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Wellhead Protection Plan Unit Well 18 City of Madison, Wisconsin



*City of Madison
Wisconsin*

Prepared for:
Madison Water Utility
119 East Olin Avenue
Madison, WI 53713

Prepared by:
Earth Tech, Inc.
200 Indiana Avenue
Stevens Point, WI 54481

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Earth Tech Project No. 82359

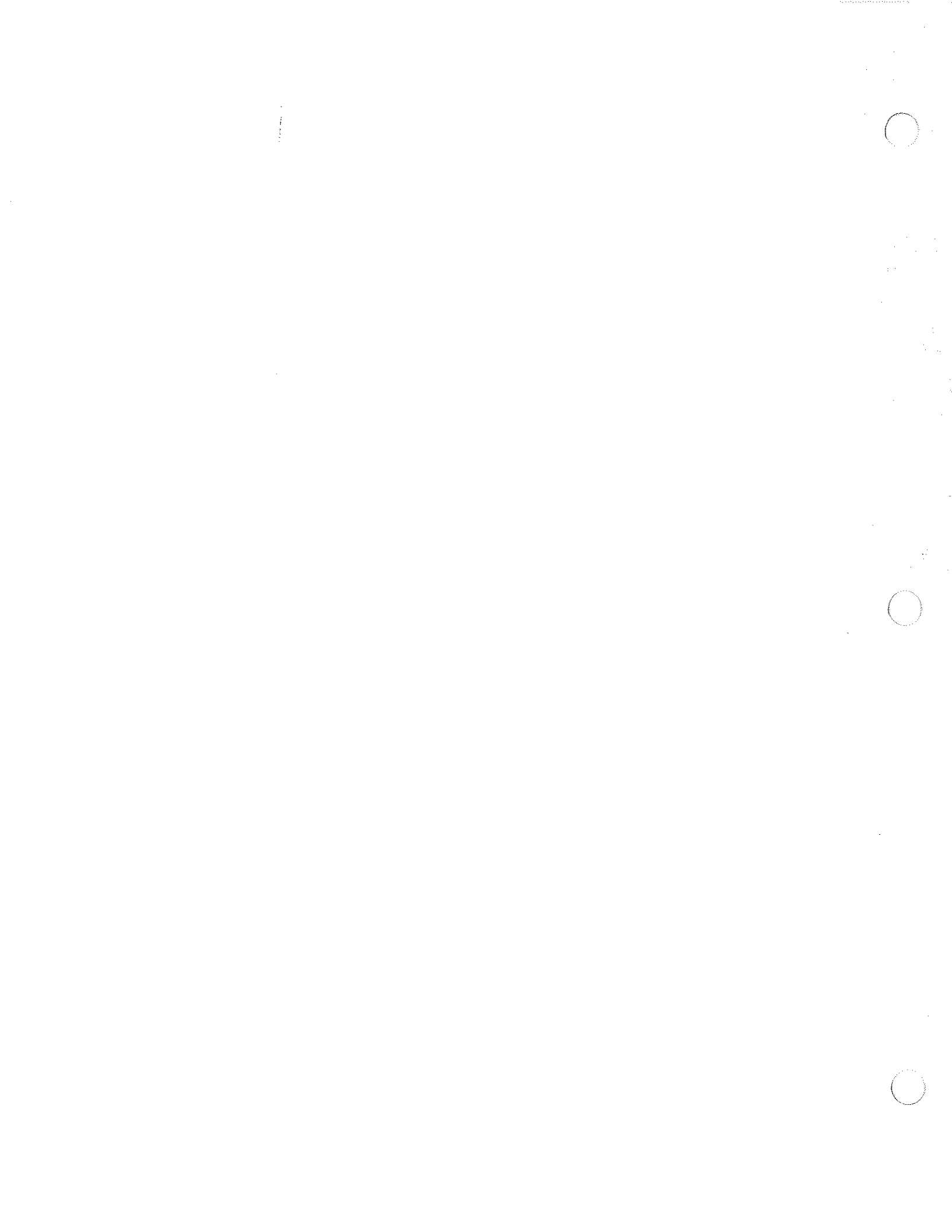


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EXECUTIVE SUMMARY

This report is a Wellhead Protection Plan (WHPP) for City of Madison Unit Well 18. The primary purposes of this WHPP are to define the wellhead protection area (WHPA) for Unit Well 18 and establish specific criteria for protection of Unit Well 18 and groundwater resources in the WHPA including management strategies to maintain a high quality water supply, free of contamination. The primary goal of wellhead protection (WHP) planning is to protect water supply wells from contamination and, thereby, protect people who obtain their water supply from those wells. This WHPP was prepared for Unit Well 18 to conform to the requirements of the Wisconsin Administrative Code, Chapter NR 811, Section 16(5), for WHP planning.

Unit Well 18 is located at 1925 South Park Street in the south-central part of the City of Madison. Construction of Unit Well 18 was completed in 1968. Unit Well 18 is 807 feet deep and is open primarily to the lower bedrock (sandstone) aquifer. Unit Well 18 has a design capacity of 2,200 gallons per minute (gpm).

Land use in the vicinity of Unit Well 18 is primarily residential and commercial, with some manufacturing/industrial land uses a few hundred feet northwest of Unit Well 18 in the Town of Madison.

As part of the Dane County regional hydrologic study, a regional groundwater flow model was prepared for Dane County (Krohelski et. al., 2000) and was used to delineate time-related (5-, 50-, and 100-year time of travel (TOT)) zones of contribution (ZOCs) for municipal wells including Unit Well 18. ZOCs extend south-southwest of Unit Well 18 in the simulated upgradient groundwater flow directions.

Figure 3-5 shows the WHPA for Unit Well 18. Two zones of protection are within the WHPA. Zone A is defined by the 5-year TOT ZOC. Zone B is defined by a 1,200-foot fixed radius around Unit Well 18. The WHPA will provide a conservative protection zone to account for changes in pumping rates, pumping duration, and interference drawdown from other existing and future wells.

A contaminant source inventory (CSI) was performed for the Unit Well 18 area during April 2007. Known potential and existing contaminant sources and routes within the Unit Well 18 WHPA include sanitary sewer; storm sewer; spill sites; active aboveground storage tank (AST) sites; active and closed underground storage tank (UST) sites; closed and open leaking underground storage tank (LUST) sites; vehicle repair businesses; metals recycling area; mulching and wood drying; chemicals storage and use; veterinary clinics; small quantity radioactive materials storage and use; manufacturing and light industry areas; road salt storage and use; and probable use of pesticide, herbicide, and nutrients on parks, and commercial and residential lawns and gardens.

Programs and activities to be used by the City of Madison and others for WHPA management at Unit Well 18 are grouped into five principal categories as follows:

1. Existing Programs
 - a. Clean Sweep Collection Program

- b. On-site waste disposal system maintenance
 - c. Well abandonment
 - d. Land application of sludge and septage
 - e. Spill notification and awareness of remedial investigation and cleanup
2. Land Use Controls
- a. Existing zoning/WHP overlay zoning and ordinance
3. Intergovernmental Cooperation
- a. Land use planning and site plan review
4. Monitoring
- a. CSI maintenance
 - b. Water quality monitoring
5. Public Education and Awareness
- a. Availability of WHPP
 - b. Public informational meeting
 - c. News releases
 - d. Informational materials distributed to residents in WHPA
 - e. Land use and contamination source awareness
 - f. School programs

Some of these programs and activities are currently being performed, while others are new and will be implemented immediately to help protect Unit Well 18.

The Madison Water Utility has an existing water conservation program and encourages water conservation. The Utility has formulated a contingency plan for providing water in the event that Unit Well 18, or one or more of the City's other water supply wells, become contaminated or removed from service. Well 18 is part of Pressure Zone 6. Other wells in Zone 6, such as Wells 27 and 30, can serve the area in the event of a Well 18 failure.

The City of Madison has a WHP ordinance and overlay zoning district. The WHP ordinance helps ensure that new contaminant sources are not located in the Unit Well 18 WHPA.

1.0 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

This report is a WHPP for City of Madison Unit Well 18. The primary purposes of this WHPP are to define the WHPA for Unit Well 18 and establish specific criteria for protection of Unit Well 18 and groundwater resources in the WHPA including management strategies to maintain a high quality water supply, free of contamination. The primary goal of WHP planning is to protect water supply wells from contamination and, thereby, protect people who obtain their water supply from those wells.

The term "wellhead" refers to the physical structure (well) at the land surface through which groundwater is withdrawn from a subsurface water-bearing formation (aquifer). A WHPA is defined by federal law as "the surface and subsurface area surrounding a water well or wellfield, through which contaminants are reasonably likely to move toward and reach such water well or wellfield" (United States Environmental Protection Agency (USEPA), 2005).

This WHPP was prepared for Unit Well 18 to conform to the requirements of the Wisconsin Administrative Code, Chapter NR 811, Section 16(5), for WHP planning. A copy of this section of the code is in Appendix A. The project scope included the following:

1. Research available information regarding the geology and hydrogeology of the well sites and aquifer parameters.
2. Research well construction and operation of Unit Well 18.
3. Coordinate with the Dane County Community Analysis and Planning Division (CAPD) of the Department of Planning & Development to delineate 5-, 50- and 100-year TOT capture zones for Unit Well 18.
4. Perform a CSI to identify and characterize existing and potential contamination sources within a ½-mile radius and within the recharge area equivalent to the 100-year TOT capture zone for Unit Well 18.
5. Assist with the determination of a WHPA for Unit Well 18.
6. Assist with the development of WHP management strategies.

1.2 LOCATION AND BACKGROUND

Unit Well 18 is located at 1925 South Park Street in the south-central part of the City of Madison. The site is in the NW¼, NW¼ of the NE¼, of Section 35, Township 7 North, Range 9 East, Dane County, Wisconsin. Figure 1-1 shows the location of Unit Well 18 and other water system facilities in the City of Madison. Well site property information is in Appendix B. Construction of Unit Well 18 was completed in 1968.

The City water system serves approximately 218,000 people and consists of 24 active wells, 28 booster pumping facilities, 24 ground storage reservoirs, 5 elevated water storage tanks, and

approximately 840 miles of water transmission and distribution mains. Because of the varying topography in the Madison area, the water system is divided into 11 separate pressure zones. Unit Well 18 is located in Pressure Zone 6. Unit Well 18 is located approximately 1.65 miles northwest of Unit Well 30 and 2 miles southeast of Unit Well 27.

1.3 UNIT WELL 18

Unit Well 18 was constructed to a depth of 807 feet. The well is cased with 30-inch outside diameter (OD) steel casing grouted to a depth of 251 feet below ground. A 22-inch diameter open borehole extends from 251 feet to the bottom of the well. Dolomite bedrock was encountered at a depth of 25 feet. Thin beds of shale were encountered over the intervals of 242 feet, 265 to 275 feet, and 670 to 675 feet. Basalt was encountered at a depth of 790 feet. Unit Well 18 was test pumped at a rate of 2,600 gpm and had a specific capacity of 26.5 gpm per foot of drawdown (gpm/ft). At the time of the original test pumping, the static (non-pumping) water level in Unit Well 18 was 71 feet below ground. In April 2007, the static water level in Unit Well 18 was approximately 97 feet below ground. A construction report and formation log prepared by the Wisconsin Geological and Natural History Survey (WGNHS) is in Appendix C.

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DANE COUNTY

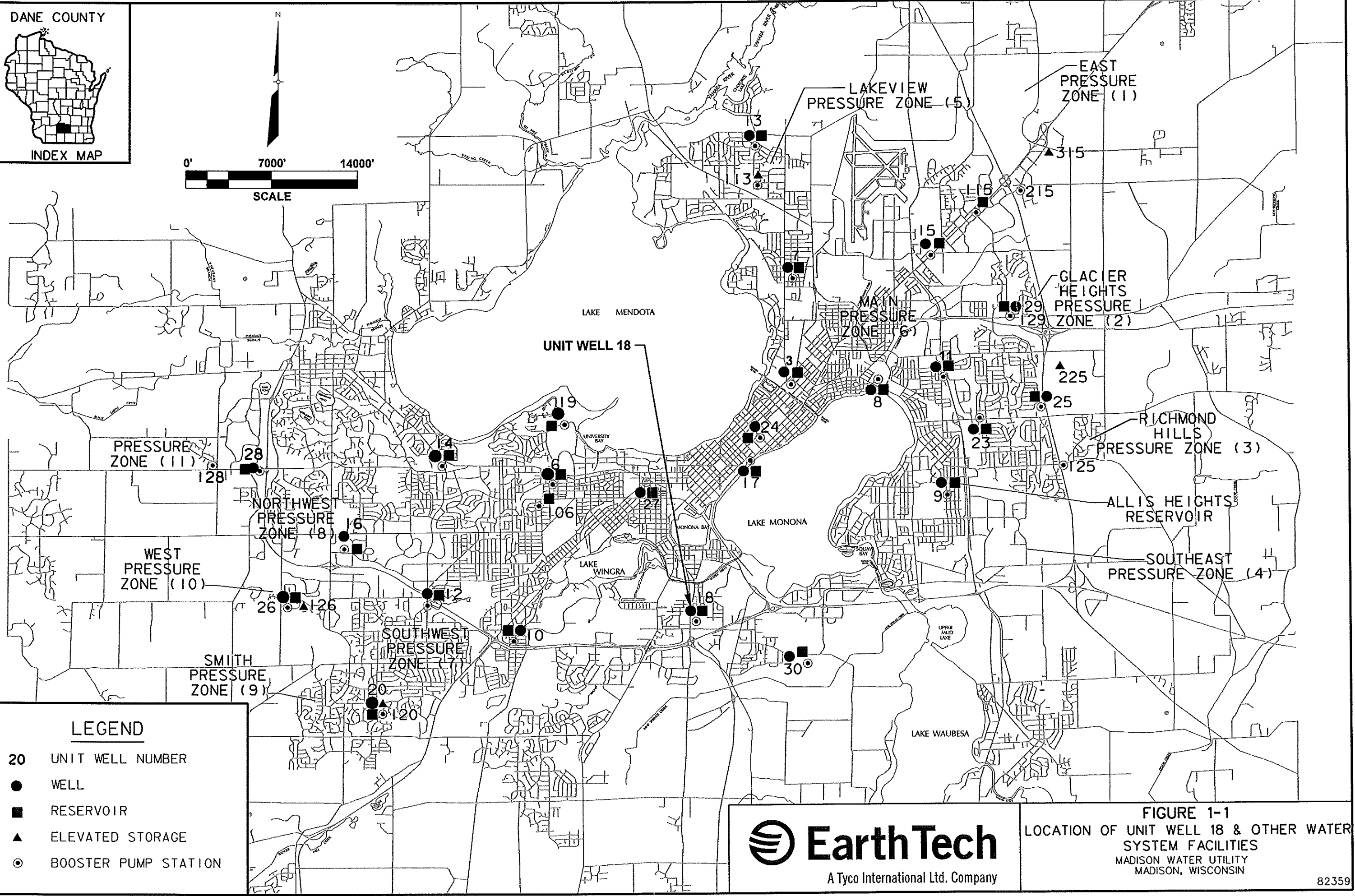


INDEX MAP

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SCALE



LEGEND

- 20 UNIT WELL NUMBER
- WELL
- RESERVOIR
- ▲ ELEVATED STORAGE
- ⊙ BOOSTER PUMP STATION



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FIGURE 1-1
 LOCATION OF UNIT WELL 18 & OTHER WATER
 SYSTEM FACILITIES
 MADISON WATER UTILITY
 MADISON, WISCONSIN

2.0 HYDROGEOLOGIC CONDITIONS

2.1 LAND USE, TOPOGRAPHY, AND DRAINAGE

Well 18 is located in a general residence district. Surrounding land uses are residential, commercial, and manufacturing. Current zoning immediately around Unit Well 18 is General Residence (R4), General Commercial (C2), and Single and Two-Family Residence (R3). Town of Madison properties are located immediately west and northwest of Unit Well 18 and have manufacturing and industrial land uses. Large commercial and manufacturing districts are located in areas far south of Unit Well 18. A portion of the City of Madison zoning map for the Unit Well 18 area is in Appendix D.

Unit Well 18 is located in a till-covered area, on the eastern edge of a small, low-relief, northeast-southwest trending drumlin. The site is approximately 4,500 feet south of Monona Bay. The ground surface elevation at Unit Well 18 is approximately 894 feet above mean sea level (MSL). The elevation of the hilltop immediately southwest of Unit Well 18 is approximately 900 feet MSL. Locally, drainage from Unit Well 18 is north toward Murphy Creek.

2.2 GEOLOGY

The area was glaciated by the Green Bay Lobe during the Wisconsin Stage. The rocks and unlithified deposits in the area range from Precambrian basement rocks to recent soils. The bedrock from oldest to youngest includes Precambrian basalt and Cambrian age bedrock consisting of sandstone, dolomite, and shale.

Figure 2-1 is a geologic cross-section through Unit Wells 27, 18, and 30. A formation log for strata encountered at Unit Well 18 is in Appendix C. The stratigraphic sequence encountered in the wells is briefly described in the following sections.

2.2.1 Precambrian Basement Bedrock

Precambrian bedrock was encountered in water supply Unit Well 18 at a depth of 790 feet below ground surface. The Precambrian bedrock encountered in Unit Well 18 is basalt (WGNHS Well Log DN-961).

2.2.2 Cambrian Bedrock

Cambrian age rocks encountered in Unit Well 18 include, in ascending order, Mount Simon Formation, Eau Claire Formation, Wonewoc Formation, Tunnel City Group, and the St. Lawrence Formation of the Trempealeau Group.

Cambrian age rocks are relatively flat-lying in the Madison area in the east-west direction and dip slightly to the south. The thickness of deep rock units appears to be relatively consistent in the Madison area, although there are textural and compositional changes, laterally. The occurrence and thickness of the Tunnel City Group and Trempealeau Group formations vary, because they are the upper erosional surfaces. Figure 2-1 shows the strata above the Trempealeau Group dolomite at Unit Well 18 consists of unlithified deposits. A pale green to red-pink, dolomitic shale layer approximately 10 feet thick appears to be laterally extensive through part of the Eau Claire Formation.

2.2.3 Unlithified Deposits

Bedrock is mantled by unlithified glacial till and alluvial deposits. Clayton and Attig (1997) classify the local near-surface unlithified deposits in the immediate vicinity of Unit Well 18 as part of the Horicon Member of the Holy Hill Formation. Clayton and Attig (1997) report that the near surface formation is uniform, subglacial till.

At Unit Well 18, the formation from the top of the sandstone bedrock (encountered at a depth of 25 feet) to the ground surface is described as gravel (20 to 25 feet in depth), medium to fine sand (15 to 20 feet), fine to coarse sand (5 to 15 feet), and medium sand (0 to 5 feet).

Soils in the immediate vicinity of Unit Well 18 are classified as the McHenry silt loam and the St. Charles silt loam (Hole, 1968; USDA, 1978). The McHenry silt loam (6 to 12 percent slopes) has fair contaminant attenuation potential. The St. Charles silt loam has good contaminant attenuation potential. The Dane County Regional Planning Commission (DCRPC) assigned a risk classification of high from surface activities in the Unit Well 18 area on the basis of several factors including soil properties (DCRPC, 1999).

2.3 HYDROGEOLOGY

In the study area, groundwater occurs within the lower bedrock aquifer and the upper bedrock aquifer. Locally, the upper bedrock aquifer and sand and gravel aquifer are used for private domestic supplies. Municipal and most industrial wells are constructed into the lower bedrock aquifer. Following is a brief discussion about the aquifers:

2.3.1 Lower Bedrock Aquifer

The lower bedrock aquifer occurs in the Mount Simon Formation and lower part of the Eau Claire Formation. The Precambrian bedrock is the base of the lower bedrock aquifer, and the shale layer in the Eau Claire Formation is the upper confining unit. Water occurs within horizontal and vertical fractures, along bedding planes, and between sand grains in the aquifer. The saturated thickness of the lower bedrock aquifer is 515 feet in Unit Well 18. The hydraulic conductivity of the lower bedrock aquifer is approximately 10 feet per day (ft/day) (Krohelski et. al., 2000). Unit Well 18 is cased to a depth of 251 feet, which is 14 feet above the Eau Claire shale confining layer; therefore, Unit Well 18 is open to a portion of the upper bedrock aquifer and all of the lower bedrock aquifer.

The grouted casing in Unit Well 18 terminates above the upper bedrock aquifer and Eau Claire confining layer. Water levels measured in Unit Well 18 should be representative of the composite upper and lower bedrock aquifers. In April 2007, the static water level in Unit Well 18 was approximately 97 feet below ground level (approximately 797 feet MSL). Figure 4 in Appendix E shows the simulated potentiometric surface in the lower bedrock (Mount Simon) aquifer and shows the groundwater flow direction toward Unit Well 18 is from the south (DCRPC, 2004). Figure 4 shows the potentiometric surface elevation in the vicinity of Unit Well 18 at approximately 850 feet MSL. The storativity of the lower bedrock aquifer is approximately 0.0003, and the porosity is approximately 30 percent (Bradbury, 2001). The porosity of the Eau Claire Formation is approximately 5 percent (Bradbury, 2001).

