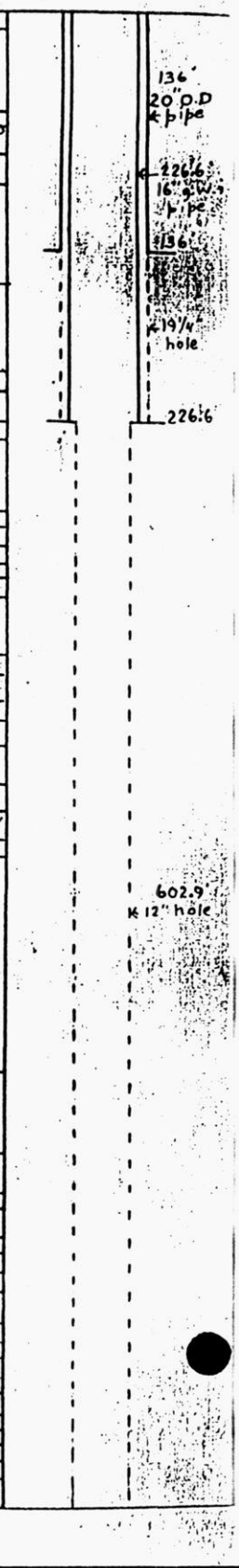
One-half foot drawdown in the deep sandstone aquifer

NINE SPRING SEWAGE DISPOSAL WORKS WELL

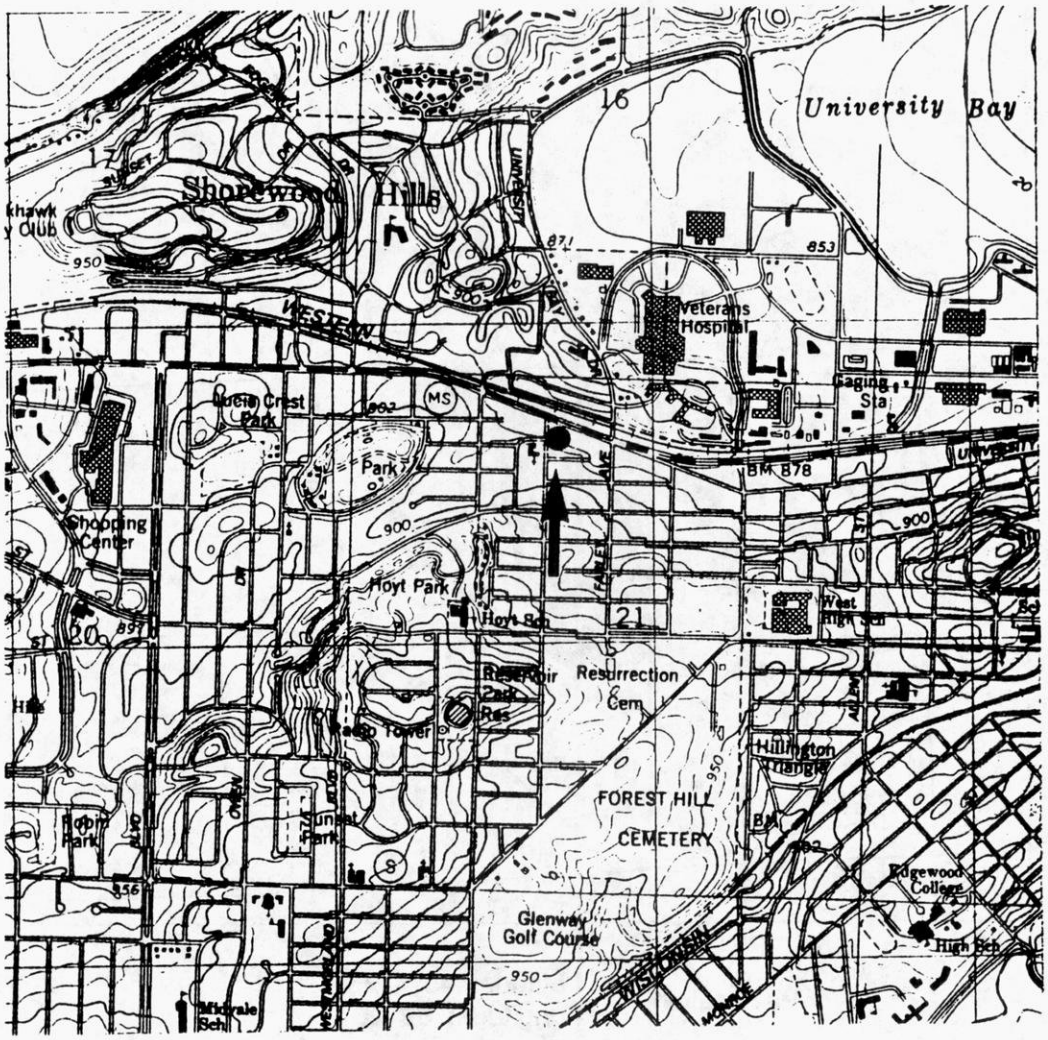
Location: SE¼, SE¼, NE¼, SW¼, SE¼, SW¼, sec. 30, T7N, R10E
W.A. Peirce, Engineer
McCarty Well Co., Contractors
Samples examined by F.T. Thwaites, Nos. 74281 - 74420; 75036; 75063
Elevation 891.73

Completed 1925

Formation	Depth	Interval	Thickness	Description
DRIFT		1-3	3	Clay, brown
		3-55	52	Till, buff, sandy, calcareous
		55-80	25	Sand, fine to medium, buff to gray, calcareous
	95	80-95	15	Clay, blue, very calcareous
FRANCONIA		95-150	55	Sandstone, fine to medium, buff, calcareous, slightly glauconitic
		150-205	55	Sandstone, fine to coarse, light gray calcareous, some fine, buff, very calcareous
	115	205-210	5	Sandstone, fine to coarse, white, very calcareous
DRESBACH		210-230	20	Sandstone, medium, white
		230-235	5	Sandstone, very fine, white
	65	235-275	40	Sandstone, medium, white
EAU CLAIRE		275-280	5	Sandstone, very fine, gray, very calcareous
		280-290	10	Shale, blue, calcareous
		290-295	5	Shale, red, calcareous
		295-300	5	Sandstone, very fine to medium, gray, calcareous
		300-305	5	Sandstone, fine, white
		305-355	50	Sandstone, fine, light gray to white, calcareous
		355-365	10	Sandstone, medium to fine, white
		365-380	15	Sandstone, fine, light gray, calcareous, some hard layers
		380-385	5	Sandstone, medium, white
		385-405	20	Sandstone, fine, light gray & pink, calcareous
		405-425	20	Sandstone, fine to medium, white, some pink calcareous layers
		425-440	15	Sandstone, fine, white
	190	440-460	20	Sandstone, fine, light gray, calcareous, some hard layers
		460-465	5	Ss., medium to fine, white, some pink calcareous layers
MT. SIMON		465-585	120	Sandstone, fine to medium, white
		585-630	45	Sandstone, fine to coarse, white, pink calcareous layers
		630-650	20	Sandstone, fine to medium, white
		650-660	10	Sandstone, medium, light gray, slightly calcareous
		660-675	15	Sandstone, coarse to fine, white and gray
		675-685	10	Sandstone, coarse to fine, gray, calcareous
		685-695	10	Sandstone, very fine, shaley, pink, calcareous
		695-705	10	Sandstone, coarse, gray, slightly calcareous
		705-725	20	Sandstone, very fine to very coarse, light gray
PRE-CAMBRIAN		725-750	25	Sandstone, very fine to medium, light gray
		750-760	10	Shale, sandy, buff
		760-765	5	Sandstone, fine to medium, light gray
		765-770	5	Shale, sandy, buff
		770-780	10	Sandstone, coarse to fine, light gray
		780-785	5	Shale, buff, sandy
		785-790	5	Sandstone, very fine, light gray
	360	790-800	10	Shale, buff, sandy
		800-815	15	Sandstone, fine to very fine, light gray
	2.9	815-825	10	Shale, red and sandstone, coarse, white
		825-827.9	2.9	Basalt(?), weathered, reddish-brown



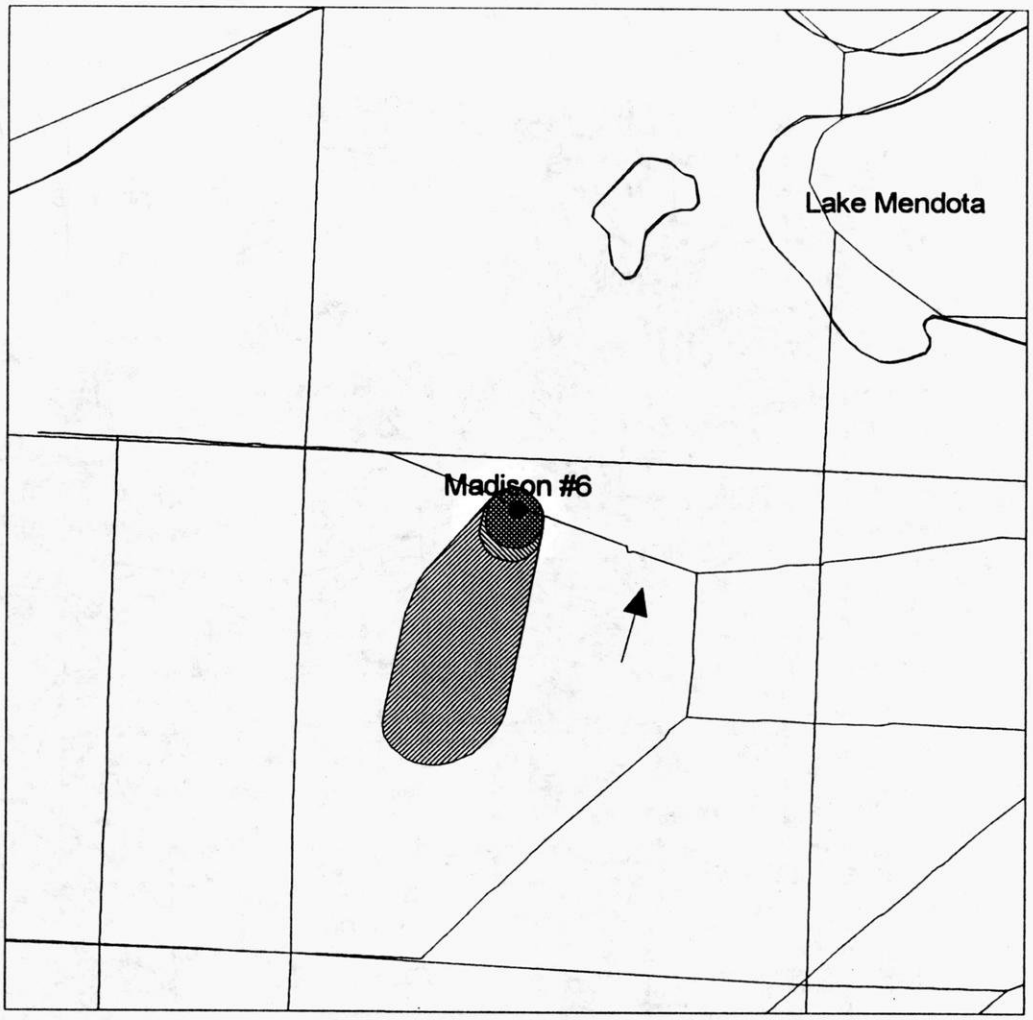
City of Madison, Well Number 6



City of Madison, Well Number 6 is located at 2757 University Ave., and at 43° 4' 25.03" north latitude and 89° 26' 7.71" longitude. The well was installed in 1938 and has a pumping capacity of 2,575 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 647,000 gpd.

The well casing extends to a depth of 220 feet below ground surface, and the total depth of the well is 751 feet. Water is drawn primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Madison, Well Number 6



Well Location

Latitude: 43° 4' 25.03"
Longitude: 89° 26' 7.71"

0 500 1000
(meters)

N

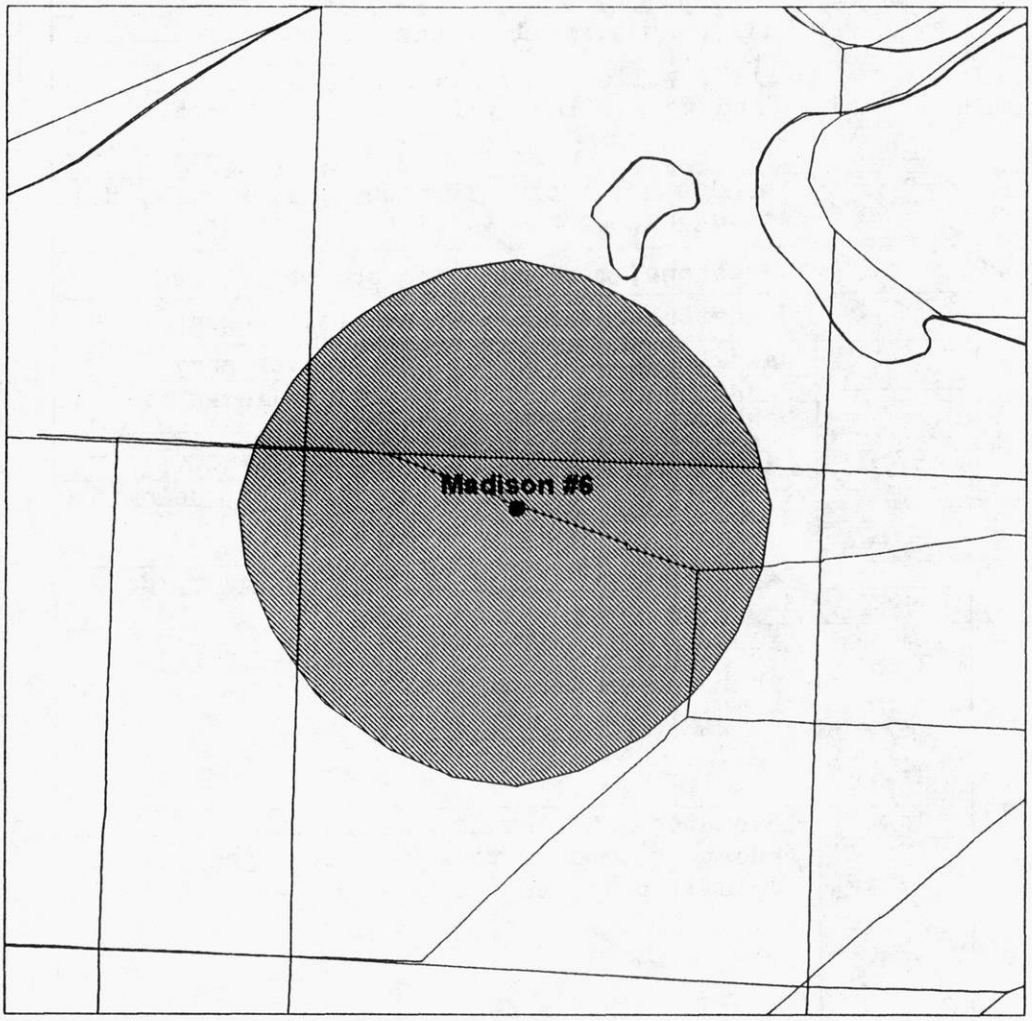
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 6



Scale 1:24,000

0 200 400
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

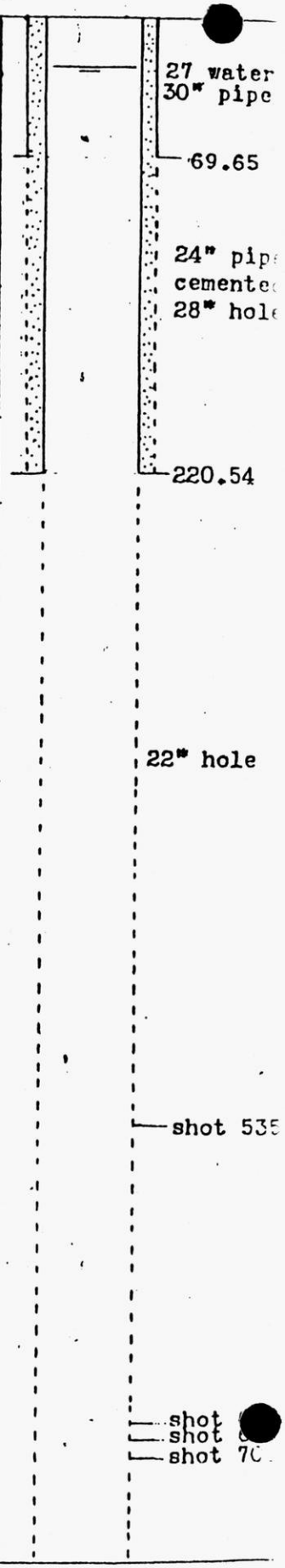
One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

SE cor. University Ave. and Franklin Ave.
McCarthy Well Co., Contractors, 1938
Samples examined by F. T. Thwaites, Nos. 100710-100855
Elevation, ground 874.63; first floor pump house 879.2
NW¼, SW¼, SW¼, NE¼, NE¼, NW¼, sec. 21, T. 7N., R. 9E.

DRIFT	45	0-15	15	No samples
		15-20	5	Till, yellow-brown, sandy
		20-25	5	Silt, yellow-gray, dolomitic
		25-30	5	Till, sandy, yellow-gray
		30-35	5	Gravel, very sandy
		35-45	10	Till, yellow-gray, sandy
FRANC	85	45-95	50	Sandstone, fine, yellow-gray, dolomitic
		95-100	5	Sandstone, fine, gray, dolomitic
		100-105	5	Sandstone, medium to fine, yellow-gray, dol.
		105-130	25	Sandstone, coarse to fine, yellow-gray
DRESB	70	130-150	20	Sandstone, medium to coarse, white, red
		150-170	20	Sandstone, medium to fine, yellow-gray
		170-190	20	Sandstone, coarse to fine, yellow-gray
		190-195	5	Sandstone, medium to coarse, yellow-gray
		195-200	5	Sandstone, medium to coarse, pink
EAU CLAIRE	275	200-215	15	Sandstone, medium to fine, yellow-gray
		215-230	15	Sandstone, medium, light gray, dolomitic
		230-235	5	Sandstone, fine to medium, lt.gray, dolomitic
		235-260	25	Shale, silty, gray, dolomitic
		260-270	10	Sandstone, medium to fine, light gray, dol.
		270-285	15	Sandstone, medium, light gray
		285-360	75	Sandstone, medium to fine, light gray, hard dolomitic layers
		360-365	5	Sandstone, medium to fine, white
		365-475	110	Sandstone, medium to fine, light gray, hard dolomitic layers
MT SIMON	265	475-500	25	Sandstone, medium to fine, white, dolomitic
		500-515	15	Sandstone, medium to fine, light gray
		515-530	15	Sandstone, medium, light gray
		530-545	15	Sandstone, fine to coarse, white
		545-555	10	Sandstone, fine to medium, pink, dolomitic
		555-590	35	Sandstone, fine to medium, light gray
		590-620	30	Sandstone, coarse to fine, light gray
		620-655	35	Sandstone, very coarse to fine, light gray
		655-660	5	Siltstone, gray, slightly dolomitic
		660-675	15	Sandstone, very coarse to fine, light gray
		675-680	5	Sandstone, very coarse to silty, light gray
		680-700	20	Sandstone, very coarse to fine, light gray
		700-710	10	Sandstone, coarse, light gray, silty
		710-720	10	Sandstone, very coarse to fine, light gray
		720-740	20	Sandstone, very coarse to medium, light gray
P	10	740-750½	10½	Rhyolite, red, decomposed to clay at top



Specific capacity at 2000 g.p.m. before shooting 17.25, after 3 shots 20.2, after 4, 22.3 g.p.

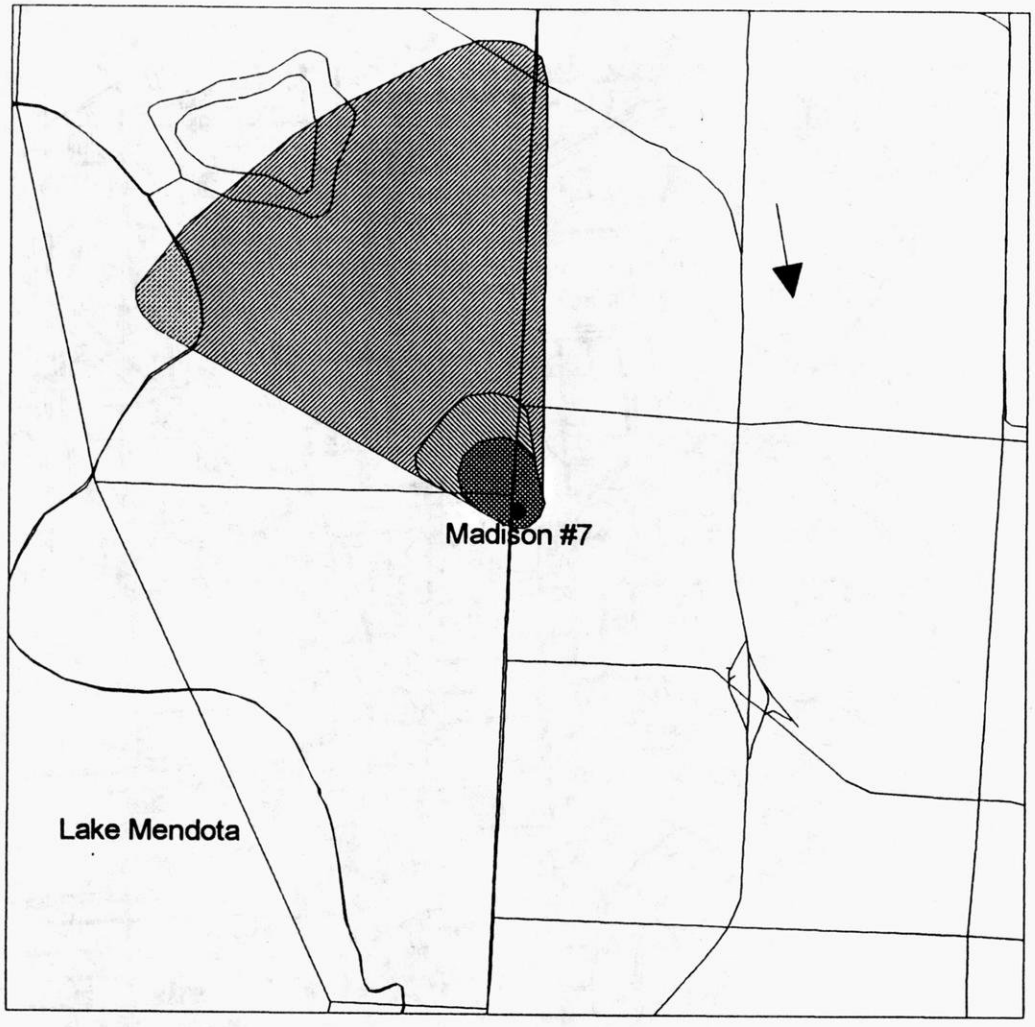
City of Madison, Well Number 7



City of Madison, Well Number 7 is located at 1709 North Sherman Ave., and at 43° 7' 6.29" north latitude and 89° 21' 48.73" longitude. The well was installed in 1965, and has a pumping capacity of 2,076 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 1,715,000 gpd.

The well casing extends to a depth of 238 feet below ground surface, and the total depth of the well is 737 feet. Water is drawn primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southeast.

Zone of Contribution for Madison, Well Number 7



Well Location

Latitude: 43° 7' 6.29"
Longitude: 89° 21' 48.73"

0 500 1000
(meters)

N

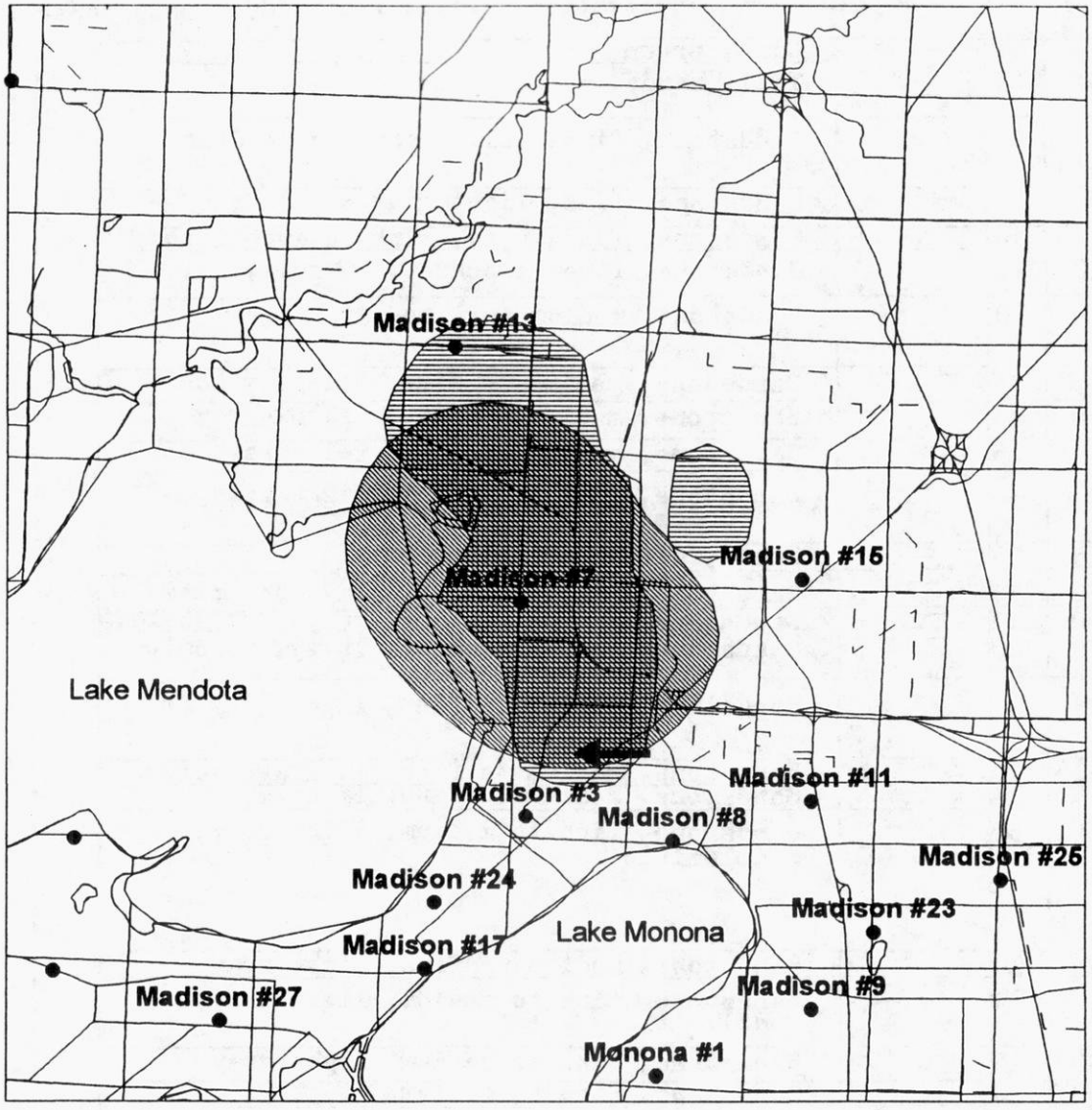
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 7



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Dn 53

Madison City Well #7

Location: SW¼, NW¼, SE¼, SW¼, NW¼, NW¼, sec. 31, T8N, R10E

McCarthy Well Co., Contractors, 1939

Samples examined by F. T. Thwaites, Nos. 104846-104993

889' ETM

Elevation derrick floor 889.5 pump house floor 891.4

DR	30	0-5	5		Clay, brown
		5-30	25		Till, sandy, yellow-gray
FRANC	80	30-65	35		Sandstone, fine, yellow-gray, dolomitic
		65-80	15		Sandstone, fine, light gray, dolomitic
		80-90	10		Sandstone, fine, gray, pink, glauconitic, do
		90-110	20		Sandstone, fine to coarse, lt.gray, dol.
DRES	60	110-140	30		Sandstone, medium to fine, light gray
		140-155	15		Sandstone, medium to fine, yel-gray, dol.
		155-170	15		Sandstone, medium to fine, yellow-gray
EAU CLAIRE	310	170-185	15		Sandstone, medium to fine, yel.-gray, dol.
		185-215	30		Sandstone, fine to medium, light gray, dolomitic
		215-225	10		Shale, silty, pink, dolomitic
		225-240	15		Sandstone, fine to silty, gray, dolomitic
		240-250	10		Sandstone, medium to fine, gray, do; shale, g
		250-270	20		Sandstone, fine to medium, lt.gy, dolomitic
		270-305	35		Sandstone, medium to fine, light gray
		305-315	10		Sandstone, medium to fine, lt.gray, dol.
		315-325	10		Sandstone, medium to fine, light gray
		325-385	60		Sandstone, fine to medium, light gray, dolomitic
		385-395	10		Sandstone, medium to fine, light gray
		395-425	30		Sandstone, fine to medium, light gray, dolomitic
		425-440	15		Sandstone, fine to medium, light gray
		440-450	10		Sandstone, fine to medium, lt.gray, dol.
		450-480	30		Sandstone, medium to fine, light gray, dolomitic
MT. SIMON	245	480-495	15		Sandstone, coarse to fine, light gray
		495-540	45		Sandstone, fine to medium, light gray
		540-580	40		Sandstone, fine to coarse, light gray
		580-595	15		Sandstone, fine to medium, light gray
		595-600	5		Sandstone, fine, pink
		600-665	65		Sandstone, fine, light gray
		665-690	25		Sandstone, medium to fine, light gray
		690-700	10		Sandstone, fine to medium, light pink
		700-725	25		Sandstone, fine to coarse, light gray
P	17	725-736.8	17		Granite, red, decomposed

24" pipe

40.7

43 water

23" hole

18" pipe cemented

237.6

16" hole

Shot 540
220# 80%

Shot 675
200#

Shot 710
220#

Formations: Drift; Franconia(formerly Mazomanie); Dresbach(Galesville); Eau Claire; Mt. Simon; pre-Cambrian Tested: no casing spec. cap. 19.8; cased 14.4; after shooting at 1750 g.p.m. 18.6

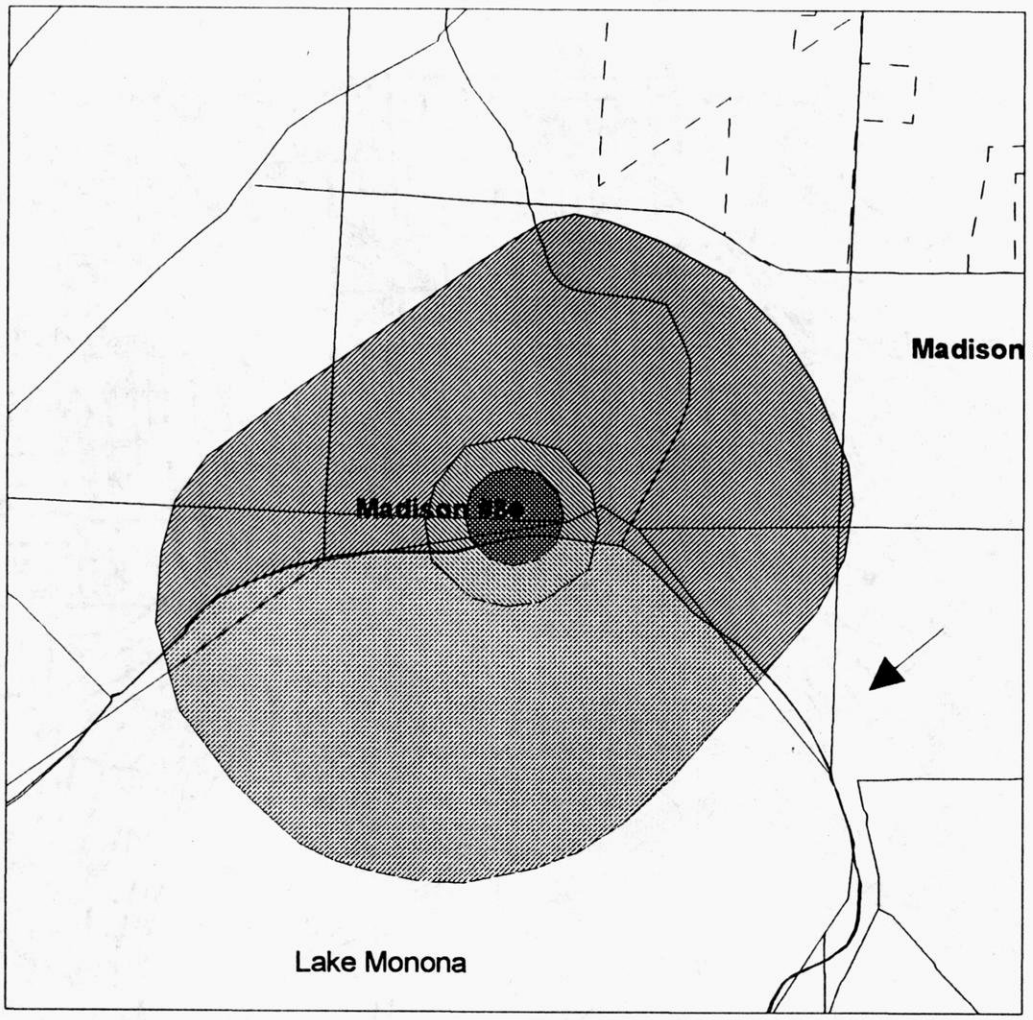
City of Madison, Well Number 8



City of Madison, Well Number 8 is located at 3206 Lakeland Ave., and at 43° 5' 27.49" north latitude and 89° 20' 18.36" longitude. The well was installed in 1950, and has a pumping capacity of 1,653 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 867,000 gpd.

The well casing extends to a depth of 280 feet below ground surface, and the total depth of the well is 774 feet. Water is drawn primarily from the Mt. Simon sandstone, and a small percentage of the water is derived from downward leakage from Lake Monona. Groundwater flow in the vicinity of the well is generally to the southwest.

Zone of Contribution for Madison, Well Number 8



Well Location

Latitude: 43° 5' 27.49"
Longitude: 89° 20' 18.36"

0 500 1000
(meters)

N

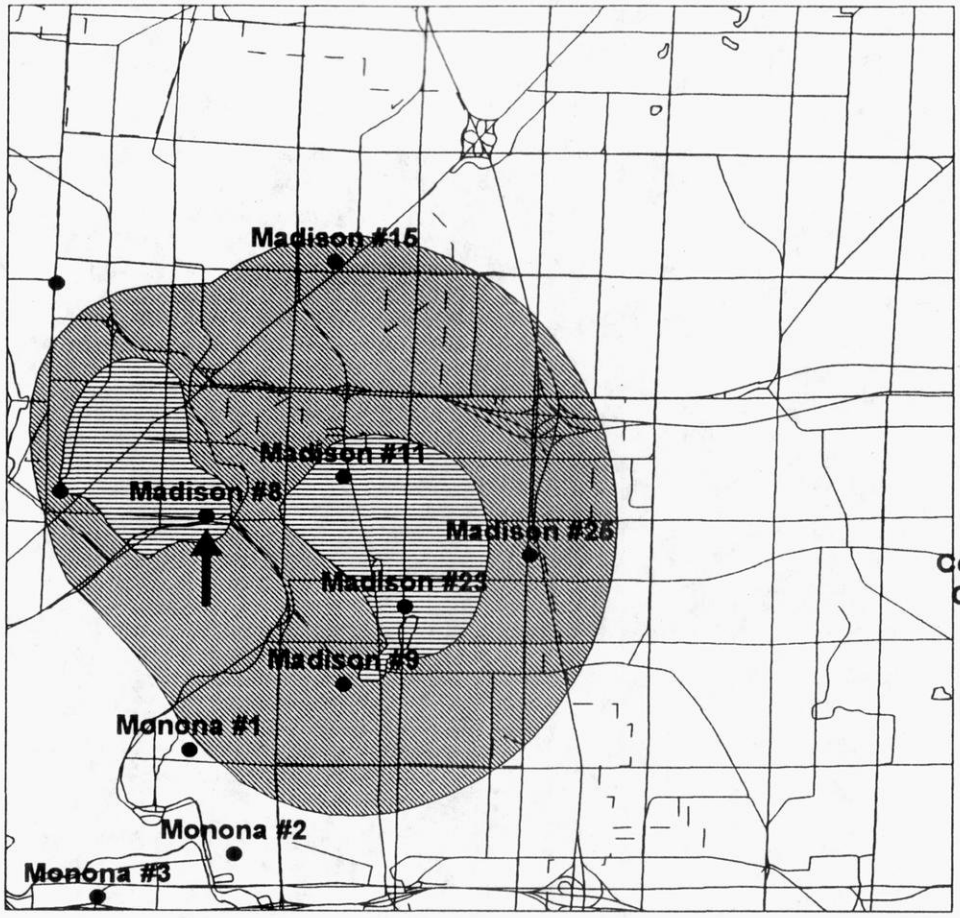
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 8



Scale 1:100,000

0 1000 2000 3000 4000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

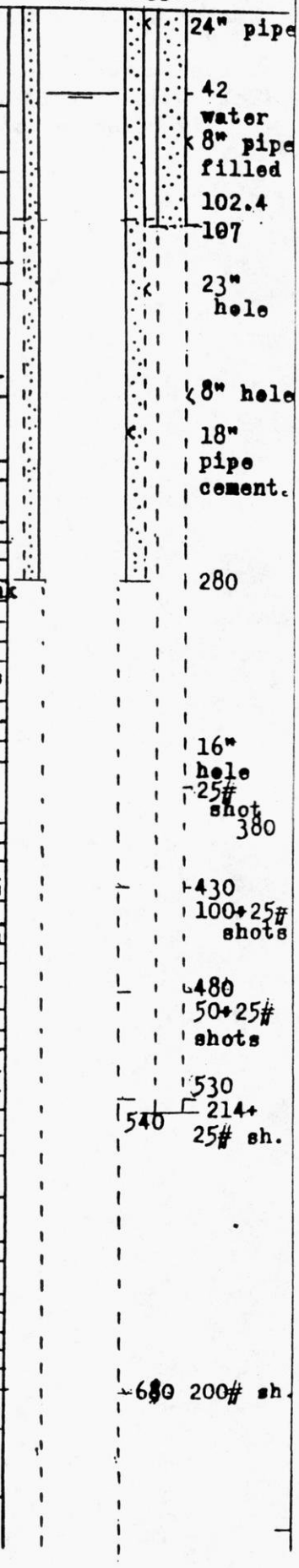
Madison City Well #8

Location: SE¼, SE¼, SE¼, SE¼, SW¼, SE¼, SW, sec. 5, T7N, R10E

McCarthy Well Co., Contractors, 1945 Elevation 878-880

Samples examined by F. T. Thwaites, Nos. 123238-123380

RIFT	0-50	50		Till, rusty gray, sandy, dolomitic
	50-80	30		Till with more stone than above
	80-110	30		Gravel, stony
	110			
FR	110-125	15		Sandstone, fine, light gray, dol., glaucon.
	25			
	125-135	10		Sandstone, fine to coarse, light gray
DRESBACH	135-180	45		Sandstone, medium to fine, light gray
	180-190	10		Sandstone, medium to fine, yellow-gray, pink
	190-220	30		Sandstone, medium to fine, light yellow-gray
	220-230	10		Sandstone, fine, yellow-gray to white
	230-250	20		Sandstone, medium to fine, white
	115			
EAU CLAIRE	250-255	5		Siltstone, gray, dolomitic
	255-264	9		Shale, red and dark green, dolomitic
	264-270	6		Sandstone, fine, gray, dolomitic
	270-285	15		Sandstone, medium to fine, light gray to pink
	285-300	15		Sandstone, silty to medium, light gray to p.
	300-305	5		Sandstone, fine to medium, gray, dol.
	305-315	10		Sandstone, fine to medium, lt.gray to pink
	315-340	25		Sandstone, fine, white, hard dolomitic layers
	340-350	10		Sandstone, fine to medium, white
	350-360	10		Sandstone, fine to medium, hard dol. layers
	360-370	10		Sandstone, medium to fine, white
	370-400	30		Sandstone, fine to medium, white; some hard dolomitic layers
	400-410	10		Sandstone, fine to medium, white
	410-415	5		Sandstone, fine to medium, gray, dol, hard
	415-420	5		Sandstone, fine, white
	420-425	5		Sandstone, like above, hard pink, dol. layers
	425-440	15		Sandstone, medium to fine, white
	195			
	440-445	5		Sandstone, fine, white, red, gray dol. layers
MT SIMON	445-455	10		Sandstone, fine to medium, white
	455-470	15		Sandstone, fine to silty, white
	470-495	25		Sandstone, medium to silty, white
	495-500	5		Sandstone, fine to coarse, white
	500-510	10		Sandstone, fine to medium, white
	510-520	10		Sandstone, medium to fine, white
	520-530	10		Sandstone, coarse to fine, light gray
	530-540	10		Sandstone, fine to coarse, light gray
	540-555	15		Sandstone, fine to medium, white
	555-565	10		Sandstone, fine to coarse, light gray
	565-585	20		Sandstone, silty to medium, white
	585-600	15		Sandstone, fine to medium, white
	600-605	5		Sandstone, fine to coarse, white
	605-615	10		Siltstone, light pink
	615-630	15		Sandstone, silty to fine, light pink
	630-640	10		Sandstone, silty to fine, light gray
	640-645	5		Sandstone, fine to medium, light gray
	645-650	5		Sandstone, medium to fine, light gray
	650-660	10		Sandstone, fine, light gray
	660-675	15		Sandstone, fine to medium, light gray
	675-695	20		Sandstone, silty to fine, light gray
	695-700	5		Sandstone, fine to medium, white
	700-725	25		Siltstone, light gray, pink at bottom
	725-735	10		Sandstone, silty to coarse, light gray
	315	735-755	20	Sandstone, fine to medium, light gray



	755-760	5		Sandstone, silty to fine, light gray
P. 14	760-774	14		Clay, dark red, probably decomposed igneous

Formations: Drift; Franconia (formerly Mazomanie); Dresbach (Galesville); Eau Claire; Mt. Simon; pre-Cambrian or "Granite wash"

Tested before cementing after shots at 480 and 530, specific capacity after 7 hours = 20.0 g.p.
" " " " shot at 680, specific capacity after ? hours = 22.0

Tested after cementing and shots at 430 and 480, specific capacity = 13.0 g.p.m.

Test hole 5' east deepened from 285 to 540 and shot at 380, 430, 480, 530 to connect with big hole. Final test 75 hours in all; after 10 hours at 1965 g.p.m. specific capacity = 30.

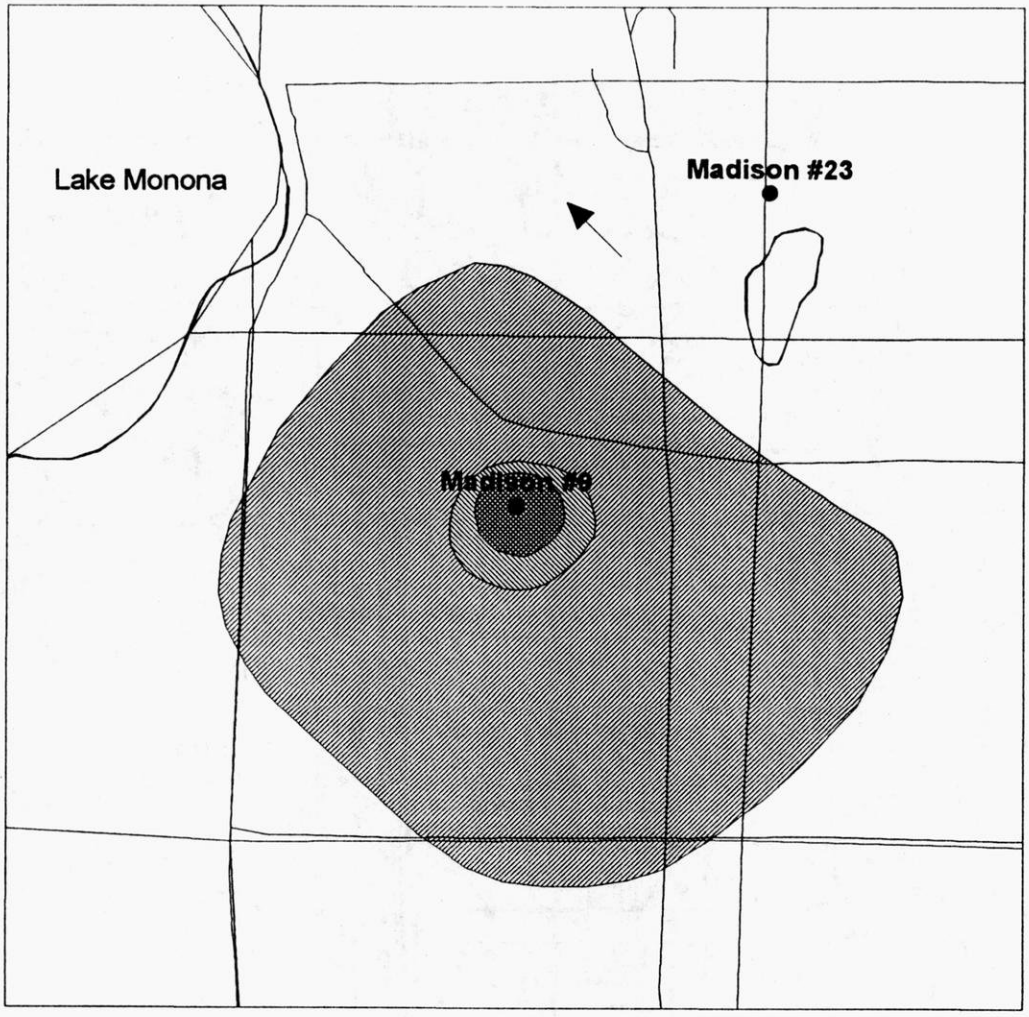
City of Madison, Well Number 9



City of Madison, Well Number 9 is located at 4724 Spaanem Ave., and at 43° 4' 17.76" north latitude and 89° 18' 55.66" longitude. The well was installed in 1950 and has a pumping capacity of 1,400 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 913,000 gpd.

The well casing extends to a depth of 200 feet below ground surface, and the total depth of the well is 843 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Madison, Well Number 9



Well Location

Latitude: 43° 4' 17.76"
Longitude: 89° 18' 55.66"

0 500 1000
(meters)

N

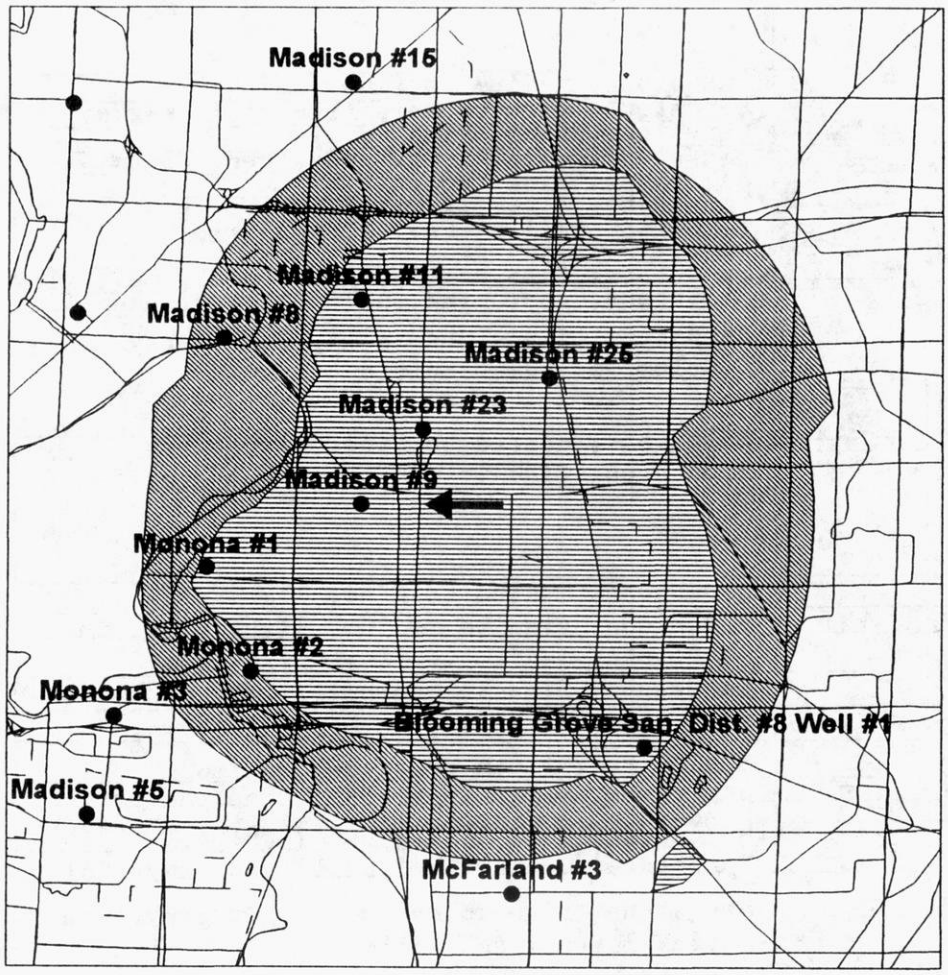
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 9



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

Dn-87

UNIT WELL NO. 9, MADISON, WIS.

