



# Wellhead Protection Plan Unit Well – 07

City of Madison, Wisconsin

Madison Water Utility  
119 East Olin Avenue  
Madison, Wisconsin 53713

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## LIST OF ACRONYMS

### Acronym

AST	Above Ground Storage Tank
BRRTS	Bureau for Remediation and Redevelopment Tracking System
CCR	Customer Confidence Report
CSI	Contaminant Source Inventory
DCRPC	Dane County Regional Planning Commission
DNR	Department of Natural Resources
EPA	Environmental Protection Agency
IOC	Inorganic Compound
LUST	Leaking Underground Storage Tank
MGD	Million Gallons per Day
MMSD	Madison Metropolitan Sewerage District
MSL	Mean Sea Level
PHMDC	Public Health Madison and Dane County
UST	Underground Storage Tank
USGS	United States Geological Survey
SOC	Synthetic Organic Compound
TOT	Time of Travel
VOC	Volatile Organic Compound
WHPP	Well Head Protection Plan
WHPA	Well Head Protection Area
WHP	Well Head Protection
WGNHS	Wisconsin Geological and Natural History Survey
ZOC	Zone of Capture
ZOI	Zone of Influence



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## EXECUTIVE SUMMARY

This report is a Wellhead Protection Plan (WHPP) for the Madison Water Utility Unit Well 07. The primary purposes of this WHPP are to define the wellhead protection area (WHPA) for Unit Well 07 and establish specific criteria for protection of Unit Well 07 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 07 to conform to the requirements of the Wisconsin Administrative Code, Chapter NR 811, Section 12(6), for WHP planning.

Unit Well 07 is located at 1613 N. Sherman Ave in the northeastern part of the City of Madison. Construction of Unit Well 07 was completed in 1939. Well 07 is 737 feet deep. Unit Well 07 is cased through the upper bedrock aquifer to a depth of 238 feet and is open to the lower bedrock (sandstone) aquifer. Unit Well 07 has a design capacity of 2,200 gallons per minute (gpm). Currently, Unit Well 07 is used year-round; however, prior to the abandonment of Unit Well 03 in 2008, Unit Well 07 was operated seasonally between May and November. A complete reconstruction of the well house is scheduled for 2014 during which an iron and manganese filtration plant and larger reservoir will be installed.

Surrounding land uses are residential and institutional with areas of commercial land located approximately 800 feet north and south of the well site. There are several areas of industrial land located approximately 1,000 feet to the south and southeast of Unit Well 07. The boundary of the Village of Maple Bluff is located approximately 1,300 feet southwest of Unit Well 07.

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 07. ZOCs extend radially from Unit Well 07, and toward the north in the simulated upgradient groundwater flow direction.

The WHPA for Unit Well 07 is illustrated in Figure 3-5. 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 07 and is entirely contained within Zone A. 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.



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A Contaminant Source Inventory (CSI) was performed for the Unit Well 07 area between October, 2011 and August, 2012. Known potential and existing contaminant sources and routes within the Unit Well 07 WHPA include sanitary sewers; storm sewers; spill sites; potential spills along roads; active and closed aboveground storage tank (AST) sites; active and closed underground storage tank (UST) sites; closed leaking underground storage tank (LUST) and/or Environmental Repair Program (ERP) sites; gas stations; drycleaners; road salt use; stormwater drainage ways; sites with general environmental interest; and the probable use of pesticide, herbicide, and nutrients on parks, commercial and residential lawns and gardens.

Programs and activities to be used by the Madison Water Utility and others for WHPA management at Unit Well 07 are grouped into five principal categories as follows:

1. Existing Programs
  - a. Hazardous Waste Collection/Disposal (Clean Sweep) Program
  - b. Privately Owned Wastewater Treatment Systems (POWTS) maintenance
  - c. Well construction and 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 07.



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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 07, or one or more of the City's other water supply wells became contaminated or removed from service. Unit Well 07 supplies water to Pressure Zone 6, the main pressure zone. Other wells in the main pressure zone can serve the area in the event Unit Well 07 is out of service.

The City of Madison has a WHP ordinance and overlay zoning district. The WHP ordinance helps ensure that new contaminant sources will not be located in the Unit Well 07 WHPA or other WHPAs in the City of Madison.