1 Ltscale: 0.5 LayoutName: FIGURE2-1.WELLS-27-18-30. Time: Dec 11, 2007 - 2:30pm

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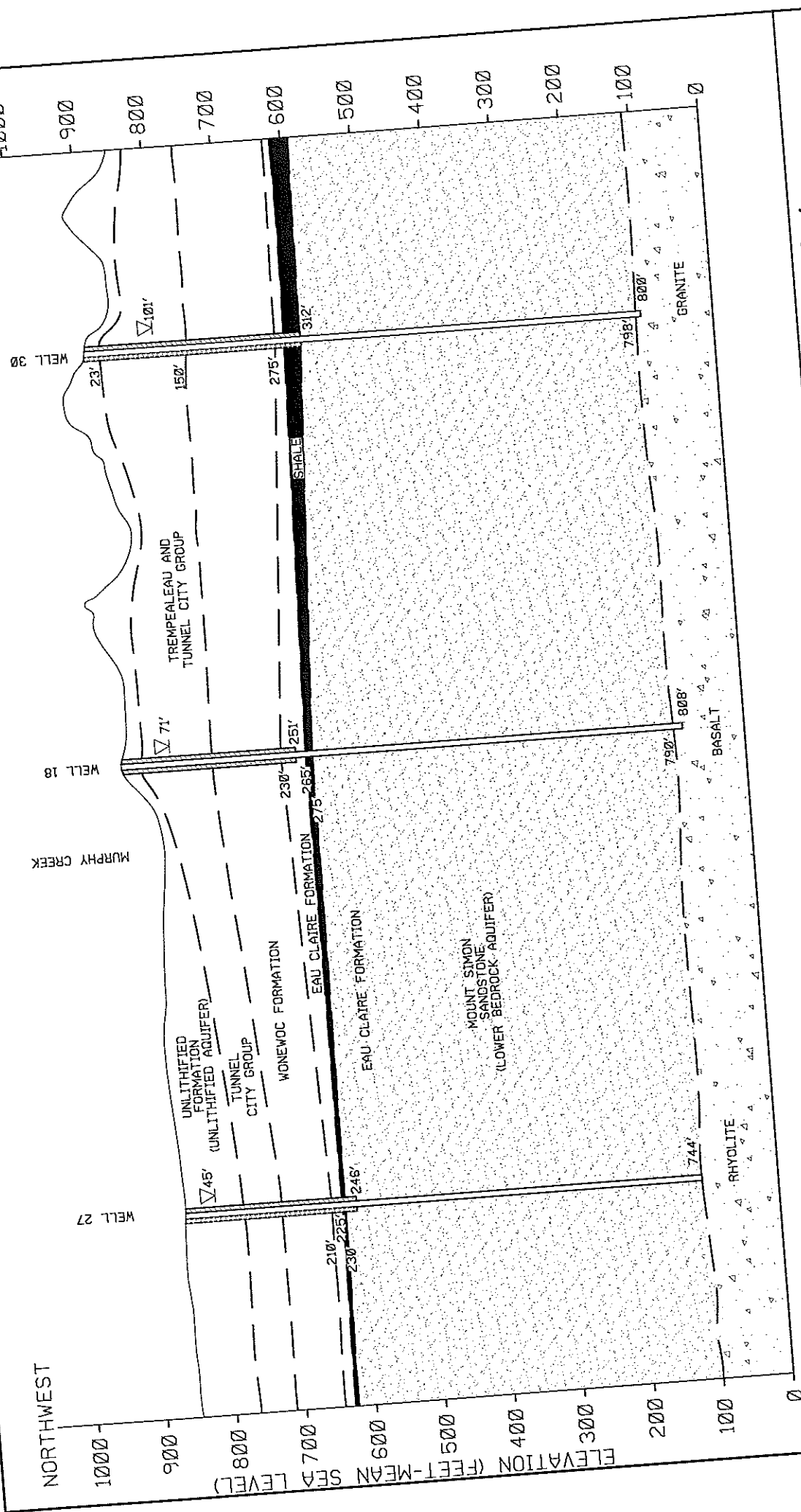


FIGURE 2-1
GEOLOGIC CROSS-SECTION THROUGH
MADISON UNIT WELLS 27, 18 & 30
MADISON, WISCONSIN

82359



LEGEND

- WELL CASING
- WELL BOREHOLE
- POTENTIOMETRIC SURFACE (AT TIME OF CONSTRUCTION)
- DEPTH (FEET) (AT TIME OF CONSTRUCTION)
- OPEN BOREHOLE

2.3.2 Upper Bedrock Aquifer

The upper bedrock aquifer occurs in the upper part of the Eau Claire Formation above the shale and within the Wonewoc Formation and Tunnel City Group. Water occurs within fractures, along bedding planes, and between sand grains in the sandstone.

At Unit Well 18, the thickness of the bedrock formation above the shale confining layer is 240 feet, and the saturated thickness of the upper bedrock aquifer is approximately 165 feet. Figure 3 (DCRPC, 2004) in Appendix F shows the simulated potentiometric (water table) surface in the upper bedrock aquifer and unlithified (sand and gravel) aquifer. The elevation of the static water level in Unit Well 18 is assumed to be the elevation of the potentiometric surface (797 feet above MSL) in the combined upper bedrock aquifer and lower bedrock aquifer. Figure 3 in Appendix F shows the elevation of the simulated potentiometric surface in the upper bedrock aquifer (water table) at Unit Well 18 in 2000 was less than 860 feet above MSL.

The hydraulic conductivity of the upper bedrock aquifer is approximately 5 ft/day (Krohelski et. al., 2000). The porosity of the upper bedrock formations is approximately 5 percent (Bradbury, 2001).

2.3.3 Sand and Gravel Aquifer

At Unit Well 18, the unlithified materials are thin, and it appears that the sand and gravel is not saturated. The driller did not report whether saturated formation was encountered in the unlithified materials. Where present, the hydraulic conductivity of the sand and gravel aquifer varies. For modeling purposes, Krohelski et. al., 2000, used a hydraulic conductivity of 7 ft/day and a porosity of 20 percent for the sand and gravel aquifer.

2.3.4 Groundwater Flow System

Average annual precipitation in the City of Madison area is approximately 30 to 30.5 inches per year (Cline, 1965; Cotter et. al., 1969). Cline (1965) estimated that the amount of recharge to the groundwater reservoir in the Upper Yahara River basin was approximately 6 inches per year (in/yr). Swanson (1996) estimated that the recharge rate in Dane County ranges from 0.3 to 6.7 in/yr and has an average value of 2.6 in/yr. Precipitation infiltrates through the till layer and recharges the unlithified and shallow bedrock aquifers. In some areas, a small percentage of water moves downward from the upper bedrock aquifer through the Eau Claire confining layer and into the lower bedrock aquifer. Map 7 in Appendix E shows the location of Well 18, and areas of recharge to and discharge from the lower bedrock (Mount Simon) aquifer (Bradbury et. al, 1999; DCRPC 1999). Unit Well 18 is located in a recharge area. Discharge from the unlithified and shallow bedrock aquifers is to pumping wells and/or to surface waters (lakes, streams, and wetlands). Discharge from the lower bedrock aquifer is primarily to pumping wells.

3.0 WHPA DELINEATION

This chapter describes methodologies used to define the Zone of Influence (ZOI) and ZOC for Unit Well 18.

3.1 ZOI

The ZOI for Unit Well 18 was estimated in accordance with Wisconsin Department of Natural Resources (DNR) requirements based on 30 days of continuous pumping at the rated pump capacity, assuming no aquifer recharge. The ZOI was determined using the Theis equation. The estimated ZOI for Unit Well 18 to a radius where there is 1 foot of drawdown is approximately 9.5 miles. The estimated ZOI to a radius of zero drawdown is approximately 20 miles. These estimated ZOI are conservatively large, because the Theis equation does not incorporate aquifer recharge or the effects of potential hydraulic boundaries. For the calculation, it was assumed that the majority of the open borehole, open to both the lower and upper bedrock aquifers, supplies water to Unit Well 18. Distance–drawdown calculations are in Appendix G.

3.2 GROUNDWATER MODEL DEVELOPMENT AND ZOC DELINEATION

As part of the Dane County regional hydrologic study, a regional groundwater flow model was prepared for Dane County (Krohelski et. al., 2000) and was used to delineate time-related ZOCs for municipal wells including Unit Well 18. The Dane County regional hydrologic study was conducted cooperatively by the WGNHS, DCRPC, and the United States Geological Survey (USGS). The USGS modular groundwater modeling code (MODFLOW (McDonald& Harbaugh, 1988)) was used to simulate groundwater flow. After the calibrated groundwater flow model was prepared, PATH3D (Zheng, 1991) was used to determine time-related ZOCs.

The model domain covers an area of 50 by 60 miles and is divided into 144,000 nodes. Each node has regular spacing of 1,312.4 feet (400 meters) on a side. The grid has 200 rows and 240 columns (Krohelski et. al., 2000).

In 2002, the original groundwater flow model was converted from a three-layer model to a four-layer model. The sand and gravel aquifer is Layer 1. The upper bedrock aquifer is Layer 2. The Eau Claire Formation is Layer 3, and the lower bedrock aquifer is Layer 4. The model was recalibrated, and various boundary conditions were modified (DCRPC, 2001). Other aquifer parameters input into the model were as previously described in Chapter 2 and in Krohelski et. al., 2000.

Four groundwater flow simulations were performed for this study, by the Dane County CAPD, using the calibrated model and different pumping rates for existing and known future municipal supply wells in Dane County. Simulation No. 1 was performed using the projected pumping rates from municipal wells for the year 2030 (Bradbury, 1998). Total City of Madison 2030 pumping is projected to be 44.328 million gallons per day (MGD). For Simulation No. 1, projected 2030 pumping was distributed evenly among the City's existing and planned wells for an average rate of 1.4413 MGD. Pumping at a rate of 1.4413 MGD is equivalent to pumping continuously at a rate of approximately 1,000 gpm.

Simulation No. 2 was performed using the "maximum sustained pumping rate" or "one-half design capacity" (Bradbury, 1998; DCRPC, 2004). The maximum sustained pumping rate (one-half design capacity) for Unit Well 18 is 1.584 MGD. Pumping at a rate of 1.584 MGD is equivalent to pumping continuously at a rate of 1,100 gpm.

Simulation No. 3 was performed using full design capacity. Full capacity for Unit Well 18 is 3.168 MGD. Pumping at a rate of 3.168 MGD is equivalent to pumping continuously at a rate of 2,200 gpm.

Simulation No. 4 was performed using the average pumping rate for Unit Well 18 for the maximum year during the past eight years (1999 through 2006). The maximum pumpage year for Unit Well 18 was 2000, when Unit Well 18 was pumped at an average rate of approximately 2.281 MGD. Pumping at a rate of 2.281 MGD is equivalent to pumping continuously at a rate of 1,584 gpm.

PATH3D (Zheng, 1991) was used to determine the time-related ZOCs for Unit Well 18. Particles were input in the model around Unit Well 18 and then tracked backward from the well to points where they enter the groundwater flow system.

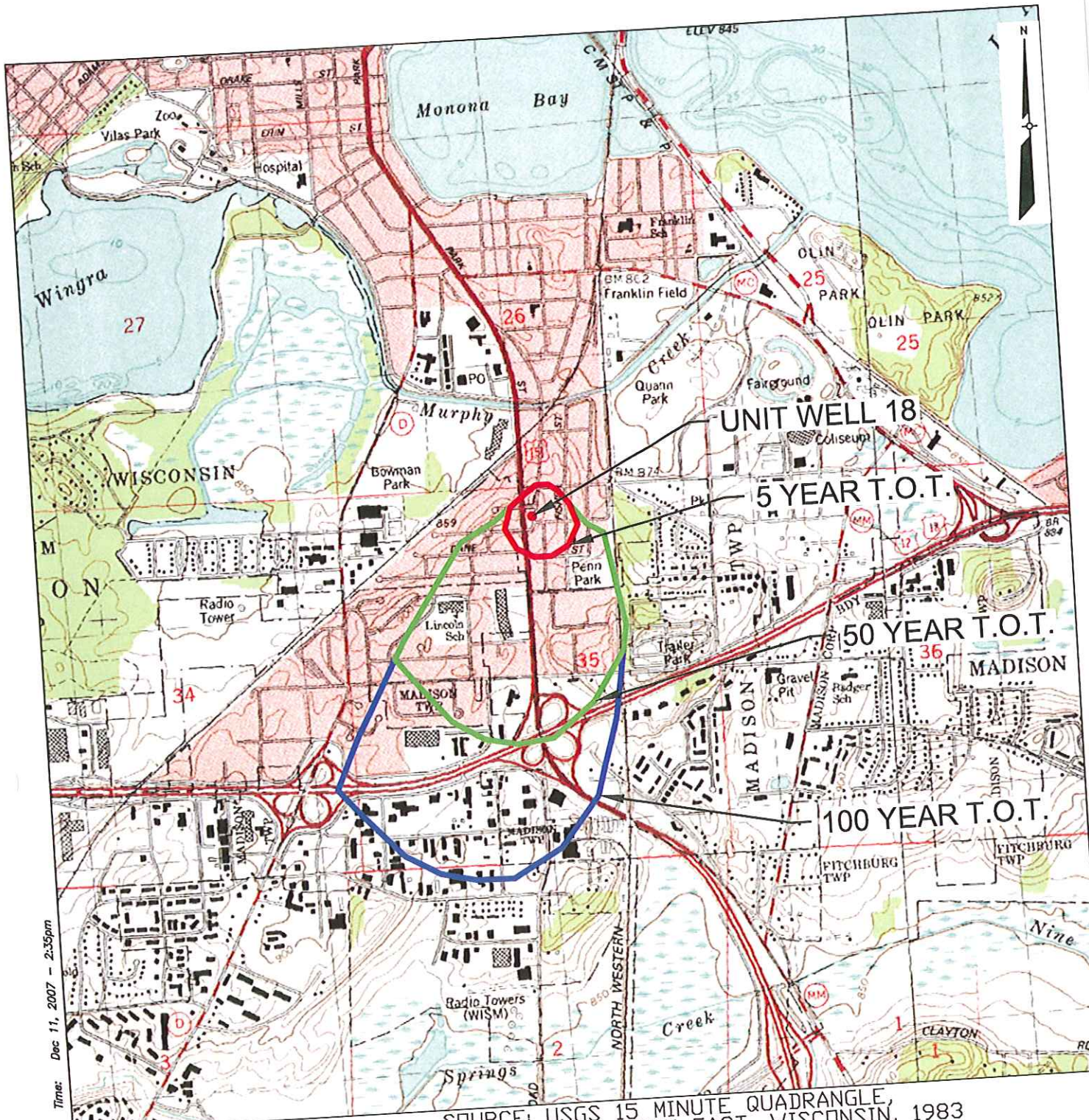
3.3 ZOC

The area that recharges or contributes water to Unit Well 18 is defined as the ZOC. The areal extent of the ZOC (capture zone) depends on the pumping rate, amount of horizontal and vertical recharge, aquifer characteristics, pumping duration, and other stresses such as other pumping wells. It is beneficial to know the well capture zone, because contaminants introduced within the zone could reach Unit Well 18.

Figure 3-1 shows the 5-, 50-, and 100-year TOT ZOCs for Unit Well 18 based on the projected 2030 pumping rate (Simulation No. 1). Figure 3-2 shows the 5-, 50-, and 100-year TOT ZOCs for Unit Well 18 based on the one-half design capacity pumping rate (Simulation No. 2). Figure 3-3 shows the 5-, 50-, and 100-year TOT ZOCs for Unit Well 18 based on the full design capacity pumping rate (Simulation No. 3). Figure 3-4 shows the 5-, 50-, and 100-year TOT ZOCs for Unit Well 18 based on the average pumping rate for Unit Well 18 for the maximum year (Simulation No. 4).

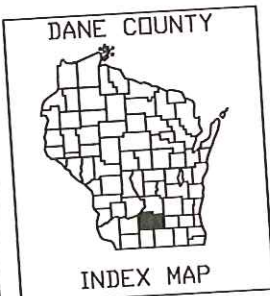
The capture zones extend primarily toward the south-southwest in the simulated upgradient groundwater flow direction. Table 3-1 summarizes the upgradient and downgradient extent of capture zones for the various pumping simulations. The ZOCs delineated using the Simulation No. 3 pumping rates are more conservatively large compared to the ZOCs delineated using the Simulation Nos. 1, 2, and 4 pumping rates.

Figure 2 in Appendix H shows ultimate regional ZOCs for Unit Well 18 and for other wells in Dane County. Groundwater flow pathlines extend upgradient from Unit Well 18 to the groundwater divide located approximately 8.5 miles south-southwest of Unit Well 18 and are located entirely within Dane County.

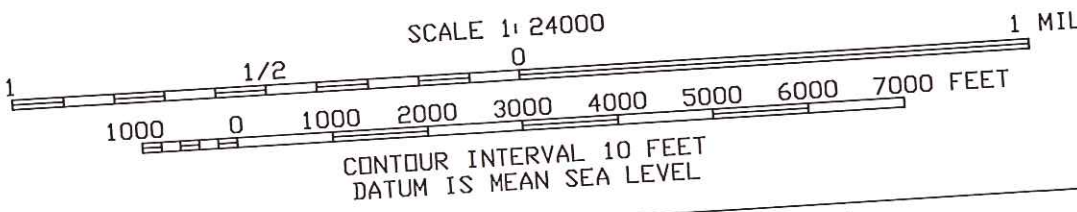


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SOURCE: USGS 15 MINUTE QUADRANGLE, MADISON WEST & MADISON EAST, WISCONSIN, 1983



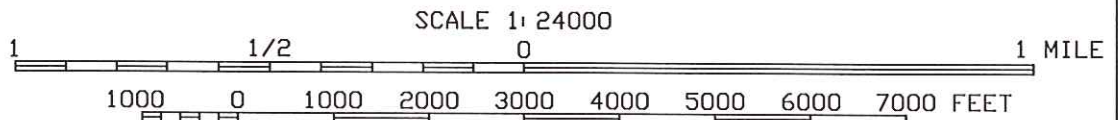
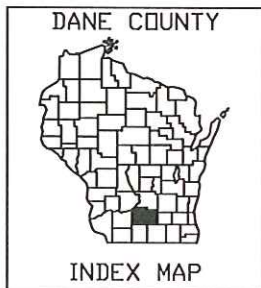
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 A Tyco International Ltd. Company

FIGURE 3-1
 5, 50, 100 YEAR T.O.T. Z.O.C.s ASSUMING
 PROJECTED 2030 PUMPING RATE

MADISON, WISCONSIN



SOURCE: USGS 15 MINUTE QUADRANGLE,
MADISON WEST & MADISON EAST, WISCONSIN, 1983



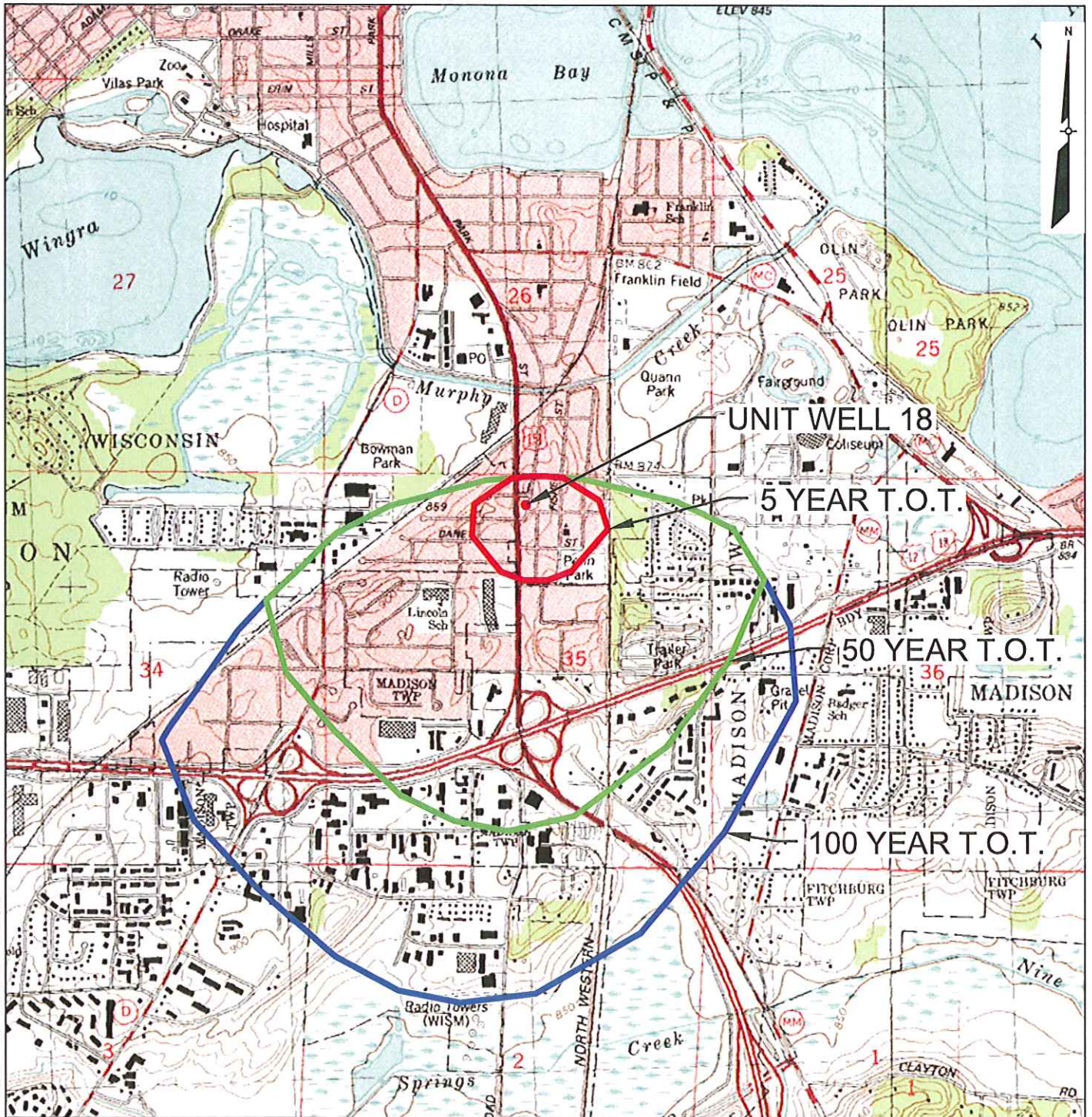
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL



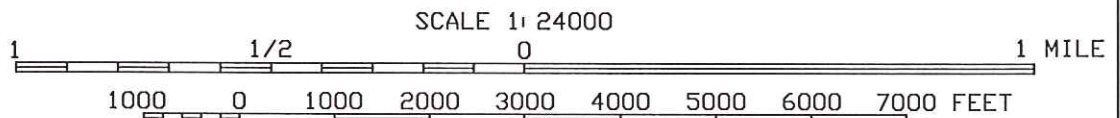
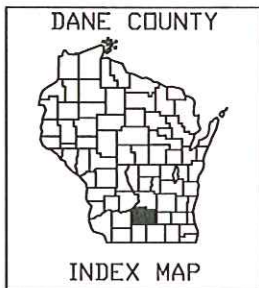
FIGURE 3-2
5, 50, 100 YEAR T.O.T. Z.O.C.s ASSUMING
50 PERCENT CAPACITY PUMPING RATE

MADISON, WISCONSIN

82359



SOURCE: USGS 15 MINUTE QUADRANGLE,
MADISON WEST & MADISON EAST, WISCONSIN, 1983



CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL



FIGURE 3-3
5, 50, 100 YEAR T.O.T. Z.O.C.s ASSUMING
FULL CAPACITY PUMPING RATE

MADISON, WISCONSIN

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SOURCE: USGS 15 MINUTE QUADRANGLE,
MADISON WEST & MADISON EAST, WISCONSIN, 1983

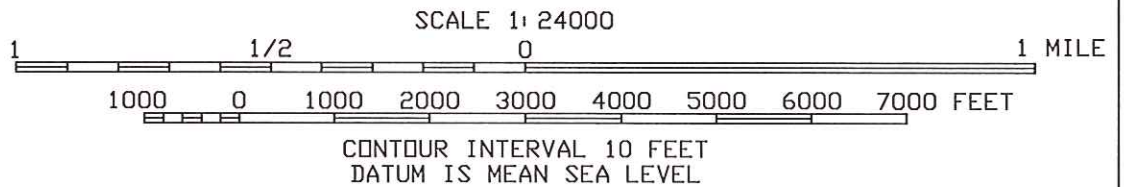
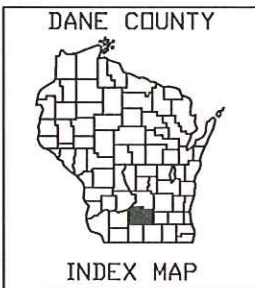


FIGURE 3-4
5, 50, 100 YEAR T.O.T. Z.O.C.s ASSUMING
PUMPING AT AVERAGE RATE DURING
THE MAXIMUM YEAR
MADISON, WISCONSIN

**TABLE 3-1
SUMMARY OF EXTENT OF ZOCs (CAPTURE ZONE)
WELLHEAD PROTECTION UNIT WELL 18
MADISON, WISCONSIN**

Item	Simulation No. 1 (projected 2030 pumping rates)	Simulation No. 2 (one-half design capacity pumping rates)	Simulation No. 3 (continuous pumping at full capacity)	Simulation No. 4 Average Pumping Rate During Maximum Pumpage Year
Simulated Pumping Rate (MGD)	1.4413 (1,000 GPM)	1.584 (1,100 GPM)	3.168 (2,200 GPM)	2.281 (1,584 GPM)
Upgradient Extent of ZOC (feet)				
5-year TOT	500	650	1,050	750
50-year TOT	2,500-3,200	2,500-3,500	4,400	3,750
100-year TOT	4,800-5,200	5,400	6,800	5,800
Downgradient Extent of ZOC (feet)				
5-year TOT	450	400	400	450

Notes:

MGD = Million Gallons per Day

ZOC = Zone of Contribution

TOT = Time of Travel

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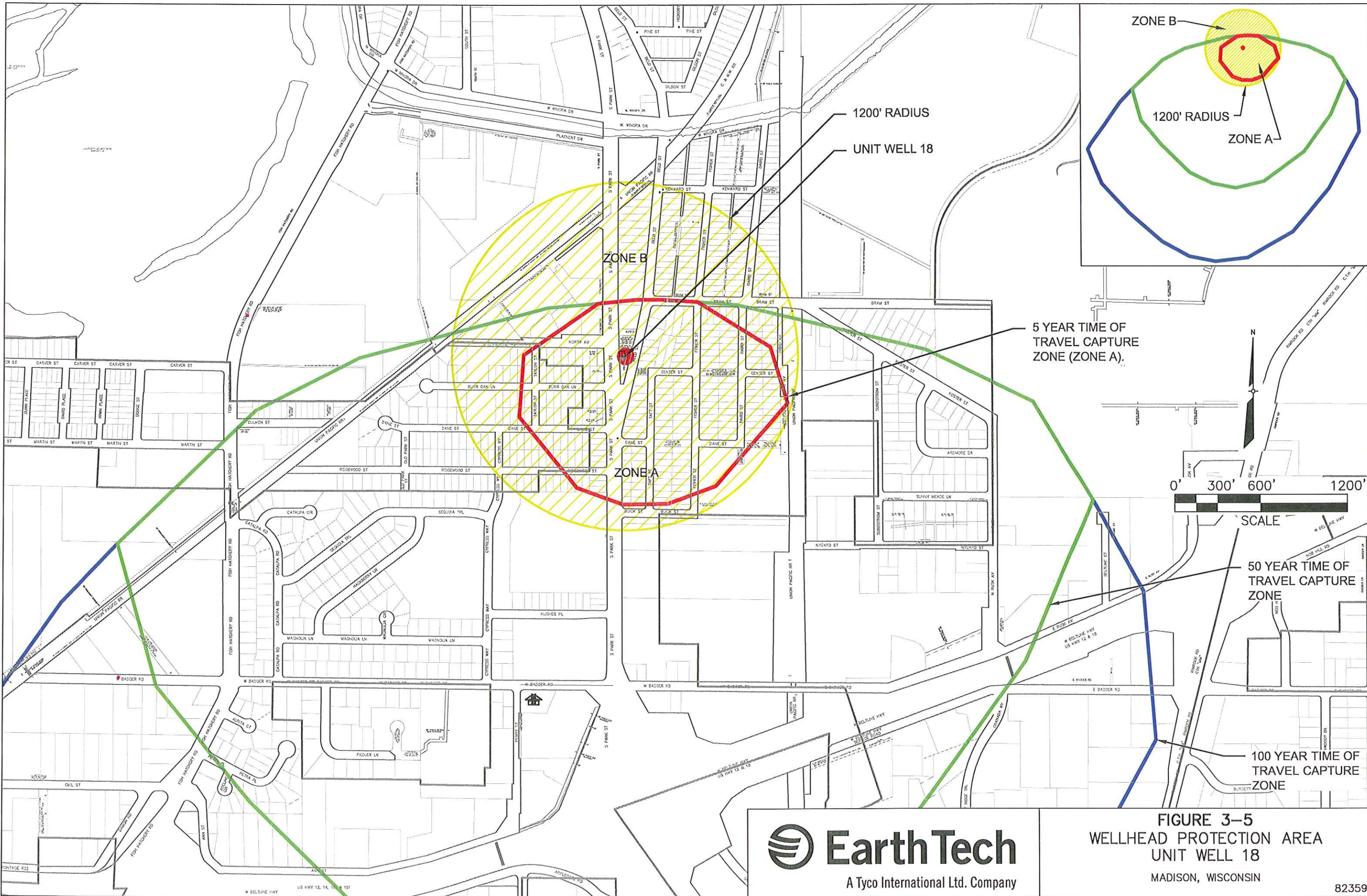
3.4 WHPA

The Wisconsin Administrative Code (Chapter NR 811.16(5)(e)) requires that a WHPA for municipal water supply wells "encompass, at a minimum, that portion of the recharge area equivalent to a 5-year TOT to the well." Any of the four simulations described above could be used to model the 5-year TOT ZOC for Unit Well 18. It is possible that Unit Well 18 could be pumped at maximum capacity without interruption; therefore, Simulation No. 3 provides a realistic, but very conservative, model of well capture zones for Unit Well 18. Simulation No. 3 was used to generate the long-term capture zones and WHPA for Unit Well 18.

The 5-year TOT ZOC for Unit Well 18 extends up to 1,050 feet upgradient of the well in the southerly direction and approximately 400 feet downgradient from the well. The 100-year TOT ZOC extends approximately 6,800 feet upgradient from Unit Well 18 in the south-southwesterly direction. Protecting the entire 100-year TOT ZOC from Unit Well 18 to the upgradient boundary at the same level of protection, as the area within the 5-year TOT ZOC, is likely too severe.

Figure 3-5 shows the WHPA for Unit Well 18. Two zones of protection are within the WHPA. Zone A is the area around Unit Well 18 that is defined by the 5-year TOT ZOC delineated for Simulation No. 3 (full design capacity pumping rate). Zone B is the area around Unit Well 18, beyond Zone A, that is defined by a 1,200-foot fixed radius around Unit Well 18. This radius is selected, because Wisconsin Administrative Code, Chapter NR 811.16(4), requires a 1,200-foot separation distance between a municipal water supply well and certain contamination sources.

Figure 3-5 shows that Zone A is contained within Zone B. The boundary of Zone B extends up to 800 feet downgradient beyond the Unit Well 18 ZOC. The WHPA will provide a conservative protection zone to account for changes in pumping rates, pumping duration, and interference drawdown from other existing and future wells. The WHPA is located entirely within the City of Madison.



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4.0 POTENTIAL CONTAMINANT SOURCES

4.1 CSI

A CSI was performed for the Unit Well 18 area during April 2007. The CSI consisted of a search of government records, interviews, and a reconnaissance survey of the area within a ½-mile radius and the recharge area equivalent to the delineated 100-year TOT of Unit Well 18. General land use observations and reconnaissance were made on April 18 and 19, 2007.

Figure 4-1 shows the location of potential, existing, and former contaminant sources in the WHPA, within a ½-mile radius, and the recharge area equivalent to the delineated 100-year TOT of Unit Well 18. Table 4-1 summarizes potential contaminant sources that were observed and/or reported to be within the WHPA and review area.

Potential, existing, and former contaminant sources and routes within the WHPA and ZOCs for Unit Well 18 include former spills and potential spills along roads; sanitary and storm sewers; active AST sites; active and closed UST sites; closed and open LUST sites; gas stations; vehicle repair businesses; metals recycling area; mulching and wood dyeing; chemicals storage and use; veterinary clinics; small quantity radioactive materials storage and use; heavy industry areas; road salt storage and use; and probable use of pesticide, herbicide, and nutrients on parks, commercial, and residential lawns and gardens.

Based on the available information, the following are descriptions of known potential, existing, and former contaminant sources in the WHPA within a ½-mile radius of Unit Well 18 and within the recharge area equivalent to the delineated 100-year TOT of Unit Well 18:

The nearest storm sewer is located in South Park Street, approximately 50 feet west of Unit Well 18. The nearest sanitary sewer main is located in Beld Street, approximately 120 feet east of Unit Well 18.

Water wells are conduits (routes) to groundwater. A poorly constructed or damaged well may allow contaminants to enter groundwater or to move from one aquifer into another. There are scattered private wells throughout the Unit Well 18 area. The private wells serve properties located in the Town of Madison. The nearest private well to Unit Well 18 is located at 1802 South Park Street, which is approximately 700 to 750 feet north-northwest of Unit Well 18. Construction reports were found in DNR files for 16 private wells located within the 100-year TOT ZOCs for Unit Well 18. Only two of the wells have construction details. A well at 220 Nygard Street is 146 feet deep and has grouted casing to a depth of 80 feet. The Town of Madison well, located at 2120 South Fish Hatchery Road, is 350 feet deep and has grouted casing to a depth of 300 feet. Records were also found for the following private wells, but the records have no construction details:

Perkins Sheet Metal, 1204 Culmen Street
Body Shop Supply, 2111 Fish Hatchery Road
Evergreen Transport, 1201 Culmen Street
Ben Heifetz, Inc., 1802 South Park Street
Regal Roadster, 301 West Beltline
Arboretum Animal Hospital, 2033 Fish Hatchery Road

TABLE 4-1
CONTAMINANT SOURCE INVENTORY SUMMARY
WELLHEAD PROTECTION UNIT WELL 18
MADISON, WISCONSIN
APRIL 2007

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
1 (A1/A2)	Madison Water Utility Well 18 1925 South Park Street Madison, WI	EDR Report- WI – AST Tier 2 Database	In use AST: 490 gallon diesel Chlorine gas storage and use	Active	At Well 18	At Well, Zone A	Moderate
1B	City of Madison Streets throughout Area	Site Reconnaissance City Maps	Sanitary sewer	Active Sanitary Sewer	120 feet East	Zone A	High
1C	City of Madison Streets throughout Area	Site Reconnaissance City Maps	Storm sewer	Active Storm Sewer	50 feet West	Zone A	Moderate
2 (A3)	North American Group 1901 South Park Street Madison, WI	EDR Report- LUST	LUST site, contaminated soil. Closed April 2002	Active Site Closed LUST April 2002	150 feet North	Zone A	High
3 (A4)	St Vincent de Paul (current) 1925 Beld Street Madison, WI	EDR Report- WI – Spills	Historic spill – fuel line leak of petroleum product. Closed 1992	Historic Spill Closed 1992	200 feet ESE	Zone A	Low
4 (A5/A6)	Corporate Custom Products 1900 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 162616) FINDS	Closed/removed UST: 1,000-gallon unleaded gasoline	Closed/Removed	200 feet West	Zone A	Low
5 (B7)	City of Madison Coop Drive Near 1810 Park Street Madison, WI	EDR Report- LUST	LUST site, contaminated soil. Closed August 1999	Former LUST Site not Apparent at this Location Closed August 1999	850 feet North	Zone B	Moderate-High
6 (B8)	Tri Star Mulch (current) 1830 South Park Street Madison, WI	Site Reconnaissance	Storage and use of dyes for wood chips. Composition of dyes not known.	Active	400 feet NW	Zone A/B	Moderate
7 (B9)	Hokanson Auto Co. Inc. (Former) 1824 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 141668) RCRA – SQG FINDS BRRTS SHWIMS Site Reconnaissance	Closed/removed UST: 550-gallon waste/used motor oil Solid and hazardous waste listing	Closed/Removed UST	350 feet NW	Zone A	Moderate
8 (B10)	Thorstad Chevrolet (current) 1824 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 141668) Site Reconnaissance	Closed/removed UST: 550 gallon waste/used motor oil Barrels storage behind building – unknown contents	Closed/Removed UST Active Business	300 feet NW	Zone A	Moderate
9 (C11/C12)	Diocese of Madison Catholic Multicultural Center 1862 Beld Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 679876) LUST	Closed/removed UST: 1,000 gallon fuel oil LUST site, contaminated soil. Closed May 2002	Closed/Removed UST May 2002 Active Site	450 feet North	Zone B	Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
10	All Metals Recycling 1802 South Park Street Madison, WI	Site Reconnaissance	Metal piles, general disorganized yard, high potential for leaks and spills of hazardous fluids.	Active	700 – 750 feet NW	Zone B	High
10b (B13)	Mobile Pallet Co. (Current) Modern Distributor Warehouse 1818 South Park Street Madison, WI	EDR Report- WI ERP Site Reconnaissance	Closed ERP site. Closed 1993. Contaminated soil. Type not reported. General disorganized yard	Closed ERP August 1993 Active Business	750 feet NW	Zone B	Moderate
11 (B14)	J. Stopple 1810 Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 106762)	Closed/removed UST: 6,000 gallon fuel oil	Closed 1994	550 feet NW	Zone B	Low
11b	Universal Electric 1810 Park Street Madison, WI	Site Reconnaissance	General industrial area. Potential for leaks and spills	Active	600 feet NW	Zone B	Moderate
12 (15)	MG&E Transformer Pad 2021 Taft Street Madison, WI	EDR Report- WI Spills	Historic spill – failed bushing and leaked oil. Contaminated soil was excavated.	Historic Spill April 1999	475 feet SSE	Zone A	Low
13 (D16/D17/ D18)	Park Street Car Repair (current) Park Street Conoco (former) 2116 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 116516) LUST RCRA-SQG FINDS AST WI WRRSER SHWIMS Site Reconnaissance	Closed/removed USTs: 500 gallon fuel oil; 2,000 gallon unleaded gasoline; 3 - 2,000 gallon diesel; 4,000 gallon unleaded gasoline; 4,000 gallon leaded gasoline; 500 gallon waste/used motor oil. LUST – Closed July 2004, Free Product and groundwater contamination. Closed with GIS site registry deed restriction. In Use AST: 250 gallon fuel oil Vehicle parking, potential leaks and spills, storage and use of various fluids. Remediation shed located behind primary building	Active AST Closed/Removed USTs Closed LUST July 2004 with Deed Restriction	750 feet SW	Zone A	High
14 (19)	Constance Willis 1930 Baird Street Madison, WI	EDR Report- WI Registered UST (Facility ID 666660)	Closed/removed UST: 550-gallon fuel oil, residential use.	Closed/Removed	750 feet East	Zone A	Low
15 (D20)	Wingra Family Medical Center 701 Dane Street Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active	650 feet South	Zone A	Low
16	Residence 2001 Beld Street Madison, WI	Site Reconnaissance	Exterior heating oil tank, estimated 250 gallon Potential leaks and spills, non secondary containment	Active Residential AST	300 feet South	Zone A	Moderate
17 (D22)	Walgreen Corp. 2121 South Park Street Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active	825 feet South	Zone A	Low
18 (23)	1800 Block of Fischer Street Madison, WI	EDR Report- WI - Spills	Historic spill – 1988 – Tank punctured with pipe caused gasoline leak	Historic Spill 1988	900 feet NE	Zone B	Low
19 (E24)	Paul Davenport 1723 Beld Street Madison, WI	EDR Report- WI – Registered UST (Facility ID 139071)	Closed/removed UST: 550-gallon leaded gas	Closed/Removed	1,250 feet NE	Downgradient within ½ Mile Radius	Low
20 (25)	Richard Hayden 2116 Fisher Street Madison, WI	EDR Report- WI Registered UST (Facility ID 122919)	Closed/removed UST: 1,000-gallon fuel oil - residential	Closed Removed UST	850 feet SE	Zone A	Low

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
21 (F26/F31)	SBC Services Inc./ Bell Telephone 817 Plaenert Madison, WI	EDR Report- WI - Registered UST (Facility ID 118809) BRRTS	Closed/removed UST: 10,000 gallon unleaded gasoline	Closed/Removed	1,600 feet NW	Downgradient within ½ Mile Radius	Low
22 (F27/F28/ F29)	Thorstad Chevrolet Inc. 1702 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 137019) AST LUST RCRA-SQG FINDS SHWIMS Tier 2 Site Reconnaissance	In use USTs: 2,000 gallon waste/used motor oil; 10,000 gallon unleaded gas; 550 gallon waste/used motor oil In use ASTs: 3 - 250 gallon waste/used motor oil Closed/removed USTs: 2 - 500 gallon waste/used motor oil; 2 - 1,000 gallon waste/used motor oil; 2,000 gallon contents not reported; 5,000 gallon unleaded gasoline; 2 - 1,000 gallon contents not reported; 5,000 gallon leaded gasoline; 1,000 gallon diesel LUST - petroleum contaminated soil, Site conditionally closed May 2005 with GIS registry deed restriction Solid and hazardous waste listing Vehicle parking, potential leaks. Storage and use of various hazardous fluids. Body shop - storage and use of paints and solvents	In Use USTs and ASTs Closed USTs Conditionally Closed LUST with Deed Restriction Active Vehicle Sales, Service and Repairs	1,100 - 1,300 feet NW	Zone B	Moderate
23 (F30)	BJ Electric Supply, Inc. (current) All Lamp Recycling LLC (former) 805 Plaenert Drive Madison, WI	EDR Report- PADS RCRA-SQG FINDS Site Reconnaissance	PADS listing and small quantity generator	Active	1,500 feet NW	Downgradient within ½ Mile Radius	Low
24 (F32/F33/ F34/F35/ F36)	Associated Milk Producers, Inc. (former tenant) 1707 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 150248) WI AST LUST FINDS FTTS WI Spills WI WRRSER Site Reconnaissance	In use AST: 1,500 gallon fuel oil Closed/removed USTs: 2 - 10,000 gallon fuel oil; 12,000 gallon diesel LUST - petroleum contaminated soil and groundwater. Closed 1995 Historic spill 1983 - Tank exploded. Contents not reported. Environmental activity listing	McGinn Bindery is Current Tenant at This Location Closed USTs Closed LUST May 1995 Historic Spill 1983	1,450 feet North	Downgradient within ½ Mile Radius	Low
25 (G37/G38/ G39)	Citgo Gas Station (current) Park Street Quikmart 2200 South Park Street Madison, WI	EDR Report- WI Registered UST (Facility ID 677079) LUST RCRA - SQG FINDS SHWIMS Site Reconnaissance	In Use USTs: 3 - 12,000 gallon unleaded gasoline LUST - petroleum contaminated soil. Closed 1999 Solid and hazardous waste listing	In Use USTs Closed LUST July 1999 Active Gas Station	900 feet South	Zone A	High
26 (G40/G41)	Citgo Gas Station (Current) Open Pantry Food Mart 2201 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 674707) LUST WI Spills Site Reconnaissance	In Use USTs: 2 - 8,000 gallon unleaded gasoline; 10,000 gallon unleaded gasoline. LUST - petroleum contaminated soil. Closed 1998	In Use USTs Closed LUST January 1998 Active Gas Station	1,250 feet South	50 Year TOT	High
27 (H42)	Hurlbut Liquidating Co. 1621 Beld Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 59847) LUST WI Spills	Closed/removed USTs: 5,000 gallon leaded gasoline; 500 gallon unleaded gasoline; 500 gallon leaded gasoline LUST - petroleum contaminated soil. Closed 1994 May 1985 Historic spill - broken pipe. Released product not reported.	Closed/Removed USTs Closed LUST January 1994	1,750 feet NNE	Downgradient within ½ Mile Radius	Low