Location: NW¼, SE¼, SW¼, NW¼, SW¼, NE¼, sec. 16, T7N, R10E

Layne-Northwest Co., Contractors, 1950

926' ETM

L. A. Smith, Superintendent E. L. Nordness, Inspector

Samples examined by F. T. Thwaites, Nos. 149670-149840

DRIFT	56½	0-10	10	Till, sandy, yellow-gray, dolomitic
		10-56½	46½	Gravel, sandy, much silt, yellow-gray
TREMPE		56½-70	13½	Sandstone, medium to fine, white
		70-75	5	Sandstone, fine to very fine, yellow-gray
		75-80	5	Sandstone, fine, light gray
		80-85	5	Sandstone, fine, light gray, red, dolomitic
		85-90	5	Siltstone, pink, dolomitic
		90-100	10	Sandstone, fine, lt.gy; dolomite, gray, glau.
	53½	100-105	5	Dolomite, yellow-gray, glauconitic
		105-110	5	Dolomite, light gray
FRANCO		110-115	5	Sandstone, fine, silty, gray, pink, dol, glau
		115-145	30	Siltstone, red, pink, dolomitic, glauconitic
		145-205	60	Sandstone, fine, much silt, light gray, dolomitic, glauconitic
	100	205-210	5	Sandstone, coarse to fine, light gray
DRESBA		210-260	50	Sandstone, fine to medium, light gray
		260-275	15	Sandstone, medium to fine, light gray
		275-285	10	Sandstone, fine to medium, light gray, dol.
	90	285-300	15	Sandstone, medium to fine, light gray
EAU CLAIRE		300-315	15	Sandstone, fine to medium, lt.gy, pink, dol.
		315-330	15	Sandstone, very fine to medium, lt.gy, dol.
		330-345	15	Shale, red, green-gray, dolomitic
		345-355	10	Sandstone, very fine, shaly, red, dolomitic
		355-365	10	Sandstone, medium to fine, light gray, dol.
		365-370	5	Sandstone, fine to medium, light gray
		370-385	15	Sandstone, medium to fine, light gray, dol
		385-430	45	Sandstone, fine to medium, light gray, some pink layers, dolomitic
	205	430-445	15	Sandstone, fine to medium, light gray
		445-455	10	Sandstone, medium to fine, light gray
		455-505	50	Sandstone, fine to medium, light gray, dolomitic
MT SIMON		505-525	20	Sandstone, fine to medium, light gray
		525-545	20	Sandstone, fine, silty, light gray
		545-555	10	Sandstone, medium to fine, light gray
		555-610	55	Sandstone, fine to medium, silty, light gray
		610-615	5	Sandstone, medium to fine, light gray
		615-640	25	Sandstone, fine to medium, silty, light gray
		640-645	5	Sandstone, fine to medium, silty, light pink
		645-665	20	Sandstone, fine to medium, silty, light gray
		665-680	15	Sandstone, fine to medium, silty, light pink
		680-705	25	Sandstone, fine, much silt, light pink
		705-710	5	Sandstone, fine to coarse, light pink
		710-720	10	Sandstone, fine, silty, light pink
		720-735	15	Sandstone, fine, silty, light gray
		735-745	10	Sandstone, fine to medium, silty, light pink

28" pipe

95 water

100

27" hole
20" pipe cemented

200

19½" hole
250 shot
265
280
295
300

400 shot
415

16" hole
440 shot

475

510

540

Dn-87

		745-770	25		Sandstone, fine to medium, light gray
		770-800	30		Sandstone, fine, silty, light gray
		800-805	5		Sandstone, medium to fine, light gray
		805-820	15		Sandstone, fine to coarse, silty, pink, gray
	325	820-830	10		Sandstone, fine to medium, silty, light gray
P	13	830-843	13		Basalt, top part oxidized to dark red clay

Formations: Drift; Trempealeau; Franconia; Dresbach (Galesville); Eau Claire; Mt. Simon; pre-Cambrian

Bailed at 200 at 120 g.p.m. specific capacity = 4.4 g.p.m./ft

Tested 8½ hrs before shooting without casing at 1444 g.p.m. specific capacity = 16.7 g.p.m./ft.

" 8 " after top 4 shots " " " 1517 " " " = 18.1 "

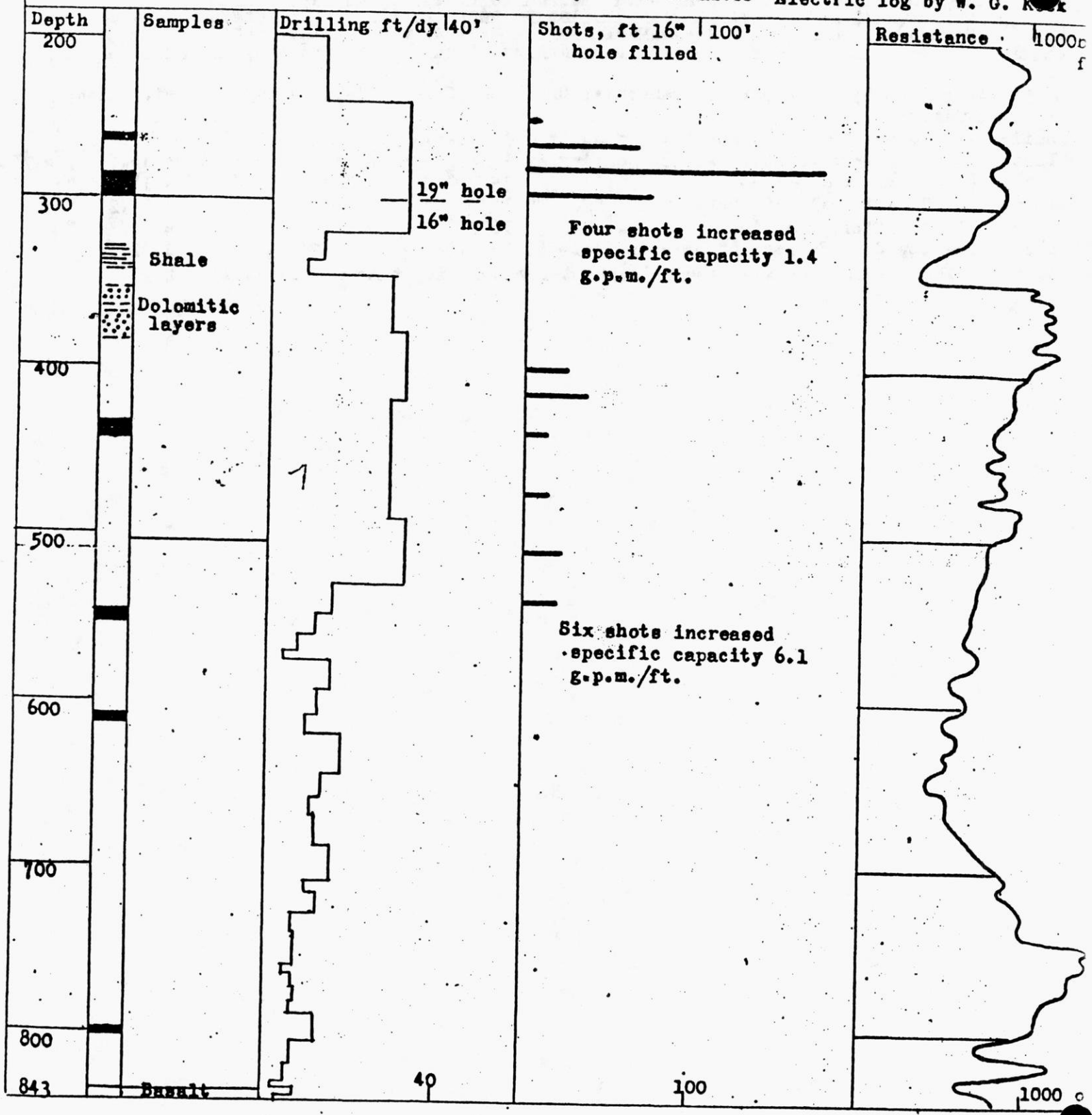
Tested 10 " after all 10 shots " " " 1770 " " " = 24.2 "

2 " " after cementing " 1652 " " " =21.2 "

Shots from top down filled 16" hole in feet- 6, 66, 186, 72, 34, 24, 35, 14, 21, 18

Shots 50 lbs. each. See also separate sheet for drilling time and electric log.

UNIT WELL NO. 9, MADISON, WIS.
Data on drilling rate, results of shooting and electric log.
Layne-Northwest Co., Contractors, 1950
Data compiled by F. T. Thwaites Electric log by W. G. K[illegible]k



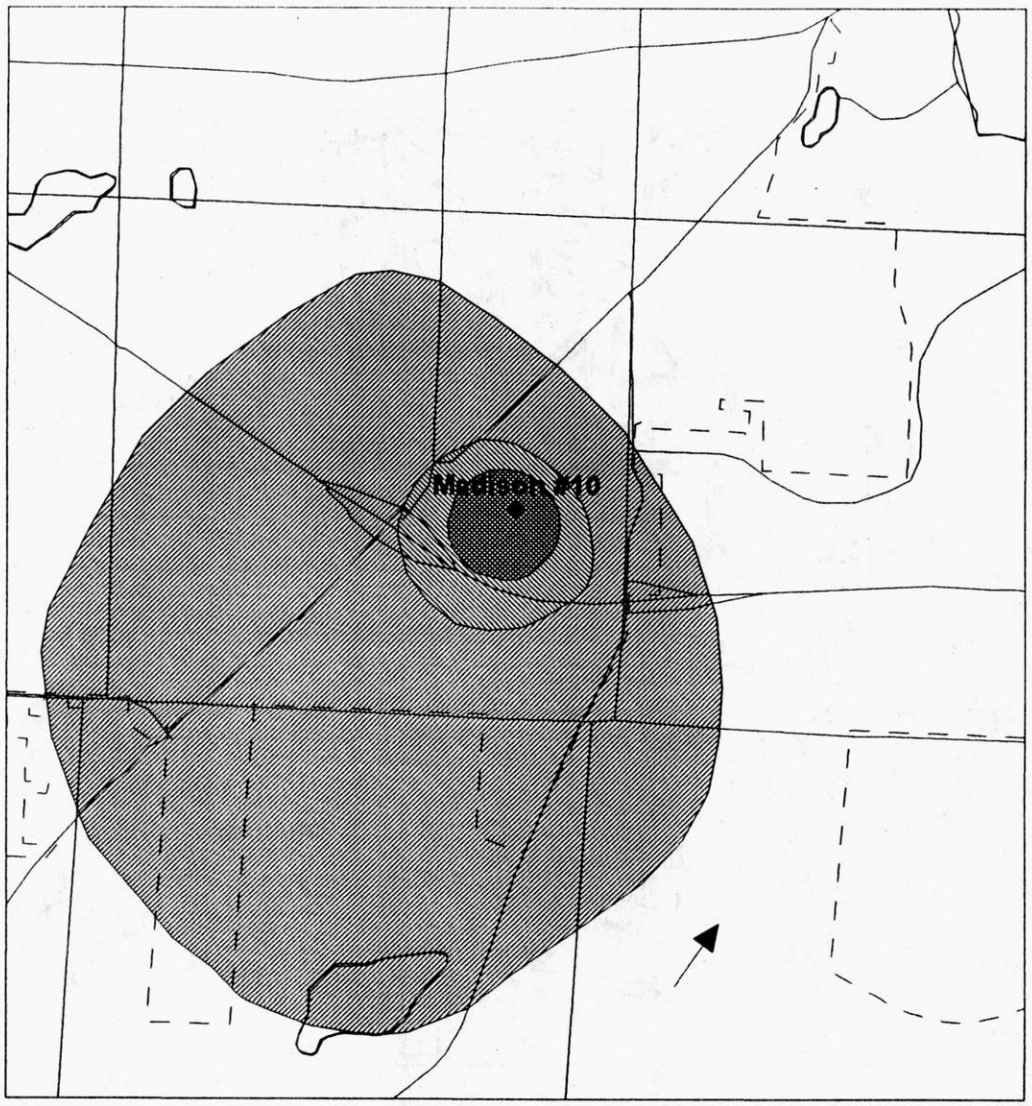
City of Madison, Well Number 10



City of Madison, Well Number 10 is located at 4251 Mohawk Drive and at 43° 2' 15.22" north latitude and 89° 26' 52.29" longitude. The well was installed in 1951 and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 1,612,000 gpd.

The well casing extends to a depth of 270 feet below ground surface, and the total depth of the well is 100 feet. Water is drawn from a combination of the Paleozoic bedrock units including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Madison, Well Number 10



Well Location

Latitude: 43° 2' 15.22"
Longitude: 89° 26' 52.29"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

UNIT WELL NO. 10, MADISON, WIS. Dn-96

Mohawk Drive and Manitou Way

NW¼, SE¼, SW¼, NW¼, NE¼, SE¼, sec. 32, T. 7N., R. 9E.

Layne-Northwest Co., Contractors 1950-51 L. A. Smith, Supt.

E. L. Nordness, Engr. Samples examined by F. T. Thwaites Nos. 1526

AH. 1002.6

DRIFT	0-5	5		Silt, sandy, light brown, weathered
	5-40	35		Sand, medium to coarse, light gray
	40-45	5		Silt, light gray, dolomitic
	45-55	10		Sand, fine to medium, light gray
	55-80	25		Sand, fine to medium, silty, light gray
	80-130	50		Clay, gray, dolomitic
	130-135	5		Silt, sandy, light gray, dolomitic
	135-140	5		Till, sandy, gray, dolomitic
150	140-145	5		Clay, gray, very dolomitic
	145-150	5		Gravel, fine, very sandy, chert pebbles
St. 20	150-165	15		Conglomerate, chert pebs in ss. cra-fne, lt.gy
	165-170	5		Conglomerate, chert pebs in ss. cra-fne, pink
TUNNEL CITY	170-175	5		Sandstone, fine to medium, pink, glauconitic
	175-180	5		Siltstone, sandy, red-brown, glauc., dolomitic
	180-190	10		Sandstone, fine to coarse, gray, glauc, ct.p.
	190-200	10		Sandstone, fine, silty, gray, glauc., dol.
	200-240	40		Sandstone, fine, yellow-gray, dolomitic, glau
	240-250	10		Sandstone, very fine to fine, yel-gy, dol.
	250-260	10		Sandstone, fine to very fine, lt.yl-gy, dol, g
100	260-265	5		Sandstone, very fine, silty, yl-gy, dol, g.
	265-270	5		Sandstone, coarse to fine, yl-gy, dolomitic
PRESBA 110	270-380	110		Sandstone, medium to fine, white to light gray, soft
EAU CLAIRE 190	380-385	5		Sandstone, fine to medium, light gray
	385-395	10		Sandstone, fine to medium, light gray, dol.
	395-415	20		Sandstone, fine to medium, white, dolomitic
	415-420	5		Sandstone, very fine, silty, gray, dolomitic
	420-435	15		Shale, gray, dolomitic
	435-485	50		Sandstone, medium to fine, white
	485-565	80		Sandstone, medium to fine, light gray, some dolomitic layers
	565-570	5		Sandstone, fine to medium, light gray, dol.
	570-605	35		Sandstone, medium to fine, white, some dolomitic layers
	605-615	10		Sandstone, fine to medium, white
	615-645	30		Sandstone, fine to medium, light gray, dol.
	645-660	15		Sandstone, fine to very fine, white, dol.
	660-665	5		Sandstone, medium to fine, white
	665-670	5		Sandstone, medium to fine, lt.gy, pink, dol.
	670-675	5		Sandstone, very fine to fine, white
	675-700	25		Sandstone, medium to fine, white
	700-760	60		Sandstone, fine to medium, light gray

28" pi
20" pi
cement
142 w
192
27" ho
270
20" ho
300
16" hole

Unit well No. 10, Madison, Wis., p. 2

MT. SIMON		760-765	5	Sandstone, medium to fine, white
		765-770	5	Sandstone, fine to medium, light gray
		770-775	5	Sandstone, medium to fine, white
		775-790	15	Sandstone, medium to fine, some fine, white
		790-795	5	Sandstone, medium to coarse, light gray
		795-805	10	Sandstone, fine to coarse, lt.gy; shale, red
		805-815	10	Sandstone, fine to coarse, light gray
		815-825	10	Sandstone, coarse to fine, pink-gray
		825-830	5	Sandstone, very fine to medium, light pink-gy
		830-835	5	Sandstone, coarse to medium, light gray
		835-840	5	Sandstone, fine to medium, light gray
		840-860	20	Sandstone, medium to fine, light gray
		860-865	5	Sandstone, fine to medium, white
		865-870	5	Sandstone, fine to coarse, pink, gray
		870-880	10	Sandstone, fine to coarse, gray
		880-890	10	Sandstone, medium to fine, light gray
		890-895	5	Sandstone, fine to coarse, light gray
		895-910	15	Sandstone, fine to medium, light gray
		910-915	5	Sandstone, medium to fine, light gray
		915-925	10	Sandstone, fine, light gray
		925-935	10	Sandstone, very fine to coarse, light gray
		935-950	15	Sandstone, medium to coarse, light gray
		950-965	15	Sandstone, fine to medium, silty, light gray
		965-975	10	Sandstone, medium to fine, light gray
	427	975-985	10	Sandstone, very fine to coarse, silty, lt.gy.
		985-997	12	Sandstone, medium to fine, light gray
P	3	997-1000	3	Granite, pink

Formations: Drift; St. Peter; Franconia; Dresbach (Galesville); Eau Claire; Mt. Simon; pre-Cambrian

Tested before shooting, specific capacity = 16.0 g.p.m./ft.

Cone shots in 10 ft. series by Dowell with centers at 325, 335, 345, 355, 365, 375, 465, 770, 790, 940 Reduced specific capacity to 13.0 g.p.m./ft.

50 lb. shots at 345, 365, 450, 465, 770, 790; 75 lb. shots at 520, 555; 100 lb. shot at 615 increased specific capacity to 21.2 g.p.m./ft. Last test 34 hours at 1520 g.p.m.

Static level after shooting = 141.6

Formations re-evaluated from 150' to 270' by R. M. Peters - 12/2/77.

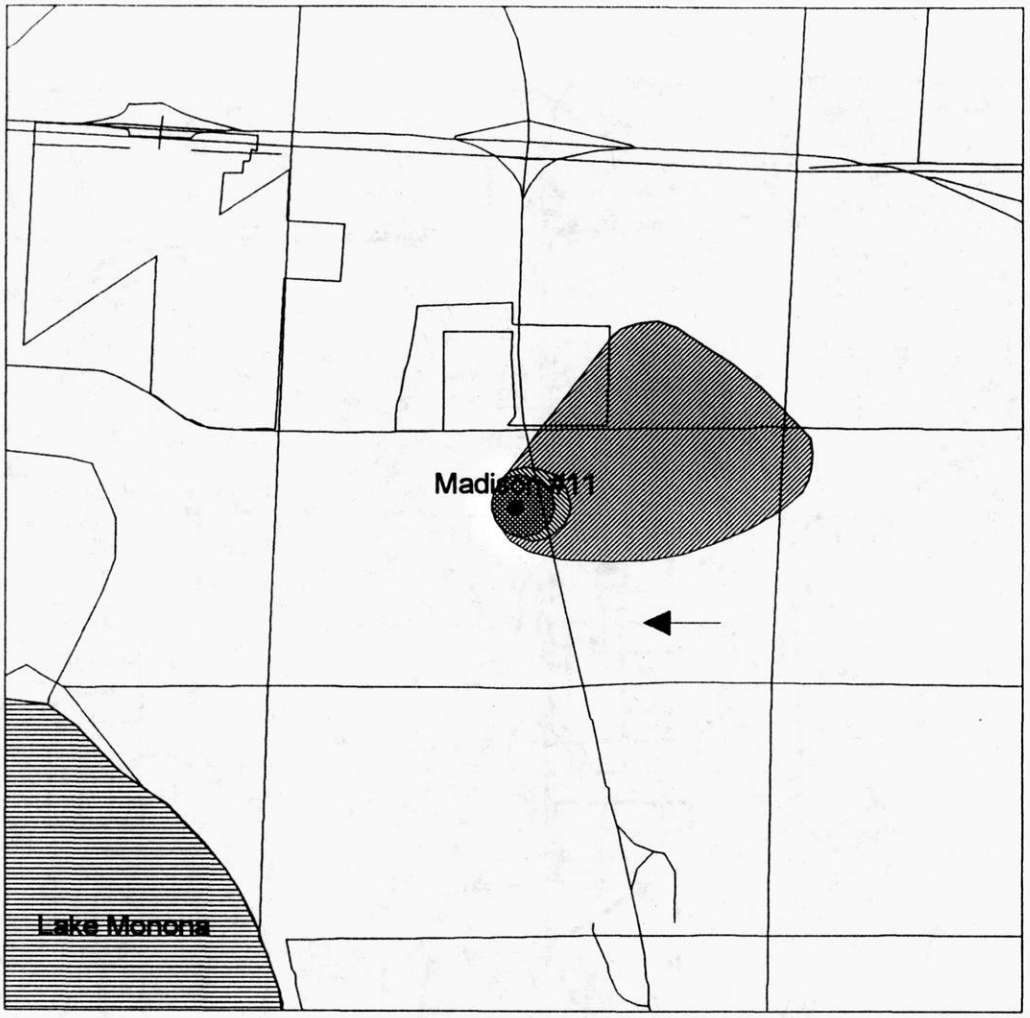
City of Madison, Well Number 11



City of Madison, Well Number 11 is located at 102 Dempsey Road, and at 43° 5' 45.89" north latitude and 89° 18' 59.47" longitude. The well was installed in 1956, and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 2,070,000 gpd.

The well casing extends to a depth of 111 feet below ground surface, and the total depth of the well is 752 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the west.

Zone of Contribution for Madison, Well Number 11



Well Location

Latitude: 43° 5' 45.89"
Longitude: 89° 18' 59.47"

0 500 1000
(meters)

N

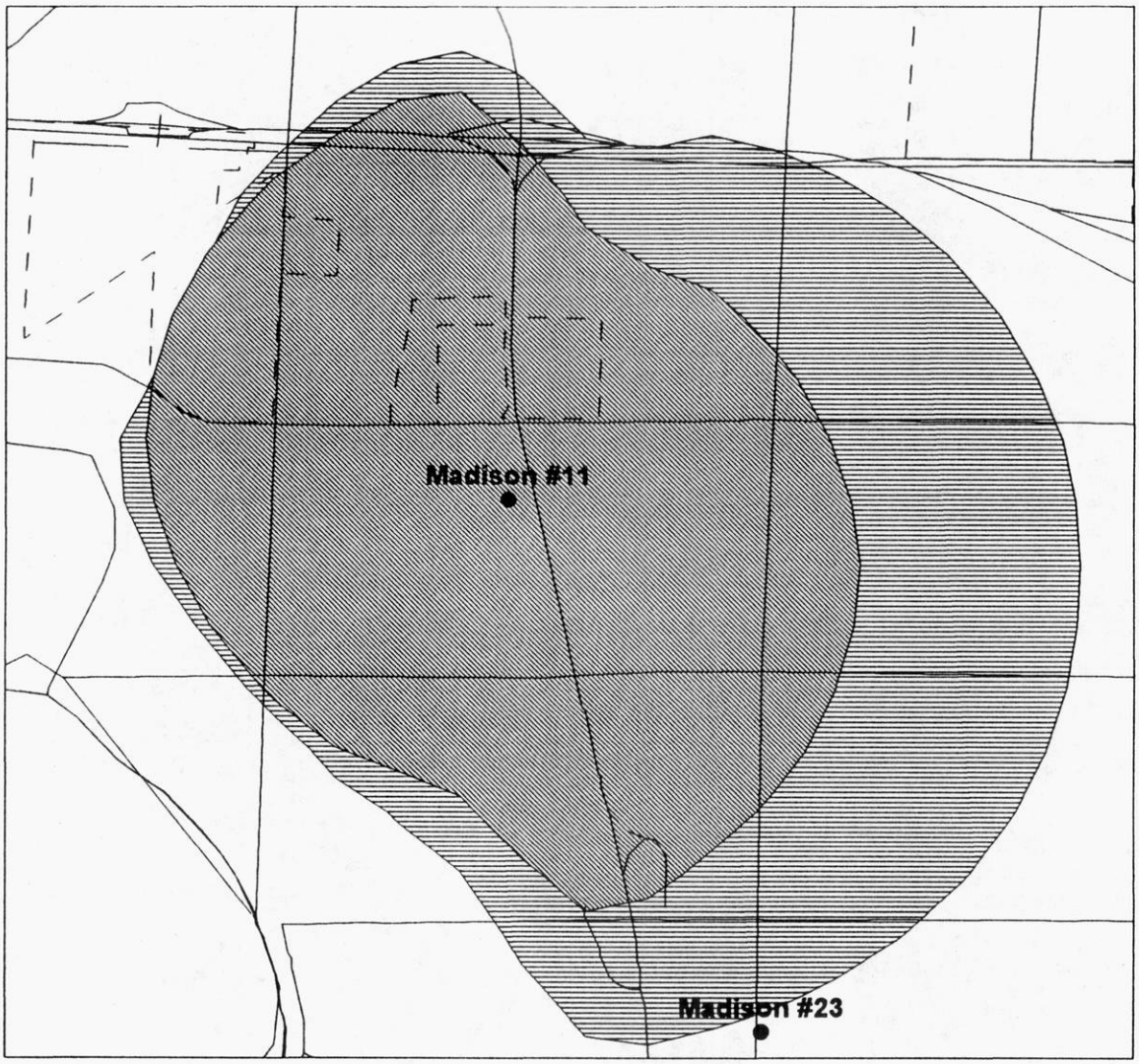
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 11



Scale 1:24,000

0 500 1000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

CITY UNIT WELL NO. 11, MADISON, DANE CO., WIS.

859' ETM

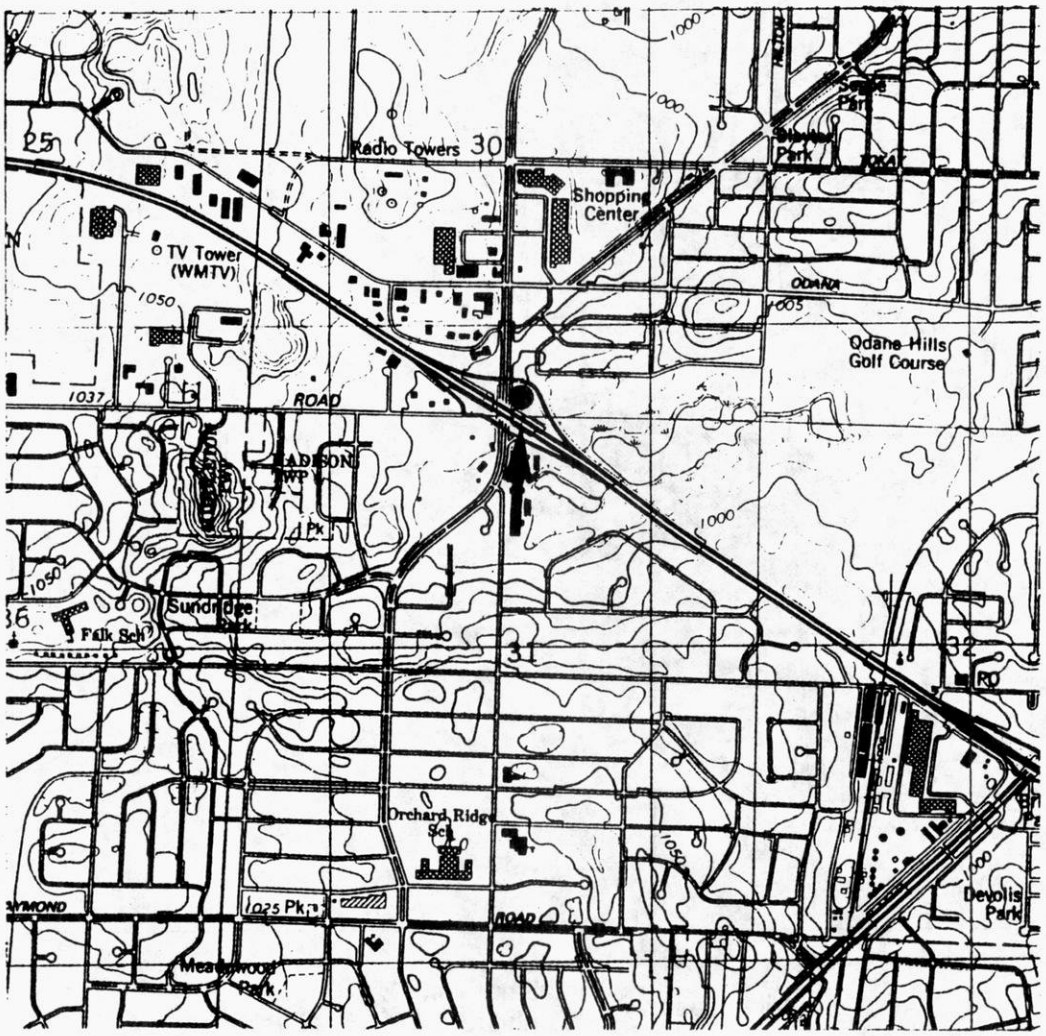
Egerer-Galloway Well Corp. Contractors, 1956
Samples examined by F. T. Thwaites, Nos. 189479-189630
Location: NE¼, SW¼, SE¼, NE¼, SE¼, NE¼, SW¼, sec. 4, T7N, R10E

	18	0-15	15	Till, yellow-gray to light gray, dolomitic
		15-18	3	Gravel, sandy
FRANCONIA		18-30	12	Sandstone, fine, light gray, dol, glauc.
		30-40	10	Sandstone, fine, pink, gray, dol, glauconitic
		40-45	5	Sandstone, fine, light gray, dol., glauc.
		45-65	20	Sandstone, fine, pale yellow-gray, dolomitic
		65-70	5	Sandstone, fine, light gray, dolomitic
		70-75	5	Sandstone, fine, pale yellow-gray, dolomitic
		75-90	15	Sandstone, fine, light gray, dolomitic
		90-95	5	Sandstone, very fine, light gray, dolomitic
		95-110	15	Sandstone, fine to medium, very lt.gy, sl. d.
	102	110-120	10	Sandstone, fine to coarse, very light gray
GALESVILLE		120-150	30	Sandstone, fine to medium, very light gray
		150-160	10	Sandstone, medium to fine, white
		160-170	10	Sandstone, medium to fine, pale yellow-gray
		170-190	20	Sandstone, fine to medium, pale yel-gray
	80	190-200	10	Sandstone, fine to medium, white
EAU CLAIRE		200-222	22	Sandstone, fine to very fine, very light gy.
		222-230	8	Sandstone, very fine to fine, pk-gy, dol, ish.
		230-245	15	Sandstone, very fine to medium, pink, dol.
		245-257	12	Sandstone, fine to medium, lt.gy, dolomitic
		257-265	8	Sandstone, fine to medium, lt.gy, very dol
		265-275	10	Sandstone, fine to medium, white
		275-285	10	Sandstone, fine to medium, dol. layers, white
		285-290	5	Sandstone, very fine to fine, white
		290-310	20	Sandstone, very fine to fine, white, part d.
		310-315	5	Sandstone, fine to medium, white
		315-325	10	Sandstone, very fine to medium, lt.gy, dol.
		325-340	15	Sandstone, very fine to medium, light gray
	165	340-365	25	Sandstone, very fine to medium, light gray
MT SIMON		365-375	10	Sandstone, fine to medium, light gray
		375-405	30	Sandstone, very fine to fine, light gray
		405-410	5	Sandstone, fine to medium, light gray
		410-430	20	Sandstone, very fine to fine, light gray
		430-440	10	Sandstone, fine to medium, light gray
		440-460	20	Sandstone, very fine to fine, light gray
		460-475	15	Sandstone, fine to medium, white
		475-480	5	Sandstone, very fine to fine, light gray
		480-505	25	Sandstone, fine to medium, white
		505-510	5	Sandstone, medium to fine, light gray
		510-550	40	Sandstone, very fine to medium, light gray
		550-565	15	Sandstone, fine to medium, light gray
		565-570	5	Sandstone, fine to medium, pink
		570-595	25	Sandstone, fine to medium, light gray
		595-600	5	Sandstone, fine, light gray
		600-605	5	Sandstone, fine to medium, light gray
		605-610	5	Sandstone, medium to fine, light gray
		610-620	10	Sandstone, fine to medium, light gray
		620-625	5	Sandstone, fine to medium, light pink
		625-630	5	Sandstone, medium to fine, light pink
		630-640	10	Sandstone, very fine to fine, pink-gray
		640-650	10	Sandstone, very fine to medium, light gray
		650-655	5	Sandstone, fine to medium, light gray
		655-660	5	Sandstone, medium to fine, light gray
		660-665	5	Sandstone, fine to medium, light gray
		665-670	5	Sandstone, very fine to fine, light gray
		670-675	5	Sandstone, fine to medium, light gray
		675-680	5	Sandstone, very fine to medium, light gray
		680-700	20	Sandstone, very fine to coarse, light gray
		700-710	10	Sandstone, very fine to medium, light gray
	358	710-723	13	Sandstone, fine to coarse, light gray

30" pipe
20 water
33.33
24" pipe cemented
28" hole
110.67
22" hole
317 shot
413 shot

B efore shooting or cementing tested 9½ hours at 1990 g.p.m. specific capacity = 18.4 g.p.m./ft
First two shots, 100 lbs each loosened 21 cubic yards of sand.
Tested 10 hours at 2152 g.p.m. specific capacity =19.3 gp.m./ft.
Two 150 lb. shots loosened 10 cubic yards of sand, Cemented casing.
Tested 7 hours at 1900 g.p.m specific capacity = 22.4 gp.m./ft.
Final test 6 1/3 hours at 2155 g.p.m. specific capacity = 22.5 g.p.m./ft.
Additional copies may be secured from Wisconsin Geological Survey, Science Hall, Madison 6, Wi

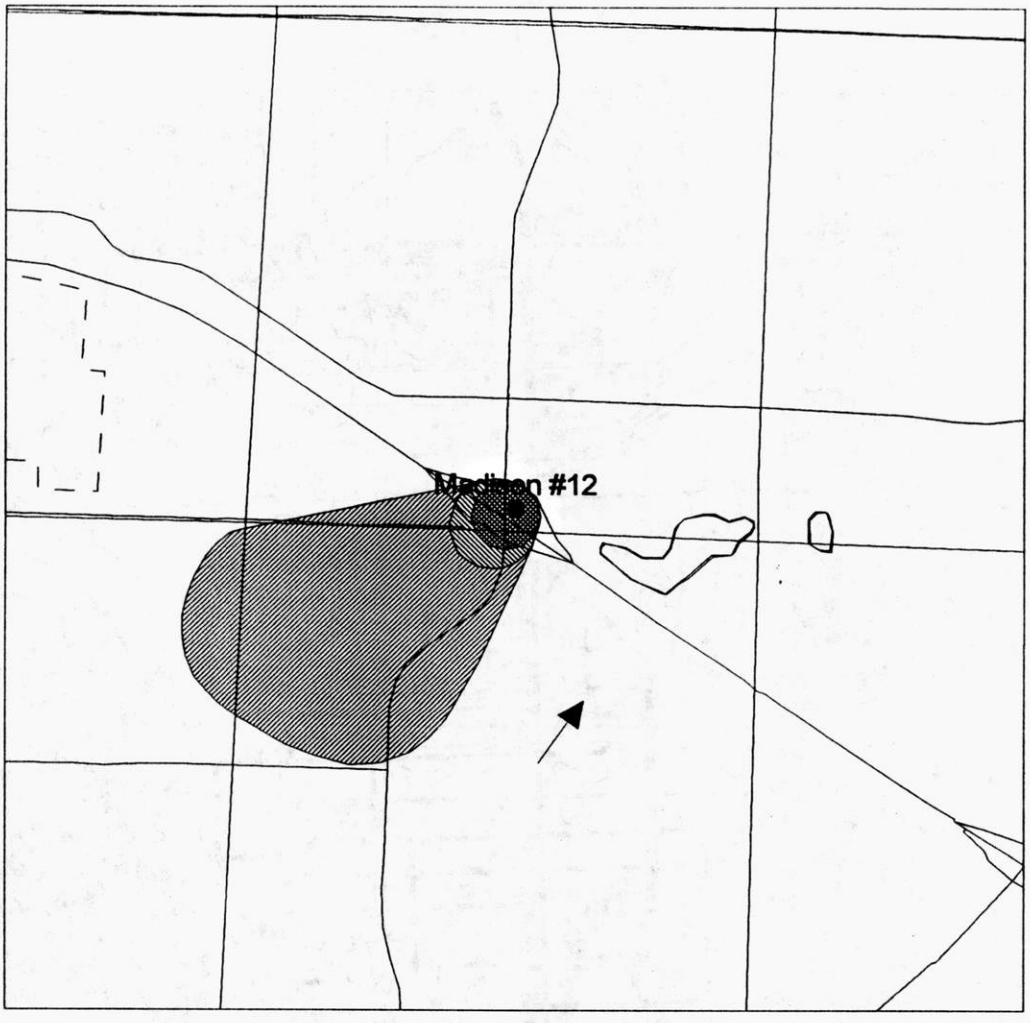
City of Madison, Well Number 12



City of Madison, Well Number 12 is located at 801 Whitney Way and at 43° 2' 48.62" north latitude and 89° 28' 22.48" longitude. The well was installed in 1957 and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 482,000 gpd.

The well casing extends to a depth of 260 feet below ground surface, and the total depth of the well is 986 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Madison, Well Number 12



Well Location

Latitude: 43° 2' 48.62"
Longitude: 89° 28' 22.48"

0 500 1000
(meters)

N

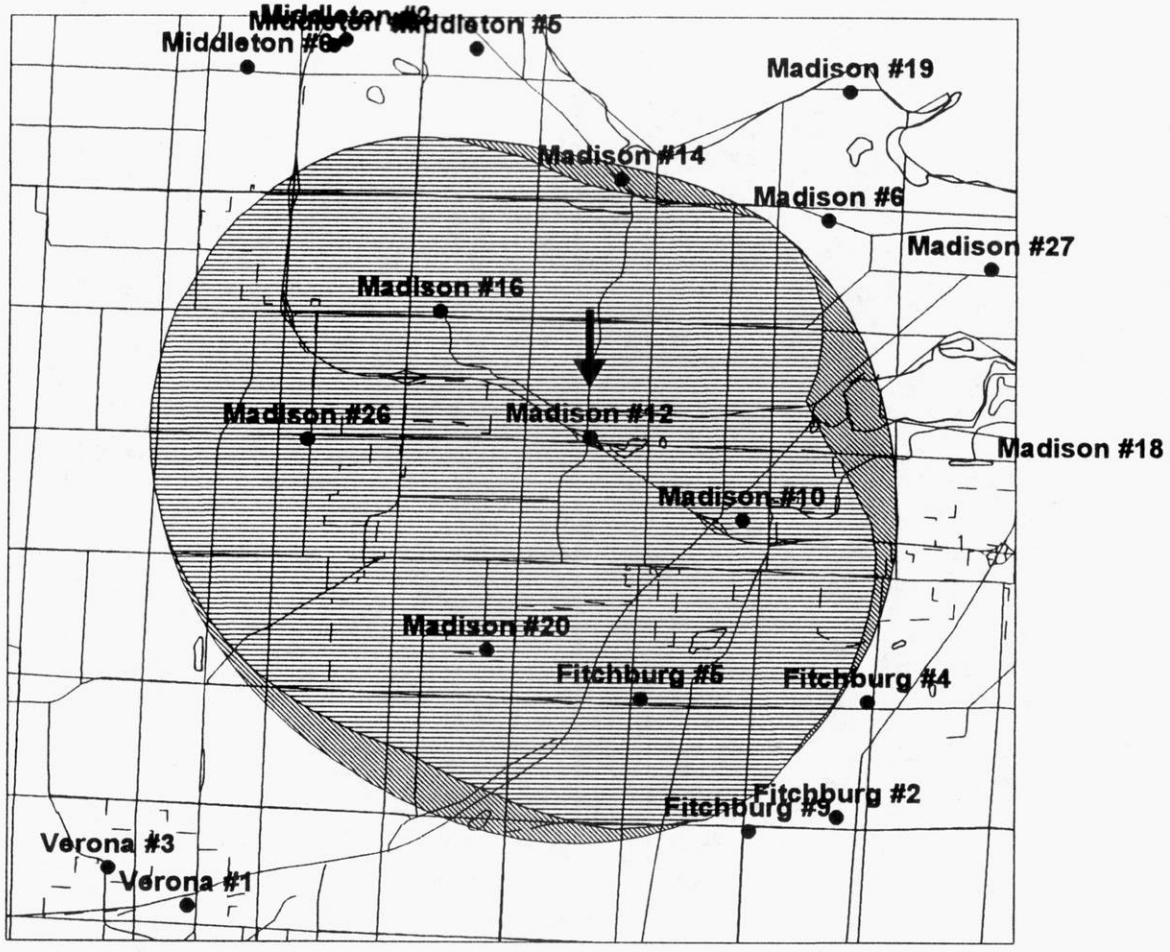
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 12



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

NE¼, SW¼, SW¼, SW¼, SW¼, SE¼, sec. 30, T. 7N., R9E.
UNIT WELL NO. 12, MADISON, DANE CO., WIS.
W. Belt Line and Gilbert Road
Elevation top of casing = 993.9 E. L. Nordness, Supt.
Samples examined by F. T. Thwaites and J. B. Stuerwald, Nos. 194153-194393 Egerer-Calloway Well Corp.

D		0-10	10	Till, sdty, rusty brown, re athered
R		10-15	5	Till, brown-gray, dolomitic
	35	15-35	20	Till, light gray, dolomitic
P		35-83	48	Dolomite, light gray, some pink-gray, yellow-gray; chert, white
R				
D				
C	55	83-90	7	Sandstone, medium to fine v. lt. gy; chert, w
		90-105	15	Sandstone, fine to very fine, yel.-gy, dol.
T		105-115	10	Sandstone, fine to medium, lt.gy, yl-gy, dol
R		115-120	5	Siltstone, sandy, dol. yel-gy to lt.gy
E		120-130	10	Sandstone, very fine, lt.yel-gray, dolomitic
M		130-145	15	Siltstone, lt.gy to pink-gy, gn-gy, dolomitic
P	65	145-155	10	Dolomite, sandy, pink, light gray
		155-160	5	Sandstone, fine, lt.gy, pink, glau, dol.
F		160-175	15	Sandstone, fine to very fine, lt. gn-gy, g, d
R		175-190	15	Sandstone, fine to medium, lt.gy, glauc, dol.
A		190-195	5	Sandstone, very fine to fine, lt.gy, dol.
N		195-200	5	Sandstone, fine to medium, v. lt.gy.
C		200-245	45	Sandstone, fine, very light gray, dolomitic
O				
N				
A		245-250	5	Sandstone, fine to medium, lt.gray, dolomitic
	102	250-255	5	No sample
		255-257	2	Sandstone, medium to coarse, lt.gy, glu, dol
		257-260	3	Sandstone, medium to fine, white
G		260-280	20	Sandstone, coarse to fine, light gray
A		280-285	5	Sandstone, fine to coarse, light gray
L		285-295	10	Sandstone, fine to medium, lt.gy, dolomitic
E		295-300	5	Sandstone, fine to medium, lt.yl-gy, dol.
S		300-305	5	Sandstone, fine to coarse, light gray
	88	305-325	20	Sandstone, very fine to medium, lt.gy, dol.
		325-345	20	Sandstone, fine to medium, light grey
		345-355	10	Sandstone, very fine to medium, lt. yel-gy, d.
		355-360	5	Sandstone, very fine to medium, lt. yel-gy, d
		360-395	35	Sandstone, fine to coarse, lt. yl-gy, dol.
E		395-404	9	Dolomite, sandy, medium gray
A		404-418	14	Shale, medium gray, dolomitic
U		418-420	2	Dolomite, medium grey, pink gray
		420-430	10	Sandstone, medium to fine, light gray
C		430-450	20	Sandstone, very fine to medium, lt.gy, dol.
L		450-465	15	Sandstone, fine to medium, very light gray
A		465-480	15	Sandstone, very fine to medium, very lt.gray
I		480-495	15	Sandstone, very fine to medium, lt.gy, dol.
R		495-515	20	Sandstone, fine to medium, light gray
E		515-529	14	Dolomite, sandy, pink-gy, medium gray
		529-540	11	Ss, very fine to fine, lt.gy, dol; n.s.531-5
		540-595	55	Sandstone, very fine to medium, lt.gy, very dolomitic
	200	595-605	10	Sandstone, very fine to medium, lt.gy, doll
		605-620	15	Sandstone, very fine to medium, lt.gy, dol
	280	620-625	5	Sandstone like above, more dolomitic
		625-665	40	Sandstone, very fine to medium, light gray, dolomitic layers
		665-680	15	Sandstone, very fine to medium, light gray
		680-690	10	Sandstone, fine to coarse, light gray
		690-713	23	Sandstone, fine to medium, light gray
		713-720	7	Sandstone, very fine to medium, light gray
		720-735	15	Sandstone, fine to medium, lt.gy, dol. layers
		735-740	5	Sandstone, fine to coarse, light gray
		740-770	30	Sandstone, fine to medium, light gray

30" pip
69
24" pipe cemente
119 water
28" hol
260
380 shot 50 lb
23" hole
610 shot 150 lbs
680 shot 150 lbs

MT SIMON	770-802	32		Sandstone, fine to coarse, light gray
	802-845	43		Sandstone, very fine to coarse, light gray
	845-855	10		Sandstone, fine to medium, silty, pink-gy
	855-910	55		Sandstone, coarse to very fine, light gray
	910-919	9		Sandstone, very fine, silty, light gray
	919-938	19		Sandstone, coarse to very fine, light gray
	938-945	7		Sandstone, very fine to medium, light gray
	945-961	16		Sandstone, coarse to fine, light gray
	961-967	6		Sandstone, very fine to medium, light gray
355	967-973	6		Sandstone, very fine to coarse, light grey
	973-977	4		Sandstone, very fine to medium, light gray
	977-980	3		Sandstone, fine to coarse, lt.gy, gran. frag
FHE 6	980-983	3		Granite, some clay, decomposed
	983-986	3		Granite, fresh, pink

760 shot
150 lbs.

815 shot
150 lbs.

845 shot
350 lbs.

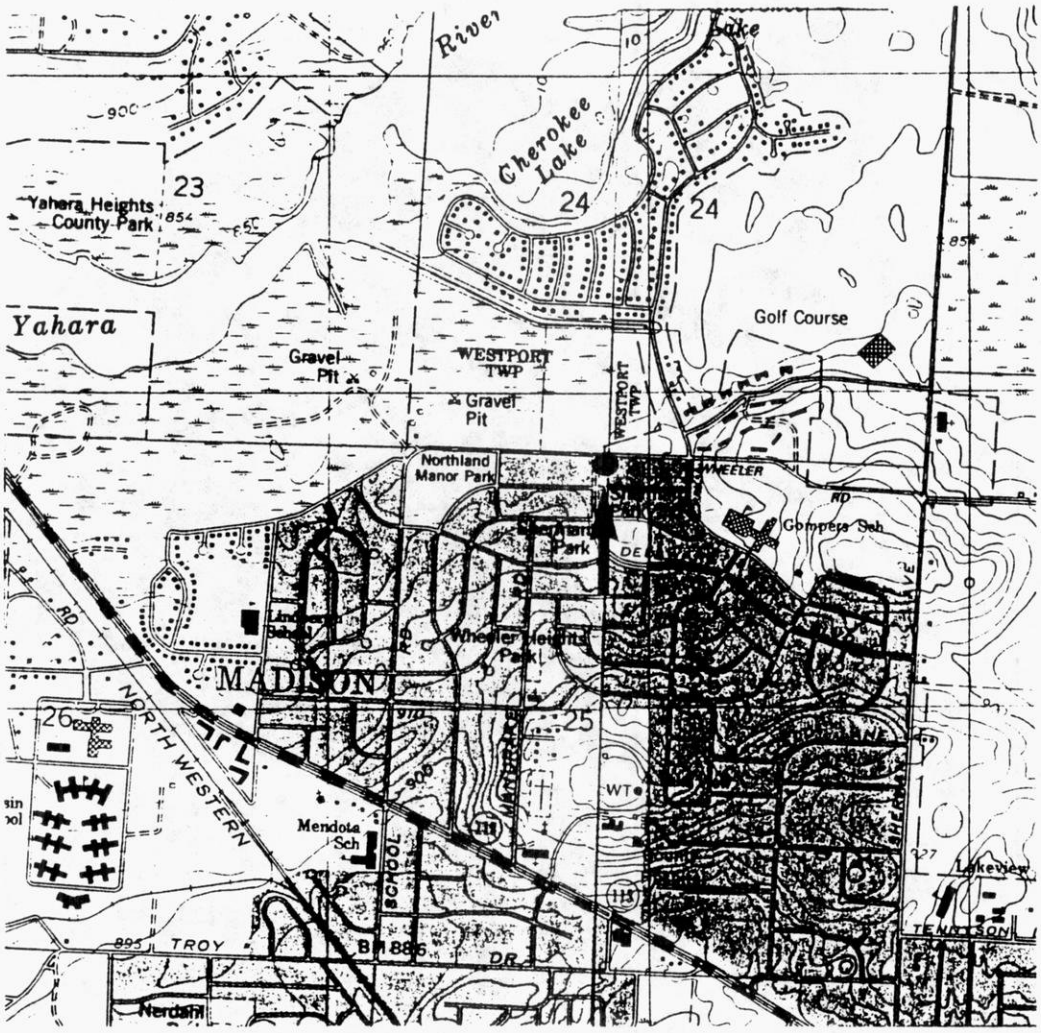
Formations: Drift; Prairie du Chien; Tempealeau(includes Jordan and Madison); Franconia; Galesville(Dresbach); Eau Claire; Mt. Simon; Precambrian

Tested 6 hrs 27 Feb., 57 at 1763 g.p.m. specific capacity = 16.0 g.p.m./ft. Filled 20 ft. Bailed Shot 3 times at 380, 680, 760 Filled and bailed. Tested 4½ hrs 19 Mar., 57 at 1798 g.p.m. specific capacity = 15.9 g.p.m./ft. Filled 485 ft. Bailed Tested 5 hrs 10 April, 57 at 1672 g.p.m. specific capacity = 19.0 g.p.m./ft. Filled 90 ft. Bailed Shot at 610, 815, 845 Filled 185 ft. Tested 7 hrs 22 April, 57 at 1854 g.p.m. specific capacity = 1916 g.p.m./ft Filled 255 ft. Bailed. Tested 7 hrs 29 April, 57 at 1872 g.p.m. specific capacity = 22.3 g.p.m./ft. Filled 150 ft. Bailed. Tested 24 hours 2 May, 57, at 1964 g.p.m. specific capacity = 22.1 g.p.m./ft. Filled 75 ft. Bailed (11' f Tested 6 May, 57, at 1910 g.p.m. specific capacity = 25.3 g.p.m./ft. Bailed Tested 6 hrs. Tested 8 hrs 7 May, 57 at 1915 g.p.m. specific capacity = 25.9 g.p.m./ft Filled 1 ft.