## 1.0 INTRODUCTION AND BACKGROUND

### 1.1 INTRODUCTION

This report is a Wellhead Protection Plan (WHPP) for Madison Water Utility Unit Well 07. The primary purposes of this WHPP are to define the Wellhead Protection Area (WHPA) for Unit Well 07 and establish specific criteria for protecting Unit Well 07 and groundwater resources in the WHPA including management activities 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 07 to conform to the requirements of the Wisconsin Administrative Code, Chapter NR 811, Section 12(6), 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 operations of Unit Well 07.
3. Coordinate with the Wisconsin Geological and Natural History Survey (WGNHS) to delineate 5-, 50- and 100-year time of travel (TOT) capture zones for Unit Well 07.
4. Perform a Contaminant Source Inventory (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 07.
5. Assist with the determination of a WHPA for Unit Well 07.
6. Assist with the development of WHP management activities.

### 1.2 LOCATION AND BACKGROUND

Unit Well 07 is located at 1613 N Sherman Ave in the northeastern part of the City of Madison. The site is in the NW¼ of the NW¼, of Section 31, Township 8 North, Range 10 East, Dane County, Wisconsin. The location of Unit Well 07 and other water system facilities in the City of Madison are illustrated in Figure 1-1. The legal description, site map and subdivision survey plat showing the well site are in Appendix B. Construction of Unit Well 07 was completed in 1939.

The City water system serves approximately 235,000 people and consists of 22 active wells, 29 booster pumping facilities, 25 ground storage reservoirs, 5 elevated water storage tanks, and approximately



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840 miles of water transmission and distribution mains. Because of the varying topography in the Madison area, the water system is divided into 10 separate pressure zones. Unit Well 07 supplies water to a 135,000 gallon reservoir on-site, which provides water via one booster pump to Pressure Zone 6, the main pressure zone in the City of Madison. Complete reconstruction of the well house, scheduled for 2014, will replace the existing reservoir with a 400,000 gallon reservoir, add an iron and manganese filter, and add a second booster pump for redundancy. Unit Well 07 primarily serves the Village of Maple Bluff, Sherman Ave neighborhoods south of Almo Ave/Sheridan St & west of Packers Ave, and also areas south to the Yahara River. Unit Well 07 is located approximately 2.1 miles south-southeast of Unit Well 13 and 2.3 miles west of Unit Well 15.