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
28 (144/145/ 146)	Roadstock Retread (current) Anding Property/Wrights Auto 1613 South Park Street Madison, WI	EDR Report- Listing for Anding Property WI - Registered UST (Facility ID 146997) RCRA-SQG FINDS LUST WI WRRSER SHWIMS	Closed/removed USTs: 550-gallon waste/used motor oil; 6,000 gallon unleaded gasoline; 6,000 gallon diesel; 1,000 gallon fuel oil; 4,000 gallon leaded gasoline; 400 gallon kerosene LUST - Closed May 1997- Petroleum contaminated soil and groundwater Solid and hazardous waste listing	Closed/Removed USTs Closed LUST August 1997	1,750 feet North	Downgradient within ½ Mile Radius	Low
29 (147)	Madison Electric Coop 1610 South Park Street Madison, WI	EDR Report- Listing for Madison Electric Coop LUST	LUST - Closed December 1995- Petroleum contaminated soil	Closed LUST December 1995 Current Tenant is Labor Temple	1,850 feet North	Downgradient within ½ Mile Radius	Low
30 (J48/J49/ J50)	Madison Metropolitan School District - Abraham Lincoln Elementary School 909 Sequoia Trail Madison, WI	EDR Report- WI - Registered UST (Facility ID 104772) FINDS LUST	Closed/removed UST: 1,000 gallon fuel oil LUST - Petroleum contaminated soil. Closed January 2006 with GIS Registry and Deed Restriction	Closed/Removed UST Closed LUST January 2006	1,750 feet SW	50 Year TOT	Moderate - High
31 (K51/K52)	Foremost Farms 1605 Gilson Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 674639) WI WRRSER	Closed/removed USTs: 2 - 500 gallon diesel Listed in remedial response report with contamination	Closed/Removed USTs Active Site	1,825 feet NE	Downgradient within ½ Mile Radius	Low
32 (L53/L54)	Jacobus Energy Inc / Park Street Mobil 2342 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 116518) LUST Site Reconnaissance	In use USTs: 10,000 gallon unleaded gasoline; 12,000 gallon unleaded gasoline. Closed/removed USTs: 2 - 6,000 gallon unleaded gasoline; 4,000 gallon unleaded gasoline; 550 gallon fuel oil LUST - Petroleum contaminated soil and groundwater - Open	In Use USTs Closed/Removed USTs LUST - Open Continuing Remediation Since 1994 Active Gas Station	1,700 feet South	50 Year TOT	High
33 (M55/M56)	Midas Auto Systems Specialists 1501 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 663540) LUST	Closed/removed UST: 2 - 275-gallon waste/used motor oil	Closed/Removed	2,000 feet North	Downgradient within ½ Mile Radius	Low
34 (57)	Library System (current) A and E Equipment Company (former) 1501 Gilson Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 150248) LUST FINDS RCRA-SQG Brownfields BRRTS WI WRRSER SHWIMS Site Reconnaissance	Closed/removed UST: 550-gallon unleaded gasoline; 2 - 550 gallon kerosene; 550 gallon fuel oil; 500 gallon waste/used motor oil; 2,000 gal leaded gasoline; 550 gallon diesel Closed LUST January 1998 - Petroleum contaminated soil and groundwater. Closed with deed restriction Brownfields no further action letter issued 1999	Closed/Removed USTs Closed LUST January 1998	1,800 feet North	Downgradient within ½ Mile Radius	Low
35 (N58/N59)	Bernie Wetig's Service Center 2421 South Park Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 56707) LUST FINDS RCRA-SQG CRS SHWIMS	Closed/Removed USTs: 500 gallon waste/used motor oil; 2 - 10,000 gallon unleaded gasoline; 4,000 gallon diesel; 500 fuel oil Closed LUST March 2001 - Petroleum contaminated soil and groundwater. Closed with GIS Registry Deed Restriction Listed in remedial response report with contamination	Closed/Removed USTs Closed LUST March 2001	2,200 feet South	50 Year TOT	High

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
36 (O61/O62/ O63)	Osborne Property Oberge Mechanical (current) Perkins Sheet Metal (former) 1204 Culmen Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 117763) LUST WI WRRSER SHWIMS Site Reconnaissance	Closed/removed UST: 1,000 gallon leaded gasoline Closed LUST March 2004 – Petroleum contaminated soil and groundwater	Closed/Removed UST Closed LUST March 2004	2,175 feet SW	50 Year TOT	Low
37 (E21)	Heating & Cooling Inc. 1802 Beld Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 87107)	Closed/removed USTs: 1,000-gallon leaded gas; 1,111 gallon leaded gas	Closed/Removed USTs	1,050 feet North	Zone B	Low
38	GTC Auto Parts 1823 South Park Street Madison, WI	Site Reconnaissance	Junk vehicles storage, potential for leaks and spills	Active	800 feet North	Zone B	Moderate
39 (Q66/Q67)	City of Madison Bowman Field 1717 Fish Hatchery Road SW of SW of Section 26 Madison, WI	EDR Report- FINDS SHWIMS DNR Files City Files	Solid and hazardous waste listing – Historic landfill Unknown period of dumping of undifferentiated wastes	Closed Landfill Active Athletic Fields	2,275 feet NW	Sidegradient within ½ Mile Radius	Low - Moderate
40 (R68)	Hinds Property 1421 South Park Street Madison, WI	EDR Report- LUST	Closed LUST June 2006	Closed LUST June 2006	2,100 feet North	Downgradient within ½ Mile Radius	Low
41 (O69/O70)	Wall Oil Company 1312 Culmen Drive Madison, WI	EDR Report- WI - Registered UST (Facility ID 142013) LUST RCRA-SQG FINDS WI Spills SHWIMS Site Reconnaissance	Closed/removed USTs: 2 - 10,000 gallon fuel oil; 2 - 10,000 gallon diesel; 10,000 gallon unleaded gasoline; 2,000 gallon unleaded gasoline; 10,000 gallon unleaded gasoline; 1,000 gallon kerosene. LUST – Petroleum contaminated soil and groundwater in fractured bedrock, open since 1997 Storage tanks in yard	Closed/Removed UST Open LUST	2,450 feet WSW	50 Year TOT	Moderate-High
42	Union Pacific Railroad North-South Trending Tracks Madison, WI	Site Reconnaissance	Potential leaks, spills, derailments Creosote treated railroad ties	Active	1,200 feet East	Zone B	Moderate
43 (R73)	Car Care (current) Hansens Auto (former) 1405 South Park Street Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS Site Reconnaissance	Solid and hazardous waste listing No violations listed Vehicle parking, potential leaks and spills. Storage and use of hazardous fluids	Active	2,150 feet North	Downgradient within ½ Mile Radius	Low
44 (R74/R75)	Judds Radiator Service, Inc. 1401 South Park Street Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS Site Reconnaissance	Solid and hazardous waste listing No violations listed	Active	2,300 feet North	Downgradient within ½ Mile Radius	Low
45 (O76)	Benike Culver, Inc 1217 Culmen Street Madison, WI	EDR Report- RCRA-SQG FINDS	Small quantity generator – no violations	Active	2,350 feet WSW	50 Year TOT	Low
46 (S77/S78/ S79)	Tilsen Roofing Company, Inc. 1421 Gilson Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 137122) WI AST LUST SHWIMS Site Reconnaissance	Closed/removed UST: 1,000-gallon leaded gasoline In use ASTs: 550 gal unleaded gasoline; 550 gal diesel Solid and hazardous waste listing Barrels storage – unknown contents	Closed/Removed UST In Use ASTs	2,600 feet NNE	Downgradient within ½ Mile Radius	Low

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
47 (T80/T81/ T82)	Evergreen Transport Corp. 1309 Culmen Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 77110) WI AST LUST WI WRRSER BRRTS Site Reconnaissance	Closed/removed USTs: 12,000 gallon diesel; 1,000 gallon waste/used motor oil Closed/removed ASTs: 2 - 275 gallon waste/used motor oil Closed LUST June 2005 - Petroleum contaminated soil and groundwater- Conditional closure deed restriction	Closed/Removed USTs and ASTs Closed LUST June 2005	2,450 feet SW	50 Year TOT	Moderate - High
48 (U83/U84/ U85)	Capitol Newspapers Inc. 1901 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 674638) RCRA-SQG FINDS BRRTS SHWIMS Site Reconnaissance	Closed/removed USTs: 2 - 1,000-gallon leaded gasoline; 1,000 gallon unleaded gasoline; 1,000 gallon fuel oil Use and storage of hazardous materials, inks, dyes, other fluids. Solid and hazardous waste listing	Active	2,400 feet West	Sidegradient within ½ Mile Radius	Low - Moderate
49 (V86)	Wisconsin Agriculture Trade and Consumer Protection 801 West Badger Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 133634) RCRA-SQG FINDS WI Spills SHWIMS	Closed/removed UST: 10,000 gallon fuel oil Historic spill 1990 - Leak from 55 gal drum - contaminant type not listed Solid and hazardous waste listing	Closed/Removed UST Historic Spill 1990	2,600 feet South	50 Year TOT	Low - Moderate
50 (V89)	Master Graphics Inc. 810 West Badger Road Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Solid and hazardous waste listing	Active	2,200 feet SSW	50 Year TOT	Low
51 (90)	St Marys Care Center 1347 Fish Hatchery Road Madison, WI	EDR Report- WI Spills SHWIMS	Mineral oil spill, contaminated soil	Historic Spill 1997	2,550 feet NW	Downgradient within ½ Mile Radius	Low
52 (W91/W92)	City of Madison Fire Station No. 6 825 West Badger Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 5005) LUST	Closed/removed UST: 4,000-gal unleaded gasoline; 4,000 gallon diesel Closed LUST, contaminated soil. Close-out under NR708.09	Closed/Removed Closed LUST December 1999	2,400 feet SSW	50 Year TOT	Low
53 (X93)	Madison News Papers, Inc. 2003 Fish Hatchery Road Madison, WI	EDR Report- WI - AST	In use ASTs: 820 gallon diesel	In Use AST	2,600 feet West	Sidegradient within ½ Mile Radius to within 50 Year TOT	Low
54 (94)	Parking Lot 620 West Badger Road Madison, WI	EDR Report- WI Spills	Historic spill 1994 - Unknown petroleum	Historic Spill 1994	2,350 feet SSE	50 Year TOT	Low
55 (X95)	Madison Gas & Electric Wingra Substation 2011 Fish Hatchery Road Madison, WI	EDR Report- Tier 2	Storage and use of sulfuric acid.	Active	2,650 feet West	Sidegradient within ½ Mile Radius to within 50 Year TOT	Low
56 (X96)	Madison Newspapers, Inc. 2013 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 141882)	Closed/removed UST: 500-gallon leaded gasoline.	Closed/Removed UST	2,350 feet West	50 Year TOT	Low
57 (97)	Warren Dettinger 101 Nygard Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 142734)	Closed/removed UST: 550-gallon fuel oil	Closed/Removed UST	2,800 feet SE	50 Year TOT	Low

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
58	Stephenson Tree Care Service 1215 Culmen Street Madison, WI	Site Reconnaissance	Petroleum powered equipment storage – potential leaks and spills	Active	2,250 feet West	50 year TOT	Low
59 (Y99)	Ace Wrenching Volvo Vehicle Repair 2029 Fish Hatchery Road Madison, WI	EDR Report- WI SPILLS Site Reconnaissance	Historic spill May 2004 – gasoline spills when loading cars on trucks – punctured fuel tanks. Soil and storm sewer contamination. Volvos storage area, potential for leaks, spills from vehicles. Cluttered and disorganized appearance	Active vehicle Repair Historic Spill May 2004	2,700 feet West	Sidegradient within ½ Mile Radius to within 50 Year TOT	Low – Moderate
60	Little-Big Load 2115 Fish Hatchery Road Madison, WI	Site Reconnaissance	Laundry soaps, detergents, cleaners	Active	2,700 feet West	50 Year TOT	Low
61 (Y101/Y102)	BP Gas Station (current) Stop N Go #280 2050 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 674706) LUST WI Spills Site Reconnaissance	In Use USTs: 2 - 10,000 gallon unleaded gasoline; 2 - 6,000 gallon unleaded gasoline Closed/removed UST: 10,000-gallon leaded gasoline; 560 gallon waste/used motor oil; 10,000 gallon unleaded gasoline; 6,000 gallon unleaded gasoline; 6,000 gal diesel LUST closed February 2004 with GIS Registry and Deed Restriction. Soil and groundwater contamination in fractured bedrock	In Use USTs Closed/Removed USTs Closed LUST February 2004 Active Gas Station	2,900 feet West	Boundary of 50 Year TOT	Moderate - High
62 (Y103/Y104)	Finish Master (Former) 2117 Fish Hatchery Road Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Solid and hazardous waste listing	Active	2,750 feet SW	50 Year TOT	Low
63 (Z105)	Schmidt's Auto (Current) J&R Auto Service of Madison LTD (Former) 2121 Fish Hatchery Road Madison, WI	EDR Report- Listing for J&R Auto Service WI - Registered UST (Facility ID 90224) LUST WI WRRSER Site Reconnaissance	Closed/removed USTs: 4,000 gallon leaded gasoline; 2 - 500 gallon waste/used motor oil; 5,000 gallon unleaded gasoline; 6,000 gallon unleaded gasoline; 1,000 gallon fuel oil Closed LUST July 1992 petroleum soil contamination	Closed USTs Closed LUST July 1992	2,750 feet SW	50 Year TOT	Moderate
64 (Z106/Z107)	Town of Madison Police and Fire Station 2120 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 138512) WI ERP BRRTS SHWIMS	Closed/removed USTs: 6? gallon unleaded gasoline; 4,000 gallon diesel ERP Site - Groundwater contamination reported	Closed/Removed USTs Open ERP Site Began January 1989	2,950 feet WSW	50 Year TOT	Low
65	Fauerbach Automotive 2210 Fish Hatchery Road Madison, WI	Site Reconnaissance	Automotive repair, potential leaks and spills. Storage and use of hazardous fluids	Active	3,150 feet WSW	50 Year TOT	Moderate
66 (112)	Waste Management Madison Recycling Center 2200 Fish Hatchery Road Madison, WI	EDR Report- WI – AST Site Reconnaissance	In use AST: 550 gallon diesel Closed/removed AST: 500 gallon diesel Truck parking, dumpsters, containers, potential for leaks and spills	Closed/Removed AST In Use AST	3,300 feet WSW	50 Year TOT	Moderate
67	Candeline Pet Hospital 702 West Wingra Drive Madison, WI	Site Reconnaissance	Animal waste storage and use of hazardous fluids	Active	1,700 feet North	Downgradient within ½ Mile Radius	Low

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
68 (AD118/AD119/ AD120/AD121/ AD122/ AD124)	Dane County Highway Dept. 2302 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 66380) WI AST RCRA-SQG FINDS LUST WI Spills LAST Tier 2 WI WRRSER SHWIMS Site Reconnaissance	In use UST: 17,000 gallon diesel; 10,000 gallon unleaded gasoline; 20,000 leaded gasoline; 20,000 unleaded gasoline In use gasoline and diesel fuel dispenser. In use ASTs: 2 - 550 gallon waste/used motor oil Closed/removed USTs: 2,000 gallon diesel; 10,000 gallon unleaded gasoline; 2,000 gallon leaded gasoline; 2 - 1,000 gallon fuel oil; 2 - 2,000 gallon fuel oil; 1,000 gallon other contents (not reported) Closed/removed AST: 2 - 20,000 gallon diesel; 12,000 gallon diesel; 20,000 gallon leaded gasoline; 20,000 gallon unleaded gasoline; 2 - 275 gallon waste/used motor oil Closed LUST: Petroleum contaminated soil and groundwater. December 2002 Conditional Closure Deed Restriction Historic spill February 1989 – tank ruptured (substance not listed). Substance contained and recovered. Historic spill July 1993 – valve failure diesel spill, contaminated soil Historic spill November 1993 – closed March 2000, northwest side of garage near railroad tracks, corrosion in AST bottom caused leak of gasoline which caused soil and groundwater contamination. LAST – Closed with NR140 exemption closure – petroleum contaminated soil and groundwater Historic spill December 1993 – drainage of rollers caused release of engine waste oil. Oil was contained and recovered. Storage and use of hazardous materials – vinyl chloride, asphalt, fast dry paint, bulk sodium chloride and magnesium chloride Truck parking area, potential leaks and spills	In Use USTs and ASTS Closed/Removed USTs and ASTs LUST Closed December 2002 Historic Spill February 1989 Historic Spill July 1993 Historic Spill/Release November 1993 Historic Spill December 1993	3,550 feet SW	50 Year TOT	Moderate - High
69 (AD123)	Dane County Cleansweep 2302 Fish Hatchery Road Madison, WI	EDR Report- WI ERP RCRA-LQG SHWIMS Site Reconnaissance	Contaminated soil and groundwater with unleaded and leaded gasoline located at the site. Conditional LUST closure May 2001 with deed restriction Active clean sweep program – May through October Public drop-off, facility storage/handling and disposal of hazardous materials.	Closed LUST Conditional with Deed Restriction Active Clean Sweep May – October	3,450 feet SW	50 Year TOT	Moderate
70	Bager Contractors and Rental 1511 Gilson Street Madison, WI	Site Reconnaissance	Exterior storage of petroleum powered equipment. Potential for fuel spills and leaks.	Active	2,200 feet North	Downgradient within ½ Mile Radius	Low
71	Goodman Creek Maintenance Facility Wingra Creek Parkway Madison, WI	Site Reconnaissance	Storage of petroleum powered equipment, potential for fuel leaks and spills. 2 ASTS	Active	2,000 feet NNE	Downgradient within ½ Mile Radius	Low
72 (AL139)	WI DATCP 110 West Badger Road Madison, WI	EDR Report- LUST (DNR Activity No. 03-13-001672) Site Reconnaissance	Closed LUST March 1993, Petroleum contaminated soil Currently Zimbrick Auto Parking area for new vehicles. Potential leaks and spills	Closed LUST March 1993 Active Vehicle Parking Area	3,050 feet SE	50 Year TOT	Low