G. A. Goldsmith, Inspector and engineer

Additional copies may be secured from Wisconsin Geological Survey, Science Hall, Madison 6, Wis

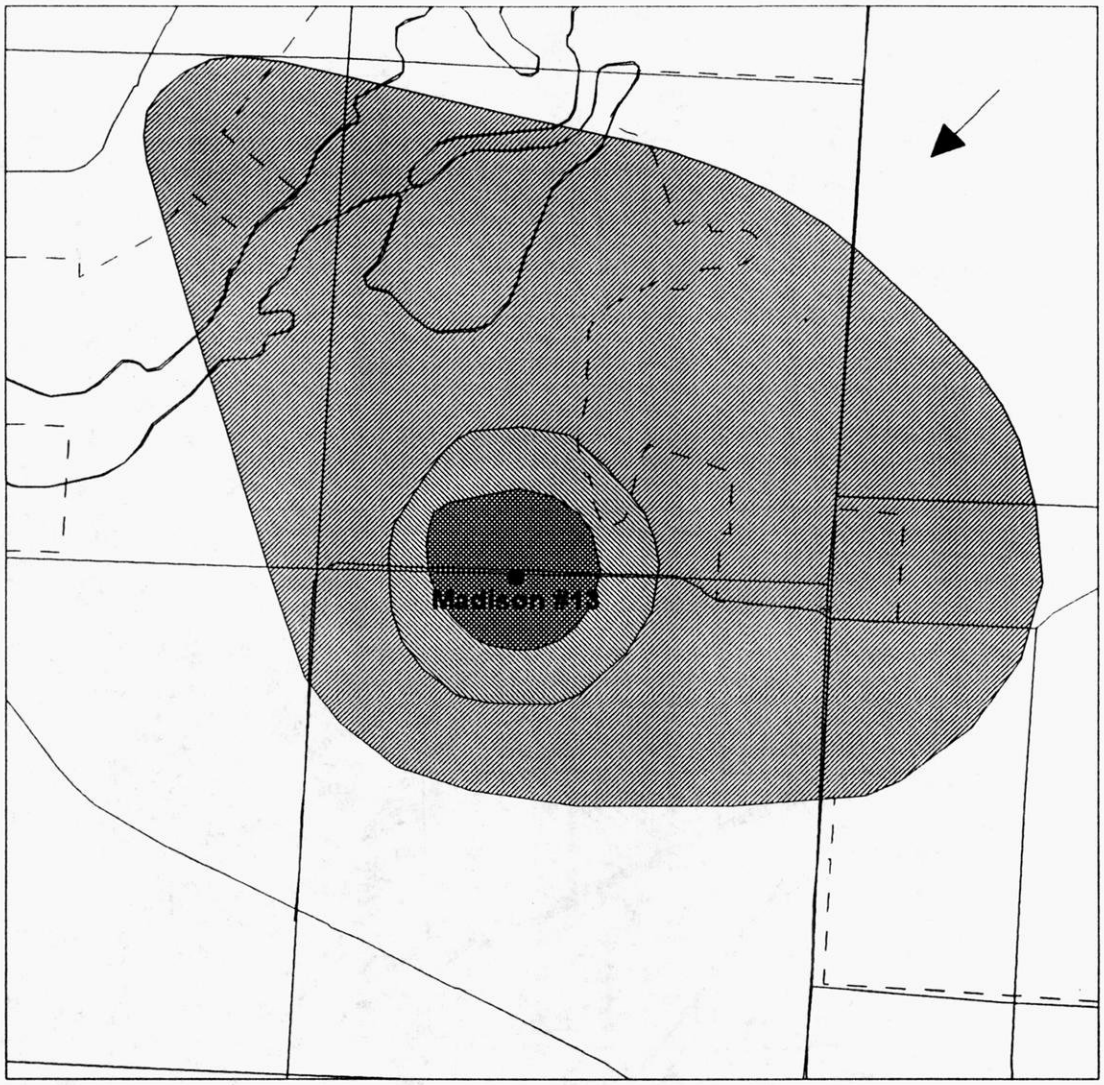
City of Madison, Well Number 13



City of Madison, Well Number 13 is located at 1201 Wheeler Road, and at 43° 8' 52.88" north latitude and 89° 22' 30.45" longitude. The well was installed in 1959, and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through Spetember, 1995 was 2,100,000 gpd.

The well casing extends to a depth of 128 feet below ground surface, and the total depth of the well is 780 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. This well probably also produces a small quantity of water derived from vertical leakage from the Yahara River and Cherokee Marsh. Groundwater flow in the vicinity of the well is generally to the southwest.

Zone of Contribution for Madison, Well Number 13



Well Location

Latitude: 43° 8' 52.88"
Longitude: 89° 22' 30.45"

0 500 1000
(meters)

N

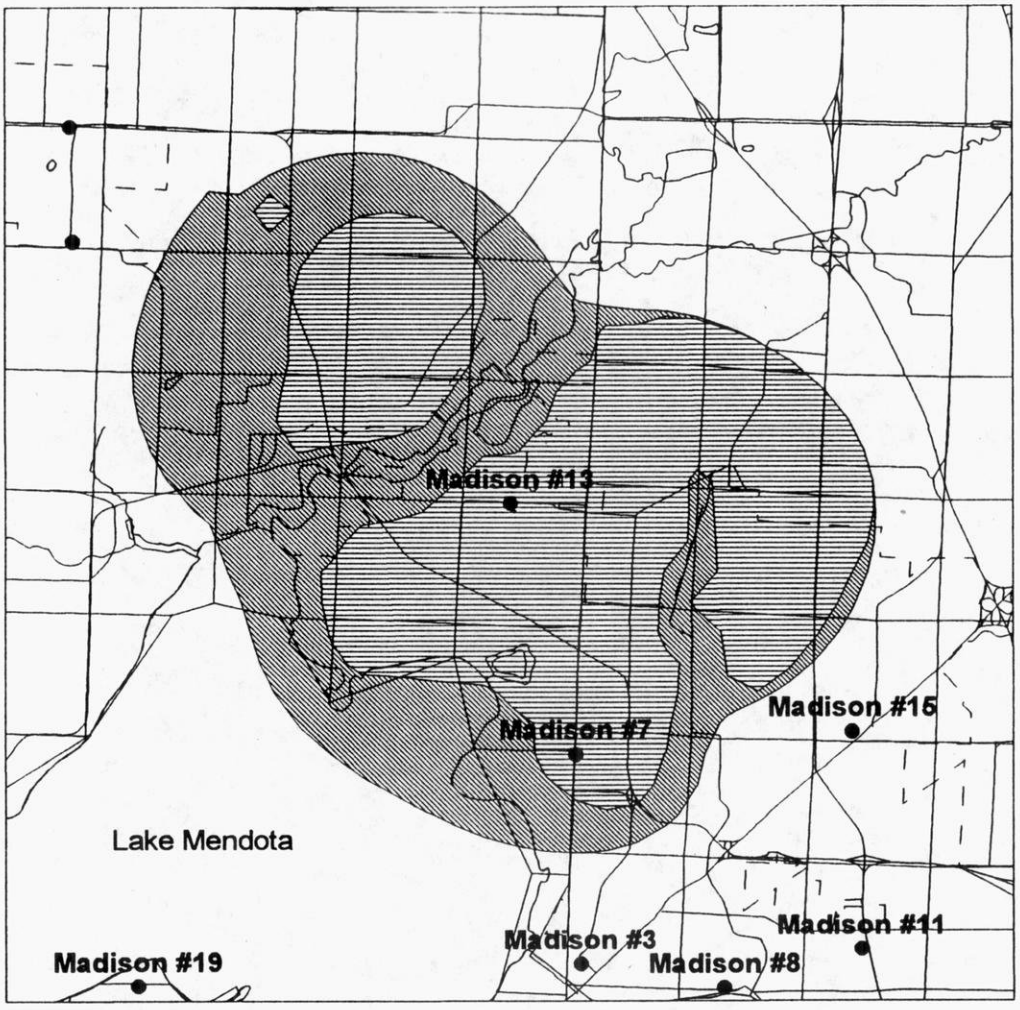
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 13



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

MADISON UNIT WELL NO. 13, MADISON, WISCONSIN

NW¼, NW¼, NW¼, NE¼, NE¼, NW¼, Sec. 25, T 8N, R 9E, 1201 Wheeler Road

Glen Goldsmith, Engineer

Milaeger Well & Pump Company, Driller, July 1959

Sample Nos. 209727-209882 - Examined by J. B. Steuerwald

DRIFT	0	0 - 5	5	Soil, brown, sandy, silty, clayey
		5 - 15	10	Sand, fine to little very coarse, some silt, brown-gray, dolomitic
		15 - 20	5	Sand, fine-coarse, lit. fine gvl., bn-gy, gvl. 15-16'
		20 - 30	10	Sand, fine to coarse, tan, dolomitic
		30 - 35	5	Sand, fine, tan, dolomitic
		35 - 40	5	Gravel, medium, no sand
	60	40 - 60	20	Till, brown-gray, very stony, some silt, dolomitic
FRANCONIA		60 - 110	50	Sandstone, fine and very fine grained, buff, very dolomitic, trace of glauconite
		110 - 120	10	Sandstone, very fine & fine grained, buff, dolomitic
		120 - 125	5	Sand, fine to coarse grained, light gray
	70	125 - 130	5	Sandstone, vy fine-coarse gr., lt cream-gy, dolo.
GALESVILLE		130 - 145	15	Sandstone, fine to little coarse grained, light gray
		145 - 155	10	Sandstone, fine & medium grained, light gray
		155 - 215	60	Sandstone, fine to some coarse grained, light gray
	85			
EAU CLAIRE		215 - 225	10	Sandstone, fine to some coarse grained, light gray, little buff, slightly dolomitic
		225 - 240	15	Sandstone, fine & medium grained, light gray, little buff, dolomitic, no sample 235-240
		240 - 245	5	Sandstone, fn. gr. rd-gy, dolo., lit. sts. & sh. NS42-45
		245 - 255	10	Sandstone, fn. gr., some vv fn. gr., dolo. some siltst.
		255 - 265	10	Sandstone, medium grained, little coarse grained, light gray
		265 - 280	15	Sandstone, medium & fine grained, light gray
		280 - 290	10	Sandstone, medium grained, light gray, little buff, sandy dolomite
		290 - 310	20	Sandstone, fine grained, light gray, dolomitic, little buff, sandy dolomite 300-305
		310 - 370	60	Sandstone, fine & medium grained, light gray, dolomitic, some buff, very dolomitic sandstone 325-370
		370 - 380	10	Sandstone, fine grained, light gray, dolomitic
		380 - 385	5	Sandstone, fine & very fine grained, pale red-

10' wate
30" pipe
cement grout
30" hole
70'
24" pipe
28" hole
128'
23" hole

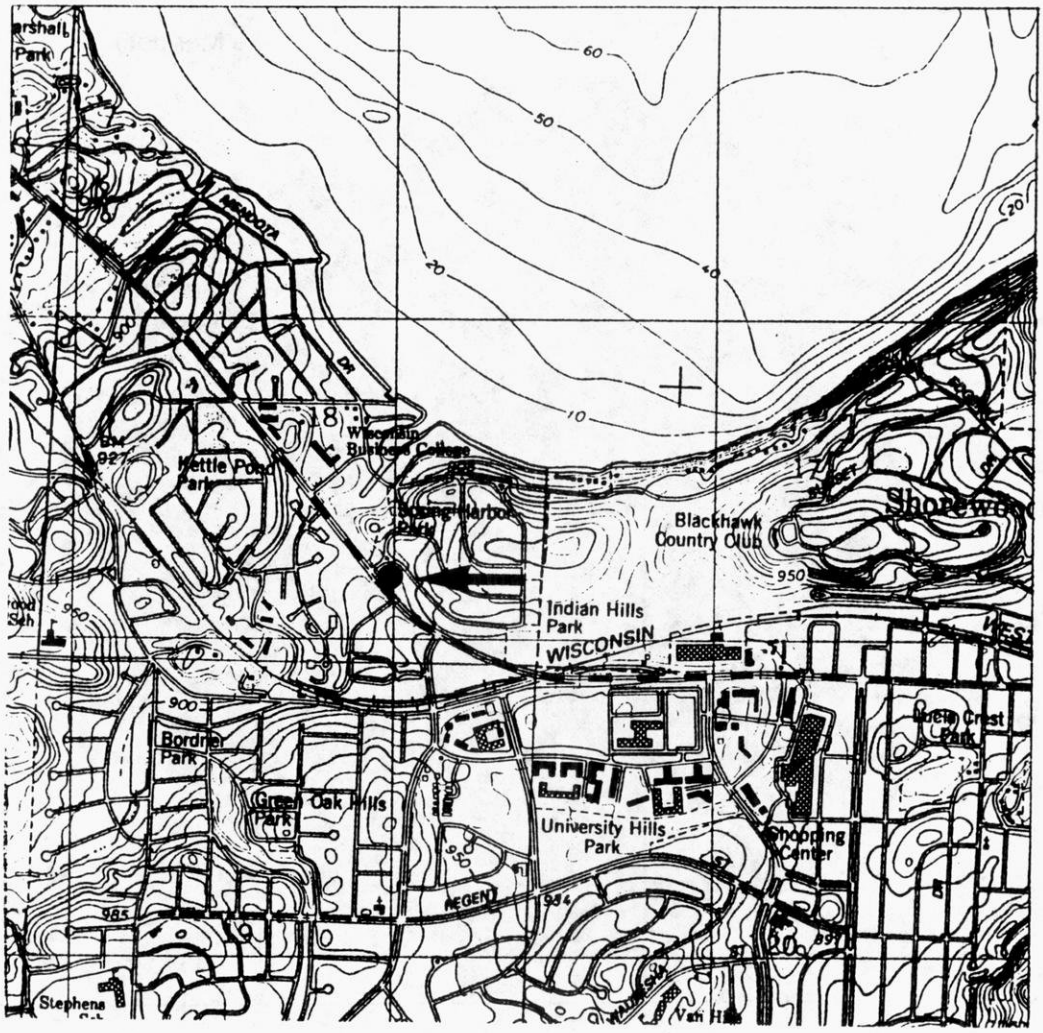
Dn-37
(pg 2)

	380 - 385	5		Sandstone, fine & very fine grained, pale red-gray, little red sandy dolomite
	385 - 400	15		Sandstone, fine & medium grained, light tan, dolomitic, little buff, sandy dolomite
	400 - 415	15		Sandstone, fine grained, light tan, dolomitic
	415 - 440	25		Sandstone, medium grained, some fine grained, light tan, dolomitic
	440 - 455	15		Sandstone, fine grained, light gray, dolomitic
	455 - 465	10		Sandstone, fine & medium grained, light gray, dol., lit. pink very dolomitic sandstone
	465 - 475	10		Sandstone, fine grained, light gray
265	475 - 480	5		Sandstone, med. grained, light gray, much pink sandy dolomite
	480 - 510	30		Sandstone, fine grained, light gray
	510 - 525	15		Sandstone, fine to little coarse grained, light gray
	525 - 530	5		Sandstone, fine gr., some med. gr., light gray
	530 - 535	5		Sandstone, coarse, some med. grained, light gray
MISSION	535 - 605	70		Sandstone, fine grained, light gray
	605 - 625	20		Sandstone, fine & medium grained, pale red-gray, dolomitic
	625 - 660	35		Sandstone, fine to little coarse grained, light cream gray, little red & green siltstone 645-650
	660 - 670	10		Sandstone, fine grained, little med. gr., lt gray
	670 - 690	20		Sandstone, fine grained, light gray
	690 - 700	10		Sandstone, fine grained, some med. gr., lt. cream gy
	700 - 715	15		Sandstone, fine grained, light gray & pink
	715 - 725	10		Sandstone, fine to lit very coarse gr., pink
	725 - 730	5		Sandstone, coarse & vy coarse gr., pink-gray
	730 - 755	25		Sandstone, medium to very coarse grained, light cream-gray
	755 - 760	5		Sandstone, fine to some coarse grained, pink-gray
	760 - 775	15		Conglomerate, fine, much med. & coarse sandstone, light cream gray
300	775 - 780	5		Conglomerate, very fine, ("granite wash"), much coarse sandstone, pale red

780'

Tested for 40 hrs. at 2400 gpm, specific capacity 24.0 gpm/ft, of drawdown

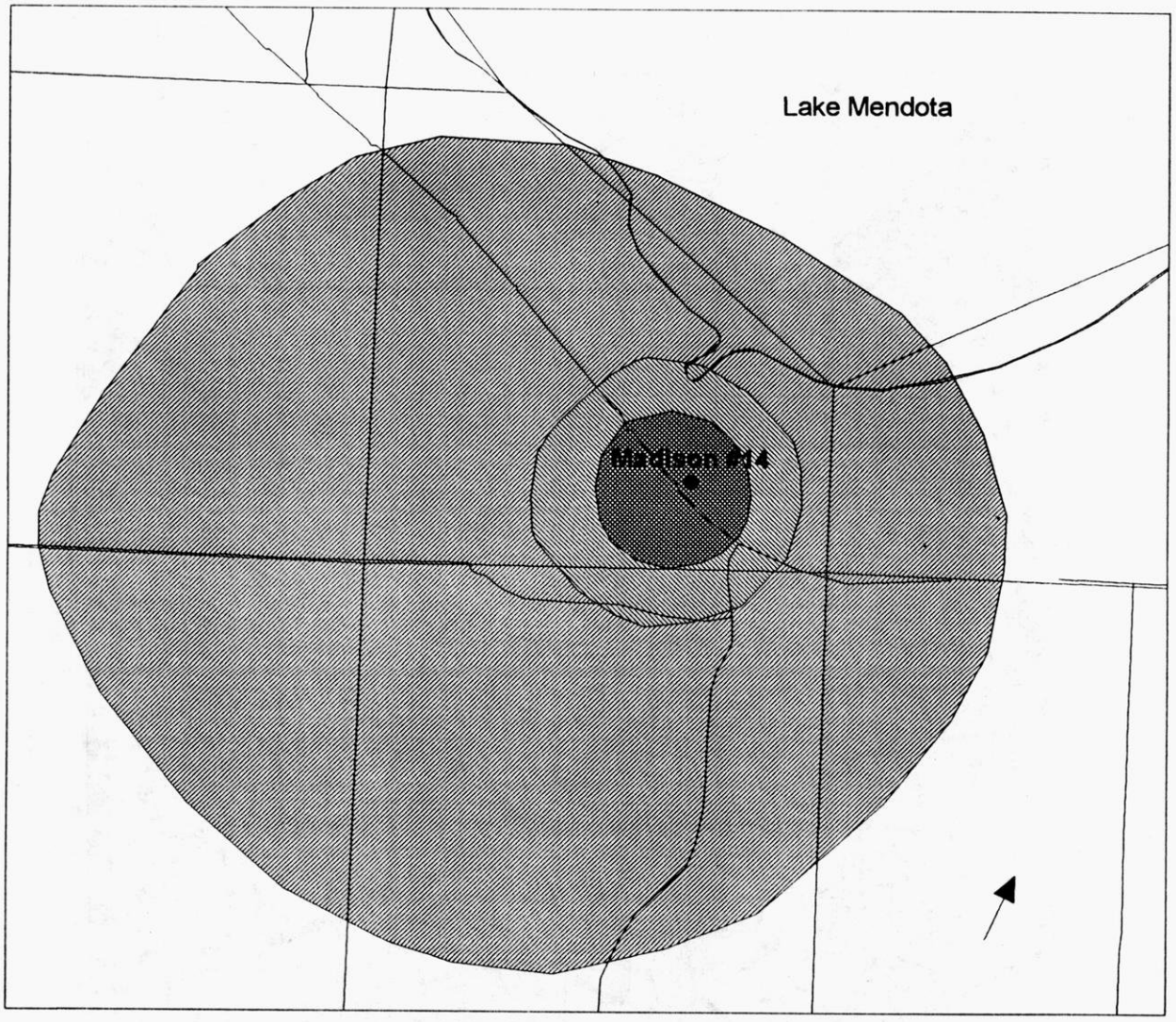
City of Madison, Well Number 14



City of Madison, Well Number 14 is located at 5130 University Ave., and at 43° 4' 40.38" north latitude and 89° 28' 9.31" longitude. The well was installed in 1960, and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 2,532,000 gpd.

The well casing extends to a depth of 117 feet below ground surface, and the total depth of the well is 715 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. The well may derive a small percentage of water from vertical leakage from Lake Mendota. Groundwater flow in the vicinity of the well is generally to the northwest.

Zone of Contribution for Madison, Well Number 14



Well Location

Latitude: 43° 4' 40.38"
Longitude: 89° 28' 9.31"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

WISCONSIN GEOLOGICAL SURVEY, Science Hall, Madison, Wisconsin — Log No. Dn-712

Madison, Well # 14, Madison, Wisconsin

NW¼, NW¼, SE¼, NE¼, SW¼, SE¼, Sec. 18, T 7N, R 9E, Flambeau Road & University Ave.

Layne-Northwest Co., Driller, September 1960

Sample Nos. 218691-218834 - Examined by M. E. Ostrom

.=875'ETM

+25'

+20'

DRIFT	0- 1	1		Soil,dk yl bn,mch st,cl & Vfn-C snd,tr Vfn gvl
	1- 7	6		St,yl bn,mch Vfn-fn snd,ltl cl
	7- 10	3		St,yl bn,mch Vfn-fn snd,tr M & C snd, mch cl
	10- 20	10		Snd,yl bn,Vfn-M,Srnd,P srtg,ltl C,tr VC,ltl Vfn-M gvl,mch st
	20- 25	5		Snd,yl bn,Vfn-fn,dolic,ltl M,mch st,ltl Vfn-fn gvl
	25- 40	15		Snd,yl bn,Vfn-fn,Sang,P srtg,dolic,ltl M & C, mch st,ltl Vfn-M gvl,ltl glauc
	40- 45	5		Snd,yl gry,Vfn-M,slgt dolic,ltl C&VC,ltl Vfn-M gvl
	45- 55	10		Snd,yl gry,Vfn-M,Sang,P srtg,slgt dolic,ltl C& VC,ltl Vfn-M mxd gvl,tr st,ltl glauc
	55- 75	20		Snd,yl bn,Vfn-C,Srnd,P srtg,dolic,ltl VC,ltl Vfn-fn gvl,mch st,tr glauc
	75			
FRANCONIA	75- 80	5		Ss,yl gry,fn-C,Srnd,P srtg,ltl VC,mch sndy dol
	80- 90	10		Ss,yl gry,M-fn,ltl C&VC,mch sndy dol,tr glauc & wh cht(?)
	90- 95	5		Ss,yl gry,fn-C,Srnd,P srtg,ltl VC,ltl sndy dol
	95-100	5		Ss,lt yl gry,M-VC,Srnd,P srtg,ltl fn,ltl dol
	100-105	5		Ss,lt yl gry,C-fn,Srnd,P srtg,tr VC,tr dol
	105-110	5		Ss,lt yl bn,C-Vfn,mch st,tr VC snd,tr wh cht(?)
	110-120	10		Ss,yl gry,C-fn,Sang,F srtg,tr dol & wh cht
	120-125	5		Ss,yl gry,C-fn,Srnd,F srtg,tr VC,tr sndy pl gn sh
	125-130	5		Ss,lt yl bn,VC-M,Srnd,F srtg,ltl sndy dol,tr cht
	130-135	5		Ss,lt yl bn,C-fn,Srnd,F srtg,ltl VC,ltl sndy dol
	135-140	5		Ss,lt yl bn,C-M,Srnd,F srtg,tr sndy dol
	140-145	5		Ss,lt yl bn,C-M,ltl VC&fn,ltl sndy dol,tr wh cht
	145-150	5		Ss,lt yl bn,VC-M,ltl fn,tr Vfn gvl,mch sndy dol
	150-155	5		Ss,lt yl bn,VC-M,ltl fn,mch sndy dol,3 dol pebbles
	155-160	5		Ss,lt yl bn,VC-M,ltl fn,mch sndy dol,tr bn dol
	160-165	5		Ss,lt yl bn,VC-fn,ltl Vfn,mch sndy dol,tr pnk dol
	165-170	5		Ss,lt yl bn,Vfn-C,tr st,ltl sndy dol,tr bn dol
	170-175	5		Ss,lt yl bn,C,rnd,ltl VC,tr M,mch sndy dol,tr cht
	105 175-180	5		Ss,lt yl bn,C-fn,rnd,ltl VC&Vfn,ltl sndy dol
GALESVILLE	180-190	10		Ss,lt yl gry,M,Srnd,F srtg,mch fn,ltl C,tr sndy dol
	190-200	10		Ss,lt yl gry,M-fn,Srnd,F srtg,ltl C & Vfn
	200-205	5		Ss,lt yl gry,Vfn-M,Srnd,ltl st,tr C snd,tr dol
	205-210	5		Ss,lt yl gry,fn-C,Srnd,P srtg,ltl Vfn,tr fn dol
	210-215	5		Ss,lt yl gry,fn-C,Srnd,ltl C & Vfn,tr sndy dol
	215-225	10		Ss,vlt yl bn,M-Vfn,Sang,P srtg,tr C,ltl st,tr sndy dol
	50 225-230	5		Ss,vlt yl bn,Vfn-M,tr C,mch st,ltl cl,tr dol
EAU CLAIRE	230-240	10		Ss,pl ol,Vfn-fn,Sang,P srtg,mch st & pl gn cl
	240-245	5		Ss,lt gn gry,M-Vfn,mch st,ltl cl,mch fn dol
	245-250	5		Ss,gn gry,M-Vfn,mch st,mch gry cl,ltl sndy dol
	250-255	5		Sh,gn gry,dolic,mch M-Vfn snd,mch st,mch dol
	255-260	5		Sh,gn gry,dolic,mch Vfn snd,ltl M&fn snd,mch st
	260-265	5		Sh,gry rd,dolic,mch Vfn-M snd,mch st,ltl sndy dol
	265-270	5		Ss,pl rd,C-fn,G cem dol,mch sndy gn gry sh,ltl pyr
	270-275	5		Ss,pl rd,VC-M,F cem dol,ltl gn gry sh,ltl bn dol
	50 275-280	5		Ss,lt yl gry,C-M,ltl rd sndy dol with glauc
	280-285	5		Ss,lt yl gry,C-M,tr rd sndy dol with glauc
MT SIMON	285-295	10		Ss,lt yl gry,C-M,rnd,F srtg,tr VC,tr gry sh & pnk sndy dol
	295-300	5		Ss,lt yl gry,C-M,P cem dol,tr VC,tr gry sh
	300-305	5		Ss,lt yl gry,C-M,F cem pnk dol,tr VC,tr gn sh
	305-310	5		Ss,lt yl gry,C-M,F cem pnk dol,tr VC,tr gn sh
	310-315	5		Ss,lt yl gry,C-M,F cem pnk dol,tr VC,tr foss
	315-320	5		Ss,lt yl gry,C-M,P cem pnk dol,tr VC,ltl st
	320-330	10		Ss,lt yl gry,C-M,rnd,F srtg,F cem pnk dol,tr VC
	330-345	15		Ss,lt yl gry,C-M,rnd,F srtg,F cem pnk dol,tr VC,tr gn sh
	345-350	5		Ss,lt yl gry,M-C,rnd,F srtg,tr VC,ltl yl gry cl
	350-355	5		Ss,lt yl gry,M-C,tr VC snd & gn gry cl,tr pnk dol
	355-360	5		Ss,lt yl gry,M-C,F cem dol,tr VC snd & gn gry cl
	360-365	5		Ss,pl rd,M-C,G cem dol,tr VC,ltl pnk dol with glauc

— 17.82'

30"drive pipe

80.76'

28"hole

24"pipe

117.45'

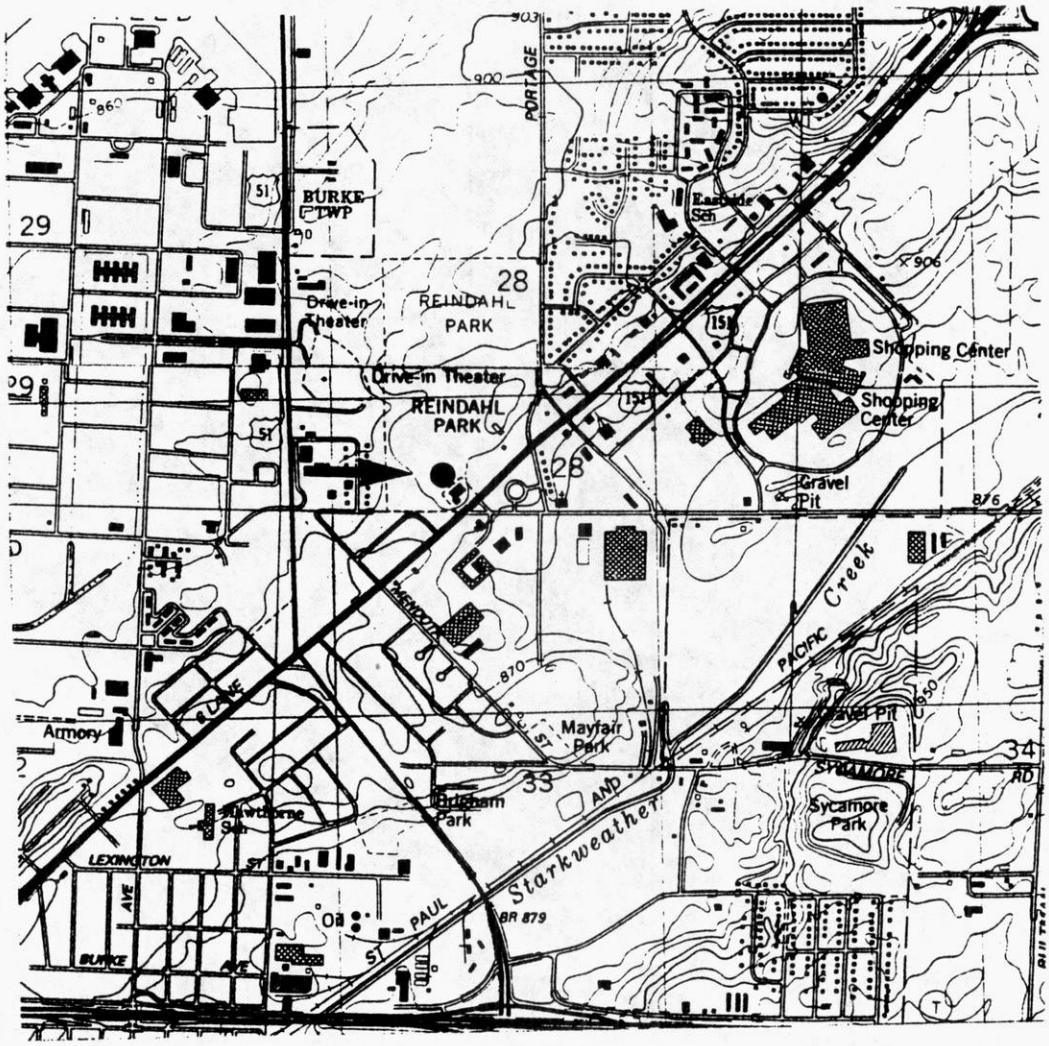
22"hole

Madison Well #14, Madison, Wisconsin

	365-375	10		Ss,pl rd,M-C,rnd,F srtg,F cem dol,tr VC,tr pyr	
	375-400	25		Ss,pl rd,M-C,rnd,F srtg,P cem dol,tr VC,ltl pnk dol,some with snd	
	400-420	20		Ss,pl rd,M-C,rnd,F srtg,G cem pnk dol,tr VC, tr gry sh	
	420-425	5		Ss,lt yl gry,fn-C,rnd,P srtg,P cem dol,tr VC	
	425-430	5		Ss,lt yl gry,Vfn-C,ltl st,ltl dol,some with snd	
	430-435	5		Ss,lt yl gry,Vfn-C,mch st,ltl cl,fr dol	
	435-440	5		Ss,lt yl gry,Vfn-C,tr VC,ltl st,fr cl,ltl pnk dol	
	440-450	10		Ss,lt yl gry,Vfn-C,P cem dol,mch st,tr VC snd	
	450-460	10		Ss,lt yl gry,Vfn-M,Srnd,P srtg,P cem dol,mch st,tr C & VC snd,tr foss & pnk sndy dol	
	460-465	5		Ss,lt yl gry,Vfn-M,P cem dol,ltl st,tr C&VC snd	
	465-475	10		Ss,lt yl gry,M-fn,Srnd,P srtg,P cem dol,ltl Vfn,tr C snd,ltl st,tr pnk dol	
	475-480	5		Ss,lt yl gry,M-fn,P cem dol,ltl Vfn,ltl C snd	
M	480-485	5		Ss,lt yl gry,C-fn,P cem dol,ltl Vfn,ltl dol,tr foss	
	485-490	5		Ss,lt yl gry,M-Vfn,P cem dol,tr C snd,ltl st	
T	490-495	5		Ss,lt yl gry,Vfn-C,P cem dol,tr VC snd,ltl st	
	495-500	5		Ss,lt yl gry,Vfn-M,P cem dol,tr VC snd,ltlst	
	500-510	10		Ss,lt yl gry,Vfn-VC,P cem dol,mch yl gry sh, ltl st & pnk sndy dol,tr foss	
	510-515	5		Ss,lt yl gry,Vfn-VC,P cem dol,ltl st,tr pnk dol	
	515-520	5		Ss,lt yl gry,Vfn-C,P cem dol,ltl st,tr pnk sndy dol	
	520-525	5		Ss,lt yl gry,Vfn-VC,P cem dol,tr Vfn gvl,ltl st	
S	525-530	5		Ss,lt yl gry,Vfn-C,P cem dol,mch st,ltl Vpl gn cl	
	530-535	5		Ss,lt yl gry,Vfn-C,P cem dol,mch st,ltl Vpl gn cl	
I	535-545	10		Ss,lt yl gry,Vfn-C,P cem dol,tr VC,mch st,ltl sndy pnk dol	
M	545-550	5		Ss,lt yl gry,Vfn-fn,Sang,tr foss,pnk dol & gn cl	
	550-555	5		Ss,lt yl gry,C-Vfn,tr VC,ltl pyr,tr pnk dol with snd	22"hole
O	555-560	5		Ss,lt yl gry,C-Vfn,P cem dol,tr VC,mch st,tr pyr	
	560-565	5		Ss,lt yl gry,C-Vfn,P cem dol,tr VC,mch st	
N	565-570	5		Ss,lt yl gry,Vfn-fn,VP cem dol,ltl M&C,ltl st	
	570-575	5		Ss,lt yl gry,C-fn,G cem red dol,ltl Vfn,ltl pyr	
	575-580	5		Ss,lt yl gry,C-fn,VP cem dol,ltl Vfn,tr pyr	
	580-585	5		Ss,lt yl gry,C-fn,VP cem dol,ltl Vfn,ltl st	
	585-590	5		Ss,lt yl gry,Vfn-fn,VP cem dol,ltl M,tr C,mch st	
	590-595	5		Ss,lt yl gry,Vfn-C,P cem dol,tr VC,mch st,tr pyr	
	595-600	5		Ss,lt yl gry,C-Vfn,Srnd,VP cem dol,tr VC,ltl st	
	600-605	5		Ss,lt yl gry,C-Vfn,P cem dol,tr VC,mch st,tr pyr	
	605-610	5		Ss,lt yl gry,C-Vfn,P cem dol,tr VC,mch st,mch cl	
	610-615	5		Ss,lt yl gry,Vfn-C,P cem dol,tr VC,mch st,tr foss	
	615-620	5		Ss,lt yl gry,Vfn-C,Srnd,P cem dol,tr VC,mch st	
	620-625	5		Ss,Vlt gry,Vfn-fn,Sang,G srtg,tr foss	
	625-630	5		Ss,Vlt gry,Vfn-C,Srnd,P srtg,P cem dol,ltl st	
	630-635	5		Ss,Vlt gry,Vfn-fn,P cem dol,ltl M-VC,mch st	
	635-640	5		Ss,Vlt gry,Vfn-fn,P cem dol,ltl M-VC,mch st	
	640-645	5		Ss,Vlt gry,Vfn-VC,P cem dol,mch st & pl gn gry cl	
	645-650	5		Ss,Vlt gry,Vfn-fn,P cem dol,ltl M-VC,mch st&dol	
	650-655	5		Ss,Vlt gry,Vfn-C,P cem dol,tr VC,mch st,ltl cl	
	655-665	10		Ss,Vlt gry,VC-Vfn,Srnd,P srtg,P cem dol,tr Vfn gvl,ltl st&cl,tr foss	
	665-670	5		Ss,Vlt gry,VC-Vfn,P cem dol,tr Vfn gvl,mch st	
	670-690	20		Ss,Vlt gry,Vfn-VC,Srnd,P srtg,P cem dol,tr Vfn gvl,mch st,ltl cl,tr foss	
	690-695	5		Ss,ol gry,Vfn-C,tr VC,mch bn,gn & yl sty sh	
	695-700	5		Sh,dk rd bn,ltl qtz snd,few Vfn-fn igneous rock pebbles	
425	700-705	5		Snd,bn,Vfn-C,mxd,many igneous rock grains,ltl st	
P	705-710	5		Rhyolite dk rd bn,mch st,few igneous rock grains	
10	710-715	5		Rhyolite,dk rd bn,mch st,many igneous rock grains	715'

Formations: Drift, Franconia, Galesville, Eau Claire, Mt. Simon, Precambrian
Well tested for 48 hrs. at 4200 gpm with 82 feet of drawdown, specific capacity 51.22 gpm per foot of drawdown.

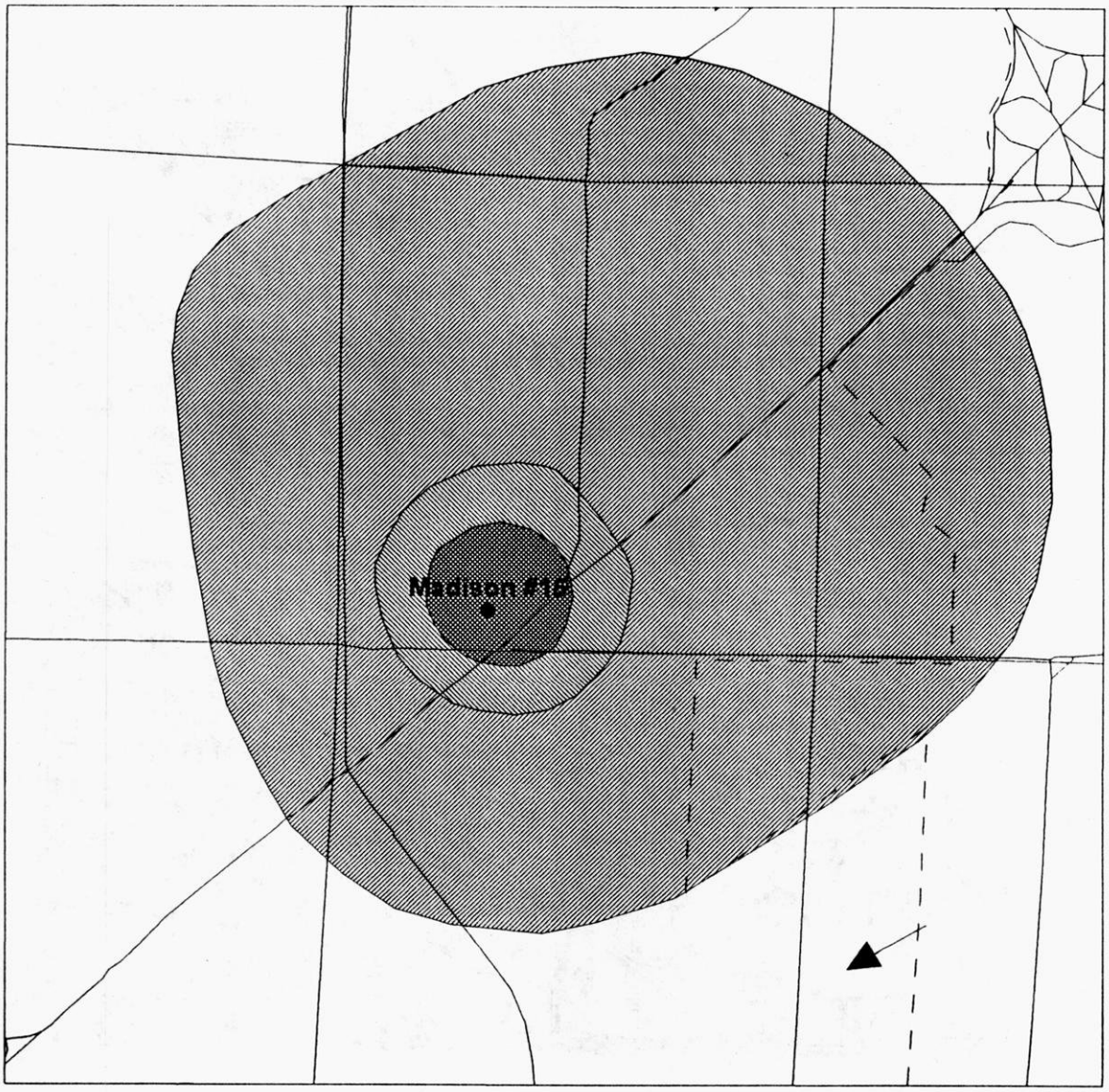
City of Madison, Well Number 15



City of Madison, Well Number 15 is located at 3900 East Washington Ave., and at 43° 7' 19.33" north latitude and 89° 19' 8.47" longitude. The well was installed in 1965, and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through Spetember, 1995 was 2,786,000 gpd.

The well casing extends to a depth of 172 feet below ground surface, and the total depth of the well is 753 feet. Water is drawn from a combination of the Paleozoic bedrock units, including the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the southwest.

Zone of Contribution for Madison, Well Number 15



Well Location

Latitude: 43° 7' 19.33"
Longitude: 89° 19' 8.47"

0 500 1000
(meters)

N

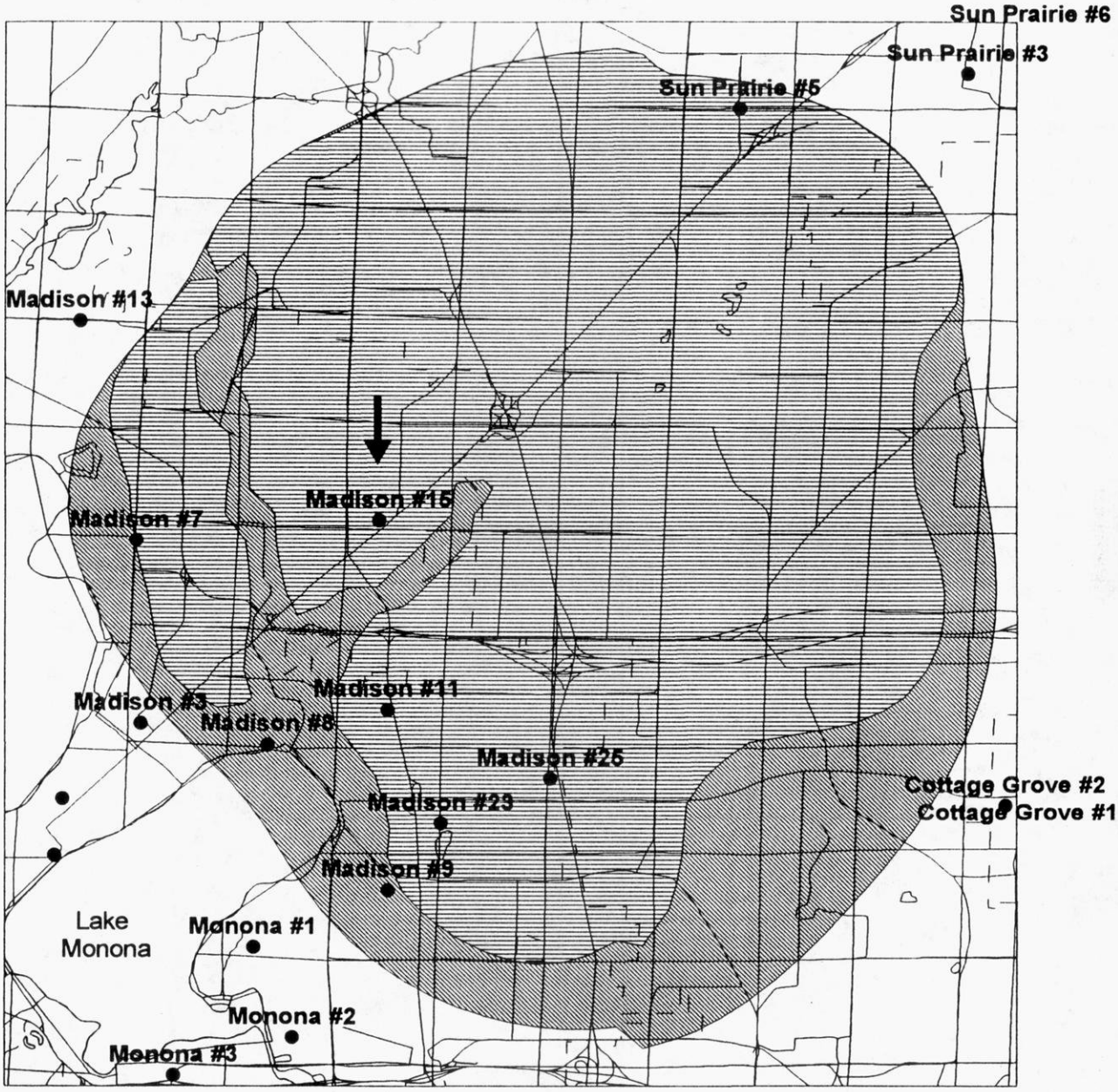
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 15



Scale 1:100,000

0 1000 2000 3000 4000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

...SITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
...15 University Avenue, Madison, Wisconsin 53706

Log No. Dn-930
Issued: Aug., 1967

Well name: ~~Sunnyside School~~, Madison City Well #15 ~~City of Madison, Wisc. Unit Well #15~~

County: Dane

Owner.... City of Madison, Wis.
Address.. City-County Bldg., Madison, Wis.

Driller.. Milaeger Well & Pump Co.
Engineer.

Completed... 11/2/65
Field check. 886' ETM
Altitude... ~~886' ETM~~
Use..... Municipal
Static w. l. - 47 feet
Spec. cap... 25.5

R. 10E
T. 8 N.
Sec. 28

Well Location: SW, NW, NW, SE, SW, SE, SW, Sec 28, 8N, 10E

Quad. Sun Prairie

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
30"	0	125'				30"		0	125				
29"	125'	172'				24"		+24"	172				
22"	172'	753'											

Grout: Kind	from	to
Cement grout	0	172'

Samples from 300' to 750' Date received: 9/16/65
Sample Nos. 258090 to 258179 Examined by: Janet Olmstead Date: 3/20/66
Formations: #~~Franconia, Ironton, Galesville, Eau Claire, Mt. Simon.~~ DRESBACH UNDIFF.

Remarks: Well tested for 25 hours at 2400 gpm with 94 feet of drawdown. Driller reports a total depth of 753'. Additional information: Detailed pumping tests, water analysis, and alignment tests. #Driller reports Drift 0-123', Sandstone 123-300'; samples destroyed.