### **1.3 UNIT WELL 07**

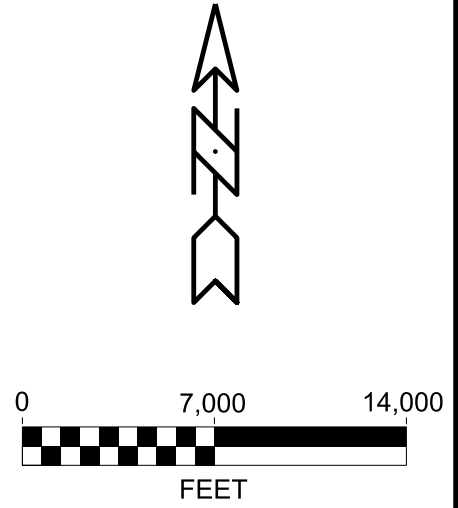
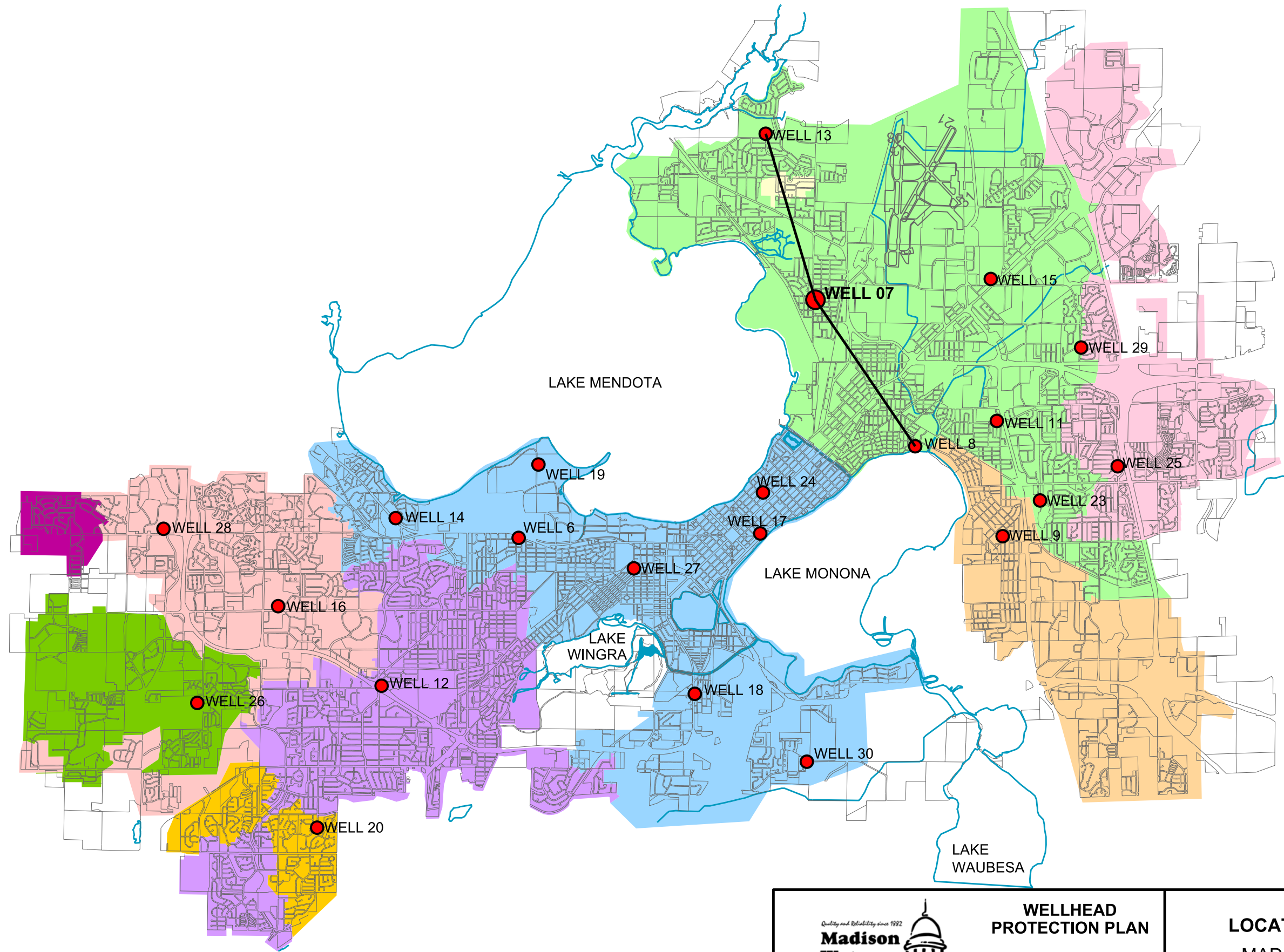
Unit Well 07 was drilled to a depth of 737 feet. Well 07 is cased with 18-inch diameter steel casing pipe to a depth of 238 feet and is open to the lower bedrock (sandstone) aquifer. Below the casing the well hole is 16-inch diameter.

The cased interval of the well passes through approximately 30 feet of clay and till before encountering sandstone rock. A shale layer was encountered in the Eau Claire Formation from the depth of 215 to 225 feet, which is within the cased interval of the well. Sandstone was encountered in the base of the well.

Unit Well 07 was initially test pumped for 44-min at a rate of 1,610 gpm and had a specific capacity of 23.9 gallons per minute per foot (gpm/ft) of drawdown. At the time of the test pumping, the static (non-pumping) water level in Unit Well 07 was 68.5 feet below ground. In 2012, the static water level in Unit Well 07 was 55 feet below the measuring point at the wellhead. A construction report and formation log prepared by the WGNHS is in Appendix C.

Unit Well 07 has a design capacity of 2,200 gallons per minute (gpm) from a 200 horsepower deepwell pump. Unit Well 07 is used year-round. Prior to the abandonment of Unit Well 03 in 2008, Unit Well 07 was operated seasonally between May and November.