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
73 (AJ140/ AJ141/ AW215/ AW216)	Genesis Enterprise Office Lunar Corp Bone Care International 313 West Beltline Highway Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS MLTS	Listed in FINDS database. No specific concern listed Solid and hazardous waste listing	Active Site	3,250 feet SE	50 Year TOT	Low
74 (AL144/ AL145/ AL146/ AL151)	Zimbrick Economy Corner Zimbrick West Hyundai 310 and 320 West Beltline Highway Madison, WI	EDR Report- RCRA-SQG FINDS AST SHWIMS Site Reconnaissance	In use ASTs: 500 gallon waste/used motor oil; 6,000 gallon waste/used motor oil Listed in FINDS database. No specific concern listed Solid and hazardous waste listing Vehicle parking areas, potential for leaks and spills	In Use ASTs	3,350 feet SE	50 Year TOT	Low – Moderate
75 (AI150)	Emergency Clinic For Animals (current) Mary Obrien Realty 225 West Beltline Highway Madison, WI	EDR Report- (listing for Obrien Realty) BRRTS Site Reconnaissance	Closed/removed UST: Site assessment report received April 1999 per BRRTS Animal waste. Storage and use of hazardous fluids	Closed UST Active Veterinary	3,250 feet SE	50 Year TOT	Low
76 (AI152)	Darrell Wild Truck Service 2210 South Beltline Court Madison, WI	EDR Report- WI - Registered UST (Facility ID 139175)	Closed/Removed UST: 1,500-gallon leaded gasoline	Closed/Removed	3,450 feet SE	50 Year TOT	Low
77 (AL153/ AL154/ AL155/ AL156)	UW Madison Physical PLT Waste & Recycling 2213 South Beltline Court Madison, WI	EDR Report- WI - Registered UST (Facility ID 52443) RCRA-SQG FINDS WI WRRSER SHWIMS Site Reconnaissance	Closed/removed USTs: 2,000-gallon diesel; 1,500 gallon leaded gasoline In use AST Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs Active Site	3,600 feet SE	Just Beyond Zone B / 50 Year TOT Boundary	Low – Moderate
78 (AM157)	Perez Auto Service (Current) Poor Richards (former) 2502 Fish Hatchery Madison, WI	EDR Report- (listing for Poor Richards) WI - Registered UST (Facility ID 119036) LUST FINDS WI WRRSER CRS SHWIMS Site Reconnaissance	Closed/removed UST: 4,000-gallon unleaded gasoline; 8,000 gallon unleaded gasoline; 550 gallon waste/used motor oil; 550 gallon fuel oil; 4,000 gallon diesel LUST – Conditional Closed October 2003 with GIS Registry Deed Restriction. Chlorinated solvents soil and groundwater contamination Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Vehicle parking, repair, potential leaks and spills of hazardous fluids.	Closed/Removed USTs LUST Closed October 2003	3,750 feet SW	50 Year TOT	Moderate
79 (AL158)	Brown Roofing & Siding Inc. 2241 South Beltline Court Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active Site	3,700 feet SE	100 Year TOT	Low
80	South Wingra Creek Parkway Madison, WI	Site Reconnaissance	Mounded, grass covered soil. Potential fill material. Unknown source. Former historical landuse	Open Area	2,250 feet NE	Downgradient within ½ Mile Radius	Low
81	Comstock Tire 2413 South Park Street Madison, WI	Site Reconnaissance	Vehicle parking. Potential for leaks and spills Storage and use of hazardous fluids	Active	2,100 feet South	50 Year TOT	Low – Moderate
82	Schmidt's Auto Inc. 700 West Badger Road Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS WI Manifest Site Reconnaissance	Auto repair and recycling. Potential leaks and spills of vehicle fluids	Active	2,225 feet South	50 Year TOT	Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
83 (AM168)	Newell Office Products Group 2514 Fish Hatchery Road Madison, WI	EDR Report- RCRA-SQG FINDS WI ERP BRRTS WI MANIFEST SHWIMS	Contaminated soil closed out activity under NR708.09 Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed	3,800 feet SW	50 Year TOT	Moderate
84	Mediterranean Hookah Lounge 77 Sirloin Strip Madison, WI	Site Reconnaissance	Barrels storage near dumpster – unknown contents	Active Restaurant/Lounge	2,900 feet SE	50 Year TOT	Low – Moderate
85	Zimbrick Mercedes, Porsche, Audi 2300 Rimrock Road Madison, WI	Site Reconnaissance	Vehicle parking, maintenance, potential leaks and spills	Active	4,250 feet SE	Boundary of 100 Year TOT	Low – Moderate
86	Zimbrick BMW 2400 Rimrock Road Madison, WI	Site Reconnaissance	Vehicle parking, maintenance, potential leaks and spills	Active	4,350 feet SE	100 Year TOT	Low – Moderate
87	Madison Secure Storage 2520 Ski Lane Madison, WI	Site Reconnaissance	R.V. Storage and Parking Potential leaks and spills	Active	3,650 feet South	50 Year TOT	Low
88	Regal Roadsters Restorations 229 West Beltline Highway Madison, WI	Site Reconnaissance	Storage and use of hazardous fluids (paints, solvents)	Active	3,250 feet SE	50 Year TOT	Moderate
89 (AP178/ BF335)	Joe Daniels Construction 920 / 922 Jonathon Drive Madison, WI	EDR Report- (EDR report site AP178) WI - Registered UST (Facility ID 84083) LUST Tier 2 SHWIMS Site Reconnaissance EDR Report- (EDR report site BF335) WI - Registered UST (Facility ID 94523) LUST WI WRRSER CRS	In use UST: 12,000 gallon unleaded gasoline; 12,000 gallon diesel In use fuel dispenser Closed/removed UST: 275 gallon waste/used motor oil Solid and hazardous waste listing Closed/removed UST: 10,000 gallon leaded gasoline Closed LUST, September 2001, petroleum contaminated soil and groundwater. Free product. Contamination in fractured bedrock. Conditional closure GIS Registry and Deed Restriction.	In Use UST Closed/Removed USTs Closed LUST April 1998 Closed LUST September 2001	4,500 feet SW	100 Year TOT	Moderate
90 (AS185/ AS186)	Graybar Electric 1301 West Badger Madison, WI	EDR Report- HMIRS WI Spills	Historic spill – Drum tipped over in trailer June 1996 and spilled non-chlorinated solvents on paved surface	Historic Spill June 1996	4,050 feet SW	50 Year TOT	Low
91 (AS188)	Madison Gas & Electric 1307 West Badger Road Madison, WI	EDR Report- WI Spills	Historic spill April 1989, Slow leak from transformer, contained and recovered	Historic Spill Release April 1989	4,150 feet SW	100 Year TOT	Low
92	Accurate Alignment 2881 Dottl Court Madison, WI	Site Reconnaissance	Vehicle parking and maintenance Potential leaks and spills	Active	6,050 feet SW	100 Year TOT	Low
93	Schmelzer Paint 902 Stewart Street Madison, WI	Site Reconnaissance	Storage and use of paints and related fluids	Active	5,300 feet South	100 Year TOT	Low – Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
94 (AN193/ AN194/ AN201)	Adams Outdoor Advertising / Hansen Advertising Co. 102 East Badger Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 50588) RCRA-SQG FINDS SHWIMS	Closed/removed UST: 600 gallon leaded gasoline Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed UST	3,800 feet SE	100 Year TOT	Low
95 (AS195/ AS196/ AS198)	Madison United Health Care Linen (Current) Madison Energy Recovery Inc. 1310 West Badger Road Madison, WI	EDR Report- (listing for Madison Energy Recovery Inc.) WI - Registered UST (Facility ID 674647) LUST RCRA-SQG FINDS BRRTS SHWIMS	Closed/removed USTs: 10,000 gallon diesel; 3,000 gallon fuel oil Closed LUST, petroleum contaminated soil Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs Closed LUST August 1992	4,000 feet SW	100 Year TOT	Low – Moderate
96 (AS199)	Eldon Co. (current) Sanford North America 1311 West Badger Road Madison, WI	EDR Report- (listing for Sanford North America) Tier 2	Storage and use of clarified polypropylene random copolymer, polypropylene copolymer, and high density, high impact and general purpose polystyrene	Active	4,500 feet SW	100 Year TOT	Low
97 (AS200)	Eldon Co. (current) Newell Office Products Group 1311 West Badger Road Madison, WI	EDR Report- (listing for Newell Office Products Group) RCRA-SQG FINDS SHWIMS WI Manifest	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	4,500 feet SW	50 Year TOT	Low
98 (AU203/ AU204)	H & H Electric (current) Henrich Real Estate 2801 Syene Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 50440) RCRA-SQG FINDS WI MANIFEST SHWIMS	Closed/removed USTs: 10,000 gallon diesel; 1,000 gallon unleaded gasoline Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs	4,100 feet South	50 Year TOT	Low
99 (AN205)	Leonard or James Baker 118 East Badger Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 55369)	Closed/removed UST: 560 gallon fuel oil	Closed/Removed UST	3,950 feet SE	100 Year TOT	Low
101 (AN207)	Stan Wrights Auto 124 East Badger Road Madison, WI	EDR Report- WI - AST Site Reconnaissance	In use AST: 300 gallon waste/used motor oil Junk vehicles	In Use AST	4,100 feet SE	100 Year TOT	Low – Moderate
102 (AU208)	Mareet LLC 2770 Syene Road Fitchburg, WI	EDR Report- WI - Registered UST (Facility ID 691090)	In use USTs: 5,000 gallon unleaded gasoline; 15,000 gallon unleaded gasoline; 6,000 gallon diesel	In Use USTs	3,850 feet South	50 Year TOT	Moderate
103 (AU211/ AU212)	Auto Glass Specialists, Inc. 2818 Syene Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 54961) LUST (DNR Activity No. 03-13-180983) LUST (DNR Activity No. 03-13-421461) CRS	Closed/removed USTs: 2 - 1,000 gallon unleaded gasoline; 2,000 gallon diesel LUST Activity 03-13-180983, Conditional closure January 2005 GIS Registry with Deed Restriction, free product and petroleum contaminated soil. LUST Activity 03-13-421461, open, free product, start date March 2003	Closed/Removed USTs Closed LUST January 2005 Open LUST Current	4,300 feet South	50 Year TOT	Moderate
106 (AV225/ AV226)	PDQ Food Stores 2601 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 679222) WI Spills	In use USTs: 2 - 8,000 gallon unleaded gasoline; 12,000 gallon unleaded gasoline Historic Spill April 2002, gas pump overfill and spill, cleanup with absorbent, storm sewer contamination	IN Use USTs Historic Spill April 2002 Active Gas Station	4,100 feet SW	100 Year TOT	Moderate
107 (AV227)	1300/1400 Blk Emil Street Madison, WI	EDR Report- WI Spills	Historic spill September 1985, broken hose. Spill contained and recovered.	Historic Spill September 1985	4,650 feet SW	100 Year TOT	Low

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
108 (AV228/ AV229/ AV230/ AV231)	Jiffy Lube Store #1288 2605 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 93901) WI - AST LUST BRRTS SHWIMS Tier 2	Closed/removed UST: 1,000 gallon fuel oil; 4,000 gallon waste/used motor oil In use ASTs: 2 - 500 gallon waste/used motor oil Closed LUST, Conditional closure October 2000, petroleum contaminated soil	Closed USTs In Use ASTs Closed LUST October 2000	4,150 feet SW	100 Year TOT	Moderate
109 (AW232/ AW233)	William Dyhr Sherwin Williams Co. 1009 Applegate Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 72661) RCRA-SQG FINDS WI Manifest SHWIMS	Abandoned with Product UST: 1,111 gallon diesel Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Paint Storage	Closed/Removed UST	4,300 feet SW	100 Year TOT	Low
110 (AV234)	J Gallagher & N McGann 2611 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 66721)	Closed/removed UST: 500 gallon leaded gasoline	Closed/Removed UST	4,350 feet SW	100 Year TOT	Low
111 (AW235/ AW236/ AW237)	Hardwood Floors (current) Lazarz L & L Foods Inc. 1017 Applegate Road Madison, WI	EDR Report- (listing for Lazarz L & L Foods, Inc.) WI - Registered UST (Facility ID 101127) LUST RCRA-SQG FINDS SHWIMS WI WRRSER	Closed/removed UST: 1,000 gallon unleaded gasoline LUST, closed August 1994, petroleum contaminated soil Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed UST Closed LUST August 1994	4,350 feet SW	100 Year TOT	Low
112 (AV238)	Drs LTD 2534 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 674682) WI - AST	Closed/removed USTs: 2,000 gallon leaded gasoline; 2,000 gallon diesel In use ASTs: 2,000 gallon unleaded gasoline; 2,000 gallon diesel	Closed/Removed USTs In Use ASTs	4,150 feet SW	100 Year TOT	Low
113 (AV241)	PDQ Food Store #117 2538 Fish Hatchery Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 117504) RCRA-SQG FINDS LUST WI spills BRRTS SHWIMS	In use USTs: 3 - 15,000 gallon unleaded gasoline; 8,000 gallon unleaded gasoline; 8,000 gallon diesel LUST, closed August 1996, petroleum contaminated soil Historic spill: March 1993, overfill of gasoline, contained/recovered. Historic spill: July 2006, spill, details not reported. Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	In Use USTs LUST Closed August 1996 Historic Spills March 1993 July 2006	4,300 feet SW	100 Year TOT	Moderate
116 (BA251/ BA252)	ABC Supply Co. (current) K. Hendricks Commercial Prop. 1002 Ann Street Madison, WI	EDR Report- (listing for K. Hendricks Commercial) WI - Registered UST (Facility ID 98107) RCRA-SQG FINDS LUST SHWIMS	Closed/removed USTs: 5,000 gallon fuel oil; 1,000 gallon fuel oil Closed LUST May 1997, petroleum contaminated soil Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs Active Site Closed LUST May 1997	4,000 feet SW	50 Year TOT	Moderate
117 (BA253)	Marvin's Straightline Projects (current) Shell Station (former) 1000 Ann Street Madison, WI	EDR Report- (listing for Shell Station) WI - Registered UST (Facility ID 131385)	Closed/removed UST: 1,111 gallon gasoline	Closed/Removed UST	4,050 feet SW	50 Year TOT	Low
119 (BA258)	United Rentals 1018 Ann Street Madison, WI	EDR Report- WI - AST	In Use AST: 550 gallon diesel; 550 gallon unleaded gasoline; 300 gallon waste/used motor oil	In Use ASTs	3,850 feet SW	50 Year TOT	Low - Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
120 (BC259)	Steamfitters Union 1214 Ann Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 133674)	Closed/removed UST: 2,000 gallon fuel oil	Closed/Removed UST	4,450 feet SW	100 Year TOT	Low
121 (BC260)	Hoffman Chemical and Supply Co. 1206 Ann Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 88515) RCRA-SQG FINDS LUST SHWIMS	Closed/removed USTs: 10,000 gallon unleaded gasoline; 1,000 gallon leaded gasoline Closed LUST, 1995, gasoline contaminated soil Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs Closed LUST 1995	4,300 feet SW	100 Year TOT	Low – Moderate
122 (BC261/ BC266)	PPD Development 1202 Ann Street Lower Level #2 Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	4,250 feet SW	100 Year TOT	Low
123 (BC267)	Madison Gas & Electric Co. 1202 Ann Street Madison, WI	EDR Report- WI – AST	In Use AST: 480 gallon diesel	In Use AST	4,150 feet SW	100 Year TOT	Low
124 (BC268)	Kendrick Laboratories, Inc. 1202 Ann Street Madison, WI	EDR Report- MLTS	Possession or use of radioactive materials	Active Site	4,100 feet SW	Boundary of 50 and 100 Year TOT	Low
125 (BC269/ BC271)	Derse & Schroeder Associates LTD 1202 Ann Street Madison, WI	EDR Report- MLTS SSTS	Possession or use of radioactive materials Storage and/or use of Technical Grade Diphacinone (rodenticide)	Active Site	4,200 feet SW	100 Year TOT	Low
126 (BC270)	Metabolic Analysis Labs, Inc. 1202 Ann Street Madison, WI	EDR Report- MLTS	Possession or use of radioactive materials	Active Site	4,100 feet SW	100 Year TOT	Low
127 (BC272)	Columbia Research Laboratory 1202 Ann Street Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	4,000 feet SW	50 Year TOT	Low
128 (BD274/ BD275/ BD276/ BD277)	City of Madison West Badger Road Facility 1501 West Badger Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 680794) WI - AST RCRA-SQG FINDS LUST WI – Spills BRRS CRS SHWIMS Site Reconnaissance	Closed/removed USTs: 1,000 gallon waste/used motor oil; 500 gallon fuel oil; 10,000 gallon diesel; 10,000 gallon unleaded gasoline; 2,500 gallon unleaded gasoline. In use UST: 10,000 gal diesel; 10,000 gallon unleaded gasoline. In use AST: 500 gallon fuel oil. Closed LUST, August 2003, petroleum contaminated soil and groundwater. Contamination in fractured bedrock. Conditional closure GIS Registry and Deed Restriction. Historic spill – October 2000, overflow of gasoline UST. Cleanup method – absorbent Historic spill – February 1982, contaminant spill on ground. Substance not listed. Bulk salt storage Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Truck parking, potential leaks and spills	Closed/Removed USTs In Use AST Closed LUST August 2003 Historic Spills February 1982 October 2000 Active Municipal Garage Site	4,850 feet SW	100 Year TOT	Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
129 (AY278)	Fabco Equipment Inc. 1111 Applegate Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 77338) WI - AST RCRA-SQG FINDS SHWIMS Site Reconnaissance	In use UST: 2 - 1,000 gallon fuel oil In use ASTs: 275 gallon kerosene; 550 gallon waste/used motor oil; 275 gallon diesel; 2,000 gallon waste/used motor oil; 250 gallon waste/used motor oil; 300 gallon diesel Closed/removed UST: 2 - 2,000 gallon industrial "other product," 10,000 gallon diesel; 500 gallon waste/used motor oil; 1,000 gallon former contents not reported; 500 gallon waste/used motor oil; 2 - 250 gallon waste/used motor oil Closed filled with inert material USTs: 2 - 2,000 gallon; 2 - 10,000 gallon; 500 gallon; 1,000 gallon Admin Closed UST: 10,000 gallon fuel oil RCRA violations exist Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Heavy equipment (Caterpillar) parking, potential leaks and spills. Repair shop, storage and use of hazardous fluids.	In Use UST and ASTs Closed/Removed/Filled USTs RCRA Violations for Site	4,650 - 4,750 feet SW	100 Year TOT	Moderate
130 (BE279)	Zimbrick Buick, Inc. 200 East Badger Road Madison, WI	EDR Report- WI - AST	In Use AST: 5,000 gallon waste/used motor oil	Active Site	3,850 feet ESE	Just Beyond 100 Year TOT	Low
131 (AM169/ BD280/ BD281/ BD282/ BD283/ BD284/ BD285))	Vita Plus Corp. 1508 West Badger Madison, WI	EDR Report- WI - Registered UST (Facility ID 678256) WI - AST TRIS BRRTS Tier 2 FINDS	Closed filled with inert materials UST: 10,000 gallon chemical In use AST: 10,000 gallon chemical Storage/use of ammonium chloride, propionic acid, magnesium oxide, calcium sulfate, ferrous sulfate monohydrate, petroleum solvent, urea, zinc sulfate, cupric sulfate pentahydrate, sodium selenite, zinc oxide Listed in FINDS database. Environmental Activity	Closed/Removed UST In Use AST	4,250 feet SW	100 Year TOT	Low - Moderate
132 (BE286)	Hass Property 306 East Badger Road Madison, WI	EDR Report- BRRTS Brownfields	Site assessment grant awarded to investigate potential contamination at site	Brownfield Site	3,550 feet SE	100 Year TOT	Low - Moderate
133 (BF287/ BF288)	Litho Products Inc. 2800 Perry Street Madison, WI	EDR Report- RCRA-SQG FINDS WI Manifest SHWIMS	RCRA violations exist - non compliance letter June 2003 Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	4,100 feet SSW	50 Year TOT	Low - Moderate
134 (BF298)	AAC Environmental Corp. 2810 Perry Street Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active Site	4,250 feet South	50 Year TOT	Low
135 (BI302)	Capitol Motel 881 West Beltline Highway Madison, WI	EDR Report- WI - Registered UST (Facility ID 59882)	Closed/removed UST: 1,000 gallon fuel oil	Active	3,750 feet SSW	50 Year TOT	Low
136 (BJ303/ BJ304)	Kenneth Sullivan Company 1314 Emil Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 674628) LUST RCRA-SQG FINDS SHWIMS	Closed/removed USTs: 2 - 6,000 gallon unleaded gasoline Closed LUST, August 1996, Sullivan Property #1, petroleum contaminated soil. Closed LUST, December 1998, Sullivan Property #2, petroleum contaminated soil. Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs Closed LUST August 1996 Closed LUST December 1998	4,450 feet SW	100 Year TOT	Low - Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
138 (BJ306/ BJ307/ BJ308)	EWI Engineering Assoc. Inc. Warzyn Engineering, Inc. 1409 Emil Street Madison, WI	EDR Report- MLTS SHWIMS RCRA-SQG FINDS	Possession or use of radioactive materials Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Listed in FINDS database. Environmental Activity No RCRA violations	Active Site	4,850 feet SW	100 Year TOT	Low
141 (314)	Porchlight Inc. 2718 Pheasant Ridge Trail Madison, WI	EDR Report- BRRTS	Tank site assessment when UST removed, no significant contamination	Closed/Removed UST	4,800 feet SE	100 Year TOT	Low
142 (BF315)	Al Young 2901 Perry Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 50150)	Closed/removed UST: 1,000 gallon diesel	Closed/Removed USTs	4,500 feet South	100 Year TOT	Low
143 (BK316/ BK317)	American Printing 2909 Syene Road Madison, WI	EDR Report- RCRA-SQG FINDS WI Manifest SHWIMS AIRS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	4,450 feet South	100 Year TOT	Low
144 a 144 b (BI320/ BI321)	Bergstrom Used Cars (144a) Bergstrom Cadillac-Hummer (144b) 1200 Applegate Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 50810) WI - AST RCRA-SQG FINDS SHWIMS WI Manifest Tier 2	Closed/removed USTs: 4,000 gallon diesel; 550 gallon other; 1,111 gallon unleaded gasoline; 1,111 gallon diesel; 2 - 750 gallon waste/used motor oil; 500 gallon other; 6,110 gallon unleaded gasoline In use UST: 12,000 gallon unleaded; 1,000 gallon waste/used motor oil In use ASTs: 250 gallon waste/used motor oil; 3 - 500 gallon chemical (compound type not reported) Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs In Use USTs In Use ASTs	144 a = 5,500 feet SW 144b = 4,750 feet SW	100 Year TOT	Low - Moderate
145 (BK323)	Wisconsin Distributors Inc. 2921 Syene Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 674067) LUST RCRA-SQG FINDS SHWIMS	Closed/removed USTs: 2 - 10,000 gallon unleaded gasoline; 10,000 gallon diesel; 6,000 gallon diesel Closed LUST, December 1997, petroleum contaminated soil Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs Closed LUST December 1997	4,750 feet South	100 Year TOT	Low - Moderate
146 (BF325)	A & B Concrete 2901 Perry Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 50151) BRRTS	Closed/removed UST: 10,000 gallon unleaded gasoline	Closed/Removed UST	4,500 feet South	100 Year TOT	Low
147 (BF327/ BF328)	Stanek Property 902 Jonathon Drive Madison, WI	EDR Report- WI - Registered UST (Facility ID 137207) LUST CRS	Closed/removed UST: 500 gallon leaded gasoline Closed LUST, September 2001, petroleum contaminated soil and groundwater. Contamination in fractured bedrock. Conditional closure with GIS Registry and Deed Restriction	Closed/Removed UST Closed LUST September 2001	4,400 feet South	100 Year TOT	Moderate
148 (BF330)	Hiawatha Tire of Madison 909 Jonathon Drive Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active Site	4,600 feet South	100 Year TOT	Low
149	Restoration Specialists 905 Jonathon Drive Madison, WI	Site Reconnaissance	Vehicle parking, potential leaks and spills Storage and use of hazardous fluids	Active	4,600 feet SW	100 Year TOT	Low - Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
150 (BN339)	Madison Automotive (current) Badger Engine Rebuilder 967 Jonathon Drive Madison, WI	EDR Report- WI - Registered UST (Facility ID 55251) LUST RCRA-SQG FINDS SHWIMS	Closed/removed USTs: 10,000 gallon diesel; 1,000 gallon leaded gasoline; 1,000 gallon fuel oil Closed LUST, Oct. 2002, petroleum contaminated soil Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs Closed LUST October 2002	4,700 feet SSW	100 Year TOT	Moderate
151 (BN341/ BN360)	Electric Motors Unlimited 970 Jonathon Drive / 1000 Jonathon Drive Madison, WI	EDR Report- WI - Registered UST (Facility ID 74861) LUST RCRA-SQG FINDS WI WRRSER SHWIMS	Closed/removed USTs: 500 gallon unleaded gasoline; 1,000 gallon fuel oil Closed LUST, Dec 1997, petroleum contaminated soil Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed USTs Closed LUST December 1997	4,550 feet SSW	100 Year TOT	Low – Moderate
152 (BN342/ BN343)	River Valley Testing (current) Wisconsin Analytical & Research Services 979 Jonathon Drive Madison, WI	EDR Report- (listing for Wisconsin Analytical & Research Services) RCRA-SQG FINDS SHWIM	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	4,750 feet SSW	100 Year TOT	Low
153 (BQ350 BQ351/ BQ352/ BQ359)	General Heating and Air Conditioning 2920 Perry Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 81511) LUST FINDS Brownfields	Closed/removed USTs: 10,000 gallon unknown; 10,000 gallon unleaded gasoline. Closed LUST, November 1997, petroleum contaminated soil Listed in FINDS database. Environmental Activity	Closed/Removed USTs Closed LUST November 1997 Brownfield Site	5,000 feet SSW	100 Year TOT	Low – Moderate
154 (BR353/ BR354/ BR355/ BR356)	Henshue Construction, Inc. Properties 9, 10, 11, and 12 Outlots A, B, C and D 2600 Roma Road Madison, WI	EDR Report- Brownfields Site Reconnaissance	Brownfield Properties Two ASTs in secondary containment Vehicle parking/storage, potential leaks and spills	Active Site Former Brownfield	4,550 feet SE	100 Year TOT	Low – Moderate
155 (BQ357/ BQ358)	CGC Inc. 2921 Perry Street Madison, WI	EDR Report- SHWIMS RCRA-SQG FINDS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	4,900 feet South	100 Year TOT	Low
157 (BN362)	Cascade Asset Management 1009 Jonathon Drive Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active Site	4,750 feet SW	100 Year TOT	Low
158 (BS363/ BS364/ BS365)	Harlan Teklad 2826 Latham Drive Madison, WI	EDR Report- Tier 2 WI – AST SHWIMS RCRA-SQG FINDS	Storage/use of denatured ethyl alcohol (MSDA #140400) In use AST: 300 gallon diesel Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	In Use AST	4,900 feet SW	100 Year TOT	Low
159 (BT366)	Madison Sheet Metal (current) Superior Health Linen (former) 1509 Emil Street Madison, WI	EDR Report- (listing for Superior Health Linen) SHWIMS RCRA-SQG FINDS WI ERP CRS NY Manifest Site Reconnaissance	Closed ERP, September 2001, chlorinated solvents soil and groundwater contamination. Conditional closure under NR 708.09 Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Metal work, cutting fluids	Conditionally Closed ERP Site September 2001 Active Site	4,900 feet SW	100 Year TOT	Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
160 (367)	Bergstrom Body Shop 1025 Jonathon Drive Madison, WI	EDR Report- RCRA-SQG FINDS WI Manifest SHWIMS Site Reconnaissance	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Storage and use of paints and solvents	Active Site	4,800 feet SSW	100 Year TOT	Low - Moderate
161 (BL370)	Marty Fields 201 East Badger Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 89790)	Closed/removed UST: 2,000 gallon unleaded gasoline	Closed/Removed UST	3,450 feet SE	50 Year TOT	Low
162 (BT378)	Klein-Dickert Co. Inc. Paint Division 1402 Emil Street Madison, WI	EDR Report- RCRA-SQG FINDS WI Manifest SHWIMS Site Reconnaissance	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Storage of paints and related products	Active	4,600 feet SW	100 Year TOT	Low - Moderate
163 (BW379)	Citgo Gas Station (current) Open Pantry Food Mart 2504 Rimrock Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 115589) LUST WI - Spills	In Use USTs: 3 - 8,000 gallon unleaded gasoline Closed/removed USTs: 3 - 8,000 gallon unleaded gasoline Closed LUST, May 2006, petroleum contaminated soil and groundwater, conditionally closed with GIS registry and deed restriction Historic Spill March 2002, gasoline spill at the pump. Clean-up with absorbent/oil dri	In Use USTs Closed/Removed USTs Closed LUST May 2006 Historic Spill March 2002	4,850 feet SE	Just Beyond 100 Year TOT	Moderate
164 (BX381)	Brad Ragan, Inc. 1109 Jonathan Drive Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	4,900 feet SW	100 Year TOT	Low
166 (BX385/ BX386/ BX387)	Albrecht/B&T Mechanical/Carns 1125 Jonathon Drive Madison, WI	EDR Report- WI - Registered UST (Facility ID 668901) LUST FINDS CRS	Closed/removed UST: 1,500 gallon diesel Closed LUST, July 2005, petroleum contaminated soil. Conditionally closed with GIS registry and Deed Restriction Listed in FINDS database. Environmental Activity	Closed/Removed UST Closed LUST July 2005	5,000 feet SW	100 Year TOT	Moderate
167 (BZ391/ BZ393)	Micron Business Systems (current) Bjoristen Research Lab 2998 Syene Road Madison, WI	EDR Report- (listing for Bjoristen Research Lab) WI - Spill SHWIMS RCRA-SQG FINDS Site Reconnaissance	Historic spill, May 1995, spill caused contaminated soil. Product type not reported. Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Historic Spill May 1995	4,950 feet South	100 Year TOT	Low - Moderate
168 (BZ392/ BZ394)	James Fiscus Fitchburg Plumbing Co. 3000 Syene Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 78099) BRRTS	Closed/Removed UST: 2,000 gallon leaded gasoline	Closed/Removed UST Active Site	5,100 feet South	100 Year TOT	Low
170 (CA396/ CA397/ CA398)	City of Madison 1602 Emil Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 75815) LUST RCRA-SQG FINDS SHWIMS MLTS Site Reconnaissance	Closed/removed UST: 550 gallon waste/used motor oil; Closed/removed AST: 275 gallon waste/used motor oil Closed LUST, June 1996, petroleum contaminated soil. In use AST, unknown contents or size (observed) Possession or use of radioactive materials Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed/Removed UST and AST Closed LUST June 1996 In Use AST Active City Garage	5,300 feet SW	100 Year TOT	Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
170b	City of Madison Engineering Services Building 1600 Emil Street Madison, WI	Site Reconnaissance	Salt storage shed Truck parking, potential leaks and spills	Active Site Active Salt Storage Shed	5,050 feet SW	100 Year TOT	Moderate
171 (CB400)	Hooper Corporation 3002 Perry Street Madison, WI	EDR Report- BRRTS	Environmental Activity	Active Site	5,100 feet South	100 Year TOT	Low
172 (401/ CE425/ CE426/ CE427/ CE428)	Rimrock Self Storage (current) Icke LF Redevelopment/ Construction Co. 2524 Rimrock Road 2642 Rimrock Road Madison, WI	EDR Report- (listing for Icke LF Redevelopment) WI - Registered UST (Facility ID 89538) LUST WI - ERP SWF/LF BRRTS RCRA-SQG FINDS WI WRRSER SHWIMS DNR Files - Icke Construction located in NW ¼ of SW ¼ of Section 36. Site Reconnaissance	Closed/removed USTs: 2 - 10,000 gallon unleaded gasoline; 1,000 gallon leaded gasoline; 10,000 gallon leaded gasoline Closed LUST, June 1997, petroleum contaminated soil Inactive landfill April 2003 Environmental Investigations Listed in FINDS database. Environmental Activity Solid and hazardous waste listing DNR files - demolition debris and ash disposal	Closed/Removed USTs Closed LUST June 1997 Inactive Landfill Redeveloped property	4,950 feet SE	Just Beyond 100 Year TOT	Moderate
173 (429)	Mapping Specialists LTD 1319 Applegate Road Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	5,200 feet SW	100 Year TOT	Low
174 (CG434/ CG441)	Storage Lot Stewart / Syene Madison, WI	EDR Report- WI Spills	Historic spill, April 1990, filling large tank with 50 gallon barrels spilled petroleum and contaminated soil Historic spill, August 1997, tank leaking diesel contaminated soil - soil excavated	Historic Spill April 1990 Historic Spill August 1997	5,250 feet South	100 Year TOT	Low - Moderate
175 (CG439/ CG440)	Lost Finish 805 Stewart Street Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	5,140 feet South	100 Year TOT	Low - Moderate
176 (CG442)	Screen Print, Inc. 809 Stewart Street Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active Site	5,650 feet South	100 Year TOT	Low
177 (CG443)	Stauffer Classic Restorations 815 Stewart Street Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active	5,600 feet South	100 Year TOT	Low
178 (CG444)	Stewart Street Rentals 829 Stewart Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 134369)	Closed filled with Inert Materials USTs: 10,000 gallon diesel Closed/removed UST: 2,000 gallon leaded gasoline	Closed/Removed/Filled USTs	5,475 feet South	100 Year TOT	Low
179 (CJ448)	Outdoor Specialty Products 903 Stewart Street Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS HMIRS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing HMIRS - spill incidents database, but no details	Active Site	5,500 feet South	100 Year TOT	Low