LOG OF WELL:

	300	0-300	300	No Samples
FRANCONIA		300-305	5	Ss,gry or,M,P dol-cem&VP lim-&pyr-cem,ltl fn&C;ltl pnk dol&Fe stn
		305-310	5	Ss,gry or,M,P dol-cem&VP lim-&pyr-cem,mch fn,ltlC;ltl pnk or dol & Fe stn
		310-355	45	mch fn,ltl C, tr VC; Ss,gry or,M,rnd,F srtg,P dol-cem VP lim-cem,ltl pnk or dol&Fe stn
		355-360	5	Ss,Vpl or,fn,mch M,ltl C,tr VC;tr pnk or dol & Fe stn
		360-365	5	Ss,pl gry or,M,V dol-cem,mch fn, ltl C & Vfn; tr pnk or dol&Fe stn
		365-370	5	Ss,pl gry or,M,sndy dol aggs(lim)mch fn,ltlC;ltlFe stn& or dol
		370-375	5	Ss,pl gry or,M,sndy dol aggs(lim)mch fn,ltlC;ltl Fe stn, or dol&
		375-380	5	Dol,pl gry or,fn,sndy dol aggs(lim)mchM,ltlC;As above Vpl gn sndy s
		380-385	5	Ss,pl gry yl or,M,VP lim-&Si-cem,mch C, ltl fn & Vfn
		385-390	5	Ss,Vpl pnk or,M,P dol-&Si-cem,mch C,ltlfn&Vfn;ltl sndy pnk dol
		390-395	5	Ss,Vpl pnk or,fn,mch M,ltl C&Vfn;tr dol, gn sh & Fe stn
		395-400	5	Ss,Vpl pnk or,M,P dol-cem,mch fn,ltl C & Vfn;ltl sndy pnk or dol
		400-405	5	Ss,pl gry or pnk,M,rnd,F srtg,mch fn, ltl C & Vfn; tr dol
		405-410	5	Ss,pl gry or,M,mch fn,ltlC & Vfn; tr dol & glauc
		410-420	10	tr glauc Ss,pl gry or,M,VP lim- &P dol-cem,mch fn,ltlC&Vfn;ltl sndy dol&st
		420-425	5	Ss,gry or,M,VP dol-&lim-cem,ltl fn&C,trVfn;ltl sndy dol,mchFestn
		425-430	5	Ss,gry or,M,VP lim-cem,ltl fn,C&VC;mch Fe stn, tr lim
		430-435	5	Ss,pl gry or,fn,VP lim-cem,mch M,ltlC&Vfn; ltl Fe stn
		435-440	5	Ss,Vpl or,M,VP pyr-cem,mch fn,ltlC;ltl Fe stn, tr buff dol
		440-450	10	Ss,Vpl or,M,Srnd,P srtg,VP pyr-cem,trC&fn; tr foss
		450-470	20	Ss, pl gry or,M,Srnd, P srtg,VP lim-cem,tr C & fn; tr foss
	480	470-480	10	Ss, Vpl or, M & fn, Srnd P srtg, VP lim-cem,tr C & Vfn;

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-930

Well name Sunny side School, City of Madison, Wisc. Unit Well #15
Sample Nos. 258090 to 258179

	480-485	5	G	Ss, Vpl or, M & C, Srnd, P srtg, VP lim-cem; tr buff dol & glauc
10'	485-490	5	G	Ss, Vpl or, M & C, Srnd, P srtg, VP lim-cem, tr fn; tr foss&glauc
	490-500	10	G	Ss, Vlt gry or, M, Srnd, P srtg, VP lim-cem, tr fn, Vfn & C; tr foss, glauc & loose dol
	500-505	5	G	Ss, Vlt or pnk, M, Srnd, P srtg, VP lim-cem, tr fn&C; tr pyr cem, glauc, foss
	505-525	20		Ss, Vlt or pnk, M, Srnd, P srtg, VP lim-cem, tr fn & C; tr foss
	525-540	15		Ss, Vlt or pnk, M&fn, Sang Srnd, P srtg, VP lim-cem, tr C; tr cvd cht & loose dol
	540-570	30		Ss, Vlt or pnk, M & fn, Sang Srnd, P srtg, VP lim-cem, tr C & Vfn; tr cvd cht foss
	570-575	5	G	Ss, lt or, M&fn, VP-lim-cem, tr C&Vfn; tr cvd cht foss&loose dol&glauc
	575-580	5		Ss, pl or pnk, M&fn, VP lim-cem, trC&Vfn; tr cvd cht foss&loose dol
100'	580-590	10		Ss, pl or pnk, M&fn, VP lim-cem, tr C & Vfn; tr cvd cht foss
	590-595	5		Ss, pl or pnk, M&fn, VP lim-cem, tr C & Vfn; tr cvd cht foss
	595-600	5		Ss, pl or pnk, M&fn, VP lim-cem, tr C; tr loose dol & cvd cht foss
	600-605	5		Ss, pl or pnk, M, Sang Srnd, P srtg, VP lim-cem, trC; tr loose dol&cht foss
	605-610	5		Ss, pl or pnk, M&fn, Vp lim-cem, tr C & Vfn; tr loose dol & cht foss
	610-615	5		Ss, pl or pnk, M&fn, VP lim-cem, tr C, ltl Vfn; tr loose dol&cht foss
	615-620	5		Ss, Vlt gry or, fn, Sang Srnd, P srtg, tr C, M & Vfn; tr cht foss
	620-635	15		Ss, Vlt gry or, fn, Sang Srnd, P srtg, VP lim-cem, tr C, M&Vfn; tr cht foss
	635-640	5		Ss, Vpl rd, fn, tr C, M&Vfn; ltl mxd sty sh, tr loose dol
	640-645	5		Ss, lt bn, M&fn, tr C, Vfn&VC; ltl mxd sty sh, tr loose dol
	645-660	15		Ss, Vpl bn, fn, Sang Srnd, P srtg, tr C, Vfn&M; tr cht foss & loose dol
	660-665	5		Ss, lt gry or, M, Sang Srnd, P srtg, tr C & fn; tr cht foss
	665-680	15		Ss, lt gry or, M&fn, Sang Srnd, P srtg, tr C & Vfn; tr cht foss
	680-690	10		Ss, Vpl or, fn, Sang Srnd, P srtg, tr M & Vfn; tr cht foss
	690-700	10		Ss, Vpl or, M&fn, trC, VC&Vfn; tr cht foss & loose dol
	700-705	5	G	Ss, lt gry or, M&fn, Sang Srnd, P srtg, trC, VC&Vfn; tr glauc
	705-710	5	G	Ss, lt bn, M&fn, tr C, VC&Vfn; trVfn qtz gvl, loosg dol, sts, glauc&calc
125'	710-715	5	G	Ss, dk gry or, M, trC, VC, Vfn; tr Vfn qtz gvl & glauc
	715-720	5	G	Ss, lt rd or, M&C, trC, VC&Vfn; trVfn qtz gvl, loose dol, sts, glauc&calc
	720-730	10		Ss, lt gry or, C&VC, Sang, P srtg, trM&fn; tr Vfn qtz gvl
	730-735	5		Ss, bn&mxd clr, M&C, trVC&fn; mstly hrd sts&rd sh, tr qtz gvl
	735-740	5		Ss, bn&mxd clr, M&C, trVC&fn; mstly hrd sts&rd sh, tr qtz gvl
	740-745	5		Ss, bn&mxd clr, M&C, trVC&fn; mstly hrd sts, tr qtz gvl
35'	745-750	5		Ss, bn&mxd clr, M&C, tr VC & fn; mstly hrd sts

END OF WELL

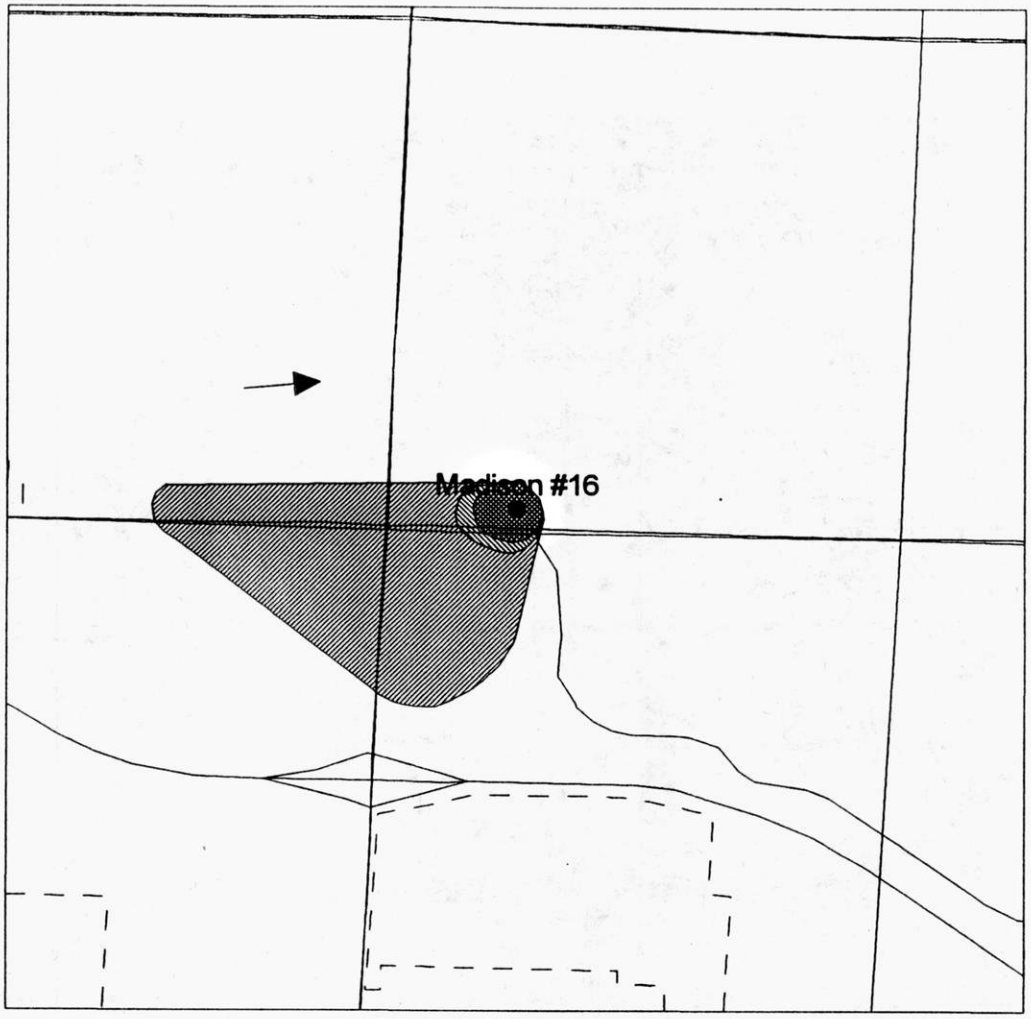
City of Madison, Well Number 16



City of Madison, Well Number 16 is located at 6706 Mineral Point Road and at 43° 3' 40.49" north latitude and 89° 29' 51.47" longitude. The well was installed in 1967 and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 1,033,000 gpd.

The well casing extends to a depth of 300 feet below ground surface, and the total depth of the well is 1005 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Madison, Well Number 16



Well Location

Latitude: 43° 3' 40.49"
Longitude: 89° 29' 51.47"

0 500 1000
(meters)

N

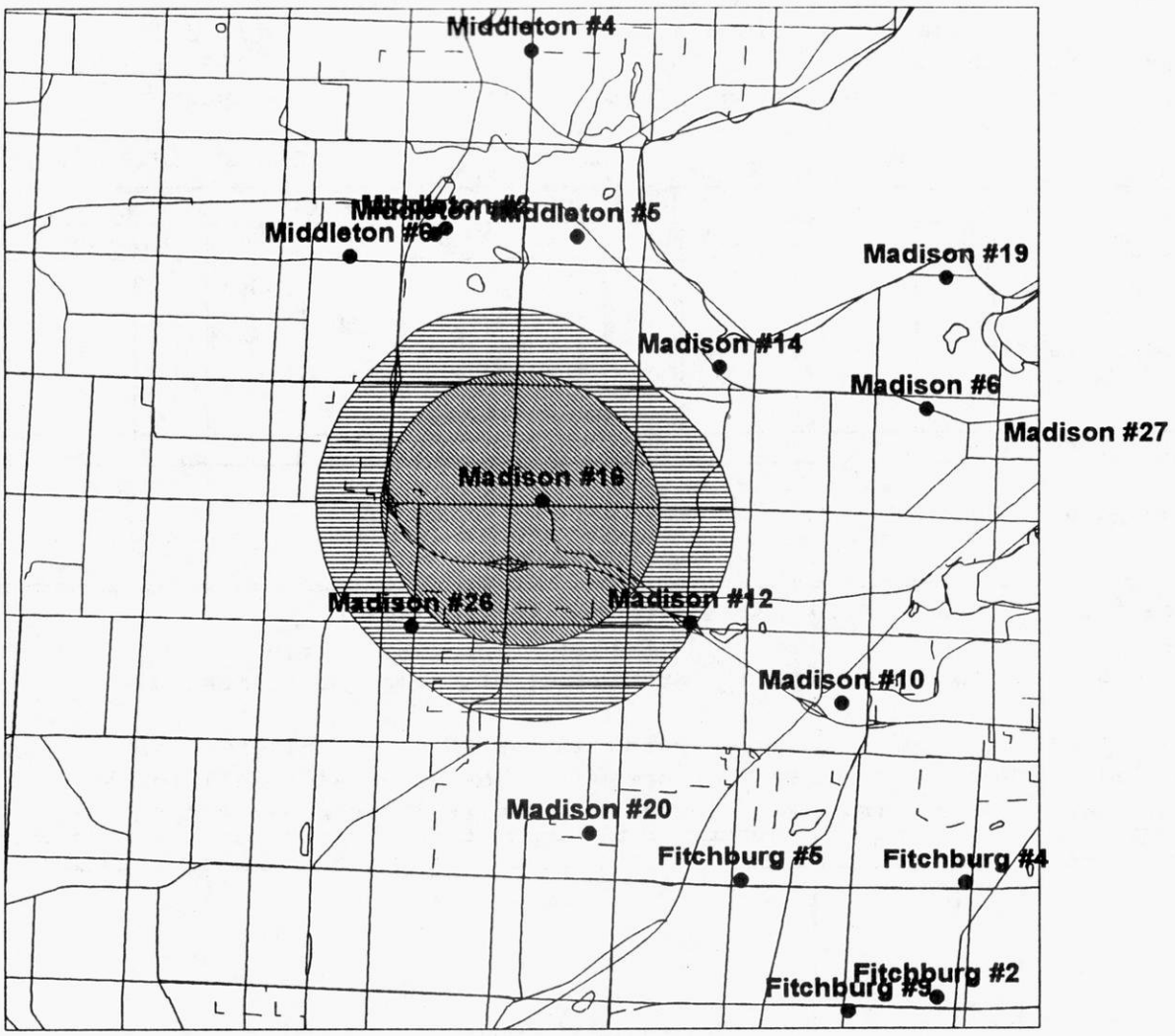
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 16



Scale 1:100,000

0 1000 2000 3000 4000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

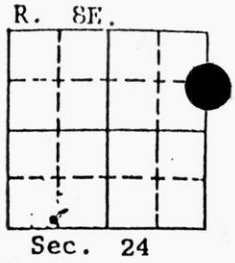
UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-947
Sample Nos. 268879-269026

County: Dane

Well name City of Madison, Wis.Unit Well #16,Final Well
Town of Middleton
Owner.... City of Madison, Water Utility
Address.. Room 111 City County Bldg.
202 Monona Ave.,Madison,Wis.
Driller.. McCarthy Well Drilling Co.
Engineer. John A. Strand & Assoc., Inc.

Completed... 4/10/67
Field check. W.G.S.
Altitude.... 1041'ETM
Use..... Municipal
Static w. l. -- 163.9'
Spec. cap... -- 19.3



Location: NE¼,SE¼,SE¼,SE¼,SW¼,SW¼,sec.24,T.7N.,R.8E. Quad. Madison West 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
30"	0	159'				30"		0	159'				
28"	159'	300'				24"		+6'	300'				
22"	300'	1004'											

Grout: Kind	from	to
Grout	0	300'

Samples from 275' to 1005' Date received: 8/17/66
Examined by: J.M. Warren
Issued: 6/27/69
Date: 8/22/69

Formations: Ironton, Galesville, Eau Claire, Mt. Simon, Precambrian

Remarks: Well located on Mineral Point Rd. southeast of Mineral Point School, also referred to as Madison West Side Well. Corrected well depth 1004'. Well tested for 30 hours at 2400 gpm with 124'3" drawdown. 0-275' not drafted to scale. W.G.S. geophysical logs.

LOG OF WELL:

	275'	0-275	275	NO SAMPLES - Driller reports drift and sand rock
IRON		275-285	10	Ss,pl bn yl,C,rnd & Srnd,VP srtg,mch M&VC,ltl Fn,tr VFn;tr Fe stn
		285-290	5	Ss,pl bn yl,C,rnd & Srnd,VP srtg,mch M&VC,ltl Fn,tr VFn;tr Fe stn
		290-295	5	Ss,pl gry yl,M&C,rnd & Srnd,VP srtg,mch Fn &VC,tr VFn;tr dol & st
		295-300	5	Ss,pl gry yl,C,rnd & Srnd,V P srtg,mch M,Fn &VC,tr VFn;tr dol-cem,Fe stn & st
	40'	300-315	15	Ss,lt yl gry,C,rnd & Srnd, P srtg,mch M,Fn&VC,tr VFn;ltl pl yl sndy dol,tr st
GALESVILLE		315-335	20	Ss,V pl gry or,M&C,rnd & Srnd,P srtg,F dol-cem,ltl fn&VC,tr VFn;ltl-mch pl or dol-cem
		335-355		Ss,V pl gry or,M,rnd & Srnd,P srtg,F dol-cem,mch C&Fn,ltl VC,tr VFn;ltl pl or dol-cem, tr st
		355-360	5	Ss,V pl gry or,M&C,rnd & Srnd,P srtg,F dol-cem,ltl Fn,tr VFn&VC;ltl dol-cem,tr st
		360-365	5	Ss,V pl gry or,M,rnd & Srnd,P srtg,F dol-cem,ltl dol-cem,tr st
		365-380	15	Ss,V pl gry or,M&Fn,Srnd,P srtg,V P dol-cem,ltl C,tr VC&VFn;tr dol-cem & st
		380-395	15	Ss,V pl or,Fn,Srnd,P srtg,V P dol-cem,mch M,ltl C,tr VFn;ltl st,tr dol-cem
		395-400	5	Ss,V pl gry or,M&C,Srnd,P srtg,V P dol-cem,ltl Fn;tr lim-& dol-cem & Fe stn
		400-405		Ss,V pl gry or,M&Fn,Srnd,P srtg,ltl C;tr lim-& dol-cem
		405-415	10	Ss,V pl gry or,Fn,Srnd,P srtg,mch M,ltl C;tr st & dol-cem
		415-425	10	Ss,V pl yl gry,Fn,Srnd,P srtg,mch M,ltl C,tr VC&VFn;ltl gn sh,tr st
	115'	425-430	5	Ss,yl gry,Fn&VFn,Srnd&Sang,V P srtg,F dol-cem,ltl M&C;mch pl yl dol-cem

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn 917

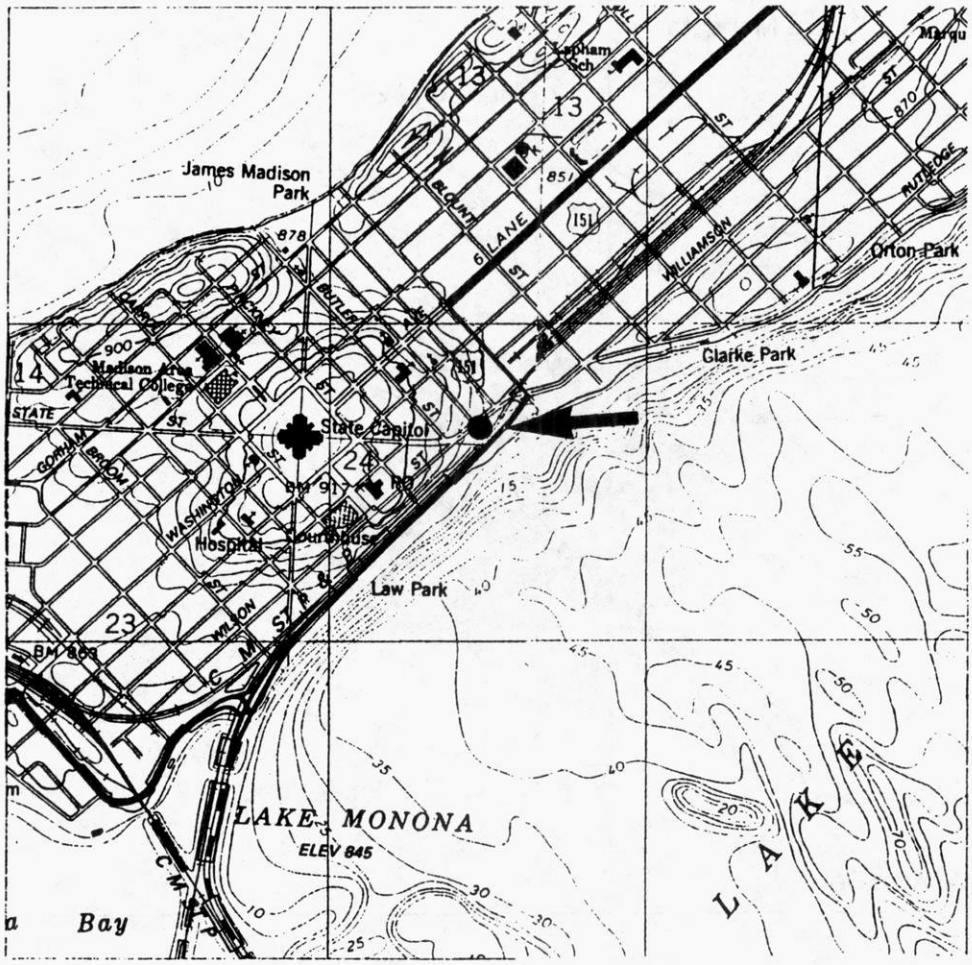
Well name City of Madison, Wis. Unit Well #16, Final Well
Sample Nos. 268879 to 269026

E·C	35'	430-435	5	Dol,pl ol gry & pl or pnk,Fn&VFn,dns,ltl mot vari clr;mod Fn&VFnsnd,ltl M&C,tr sh&pyr-cem
		435-440	5	Sh,ol gry,P srtg,dolic;mod FN&VFn snd,ltl pyr &Fn xln dol
		440-445	5	Sh,gn gry,F srtg,slgt dolic;ltl Fn&VFn snd & pyr & Fn xln dol
		445-455	10	Sh,gn gry,G srtg,dolic;ltl pyr&Fn xln dol,tr Fn&VFn snd & glauc
		455-465	10	Sh,gn gry,P srtg,dolic;ltl glauc,tr VFn/M snd,Fn xln glaucic dol & pyr
M·T·SIMON		465-485	20	Ss,pl yl bn,M rnd & Srnd,P srtg,mod VFn,Fn&C;ltl st & glauc,tr ol & pnk dol
		485-490	5	Ss,pl yl bn,M&C,rnd,P srtg,mod Fn,ltl VFn;ltl st,tr ol &vari clr dol-cem
		490-495	5	Ss,V pl yl bn,M,rnd,P srtg,mod C,ltl Fn&VC,tr VFn;tr dol-cem,ltl st&gry sh,tr glauc
		495-510	15	Ss,V pl yl bn,M&C,P dol-cem,mod Fn,ltl VFn,tr VC;ltl-mod pl pnk dol-cem,ltl st,tr pyr-cem
		510-520	10	Ss,gry bn & yl bn,M,rnd,P srtg,mod C&Fn,ltl VFn,tr VC;mod mxd bn dolic sh,ltl st,tr pyr-cem,glauc & pnk dol
		520-525	5	NO SAMPLE
		525-540	15	Ss,V pl yl bn,C/Fn,rnd,P srtg;tr Fe stn,pyr,pl or dol-cem & st
		540-555	15	Ss,V pl ol gry,C/Fn,rnd,P srtg,tr VFn;ltl pl or sty sh,tr dol-cem,pyr & st
		555-560	5	Ss,V pl ol gry,M&C,rnd,P srtg,ltl Fn,tr VFn&VC;tr pyr,Fe stn,st,yl bn sh & dol-cem
		560-570	10	Ss,V pl yl bn,M&Fn,rnd,P srtg,ltl C&VFn;ltl wh dol-cem,tr gry sh&pl yl bn sndy dolic sh
		570-575	5	Dol,V pl gry or pnk,VFn,dns;mod Fn & M snd,ltl C&VFn
		575-590	15	Ss,V pl gry or pnk,M,rnd,P srtg,G dol-cem,mod Fn&C,ltl VFn,tr VC;mod pnk & plor pnk dol-cem,tr st & gn sh
		590-595	5	Ss,V pl yl bn,M,rnd,P srtg,P dol-cem,mod Fn&C,ltl VFn,tr VC;ltl pl or sndy dol,tr gn sh
		595-600	5	Ss,V pl yl bn,Fn,rnd & Srnd,F srtg,ltl M&VFn;ltl st
		600-605	5	Ss,V pl or,M&Fn,Srnd,P srtg,P dol,ltl C,tr VFn;ltl pl or dol-cem,tr lim-cem &pyr
		605-615	10	Ss,V pl yl bn &pnk,C/Fn,rnd & Srnd,P srtg,P dol-cem,tr VC&VFn;mod pl or pnk dol-cem, tr Fe stn
		615-620	5	Ss,V pl or,M&Fn,rnd &Srnd,P srtg,V P dol,ltl C,tr VFn;ltl dol-cem,tr lim-cem
		620-630	10	Ss,V pl or,M&Fn,rnd &Srnd,P srtg,P dol,ltl C&VFn,tr VC;ltl st &dol-cem
		630-640	10	Ss,V pl or,M&C,rnd &Srnd,P srtg,F dol-cem,ltl Fn,tr VC&VFn;mod pl or dol-cem,tr st&pyr-cem
		640-645	5	NO SAMPLE
		645-650	5	Ss,V pl or,M&Fn,rnd &Srnd,P srtg,P dol,ltl C&VFn;ltl pl or dol-cem &st,tr Fe stn&lim-cem
		650-655	5	Ss,V pl yl bn,C/Fn,rnd &Srnd,P srtg,ltl VFn,tr VC;ltl st,tr Fe stn & pl or dol-cem
		655-670	15	Ss,V pl or,C/Fn,rnd &Srnd,P srtg,P dol-cem,ltl VFn,tr VC;ltl st &dol-cem,tr Fe stn
		670-675	5	Ss,V pl yl gry,M&Fn,rnd&Srnd,P srtg,mod C,tr VFn;ltl st,tr dol-cem,gn sh &pyr
		675-680	5	Ss,V pl or,C/Fn,rnd &Srnd,P srtg,P dol-cem,tr VC&VFn;ltl st &dol-cem,tr lim-cem
		680-685	5	Ss,V pl yl gry,C/Fn,rnd &Srnd,P dol-cem,ltl VFn,tr VC;ltl st &dol-cem,tr pyr-cem,ol &sh
		685-700	15	Ss,V pl yl gry&wh,C/Fn,rnd &Srnd,V P srtg,mod VFn,ltl VC;mod st,tr lim-cem &pyr-cem
		700-705	5	Ss,pl rd,C/Fn,rnd &Srnd,VP srtg,G dol-cem,mod VFn;mod V pl or,pl pnk &pl rd dol-cem,mod st,tr lim-&pyr-cem
		705-715	10	Ss,V pl yl gry,C/Fn,rnd &Srnd,V P srtg,mod VFn,tr VC;mod st,tr lim-,pyr-&dol cem &gry sh
		715-725	10	Ss,V pl yl gry,Fn&VFn,Srnd &Sang,V P srtg,tr M;ltl st,tr dol-cem & ol
		725-730	5	Ss,V pl or,Fn,Srnd &Sang,V P srtg,ltl VFn,M&C;ltl st,tr ol,Fe stn,lim-cem & dol
		730-735	5	Ss,V pl yl gry,C&Fn,Srnd &Sang,V P srtg,ltl VFn,M&VC;ltl st,tr ol,pyr & gn sh
		735-740	5	Ss,V pl yl gry,Fn&VFn,Srnd &Sang,mod C,ltl M,tr VC;ltl st,tr dol,ol,pyr & gn sh
		740-747	7	Ss,pnk &dsty rd,Fn,Srnd &Sang,P srtg,V G dol-cem,ltl M&C;mod dol-cem
		747-755	8	Ss,pl yl gry,Fn,Srnd &Sang,P srtg,V P dol-cem,ltl M&C,tr VC;mod dol-cem
		755-765	10	Ss,V pl or,M&Fn,Sang/rnd,P srtg,ltl C,tr VC&VFn;ltl st,tr gry sh,dol &calc
		765-770	5	Ss,V pl or,Fn,Sang &Srnd,P srtg,ltl M&C&VFn,tr Vc;ltl st&wh sh,tr gry &gn sh
		770-780	10	Ss,V pl or,M&Fn,Srnd &rnd,P srtg,mod C,tr VC&VFn;ltl wh sh & st
		780-785	5	Ss,V pl yl gry,M,Srnd &rnd,P srtg,mod Fn&C,trVFn&VC;ltl wh ol&st,tr pl yl gn dol

Well name City of Madison, Wis. Unit Well #16, Final Well
Sample Nos. 268879 to 269026

	785-805	20		Ss,V pl gry yl,M&C,rnd,P srtg,mod Fn&VC,ltl VFn;ltl st & cl
	805-815	10		Ss,V pl yl bn,M&C,rnd,P srtg,mod VC&Fn,ltl VFn;ltl st,tr cl,dol,Fe stn & pyr
	815-825	10		Ss,V pl gry yl,M&Fn,Srnd &Sang,P srtg,ltl C&VFn;ltl wh sh,tr st
	825-830	5		Ss,pl yl gry,Fn,Srnd &rnd,P srtg,mod VC,ltl M&C,tr VFn;tr st,rd,gn &wh sh &pyr-cem
	830-835	5		Ss,V pl yl gry,M&Fn,Srnd &rnd,P srtg,ltl C;tr wh sh
M	835-845	10		Ss,V pl gry or pnk,M&Fn,Srnd &rnd,P srtg,mod C,ltl VC,tr VFn;ltl pl or sh,tr pyr-cem & gn mica sh
T	845-850	5		Ss,pl yl bn,C&VC,Srnd &rnd,P srtg,mod M,ltl Fn,tr VFn;tr gn &wh dol,wh &pl or sh
·	850-855	5		Ss,pl yl bn,C&VC,Srnd &rnd,P srtg,mod M,ltl Fn,tr VFn;tr congl,wh&gn dol &pl yl bn Fn sh
	855-865	10		Sh,lt ol gry,P srtg,dolic,sft;mod Fn&Vfn snd,tr M&st
S	865-870	5		Ss,pl yl bn,M&C,rnd/ang,V P srtg,mod Fn&VC,ltl VFn;ltl congl,tr calc,pl or cl & st
I	870-875	5		Ss,pl yl bn,VC,rnd &Srnd,V P srtg,ltl C/VFn;mod congl;tr pl or cl &st
M	875-885	10		Ss,pl yl bn,C&VC,rnd &Srnd,V P srtg,mod M&Fn,ltl VFn;tr pl or cl &st
O	885-895	10		Ss,pl yl bn,C&VC,rnd &Srnd,V P srtg,ltl M&Fn,tr VFn;ltl congl,tr st
N	895-900	5 †		Ss,pl yl bn,C&VC,rnd &Srnd,P srtg,ltl M&Fn,tr VFn;tr dol & calc
	900-905	5		Ss,pl or,M&C,ang/rnd,P srtg,ltl fn&VC;tr dol &calc &pyr
	905-910	5	Fe	Ss,pl yl gry,M&C,ang/rnd,P srtg,mod Fn&VC,tr VFn;ltl Fe stn,tr cl &A,ig snd
	910-920	10	Fe	Ss,gry or pnk,VC/VFn,ang/rnd,V P srtg;ltl Fe stn,rd sndy sh&V pl rd sh,tr gn mica sh
	920-925	5	Fe	Ss,V pl yl bn,C&VC,rnd &Srnd,P srtg,mod M,ltl Fn&VFn;ltl congl,st &Fe stn,tr pl or sh&dol
	925-940	15		Ss,V pl yl bn,M&C,ang &Sang,P srtg,mod VC&Fn,ltl VFn;ltl pl yl bn sh,tr Fe stn&calcic sh
	940-945	5	Fe	Cong,V pl yl bn,VC/Fn gvl,ang/rnd,P srtg,mod C snd,ltl M&Fn,tr VFn;ltl pl or bn sh&Fe st
	945-950	5	Fe	Ss,gry pnk,VC/Fn,ang/rnd,P srtg,ltl VFn;ltl pl rd sh congl &Fe stn,tr lim cem
	950-955	5		Ss,pl rd,Fn,ang/Srnd,P srtg,ltl M/VC;ltl congl &pl rd sh,tr lim-cem &Fe stn
	955-960	5		Ss,gry pnk,Fn,ang/Srnd,P srtg,ltl M/VC;ltl congl &pl rd sh &A,ig snd
	960-965	5	Fe	Ss,gry pnk,C/Fn,ang/rnd,P srtg,mod VC;ltl congl,pl rd sh &Fe stn,tr lim-cem
	965-970	5	Fe	Ss,gry or pnk,C/Fn,ang/rnd,P srtg,ltl VC,tr VFn;mod pl rd sh,ltl Fe stn
	970-975	5	Fe	Congl,gry or pnk,VC/VFn gvl,ang/rnd,P srtg,mod fn/C snd,ltl VFn;ltl Fe stn,tr dolic gry
	975-980	5		Ss,gry or pnk,M&Fn,ang &Sang,P srtg,ltl C&VC,tr VFn;ltl congl &pl or pnk sh,tr st
	980-985	5	Fe	Ss,gry or pnk,M&C,ang &Sang,P srtg,ltl Fn,VFn&VC;ltl Fe stn,tr sh
	985-995	10	Fe	Ss,gry or,M&C,ang/rnd,P srtg,mod VC&Fn,tr VFn;ltl congl,ltl Fe stn,tr sh
	535' 995-1000	5	Fe	Ss,V pl gry or,C&VC,ang/rnd,P srtg,mod M,ltl Fn,tr VFn;ltl congl&Fe stn,tr sh,ig snd
P	1000-1003	3	XXXXXXX	Grnt ,mxd clr,VC,slgt wea qtz 50%,feld 40%,bio 5%,other 5%
€	5' 1003-1005	2		Grnt ,mxd clr,VC,fresh,slgt wea,qtz 50%,feld 40%,bio 5%,other 5%
				END OF LOG
	Duplicate Sample			
	495-500	5 *	G	Ss,V pl yl bn,M,rnd,P srtg,mod C,ltl Fn&VC,tr VFn;tr dol-cem,ltl st&gry sh,tr glauc
	Large samples (#269004)			
	at 900	†		Sts,pl yl gry mot pl rd,hd,mod mica sh,fn&Vfn snd,M&C snd,few seams lim cem ss&Fe stnd s
				Ss,pl yl gry,M&fn,ltlVfn,ltl modC&trVC,few mny sndy sh,ltl st,slgt tr pyr cem.
				Sh,gry gn,hd,sndy(fn&Vfn),mica&sty;tr oxide seams&tr ltlC&Vfn,trVC;few grans,slght tr p
				Ss,or,M&fn,tr ltC&Vfn,tr VC;few grans,slgt tr pyr.
				Ss,yl or,M,modC&fn,ltlVC&Vfn;ltl st,ltl fn&Vfn gvl (grans)tr qtz gvl.

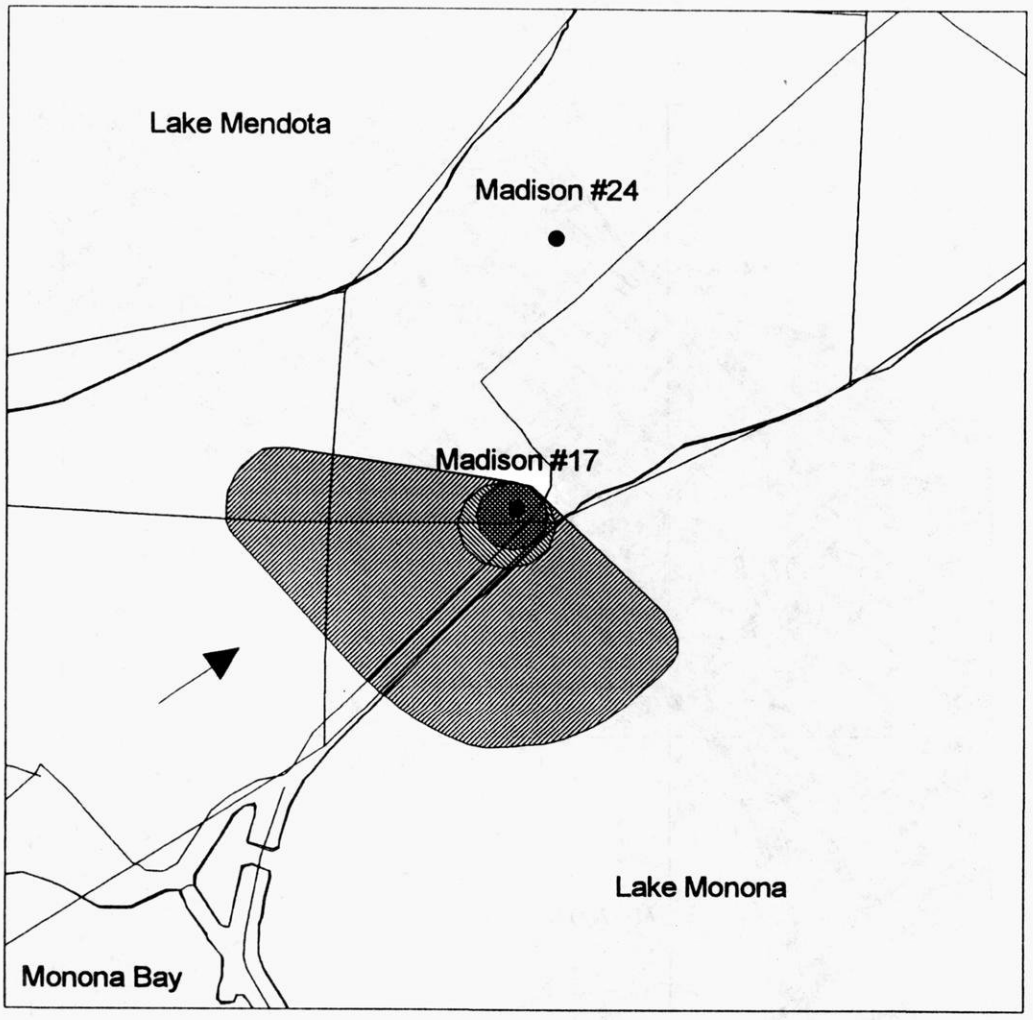
City of Madison, Well Number 17



City of Madison, Well Number 17 is located at 201 South Hanock Street in the City of Madison, Wisconsin, at 43° 4' 30.24" north latitude and 89° 22' 37.13" longitude. The well was installed in 1966 and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 1,974,000 gpd.

The well is cased through the Paleozoic bedrock units above the shaley facies of the Eau Claire Formation, and it draws water primarily from the Mt. Simon sandstone. Locally, however, this aquifer is replenished by downward leakage from Lake Mendota and Lake Monona. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Madison, Well Number 17



Well Location

Latitude: 43° 4' 30.24"
Longitude: 89° 22' 37.13"

0 500 1000
(meters)

N

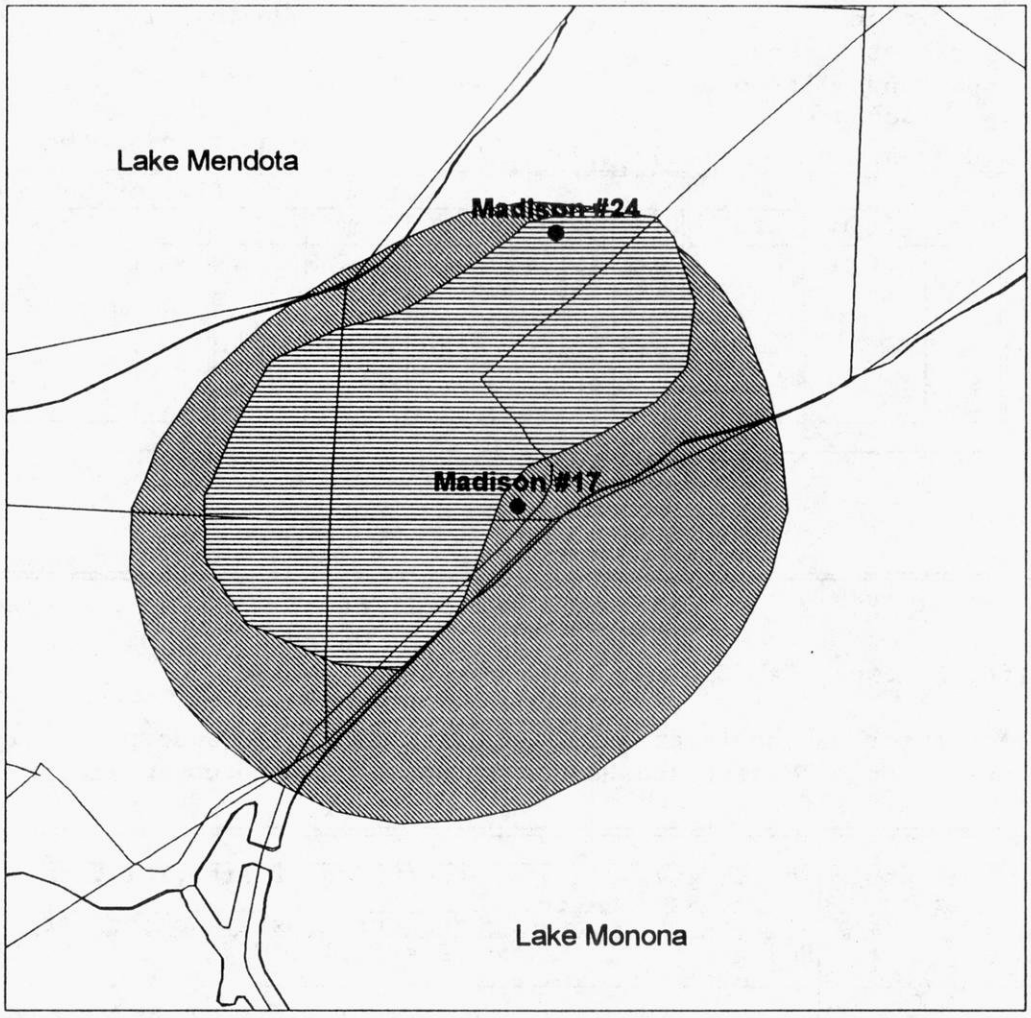
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 17



Scale 1:24,000

0 500 1000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

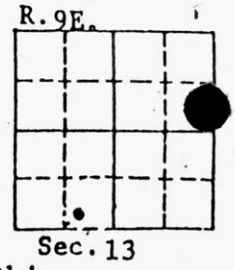
UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-935
Sample Nos. 267232-267398

County: Dane

Well name City of Madison, Wisconsin
Unit Well #17 *
Owner.... City of Madison, Wisconsin
Address.. c/o City Clerk, City Hall
Madison, Wisconsin
Driller.. Layne-Northwest Company
Engineer. John A. Strand & Assoc.
Madison, Wisconsin

Completed... June 1966
Field check.
Altitude....
Use..... Municipal
Static w. l. -- 55'
Spec. cap... -- 25.4



Location: SW¼,NE¼,SE¼,SW¼,SE¼,SW¼,sec.13,T.7N.,R.9E. Quad. Madison West 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt. & Kind	from	to	Dia.	Wgt. & Kind	from	to
30"	0	144'9"				30"	Steel, ½" Prime	+9"	144'9"				
29"	144'9"	200'7"											
23"	200'7"	801'11"				24"	Steel, 3/8" Prime	+1'	200'7"				

Grout: Kind	from	to
Neat	0	200'7"

Samples from 0 to 800'2" Date received: 5/11/66
Examined by: J.M. Warren
Issued: 2/69
Date: 5/13/66, 5/8/67

Formations: Drift, Wonewoc, Eau Claire, Mt. Simon, Precambrian

Remarks: Well tested for 33½ hours at 3,000 gpm with 118' of drawdown. Well located southeast of the intersection of Wilson and Hanock Streets. *Downtown well or Wilson Street well.

LOG OF WELL:

DRIFT		0-10	10	Snd,dk gry bn&gry or,Vfn/C,Srnd,P srtg,ltl VC;mch dk bn bk org mat&st,fn&Vfn gvl
		10-15	5	Gvl,gry or,fn,Sang,P srtg,tr M,mstly dol;mch st/VC snd
		15-25	10	Snd,gry or,Vfn/M,Srnd,P srtg,ltl C&VC;mch st,tr Vfn gvl,mch dolic cl
		25-35	10	St,gry or,P srtg,dolic;ltl cl,mch Vfn/C snd,tr VC,tr Vfn gvl
		35-40	5	Cl,gry or,P srtg,slgt dolic;mch Vfn/C snd,ltl VC,mch Vfn gvl,ltl st,tr oolic cht
		40-60	20	St,gry or,P srtg,dolic;ltl cl,mch Vfn/M snd,ltl C,tr VC,ltl Vfn gvl
		60-75	15	Cl,pl yl bn,P srtg,dolic;mch st,ltl Vfn/VC snd,tr Vfn gvl
		75-80	5	Cl,pl yl bn,F srtg,dolic;mch st,tr Vfn/C snd
		80-95	15	Cl,pl yl bn,P srtg,dolic;mch st,ltl Vfn/VC snd,tr Vfn gvl
		95-100	5	Snd,V pl yl or,M&C,Srnd,mch Vfn,fn&VC;ltl Vfn gvl&st,tr cht&cl
		100-105	5	Cl,gry or mot wh,slgt dolic;mch Vfn/C snd,ltl VC,ltl Vfn gvl
		105-110	5	Snd,gry or&mxd clr,C&VC,rnd/ang,mch M,ltl fn&Vfn;mch fn gvl,ltl st
		110-115	5	Snd,gry or&mxd clr,C,rnd,P srtg,mch M&VC,tr fn&Vfn;mch fn&Vfn gvl,ltl st,tr cl
		115-130	15	Snd,mxd gry or&yl or,M&fn,Srnd,P srtg,mch C&VC,tr Vfn;ltl fn&Vfn gvl&st
	135'	130-135	5	Gvl,yl or&mxd clr,fn&Vfn,ang,F srtg,mstly cht;ltl M/VC snd
WONEWOC		135-140	5	Ss,gry or,M&fn,Srnd,P srtg,mch C&VC,tr Vfn;tr cvd?cht gvl
		140-150	10	Ss,gry or,M,Srnd,P srtg,mch C,VC&fn,tr Vfn;tr cvd?cht gvl
		150-155	5	Ss,gry or,M&fn,Srnd,P srtg,mch C,ltl Vfn,tr VC;tr cvd?cht,ltl s
		155-165	10	Ss,gry or,C,rnd,F srtg,ltl M&VC,tr fn/Vfn;tr cvd?oolic cht&st
		165-175	10	Ss,pl or,M&C,rnd,F srtg,tr G dol-cem,ltl VC&fn,tr Vfn;tr cvd?cht
		175-180	5	Ss,pl yl or,C,rnd,P srtg,ltl sft P dol-cem,mch M,ltl VC&fn,tr Vfn

Well name City of Madison, Wisconsin, Unit Well #17
Sample Nos. 267232 to 267398

ONE		180-200	20 1/	Ss,pl yl or,M&C,rnd,mch sft P dol-cem,ltl VC&fn,tr Vfn;
	85'	200-220	20	Ss,V lt yl or/lt ol gry,M,tr G dol-cem,mch fn&C,ltl Vfn,tr VC;
E.		220-225	5	Ss,gry yl,M,tr G dol-cem,mch fn,ltl Vfn,tr C;ltl fn sndy ol gry do
		225-230	5 2/	Sh,dsky yl gn,gry gn&pnk,slgt dolic,sndy,glaucic;mch pnk glauc
C	20'	230-240	10 3/	Sh,dsky yl gn,gry gn&pnk,P srtg,slgt dolic/dolic, sndy dol,mch st sndy,glaucic;mch pnk glaucic sndy dol,mch Vfn/C snd&st
		240-255	15	Ss,gry or pnk,M&fn,rnd&Srnd,P srtg,ltl F V pl or dol-cem,mch Vfn& C;ltl vari-clr glaucic dol
M		255-260	5	Ss,V pl yl bn,M,rnd&Srnd,P srtg,mch C,ltl fn&Vfn;ltl gry pyric sh &xln dol,tr glauc
T.		260-275	15	Ss,V pl yl bn,M&fn,rnd&Srnd,P srtg,mch Vfn,tr C;mch st,tr gn sh& pnk dol
		275-280	5	Ss,V pl or,M&fn,tr G dns wh&pnk dol-cem,mch Vfn,tr C;ltl st
S				
I				
M		280-320	40	Ss,V pl or,M,ang/rnd,P srtg,tr G pnk dol-cem,mch fn,Vfn&C;mch st, tr gry sh
O		320-335	15	Ss,V pl or,M,ang/rnd,P srtg,ltl F lt or pnk dol-cem,mch fn&Vfn,ltl C;ltl st
N		335-340	5	Ss,V pl or,M,ltl F lt or pnk&V pl or dol-cem,mch fn&Vfn,ltl C;ltl
		340-345	5	Ss,V pl or,fn&Vfn,Sang&Srnd,F srtg,mch M,tr C;ltl pl or xln dol
		345-355	10	Ss,yl gry,M&fn,Sang&Srnd,F srtg,ltl Vfn,tr C;ltl pl or xln dol
		355-360	5	Ss,pl yl gry,fn&Vfn,Srnd,P srtg,mch M,tr C;mch st,tr xln dol
		360-365	5	Ss,yl gry,M,Srnd,P srtg,mch fn;mch st,tr xln dol
		365-375	10	Ss,yl gry,M,Srnd,P srtg,mch P dol-cem,mch fn&Vfn,tr C;ltl st
		375-425	50	Ss,yl gry,M&fn,Srnd,P srtg,mch P dol-cem,mch Vfn,tr C;ltl st
		425-440	15	Ss,yl gry,M,Srnd,P srtg,mch P dol-cem,mch fn,tr C;ltl st,tr Fe stn &xln dol
		440-470	30	Ss,V pl or,M&fn,Srnd,P srtg,tr G dol-cem,ltl C&Vfn;
		470-475	5	Ss,yl gry,M,Srnd,P srtg,ltl P dol-cem,mch C,fn&Vfn;tr sh
		475-480	5	Ss,yl gry,M&fn,Srnd,P srtg,tr F dol-cem,ltl C&Vfn;tr Fe stn
		480-485	5	Ss,yl gry,M&fn,Srnd,P srtg,ltl F dol-cem,ltl C&Vfn;tr Fe stn
		485-505	20	Ss,yl gry,M&fn,rnd&Srnd,P srtg,ltl P dol-cem,mch Vfn;tr st
		505-515	10	Ss,yl gry,fn&Vfn,Srnd&Sang,P srtg,mch P dol-cem,ltl M;tr st,tr gn sndy sh
		515-525	10	Ss,yl gry,M&fn,rnd&Srnd,P srtg,mch C,ltl Vfn;ltl cl
		525-530	5	Ss,pnk gry,M,Srnd,P srtg,mch fn,ltl C&VC;
		530-540	10	Ss,yl gry,M&fn,Srnd,P srtg,mch Vfn,ltl C&VC;tr cl
		540-550	10	Ss,yl gry,M,Srnd&Sang,P srtg,mch fn;mch cl,tr xln dol