Water from Unit Well 07 contains elevated levels of iron and manganese which can lead to discolored water in the distribution system. Upon completion of a comprehensive East-Madison water supply/quality planning study, it was recommended that iron and manganese filters be added at Unit Well 07. Design of the facility is complete and construction is scheduled for 2014.



**LEGEND**

**BASE MAPPING:**

- UNIT WELL
- UNIT WELL 07

A ——— A'

LINE OF CROSS-SECTION  
(SEE FIGURE 2-1)

**PRESSURE ZONES:**

- ZONE 3
- ZONE 4
- ZONE 5
- ZONE 6E
- ZONE 6W
- ZONE 7
- ZONE 8
- ZONE 9
- ZONE 10
- ZONE 11

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**WELLHEAD PROTECTION PLAN**

**UNIT WELL 07**

**FIGURE 1-1**  
**LOCATION OF UNIT WELL 07**  
**MADISON WATER UTILITY**  
**MADISON, WI**

## 2.0 HYDROGEOLOGIC CONDITIONS

### 2.1 LAND USE, TOPOGRAPHY, AND DRAINAGE

Unit Well 07 is located near the crest of a gently-sloping north-south trending hill. Surrounding land uses are residential and institutional with areas of commercial land located approximately 800 feet north and south of the well site. There are several areas of industrial land located approximately 1,000 feet to the south and southeast of Unit Well 07. Current zoning at the Unit Well 07 site is TR-C4 WP-07 Traditional Residential – Consistent District 4 (within Wellhead Protection Area 07). A City of Madison Zoning map and Land Use map for the Unit Well 07 area is in Appendix D.

Unit Well 07 is located on a clayey till covered surface. The land surrounding Unit Well 07 is gently sloping and is described as smooth, streamlined topography (Clayton and Attig, 1997). A northeast-southwest trending drumlin with approximately 20 feet of relief is located approximately 1,000 feet east-southeast of Unit Well 07. The ground surface elevation at Unit Well 07 is approximately 890 feet above mean sea level (MSL). Surface elevations within a ½-mile radius of Unit Well 07 range from approximately 910 feet above MSL on a hill located ½ mile west of Unit Well 07, to about 850 feet above MSL at locations ½ mile north-northwest and 2,000 feet south of Unit Well 07. Drainage from the Unit Well 07 site is toward the north and south.

### 2.2 GEOLOGY

The area was glaciated by the Green Bay Lobe during the last part of the Wisconsin Glaciation (Clayton and Attig, 1997). The rocks and unlithified deposits in the area range from Precambrian basement rocks to recent soils. The bedrock from oldest to youngest includes Precambrian granite and Cambrian age sandstone, siltstone, dolomite, and shale.

A geological cross-section through Unit Wells 13 and 07 and 08 is illustrated on Figure 2-1. A formation log for strata encountered at Unit Well 07 is in Appendix C. The stratigraphic sequence encountered in the wells is briefly described in the following.

#### 2.2.1 Precambrian Basement Bedrock

Precambrian bedrock was encountered in Unit Well 07 at a depth of 725 feet below ground surface and was penetrated to a depth of 737 feet. The Precambrian bedrock encountered in Unit Well 07 is described as decomposed red granite (Wisconsin Geological and Natural History Survey (WGNHS) Well

Log DN-53). Decomposed red granite was also encountered at a depth of 730 feet in a well owned by Oscar Mayer and located approximately 4,300 feet southeast of Unit Well 07.

### **2.2.2 Cambrian Bedrock**

Cambrian age rocks encountered in Unit Well 07 include, in ascending order, Mount Simon Formation, Eau Claire Formation, Wonewoc Formation, and the Tunnel City Group.

Cambrian age rocks are relatively flat lying in the Madison area in the east-west direction and dip slightly toward the south. The cross-section shows a gentle dip away from Unit Well 07 to the north towards Unit Well 13 and also to the south towards Unit Well 08. The thicknesses of deep rock units are relatively consistent in the Madison area.

A shale layer approximately 10 feet thick at Unit Well 07 occurs in the Eau Claire Formation over the depth interval of 215 to 225 feet. The shale layer is absent in the subsurface at locations 2,500 feet south and 3,500 feet east of Unit Well 07, where the preglacial bedrock surface was eroded with incised valleys. These valleys were filled with unlithified material and are called buried bedrock valleys. The location of a buried bedrock valley, located south of Unit Well 07, is illustrated on Figure 2-1. The lateral extent of the Eau Claire shale unit in the vicinity of Unit Well 07 is illustrated on Figure 2-2.