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
180 (CJ450/ CJ451/ CJ452)	United Parcel Service 904 Stewart Street Madison, WI	EDR Report- WI - Registered UST (Facility ID 139648) LUST SHWIMS RCRA-SQG FINDS HMIRS	Closed/removed UST: 10,000 gallon unleaded gasoline. Closed LUST, August 1997. Closed under NR726. Listed in FINDS database. Environmental Activity Solid and hazardous waste listing HMIRS – spill incidents database, but no details	Closed/Removed UST Closed LUST Site August 1997	5,350 feet South	100 Year TOT	Low - Moderate
181 (CJ453)	Northwest Wholesale Lumber, Inc. 905A Stewart Street Madison, WI	EDR Report- RCRA-SQG FINDS	Listed in FINDS database. Environmental Activity	Active Site	5,500 feet South	100 Year TOT	Low
182 (CJ454)	Master Building Solutions (Current) Digisonix 908 Stewart Street Madison, WI	EDR Report—(listing for Digisonix) RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	5,400 feet South	100 Year TOT	Low
183 (455)	ChemLawn Corp. 1122 Stewart Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Storage and mixing of chemical fertilizers, pesticides, herbicides.	ChemLawn Not Currently Located at This Site	5,688 feet SSW	50 Year TOT	Low – Moderate
184 (CJ456)	JW Motor Sports 907 Stewart Street Madison, WI	EDR Report- WI – AST	In Use AST: 560 gallon unleaded gasoline	In Use AST	5,550 feet South	100 Year TOT	Low
185 (CJ457)	American Screen Printing Co. 928 Stewart Street Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	5,650 feet South	100 Year TOT	Low
186 (CJ458)	Temperature Systems, Inc. 930 Stewart Street Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	5,450 feet South	100 Year TOT	Low
187 (CJ459)	Rudys Shop 931 Stewart Street Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active Site	5,550 feet South	100 Year TOT	Low
188 (460)	Action Automotive 945 Stewart Street Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active Site	5,600 feet SW	100 Year TOT	Low
189 (CK462)	Sigcor Real Estate LLC 3101 Watford Way Madison, WI	EDR Report- WI – AST	AST: 285 gallon waste/used motor oil	Temporarily Out of Service	5,650 feet SW	100 Year TOT	Low
190 (CK463)	Westbelt Auto 3101 Watford Way Madison, WI	EDR Report- BRRTS	Tank Closure Assessment reported (BRRTS)	Active Site	5,550 feet SSW	100 Year TOT	Low
191	Auto Tech Metal Works 933 Stewart Street Madison, WI	Site Reconnaissance	Storage and use of hazardous fluids (cutting oils, solvents)	Active	5,700 feet SSW	100 Year TOT	Low

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
192 (CN475)	Precision Devices, Inc. 3001 Latham Drive Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	5,500 feet SW	100 Year TOT	Low
193 (CN476)	Body Shop Supply Co. Inc. 1212 Greenway Cross Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS WI Manifest	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	5,600 feet SSW	100 Year TOT	Low
194 (CN477/ CN478)	Rite Way Leasing / All Tranz Transmission 1211 Greenway Cross Madison, WI	EDR Report- WI - Registered UST (Facility ID 51732) LUST	Closed/removed USTs: 10,000 gallon unleaded gasoline; 1,000 gallon waste/used motor oil Closed LUST, Sept. 2002, Conditional closure under NR726, petroleum contaminated soil.	Closed/Removed USTs Closed LUST September 2002	5,750 feet SSW	100 Year TOT	Low – Moderate
195 (CN479/ CN480)	Applegate Auto 1217 Greenway Cross Madison, WI	EDR Report- WI - Registered UST (Facility ID 53520) WI Spills LUST Site Reconnaissance	Closed/removed UST: 500 gallon waste/used motor oil Closed LUST, August 1997, NR726 closure, petroleum contaminated soil Historic spill, May 2002, pad mounted transformer was hit by lawn mower – soil contamination, substance not listed. Vehicle storage and repair, potential leaks and spills	Closed/Removed UST Closed LUST August 1997 Historic Spill May 2002	5,800 feet SW	100 Year TOT	Low – Moderate
196 (CO483/ CO484/ CO485/ CO486)	Soils & Engineering Services, Inc. 1018 Stewart Street Madison, WI	EDR Report- SHWIMS WI – AST WI Spills MLTS	In Use ASTs: 560 gallon diesel; 300 gallon diesel; 560 gallon unleaded gasoline Historic spill, August 2006, event and substance not listed Solid and hazardous waste listing Possession or use of radioactive materials	In Use ASTs Historic Spill August 2006	5,575 feet SW	100 Year TOT	Low – Moderate
197 (CK488)	Erickson Auto Trim of Madison (Former) 3126 Watford Way Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Erickson Auto Trim is Not Currently Located at This Site	6,050 feet SW	100 Year TOT	Low
198 (CM489)	Dean Health Care System (current) G-Tech Corp. 1800 West Beltline Highway Madison, WI	EDR Report- (listing for G-Tech Corp.) WI Spills	Historic spill – October 1997 air contamination from polynuclear aromatic hydrocarbons.	Active	5,475 feet SW	100 Year TOT	Low
199 (CM490)	Wisconsin Lottery Board 1802 West Beltline Highway Madison, WI	EDR Report- WI - Registered UST (Facility ID 133631)	Closed/removed UST: 500 gallon fuel oil	Closed/Removed USTs	5,600 feet SW	100 Year TOT	Low
200 (CM491/ CM492)	Dean Medical Office / Dean Health Systems 1806/1808 West Beltline Highway Madison, WI	EDR Report- WI – AST FINDS	In use AST: 400 gallon diesel Listed in FINDS database. Environmental Activity	In Use AST	5,750 feet SW	100 Year TOT	Low
201 (CM494)	Zimbrick Used Cars (current) Eggimann Motors & Equip. Sales 1813 West Beltline Highway Madison, WI	EDR Report- (listing for Eggimann Motors) WI - Registered UST (Facility ID 74627) WI - AST SHWIMS RCRA-SQG FINDS BRRTS Site Reconnaissance	Closed/removed UST: 250 gallon waste/used motor oil; 1,200 gallon waste/used motor oil Closed filled with inert materials USTs: 3,000 gallon unleaded gasoline; 800 gallon unleaded gasoline In Use AST: 560 gallon waste/used motor oil Listed in FINDS database. Environmental Activity Solid and hazardous waste listing BRRTS – UST site assessment report received	Closed/Removed UST In Use AST	6,000 feet SW	100 Year TOT	Low – Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
202 (496)	Econo Print Inc. 1410 Greenway Cross Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	5,850 feet SW	100 Year TOT	Low
203	Stewart Watson Town of Fitchburg NW ¼ of NW ¼ Section 2	DNR Files	Historic dumping of demolition debris	Closed Demolition Dump Year Not Reported	6,250 feet SW	100 Year TOT	Low – Moderate
204 (CR504/ CR505)	Zimbrick Buick, Inc. 2810 Bryant Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 147275) WI – AST	Closed/removed UST: 1,250 gallon leaded gasoline In use AST: 500 gallon waste/used motor oil	Closed./Removed UST In Use AST	6,100 feet SW	100 Year TOT	Low
206 (CU514/ CU515)	Medical Equipment Co (current) Budget Lamp Recyclers, Inc./ Budget Lamp Reclaimers Inc. 901 Watson Ave Madison, WI	EDR Report- (listing for Budget Lamp Recyclers) RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	6,150 feet South	100 Year TOT	Low
207 (CU515)	Gander Manufacturing (current) 5 Star Enterprises 901 Watson Ave. Madison, WI	EDR Report- (listing for 5 Star Enterprises) WI - Registered UST (Facility ID 50093)	Closed/removed UST: 1,500 gallon unleaded gasoline	Closed/Removed UST	6,150 feet South	100 Year TOT	Low
208 (CU517/ CU518)	Southern Wisconsin Roofing Co., Inc. 902/903 Watson Avenue Madison, WI	EDR Report- WI - Registered UST (Facility ID 132204) SHWIMS RCRA-SQG FINDS	Closed/removed USTs: 1,000 gallon unleaded gasoline; 4,000 gallon unleaded gasoline Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Closed Removed USTs	5,950 feet SSW	100 Year TOT	Low
209 (CU519)	Steel Forms Construction, Inc. 910 Watson Avenue Madison, WI	EDR Report- WI - Registered UST (Facility ID 132204) Site Reconnaissance	Closed/removed UST: 1,000 gallon leaded gasoline; 500 gallon leaded gasoline; 500 gallon fuel oil Barrel storage – unknown contents	Closed/Removed USTs	6,000 feet SSW	100 Year TOT	Low – Moderate
210 (CU520)	Custom Drywall, Inc. 918 Watson Avenue Madison, WI	EDR Report- SHWIMS	Solid and hazardous waste listing	Active Site	6,000 feet SSW	100 Year TOT	Low
211 (CU521/ CU523)	McKee Assoc. Midwest Homes (current) ChemLawn Corp. (former) TrueGreen ChemLawn 925 Watson Road Madison, WI	EDR Report- (listing for ChemLawn) WI - Registered UST (Facility ID 679175) RCRA-SQG FINDS Site Reconnaissance	Closed/removed UST: 10,000 gallon diesel In use AST – unknown size and contents Listed in FINDS database. Environmental Activity Vehicles storage, potential leaks and spills	Closed/Removed UST	6,250 feet South	100 Year TOT	Low – Moderate
212 (CQ524)	Focus Corp (current) Budget Lamp Recyclers, Inc./ Budget Lamp Reclaimers Inc. 3201 Latham Drive Madison, WI	EDR Report- (listing for Budget Lamp Recyclers) RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	6,150 feet SW	100 Year TOT	Low
213 (CV526/ CV527)	Engelhart Center, Inc. 1589 Greenway Cross Madison, WI	EDR Report- WI - Registered UST (Facility ID 75808) WI - AST	Closed/removed UST: 500 gallon unleaded gasoline In use AST: 300 gallon waste/used motor oil	Closed/Removed UST In Use AST	6,200 feet SW	100 Year TOT	Low
214 (CV531)	Zimbrick Honda, Inc. 2780 Fish Hatchery Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Vehicle parking, repair, potential leaks and spills	Active Site	6,000 feet SW	100 Year TOT	Low-Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
216 (CW533/ CW534)	True-North Builders, Inc. 717 Post Road Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	6,400 feet South	100 Year TOT	Low
217 (CW535)	Livesey Painting, Inc. 718 Post Road Madison, WI	EDR Report- RCRA-SQG FINDS SHWIMS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	6,300 feet South	100 Year TOT	Low
218 (CY536)	Print N Mail Advertising, Inc. 3220 Kingsley Way Madison, WI	EDR Report- SHWIMS RCRA-SQG FINDS	Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	6,600 feet SW	100 Year TOT	Low
219 (CY537)	Rain Soft (current) Budget Lamp Reclaimers (former) 3224 Kingsley Way Madison, WI	EDR Report- (listing for Budget Lamp Reclaimers) RCRA-SQG FINDS SHWIMS WI Manifest	One RCRA violation listed – Mar. 2002. Area of violation 05UWR. Achieved compliance January 2003. Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	Active Site	6,500 feet SW	100 Year TOT	Low
221 (CW540)	Epicentre Technologies, Inc. 726 Post Road Madison, WI	EDR Report- MLTS	Possession or use of radioactive materials	Active Site	6,450 feet South	100 Year TOT	Low
222 (CZ542/ CZ543)	Urso & Associates 2809 Fish Hatchery Road Fitchburg, WI	EDR Report- WI - Registered UST (Facility ID 139751) LUST	Closed/removed UST: 500 gal, leaded gasoline. Closed LUST, November 1992, gasoline contaminated soil.	Closed/Removed UST Closed LUST	6,450 feet SW	Upgradient Beyond 100 Year TOT	Low – Moderate
223 (CZ547/ CZ548/ CZ549/ CZ550)	Zimbrick Buick, Inc. 1601 West Beltline Highway Madison, WI	EDR Report- WI - Registered UST (Facility ID 680713) LUST WI – AST ERNS BRRTS RCRA-SQG FINDS SHWIMS WI Manifest Site Reconnaissance	Closed/removed USTs: 2 - 1,000 gallon waste/used motor oil; 9 - 1,000 gallon other; 2 - 550 gallon other; 3,000 gallon waste/used motor oil; 2 - 10,000 gallon unleaded gasoline; 500 gallon unleaded gasoline 3,000 gallon other Closed LUST, January 1999, soil contamination. Closed out under NR 726. In use UST: 1,000 gallon waste/used motor oil; 10,000 gallon gasoline In use AST: 550 gallon waste/used motor oil Two RCRA violations for this site. Generator requirements – General. August 1996 and May 2003 Listed in FINDS database. Environmental Activity Solid and hazardous waste listing Vehicle parking, repair, potential leaks and spills	Closed/Removed USTs In Use USTs In Use AST Closed LUST January 1999 RCRA Violations	6,100 feet SW	100 Year TOT	Moderate
225 (CZ553/ CZ554)	Speedway SuperAmerica LLC 2810 Fish Hatchery Road Fitchburg, WI	EDR Report- WI - Registered UST (Facility ID 134987) LUST WI Spills SHWIMS RCRA-SQG FINDS CRS	In use USTs: 8,000 gallon unleaded gasoline; 2 - 12,000 gallon unleaded gasoline; 8,000 gallon diesel Closed LUST, February 2004 (Act. Display No. 03-13- 002436), conditional closure with GIS Registry and Deed Restriction. Petroleum contaminated soil and groundwater. Open LUST, (Act. Display No. 03-13-544757) Historic spill, November 2005, underground dispenser flex hose leaking causing diesel fuel contaminated soil and groundwater. (Activity transferred to LUST program) Listed in FINDS database. Environmental Activity Solid and hazardous waste listing	In Use USTs Open LUST/Spill Closed LUST February 2004	6,750 feet SW	Upgradient Beyond 100 Year TOT	Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
226 (DB555/ DB556/ DB557)	Traceway Auto Clinic 2922 Bryant Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 138875) WI - Registered UST (Facility ID 138876) WI Spills BRRTS	Closed/removed UST: 5,000 gallon unleaded gasoline; 1,111 gallon unknown contents Historic spill, January 1985, leak in engine waste oil AST caused soil contamination	Closed/Removed USTs	6,500 feet SW	Upgradient Beyond 100 Year TOT	Low - Moderate
227 (DD560/ DD561)	Medix 3214 Syene Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 109596) LUST	Closed/removed USTs: 1,500 gallon gasohol; 1,000 gallon diesel Closed LUST, April 1997, Petroleum contaminated soil and groundwater	Closed/Removed UST Closed LUST April 1997	6,300 feet South	100 Year TOT	Low - Moderate
228 (DD580/ DD581/ DD582)	WMGN 3220 Syenne Road Madison, WI	EDR Report- WI - Registered UST (Facility ID 110993) LUST WI WRRSER	Closed/removed UST: 1,000 gallon fuel oil Closed LUST, September 1999, petroleum contaminated soil	Closed/Removed UST Closed LUST September 1999	6,450 feet South	100 Year TOT	Low - Moderate
229 (DD570)	Post Road & Syene Road Madison, WI	EDR Report- WI Spills	Historic spill, May 2006, cause or substance type not listed in report	Historic Spill May 2006	6,600 feet South	100 Year TOT	Low
230	Numerous Properties Throughout Area	Site Reconnaissance	Parking surfaces, potential leaks and spills and runoff to storm sewer	Active Parking Lots	Variable	All Zones	Low - Moderate
231	Numerous Properties Throughout Area	Site Reconnaissance	Grass areas: Parks and residences. Potential nutrient loading and use of pesticides and herbicides.	Active Green Space Areas	Variable	All Zones	Low - Moderate
232	All Roads and Properties City of Madison	Site Reconnaissance	Potential for leaks and spills of hazardous materials	Spills Can Occur at Any Time and at Any Location	Variable	All Zones	Low - High
233	Major Roadways City of Madison	City Records	Salt application	Application During Winter	Variable	All Zones	Low - Moderate

TABLE 4-1 (cont.)