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-935

Well name City of Madison, Wisconsin, Unit Well #17
Sample Nos. 267232 to 267398

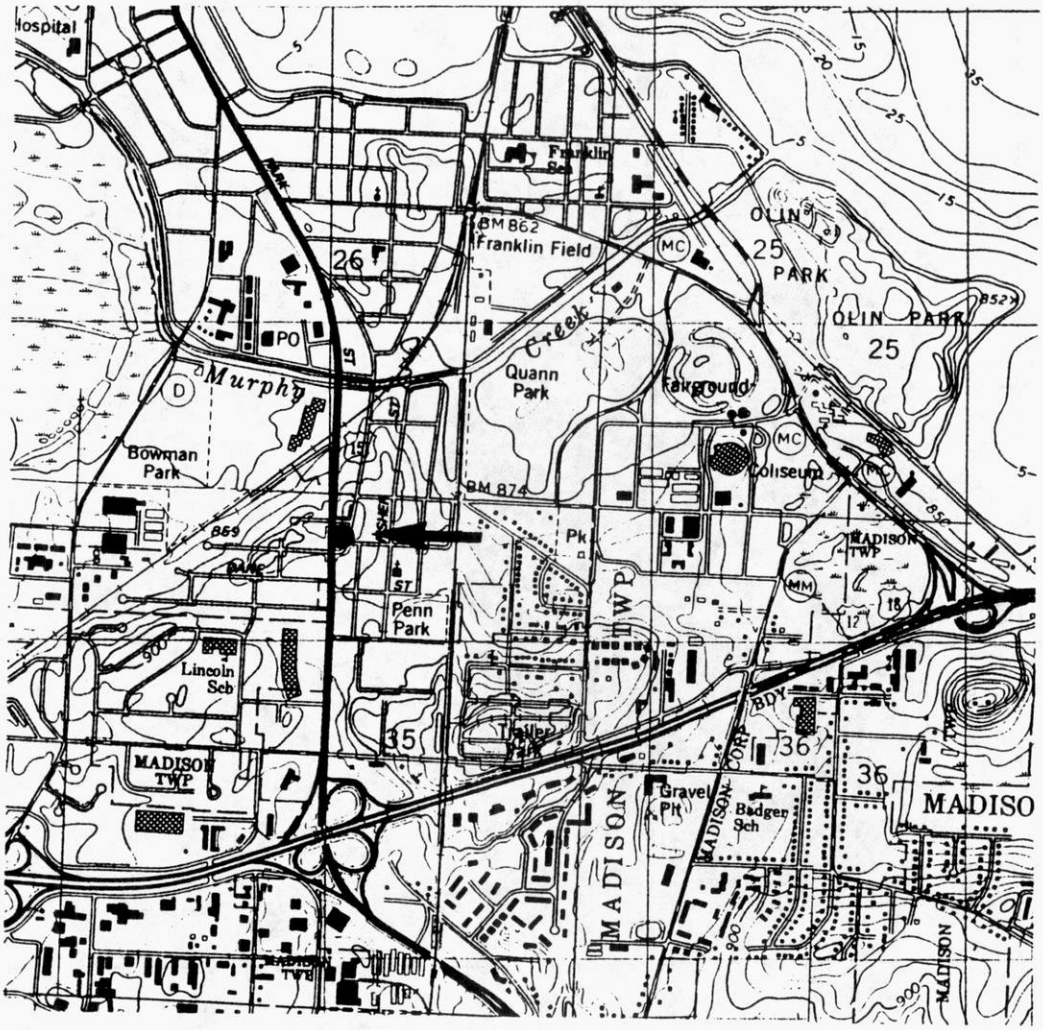
	550-575	25		Ss,pl gry yl,M&fn,Srnd&Sang,P srtg,mch Vfn;ltl st,tr Fe stn&cl
	575-580	5		Ss,pnk gry,fn,Srnd&Sang,F srtg,ltl M&Vfn;tr Fe stn
	580-590	10		Ss,V pl or,M,rnd&Srnd,P srtg,mch fn&C,ltl Vfn;tr st,sh,xln dol& Fe stn
	590-595	5		Ss,V pl or,M&C,rnd&Srnd,ltl fn,tr Vfn;tr gn&gry sh&xln dol
	595-600	5		Ss,yl gry,M,Srnd&Sang,P srtg,mch fn&C,tr Vfn;ltl cl,tr st,xln dol
	600-605	5		Ss,yl gry,M&fn,Srnd&Sang,P srtg,ltl C,tr Vfn;ltl cl,tr yl gry sh
	605-610	5		Ss,yl gry,M,rnd&Srnd,P srtg,mch fn&C,tr Vfn&VC;tr Fe stn
	610-615	5		Ss,yl gry,M&fn,Srnd&Sang,P srtg,ltl Vfn,tr C;tr Fe stn
	615-620	5		Ss,yl gry,M,Srnd&Sang,P srtg,mch fn,C&Vfn,tr VC;tr Fe stn
	620-625	5		Sh,pl gry yl&gn gry,P srtg;mch M&fn ss,tr C&VC,ltl gry sndy sh,tr
MT. SIMON	625-635	10		Ss,yl gry,M&fn,Srnd&Sang,P srtg,mch Vfn,ltl C;mch sty sh& grans st,tr Fe stn
	635-640	5		Ss,yl gry,C&VC,rnd,P srtg,mch M,ltl fn;ltl st
	640-645	5		Ss,yl gry,C&VC,rnd,P srtg,mch M,ltl fn;mch st
	645-650	5		Sts,pl bn yl,(st),P srtg;mch fn&Vfn snd,ltl M,tr C,tr Fe stn
	650-660	10		Ss,yl gry,C,rnd,P srtg,mch M,ltl VC&fn;tr st,grans&Fe stn
	660-665	5		Sts,yl gry,(st),P srtg;mch M&fn snd,ltl Vfn&C,tr VC,tr sh&Fe stn
	665-680	15		Ss,yl gry,M&fn,Srnd&Sang,P srtg,ltl C&Vfn,tr VC;tr Fe stn
	680-700	20		Ss,yl gry,fn&Vfn,Sang&Srnd,P srtg,mch M,tr C;mch st,tr ol gry sh& Fe stn
	700-705	5		Sts,pl or,(st),P srtg;mch fn&Vfn snd,ltl M,tr Fe stn
	705-710	5		Ss,V pl or,fn&Vfn,Sang&Srnd,P srtg,ltl M&C;tr Fe stn
	710-715	5		Ss,pl or,fn&Vfn,ang&Sang,P srtg,mch C&M,ltl VC;mch cl,few grans,tr gry&gn sh
	715-725	10		Ss,V pl or,M,Sang&Srnd,P srtg,mch C&fn,ltl Vfn;mch cl,tr Fe stn
	725-735	10	Fe Fe	Ss,or pnk,M,Sang&Srnd,P srtg,mch C&fn;mch st&Fe stn
	735-745	10	Fe Fe	Ss,gry or pnk,M&fn,Srnd&Sang,P srtg,ltl Vfn,tr C;mch st&Fe stn
	745-760	15	Fe Fe	Ss,gry or,fn,Srnd&Sang,P srtg,mch Vfn,ltl M,tr C,mch st,ltl Fe stn
	760-765	5	M	Sh,rd bn,P srtg;mch M,fn&Vfn snd,ltl qtz-cemtd ss,tr calc&st
	765-780	15	M	Sh,rd bn,P srtg,sft,sty,mica;ltl fn snd,tr qtzt&ortho qtzt
	780-790	10	M	Sh,pl rd bn&mxd clr,sft,try;ltl VC calcic ig snd,tr Vfn/C snd
557'	790-795	5		Sh,or pnk,(cl),P srtg,sft,sty mica;ltl Vfn/VC qtzt&ig snd
	795-797	2		Sh,or pnk,(cl),P srtg,sft,sty;mch ig snd&gvl
P	at 797	not to scale		Felsite,rd bn,rd or,lt gn gry&wh,Vfn/M,ltl carbonate,tr or pnk sh
3'2"	at 800			Felsite,rd bn,rd or,lt gn gry&wh,Vfn/M,ltl carbonate,ltl dissag;
	at 800'2"			Felsite,pl gn,gry&pl rd bn,Vfn/M,tr carbonate ltl wh&pl bn sh

END OF LOG

Duplicate samples

195-200	5½		Ss,pl yl or,M,rnd,P srtg,tr G dol-cem,mch fn&C,ltl Vfn;
225-230	5½		Dol,pl or bn,Vfn,dns,tr sndy;mch M/Vfn snd,tr C,mch st
230-235	5½		Sh,yl gry,lt bn gry,pl rd,F srtg,slgt dolic/dolic;mch st,ltl dol

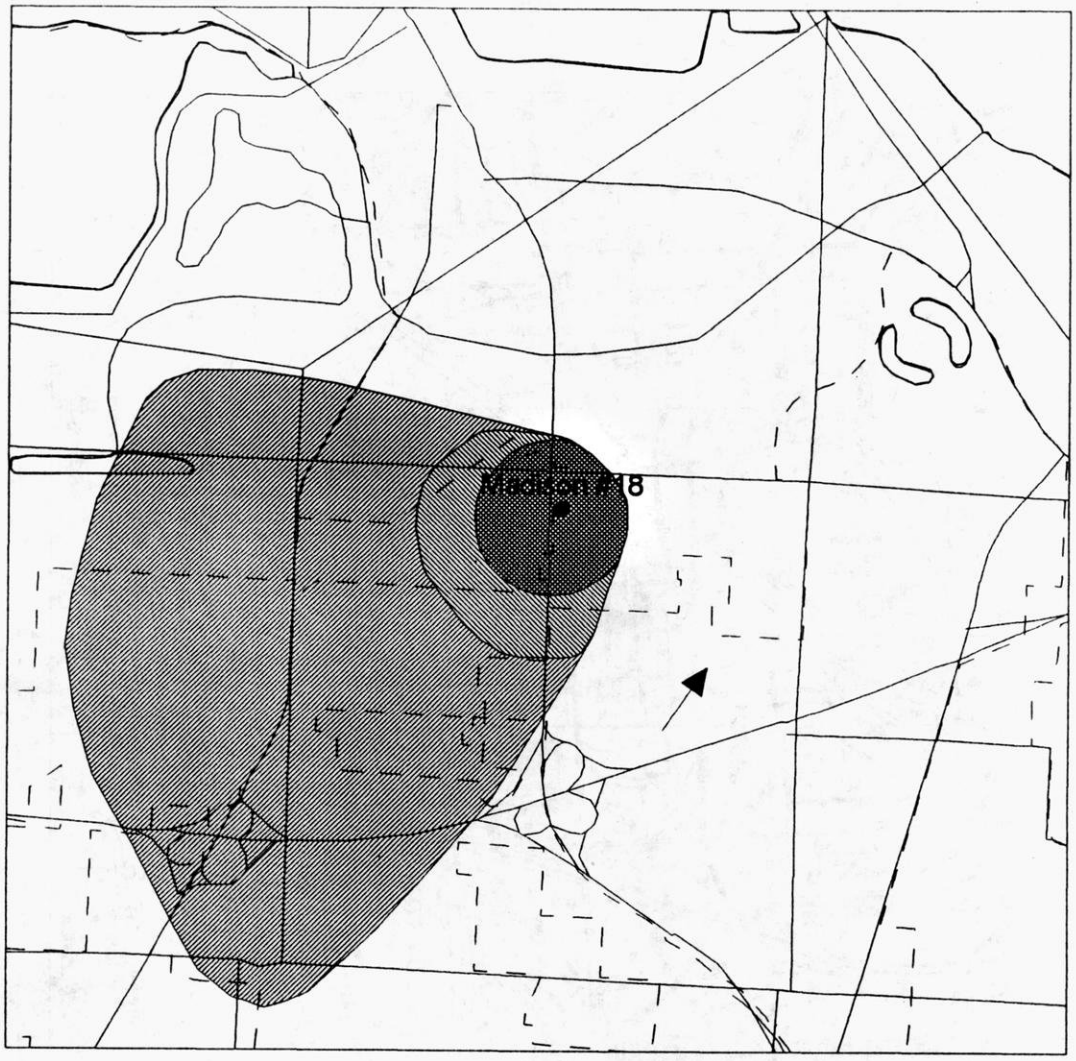
City of Madison, Well Number 18



City of Madison, Well Number 18 is located at 1925 Park Street and at 43° 2' 40.37" north latitude and 89° 23' 36.70" longitude. The well was installed in 1968 and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 2,072,000 gpd.

The well casing extends to a depth of 251 feet below ground surface, and the total depth of the well is 808 feet. Water is drawn from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Madison, Well Number18



Well Location

Latitude: 43° 2' 40.37"
Longitude: 89° 23' 36.70"

0 500 1000
(meters)

N

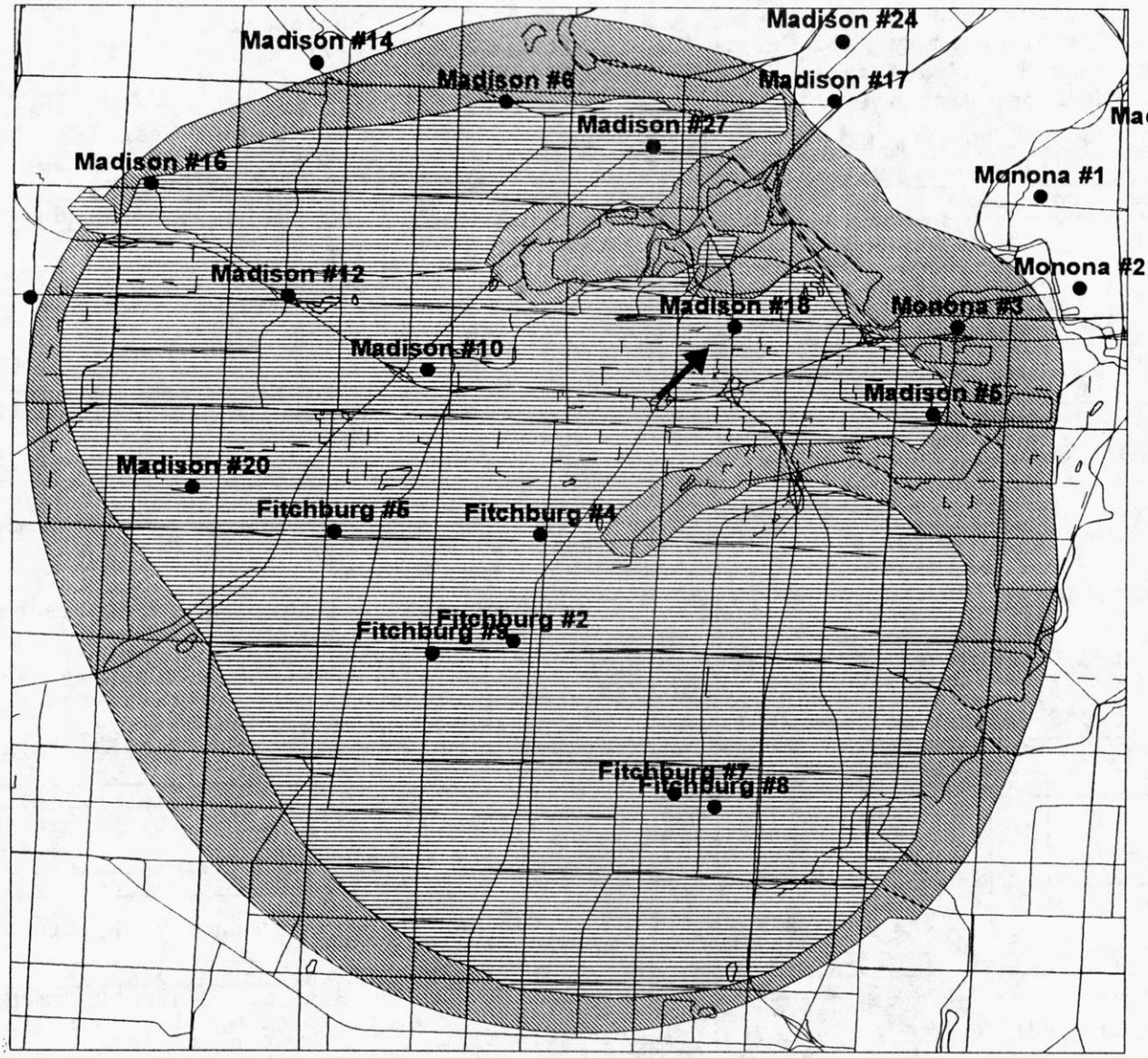
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 18



Scale 1:100,000

0 1000 2000 3000 4000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

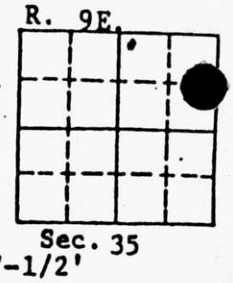
UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-961
Sample Nos. 287605-287769

County: Dane

Well name Madison Water Utility, Unit Well #18
Owner.... Madison, Wisconsin
Address.. 111 City County Bldg. Madison, Wisconsin
Driller.. Egerer-Galloway Well Corp.
Engineer. John Strand & Assoc. Madison, Wisconsin

Completed... 11/18/68
Field check.
Altitude.... 390'ETM
Use..... Municipal
Static w. l. --71'
Spec. cap... --15.4



Location: NW¼,SW¼,NW¼,NW¼,NE¼,sec.35,T.7N.,R.9E.
Quad. Madison West 7-1/2'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
36"	0	109'				36"	Steel ½"	0	109'				
35"	109'	251'				30"	Steel 3/8"	+3'	251'				
29"	251'	808'											

Grout: Kind	from	to
Neat Cement	0	251

Samples from 0 to 807'6"
Date received: 10/2/68
Examined by: J.M. Warren
Issued: 2/69
Date: 10/15/68

Formations: Drift, St. Lawrence, Tunnel City, Wonewoc, Eau Claire, Mt. Simon, Precambrian

Remarks: 0-110' received 5/29/68 well in progress, 110-240' received 6/13/68, 240-430' received 8/1/68, 430-807'6" received 10/2/68. So. Park Street Well - intersection of Beld Street. Dn-952 is test well for this well. Well tested for 48 hrs. at 2600 gpm with 169'

LOG OF WELL:

DR	25'	0-5	5		Snd,yl or&mxd clr,M,mch fn&C,ltl VC,tr Vfn,mstly qtz,ltl dol,tr ig
		5-15	10		Snd,yl or&mxd clr,fn/C,ang/rnd,P srtg,mch VC,ltl Vfn;ltl fn&Vfn dol&ig&cht gvl,tr st
		15-20	5		Snd,gry or&mxd clr,M&fn,ltl C,VC&Vfn;mch M/Vfn gvl,ltl st,tr cl
		20-25	5		Gvl,mxd or&mxd clr,fn&Vfn,ltl M,mstly dol&ig;ltl st/C snd,tr VC
S. L	20'	25-40	15	G	Dol,gry rd mot yl or,Vfn,dns,sug tex,ltl sndy(Vfn);ltl pl rd sts, ltl M&C qtz snd,tr glauc
		40-45	5	G	Dol,rd bn,pl gn&gry or,Vfn,dns,ltl sug tex,tr glaucic;
TUNNEL CITY	80'	45-50	5	G	Ss,rd bn,pl gn&gry or,fn,ltl F dol-cem,mch M&Vfn,tr C;mch rd bn sh
		50-60	10	G	Ss,gry or,M&fn,ang/Srnd,P srtg,ltl P&ltl G dol-cem,tr lim-cem,ltl C&Vfn;ltl glauc(Vfn/C)ltl gry or mot pl rd dol
		60-70	10	G	Ss,gry or,fn,Sang,G srtg,tr F dol-cem,ltl Vfn,tr M;tr glauc,gn& pl rd sh&xln dol
		70-75	5	G	Ss,gry or,fn,tr F dol-cem,ltl Vfn&M,tr C;mch dol-gry or mot yl or
		75-80	5	G	Ss,gry or,fn,ltl G dol-cem,ltl Vfn,tr M;tr glauc(Vfn/C)&st
		80-90	10	G	Ss,gry or,fn,Sang,G srtg,tr F dol-cem,ltl Vfn,tr M;tr st,glauc& lim-cem
		90-110	20	G	Ss,gry or,fn&Vfn,Sang,G srtg,tr M;tr glauc,st&lim
		110-115	5	G	Ss,yl gry mot pl gry or,fn&Vfn,ltl P pl yl or dol-cem,tr M;
		115-120	5	G	Ss,pl yl or,fn&Vfn,mch G dol-cem,tr M;ltl glauc(Vfn/M)tr lim-cem
		120-125	5	G	Ss,V pl yl or,fn,tr P dol-cem,tr M&Vfn;tr glauc&lim
WONEWOC		125-150	25	G	Ss,pl yl or,M&fn,rnd/Sang,P srtg,ltl P sft&tr dns dol-cem,ltl Vfn &C,tr VC;slgt tr glauc,st&lim
		150-155	5	G	Ss,V pl yl or,fn,mch M&Vfn,tr C;slgt tr VC;tr st,slgt tr glauc&l
		155-160	5	G	Ss,V pl yl or,fn&Vfn,Sang,F srtg;tr dol,lim,glauc&gn sh
		160-165	5		Ss,V pl yl or,,M&fn,mch C,ltl Vfn,slgt tr VC;tr st,slgt tr lim&gn s
		165-175	10		Ss,pl yl or,M,rnd,P srtg,tr yl or dol-cem,mch fn&C,ltl Vfn,tr VC; slgt tr st,lim&gn sh
		175-190	15	G	Ss,V pl yl or,M&fn,rnd/Sang,F srtg,tr yl or dol-cem,ltl Vfn,tr C; tr st,slgt tr gn sh&st

Well name Madison Water Utility, Unit Well #18
Sample Nos. 287605 to 287769

NEWOC		190-195	5	Ss,pl yl or,M,rnd,P srtg,ltl F yl or dol-cem,mch C&fn,ltl Vfn,tr VC;ltl dolic st
		195-225	30	G Ss,dk yl or,M,rnd,P srtg,tr F dol-cem,mch C&fn,ltl Vfn,tr VC;ltl dolic st
	105'	225-230	5	Ss,V pl or,M&C,rnd,F srtg,ltl fn;few metal frags,tr grans
		230-240	10	Ss,V pl or,fn,Sang,P srtg,mch Vfn,ltl M,tr C;ltl pl yl or st&cl
E.		240-250	10	Ss,V pl yl or,M&fn,rnd/Sang,P srtg,ltl Vfn,tr C&VC;ltl st
		250-260	10	Ss,yl gry&lt gry,fn,rnd/Sang,P srtg,tr P dolic cem,ltl M&Vfn,tr C ltl gry spkld calcus cl,tr st,qtz,ig&cht gvl
C		260-265	5	Ss,yl gry,or pnk&gn,fn&Vfn,mch G dol-cem,tr pyr,ltl loose M&C,tr
	45'	265-275	10	Sh,V pl gn,pl rd&or pnk,P srtg,dolic,hd,ltl sft,VC;ltl gn sndy sh sndy(fn&Vfn);ltl sts,tr dol
		275-280	5	Ss,V pl or,M,ltl G dol-cem,ltl fn&C,tr VC;mch rd or glaucic(fn/VC
		280-285	5	Ss,V pl or,M&C,ltl G dol-cem,tr fn,Vfn&VC;ltl rd or glaucic dol
		285-290	5	Ss,V pl or,M,rnd,F srtg,mch fn,ltl C;tr or pnk dol,gn&gry sh
		290-295	5	Ss,V pl gry or pnk,M,ltl V pl or G dol-cem,mch fn&C,tr VC;
		295-300	5	Ss,V pl or,M,rnd,mch fn,ltl C,tr Vfn&VC;tr dol,gry&gn sh&pyr
		300-310	10	Ss,V pl or,M&fn,rnd/ang,P srtg,ltl Vfn,tr C;ltl st,tr gry gn sh
		310-315	5	Ss,V pl or,M,ltl F V pl or dol-cem,ltl C&fn,tr VC&Vfn;ltl st&cl
		315-320	5	Ss,V pl or,M&C,rnd,tr G dol-cem,ltl fn;tr VC&Vfn;ltl st&cl
		320-325	5	Ss,V pl or,M,rnd,tr G dol-cem,mch fn,ltl C,tr Vfn&VC;tr st&cl&gn
M		325-330	5	Ss,V pl gry pnk,M&C,rnd,ltl G V pl or dol-cem,tr VC,fn&Vfn;tr st
T		330-335	5	Ss,V pl or,M,rnd,ltl G V pl or dol-cem,mch fn,ltl C,tr Vfn;tr st
		335-340	5	Ss,V pl or,M,tr G V pl or dol-cem,mch fn&C,tr Vfn&VC;tr st,cl
·		340-345	5	Ss,V pl or,M&C,rnd,tr G V pl or dol-cem,tr fn&VC;tr pyr&gn sh
		345-350	5	Ss,V pl or,fn,Sang,F srtg,ltl M&Vfn;tr st&lim
S		350-370	20	Fe Ss,V pl or,M,rnd,F srtg,mch fn&C,tr Vfn&VC;tr st,lim,gry&gn sh
I		370-375	5	Ss,V pl or,M&C,mch G pl or dol-cem,ltl fn,tr Vfn&VC;tr st,cl,lim
M		375-380	5	Ss,wh,M,rnd,F srtg,ltl G dol-cem,mch fn&C,tr Vfn;tr st,cl&lim
O		380-385	5	Ss,V pl or,M&C,mch G V pl or dol-cem,ltl fn,tr VC&Vfn;tr st
N		385-390	5	Ss,V pl or,M&C,rnd,ltl G V pl or dol-cem,mch fn,ltl Vfn,tr VC;tr
		390-395	5	Ss,V pl or,M,slgt tr dol-cem,mch C&fn,ltl Vfn,tr VC;tr st
		395-400	5	Ss,V pl or,M,ltl G pl or pnk dol-cem,mch fn&C,ltl Vfn,tr VC;tr st
		400-405	5	Ss,V pl or,M&C,rnd,mch G pl or dol-cem,ltl fn&Vfn,tr VC;tr st,cl
		405-410	5	Ss,pl or,M,rnd,mch G pl or dol-cem,mch C&fn,ltl Vfn,tr VC;ltl st
		410-415	5	Ss,V pl or,M&C,rnd,tr G dol-cem,ltl fn,tr VC&Vfn;ltl st
		415-420	5	Ss,V pl or,fn,Srnd,F srtg,ltl M&Vfn;tr st
		420-425	5	Ss,V pl or,M,rnd,F srtg,ltl fn&C,tr Vfn;tr st
		425-430	5	Ss,pl or,M&C,rnd,mch G pl or dol-cem,mch fn,tr Vfn&VC;ltl st
		430-435	5	Ss,yl gry,M,rnd,P srtg,tr G pl or dol-cem,mch fn,ltl C&Vfn;mch st
		435-440	5	Ss,wh,fn&Vfn,rnd,F srtg,tr M;ltl st
		440-445	5	Ss,yl gry,M,rnd,tr G pl or dol-cem,mch fn,ltl C&Vfn;ltl sndy dol
		445-450	5	Ss,wh,M&C,rnd,P srtg,tr G pl or dol-cem,ltl fn,tr Vfn&VC;tr st
		450-455	5	Ss,V pl or,M,rnd,tr G pl or dol-cem,mch fn,ltl C,tr VC;tr xln dol
		455-460	5	Ss,V pl or,C,rnd,P srtg,tr G pl or dol-cem,mch M,ltl fn;ltl st
		460-465	5	Ss,wh,M&fn,rnd,P srtg,tr G pl or dol-cem,ltl C;
		465-470	5	Ss,wh,M&C,rnd,P srtg,tr G pl or dol-cem,ltl fn,tr VC&Vfn;tr st&pyr
		470-475	5	Ss,wh,M,rnd,P srtg,tr G pl or dol-cem,mch fn,ltl C&Vfn;ltl st,tr
		475-480	5	Ss,V pl or,M&C,rnd,ltl pl or dol-cem,ltl fn&Vfn,tr VC;ltl st,tr py
		480-485	5	Ss,V pl or,M&fn,rnd,F srtg,tr C&Vfn;tr st
		485-490	5	Ss,V pl or,M&C,rnd,F srtg,ltl fn,tr Vfn;tr st
		490-495	5	Ss,V pl or,M&fn,rnd,F srtg,tr C&Vfn;tr st,pyr&xln dol
		495-500	5	Ss,V pl or,fn,rnd,F srtg,tr M,C&Vfn;ltl st,tr pyr
		500-510	10	Ss,V pl or,fn&Vfn,F srtg,tr M;ltl st
		510-515	5	Ss,V pl or,C,rnd,tr G dol-&pyr-cem,mch M&fn,ltl VC,tr Vfn;tr st
		515-520	5	Ss,V pl or,M,rnd,tr G dol-&pyr-cem,mch C&fn,ltl Vfn,tr VC;tr st
		520-525	5	Ss,wh,M&fn,rnd,P srtg,tr G dol-cem,ltl C&Vfn,tr VC;ltl st
		525-530	5	Ss,wh,M,rnd,P srtg,mch fn&C,tr Vfn;ltl st
		530-535	5	Ss,wh,fn,rnd,P srtg,mch C,ltl M&Vfn,tr VC;ltl st
		535-540	5	Ss,V pl or,M,rnd,P srtg,mch fn&C,tr Vfn&VC;ltl st,tr pl gn sh
		540-545	5	Ss,V pl or,M&fn,rnd,P srtg,ltl C&Vfn,tr VC;ltl st&yl gry sh
		545-550	5	Ss,V pl or,M,rnd,P srtg,mch fn&C,tr Vfn&VC;tr st
		550-555	5	Ss,wh,M&C,rnd,P srtg,mch fn,ltl VC,tr Vfn;ltl pl gn sndy sh,tr st
		555-560	5	Ss,V pl or,fn&C,rnd,P srtg,ltl M,tr Vfn&VC;ltl pl gn sndy sh,tr s

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. Dn-961

Well name Madison Water Utility, Unit Well #18
Sample Nos. 287605 to 287769

	560-565	5		Ss,V pl or,M&C,rnd,F srtg,ltl fn,tr VC&Vfn;tr sh
	565-575	10		Ss,V pl or,C,rnd,F srtg,ltl G pnk dol-cem,mch M,ltl fn&VC;
	575-580	5		Ss,V pl or,C,rnd,P srtg,tr G pnk dol-cem,ltl M,fn&VC;ltl st
	580-585	5		Ss,V pl or,fn,Srnd,P srtg,ltl Vfn&C,tr M;tr st
	585-590	5		Ss,pl yl gry,C,rnd,P srtg,ltl M&fn,tr VC&Vfn;ltl yl gry sh,tr st
	590-595	5		Ss,wh,M&C,rnd,P srtg,mch fn,ltl Vfn;tr st
	595-600	5		Ss,V pl or,fn&C,rnd,P srtg,tr G pnk dol-cem,mch M,ltl VC&Vfn;tr s
	600-610	10		Ss,wh,C,rnd,P srtg,mch M,ltl fn&Vfn,tr VC;tr st
	610-615	5		Ss,wh,M,rnd,P srtg,mch C&fn,ltl Vfn,tr VC;ltl st,tr cl
	615-620	5		Ss,V pl or,fn&C,ltl G lt rd dol-cem,ltl M,tr Vfn&VC;tr pl gn sh
	620-635	15		Ss,V pl or,fn/C,rnd,P srtg,tr G pnk dol-cem,tr Vfn&VC;tr st&cl
	635-640	5		Ss,V pl or,M&fn,rnd,P srtg,ltl fn;ltl st,tr cl
	640-645	5		Ss,V pl or,M,rnd,P srtg,mch fn,ltl C,tr Vfn&VC;ltl st&yl gry cl
M	645-655	10		Ss,V pl or,fn/C,rnd,P srtg,ltl VC,tr Vfn;tr qtzt grans &st
T	655-660	5		Ss,V pl or,M&C,mch VC,ltl fn,tr Vfn;few grans,tr st,cl,soty pyr
·	660-665	5		Ss,V pl or,fn/C,tr Vfn&VC;tr grans,ltl cl,tr st&soty pyr
S	665-670	5		Ss,pl or,C,rnd,P srtg,mch M&VC,ltl fn,tr Vfn;tr st,soty pyr&grans
I	670-675	5		Sh,lt rd mot or pnk,dk rd bn&wh,vrbl hdns,slgt mica;mch C&VC snd
M	675-680	5		Ss,gry or pnk,VC,mch C,ltl M&fn,tr Vfn;ltl fn&Vfn qtz gvl,ltl st
O	680-690	10		Ss,or pnk,M&C,Sang/rnd,P srtg,ltl fn&VC,tr Vfn;ltl or pnk sh,tr grans
N	690-695	5		Ss,or pnk,Vfn/VC,ang/rnd,P srtg;ltl st&Vfn qtz gvl
	695-700	5		Ss,or pnk,C&VC,ang,mch M&fn,tr Vfn;ltl lt rd mot wh sh,ltl fn&Vfn
	700-705	5		Ss,pl or,M&C,ang,P srtg,ltl fn&VC,tr Vfn;few grans,tr st \qtz
	705-710	5		Ss,or pnk,M,Sang/Srnd,P srtg,mch C&fn,ltl VC&Vfn;ltl st,tr cl
	710-715	5		Ss,pl or pnk,Vfn,ang,F srtg,tr fn/C;mch sh,tr cl,gry&wh sh
	715-720	5		Ss,pl or,M,ang,P srtg,mch C,ltl fn&VC,tr Vfn;tr gry sh&grans
	720-725	5		Ss,or pnk,M&C,ang,mch fn,ltl VC,tr Vfn;mch or pnk slgt dolic sh
	725-730	5		Ss,or pnk,fn/VC,ang,tr Vfn;mch or pnk slgt dolic sh,ltl pl gn
	730-735	5		Ss,V pl yl or,M,ang,P srtg,mch fn,ltl C,tr Vfn&VC;ltl st&cl
	735-740	5		Ss,V pl yl or,C,ang,mch M&VC,tr fn;few grans,tr pyr,gn sh&ig snd
	740-745	5		Ss,V pl yl or,M&C,ang,P srtg,mch VC,tr fn;few grans,tr wea ig sn
	745-750	5		Ss,V pl yl or,Vfn/VC,ang,P srtg;few grans,tr sf,cl&gn sh
	750-760	10		Ss,V pl yl or,M/VC,ang,P srtg,tr fn;mny grans,tr pl gn sh
	760-765	5		Ss,V pl yl or,fn/VC,ang,P srtg,tr Vfn;few grans,tr sh&st
	765-775	10		Ss,V pl yl or,M,ang,P srtg,mch C,fn&VC,tr Vfn;tr st,sh&grans
	775-780	5		Ss,pl or,M&C,ang,P srtg,ltl fn&VC;few yl or&lt rd qtz grans
	780-785	5		Ss,pl or mot yl or,C,ang,mch M&VC,ltl fn,tr Vfn;few grans,ltl st&c
515	785-790	5		Ss,yl or&mxd clr,fn/VC,Sang;mch Vfn qtz&basalt?gvl,ltl yl or&lt rd
P	790-800	10	?	
C	800-805	5	~	Basalt,dk rd bn,dk rd,pl gn&rd bk,Vfn,wea?tr grnt?;tr V lt gry sh
17½	805-807'6"	2'6"		Basalt,bk&dk gry,fn&Vfn,fresh;tr cvd snd
				END OF LOG
	at 242	—		Sh,V pl yl or mot pl yl gn,F srtg,V slgt dolic,sft,ltl mod hd;mch Vfn snd,tr fn&M
	790-795	5½		Congl,dk gn,ol bk&dk rd bn,Vfn gvl,rnd,P srtg,mstly wea ig;mch fn/VC snd,ltl Vfn,mch rd bn,pl gn&yl or sh
	791-792	1½		Ss,pl yl or&mxd clr,M&C,rnd/ang,P srtg,mch VC,ltl fn,tr Vfn,mstly qtz&wea ig;few grans,tr st

Remarks: drawdown. Dn-952 is test well for this well.
Additional Abbreviations: tex-texture
drsy-drusy
W.G.S. geophysical log available

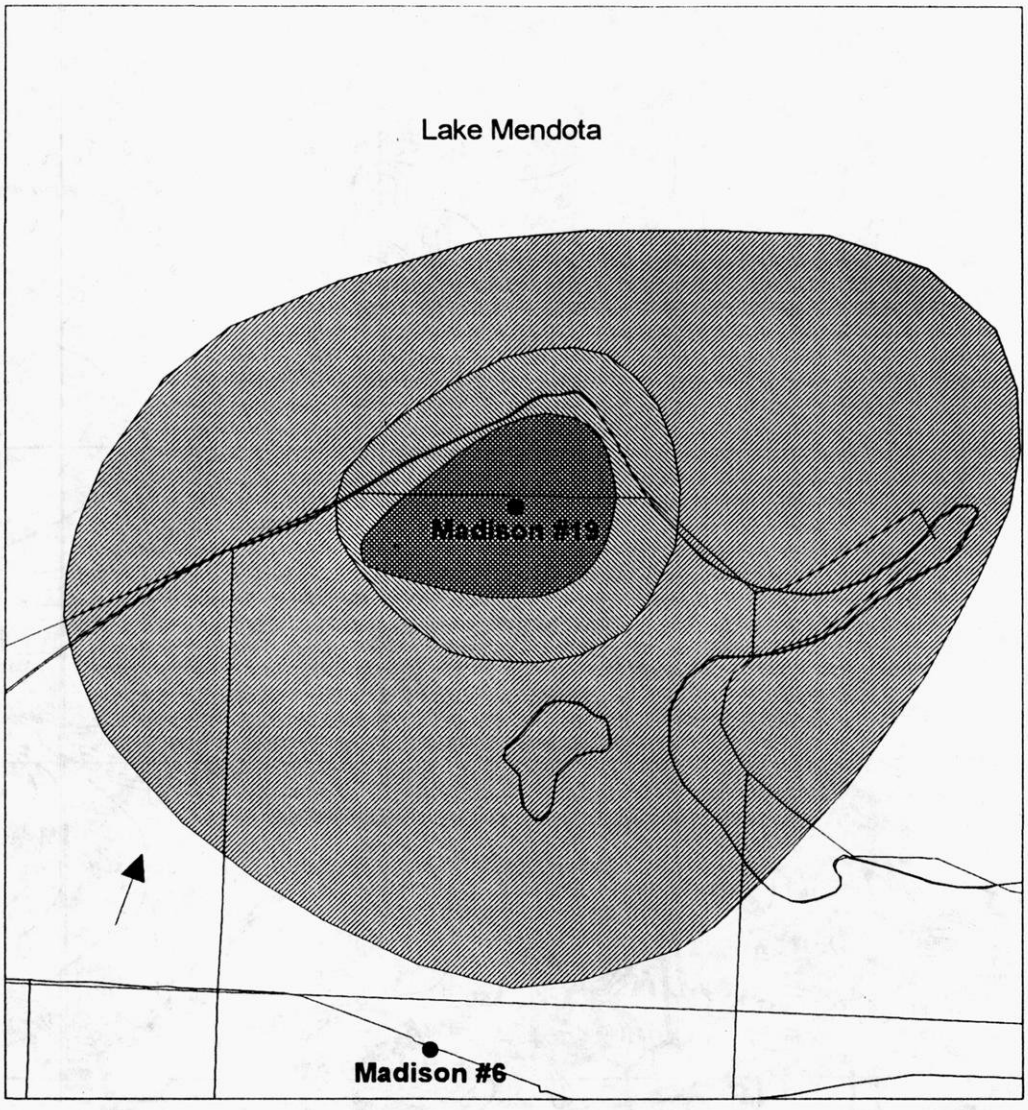
City of Madison, Well Number 19



City of Madison, Well Number 19 is located at 1525 Lake Mendota Drive, and at 43° 5' 21.38" north latitude and 89° 25' 58.03" longitude. The well was installed in 1970, and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 2,145,000 gpd.

The well casing extends to a depth of 260 feet below ground surface, and the total depth of the well is 718 feet. Water is drawn primarily from the Mt. Simon sandstone, although some of the water produced by this well is derived from downward leakage from Lake Mendota. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Madison, Well Number 19



Well Location

Latitude: 43° 5' 21.38"
Longitude: 89° 25' 58.03"

0 500 1000
(meters)

N

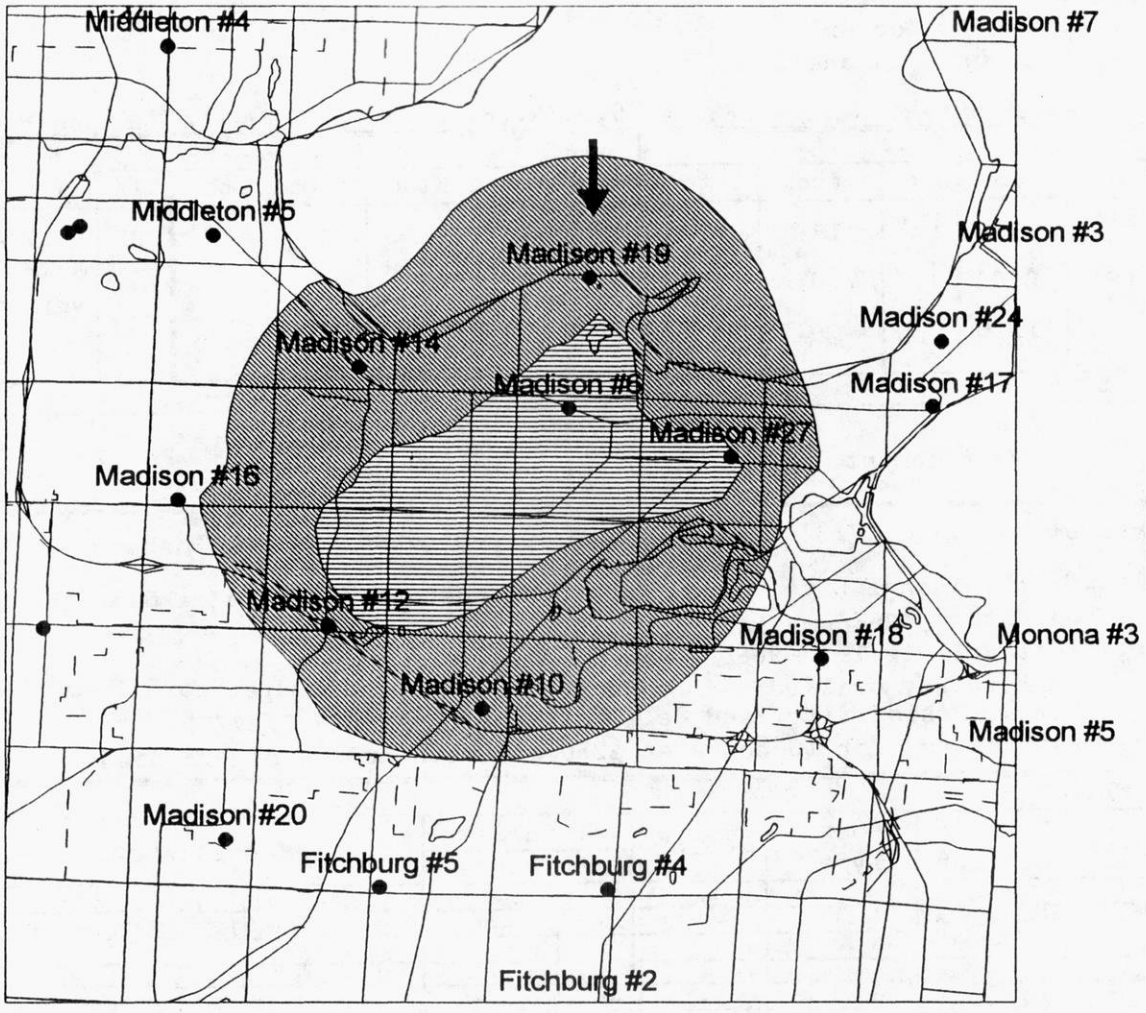
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 19



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

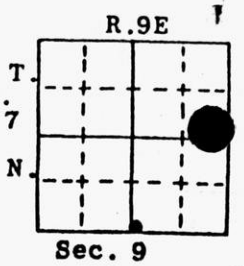
One-half foot drawdown in the deep sandstone aquifer

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. 111-Dn-
Sample Nos. All Retained

Well name Zenno A. Gorder Station Well
Madison Township #19
Owner.... City of Madison
Address.. City-County Building.
Madison, Wisconsin 53709
Driller.. Layne-Northwest Co.
Engineer. Zenno A. Gorder
Madison, Wisconsin

County: Dane
Completed... 4/70
Field check. W.G.S. P.O. & R.P.
Altitude.... 912' ETM
Use..... Municipal
Static w.l.. 62' 10"
Spec. cap... 14



Location: SW¼,SW¼,SW¼,SW¼,SW¼,SE¼,sec.9,T.7N.,R.9E. Quad. Madison West 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
42"	0'	18'	24"	711'6"	714'	42"	New steel welded, 3/8 wall	0'	18'	30"	ASTM A53 Grade B .500 wall welded	+2'6"	260'
35"	18'	260'	17"	714'	718'								
29"	260'	711'6"											

Grout: Kind	from	to
Neat cement	0'	260'

Samples from 0' to 718' Rec'd: 12/17/69 Studied by: M. Roshardt Issued:Sept.1970

Formations Drift, Tunnel City Group, Wonewoc Sandstone, Eau Claire Sandstone, Mt. Simon Sandstone, Precambrian

Remarks: Test Well is 1-Dn-968.
Well rotary drilled. 8½" long section of 4" diameter core from the Precambrian was obtained.
Gamma, Resistivity, and Self Potential Logs-WGS 3/27/70.
Well tested for 10 hours at 2250 gpm with 159'2" of drawdown.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
DFT. 15'	0-5		Clay	Dr brown	Clay	--	Little silt. Trace sand.
	5-10		Sand	"	M	Vfn/VC	Much clay-silt. Little gravel.
	10-15		"	"	"	"	Same
TUNNEL CITY 95'	15-18		Sandstone	Yl green	Fn	Vfn/C	Much glauconite. Little dolomitic matrix. Tr dol cement.
	18-25		"	Yl or gry	"	Vfn/M	Much calcite-dolomite cement. Little glauconite.
	25-30		"	"	M	"	Much calcite-dolomite cement, glauconite.
	30-35		"	"	"	"	Same
	35-40		"	"	"	"	Same but little glauconite.
	40-45		"	"	"	"	Same but trace glauconite.
	45-50		"	"	"	"	Same plus trace intraclasts.
	50-55		"	"	Fn	"	Much calcite-dolomite cement. Itl gn cl matrix. Tr glau.
	55-60		"	Lt brown	"	"	Much calcite-dolomite cement. Trace glauconite.
	60-65		"	"	"	"	Same
	65-70		"	"	"	"	Same plus little pale green shale.
	70-75		"	Yellow bn	"	"	Same but trace shale.
	75-80		"	Lt brown	"	"	Same
	80-85		"	"	"	"	"
	85-90		"	Yl gn gry	"	"	Much dolomitic clay matrix. Trace glauconite.
	90-95		"	Yl bn gry	"	"	Much dolomite-calcite cement. Little glauconite.
	95-100		"	"	"	"	Same
	100-105		"	Yl gn gry	"	"	Much calcite-dolomite cement, glauconite.
	105-110		"	Yl gn gry	"	"	Same
WONEWOC	110-115		"	Gry or pnk	M	Vfn/VC	Much silica cement. Trace green shale.
	115-120		"	"	"	"	Much silica cement. Trace glauconite.
	120-125		"	"	"	"	Same but no glauconite.
	125-130		"	Lt gray	"	Vfn/C	Much silica cement. Trace green shale.
	130-135		"	"	Fn &M	"	Same
	135-140		"	Yellow gry	M	Vfn/VC	Much silica cement. Little clay matrix.
	140-145		"	"	M &C	"	Same
	145-150		"	Pl brown	M	"	Much dolomite cement. Trace silica cement.
	150-155		"	Yl brown	"	"	Same
	155-180		"	"	"	"	Same plus trace green shale.

Well name: Zenno A. Gorder Station Well

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
W	160-165		Sandstone	Yl brown	C	Vfn/VC	Much dolomite cement. Trace green shale.
O	165-170		"	Yellow or	"	Fn/VC	Much dolomite cement.
N	170-175		"	Yl or bn	"	"	Much calcite cement.
E	175-180		"	"	"	"	Same
W	180-185		"	"	"	"	"
O	185-190		"	Yl gn gry	M	Fn/C	Little calcite cement, green clay matrix.
C	190-195		"	"	"	"	Same
	195-200		"	"	"	"	Much green clay matrix. Little green shale.
	200-205		"	Yl or bn	"	"	Much calcite cement.
	205-210		"	"	C	"	Same
	210-215		"	Yellow gry	Fn &M	Vfn/M	Much calcite cement. Little green clay matrix.
110'	215-220		"	"	M	Vfn/MC	Much calcite cement.
	220-225		Shale	Yl gn gry	--	--	Sandy. Red-speckled.
E.	225-230		Sandstone	Yellow gry	Fn	Vfn/C	Much clay matrix.
	230-235		"	"	"	Vfn/M	Little calcite cement, clay matrix.
C.	235-240		"	Yl gn gry	"	"	Same
	240-245		"	Yellow gry	"	"	Little calcite cement. Trace clay matrix.
	245-250		Shale	Gn red gry	--	--	Sandy.
35'	250-255		"	Gray	--	--	Dolomitic. Sandy.
	255-258		Dolomite	"	Fn	Fn/M	Sandy. Little pyrite. Trace glauconite.
	258-265		Sandstone	Pink gray	M	Fn/C	Much dolomite cement.
M	265-270		"	"	"	"	Same
	270-275		"	"	"	"	"
T.	275-280		"	"	"	Vfn/C	Trace dolomite cement.
	280-285		"	"	"	"	Same plus trace chert.
S	285-290		"	"	"	"	Same
	290-295		"	"	"	"	"
I	295-300		"	"	"	"	Much dolomite cement.
M	300-305		Dolomite	Yl gn gry	Fn	Fn/M	Much green sandy shale. Trace sandstone.
O	305-310		Sandstone	"	M	Vfn/C	Much dolomite cement. Trace pyritic green shale.
N	310-315		"	Yl pnk gry	"	"	Much dolomite cement.
	315-320		"	Green gry	Fn&M	"	Much dolomite-calcite-pyrite cement. Ltl pyr gn shale.
S	320-325		"	Pink gray	M	"	Trace green shale, chert.
	325-330		"	"	"	"	Trace green shale, chert, dolomite-pyrite cement.
A	330-335		"	"	"	Fn/C	--
	335-340		"	"	"	Vfn/C	--
N	340-345		"	"	"	"	--
D	345-350		"	"	"	"	--
S	350-355		"	"	"	"	Trace green shale, chert.
T	355-360		"	"	C	Fn/VC	--
O	360-365		"	Yl pnk bn	M	Fn/C	Much dolomite cement.
N	365-370		Limestone	Brown gry	Fn	Fn/M	Dolomitic. Sandy.
E	370-375		Sandstone	"	C	Fn/VC	Little dolomite-pyrite cement. Tr green clay matrix.
	375-380		"	Pink gray	"	Fn/C	Trace dolomite cement, green shale.
	380-385		"	"	Fn &M	Vfn/C	Trace dolomite cement.
	385-390		"	"	M	"	Same
	390-395		"	"	"	Fn/C	Little dolomite cement. Trace dolomite.
	395-400		"	"	"	"	Much dolomite cement.
	400-405		"	"	"	"	Same
	405-410		"	"	"	Vfn/C	Much dolomite cement. Trace green shale, pyrite.
	410-415		"	Pnk bn gry	"	"	Much dolomite cement. Trace pyrite cem, gn clay matrix.
	415-420		"	Pink gray	"	"	Trace dolomite cement, green clay matrix.
	420-425		"	"	"	"	Much dolomite cement. Little chert.
	425-430		"	"	Fn &M	"	Trace dolomite cement, chert.
	430-435		"	"	M	"	Same
	435-440		"	"	Fn	"	Much dolomite cement.
	440-445		"	"	M	"	Trace dolomite cement, clay matrix.
	445-450		"	Brown	Fn	"	Little dolomitic clay matrix.
	450-455		"	Brown gray	Fn &M	"	Same plus trace dolomite cement.
	455-460		"	Pnk yl gry	"	"	Much dolomite cement.
	460-465		"	"	M	"	Same plus little green pyritic shale matrix.
	465-470		"	Orange gry	"	Fn/VC	Much dolomite cement.
	470-475		"	"	"	Vfn/C	Same
	475-480		"	Pink gray	"	"	Much dol cement. Ltl gn clay matrix, pyr. Tr dolomite.
	480-485		"	"	Fn &C	Vfn/VC	Much dolomite cement.
	485-490		"	"	Fn	Vfn/C	Much dolomite cement. Little pyrite, green clay matrix.