The Wonewoc Formation and Tunnel City Group strata overly the Eau Claire Shale in the Madison area and at Unit Well 07, but are absent in the buried bedrock valley areas east and south of Unit Well 07. The uppermost bedrock unit in the vicinity of Unit Well 07 is the Tunnel City Group, which consists of dolomitic sandstone. The thickness of the Tunnel City Group strata varies greatly across the area because it is the upper erosional surface. Shale layers were not encountered in Unit Well 07 in the Tunnel City Group strata.

### **2.2.3 Unlithified Deposits**

Bedrock is mantled by unlithified glacial till deposits. Clayton and Attig (1997) classify the local near surface unlithified deposits in the immediate vicinity of Unit Well 07 as part of the Horicon Member of the Holy Hill Formation. The near surface unlithified formation at Unit Well 07 consists of clay and sandy clay and is classified as uniform subglacial till (Clayton and Attig (1997).

At Unit Well 07, the formation from the top of the dolomite bedrock (encountered at a depth of 30 feet) to the ground surface is described as yellow-gray sandy till with brown clay comprising the upper 5 feet. The soil at the Unit Well 07 is classified as Dodge silt loam (2 to 6 percent slopes). Salter sandy loam



(2 to 6 percent slopes) occurs in the elevated areas northeast and southeast of Unit Well 07. McHenry silt loam (6 to 12 percent slopes) occurs on the hills west of Unit Well 07. The soils are deep, and well-drained. The upper loam portions of the soils (Dodge silt loam and McHenry silt loam) surrounding Unit Well 07 have permeabilities of 0.63 to 2 inches per hour (USDA, 1978). The Salter sandy loam has permeabilities ranging from 2 to 6.3 inches per hour (USDA, 1978). The Dodge silt loam and the McHenry silt loam soils have good contaminant attenuation potential (DCRPC, 1999). The Salter sandy loam has poor contaminant attenuation potential (DCRPC, 1999). The DCRPC assigned a risk classification of moderate from surface activities in the Unit Well 07 area on the basis of several factors including soil properties. The Unit Well 07 area groundwater contamination from subsurface activities was assigned a high risk classification with isolated areas of extreme risk to the east and west of the well (DCRPC, 1999).

## **2.3 HYDROGEOLOGY**

In the study area, groundwater occurs within the lower bedrock aquifer and the upper bedrock aquifer. In the Unit Well 07 area the un lithified formation is not saturated. The upper portion of the bedrock aquifer is used for relatively low to moderate yield (10 to 50 gpm) private wells. Municipal and 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. 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 that is open to Unit Well 07 (non-plugged portion) is 487 feet. The hydraulic conductivity of the lower bedrock aquifer is approximately 10 feet per day (ft/day) (Krohelski et. al., 2000). Unit Well 07 is cased and grouted to a depth of 238 feet, which is 13 feet below the Eau Claire shale confining layer; therefore, Unit Well 07 is open only to the lower bedrock aquifer.

Water levels measured in Unit Well 07 are representative of the lower bedrock aquifer. It has been assumed that the Eau Claire shale confining layer is tight and inhibits hydraulic connection between the lower and upper bedrock units at Unit Well 07; however, recent research by Gellasch et al. (2013) suggests that fractures may promote movement across this aquitard. In 2012, the static water level in Unit Well 07 was 55 feet below the measuring point at the wellhead (approximately 890 feet MSL) resulting in a potentiometric surface elevation of 835 feet above MSL. The potentiometric surface elevation at the Unit Well 07 site illustrated on Figure E-1 in Appendix E is approximately 830 feet above

MSL. Figure E-1 illustrates the simulated potentiometric surface in the lower bedrock (Mount Simon) aquifer and shows the groundwater flow direction toward Unit Well 07 is from the northeast, north and northwest (DCRPC, 2004). 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).