Map Site No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 18	Location within Capture Zone	Estimated Threat to Supply Well
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Notes:

Map Numbers correspond to numbers shown on Figure 4-1
 EDR Search Report Number(s) are shown in parenthesis (A1/A2, etc.) and pertain to EDR's search map and report. They are listed for cross-reference purposes.

1. Zone A = Within 5 year TOT ZOC
2. Zone B = Beyond Zone A, but within 1200-ft. radius.
3. TOT = Time of Travel
4. Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
5. National Priorities List (NPL)
6. Resource Conservation and Recovery Act- Large Quantity Generator (RCRA-LQG)
7. Resource Conservation and Recovery Act- Small Quantity Generator (RCRA - SQG)
8. The Facility Index System (FINDS)
9. Underground Storage Tank (UST)
10. Aboveground Storage Tank (AST)
11. Environmental Protection Agency (EPA)
12. Solid & Hazardous Waste Information Management System (SHWIMS)
13. Material Licensing Tracking System (MLTS)
14. FIFRA/TSCA Tracking System (FTTS) (FIFRA = Federal Insecticide, Fungicide & Rodenticide Act; TSCA = Toxic Substances Control Act)
15. Wisconsin (WI)
16. Wisconsin DNR Spills Database (SPILLS)
17. Wisconsin Leaking Underground Storage Tank List (LUST)
18. Wisconsin Environmental Repair Program Sites (ERP)
19. Bureau (of Commerce) Remediation and Redevelopment Tracking System (BRRTS)
20. Wisconsin Remedial Response Site Evaluation Report (WRRSER)
21. Wisconsin Department of Natural Resources (DNR)
22. List of Licensed Landfills (WF/LF)

There are no sludge or septage spreading areas in the Unit Well 18 WHPA or in upgradient ZOCs.

According to the DNR Bureau of Remediation and Redevelopment Tracking System (BRRTS) website, one property (Park Street Conoco, 2116 South Park Street) located within 1,200 feet of Unit Well 18, is a former LUST site with contaminated groundwater and soil and received closure with residual contamination remaining at the site. The site is located 750 feet southwest of Unit Well 18. Eight other sites located within the 100-year TOT ZOCs for Unit Well 18 have contaminated groundwater and/or soil and received closure with residual contamination remaining at the sites.

Bulk salt storage sheds were observed at the City of Madison West Badger Road Facility (1501 West Badger Road). Salt is applied to roadways in the Unit Well 18 ZOCs during the winter as a deicer.

Chemlawn is located at 1122 Stewart Street, which is approximately 5,700 feet south-southwest of Unit Well 12. Bulk storage of fertilizers or other compounds were not observed at the site, but they may be stored inside the facility. Chemlawn was previously located at 925 Watson Road and was a licensed bulk pesticide and fertilizer storage facility at that location. That site is currently occupied by McKee Associates Midwest Homes. The current and former Chemlawn sites are both located within the 100-year TOT ZOC for Unit Well 18.

The separation distances between Unit Well 18 and potential contaminant sources identified in Wisconsin Administrative Code NR 811.16 are summarized in Table 4-2. The required separation distance from Unit Well 18 is not met for the sanitary sewer or the site at 2116 South Park Street with residual groundwater contamination.

4.2 UNIT WELL 18 WATER QUALITY AND LAND USES

Water pumped from Unit Well 18 is hard (303 milligrams per liter (mg/L)) and contains low levels of iron (0.025 mg/L), manganese (0.008 mg/L), nitrate (0.65 mg/L), chloride (9.5 mg/L), and sulfate (16.4 mg/L) (Madison Water Utility, 2007). Low levels of tetrachlorethylene (PCE) (maximum concentration of 1.1 micrograms per liter (µg/L)) were detected in water pumped from Unit Well 18 during 2006. The USEPA maximum contaminant level (MCL) for PCE is 5 µg/L. Low levels of one disinfection byproduct, which forms during the chlorination of water when chlorine interacts with impurities in the groundwater, was also detected in water pumped from Unit Well 18. No other volatile organic compounds (VOCs) or synthetic organic compounds (SOCs) were detected.

On the basis of these water quality data, it does not appear that road salt application, or nutrient loading on grass areas in the well capture zone areas, has significantly affected the quality of groundwater pumped from Unit Well 18. The concentrations are well below the nitrate MCL of 10 mg/L and the secondary standard of 250 mg/L for chloride.

PCE is a VOC, and the source of the PCE is not known. PCE is commonly used in the textile industry, for dry cleaning, and for industrial metal cleaning or finishing (USEPA, 2006). Unit Well 18 is not cased through the Eau Claire shale confining layer; therefore, Unit Well 18 is open to a small portion of the upper bedrock aquifer, which is more vulnerable to contamination from near-surface contaminant sources compared to the lower bedrock aquifer. It is not known

**TABLE 4-2
MINIMUM SEPARATION REQUIREMENTS
BETWEEN PUBLIC WELLS AND
POTENTIAL CONTAMINANT SOURCES
WELLHEAD PROTECTION PLAN, UNIT WELL 18
MADISON, WISCONSIN**

Potential Contamination Source	Minimum Separation Distance
Storm Sewer	50 feet
Sanitary Sewer	200 feet ¹
Sanitary Lift Station	200 feet
Single Family Residential Fuel Oil Tank	200 feet
Septic Tank Receiving Less than 8,000 gpd	400 feet
Cemetery	400 feet
Stormwater Drainage Pond	400 feet
Gasoline or Fuel Oil Tank Approved by Comm 10.10	600 feet
Land Application of Municipal, Commercial, or Industrial Waste	1,000 feet
Boundaries of Land Spreading Facility Regulated Under Chapter NR 718	1,000 feet
Industrial, Commercial, or Municipal Wastewater Lagoons or Storage Structures	1,000 feet
Manure Stacks or Storage Structures	1,000 feet
Septic Tanks or Soil Absorptive Units Receiving Greater than 8,000 gpd	1,000 feet
Solid Waste Storage, Transportation, Transfer, Incineration, Air Curtain Destructor, Processing, Wood Burning, or One-Time Disposal or Small Demolition Facility	1,200 feet
Sanitary Landfill	1,200 feet
Property with Residual Groundwater Contamination Exceeding Chapter NR 140 Enforcement Standards as Recorded on the DNR GIS Registry	1,200 feet
Coal Storage Area	1,200 feet
Salt or Deicing Material Storage	1,200 feet
Gasoline or Fuel Oil Storage Tanks not Approved by Comm 10.10	1,200 feet
Bulk Fuel Storage Facilities	1,200 feet
Pesticide or Fertilizer Handling or Storage Facilities	1,200 feet

Reference: Wisconsin Administrative Code, NR 811, June 2003.

Footnote:

¹ Lesser separation for sanitary sewer may be allowed if the sewer is constructed of water main materials and pressure tested. Less than 50 feet separation is not allowed.

whether the PCE-contaminated groundwater enters Unit Well 18 through the uncased portion of the upper bedrock aquifer or through the lower bedrock aquifer. It is possible that the PCE enters the lower bedrock aquifer through an improperly abandoned well or through an improperly abandoned penetration such as a test boring located somewhere in the Unit Well 18 ZOCs. Possible sources of PCE in the Unit Well 18 ZOCs include facilities that use metal cleaners (metal recycling, and auto body shops). No dry cleaners were observed in the Unit Well 18 ZOCs.

4.3 LAND USES AND WHP PLANNING

Some of the land uses in the vicinity of Unit Well 18 are not compatible with WHP planning, including major roads (high potential for spills), vehicle repair shops, gas stations, recycling facilities, and chemical storage and use areas. Land uses summarized in Table 4-2 should be prohibited in the vicinity of Unit Well 18, within the respective minimum separation distances shown. Also, it is not desirable to have commercial, manufacturing, or industrial districts located in WHPAs. Land uses summarized in Table I-1 in Appendix I should be prohibited from WHPA Zones A and B. Where any of the uses listed in Table I-1 currently exist within Zones A and B, owners should be allowed to upgrade the facilities to facilitate or enhance groundwater protection.

Tables 4-4 and 4-5 in Appendix I summarize several potential sources of groundwater contamination and land uses and their relative risk to groundwater, respectively.

5.0 MANAGEMENT STRATEGIES

5.1 ALTERNATIVE MANAGEMENT STRATEGIES

Table 5-1 summarizes key elements of a management plan developed for the City of Madison. Activities were identified for resource management within the delineated WHPA and within far upgradient ZOCs.

The various activities can be grouped into five principal categories as follows:

1. Existing programs
2. Land use controls
3. Intergovernmental cooperation
4. Monitoring
5. Public education and awareness

Because all landowners within the WHPA rely on groundwater resources for water supply, and a few maintain private water supply wells, emphasis should be placed on management activities that will provide a mutual benefit to the City of Madison residents and other property owners located within the WHPA and other ZOCs.

5.1.1 Category 1 - Existing Programs

5.1.1.1 Hazardous Waste Collection/Disposal Program (Clean Sweep)

The Dane County Department of Public Works and the City of Madison Department of Public Health co-sponsor the Clean Sweep Collection Program. The Clean Sweep program involves collection and disposal of residential, agricultural, and small business hazardous chemicals and wastes. Disposal of household residential hazardous wastes is free; however, some household hazardous wastes cannot be accepted by the Clean Sweep program. The Clean Sweep website should be consulted about specific items being disposed. Small quantities of hazardous materials and wastes from small businesses are accepted on Wednesdays, by appointment only, and there is a per-pound charge for materials. Costs are summarized on the Clean Sweep website. There is no charge for disposal of hazardous materials disposed of by producers of agricultural crops and commodities. Agri-businesses such as golf courses and farm cooperatives are charged one-half of the small business disposal charge. Collections are held between 7:30 a.m. and 2:00 p.m. on Tuesdays, Wednesdays, Fridays, and Saturdays, May 1 through October 31. The Clean Sweep site is located at the north end of the Dane County Highway Garage property, 2302 Fish Hatchery Road, Madison, Wisconsin.

Information about the Clean Sweep Collection Program can be obtained by calling (608) 294-5366 or (608) 294-5358. Clean Sweep Collection Program websites are at:

www.danecountycleansweep.com

and

www.cityofmadison.com/health/envhealth/clnswp.html

**TABLE 5-1
SUMMARY OF MANAGEMENT STRATEGIES
WELLHEAD PROTECTION PLAN - UNIT WELL 18
MADISON, WISCONSIN**

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Date	Action Item
1. Existing Programs	a. Hazardous Waste Collection (CLEAN SWEEP)	<ul style="list-style-type: none"> Hazardous waste collection and disposal. Residential, agricultural, and small business hazardous waste. Commercial with small fee. May through October collections in Madison. Target local property owners and residents to participate. 	<ul style="list-style-type: none"> Dane County Department of Public Works City of Madison Department of Public Health 	1. 2008	1. Madison Water Utility send information about the Clean Sweep Collection Program to property owners in the WHPA, to encourage participation in the program.
				2. As needed	2. Dane County sponsors advertising and feature articles.
	b. On Site Waste Disposal System (Septic) Maintenance	<ul style="list-style-type: none"> Maintenance/servicing contract currently required for system owners on record. Orders issued to confirmed failing system owners. Include all property/septic system owners in WHPA in notification database. Conduct Public Education. 	<ul style="list-style-type: none"> Dane County Environmental Health Department 	1. 2008, then annually	1. Madison Water Utility request that the Dane County Environmental Health Department provide information to owners of private sewage disposal systems about sewage system maintenance, and the types of waste that should not be disposed of in a septic system.
				2. 2008	2. Madison Water Utility prepare an article for newspaper release about septic system dos and don'ts.
				3. Every 3 years	3. Dane County Environmental Health Department ensure that system maintenance and pumping are performed.

TABLE 5-1 (cont.)

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Date	Action Item
1. Existing Programs (cont.)	c. Well Abandonment	<ul style="list-style-type: none"> Enforce well abandonment ordinance(s) (Dane County Chapter 45, and City of Madison General Ordinance Sec. 13.21) and review new well construction. Require proper abandonment of unused and unsafe wells. Update well inventory in WHPA once every 5 years. Familiarize with WI Admin. Codes, Chapters NR 141, 811, and 812. 	<ul style="list-style-type: none"> Wisconsin DNR Dane County Environmental Health Department City of Madison 	1. 2008, then annually	1. Madison Water Utility request that the Dane County Environmental Health Department provide them the names and addresses of owners of private wells located in the Unit Well 18 WHPA.
				2. 2008, then every five years (2013)	2. Madison Water Utility determine the location of other private water supply wells that may be located within the WHPA and which are not recorded in the County database.
				3. 2008	3. Madison Water Utility send private well owners within the WHPA, DNR pamphlets about well upkeep and proper abandonment procedures in the event the owners abandon their existing wells.
				4. 2008, then every five years	4. Madison Water Utility update the private well inventory for wells located in the WHPA.
				5. Ongoing	5. City of Madison and Dane County enforce existing well abandonment ordinances, to ensure that all private wells are permitted, or properly abandoned if unused.
				6. 2008	6. Madison Water Utility request that Dane County consider proximity and depth of proposed private wells relative to Unit Well 18 prior to issuing permits for construction of new private water supply wells.
				7. As needed	7. Madison Water Utility direct residents to the DNR private well code (Chapter NR 812) or to the Wisconsin DNR private well section (608-266-0821) when questions arise about private water supply wells.
				8. 2008	8. Madison Water Utility prepare newspaper article about proper abandonment of unused wells.

TABLE 5-1 (cont.)

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Date	Action Item
1. Existing Programs (cont.)	d. Land Application of Sludge and Septage	<ul style="list-style-type: none"> Enforce existing rules. 	<ul style="list-style-type: none"> Wisconsin DNR Dane County Madison Metropolitan Sewerage District (MMSD) 	1. 2008	1. Madison Water Utility provide a copy of the WHPA and recharge area maps to the MMSD and request that sludge not be spread in the Unit Well 18 recharge area equivalent to the 100-year TOT capture zone.
				2. 2008	2. Madison Water Utility provide a copy of the WHPA and recharge area maps to the DNR Watershed Management office (608-267-7694 (central office) 608-275-3325 (Fitchburg office)) and request that new permits for sludge and septage spreading not be issued for properties located in the Unit Well 18 recharge area equivalent to the 100-year TOT capture zone.
				3. Ongoing	3. Madison Water Utility encourage development of additional authorized septage discharge points in the City of Madison wastewater treatment system.
				4. Ongoing	4. DNR enforce rules, particularly in WHPAs.
				5. 2008	5. Dane County develop regulatory program including ordinance.
	e. Spill Notification and Awareness of Remedial Investigation and Cleanup	<ul style="list-style-type: none"> Monitor and keep informed of potential contamination sources in the WHPA and recharge areas. Work with DNR to achieve investigation and cleanup of known contamination sources. 	<ul style="list-style-type: none"> Wisconsin DNR Dane County Emergency Management Wisconsin DATCP and COMM City of Madison Fire Department 	1. 2008	1. Madison Water Utility request that DNR, City Police, and the Dane County Emergency Management Office inform the City about future events (spills, leaks, investigations, etc.) that occur in the Unit Well 18 WHPA or in upgradient recharge areas.
				2. 2008, then ongoing	2. Madison Water Utility monitor the status of existing and potential contamination sources in the WHPA, investigations regarding nature and extent of releases, and the status of cleanup activities, then determine if Utility action is needed.
				3. 2008	3. Madison Water Utility provide WHPA map to DNR and request that contaminated sites located in the Unit Well 18 WHPA be carefully reviewed before being granted closure.

TABLE 5-1 (cont.)

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Date	Action Item
2. Land Use Controls	a. Existing Zoning/Wellhead Protection Overlay Zoning and Ordinance	<ul style="list-style-type: none"> Enforce existing zoning. Discourage conditional uses or zoning changes that increase risk to groundwater. 	<ul style="list-style-type: none"> City of Madison Dane County Planning and Development 	1. November 2007 2. 2008 3. 2008	1. City of Madison amend WHP ordinance and add WP-18 Wellhead Protection District No. 18. 2. City of Madison provide Dane County with a copy of the WHP ordinance and WHPA map. 3. Dane County consider developing WHP Overlay District ordinance.
3. Intergovernmental Cooperation	a. Land Use Planning and Site Plan Review	<ul style="list-style-type: none"> Cooperate in land use planning to protect groundwater resources and WHPAs. Keep apprised of development in WHPA. Ensure development complies with separation distances between the well and potential contamination sources as required by WI Admin. Code, Chapter NR 811.16. 	<ul style="list-style-type: none"> City of Madison Planning and Development Department Dane County Planning and Development Department City of Fitchburg Town of Madison 	1. 2008 2. 2008 – Ongoing 3. 2008 – Ongoing 4. 2008 5. 2008 – Ongoing	1. City of Madison provide Dane County, the City of Fitchburg and Town of Madison with a copy of: <ol style="list-style-type: none"> The WHPP and maps showing the Unit Well 18 WHPA and ZOCs. A summary of separation distances required between municipal water supply wells and potential contamination sources (Wisconsin Administrative Code, Chapter NR 811.16(4)(d)). A list of potential contamination sources that can threaten groundwater. A list of high risk land uses that should be prohibited from WHPAs. 2. City of Madison Planning and Development Department ensure that development complies with separation distances required between municipal water supply wells and potential contamination sources. 3. City of Madison encourage the Town of Madison, Dane County and the City of Fitchburg to review proposed development in the ZOCs and WHPA in their jurisdiction, with regard to Unit Well 18 recharge area. 4. City of Madison Planning and Development Department develop an Environmental Permits Checklist for site plan review. The checklist will help ensure compliance with local, County, and State permits and will raise awareness about groundwater protection. 5. City of Madison Planning and Development Department provide a copy of the WHPA map and Site Plan Review Environmental Permits Checklist to developers and property owners and require that the developer indicate on the environmental permits checklist and hazardous substances reporting form whether the proposed development is in a WHPA.

TABLE 5-1 (cont.)

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Date	Action Item
4. Monitoring	a. Contaminant Source Inventory (CSI) Maintenance	<ul style="list-style-type: none"> Update CSI and conduct windshield survey 	<ul style="list-style-type: none"> Madison Water Utility 	1. April 2007, then every 5 years (January 2012)	1. Madison Water Utility update the CSI by conducting a windshield survey of properties located in the WHPA and by performing State and Federal database checks.
	b. Water Quality Monitoring	<ul style="list-style-type: none"> Conduct sampling of supply wells. 	<ul style="list-style-type: none"> Madison Water Utility 	1. As required – Ongoing 2. Ongoing	1. Madison Water Utility perform water quality monitoring as required by DNR and as otherwise needed. 2. Madison Water Utility continue to post water quality data online at (http://www.madisonwater.org or http://www.cityofmadison.com/water/) for public review.
5. Public Education and Awareness	a. Availability of WHPP	<ul style="list-style-type: none"> Provide copies to Water Utility Office, Public Library, City Hall, City of Fitchburg, Town of Madison, and Dane County. 	<ul style="list-style-type: none"> City of Madison 	1. 2008 2. 2008 3. 2008	1. City of Madison provide copies of the WHPP for review by the public at the Water Utility Office, Madison Public Library, and City Hall. 2. City of Madison provide copies of the WHPP to Dane County, the Town of Madison, and the City of Fitchburg. 3. Madison Water Utility communicate the availability of the plan through a newspaper article.
	b. Public Informational Meeting	<ul style="list-style-type: none"> Perform as part of a City Committee meeting or Common Council Meeting. 	<ul style="list-style-type: none"> City of Madison 	1. 2008 2. 2008	1. City of Madison conduct a public informational meeting as part of a City committee meeting or the Common Council meeting during the review phase of the WHPP. 2. City of Madison provide WHPA maps for public review and an information sheet or brochure available for public use.
	c. News Releases	<ul style="list-style-type: none"> Issue early in program implementation, and reinforce annually, as necessary. 	<ul style="list-style-type: none"> City of Madison 	1. 2008, then annually	1. Madison Water Utility will provide a news release to the local newspaper, about the WHPP for Unit Well 18.