Log No. 111-Dn-9

Sample Nos. All Retained

Well name: Zenno A. Gorder Station Well

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
M	490-495		Sandstone	Pink gray	M	Vfn/C	Much dolomite cement. Trace matrix.
T.	495-500		"	"	"	"	Same
	500-505		"	"	Fn	Vfn/VC	"
S	505-510		"	Gry or pnk	VC	Fn/VC	Little green pyritic shale matrix. Trace dolomite cement.
I	510-515		"	Pnk gry&grn	Fn &M	Vfn/VC	Much dolomite cement. Little matrix.
M	515-520		"	"	Fn	"	Much dolomite cement, green pyritic shale matrix.
O	520-525		"	Gry or pnk	C	Fn/VC	Trace cement, matrix.
	525-530		"	"	C &VC	M/VC	Same
N	530-535		"	Pnk gry grn	Fn	Vfn/VC	Much dolomite cement. Little matrix. Trace pyrite.
	535-540		"	"	Fn &M	Vfn/C	Same
	540-545		"	Pl gry &grn	"	"	Much dolomite cement. Little matrix.
S	545-550		"	Pink gray	M	Vfn/VC	Much dolomite cement. Trace pyrite.
A	550-555		"	Rd bn & grn	Fn	Vfn/C	Much matrix. Little dolomite cement.
	555-560		"	"	"	"	Much matrix, dolomite cement.
N	560-565		"	"	Fn &C	Vfn/VC	Same plus trace granules.
D	565-570		"	Pale gray	Fn	Vfn/fn	Much silica cement.
S	570-575		"	Red brown	M	Vfn/C	Much dolomite cement. Trace pyrite.
T	575-580		"	"	"	"	Same plus trace green matrix.
O	580-585		"	"	"	"	Same
N	585-590		"	"	M & C	"	Same
E	590-595		"	"	M	"	"
	595-600		"	"	"	"	"
	600-605		"	Gry or pnk	C	Fn/VC	Trace silica cement, granules.
	605-610		"	"	Fn &C	"	--
	610-615		"	"	"	"	Trace granules.
	615-620		"	"	"	Vfn/VC	Same
	620-625		"	"	Fn	"	Little clay matrix. Trace pyrite, granules.
	625-630		"	"	Fn &C	"	Same
	630-635		"	"	Fn	"	"
	635-640		"	Gn yl gry	C	Fn/VC	Much clay matrix, green shale. Little dolomite cement.
	640-645		Conglomerate	Or bn	Gran	Gran/S peb	Much silt. Trace sand.
	645-650		Sandstone	Gn yl gry	M	Vfn/VC	Much micaceous green shale. Little dolomite cement.
	650-655		"	Gry or pnk	Fn	"	--
	655-660		"	Tan	M	"	Much silt. Trace micaceous matrix.
	660-665		"	Yellow gry	Fn &C	"	Little silt. Trace green shale.
	665-670		"	"	C	"	Trace silt matrix.
	670-675		"	"	"	"	Same
	675-680		"	"	Fn &VC	"	--
	680-685		"	"	"	"	--
	685-690		"	"	Fn &C	"	--
	690-695		"	"	"	"	--
	695-700		"	"	Fn	Vfn/M	Much silica cement.
	700-705		"	"	"	"	Same
455'	705-710		"	Pnk bn gry	"	"	Mottled. Much hematite-dolomite-silica cement.
PC	710-715		Shale	Brown	--	--	Slightly sandy.
8'	715-719		"	"	--	--	Same

END OF LOG

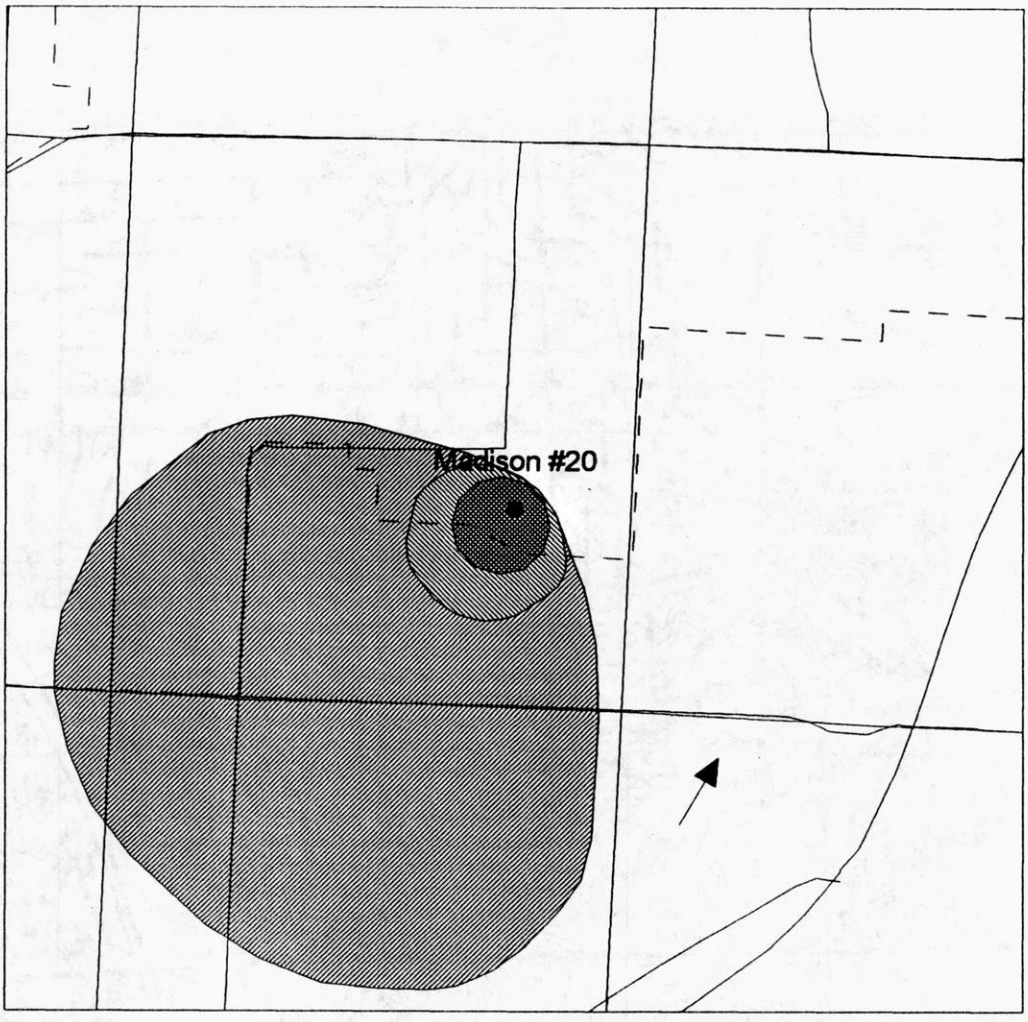
City of Madison, Well Number 20



City of Madison, Well Number 20 is located at 2722 Prairie Road and at 43° 1' 16.51" north latitude and 89° 29' 18.21" longitude. The well was installed in 1973 and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 1,380,000 gpd.

The well casing extends to a depth of 415 feet below ground surface, and the total depth of the well is 1131 feet. Water is drawn primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

Zone of Contribution for Madison, Well Number 20



Well Location

Latitude: 43° 1' 16.51"
Longitude: 89° 29' 18.21"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

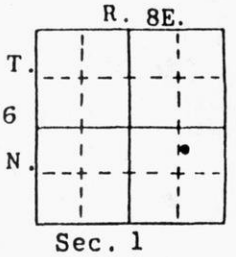
1815 University Avenue, Madison, Wisconsin 53706 Sample Nos. All Retained

Well name Madison City Well #20
(L. A. Smith Station Well)

County: Dane

Owner.... City of Madison
Address.. 523 E. Main Street
Madison, WI 53703
Driller.. Layne-Northwest Co.
Engineer. Robert P. Fuller
Madison, Wisconsin

Completed... 10/72
Field check. WGS-RMP
Altitude.... 1108' ETM
Use..... Municipal
Static w.l.. 261.23'
Spec. cap... 18.9 GPM/ft



Location: SW¼,SW¼,SW¼,NW¼,NE¼,SE¼,sec.1,T.6N.,R.8E. Quad. Madison West 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
45"	0	415'	29"	415'	1068'	30"	⅜" wall API5LB new welded	+2'	415'				

Grout: Kind	from	to
Neat Cement	0	415'

Samples from 0 to 1130' Rec'd: 9/9/71, 12/7/71 Studied by: R. M. Peters, M. Roshardt (300'-400') Issued: 3/6/85

Formations: Surface, Sinnipee Group, St. Peter Ss (Tonti & Readstown Mbrs), Jordan Fm, St. Lawrence Fm (Lodi & Black Earth Mbrs), Tunnel City Gp, Wonewoc Fm, Eau Claire Fm, Mt. Simon Ss.

Remarks: Well tested for 48 hours at 2400 GPM with 126.70' of drawdown. Well back filled with cement from 1068' to 1131'. Dn-898 is the 400' deep test hole for this well. Well was drilled by reverse rotary method. WG&NHS resistivity, gamma and spontaneous potential logs run - 10/12/72.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Sfc.	0-9		Sand & silt	Yl brown	M	VFn/VC	Much soil. Trace gravel.
SINNIPEE	9-15	Pyro	Dolomite	Lt yl brown	Fn	Fn/M	Ltl quartz, pyrolusite coating. Tr drsy qtz, foss frags.
	15-20		"	Pl yellow	M	"	Moh "caved" snd & silt. Tr bn bk coating (pyrolusite?) "caved" grans.
	20-25		"	"	Fn/M	"	Same but no chert.
	25-30		"	"	Fn	"	Moh cht ("caved"?), "caved" snd & silt. Tr pyrolusite coating.
	30-35		"	"	Fn/M	"	Moh "caved" snd&silt. Tr bn bk coating, cht, "caved" gravel.
	35-40		"	"	Fn	"	Moh "caved" snd&silt. Ltl cht("caved"?), Tr bn bk stg, "cvd" grans.
40'	40-45		"	"	Fn/M	"	Moh "cvd" snd&st. Tr cht("cvd"?)bn bk stg,"cvd" gvl.
	45-49		"	"	"	"	Moh"cvd" snd&st. Ltl cht ("cvd"), Tr bn bk stg, "cvd" grans.
TONTI	49-55		Sandstone	V pl yl gy	Fn/M	VFn/C	Moh silica cement. Little limonite.
	55-60	Lim	"	Pl yl&rd yl	"	"	Same.
	60-65	Fe	"	Or yellow	"	Fn/C	Moh silica cement. Ltl Fe oxide coating. Tr limonite.
	65-70		"	"	"	"	Same.
	70-75	Fe	"	"	"	"	"
	75-80		"	"	"	"	"
	80-85		"	Lt or yl	"	VFn/C	Moh silica cement. Tr Fe oxide coating.
	85-90	Lim Lim	"	Lt or yl&v dk bn	Fn	"	Moh lim, silica cement. Tr Fe oxide coating.
	90-95		"	Lt or yl	Fn/M	"	Moh silica cement. Tr interstitial clay.
	95-100		"	"	Fn	"	Moh silica cement. Tr Fe oxide banding.
	100-105		"	"	"	"	Much silica cement.
	105-110		"	Lt or yl	M	VFn/C	Moh silica cement. Tr Fe oxide coating.
	110-115		"	"	"	Fn/C	Ltl silica cem. Tr lim, limonite cement.
	115-120	Lim	"	"	"	"	Ltl lim, sil cem. Tr lim cement.
	120-125		"	"	"	"	Moh sil cem. Tr lim&Fe oxide coating.
	125-130		"	Lt or yellow, yl bn & rd bn	"	VFn/C	Ltl sil cem. Tr lim coating, Fe oxide coating.
	130-135		"	Lt or yl & rd bn	Fn/M	"	Same.
	135-140		"	Lt or yl	"	"	Little silica cement.
	140-145		"	"	"	"	Ltl sil cem, Tr lim cem, Fe oxide banding.
	145-150		"	"	M	"	Ltl silica cement. Tr limonite coating.
109'	150-158		"	"	"	"	Ltl silica cement.
Readstone	158-160		Sandstone&sh	Gy vi & white	VFn	VFn/C	Moh stg, hemic cem. Shale: hematitic, siliceous.

Well name: Madison City Well #20 (L. A. Smith Station Well)

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
READSTOWN 52'	160-164	Hem Hem	Ss & shale	Gy vio& wh	VFn	VFn/C	Mch sts, hematitic cement. Shale: hematitic siliceous.
	164-170	Lim	Sandstone	Gy vio& wh	M	"	Mch sil cem. Ltl material like 158'-164' (cvd?), lim. Tr Fe ox
	170-175		"	Lt oryl&v lt gy	Fn/M	"	Mch sil cem, Tr Fe oxide coating, caved dolomite. coat
	175-180	Lim Lim	Chert	Rd brn& wh	--	--	Soft. Very oolitic. Mch limonitic banding.
	180-185	Hem Hem	Shale	Wh, gy vi&rd bn	--	--	Very hematitic. Mch wh cht. Ltl lim cem ss, wh shale.
	185-190	Hem Hem	"	Rd & white	--	--	Very hematitic. Mch wh sh(decayed cht). Ltl snd.Tr hard wh
	190-195		Sandstone	Wh, gy, vi&bn yl	M	VFn/C	Mch v hematitic sh, sil cem, cht(wh oolitic), wh shale.
	195-200	Hem Hem	"	Rd brn&bn yl	"	"	Mch hem&sil cem, Ltl hem sh, lt yl cht. Tr wh shale.
	200-205		Chert	Rd bn, yl brn&gy vi	--	--	Mch sil & hem cem ss. Ltl hematitic shale.
	205-210		"	Lt yl bn	--	--	Mch sil cem ss, drusy quartz. Tr Fe oxide cement.
JOR. 25'	210-215		Sandstone	"	Fn/M	VFn/C	Much silica cement, chert.
	215-220		"	V pl bn	"	"	Much silica cement.
	220-225		"	Bn yellow	"	VFn/M	Same.
	225-230		"	Bn yl& rd bn	"	VFn/C	Much silica cement. Tr Fe oxide coating.
	230-235		"	Bn yellow	"	VFn/M	Same.
Lodi 20'	235-240		Siltstone	Gy rd vio	--	--	Much VFn/M sand. Little silica cement.
	240-245		Ss & sts	Pl yl&gy vi	M	VFn/C	Mch dolic cem (sts), silica cement (sandstone),
	245-250		Shale	V pl gy gn	--	--	Siliceous. Mch silt, VFn/C snd. Tr red bn hematitic shale
	250-255	Hem	Siltstone	Rd bn & yl	--	--	Mch dolic cement. Ltl hematitic matrix. Ltl green shale.
Blk. E. 30'	255-260	G	Dolomite	Bn yellow	M	Fn/M	Trace VFn glauconite, pyrolusite.
	260-265	G	"	"	Fn	"	Same.
	265-270	G	"	Bn yl&gy vi	"	"	"
	270-275	G G	"	"	"	"	Ltl VFn glauconite. Tr pyrolusite, wh shale.
	275-280	G G	"	"	"	"	Ltl Vfn/Fn glauconite. Tr pyrolusite, wh shale.
	280-285	G G	"	"	"	"	Same but no shale.
TUNNEL CITY Gp. 127'	285-290	G G G	Sandstone	Yl green	Fn	VFn/M	Mch VFn/M glauconite, shaly matrix. Tr dolomite cement.
	290-295	G G G	Shale	Yl,yl gn&rd bn	--	--	Mch VFn/M glauconite. Much silt, VFn/M sand.
	295-300	G G G	Sandstone	Bn yellow	Fn	VFn/M	Mch dol cem, VFn/M glauconite. Tr v pl yl shale.
	300-305	G G	Sandstone	Or yellow	Fn	VFn/M	Mch dol cem. Ltl Fn/M glauconite. Tr red & green shales.
	305-310	G	"	"	"	"	Same.
	310-315	G G	"	"	"	"	"
	315-320	G	"	"	"	"	Mch dol cem. Tr red & gn shales, fossil frags, glauconite.
	320-325		"	"	"	"	Same but no fossil fragments.
	325-330	G	"	"	"	"	Same.
	330-335	G G	"	"	"	"	Mch dol cem. Ltl Fn/M glauconite. Trace green shale.
	335-340	G	"	"	"	"	Mch dol cement. Tr glauconite.
	340-345		"	"	"	"	Same plus little green shale.
	345-350	G	"	"	"	"	Same.
	350-355	G G	"	"	"	"	Same but little glauconite.
	355-360	G	"	"	"	"	Same but trace glauconite.
	360-365		"	"	"	"	Same.
	365-370	G	"	Or brown	Fn/M	VFn/C	Mch dol cement. Tr Fn/C glauconite, red shale.
	370-375		"	"	M	"	Same.
	375-380	G	"	"	"	"	"
	380-385		"	Tan & gn	Fn	VFn/VC	Mch silica cement. Little green & red shales.
	385-390		"	"	"	"	Same.
	390-400		"	"	"	"	"
	400-405		"	"	M	VFn/C	Much silica cement. Little green shale.
	405-410		"	Yl gn &gn	Fn	"	Much silica&dolomite cement. Trace green shale.
	410-412		Siltstone	Red yellow	--	--	Much dolic shale matrix. Trace sand.
WONEWOC 63'	412-415		Sandstone	V pl brn&dk yl	C	VFn/VC	Little brown dolic shale. Tr silica cement.
	415-420		"	V pl bn	"	"	Tr bn dolic shale, dolic cement, white shale.
	420-425		"	Yellow	M	VFn/C	Much dolomite cement. Trace pyrolusite?
	425-430	Pyr	"	"	C	"	Much calcite cement. Little pyrolusite?
	430-435		"	"	M/C	VFn/VC	Much dol&calcite cem. Tr pyrolusite?, Fe oxide.
	435-440		"	White	M	"	Trace caved 430'-435', white shale.
	440-445		"	Yellow	M/C	"	Much calcite cement. Trace pyrolusite?
	445-450		"	V pl yl gy	Fn/M	VFn/C	Trace caved 440'-445', white shale.
	450-455		"	Yellow	M/C	VFn/VC	Mch calcite cement. Tr pyrolusite?, calcite crystals.
	455-460		"	V pl yl gy	Fn/M	"	Little pl green shale. Tr white shale.
	460-465		"	White	"	"	Trace pale green & white shales.
	465-470		"	V pl yl gy	"	"	Trace white shale.
	470-475		"	Pl yellow	"	VFn/C	Same.
E.C.	475-480		"	Yellow	Fn	Vfn/M	Trace dolomite cement, white shale.
	480-485	G	"	Pl yellow	Fn/M	VFn/C	Little wh sh. Tr dol cem, glauc?, caved brown shale.
	485-490		"	Yellow	"	"	Mch dol cem. Tr wh shale, brown shaly matrix.

Well name: Madison City Well #20 (L.A. Smith Station Well)

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
EAU CLAIRE	490-495		Sandstone	Yellow	Fn/M	Vfn/C	Ltl dol cem,pl gn pl bn,yl bn sh, Tr pyro?, White shale.
	495-500		"	"	Fn	Vfn/C	Trace dol cement, bn shaly matrix, white shale.
	500-505		"	"	Vfn/Fn	Vfn/M	Trace dolomite cement.
	505-510		"	Or yellow	Fn/M	Vfn/C	Much dolomite cement, white & pink shale, pyrolusite?
	510-515		"	Yellow	M	Vfn/C	Ltl dol cem,white,pl gn,& yl bn sh. Tr dendritic pyrolusite.
	515-520		Siltstone	"	--	--	Mch dol cem,sand.Tr dend pyro. Tr white & pl gn shales.
	520-525		Ss & Sts	Pl yl & pl gn	Fn/M	Vfn/VC	Mch pl gn shale, dol cem.Ltl wh sh. Tr dendritic pyrolusite.
	525-530		Sandstone	Lt yl bn&gy	Fn/M	Vfn/C	Mch gry sh, dol, dol cem. Trace dendritic pyrolusite.
	530-535		"	Lt pk gy	Fn	Vfn/M	Mch dol cem. Tr pale green shale, fossil fragments.
	535-540	G	Sh & ss	Gn gy&ltgn gy	"	Vfn/C	Mch dol cement. Trace glauconite.
	540-545		Shale	Green gray	--	--	Trace sandstone, pyrite.
	545-550		"	"	--	--	Trace sand.
	550-555	G/G G/G	Dol & Sh	Gray green	Fn	Fn	Much glauconite. Trace gray shale, pyrite.
85'	555-560	G/G G/G	Dolomite	Green gray	"	Fn/M	Mch glauc, Fn/C dol-cem ss. Few fossil fragments.
MT. SIMON SANDSTONE	560-565		Sandstone	V lt gy	M	Vfn/VC	Ltl gn gry cvd? glauc sh. Tr cvd dol,wh shale, dol cement.
	565-570	G	"	Pink	"	Vfn/C	Mch dol cem. Tr white sh, cvd gry sh,rd spks,cvd? glauc.
	570-575		"	V pl pk gy	"	Vfn/VC	Mch dol cem. Tr pl gn & yl bn shales.
	575-580		"	V lt gy	M/C	"	Tr dol cem,pl gn& wh sh,cvd glauc dol,gn gry glauc shale.
	580-585		"	V pl bn	M	Vfn/C	Much dolomite cement.
	585-590		"	V pl pk gy	"	"	Same plus trace red speckling.
	590-595	G	"	V pl bn	"	Vfn/VC	Tr dol cem, caved? glauconite, shaly matrix.
	595-600		"	Lt pk gy	"	"	Mch dol cement, Tr caved? yl bn shale, white shale.
	600-605		"	V lt pk gy	"	Vfn/C	Mch dol cement,Tr red speckling,cvd gn gy shale.
	605-610		"	"	"	"	Mch dol cement, Tr gry & yl bn shale, white shale.
	610-615		"	V lt pk gy & pl gn	"	"	Mch dol cem, pl gn & wh shaly matrix. Tr yl bn shale.
	615-620		"	Lt pk gy & pl gn	"	"	Mch dol cem. Ltl pale gn & wh shaly matrix.
	620-625		"	Lt pk gy	"	"	Mch dol cem. Trace white shale.
	625-630		"	V lt gy	M/C	Vfn/C	Ltl dol cement. Tr white & yellow brown shale.
	630-635		"	Light gray	M	Vfn/C	Mch dol cement, Tr cvd gray shale, iron pyrites.
	635-640		"	White	"	Vfn/VC	Ltl wh shale. Tr dol cement, v pl gn shaly matrix.
	640-645		"	V lt gy	M/C	"	Tr dol cement, yellow bn shale, iron pyrites.
	645-650		"	Lt pk gy	M	Vfn/C	Mch dol cement. Tr sndy dolomite, iron pyrites.
	650-655		"	V lt gy	Fn/C	Vfn/VC	Ltl sandy dol. Tr dol cement, pl gn shaly matrix.
	655-660	/	Ss & Dol	Lt pk gy	M&Fn	Vfn/C&Fn/M	Mch dol cement, sandy dolomite, dolomite rhombs.
	660-665	/	"	"	"	"	Mch sndy dolomite, dolomite cement.Trace iron pyrites.
	665-670		Sandstone	"	"	Vfn/C	Mch dolomite,dolomite cement. Trace iron pyrite.
	670-675	/	Ss & Dol	"	M&Fn	Vfn/C&Fn/M	Mch floating sand, dolomite cement.
	675-680		Sandstone	"	M	Vfn/C	Much dolomite cement. Little sandy dolomite.
	680-685		"	V pl bn	Fn/M	"	Much sandy dolomite, dolomite cement.
	685-690	/	Dolomite	Pink gray	Fn	Fn/M	Much floating sand. Much dolomite cemented sandstone.
	690-695	/	Dol & Ss	"	Fn&M	Fn/M&Vfn/C	Mch floating sand, dol cement. Tr cvd? gray green shale.
	695-700	/	"	"	"	Fn/M&Vfn/VC	Same but no shale.
	700-705		Sandstone	Lt pk gy	M	Vfn/C	Mch dol cement. Ltl sandy dol. Trace v pl gn shale.
	705-710		"	"	"	"	Mch dol cement. Trace red speckling.
	710-715		"	Pl gn&lt pk gy	Fn/M	"	Mch pale green sandy shale, dolomite cement.
	715-720		"	Lt pk gy	"	"	Much dolomite cement. Trace pl gn sandy shale.
	720-725		"	Pink gray	M	"	Mch dolomite cement, sandy dol, Ltl pale green shaly matrix
	725-730		"	Lt gn gy	Fn	"	Mch pl gn sandy sh. Little dolomite cement.
	730-735		"	Lt pk gy	Fn/M	"	Mch dol cement. Little sandy dolomite.
	735-740		"	Lt gn gy	M	"	Mch dol cement. Ltl sandy dol, pl yl bn sh.Tr pl gn shales
	740-745		"	Lt gn gy	Fn	"	Mch pl gn shaly matrix. Tr sil cement, iron pyrites.
	745-750		"	V pl bn	"	"	Mch dol cement. Trace pl yl bn shale.
	750-755		"	"	"	"	Mch dol cement. Trace sandy dolomite.
	755-760		"	"	Fn/M	"	Much dol cement. Trace pale gn & yl bn shales.
	760-765		"	V lt bn gy	C	Vfn/VC	Tr grans,wh shale, pl gn shale, dolomite cement.
	765-770		"	V pl bn	Fn	Vfn/C	Much dolomite cement.
	770-775		"	Violet red	M	"	Same.
	775-780		"	V pl bn	Fn	"	"
	780-785	G	"	V lt bn gy	"	Vfn/VC	Ltl pl gn shaly matrix.Tr Fn glauc, yl bn shale, wh shales.
	785-790		"	"	Fn&C	"	Trace pale green shaly matrix, white shale.
	790-795	G	"	"	Fn	Vfn/C	Same plus trace yellow brown shale, glauconite?
	795-800	G	"	"	Fn&C	Vfn/VC	Trace pale green sh matrix, white shale, Fn glauconite.
	800-805		"	"	C	"	Ltl pl gn shaly matrix, Tr wh sh,yl bn sh,caved?gray sh
	805-810		"	"	C/VC	"	Ltl wh sh, Tr yl bn shale,grans,dolomite & silica cements.
	810-815		"	"	Fn&C	"	Tr yl bn shale,pale gn sh matrix, white shale,silica cement
	815-820		"	"	"	"	Ltl pl gn shaly matx.Tr yl bn shale,white sh,silica cement.

Well name: Madison City Well #20 (L.A. Smith Station Well)

MT. SIMON SANDSTONE

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
820-825		"	Lt rd bn	Fn/M	Vfn/C	Much dolomite cement.
825-830		"	Pl green	Fn	"	Mch pl gn sh matrix. Tr wh & yl brown shales, silica cem,cvd
830-835		"	"	"	"	Mch pl gn shaly matrix. Trace silica cement. 820'-825'.
835-840		"	"	C	Vfn/VC	Mch pl gn sh matx. Tr cvd? sndy dol,si cem, yl brown shale.
840-845		"	"	M	Vfn/C	Mch pale gn shaly matrix. Little silica cement.
845-850		Shale	Lt yl bn	--	---	Much grout. Little like 840'-845'. Trace sand.
850-855		Sandstone	Pale green	M	Vfn/C	Much pale green shaly matrix. Ltl wood. Sample was 95% grout.
855-860		"	"	Fn	"	Much pale green shaly matrix. Trace white shale.
860-865		"	Pl gn&v lt bn gy	"	"	Much pale green shaly matrix.
865-870		"	V lt bn gy	C	Vfn/VC	---
870-875		"	"	"	"	Tr gray brown shaly matrix, white shale.
875-880		"	"	Fn	Vfn/C	Tr yl brown & pale green, shaly matrixes, white shale.
880-885		"	"	Fn/M	Vfn/VC	Same.
885-890		"	V lt gn gy	M/C	"	"
890-895		"	"	Fn	"	Ltl pl gn shaly matrix.Tr yl bn sh matr,wh shale,dol cement.
895-900		"	V lt bn gy	"	Vfn/C	Tr pale gn & yl bn shaly matrixes, white shale.
900-905		"	"	Fn/C	Vfn/VC	Same but no pl gn matrix.
905-910		"	"	M	"	Tr calcic cement, white shale.
910-915		"	"	Fn/M	Vfn/C	Tr pl gn & yl bn shaly matrixes,white shale,silica cement.
915-920		"	"	"	"	Same.
920-925		"	"	Fn/C	Vfn/VC	Ltl silica cem. Trace pale gn shaly matrix,wh shale,granules.
925-930	G	"	Lt bn gy	"	"	Same plus trace iron pyrites,glauc,pale yellowbrown shale.
930-935		Shale	Gray red	--	--	Siliceous. Little pale green. Trace silt, sand.
935-940		Sh & Ss	V lt brown gray, gray red & pl green	M/C	Vfn/VC	Siliceous(shale). Tr white shale,granules, small pebbles.
940-945		Sandstone	V lt bn gy	Fn/C	"	Tr granules white, gray red, & pale green shales.
945-950	M	Sts & Sh	Lt ol gy	--	--	Mch silic cem(sts)Silic,Micac(sts).Tr snd, gray red shale.
950-955	M	Siltstone	"	--	--	Siliceous,Micaceous,Mch silic cem. Little shale, sandstone.
955-960		Sandstone	V lt bn gy	M/VC	Vfn/VC	Ltl dol cem,Many gran.Tr sm pebs,wh,dk gry & v lt gry shales.
960-965		"	"	M/C	"	Tr dol cem,granules, v lt bn gy shale, white shale.
965-970		"	"	Fn/C	"	Tr granules,wh shale, v lt bn shaly matrix.
970-975		"	"	C	"	Mny gran, Trace small pebbles,wh chert, v lt bn shaly matrix.
975-980		"	"	Fn/M	"	Mch sil cem. Ltl v lt bn shaly matrix, Tr gran, sm pebbles.
980-985		"	Bn yl & v lt bn gy	C/VC	"	Mch sil cem,v lt bn gy sh.Ltl dol cem.Tr pyr,iron oxide coat.
985-989 *		"	V lt bn gy	M/C	Fn/VC	Mch calcic cem,sh matrix.Few gran,Tr sm and medium pebbles.
989-995		Shale	V pl bn & gy red	--	--	Trace sand,granules, small pebbles, calcite.
995-1000 +		Sh & Ss	pl bn	C	Vfn/VC	Much calcic cement. Few granules. Trace small pebbles.
1000-1005		Shale	Lt brown	--	--	Ltl ss(calcite-cemented spheroids)Few gran,Tr sm pebbles.
1005-1010		Sandstone	V lt bn gy	C	Vfn/VC	Tr dark gry,white, and v lt bn shales, silica cement.
1010-1015 ‡		"	Lt red bn	Fn	"	Mch silica cement. Ltl v lt gy shale. Trace pyrite.
1015-1020		"	V lt bn gy	C	"	Ltl sil cem. Few granules.Tr wh shale, v lt bn gy shale.
1020-1025		"	"	Fn/M	"	Mch sil cem, v lt bn gy shale. Tr red brown shale, pyrite.
1025-1030		"	"	M	"	Mch sil cem. Many gran,small pebbles. Little pl brown shale.
1030-1035		"	"	"	"	Mch sil cem. Few gran, sm peb.Tr med peb,pl gn sh,pl bn sh,rou
1035-1040		"	"	"	"	Mch sil cem.Tr gran, sm pebs,rnd Vfn/Fn opaque mineral. Vfn/Fn
1040-1045		"	V lt bn gy & pl bn	Fn/C	"	Ltl pl bn sh,sil cem.Mny gran,sm pebs.Tr plgn sh,rndVfn/Fn op m
1045-1050		"	V pl bn	M	"	Ltl sil cem.Tr dol cem,wh,pl bn & yl shales,rnded Vfn/Fn op miners
1050-1055		"	"	C	"	Ltl wh & pl bn sh.Few gran. Trace sm gry shale, pyrite.
1055-1060		"	V pl bn & yellow	C/VC	Fn/VC	Mch calcic cem,v pl bn sh.Mny gran,sm pebs.Tr gry sh,pyrite.
1060-1065	G	"	V lt bn gy	M	Vfn/VC	Mch sil cem.Ltl glauc,wh sh,Tr rnd Vfn/Fn op min,gr,sm pebs.
1065-1070	Fe	"	Rd yl & v lt bn gy	"	"	Mch sil cem,v pl bn sh,ir ox cts.Tr wh,pnk&lt gy shales,granules
1070-1075		"	V pl brown	"	"	Mch sil cem.Ltl dk gy rd sh,wh sh,mic sts,Mny gran,sm pebs. Tr.
1075-1080 1		Conglomerate	Wh & Yl	Sm peb	Gran/M peb	Mch sil cem ss,Tr ir ox cts.Ltl pl bn sh. Iron oxide coating
1080-1085 2		"	Yellow	Gr/SP	"	Ltl silica-cemented ss. Trace pl brown & white shales.
1085-1090		Sandstone	"	C/VC	Vfn/VC	Mny gran. Tr red brown hemic sh,pl gn sh, sm pebs,sil cem,
1090-1095		"	V pl bn	C	"	Tr sil cem, white,pl bn, & ol gn shales,granules,sm pebbles,
1095-1100 3		"	V pl bn & yellow	M/C	"	Mch silica cem.Mny sm pebs,grans.Ltl wh & pale brown shales.
1100-1105 4		Conglomerate	Yellow	Smpeb	Gran/M peb	Mch sil cem ss/rnded Fn op min.Ltl pl bn sh.Tr wh sh,rut quar
1105-1110 5		"	"	"	Gran/Sm peb	Mch sil cem ss, Ltl pl bn shale,Tr wh shale,pale green shale.
1110-1115 6		"	"	"	"	Little pale bn shale, silica-cemented ss.
1115-1120 7		Sandstone	V pl bn & yellow	M	Vfn/VC	Much silica cement,Many gran,sm pebs. Trace white shale.
1120-1125		Sh& Conglom	Pl bn & yl	Sm peb	Gran/M peb	Much silica-cemented sandstone, white shale.
1125-1130		Sandstone	V pl bn	M	Vfn/VC	Mch white shale. Ltl sil cem, Tr gran, ol gn sh, pl bn sh.

END OF LOG

Well name: Madison City Well #20 (L.A. Smith Station Well)

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
		ADDITIONAL INFORMATION				
		* Sample from 985-989 is composed of calcite-cemented spheroids of Fn/VC sandstone 4 mm in diameter and granule/medium pebble-sized rounded quartz grains. Spheroids and quartz grains are imbedded in a shaly matrix.				
		† Sample from 996-1000 has many calcite-cemented spheroids approximately 5 mm in diameter.				
		‡ Sample from 1010-1015 is a light red brown sandstone speckled with very dark red spots 1 mm in diameter. These spots seem to mark concentrations of pyrite grains.				
		1 Sample from 1075-1080 contained 5 mm fragments of dark yellow brown quartzite.				
		2 Sample from 1080-1085 contained 7 mm yellow quartz fragment of jasper? with pyrite, and 4 mm fragment of black quartzite.				
		3 Sample from 1095-1100 contained two 5 mm fragments of white to reddish fragment of quartzite (Baraboo) and one 5 mm fragment of jasper?				
		4 Sample from 1100-1105 contained 7 mm fragment of dark yellow brown dirty quartzite.				
		5 Sample from 1105-1110 contained 8 mm fragment of yellow brown chert and 6 mm fragment of dark yellow brown quartzite.				
		6 Sample from 1110-1115 contained 4 mm Baraboois quartzite fragment.				
		7 Sample from 1115-1120 contained 7 mm fragment of red quartzite with quartz veinlet.				

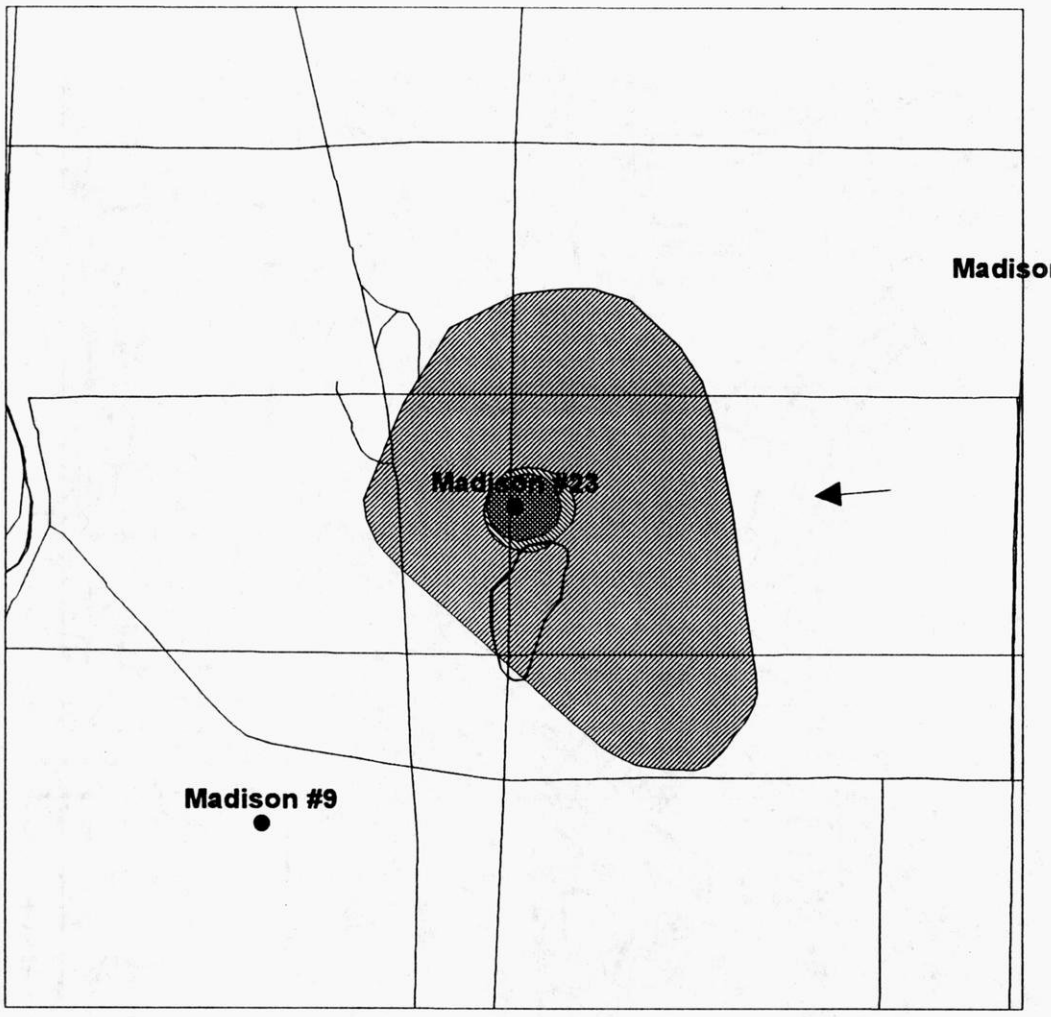
City of Madison, Well Number 23



City of Madison, Well Number 23 is located at 4502 Leo Drive, and at 43° 4' 51.03" north latitude and 89° 18' 21.62" longitude. The well was installed in 1958, and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 366,000 gpd.

The total depth of the well is 500 feet. Water is drawn from a combination of the Paleozoic bedrock units. Groundwater flow in the vicinity of the well is generally to the west.

Zone of Contributin for Madison, Well Number 23



Well Location

Latitude: 43° 4' 51.03"
Longitude: 89° 18' 21.62"

0 500 1000
(meters)

N

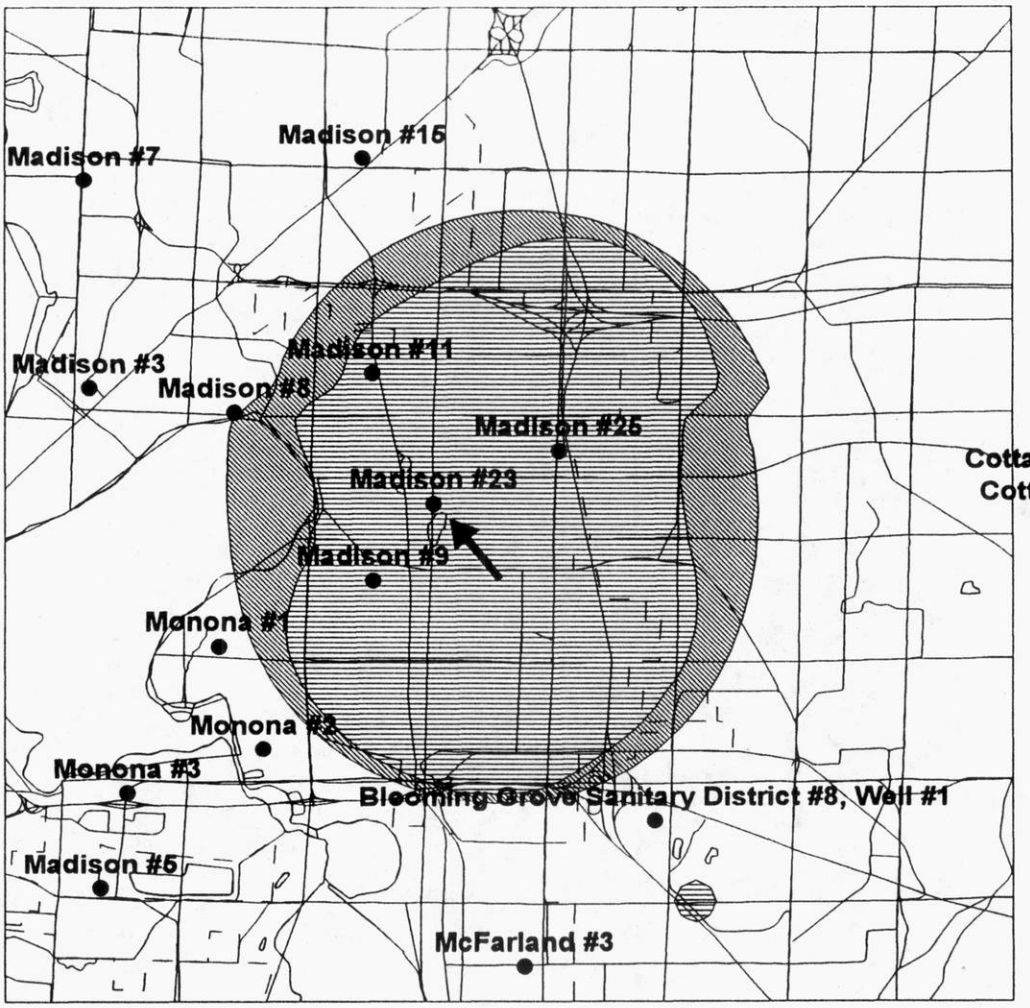
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 23



Scale 1:100,000

0 1000 2000 3000 4000
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

WISCONSIN GEOLOGICAL SURVEY, Science Hall, Madison 6, Wisconsin — Log No. Dn-307

formerly Madison City Well #23 BLOOMING GROVE WELL No. 3, ~~BLOOMING GROVE, WISCONSIN NW¼, SE¼, Sec. 10, T 7N, R 10E~~ SW, SW, SW, SW, NW, SW, Sec 10, 7N, 10E. (Pg. 1) Now City of Madison Unit Well. #23

Alt. = 905' ± 5' ETM

General Engineering Co., Engineers

Layne-Northwest Co., Driller, ~~August~~ 1958 September

Sample Nos. 203211-203310 - Examined by J. B. Steuerwald

DRIFT		0 - 5	5		Till, lt. brn-gy, sandy, stony, little silt, dolo.
	70	5 - 70	65		Till, light brown-gray, sandy, some silt & clay, few small stones, dolomitic
T	5	70 - 75	5		Dolomite, pink & buff, sandy, glauconitic
FRANCONIA		75 - 95	20		Siltstone, light green, glauconitic, dolomitic, little very fine sandstone
		95 - 100	5		Sandstone, very fine grained, some siltstone, green-gray, dolomitic
		100 - 120	20		Sandstone, very fine grained, buff, dolomitic, glauconitic, some very dolomitic
		120 - 145	25		Sandstone, very fine grained, some siltstone, buff, dolomitic & slightly glauconitic
		145 - 160	15		Sandstone, very fine & fine grained, buff, dolomitic
		160 - 170	10		Sandstone, fine to little coarse grained, light gray, dolomitic
	115	170 - 190	20		Sandstone, fine to coarse grained, slightly dolomitic, light gray
GALESVILLE		190 - 215	25		Sandstone, fine grained, light gray, slightly dolomitic
		215 - 235	20		Sandstone, medium grained, light tan-gray, slightly dolomitic
		235 - 240	5		Sandstone, fine & med. grained, lt. tan-gy, dolo.
		240 - 285	45		Sandstone, medium grained, light brown
	95	285 - 290	5		Shale, green-grey, very sandy, dolomitic
EAU CLAIRE		290 - 305	15		Sandstone, medium & fine grained, pale red, dolomitic
		305 - 315	10		Sandstone, fine & very fine grained, light brown, dolomitic, little green shale
		315 - 345	30		Sandstone, fine & medium grained, light brown, dolomitic, trace of green shale
		345 - 375	30		Sandstone, fine & medium grained, light gray, very slightly dolomitic

cement grout 0-102'
18" pipe
44' WATER BEFORE SHOOT.
46 WATER AFTER SHOOTING
66'
18" hole
12" pipe
102'
104'
12" hole
169'
well shot every 3' with 3# shot from 169-211 & with 2# shots from 214-500
211'

CLAIRE - MT SIMON

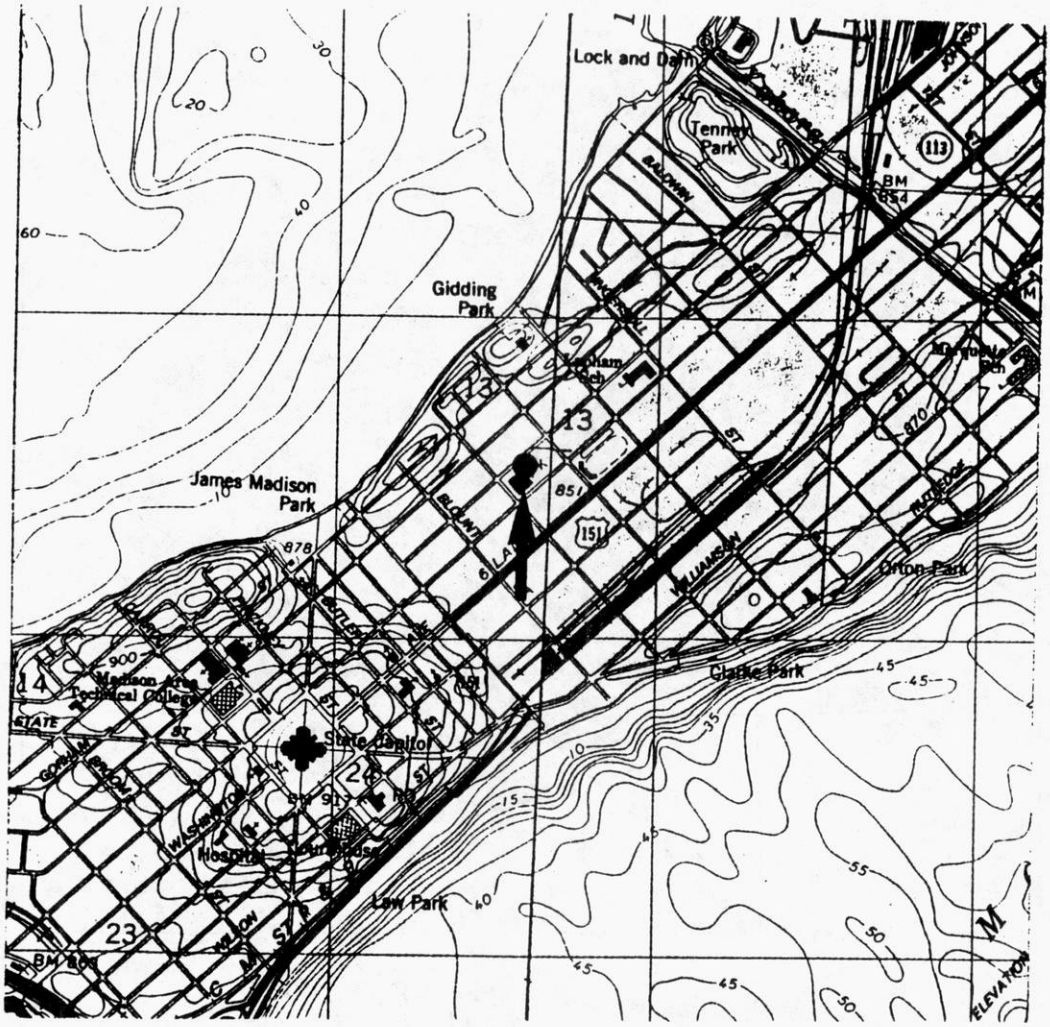
			dolomitic, trace of green shale
345 - 375	30		Sandstone, fine & medium grained, light gray, very slightly dolomitic
375 - 400	25		Sandstone, fine grained, light brown
400 - 465	65		Sandstone, fine & medium grained, light brown, 445-460 dolomitic
465 - 500	35		Sandstone, fine grained, light brown-gray

215

On (pg. 2)

Formations: Drift, Trempealeau, Franconia, Galesville, Eau Claire-Mt.Simon
Tested for 24 hours @ varying rates from 612 to 1007 g.p.m., specific capacity at end of test = 12.3 g.p.m./ft. of drawdown. Well was then shot with a total of 191 pounds of 80% high velocity gelatin dynamite. After shooting well was cleaned out and tested for 8 hours at rates up to 726 g.p.m., water was cloudy & sandy, specific capacity at end of test=10.5, well was then tested for 105 hrs.@ 1001 g.p.m., specific capacity @ end of test = 10.7 g.p.m./ft. of drawdown.

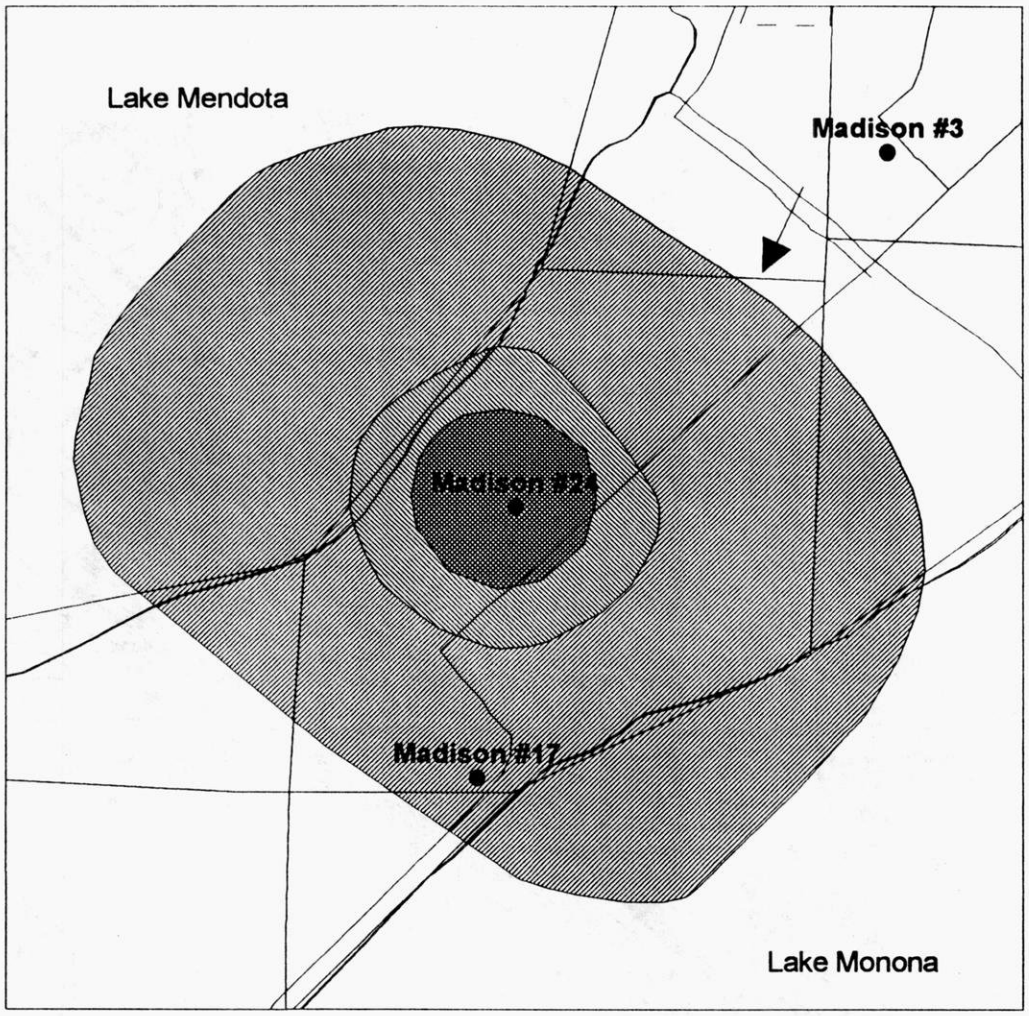
City of Madison, Well Number 24



City of Madison, Well Number 24 is located at 43° 4' 58.40" north latitude and 89° 22' 32.88" longitude. The well was installed in 1979, and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 1,208,000 gpd.

The well casing extends to a depth of 235 feet below ground surface, and the total depth of the well is 729 feet. Water is drawn primarily from the Mt. Simon sandstone, and this aquifer is recharged locally by leakage from Lake Mendota and Lake Monona. The original groundwater flow in the vicinity of the well was generally to the southwest. However, the well is located on the ithmus in Madison, and is pulling water radially into the well.

Zone of Contribution for Madison, Well Number 24



Well Location

Latitude: 43° 4' 58.40"
Longitude: 89° 22' 32.88"

0 500 1000
(meters)

N

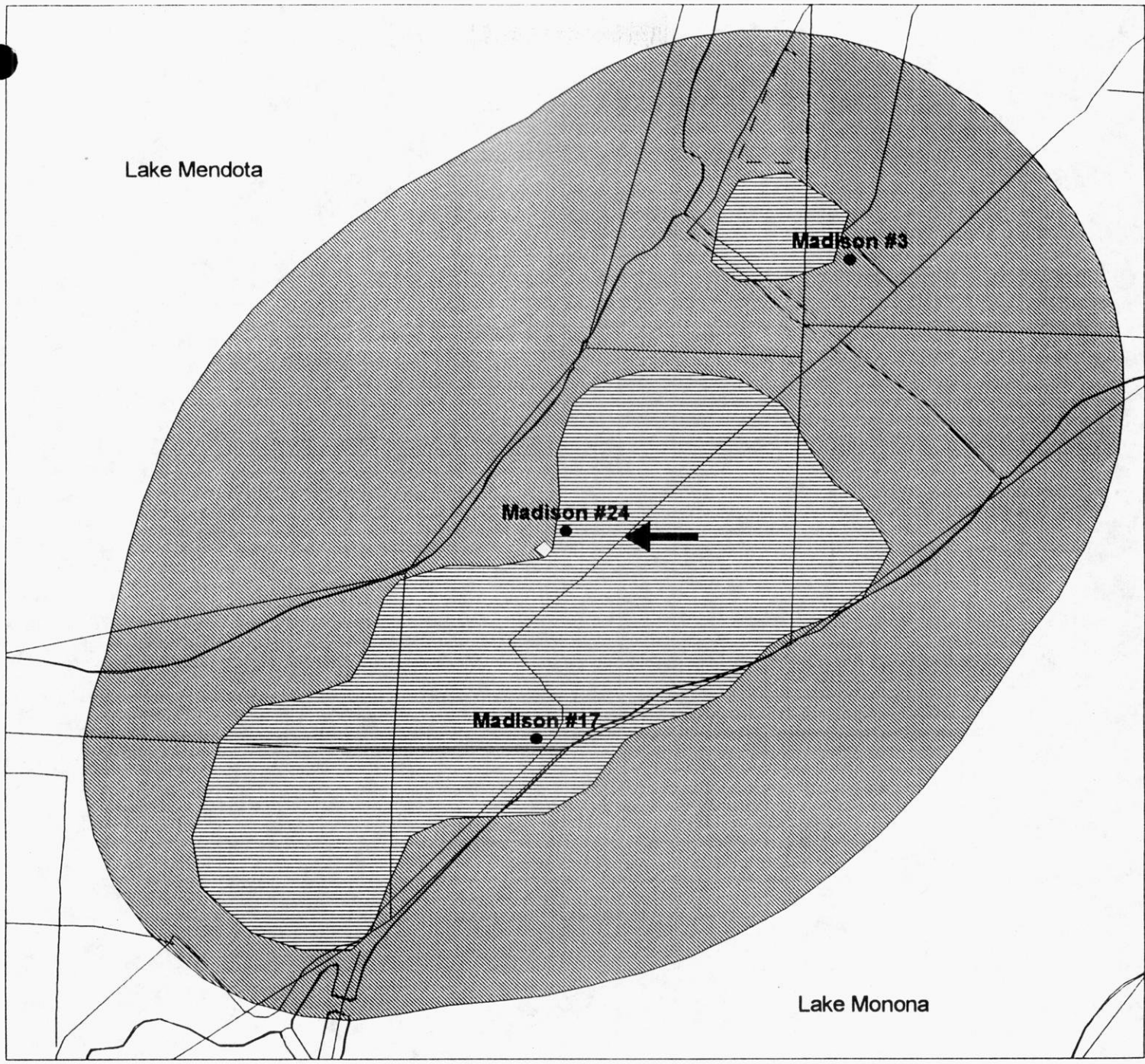
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 24



Scale 1:24,000

0 200 400
(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

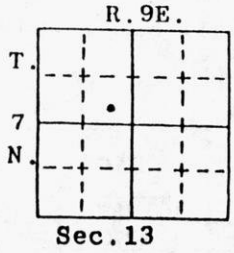
One-half foot drawdown in the deep sandstone aquifer

Well name Madison City Well #24

County: Dane

Owner.... City of Madison
Address.. 523 E. Main St.
Madison, WI 53703
Driller.. Miller Well & Pump Co.
Engineer. James R. Blotz
Madison, Wisconsin

Completed... 10/4/79
Field check. WG&NHS - RMP
Altitude.... 851'ETM
Use..... Municipal
Static w.l.. 63'
Spec. cap... 15.7 GPM/ft



Location: about C, SW¼, NW¼, SE¼, SE¼, NW¼, sec.13, T7N, R9E Quad. Madison West 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
42"	0	144'				36"	New Steel .375'W. ASTM API-56 Welded	0	144'	30"	New Steel .500 W. ASTM API-5L	+2'	235'
35"	144'	235'											
29"	235'	729'											

Drilling method: air rotary & reverse rotary
Samples from 0 to 729' Rec'd: 11/1/79 & 9/12/79 (last samp)
Studied by: Kathleen Massie

Grout	from	to
Neat Cement	0	235'

Issued: 8/25/88

Formations: Horicon Fm, Wonewoc Fm, Eau Claire Formation, Mt Simon Fm, Weathered Precambrian
Remarks: Well tested for 24 hours at up to 2195 GPM with 140 feet of drawdown.
DNR Permanent Well #77143.
The dolomite and sandstone in the drift appears to be locally derived.
Complete retention of the dolomite cement in a sample means the cement is so strong that drilling has destroyed little of the cementing and no loose sand grains occur.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	0-10		NO SAMPLE. Driller reports drift.				
H	10-15		Clay	Brown	—	—	Calcareous. Much silt.
O	15-20		"	"	—	—	Same.
R	20-25		"	"	—	—	"
I	25-30		Gvl & clay	Mxd brown	M peb	Gran/L peb	Calcareous (clay). Dol, trap, qtz, cht. Much sand, silt.
C	30-35		Gravel	Mxd yl	"	Gran/VL peb	Dolomite, fos dol, dol cem ss, chert, qtz, trap, dior. Tr snd.
O	35-40		"	"	S peb	Gran/L peb	Same plus dolomite crystals floating in chert.
N	40-45		"	"	VL peb	Gran/VL peb	Dolomite, chert, trap, gab, zircon, rich gab. Trace sand.
	45-50		"	"	L peb	"	Dolomite, chert, trap, dol cem ss(w/glauc), quartz, gabbro.
	50-55		Gvl & clay	"	"	Gran/L peb	Dol, cht, trap, dol cem ss, grnt, qtz. Calcus(cl). Mch snd, st.
	55-60		"	"	"	Gran/VL peb	Same.
F	60-65		"	"	"	"	"
	65-70		"	"	M peb	Gran/L peb	"
M.	70-75		Gravel	"	"	"	Dol, fos dol, trap, dol cem ss, grnt, Fe form, qtz. Tr sand.
	75-80		"	"	"	"	Same plus trace fossiliferous chert.
	80-85		"	"	S peb	"	Dol, fos dol, dol cem ss, qtz, trap. Trace sand, clay.
	85-90		"	"	M peb	Gran/VL peb	Dol, dol cem ss, fos dol, trap, qtz. Trace sand.
	90-95		"	"	"	"	Same plus trace clay.
	95-100		"	"	MP&VLP	"	Dol & sndy dol(w/glauc), glaucic dol cem ss, qtz, trap. Tr snd.
	100-105		"	"	"	"	Same plus trace oolitic white chert. / trap,qtz. Tr snd.
	105-110		"	"	M peb	Gran/L peb	Dol & sndy dol w/glauc, glaucic dol cem ss, wh cht, ool wh cht.
115'	110-115		"	"	"	Gran/VL peb	Same plus granite. Much sand.
W	115-120		Sandstone	Wh & yl	Fn/M	Vfn/VC	Srnd. Mch V G sil cem. Ltl yl & pl gn sh. Tr cvd dol, cvd clay.
O	120-125		"	White	M	"	Srnd. Mch V G sil cem, cvd gvl. Trace caved sand & clay.
N	125-130		"	"	"	"	Srnd. Mch V G sil cem. Tr layers of pl gn sh, pl gn & yl sh, cvd
E	130-135		"	"	M/C	"	Rnd. Tr good sil cem, pl gn shale, wh clay. \ VL peb.
W	135-140		"	"	"	"	Rnd. Trace good silica cement, pale gn shale, sft wh chert.
O	140-145		"	"	M	"	Rnd. Tr G sil cem, pl gn sh, sft wh cht. Ltl V sndy yl dolomite.
C	145-150		Dolomite	Bn yellow	"	Fn/M	Mch fltg snd, pnk stng. Tr ool(just forming), pl gn sh, yl sh, cvd
	150-155		Sandstone	Yl brown	C	Vfn/VC	Rnd. Mch V G dol cem. Tr pl gn sh, cvd dol(as in 145'- \ wh ss.
	155-160		"	Bn yellow	"	"	Rnd. Mch V G limy cem (complete retention of cem). \150').
							\ Trace pale green shale.

Well name: Madison City Well #24

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
WONEWOC 85'	160-165		Sandstone	Bn yellow	M	Vfn/VC	Rounded. Ltl good dolomite cement, pale green shale.
	165-170		"	Pl yellow	M/C	"	Rounded. Tr fair dolomite cem. Much pale green shale, silt.
	170-175		"	"	"	"	Rounded. Trace hematite cement, brown clay, silt.
	175-180		"	"	"	"	Same.
	180-185		"	Yellow	M	"	Rnd. Mch G dol cem(almost a sndy dol). Tr pl gn shale, silt.
	185-190		"	"	Fn/M	"	Srnd. Mch G dol cem(almost a sndy dol),st. Tr pl gn sh,sft wh c
	190-195		"	Pl yellow	"	"	Same but little silt, pale green shale.
	195-200		"	"	M	"	Rounded. Trace fair dolomite cement, silt. (cvd?).
EAU CLAIRE 30'	200-205		"	"	Vfn/Fn	"	Srnd. Mch G dol cem,pl gn sh(occd as thin layers). Tr st,glauc
	205-210		Siltstone	Lt pink & bl gy	---	---	Dolic. Hd. Mny thin pl gn sh layers. Mch Vfn snd. Tr Fn/C snd.
	210-215		Sandstone	Lt pnk&pl gn	Vfn	Vfn/C	Srnd. Mch V G dol cem(complete retention),st,pl gn sh(in thin
	215-220		Ss & shale	Lt gry&gry	Fn	"	See end of log. layers).
	220-225		Shale	Grey	---	---	Dolic. Mch st size pyr. Ltl ss(as above),pl gn & hemic sh. Tr
	225-230		Siltstone	Rd bn&gry	---	---	See end of log. Vfn glauc.
MT. SIMON FORMATION	230-235		Sandstone	Pink	C	Vfn/VC	Rnd. Mch V G dol cem(complete retention of cem)almost a sndy do
	235-240		"	"	"	"	Same but slgtly less cem. Ltl cvd sts(as 225-230'). Tr Vfn-gla
	240-245		"	"	M	"	See end of log.
	245-250		"	"	C	"	Rnd. Mch V G dol cem(compl retn, almost a sndy dol). Tr pyrite.
	250-255		"	White	M/C	"	Rounded. Trace pyrite, pale green shale, soft white chert.
	255-260		"	"	"	"	Rnd. Mch G dol cem (pink). Trace pyrite, silt. form of ool(?
	260-265		"	Pink	"	"	Rnd. Mch V G dol cem(almost a sndy dol),st. Tr pl gn sh,pyr,
	265-270		"	"	"	"	Rnd. Mch V G dol cem(compl retn). Few ool in 1st stages of
	270-275		"	White	"	"	Rounded. Trace dolomite cement. form. Tr dol xls,
	275-280		"	"	"	"	Same. 260-270'. Tr pyrite.
	280-285		"	Pink	"	"	Rnd. Mch V G dol cem(compl retn) but slgtly less dol than in
	285-290		"	"	"	"	Rnd. Mch V G dol cem(compl retn, almost a sndy dol),pl gn sh,
	290-295		"	"	"	"	See end of log. Few ool in 1st stages of form(?). Tr pyr.
	295-300		"	"	"	"	Rnd. Mch V G dol cem,st. Tr pl gn sh, pyr.
	300-305		"	White	"	"	Rnd. Trace pyr cem, pyr, pyr incl, pale green shale.
	305-310		"	Pink	"	"	Rnd. Mch very good dol cem(complete retention). Trace pyrite.
	310-315		"	"	"	"	Rnd. Mch V G dol cem(compl retn, almost a sndy dol). Tr pyr,pl
	315-320		"	"	"	"	See end of log. gn sh,thin layers of a sndy dolomite.
	320-325		Dolomite	"	Fn	Fn/M	See end of log. layers of st sz pyr,thin layers of pl gn sndy
	325-330		Sandstone	"	M	Vfn/VC	Rnd. Mch V G dol cem(compl retn, almost a sndy dol). Tr thin
	330-335		"	"	"	"	Same but few thin paral layers of st sz pyr & sndy pl gn shale.
	335-340		"	"	"	"	See end of log.
	340-345		"	White	"	"	Rnd. Trace pyr & dol cement, mafic & pyrite inclusions, pl gn s
	345-350		"	Lt pink	"	"	Rnd. Ltl G dol cem. Tr pyr cem, pl gn sh, sft wh cht (?).
	350-355		"	White	"	"	Rnd. Trace dolomite & pyrite cement, soft white chert (?).
	355-360		"	Pink	"	"	Rnd. Mch V G dol cem(compl retn). Few V dolic layers. Tr pl gn
	360-365		"	White	"	"	Rnd. Tr pyr & dol cement, pl gn shale, sft wh cht(?). sh, pyr.
	365-370		"	"	"	"	Same.
	370-375		"	"	"	"	Same plus trace caved brown clay.
	375-380		"	"	"	"	Same but no clay.
	380-385		"	Pink	"	"	Rnd. Mch V G dol cem. Tr pale green shale, pyrite.
	385-390		"	"	"	"	Rnd. Mch V G dol cem(compl retn), pl gn sh(sndy). Tr thin layer
	390-395		"	"	"	"	See end of log. of st sz pyr & dol
	395-400		"	"	"	"	Same plus tr thin layers of a bn siliceous substance.
	400-405		"	Pnk white	"	"	Rnd. Ltl V G dol cem. Tr pyr cem, pale gn shale.
	405-410		"	"	"	"	Rnd. Mch G dol cem. Tr pyr cem, pl gn sh, sft wh cht.
	410-415		"	"	"	"	Same but little good dolomite cement.
	415-420		"	"	"	"	Same.
	420-425		"	"	"	"	Same but trace good dolomite cement.
	425-430		"	White	"	"	Rounded. Trace F to G dolomite cement, pale green shale, pyr.
	430-435		"	"	"	"	Same plus trace soft white chert.
	435-440		"	"	"	"	Rnd. Ltl G dol cem(most cvd?). Tr pyr cem,pl gn sh,sft wh cht.
	440-445		"	"	M/C	"	Rounded. Trace fair dolomite cement,pl green shale,sft wh cht.
	445-450		"	"	"	"	Same.
	450-455		"	"	"	"	"
	455-460		"	Pnk white	Fn/M	"	"
	460-465		"	White	Fn&C	"	Srnd & rnd. Tr fair dol cem, pl gn shale, sft white chert.
	465-470		"	"	Fn/M	"	Sang to rnd. Trace fair dol cem, pale green shale, sft wh ch
	470-475		"	"	Fn&C	"	Same.
	475-480		"	"	"	"	Same plus trace pyrite cement.
	480-485		"	"	"	"	Same.

Well name: Madison City Well #24

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
485-490		Sandstone	White	M/C	Vfn/VC	Srnd & rnd. Trace pyrite cement, pale green shale.
490-495		"	"	"	"	Srnd & rnd. Ltl G to F dol cem. Trace pale green shale.
495-500		"	"	"	"	Srnd & rnd. Tr fair dolomite cement, pale green shale.
500-505		"	"	"	"	Same.
505-510		"	"	Fn&C	"	Sang to rnd. Tr good dol cem, sft wh chert, pl green shale.
510-515		"	"	C	"	Rnd. Trace good dol cem, soft white chert, pale green shale.
515-520		"	"	M/C	"	Same.
520-525		"	"	"	"	Srnd & rnd. Trace good dolomite cement. Ltl pale green shale.
525-530		"	Rd brown	Fn&M	"	Rnd. Mch V G dol cem(compl retn, almost a sndy dol),pl gn sndy
530-535		"	White	M	"	Rnd. Trace sil & pyr cem,pl gn shale. \ sh. Tr well cem(dol) wh
535-540		"	Pink	Fn&M	"	Rnd. Mch V G dol cem(compl retn, almost a sndy dol),rd bn stng.
540-545		"	White	C	"	Rnd. Tr sil cem, pl gn shale. \ Ltl pl gn sh. Tr pyrite cem.
545-550		"	"	M&C	"	Rnd. Mch G dol cem stnd lt rd bn to rd bn. Trace pl gn shale.
550-555		"	"	C	"	Rnd. Trace pink dolomite cement, pale green shale.
555-560		"	"	Fn/M&C	"	Rnd. Ltl G dol cem stnd pnk to rd bn. Tr pale green shale.
560-565		"	"	Fn&C	"	Same.
565-570		"	"	"	"	Rnd. Trace silica cement, pale green shale, quartz granules.
570-575		"	"	"	"	Rnd. Little good silica cement, pl gn shale. Trace quartz grans
575-580		"	"	M	"	Rounded. Trace silica cement, pale green shale.
580-585		"	"	Fn/M	"	Same plus trace soft white chert.
585-590		"	"	"	"	Srnd. Trace silica cement, soft white chert, quartz granules.
590-595		"	Lt pink	"	"	Srnd. Trace poor silica cement stained pink, soft white chert.
595-600		"	"	Fn	"	Srnd. Ltl F to G sil cem stnd pnk to rd bn,sft wh cht. Tr pyr ce
600-605	M M	"	White	Fn/M	"	Srnd. Tr sil cem,pyr,sft wh cht. Mch pl gn shale,mica.
605-610	M	"	Lt grey	"	"	Srnd. Little silica cement. Mch pale green shale, mica(biot?).
610-615		"	White	M	"	Srnd. Tr silica & pyrite cem, pale green shale, quartz grans.
615-620		"	"	"	"	Same plus trace mica.
620-625		"	"	"	"	Srnd. Few quartz granules. Trace pyrite, small pebbles.
625-630		"	Pl yellow	"	"	Srnd. Ltl G sil cem mxd w/tr amts of pl gn sh & mica. Tr pyr,sft
630-635		"	White	"	"	Srnd. Tr silica cem,sft wh cht. Few qtz grans. \ wh cht,qtz gran
635-640		"	"	"	"	Same but little soft white chert.
640-645		"	"	"	"	Subrounded. Trace silica cement, soft white chert.
645-650		"	"	Fn	"	Same.
650-655		"	"	Fn/M	"	"
655-660		"	"	"	"	Little fair silica cement. Trace soft white chert.
660-665		"	"	"	"	Subrounded. Trace fair silica cement, soft white chert.
665-670		"	"	"	"	Srnd. Little silica cement. Trace soft white chert.
670-675		"	"	"	"	Srnd. Trace silica cement, soft white chert, quartz granules.
675-680		"	"	"	"	Same plus trace white micaceous shale.
680-685		"	"	"	"	Srnd. Ltl G sil cem(some stnd lt ppl to pnk). Tr qtz grans,wh
685-690		"	"	Fn	"	Srnd. Tr sil cem,qtz grans,sft wh cht,wh sh. \ micus sh,sft wh c
690-695		"	"	Fn&C	"	Srnd & rnd. Tr G sil cem. Trace qtz grans, sft white chert.
695-700		"	"	M	"	Srnd. Tr G sil cem, sft wh cht, qtz grans. Ltl wh micus shale.
700-705		"	"	"	"	Srnd. Tr G sil cem, sft wh cht, qtz grans, wh micaceous shale.
705-710		"	"	"	"	Same.
710-715		"	Lt pink	"	"	Rnd. Tr G dol, sil & hem cem, qtz grans, soft white chert.
715-720		"	Pl yellow	Fn/M	"	Srnd to rnd. Tr P dol & sil cem, qtz grans, sft wh chert.
495' 720-725	Hem	Ss & shale	Rd brown	M	"	Hemic(sh). Tr G sil & calc cem,sft wh cht. Few V ang qtz grns
4' Wea. Px 725-729		Granite	Rd bn&bl gn	--	—	(VC/Grns) some incorporated in cemented ss. Very weathered. 40% hematite, 40% epidote, 15% plagioclase, 5% mafic minerals. Trace quartz.
			END OF LOG			
			"See end of log' samples.			
215-220	P G	Ss & shale	Lt gry&gry	Fn	Vfn/C	Dolomitic (shale). Subrounded. Much very good silica cement. Trace pale green shale, fossil fragments (in pale green shale), hematitic shale, Vfn-glauconite. Little silt size pyrite (in grey shale).
225-230		Siltstone	Rd bn & gry	—	—	Hematitic. Dolomitic. Hard. Sample ranges from siltstone to dolomitic sandstone to sandy dolomite. Much grey shale (with much silt size pyrite),Fn/C-glauconite, floating sand. Little dolomite, sandstone. Few fossil fragments.

MT. SIMON FORMATION

Well name: Madison City Well #24

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
240-245		Sandstone	Pink	M	Vfn/VC	Rounded. Much very good dolomite cement (some is a sandy dolomite). Trace pyrite cement, caved siltstone (as in 225-230), pale green shale, black matrix, pyrite, Fn glauconite, soft white chert.
290-295		Sandstone	Pink	M/C	Vfn/VC	Rounded. Much very good dolomite cement (complete retention), Few thin layers of a sandy dolomite. Trace oolites in first stages of formation (?), pyrite.
315-320		Sandstone	Pink	M/C	Vfn/VC	Rounded. Much very good dolomite cement (complete retention). Trace pyrite, thin layers of a sandy dolomite. (Less dolomite than above.)
320-325		Dolomite	Pink	Fn	Fn/M	Much sand in many thin sand layers alternating w/thin layers of a very sandy pale green shale separated by a very sandy dolomite in which the larger oblong sand grains are parallel to these layers. Trace pyrite.
335-340		Sandstone	Pink	M	Vfn/VC	Rounded. Much very good dolomite cement (complete retention, almost a sandy dolomite), sandy pale green shale. Little pyrite.
390-395		Sandstone	Pink	M	Vfn/VC	Rounded. Much very good dolomite cement (complete retention but slightly less dolomite than above). Trace pyrite, pale green shale.
		Duplicate samples				
at 208		Siltstone	Pk & bl gy	--	--	Dolomitic. Hard. Many thin pale green shale layers. Much yellow siltstone with little pyrolusite, Vfn sand, Trace Fn/C sand, caved sandstone.
at 728		Granite	Red brown	--	--	Very weathered. 70% hematite, 25% epidote, 5% plagioclase. Trace quartz, mafic minerals.

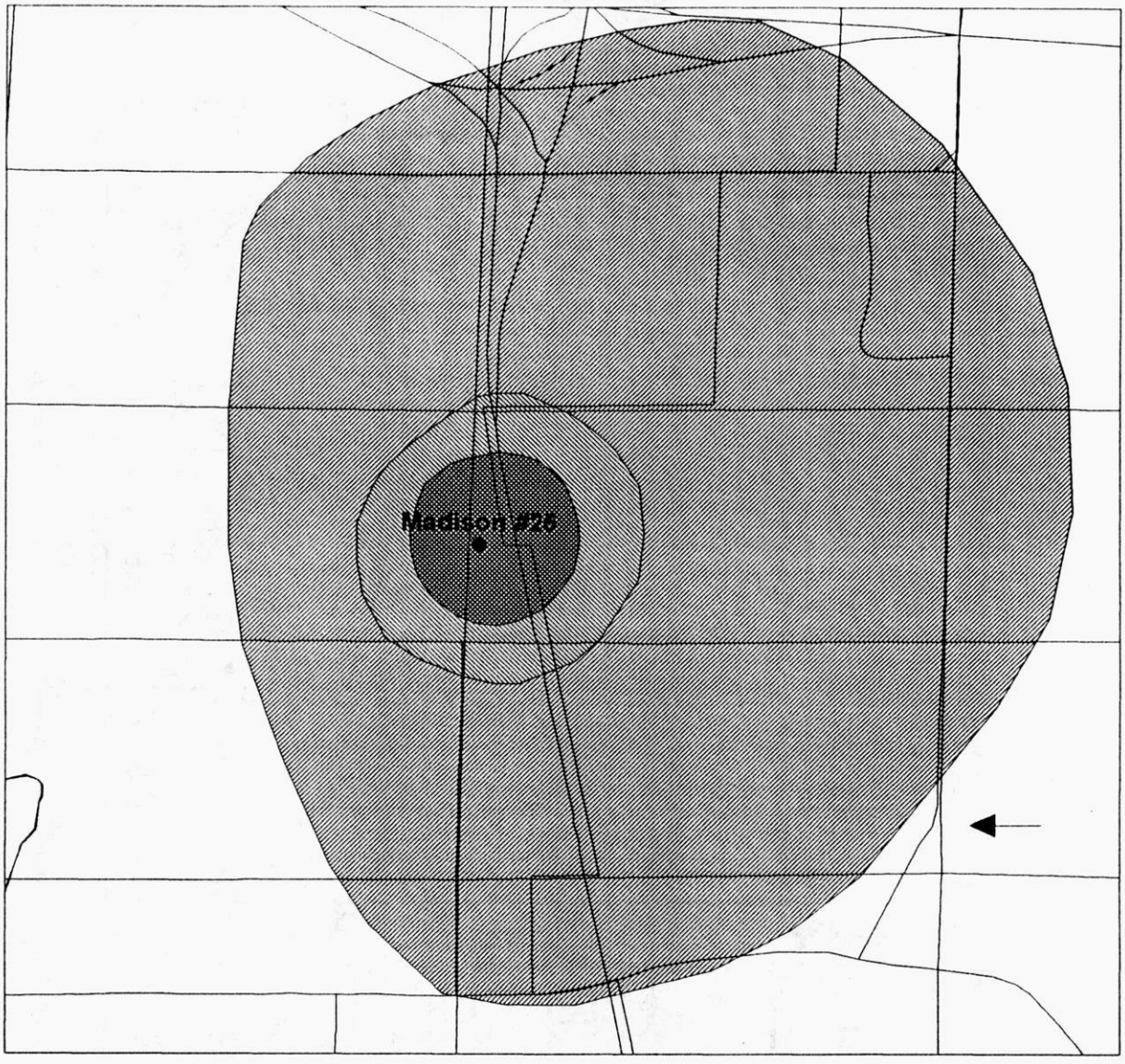
City of Madison, Well Number 25



City of Madison, Well Number 25 is located on Queensbridge Road, and at 43° 5' 14.84" north latitude and 89° 17' 9.87" longitude. The well was installed in 1981, and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 2,618,000 gpd.

The well casing extends to a depth of 300 feet below ground surface, and the total depth of the well is 820 feet. Water is drawn primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the west.

Zone of Contribution for Madison, Well Number 25



Well Location

Latitude: 43° 5' 14.84"
Longitude: 89° 17' 9.87"

0 500 1000
(meters)

N

Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

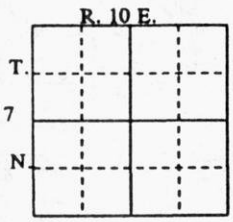
Approximate Direction of Groundwater Flow

Wisconsin Geological and Natural History Survey
3817 Mineral Point Road, Madison, WI 53705-5100

Geologic Log No: DN-1,140-G,M

Site Name: Madison City Well #25
Owner: Madison Water Utility
Address: 523 E. Main Street
Madison, WI 53703
Driller(s): Miller Well & Pump Co. 7/23/1981
Engineer: Warzyn Engineering, Inc.
Madison, WI 53715
Location: NE,SW,NW,NW,SW,NW,
Sec. 11, T7N, R10E
Topo Name: Madison East
Sample Nos: L46
Perm No.: 77,144
WI-Unique ID#:

County: DANE
Completed: 7/23/1981
Field Check: K. Massie-Ferch
5/15/91
Elevation: 950' +/- 5'
Well Use: Municipal
Static Level:



Samples Rec'd
7/21/81 0' to 824'

Studied By:
Kathleen M. Massie-Ferch 0' to 824'
Kathleen M. Massie-Ferch 55' to 65'

Formations:
Surface, Horicon Formation, Coon Valley Member, Jordan Formation, St. Lawrence Formation, Tunnel City Group, Wonewoc Formation, Eau Claire Formation, Mt. Simon Formation

Log Comments:

Published:
Printed:

Drill Hole Dimensions

Diameter	From	To
42"	0'	49'
39"	49'	62'
35"	62'	300'
29"	300'	820'

Drilling Method

Method	From	To
Reverse Rotary	0'	820'

Grout

Type	From	To
Neat cement	0'	300'

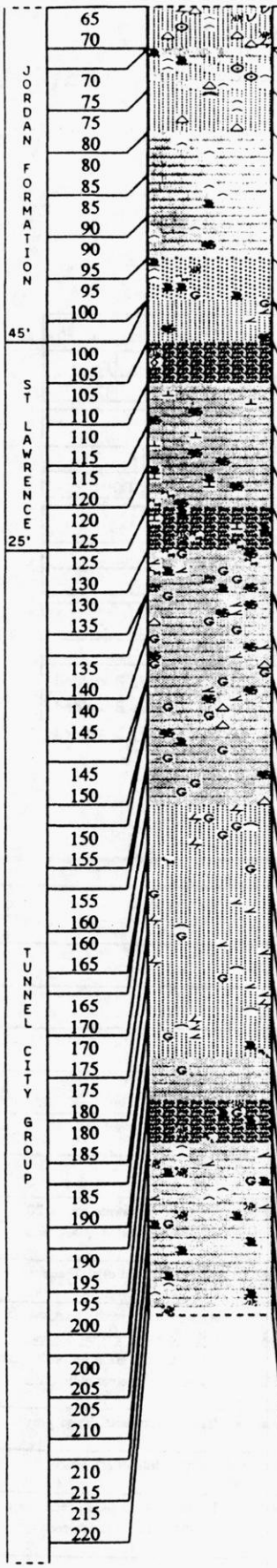
Open Interval Characteristics

Diameter	From	To	Opening Type
39"	300'	820'	Open Hole

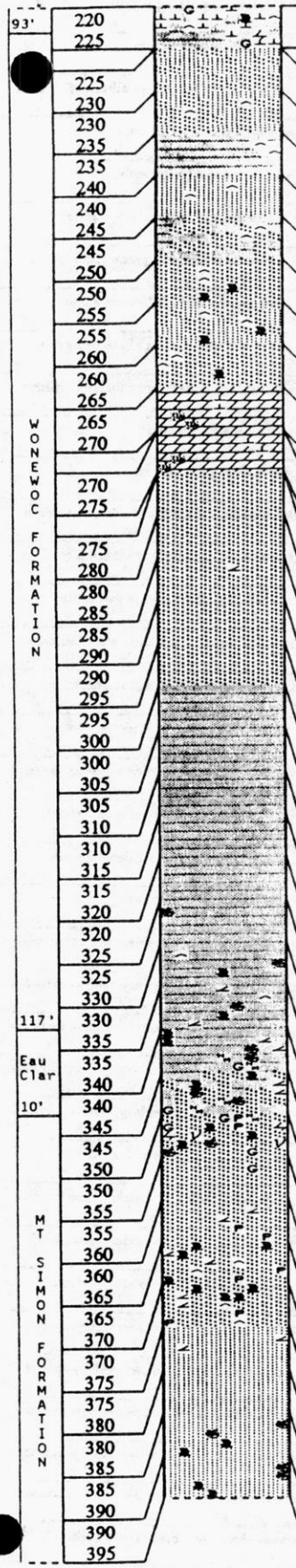
Casing & Liner Information

Diameter	From	To	Casing	Weight
40"	0'	49'	Steel	.375 A53 Gr B welded
36"	0'	62'	Steel	.375 A53 Gr B welded
30"	0'	300'	Steel	.500 A53 Gr B welded

	Depths	Graphic	RockType Mode	Color Range	Miscellaneous Characteristics
SURFACE 10'	0		Soil	Dark yellow brown	Much silt.Trace organic material.
	5		–	–	
	5		Soil and sand	Dark yl brown & yl	Much dolomitic silt.Little gravel,clay.Trace organic material.
	10		Vfn	Vfn/VC	
HORICON FORM 35'	10		Sand and silt	Brown yellow	Calcareous(silt).Little gravel,clay.Trace caved soil.
	15		M	Vfn/VC	
	15		Gravel	Yellow & pale brown	Dolomite and limestone(some oolitic,fossif),chert,granite,trap.Trace sand,silt.
	20		SP & LP	Gran/VL peb	
	20		Gravel	Yellow & pale brown	Dolomite and limestone(some oolitic,fossif,sandy),chert,trap.Little sand.Trace silt,caved soil.
	25		M peb	Gran/VL peb	
	25		Gravel	Yellow & pale brown	Dolomite and limestone(as above),chert,granite,trap.Much sand.Trace silt.
	30		S peb	Gran/VL peb	
	30		Gravel	Yellow & pale brown	Dolomite and limestone(some oolitic,fossif,sandy),chert,granite,silica cemented sandstone,trap,a 20 mm piece of fossif limestone is gravel with a thin(less than 2 mm)layer of well cemented quartz sand and clay coating most of the sample.Much calcareous si
	35		M peb	Gran/L peb	
	35		Gravel	Yellow & pale brown	Dolomite and limestone(as above),chert,siltstone,granite,trap.Little calcareous silt and clay.Trace sand,well cemented quartz sand and clay coating gravel pieces.
	40		M peb	Gran/VL peb	
	40		Gravel	Yellow & pale brown	Dolomite and limestone(as above),chert,drusy quartz,light red brown clay,siltstone,granite,trap. Little calcareous silt and clay.Trace sand,well cemented quartz sand and clay coating gravel pieces.
Coon Vlly 15'	45		M peb	Gran/VL peb	
	45		Sandstone	Brown yellow	Subangular.Approximately 60% is dolomite grains,40% is quartz grains.Much very good dolomitic and calcitic cement,very good silica cemented M/C sandstone,caved light red brown siliceous clay.Little pyrolusite,yellow clay,caved gravel.Trace silt-size glauc
	50		Vfn	Silt/Fn	
	50		Dolomite	Brown yellow	Limy.Very vuggy(1mm).Much limonite.Little Vfn sandstone(as above).Trace pyrolusite,caved gravel.
	55		M	–	
JORDAN	55		Sandstone	Brown	Subangular.Much V G siliceous cement,dolomite(as above).Little hard to soft white chert.Trace oolites associated with chert,Fn-zircon.
	60		Fn	Vfn/M	
	60		Sandstone	White	Rounded.Much very good siliceous cement,weathered white chert(with layers of sand,pale green shale and drusy quartz),brown sandstone(as in 55'-60'),caved dolomite(as in 50'-55').Trace pale green shale,drusy quartz,Fn-zircon,oolitic chert.
	65		M	Vfn/M	



65	Sandstone	White	Rounded.Much very good siliceous cement,weathered white chert(contains pyrolusite and appears to
70	M	Vfn/M	occur with caved dolomite),brown sandstone(as in 55'-60'),caved dolomite(as in 50'-55').Trace pale green shale,drusy quartz,Fn-zircon,oolitic chert.
70	Sandstone	White & pink	Rounded and subrounded.Much very good siliceous cement,siliceous shale matrix(with pink).Trace pink
75	M & Fn	Vfn/VC	M/C oolites(with pink M/C clean sandstone),white oolitic chert,drusy quartz,Fn-zircon.
75	Sandstone	White	Subrounded.Much very good and extremely hard siliceous cement.Little red yellow staining,red yellow
80	M	Vfn/VC	sandy chert and white drusy quartz.Trace Vfn-zircon,white hard interstatial shale(chert?).
80	Sandstone	White	Subrounded.Much very good and hard siliceous cement.Little soft white shaly matrix.Trace pink and
85	Fn	Vfn/VC	red yellow staining,light red brown hematitic staining,limonite,Vfn-zircon,hematitic shale.
85	Sandstone	White	Subangular to subrounded.Much very good siliceous cement(softer than above).Little white soft
90	Fn	Vfn/C	interstatial shale.Trace silt,hematitic staining,limonite staining,limonite,Vfn-zircon.
90	Sandstone	White	Subangular to subrounded.Much good to very good siliceous cement,soft white shaly matrix.Little silt.
95	Vfn/Fn	Vfn/C	Trace Vfn-zircon,1 Fn garnet crystal.
95	Sandstone	White to pink	Rounded.Much fair to good silica cement,pale green micaceous shale.Little soft white shale,white
100	C	Vfn/VC	sandstone(as in 90'-95'),hematitic shale.Trace mafic inclusions,Vfn-zircon,pyrite and Vfn glauconite(in pale green shale).
100	Sandstone	Brown yellow	Subrounded.Much fair to good dolomitic cement,silt.Trace G calcitic cement,hematitic shale,pale
105	Fn/M	Vfn/VC	green shale,limonite,massive glauconite,caved Vfn/Fn sandstone.
105	Siltstone	Red yellow	Calcite/dolomite grains 55%,quartz grains 45%.Little quartz sand(Vfn/VC),calcite cementing(quartz
110	–	–	sand in vugs).Trace pyrolusite,Vfn-glauconite,white shaly matrix,muscovite.
110	Sandstone	Brown yellow	Subangular to subrounded.Much V G calcitic cement/grains,silt.Little Vfn-glauconite.Trace pyrolusite,
115	Fn	Vfn/C	limonite,white shaly matrix.
115	Sandstone	Brown yellow	Subangular to subrounded.Much V G calcitic cement/grains,silt,Vfn-glauconite.Trace white(Fn)fossil
120	Vfn	Vfn/M	fragments,white shaly matrix,pyrolusite,limonite.
120	Sandstone	Brown yellow	Subangular to subrounded.Much V G calcitic cement/grains,hematitic shale(hard),silt,Vfn-glauconite.
125	Vfn	Vfn/M	Trace white(Fn)fossil fragments,white shaly matrix,pyrolusite,limonite.
125	Siltstone	Brown yl & rd brown	Much very good calcitic cement/grains,hematitic shale(hard).Little Vfn/Fn quartz sand.Trace
130	–	–	Vfn-glauconite,white fossil fragments,pyrolusite.Quartz-calcite ratio unknown.
130	Sandstone & sh	Bn yl & red brown	Subrounded.Much very good dolomitic cement/grains with many siltstone(as in 125'-130')rip-ups
135	Fn	Vfn/C	interlayered with hard hematitic shale,Fn-glauconite,silt.Little limonite,muscovite(shale).Trace white fossil fragments,pale green shale.
135	Sandstone & sh	Bn yl & red brown	Subrounded.Much very good dolomitic cement(layered with more hematitic shale),Fn-glauconite(WRT
140	Fn	Vfn/C	sandstone),silt.Trace white fossil fragments,pale green micaceous shale,white chert.
140	Sandstone & sh	Bn yl & red brown	Subrounded.Much very good dolomitic cement(layered with more hematitic shale),Fn-glauconite(WRT
145	Fn	Vfn/C	sandstone),silt.Trace white fossil fragments,pale green micaceous shale,white chert.Cement and shale are softer than above.
145	Sandstone & sh	Bn yl & red brown	Subrounded.Much very good dolomitic cement(layered with more hematitic shale),Fn-glauconite(WRT
150	Fn	Vfn/C	sandstone),silt.Trace white fossil fragments,pale green micaceous shale,white micaceous shale,white chert.Cement and shale are even softer than above.
150	Sandstone	Yellow brown	Subrounded to subangular.Much fair to good dolomite/calcite cement.Little silt,red brown shale,
155	Fn	Vfn/VC	Fn-glauconite.Trace white chert,white fossil fragments,pale green micaceous shale,white shale, igneous quartz fragments(3-M,caved ?).
155	Sandstone	Yellow brown	Subrounded to subangular.Much fair to good dolomite/calcite cement.Little silt,Fn-glauconite.Trace
160	Fn	Vfn/VC	white chert,red brown shale,white fossil fragments,pale green micaceous shale,white shale.
160	Sandstone	Brown yellow	Subrounded to subangular.Much good dolomite/calcite cement/grains,Fn-glauconite.Dolomite occurs in
165	Fn/M	Vfn/VC	areas of higher concentration giving the rocks a mottled appearance.Some dolomite appears to be fossil molds,highly concentrated.Trace white fossil fragment
165	Sandstone	Brown yellow	Subrounded.Much G calcitic/dolomitic cement(almost a sandy dolomite).Little limonite.Trace
170	Fn/M	Vfn/VC	Fn-glauconite,white shale,hematitic shale.
170	Sandstone	Light brown yellow	Rounded.Much G dolomitic cement(less than above).Some dolomite appears as fossil molds.Trace
175	M	Vfn/VC	limonite,Fn-glauconite,white fossil fragments,hematitic shale.
175	Sandstone	Brown yellow	Rounded.Much G dolomitic cement(less than above).Some dolomite appears as fossil molds.Trace
180	M	Vfn/VC	limonite,Fn-glauconite,white fossil fragments,hematitic shale,caved siltstone with pyrolusite.
180	Sandstone	Brown yellow	Rounded.Much G dolomitic cement(less than above).Some dolomite appears as fossil molds.Trace
185	M	Vfn/VC	limonite,Fn-glauconite,white fossil fragments,hematitic shale,pale green shale,pyrolusite,caved siltstone with pyrolusite.
185	Sandstone	Brown yellow	Rounded.Much G dolomitic cement(less than above).Little pale green shale,pyrolusite.Some dolomite
190	M	Vfn/VC	appears as fossil molds.Trace limonite,Fn-glauconite,white fossil fragments,hematitic shale,caved siltstone with pyrolusite.
190	Sandstone	White to brown yl	Rounded.Much G calcitic/dolomitic cement(large grains concentrated).Trace Fn-glauconite,limonite,
195	Fn	Vfn/VC	pale green shale,white shale fragments,Vfn-zircon,hematitic staining.
195	Siltstone	Pale yellow	Calcite/dolomite grains 60%(silt/Vfn,wentworth),quartz grains 40%(silt/Fn,very trace M).Much pale
200	–	–	green shale.Little sandstone(as in 190'-195'),pyrolusite,sand size quartz.Trace white fossil fragments,Fn-glauconite,Vfn-zircon and hornblende.
200	Sandstone	Pale yellow	Subrounded.Much G dolomitic cement,pale green shale,very good silica cemented sandstone(pink,Fn and
205	Fn	Vfn/M	glauconitic).Trace hematitic shale,Fn-glauconite,pyrolusite,white fossil fragments,muscovite.
205	Sandstone	Pale yellow	Subrounded.Much G dolomitic cement,pale green shale(slightly less than above and it is interlayered
210	Fn	Vfn/M	with silica cemented sandstone),very good silica cemented sandstone(pink,Fn and glauconitic).Trace hematitic shale,Fn-glauconite,pyrolusite,white fossil fr
210	Sandstone	Pale olive	Subrounded.Much G dolomitic/calcitic cement,pale green shale,Vfn/Fn-glauconite.Trace white fossil
215	Vfn/Fn	Vfn/C	fragments,pyrolusite,limonite.
215	Sandstone	Very pale olive	Subrounded.Interlayered with a clean Fn/M silica cemented sandstone and a very clean M silica
220	Fn	Vfn/C	cemented sandstone.Much G dolomitic/calcitic cement,pale green shale,Vfn/Fn-glauconite.Trace white fossil fragments,pyrolusite,limonite.