TABLE 5-1 (cont.)

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Date	Action Item
5. Public Education and Awareness (cont.)	d. Informational Materials Distributed To Residents in WHPA	<ul style="list-style-type: none"> Hazardous Waste Collection (Clean Sweep) Program Materials describing proper use and application of fertilizers and pesticides. 	<ul style="list-style-type: none"> City of Madison Wisconsin DNR University Extension Office 	1. 2008, then ongoing	<p>1. Madison Water Utility prepare informational materials and/or obtain from the Wisconsin DNR Bureau of Drinking Water and Groundwater, Dane County or UW Extension fliers, brochures and pamphlets, including:</p> <ul style="list-style-type: none"> a. Information about hazardous waste collection/disposal program (Clean Sweep) activities. b. Materials describing the proper use and application of lawn fertilizers and pesticides. c. Wellhead protection planning d. Annual Consumer Confidence Report (CCR) containing information about WHP planning. <p>2. Madison Water Utility update information in website (http://www.madisonwater.org or http://www.cityofmadison.com/water/) about WHP planning.</p>
	e. Land Use and Contaminant Source Awareness	<ul style="list-style-type: none"> Notify and offer guidance to owners of potential high risk land uses in WHPA. 	<ul style="list-style-type: none"> City of Madison 	1. 2008	<p>1. Madison Water Utility provide information to owners of property with existing or potential contamination sources located within the WHPA to emphasize the importance of awareness of the WHPA, the owner's location with respect to the WHPA, and potential contamination source(s) of concern. Specific information to be provided includes:</p> <ul style="list-style-type: none"> a. Leaking underground and above ground storage tanks. b. Materials describing the proper use and application of lawn fertilizers and pesticides.
	f. School Programs	<ul style="list-style-type: none"> Participate in school programs. 	<ul style="list-style-type: none"> City of Madison University Extension Office Madison Public Schools 	1. 2008 2. 2008	<p>1. Madison Water Utility inform schools about the availability of tours at water supply facilities.</p> <p>2. Madison Water Utility prepare a water/groundwater fact sheet for school education.</p>

The Clean Sweep Collection Program is advertised using public service announcements and materials distributed by municipalities. Funding for the program is provided by a percentage of tipping fees collected at local landfills and support from the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP). Additional information about the Clean Sweep Collection Program is in Appendix J.

The Clean Sweep Collection Program will be coupled with the City of Madison's WHP planning efforts. The following will be completed for this management activity:

1. Madison Water Utility will send information about the Clean Sweep Collection Program to property owners in the WHPA to encourage participation in the program.

5.1.1.2 On-Site Waste Disposal System Maintenance

The nearest private sewage disposal systems in the Unit Well 18 recharge area are located approximately 1.5 to 3 miles south-southwest of Unit Well 18 and are located beyond the 100-year TOT ZOC for Well 18. The sewage disposal systems are likely low risk to Unit Well 18 at the present time. Nutrient loading to groundwater is a regional concern, and it is prudent to be proactive regarding management of private sewage disposal systems.

The Dane County Human Services Department, Environmental Health Services, has an existing program for maintenance/servicing of private on-site waste disposal (septic) systems. Data for private waste disposal systems are recorded in a central database. Every three years, all owners of septic systems are required to have their septic tanks pumped and inspected and any required maintenance performed. The County charges the owners of septic systems a \$26 filing fee at the time the maintenance/servicing is performed.

The Dane County Environmental Health Services investigates complaints about non-complying sewage disposal systems and issues replacement orders to owners of failing systems.

For this management activity, the City will perform the following:

1. Request that Dane County provide information to owners of private sewage disposal systems located within the ultimate well capture zones, about sewage system maintenance, and the types of waste that should not be disposed of in a septic system.
2. Prepare an article for the newspaper about private sewage disposal systems dos and don'ts.

5.1.1.3 Well Abandonment

The proposed strategies under this category for WHP include public education and private well inventory maintenance. Education will improve awareness on the part of private well owners of the importance of proper well abandonment. Sixteen records were found for private wells located within the 100-year TOT ZOC for Unit Well 18. The private wells are located in the Town of Madison. The nearest private well is located approximately 750 feet north-northwest of Unit Well 18. Construction details are available for only two of the wells. Those two wells appear to be constructed in accordance with the Wisconsin Administrative Code requirements.

The City of Madison (General Ordinance Section 13.21) and Dane County (Chapter 45) have well abandonment ordinances for non-complying, unsafe, and unused wells. A copy of the City of Madison Well Abandonment Ordinance and the Dane County ordinance "Relating to Private Water Systems" are in Appendix K. Other information about wells and well abandonment is in Appendix L.

Dane County and the Wisconsin DNR have regulatory authority for proper construction and abandonment of unused wells (Wisconsin Administrative Code, Chapters NR 811 and 812). Dane County sanitarians review well siting permit applications, issue permits, inspect wells after construction, and oversee the abandonment of unsafe, unused, or non-complying wells. The Dane County Health Services Division administers a County reimbursement program for abandoning these categories of wells.

The following will be completed for this management activity:

1. Madison Water Utility will request that Dane County Environmental Health Services provide them the names and addresses of owners of private wells located in the Unit Well 18 WHPA.
2. Madison Water Utility will determine the locations of other private water supply wells that may be located within the WHPA and which are not recorded in the County database.
3. Madison Water Utility will send information to property owners located within the Unit Well 18 WHPA about proper abandonment procedures in the event the property owners have an unused well on their property.
4. Every five years, Madison Water Utility will update the private well inventory for wells located in the WHPA.
5. The City of Madison and Dane County will enforce the existing City and Dane County well abandonment ordinances to ensure that all private wells are permitted or properly abandoned if unused.
6. Madison Water Utility will request that Dane County consider proximity and depth of proposed private wells relative to Unit Well 18 prior to issuing permits for construction of new private water supply wells.
7. Madison Water Utility will direct residents to the DNR private well code (Chapter NR 812) or to the Wisconsin DNR private well section (608-266-0821) when questions arise about private water supply wells.
8. The Madison Water Utility will prepare a newspaper article about proper abandonment of unused wells.

5.1.1.4 Land Application of Sludge and Septage

There are no permitted septage application sites located within the Unit Well 18 ZOCs. The Wisconsin DNR issues permits for septage and sludge disposal sites in Wisconsin. Current sludge and septage application sites are low risk to Unit Well 18. Nutrient loading to

groundwater is a regional concern, and it is prudent to be proactive regarding management of sludge and septage disposal.

The following will be completed for this management activity:

1. Madison Water Utility will provide a copy of the WHPA and recharge area maps to the MMSD and request that sludge and septage not be spread in the Unit Well 18 recharge area equivalent to the 100-year TOT capture zone.
2. Madison Water Utility will provide a copy of the WHPA and recharge area maps to the DNR Watershed Management office (608-267-7694 (central office) 608-275-3325 (Fitchburg office)) and request that new permits for sludge and septage spreading not be issued for properties located in the Unit Well 18 recharge area equivalent to the 100-year TOT capture zone.
3. Madison Water Utility will encourage development of additional authorized septage discharge points in the City of Madison wastewater treatment system.

5.1.1.5 Spill Notification and Awareness of Remedial Investigation and Cleanup

There are six closed LUST sites and three known historical spill sites within the Unit Well 18 WHPA. There is also one property located within the Unit Well 18 WHPA which has contaminated soil and/or groundwater and received closure from the DNR with residual contamination remaining at the site. The following will be completed for this management activity:

1. Madison Water Utility will request that the City Police, DNR, and the Dane County Emergency Management Office inform the Utility about future events (spills, leaks, investigations, etc.) that occur in the Unit Well 18 WHPA or in upgradient recharge areas.
2. Madison Water Utility will monitor the status of existing and potential contamination sources in the WHPA and upgradient recharge areas, investigations regarding nature and extent of releases, and the status of cleanup activities.
3. Madison Water Utility will provide the DNR a map showing the location of the Unit Well 18 WHPA and request that contaminated site(s) located in the Unit Well 18 WHPA be carefully reviewed before being granted closure.

5.1.2 Category 2 - Land Use Controls

5.1.2.1 Existing Zoning/WHP Overlay Zoning and Ordinance

The City of Madison and Dane County have land subdivision and zoning ordinances to control and direct development. Land subdivision and zoning ordinances are used to safeguard flood plains, wetlands, shore lands, highway access, air quality, surface water, and other concerns. Existing zoning regulations will be enforced to help protect municipal well recharge areas and groundwater.

The City of Madison has a WHP ordinance. The ordinance prohibits incompatible development with the establishment of an overlay district for the 5-year TOT ZOC (Zone A) and the 1,200-foot radius ZOC (Zone B). The WHP ordinance helps ensure that future potential contamination sources are not located in the Unit Well 18 WHPA. A copy of the WHP ordinance is in Appendix M.

The following will be completed for this management activity:

1. The City of Madison will amend Section 28.06 of the Madison General Ordinances and add Wellhead Protection District No. 18.
2. The City of Madison will provide Dane County with a copy of the WHP ordinance and Unit Well 18 WHPA map.

5.1.3 Category 3 - Intergovernmental Cooperation

5.1.3.1 Land Use Planning and Site Plan Review

Land use planning is performed to control and direct development. Land use planning and site plan review should also be used to help protect WHPAs. The following will be completed for this management activity:

1. The City of Madison will provide Dane County, the Town of Madison, and the City of Fitchburg with a copy of:
 - a. The WHPP and maps showing the Unit Well 18 WHPA and ZOCs.
 - b. A summary of separation distances required between municipal water supply wells and potential contamination sources (Wisconsin Administrative Code, Chapter NR 811.16(4)(d)).
 - c. A list of potential contamination sources that can threaten groundwater.
 - d. A list of high-risk land uses that should be prohibited from WHPAs.
2. The City of Madison Planning and Development Department will ensure that development complies with separation distances required between municipal water supply wells and potential contamination sources.
3. The City of Madison will encourage the Town of Madison, Dane County Board, and the City of Fitchburg to review proposed development in the ZOCs and WHPA in their jurisdiction with regard to the Unit Well 18 recharge area.
4. The City of Madison Planning and Development Department will develop an Environmental Permits Checklist for site plan review. The checklist will help ensure compliance with local, county, and state permits and will raise awareness about groundwater protection.

5. The City of Madison Planning and Development Department will provide a copy of the WHPA map and Site Plan Review Environmental Permits Checklist to developers and property owners, and require that the developer indicate on the environmental permits checklist and hazardous substances reporting form whether the proposed development is in a WHPA.

5.1.4 Category 4 - Monitoring

5.1.4.1 CSI Maintenance

As part of this study, a CSI was conducted within the delineated WHPA and ZOCs. It will be important to maintain current knowledge of land use, potential contamination sources, and development within the WHPA. The following will be completed for this management activity:

1. Madison Water Utility will update the CSI by conducting a windshield survey of properties located in the WHPA and by performing state and federal database checks on an interval of once every five years.

5.1.4.2 Water Quality Monitoring

Currently, each of the City of Madison's supply wells is tested annually; some are tested more often depending on the analytes and the detected level. VOCs are tested annually and quarterly for several wells. SOCs are tested every three years. Inorganic testing is done at a minimum of every three years. Microbiological and total coliform bacteria are tested for weekly. Results are summarized and reviewed for conformance with regulatory drinking water standards, for comparison with current water quality results, and to identify any potential trends in contaminant concentrations.

City of Madison property owners and residents can go to the Madison Water Utility's website at www.madisonwater.org or <http://www.cityofmadison.com/water/> and look up the wells that serve their address and can review the water quality data for the previous year for the well(s) of interest.

The following will be completed for this management activity:

1. Madison Water Utility will perform water quality monitoring as required by DNR and as otherwise needed.
2. Madison Water Utility will continue to post water quality data online for public review.

5.1.5 Category 5 - Public Education and Awareness

The City of Madison will implement an education program to inform area residents of the need to protect the public water supply. Education is the best way to help people understand that what they apply on or dispose in their land or in drains and pipes today may be what they or their neighbors drink tomorrow. The public education program will consist of the following:

1. Make available copies of the WHPP
2. Public informational meeting

3. News releases
4. Make available and distribute information materials
5. Land use and contaminant source awareness
6. School programs

5.1.5.1 Availability of WHPP

The following will be completed for this management activity:

1. The City of Madison will provide copies of the WHPP for review by the public at the Water Utility Office, Madison Public Library, and City Hall.
2. The City of Madison will provide copies of the WHPP to Dane County, the Town of Madison, and the City of Fitchburg.
3. Madison Water Utility will communicate the availability of the plan through a newspaper article.

5.1.5.2 Public Informational Meeting

The purpose of a public informational meeting will be to inform residents of the WHPP and provide an opportunity for public education and awareness.

The following will be completed for this management activity:

1. The City of Madison will conduct a public informational meeting as part of a City committee meeting or the Common Council meeting during the review phase of the WHPP.
2. The City of Madison will provide WHPA maps available for public review and an information sheet or brochure available for public use.

5.1.5.3 News Releases

The purposes of news releases are to elevate public awareness, educate the public on the need for WHP, and provide examples of prudent WHP measures. Initially, a news release will inform the public that a WHPP has been developed for Unit Well 18 and will indicate the locations where the WHPP will be available for review.

The following will be completed for this management activity:

1. Madison Water Utility will provide a news release to the local newspaper, at the beginning of the WHP project for Unit Well 18, then annually.

5.1.5.4 Informational Materials Distributed to Residents in WHPA

Informational materials will be prepared and distributed to residents living within the WHPA to educate and inform property owners about various topics such as WHP planning activities and best waste management procedures.

The following will be completed for this management activity:

1. Madison Water Utility will prepare informational materials and/or obtain from the Wisconsin DNR Bureau of Drinking Water and Groundwater, Dane County or UW Extension fliers, brochures, and pamphlets, including:
 - a. Information about hazardous waste collection/disposal program (Clean Sweep) activities
 - b. Materials describing the proper use and application of lawn fertilizers and pesticides
 - c. WHP planning
 - d. Annual Consumer Confidence Report (CCR) containing information about WHP planning.
2. Madison Water Utility will add WHP planning information to their website homepage (<http://www.madisonwater.org> or <http://www.cityofmadison.com/water/>).

5.1.5.5 Land Use and Contaminant Source Awareness

During the CSI, properties were identified with land uses and existing or potential contaminant sources that pose, or may pose, a threat to groundwater. To increase awareness and minimize risk to groundwater and Unit Well 18, it is important to inform property owners about existing and potential contaminant sources on their properties. An initial mailing will be made at the beginning of the WHP program. In this mailing, property owners will be advised to contact the City if they have questions or require additional information.

The following will be completed for this management activity:

1. Madison Water Utility will provide information to owners of property with existing or potential contaminant sources located within the WHPA to emphasize the importance of awareness of the WHPA, the owner's location with respect to the WHPA, and potential contaminant source(s) of concern. Specific information to be provided includes:
 - a. LUSTs and ASTs
 - b. Materials describing the proper use and application of lawn fertilizers and pesticides

5.1.5.6 School Programs

The City of Madison will participate in school education programs. The following will be completed for this management activity:

1. Madison Water Utility will inform schools about the availability of tours at water supply facilities. During tours, students will be exposed to important concepts related to groundwater and WHP.

2. Madison Water Utility will prepare a water/groundwater fact sheet for school education programs.

5.2 WATER CONSERVATION PROGRAM

The Madison Water Utility has an existing water conservation program that includes addressing the needs for both water accountability in the distribution system and water conservation by the public.

During 2006, the Utility maintained water accountability in the distribution system of 94 percent. The Utility maintains this high level of water accountability by regularly servicing water meters, reviewing water accountability records, and conducting water leak detection surveys when needed.

The Utility currently has brochures available, free to the public, describing useful water conservation measures. The brochures are also distributed to the public and discussed in speaking engagements with local organizations and schools by Water Utility staff.

The Madison Water Utility also has information about water conservation at its website (<http://www.madisonwater.org> or <http://www.cityofmadison.com/water/>). Water conservation information is in Appendix N.

The Utility has the authority to impose water use restrictions when necessary.

5.3 CONTINGENCY PLAN

The Utility has formulated a contingency plan for providing water in the event that Unit Well 18 or one or more of the City's other water supply wells became contaminated or removed from service. The plan primarily relies on the capacity of the system without the capacity of any given well or wells to meet the supply needs of the City of Madison.

The City's water system was designed to supply the maximum water demand for an indefinite period with the largest well out of service. As a result, if Unit Well 18, or any other supply well of the water system, is out of service for a short period of time, the reliable water supply capacity is sufficient to meet demands. Unit Well 18 provides reliable supply to the water system and fire protection for the southern part of the City, specifically the south side neighborhoods in the South Park Street-Fish Hatchery Road corridor, and to the Vilas, Greenbush, and Bay Creek neighborhoods (Madison Water Utility, 2007). In the event of the loss of Well 18, other wells in Zone 6, such as Wells 27 and 30, could be used to serve the area.

Additionally, the City's wells and wellfields are widely spaced and generally have different recharge areas, thereby making them less vulnerable to potential localized contamination. Unit Well 18 has a standby, portable diesel generator that can power the pump in the event of a power failure. Several other supply well pumping stations are equipped with standby generators or power plugs for connecting portable generators.

The contingency plan also relies on communication with first responders and a plan of action in the event of a water system emergency. Dane County Emergency Management Office will be

requested to notify the Water Utility if there is an occurrence in the vicinity of the Unit Well 18 WHPA.

A list of emergency contact numbers was compiled to provide Utility staff immediate access to the appropriate agencies in the event of an emergency. This list is provided in Table 5-2.

5.4 MANAGEMENT PLAN

A management plan was formulated to help protect the Unit Well 18 WHPA from existing and potential future sources of contamination. Table 5-1 summarizes major elements of the management plan.

Public education is an important element in the management plan, particularly because the Unit Well 18 ZOCs include property in the City of Madison, Town of Madison, and the City of Fitchburg. Educational activities will provide a mutual benefit to the City of Madison and other property owners located within the WHPA and ZOCs.

The hazardous waste collection/disposal program (Clean Sweep) will also be an important part of the management plan. The program provides a means for residents and businesses in the WHPA and throughout the area to properly dispose of hazardous chemicals. Residents and producers of agricultural crops and commodities can dispose of hazardous materials and wastes free of charge. Small quantities of commercial wastes from small businesses can be disposed of for a nominal fee. The City will promote the Clean Sweep programs using the public education activities summarized in this plan.

Local governmental agencies (city, township, and county) recognize the need for planning to protect WHPAs. Intergovernmental cooperation is an important part of the plan as agencies work together to consider the needs for WHP during planning and permitting processes. The City will provide Dane County, the Town of Madison, and the City of Fitchburg with a copy of the WHP and maps showing the Unit Well 18 WHPA, the separation distances required between municipal water supply wells and potential contamination sources (Wisconsin Administrative Code, Chapter NR 811.16(4)(d)), and a list of potential contamination sources that can threaten groundwater. The City will encourage county, and other city and village, boards to help protect the WHPA, ZOCs, and upgradient recharge areas when evaluating proposed development.

The City of Madison has a WHP ordinance and overlay zoning district. The WHP ordinance helps ensure that new potential contamination sources located within the City of Madison are not located in the Unit Well 18 WHPA.

**TABLE 5-2
EMERGENCY CONTACT NUMBERS
WELLHEAD PROTECTION PLAN, UNIT WELL 18
MADISON, WISCONSIN**

Emergency Contact	Name	Phone No.
Water Utility Emergency Service	On-call	Office: 608-266-4665
Interim Water Utility Manager	Larry Nelson	Office: 608-266-4651
Principal Engineer	Alan Larson	Office: 608-266-4653
Civil Engineer	Dennis Cawley	Office: 608-261-9243
Police Department	Emergency Dispatch Non-Emergency	911 608-255-2345
Fire Department	Emergency Dispatch Administration	911 608-266-4420
Dane County Emergency Response	On-Call	911
Dane County Emergency Management Office	Hazardous Materials Planning Office (General)	608-266-4330
Dane County Environmental Health	Office	608-242-6515
Local – DNR Water Supply Contact Person	Tom Stunkard Fitchburg	608-275-3300
Central Office – DNR Water Supply	Norman Hahn Madison	608-267-7661
Well Driller	Municipal Well & Pump Tracy Greenfield	Office: 920-324-3400 Cellular: 262-424-2328
Well Driller	Layne Northwest Jeff Gibson	Office: 262-246-4646 After Hours: 262-246-4646
Pump Installer	Municipal Well & Pump Tracy Greenfield	Office: 920-324-3400 Cellular: 262-424-2328
Pump Installer	Layne Northwest Jeff Gibson	Office: 262-246-4646 After Hours: 262-246-4646
City of Fitchburg, Mayor	Thomas Clauder	608-276-9107
City of Fitchburg, Administrator	Tony Roach	608-270-4209
Town of Madison	Business Manager	608-210-7260
State Patrol	Emergency Administration	911 608-266-3212
Hazardous Material Response Team Wisconsin Division of Emergency Mgt.	DNR - Leroy Conner	1-800-943-0003 (Menu)
Electric Utility	Madison Gas & Electric Emergency Service	608-252-1111