93'	220	Sandstone	Pale yl and white	Subrounded and rounded.Much very good siliceous cement(both).Little yellow dolomite and
	225	Fn & Fn&C	Vfn/VC	Fn-glauconite and pale green shale(pale yellow sandstone).Trace mafic inclusions and Vfn
				zircon(white sandstone).
	225	Sandstone	White	Subrounded and rounded.Trace poor siliceous cement,white siliceous shale,mafic inclusions,Fn-zircon,
	230	M & C	Vfn/VC	silt.Many secondary quartz growths.
	230	Sandstone	White	Subrounded and rounded.Much G siliceous cement.Many secondary quartz growths.Trace white siliceous
	235	Fn/M & C	Vfn/VC	shale,mafic inclusions,Fn-zircon,silt.
	235	Sandstone	White	Subrounded.Much very good siliceous cement(very hard).Many secondary quartz growths.Trace mafic
	240	Fn	Vfn/VC	inclusions,Fn-zircon,white siliceous shale.
	240	Sandstone	White	Subrounded.Little good to very good siliceous cement(very hard).Many secondary quartz growths.Trace
	245	Fn/M	Vfn/VC	mafic inclusions,Fn-zircon,white siliceous shale.
	245	Sandstone	White	Subrounded and rounded.Little good to very good siliceous cement.Few secondary quartz growths.Trace
	250	Fn & C	Vfn/VC	pale green shale,white siliceous shale,mafic inclusions,Vfn/Fn-zircon,caved dolomitic grains/cement.
	250	Sandstone	White	Rounded to well rounded.Little good to very good siliceous cement,pale green shale.Few secondary
	255	M/C	Vfn/VC	quartz growths.Trace white siliceous shale,mafic inclusions,Vfn/Fn-zircon,muscovite.
	255	Sandstone	White	Rounded to well rounded.Little good to very good siliceous cement,pale green shale.Few secondary
	260	Fn/M & C	Vfn/VC	quartz growths.Trace white siliceous shale,mafic inclusions,Vfn/Fn-zircon,muscovite,silt.
	260	Sandstone	White	Rounded to well rounded.Much good to very good siliceous cement.Little pale green shale.Few
	265	M/C	Vfn/VC	secondary quartz growths.Trace white siliceous shale,silt,mafic inclusions,Fn-zircon,muscovite.
	265	Dolomite	Brown yellow	Sample consists of brown yellow dolomitic grains(rounded)being cemented with semi-clear very good
	270	M	Fn/M	calcitic cement.Definitely clastic in origin.Much floating quartz sand(mostly M/C).Little
				pyrolusite/limonite(combined).Trace pale green shale,Some pieces ar
	270	Dolomite	Brown yellow	Sample consists of brown yellow dolomitic grains(rounded)being cemented with semi-clear very good
	275	M	Fn/M	calcitic cement.Definitely clastic in origin.Much floating quartz sand(mostly M/C).Little
				pyrolusite/limonite(combined).Trace pale green shale,Some pieces ar
	275	Sandstone	Yellow	Rounded to well rounded.Trace P dolomitic cement,mafic inclusions,silt,limonite.Few secondary quartz
	280	C	Vfn/VC	growths.
	280	Sandstone	Yellow	Rounded to well rounded.Trace P dolomitic cement,mafic inclusions,silt,limonite.Few secondary quartz
	285	C	Vfn/VC	growths.
	285	Sandstone	Yellow	Rounded to well rounded.Little P dolomitic cement.Trace mafic inclusions,silt,limonite.Few secondary
	290	C	Vfn/VC	quartz growths.
	290	Sandstone	Bright yellow	Well rounded to rounded.Trace F to G dolomitic cement,mafic inclusions,silt,secondary quartz growths,
	295	M/C	Vfn/VC	limonite.
	295	Sandstone	Yellow	Well rounded to rounded.Trace F to G calcitic cement,mafic inclusions,silt,secondary quartz growths.
	300	M/C	Vfn/VC	
	300	Sandstone	White	Subrounded to subangular.Trace white siliceous shale,silt,Fn-zircon,secondary quartz growths,caved
	305	Fn	Vfn/C	yellow sandstone.Very few M/C grains.
	305	Sandstone	White	Subrounded to subangular.Trace white siliceous shale,silt,Fn-zircon,secondary quartz growths.Very
	310	Fn	Vfn/C	few M/C grains.
	310	Sandstone	White	Subrounded to subangular.Trace white siliceous shale,silt,Fn-zircon,secondary quartz growths,caved
	315	Fn	Vfn/C	yellow sandstone.Very few M/C grains.
	315	Sandstone	White	Subrounded to subangular.Trace white siliceous shale,silt,Fn-zircon,secondary quartz growths.Very
	320	Fn	Vfn/C	few M/C grains.
	320	Sandstone	White	Subrounded to subangular.Trace white siliceous shale,silt,Fn-zircon,secondary quartz growths.Very
	325	Fn	Vfn/C	few M/C grains.
	325	Sandstone	White	Subrounded to subangular.Little silt.Trace white siliceous shale,Fn-zircon,secondary quartz growths.
	330	Fn	Vfn/C	Very few M/C grains.
117'	330	Sandstone	White	Subrounded to subangular.Little G to F siliceous cement,silt,pale green shale.Trace F dolomitic
	335	Fn	Vfn/C	cement,Fn-zircon,white siliceous shale.
Eau	335	Sandstone	White	Subrounded to subangular.Little G to F siliceous cement,silt,pale green shale,very pale yellow
Clar	340	Fn	Vfn/C	dolomitic cement.Trace F dolomitic cement,Fn-zircon,white siliceous shale.
10'	340	Sandstone	Red brown	Subangular.Much P dolomitic cement,pale green and dark red brown hematitic shale interlayered,silt.
	345	Vfn/Fn	Vfn/C	Trace Vfn glauconite,limonite.One quartz granule.
	345	Sandstone	Red brown	Subangular and well rounded.Much P to G dolomitic cement,dark red brown hematitic shale,silt.Trace
	350	Fn & C	Vfn/VC	pale green shale,Fn-glauconite,white and grainy fossil fragments.
	350	Sandstone	White	Well rounded.Trace very good dolomite cement,silt,pyrite,mafic inclusions,caved(?)Fn-glauconite,pale
	355	M/C	Vfn/VC	green shale.Little hematitic shale.
	355	Sandstone	White	Well rounded.Trace silt,mafic inclusions,Fn-glauconite.
	360	M/C	Vfn/VC	
	360	Sandstone	Light brown	Well rounded.Trace very good pink dolomitic cement,mafic inclusions,pyrite,drilling mud,rusty metal
	365	M/C	Vfn/VC	pieces from drilling.
	365	Sandstone	White	Well rounded.Trace very good pink dolomitic cement,mafic inclusions,pyrite,pale green shale,white
	370	M/C	Vfn/VC	siliceous shale,secondary quartz growths,drilling mud.
	370	Sandstone	White	Well rounded.Trace very good pink dolomitic cement,mafic inclusions,pyrite,pale green shale,white
	375	M/C	Vfn/VC	siliceous shale,secondary quartz growths.
	375	Sandstone	White	Well rounded.Little very good pink dolomitic cement.Trace mafic inclusions,pyrite,pale green shale,
	380	M	Vfn/VC	white siliceous shale,secondary quartz growths.
	380	Sandstone	White	Well rounded.Trace silt,mafic inclusions,pale green shale.
	385	M	Vfn/VC	
	385	Sandstone	Yellow white	Well rounded.Trace very good cement,silt,mafic inclusions,pale green shale,secondary quartz growths.
	390	M	Vfn/VC	
	390	Sandstone	Yellow white	Well rounded.Trace very good cement,silt,mafic inclusions,pale green shale,secondary quartz growths.
	395	M	Vfn/VC	

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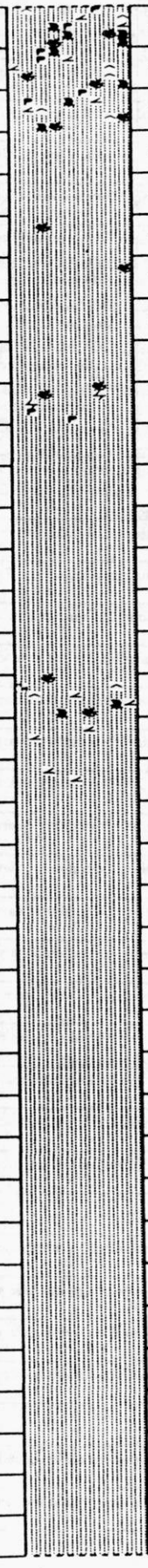
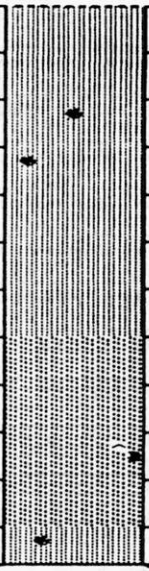
MT SIMON FORMATION

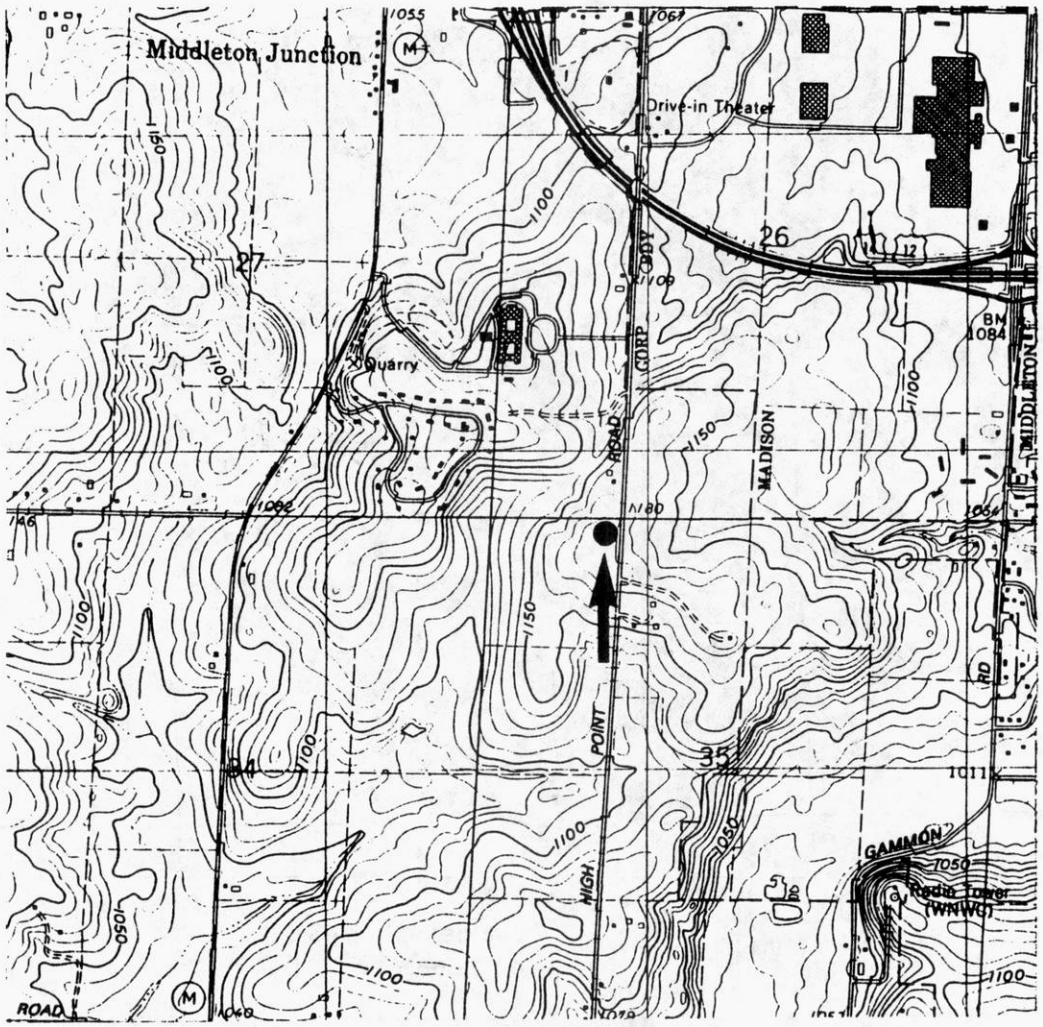
MT SIMON FORMATION	395		Sandstone	White	Well rounded.Trace very good pink dolomitic cement,silt,mafic inclusions,pyrite,pale green shale, white siliceous shale,secondary quartz growths.
	400		M	Vfn/VC	
	400		Sandstone	White	Well rounded.Trace very good pink dolomitic cement,silt,mafic inclusions,pyrite,white siliceous shale,secondary quartz growths.
	405		M	Vfn/VC	
	405		Sandstone	White	Well rounded.Trace very good pink dolomitic cement,silt,mafic inclusions,pyrite,white siliceous shale,secondary quartz growths.
	410		M	Vfn/VC	
	410		Sandstone	White	Rounded.Trace silt,mafic inclusions,pyrite,white siliceous shale,secondary quartz growths.
	415		M	Vfn/VC	
	415		Sandstone	White	Rounded.Trace silt,mafic inclusions,pyrite,white siliceous shale,secondary quartz growths.
	420		M	Vfn/VC	
	420		Sandstone	White	Rounded.Trace F siliceous cement,mafic inclusions,pyrite,white siliceous shale,secondary quartz growths,Little silt.
	425		M	Vfn/VC	
	425		Sandstone	White	Rounded.Trace F siliceous cement,mafic inclusions,pyrite,white siliceous shale,pale green shale, secondary quartz growths,Little silt.
	430		M	Vfn/VC	
	430		Sandstone	White	Rounded.Little drilling mud.Trace P calcitic cement,mafic inclusions,pyrite,white siliceous shale, secondary quartz growths,silt,pale green shale.
	435		M	Vfn/VC	
	435		Sandstone	White	Rounded.Trace P calcitic cement,drilling mud,mafic inclusions,pyrite,white siliceous shale,secondary quartz growths,silt,pale green shale.
	440		M	Vfn/VC	
	440		Sandstone	White	Rounded.Trace pink very good dolomite,pyrite,mafic inclusions,secondary quartz growths,silt,drilling mud.
	445		M	Vfn/VC	
	445		Sandstone	White	Rounded.Trace pyrite,mafic inclusions,silt,secondary quartz growths,pale green shale.
	450		M	Vfn/VC	
	450		Sandstone	White	Rounded.Trace pyrite,mafic inclusions,silt,secondary quartz growths,pale green shale.
	455		Fn/M	Vfn/VC	
	455		Sandstone	White	Rounded.Trace poor siliceous cement pyrite,mafic inclusions,silt,secondary quartz growths,pale green shale.
	460		M	Vfn/VC	
	460		Sandstone	White	Subrounded.Trace poor siliceous cement pyrite,mafic inclusions,secondary quartz growths,white siliceous shale.
	465		M	Vfn/VC	
	465		Sandstone	White	Subrounded.Trace poor siliceous cement pyrite,mafic inclusions,secondary quartz growths,white siliceous shale.
	470		M	Vfn/VC	
	470		Sandstone	White	Rounded.Trace poor siliceous cement pyrite,mafic inclusions,secondary quartz growths,white siliceous shale.
	475		M	Vfn/VC	
	475		Sandstone	White	Rounded.Little hematitic stained(red brown)very good dolomitic cement,silt,mafic inclusions,white siliceous shale.
	480		M	Vfn/VC	
	480		Sandstone	White	Rounded.Little pink very good dolomitic cement.Trace pyritic cement,silt,mafic inclusions,white siliceous shale,pale green shale.
	485		M	Vfn/VC	
	485		Sandstone	Pink gray	Rounded.Much very good dolomitic cement/dolomite(some is a sandy dolomite).Trace silt,pale green shale,mafic inclusions,pyrite,white siliceous shale,rusty metal pieces from drilling.
	490		M	Vfn/VC	
	490		Sandstone	White	Rounded.Trace pink dolomitic cement,calcitic cement,pyrite,pale green shale,white siliceous shale, drilling mud.
	495		Fn/M	Vfn/VC	
	495		Sandstone	White	Rounded.Trace pink dolomitic cement,calcitic cement,pyrite,pale green shale,white siliceous shale, drilling mud.
	500		M	Vfn/VC	
	500		Sandstone	White	Rounded.Trace mafic inclusions,white siliceous shale,pyrite,secondary quartz growths.
	505		M	Vfn/VC	
	505		Sandstone	White	Rounded.Trace mafic inclusions,white siliceous shale,pale green shale,pyrite,secondary quartz growths.
	510		M	Vfn/VC	
	510		Sandstone	White	Rounded.Trace mafic inclusions,white siliceous shale,pale green shale,pyrite,secondary quartz growths.
	515		M	Vfn/VC	
	515		Sandstone	White	Rounded.Trace mafic inclusions,white siliceous shale,pale green shale,pyrite,secondary quartz growths.
	520		M	Vfn/VC	
	520		Sandstone	White	Rounded.Trace mafic inclusions,white siliceous shale,pale green shale,pyrite,secondary quartz growths.
	525		M	Vfn/VC	
	525		Sandstone	White	Rounded.Trace mafic inclusions,white siliceous shale,pale green shale,pyrite,secondary quartz growths.
	530		M	Vfn/VC	
	530		Sandstone	White	Rounded.Trace F siliceous cement,white siliceous shale,mafic inclusions,pyrite,secondary quartz growths,pale green shale.
	535		Fn/M	Vfn/VC	
	535		Sandstone	White	Rounded.Trace F siliceous cement,white siliceous shale,mafic inclusions,pyrite,secondary quartz growths.
	540		Fn/M	Vfn/VC	
	540		Sandstone	White	Rounded.Trace F siliceous cement,white siliceous shale,mafic inclusions,pyrite,secondary quartz growths.
	545		M	Vfn/VC	
	545		Sandstone	White	Rounded.Trace F siliceous cement,white siliceous shale,mafic inclusions,pyrite,secondary quartz growths,rusty metal pieces from drilling.
	550		M	Vfn/VC	
	550		Sandstone	White	Rounded.Trace P siliceous cement,mafic inclusions,white siliceous shale,pyrite,silt,secondary quartz growths,metal pieces from drilling.
	555		M	Vfn/VC	
	555		Sandstone	White	Rounded.Trace P siliceous cement,mafic inclusions,white siliceous shale,pyrite,silt,secondary quartz growths,metal pieces from drilling.
	560		M	Vfn/VC	
	560		Sandstone	White	Rounded.Trace P siliceous cement,mafic inclusions,white siliceous shale,pyrite,silt,secondary quartz growths,metal pieces from drilling.
	565		M	Vfn/VC	
	565		Sandstone	White	Rounded.Trace P siliceous cement,mafic inclusions,white siliceous shale,pyrite,silt,secondary quartz growths,metal pieces from drilling.
	570		Fn/M	Vfn/VC	
	570		Sandstone	White	Rounded.Trace P siliceous cement,mafic inclusions,white siliceous shale,pyrite,silt,secondary quartz growths,metal pieces from drilling.
	575		Fn/M	Vfn/VC	
	575		Sandstone	White	Rounded.Trace P siliceous cement,mafic inclusions,white siliceous shale,pyrite,Fn-zircon,silt, secondary quartz growths,metal pieces from drilling.
	580		M	Vfn/VC	

MT SIMON FORMATION	580	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, Fn-zircon, silt,
	585	M	Vfn/VC	secondary quartz growths, metal pieces from drilling.
	585	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, Fn-zircon, silt,
	590	M	Vfn/VC	secondary quartz growths, metal pieces from drilling.
	590	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, Fn-zircon, silt,
	595	M	Vfn/VC	secondary quartz growths, metal pieces from drilling.
	595	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, Fn-zircon, silt,
	600	M	Vfn/VC	secondary quartz growths, metal pieces from drilling.
	600	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, Fn-zircon, silt,
	605	Fn/M	Vfn/VC	secondary quartz growths, metal pieces from drilling.
	605	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, Fn-zircon, silt,
	610	M	Vfn/VC	secondary quartz growths, metal pieces from drilling.
	610	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, Fn-zircon, silt,
	615	M	Vfn/VC	secondary quartz growths, metal pieces from drilling.
	615	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, Fn-zircon, silt,
	620	Fn/M	Vfn/VC	secondary quartz growths, metal pieces from drilling.
	620	Sandstone	Pink white	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, Fn-zircon, silt,
	625	M	Vfn/VC	secondary quartz growths, metal pieces from drilling.
	625	Sandstone	Pink white	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, pyrite, secondary quartz
	630	Fn/M	Vfn/VC	growths. Little silt.
	630	Sandstone	Pink white	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, silt, secondary
	635	M	Vfn/VC	quartz growths, light orange staining.
	635	Sandstone	Pink white	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, silt, secondary
	640	M	Vfn/VC	quartz growths, light orange staining.
	640	Sandstone	Pink white	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, pyrite, silt,
	645	Fn/M	Vfn/VC	secondary quartz growths, light orange staining.
	645	Sandstone	Pink white	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, pyrite, silt,
	650	Fn/M	Vfn/VC	secondary quartz growths, light orange staining.
	650	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, pyrite, silt,
	655	Fn/M	Vfn/VC	secondary quartz growths.
	655	Sandstone	White	Subrounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, silt, secondary
	660	Fn/M	Vfn/VC	quartz growths.
	660	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, silt, secondary
	665	M	Vfn/VC	quartz growths.
	665	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, silt, secondary
	670	M	Vfn/VC	quartz growths.
	670	Sandstone	White	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, silt, secondary
	675	M	Vfn/VC	quartz growths.
	675	Sandstone	Pink white	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, silt, secondary
	680	M	Vfn/VC	quartz growths, red brown hematitic coating of grains.
	680	Sandstone	Light red brown	Rounded. Little red brown hematitic cement/coating of grains. Trace P siliceous cement, mafic
	685	Fn/M	Vfn/VC	inclusions, white siliceous shale, Fn-zircon, silt, secondary quartz growths.
	685	Sandstone	Light red brown	Rounded. Little red brown hematitic cement/coating of grains. Trace P siliceous cement, mafic
	690	Fn/M	Vfn/VC	inclusions, white siliceous shale, Fn-zircon, silt, secondary quartz growths.
	690	Sandstone	Pink	Subrounded. Trace P siliceous cement, hematitic coating of grains, mafic inclusions, white siliceous
	695	Fn/M	Vfn/VC	shale, silt, Fn-zircon, secondary quartz growths.
	695	Sandstone	Pink white	Rounded. Trace P siliceous cement, mafic grains, white siliceous shale, silt, Fn-zircon, secondary quartz
	700	M	Vfn/VC	growths.
	700	Sandstone	Pink	Rounded. Trace P siliceous cement, mafic inclusions, white siliceous shale, silt, Fn-zircon, secondary
	705	M	Vfn/VC	quartz growths, hematitic coating.
	705	Sandstone	Pink	Rounded. Slightly darker pink in color. Trace P siliceous cement, mafic inclusions, white siliceous
	710	M	Vfn/VC	shale, silt, Fn-zircon, secondary quartz growths, hematitic coating.
	710	Sandstone	Red brown	Rounded. Trace F siliceous and hematitic cement, mafic inclusions, white siliceous shale, Fn-zircon, silt.
	715	M	Vfn/VC	Little hematitic coating grains, secondary quartz growths.
	715	Sandstone	Light red brown	Rounded. Trace F siliceous and hematitic cement, mafic inclusions, white siliceous shale, Fn-zircon, silt,
	720	M	Vfn/VC	hematitic coating grains. Little secondary quartz growths.
	720	Sandstone	Light red yl brown	Rounded. Trace F siliceous and hematitic cement, mafic inclusions, white siliceous shale, Fn-zircon, silt,
	725	M	Vfn/VC	hematitic shale. Little secondary quartz growths.
	725	Sandstone	Pink	Rounded. Trace F siliceous cement, mafic inclusions, white siliceous shale, Fn-zircon, silt. Few secondary
	730	Fn/M	Vfn/VC	quartz growths.
	730	Sandstone	Pink	Subangular to subrounded. Trace F siliceous cement, white siliceous shale, Fn-zircon, silt, mafic
	735	Fn	Vfn/VC	inclusions, secondary quartz growths.
	735	Sandstone	Pink	Subangular to subrounded. Trace F siliceous cement, white siliceous shale, Fn-zircon, silt, mafic
	740	Fn	Vfn/VC	inclusions. Few secondary quartz growths.
	740	Sandstone	Pink	Subangular to rounded. Little G to F siliceous cement, silt. Few quartz granules, secondary quartz
	745	Fn & C	Vfn/VC	growths. Trace hematitic shale, white siliceous shale, mafic inclusions.
	745	Sandstone	Pink	Subangular to subrounded. Trace good siliceous cement, white siliceous shale, hematitic shale, mafic
	750	Fn/M	Vfn/VC	inclusions, silt, secondary quartz growths.
	750	Sandstone	Pink	Rounded. Trace P siliceous cement, white siliceous shale, mafic inclusions, silt. Few secondary quartz
	755	M	Vfn/VC	growths.
	755	Sandstone	Pink white	Rounded. Trace P siliceous cement, white siliceous shale, mafic inclusions. Little silt. Few secondary
	760	Fn/M	Vfn/VC	quartz growths, Fn-zircon.
	760	Sandstone	White	Rounded to subrounded. Trace P siliceous cement, white siliceous shale, mafic inclusions, silt, Fn-zircon,
	765	Fn/M	Vfn/VC	secondary quartz growths.

MT SIMON FORMATION	765 770		Sandstone M	White Vfn/VC	Rounded to subrounded. Trace P siliceous cement, white siliceous shale, mafic inclusions, silt, Fn-zircon, secondary quartz growths.
	770 775		Sandstone Fn/M	White Vfn/VC	Rounded to subrounded. Trace P siliceous cement, white siliceous shale, mafic inclusions, silt, Fn-zircon, secondary quartz growths.
	775 780		Sandstone Fn/M	White Vfn/VC	Rounded to subrounded. Trace P siliceous cement, white siliceous shale, mafic inclusions, Fn-zircon, secondary quartz growths. Little silt.
	780 785		Sandstone Fn/M	White Vfn/VC	Rounded to subrounded. Trace P siliceous cement, white siliceous shale, mafic inclusions, Fn-zircon, secondary quartz growths. Little silt.
	785 790		Sandstone Fn/M	White Vfn/VC	Rounded. Trace P siliceous cement, white siliceous shale, mafic inclusions, silt, Fn-zircon, secondary quartz growths.
	790 795		Sandstone M	White Vfn/VC	Rounded. Trace P siliceous cement, white siliceous shale, mafic inclusions, silt, Fn-zircon, secondary quartz growths.
	795 800		Sandstone Fn/M	White Vfn/VC	Rounded. Trace P siliceous cement, white siliceous shale, mafic inclusions, silt, Fn-zircon, secondary quartz growths, rust from drilling.
	800 805		Sandstone M/C	Light red yellow Vfn/VC	Rounded. Trace P siliceous cement, white siliceous shale, hematitic shale, mafic inclusions, Fn-zircon, quartz granules, pyrite. Few secondary quartz growths.
	805 810		Sandstone M/C	Light red yellow Vfn/VC	Rounded. Trace P siliceous cement, white siliceous shale, hematitic shale, mafic inclusions, Fn-zircon, quartz granules, pyrite. Few secondary quartz growths.
	810 815		Sandstone C/VC	White Vfn/VC	Rounded. Trace G siliceous cement, white siliceous shale, pyrite, mafic inclusions, silt, rounded quartz granules and S pebble. Little light gray micaceous siliceous shale, secondary quartz growths.
	815 820		Sandstone M/C	White Vfn/VC	Rounded. Trace G siliceous cement, white siliceous shale, pyrite, mafic inclusions, rounded quartz granules, silt. Few secondary quartz growths.
4741	820 824		Sandstone Fn/M	White Vfn/VC	Subrounded to subangular. Trace G siliceous cement, white siliceous shale, pyrite, mafic inclusions, rounded quartz granules. Little silt. Few secondary quartz growths.

End Of Log

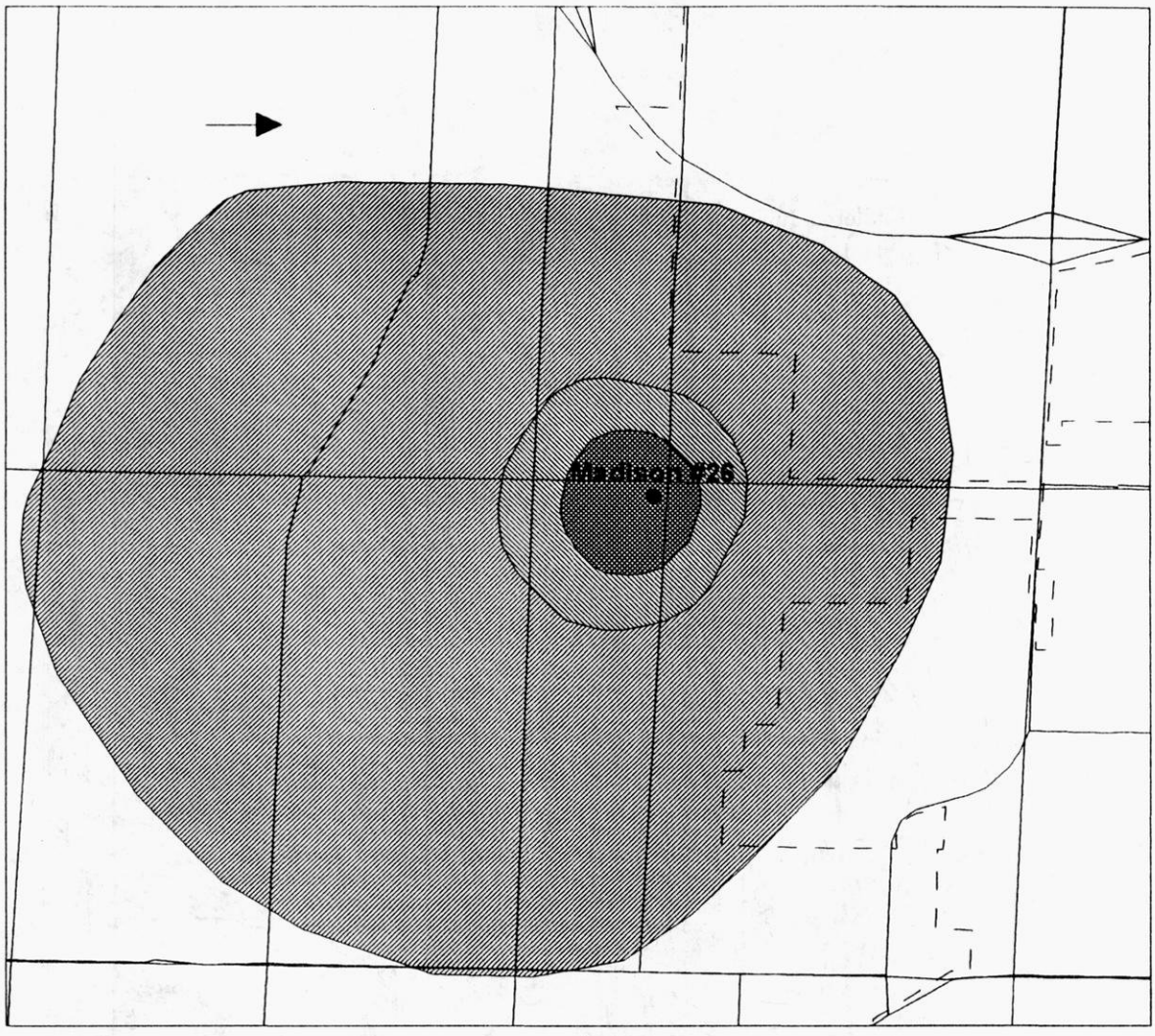
City of Madison, Well Number 26



City of Madison, Well Number 26 is located at 43° 2' 43.69" north latitude and 89° 31' 5.99" longitude. The well has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 2,783,000 gpd.

The well casing extends to a depth of 450 feet below ground surface, and the total depth of the well is 1188 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the east.

Zone of Contribution for Madison, Well Number 26



Well Location

Latitude: 43° 2' 43.69"
Longitude: 89° 31' 5.99"

0 500 1000
(meters)

N

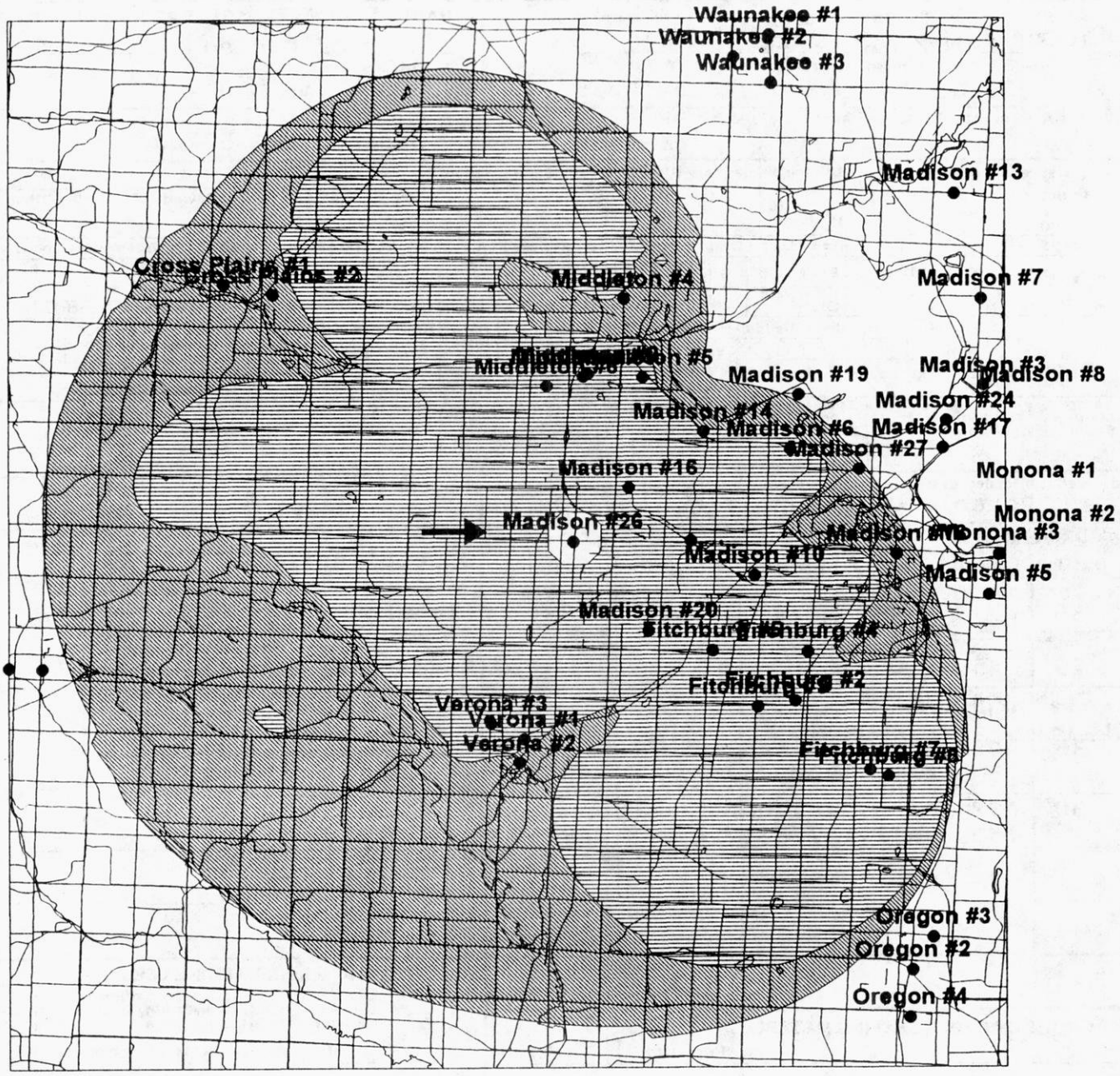
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 26



Scale 1:200,000

0.00 5000.00 10000.00
(meters)

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT

Form 3300-15 Rev. 12-76

APR 22 1987

1. COUNTY: DANE

CHECK (✓) ONE: ☐ Town ☐ Village ☒ City — Name: Madison

2. LOCATION: ¼ Section: NW, NW — Section: 35 — Township: 7N — Range: 8E

OR – Grid or Street No.: 902 S. — Street Name: HIgh Point Road

AND – If available subdivision name, lot & block No.:

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: City of Madison

ADDRESS: 523 E. Main St.

POST OFFICE: Madison, WI 53703

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. Sewer C.I.	Storm Bldg. Sewer Other
800'										

Street Sewer San.	Street Sewer Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer / Clearwater Dr.	Sewage Sump / Clearwater Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit: Seepage Pit / Seepage Bed / Seepage Trench

Privy	Pet Waste Pit	Pit: Nonconforming Existing: Well / Pump / Tank	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit

Temporary Manure Stack	Watertight Liquid Manure Tank	Solid Manure Storage Structure	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Other (Give Description)

5. Well is intended to supply water for: Potable City Supply Well No. 26

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
36	Surface	~~450~~ 30	24	650	1188
29	450	650	35	30	450

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification & Method of Assembly	From (ft.)	To (ft.)
36	ASTM A53B, welded .500 wall, 189.57#/ft.	Surface	30
30	ASTM A53B, welded .500 wall, 157.53#/ft. +3'		449.5

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Neat cement	Surface	449.5
Neat cement	1188	1175

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Glacial drift	Surface	27
Limestone	27	124
Sandstone (various)	124	1188

10. TYPE OF DRILLING MACHINE USED

☒ Cable Tool ☐ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud ☐ Rotary-hammer w/drilling mud & air ☐ Rotary-hammer & air ☐ Reverse Rotary ☐ Jetting with ☐ Air ☐ Water

Well construction completed on December 23 19 86

Well is terminated 36 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

11. MISCELLANEOUS DATA

Yield Test: 48 Hrs. at 2195 GPM per Norm Hahn – DNR

Depth from surface to normal water level 312 ~~253~~ Ft.

Depth of water level when pumping 428 Ft. Stabilized ☒ Yes ☐ No

Water sample sent to sp. cap = 12.5 gpm/ft laboratory on _____ 19__

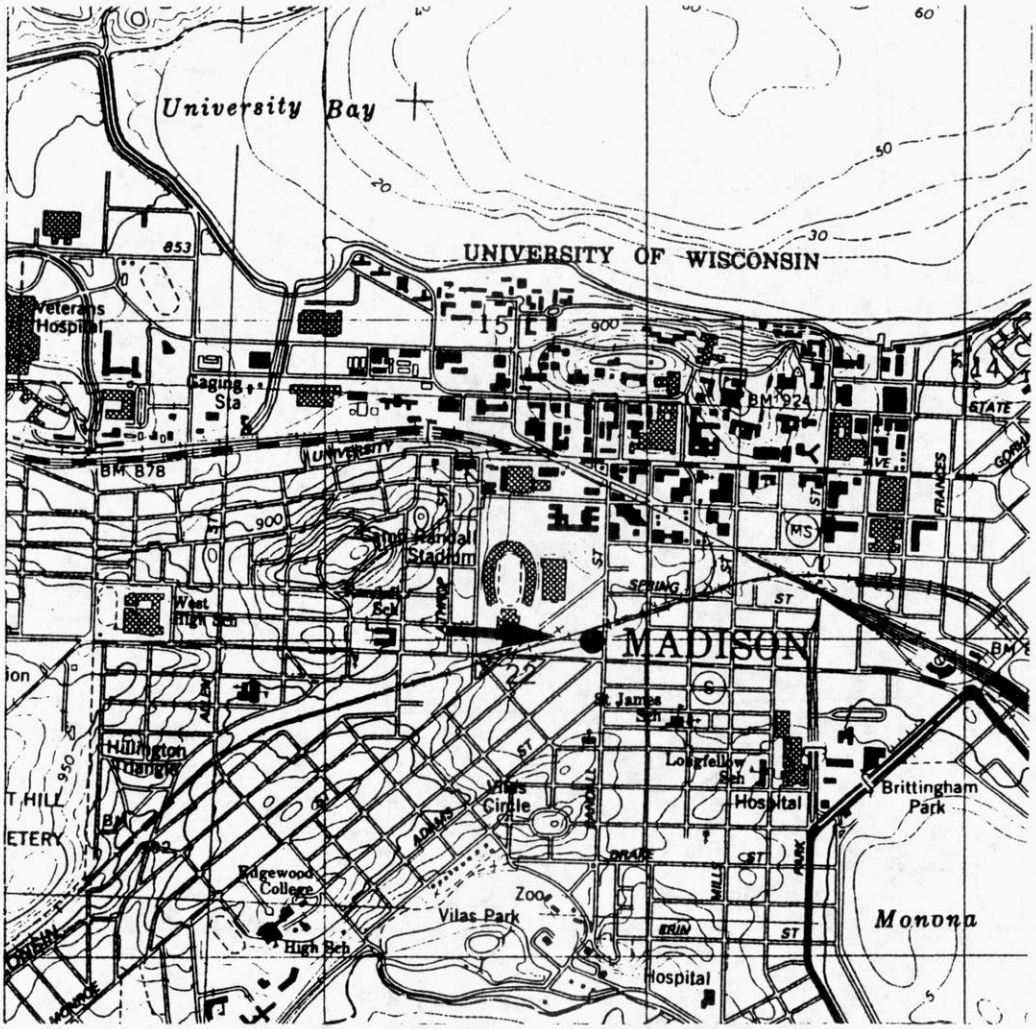
Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: [signature] Registered Well Driller

Complete Mail Address: 20950 Enterprise Ave. Brookfield, WI 53005

cc: SD SGS WELL LOG BOOK

City of Madison, Well Number 27

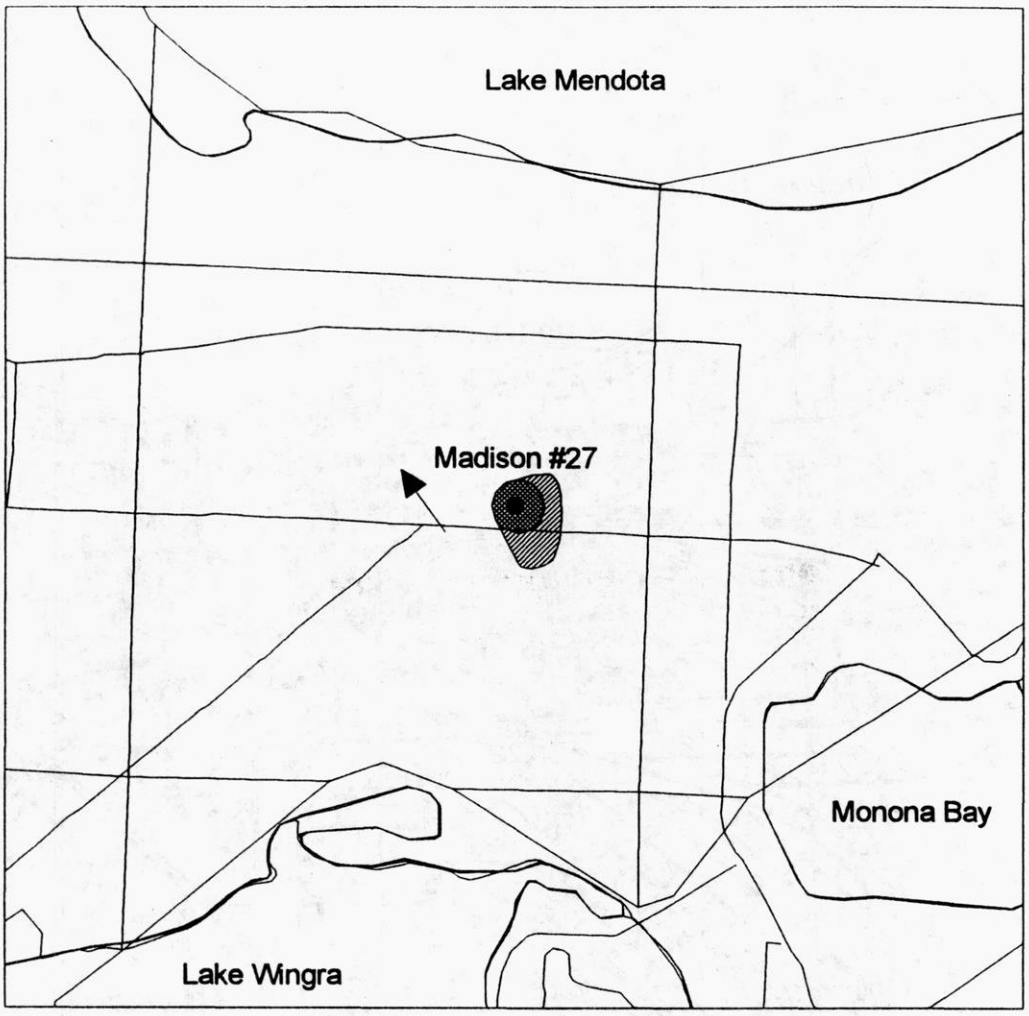


City of Madison, Well Number 27 is located at 43° 4' 6.07" north latitude and 89° 24' 32.74" longitude. The well was installed in 1989 and has a pumping capacity of 2,100 gpm. The average daily use of the well over the period from October, 1994 through September, 1995 was 2,000,000 gpd.

The well casing extends to a depth of 246 feet below ground surface, and the total depth of the well is 744 feet. Water is drawn from a combination of the Paleozoic bedrock units, but primarily from the Mt. Simon sandstone. Groundwater flow in the vicinity of the well is generally to the northeast.

89072245129
b89072245129a

Zone of Contribution for Madison, Well Number 27



Well Location

Latitude: 43° 4' 6.07"
Longitude: 89° 24' 32.74"

0 500 1000
(meters)

N

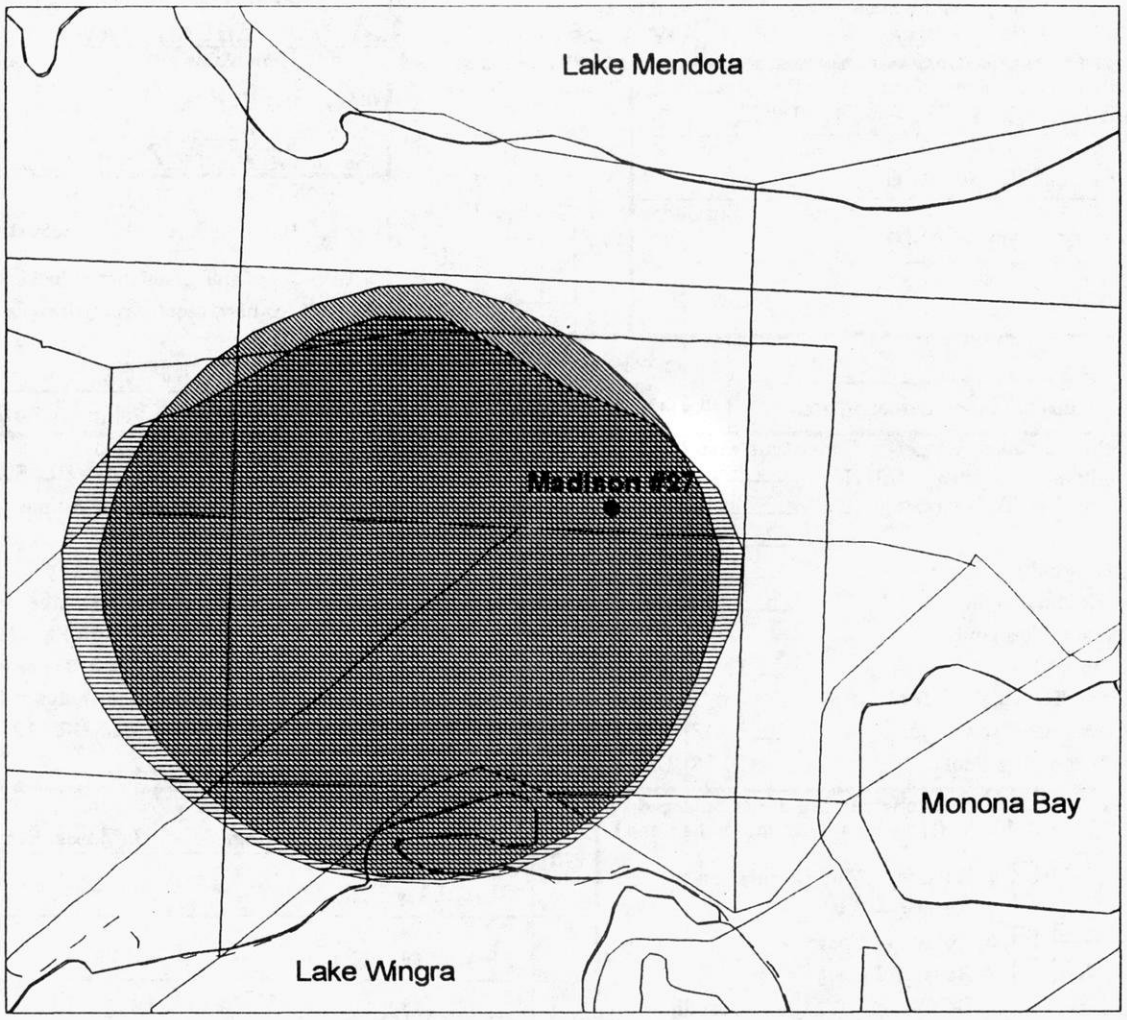
Five-Year Zone of Contribution

Ten-Year Zone of Contribution

One Hundred-Year Zone of Contribution

Approximate Direction of Groundwater Flow

Zones of Influence for Madison, Well Number 27



Scale 1:24,000

0 500 1000

(meters)

N

Zone of influence in the water table aquifer (one foot drawdown)

One-half foot drawdown in the water table aquifer

Zone of influence in the deep sandstone aquifer (one foot drawdown)

One-half foot drawdown in the deep sandstone aquifer

First Water Quality Test For
WISCONSIN UNIQUE WELL NUMBER AX 011

FEB 26 1991

State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

T260-DN-1328

Property Owner: CITY OF MADISON | Telephone Number: ( )
Mailing Address:
City: MADISON, WI | State | Zip Code
County: DANE | County Well Location Permit No. W | Well Completion Date 05/06/89 (MM DD YY)

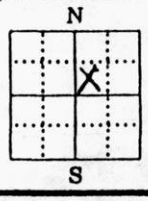
(13)

Well Constructor (Business Name): MILAEGER WELL & PUMP CO. INC. | Registration # 82
Address: 20950 ENTERPRISE AVE.
City: BROOKFIELD, WI 53045 | State | Zip Code

M

City well No. 27

2. Mark well location in correct 40-acre parcel of section.



1. Location (Please type or print using a black pen.)
☐ Town ☒ City ☐ Village of MADISON | Fire # (if available)
Grid or Street Address or Road Name and Number (if available): 14 N. RANDALL AVE.
Subdivision Name | Lot # | Block #
WELL #4-NOW #27
Gov't Lot # ____ or SW ¼ of NE ¼ of Section 22; T 7 N; R 9 ☒ E ☐ W

3. Well Type ☐ New ☒ Replacement ☐ Reconstruction/Rehabilitation
of well constructed in 1989.
Reason for new, reconstructed, replaced, or rehabilitated well?
INCREASE PUMP SIZE

4. Well serves CITY of homes and/or — (ex: barn, restaurant, church, school, industry, etc.)

High Capacity Well? ☒ Yes ☐ No
High Capacity Property? ☐ Yes ☒ No

☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other

5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☐ Yes ☐ No
Well Located in Floodplain? ☐ Yes ☐ No
Distance In Feet From Well To Nearest:
____ 1. Landfill
____ 2. Building Overhang
____ 3. Septic or Holding Tank
____ 4. Sewage Absorption Unit
____ 5. Nonconforming Pit
____ 6. Buried Home Heating Oil Tank
____ 7. Buried Petroleum Tank
____ 8. Shoreline/Swimming Pool
____ 9. Downspout/Yard Hydrant
____ 10. Privy
____ 11. Foundation Drain to Clearwater
____ 12. Foundation Drain to Sewer
____ 13. Building Drain ☐ Cast Iron or Plastic ☐ Other
____ 14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
____ 15. Collector Sewer
____ 16. Clearwater Sump
____ 17. Wastewater Sump
____ 18. Paved Animal Barn Pen
____ 19. Animal Yard or Shelter
____ 20. Silo — Type ____
____ 21. Barn Gutter
____ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
____ 23. Other Manure Storage ____
Other NR 112 Waste Source
____ 24. ____

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
36	surface	82.5
35	82.5	246
29	246	446
24	446	744

Method of constructing upper enlarged drillhole. (If applicable ✓ more than one.)
☐ 1. Rotary — Mud Circulation
☐ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☒ 5. Cable-tool Bit ____ in. dia.
☐ 6. Temp. Outer Casing ____ in. dia. Removed? ☐ Yes ☐ No If no, explain ____
☐ 7. Other ____

7. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
36	Steel, 1/2", 190#/ft.	surface	82.5
30	" 1/2", 157#/ft.	0	246
	ASTM-53-B		
Dia. (in.)	screen type and material	From	To

8. Grout or Other Sealing Material

Method Tremie Pipe — Kind of Sealing Material	From (ft.)	To (ft.)	Sacks Cement
CEMENT GROUT cc: SOD, WG & NHS, WELL LOG BOOK	surface	246	716

9. Geology

	Type, Caving/Noncaving, Color, Hardness, Etc.	From (ft.)	To (ft.)
	GLACIAL DRIFT	surface	82.5
	FRANCONIAN	82.5	246
	GALESVILLE	246	446
	EAU CLAIRE	446	555
	MT. SIMON	555	744
	PRE-CAMBRIAN	744	—
	DNR NHCAP #: 77190		
	written approval: 1-12-89 approval #: 88-1456		

10. Static Water Level
— ft. above ground level
45 ft. below ground surface

11. Pump Test sp.cap. = 15.5 gpm/ft.
Pumping Level 187 ft. below surface
Pumping at 2195 GPM for 48 hours

12. Well Is:
☒ Above ☐ Below Grade
36 in.
Developed? ☐ Yes ☒ No
Disinfected? ☒ Yes ☐ No
Capped? ☒ Yes ☐ No

13. Were all unused, noncomplying, or unsafe wells properly filled with sealant?
☒ Yes ☐ No If no, explain ____

14. Signature of Well Constructor: [signature] Date Signed 2/19/91
Signature of Drill Rig Operator: Dale H. Wakeley Date Signed 2/19/91

Make additional comments on reverse side about geology, etc.

DNR

WELL CONSTRUCTION REPORT
Form 3300-77A Rev. 1-88

051198 Delineation of Groundwater Capture Zones for Municipal Wells in Dane County, Wisconsin

DATE | ISSUED TO

Wa[illegible] Center
Uni[illegible]isconsin - MSN
1975 Willow Drive
Madison, WI 53706

Water Resources Center
University of Wisconsin - MSN
1975 Willow Drive
Madison, WI 53706

DEMCO

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