### **2.3.2 Upper Bedrock Aquifer**

At Unit Well 07 and vicinity the upper bedrock aquifer occurs above the Eau Claire Formation 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 07, the thickness of the bedrock formation above the shale confining layer is 185 feet. The saturated thickness of the upper bedrock aquifer was approximately 172 feet at the time of construction. Figure F-1 (DCRPC, 2004) in Appendix F illustrates the simulated potentiometric (water table) surface in the upper bedrock aquifer and unlithified (sand and gravel) aquifer. The elevation of the simulated potentiometric surface in the upper bedrock aquifer (water table) at Unit Well 07 in 2000 was less than 860 feet above MSL as illustrated in Figure F-1.

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 Unlithified Aquifer**

The unlithified formation in the immediate vicinity of Well 07 area is not saturated and does not form an 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/ 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 upper bedrock aquifer.

Figure E-2 in Appendix E illustrates the location of Unit Well 07 and areas of recharge to and discharge from the lower bedrock (Mount Simon) aquifer (Bradbury et. al, 1999; DCRPC 1999). Unit Well 07 is



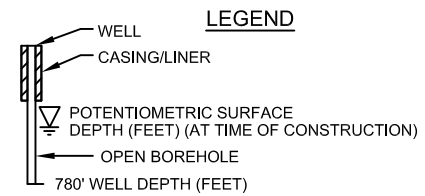
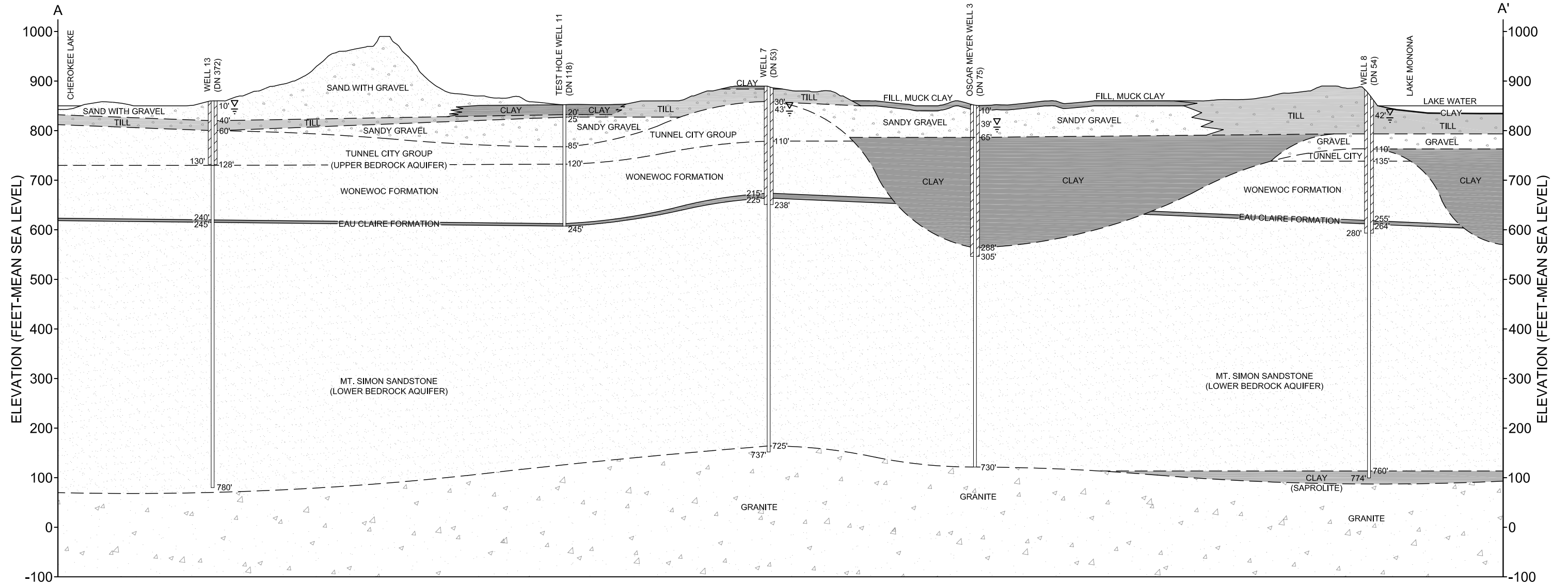
March 2014

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located in a recharge area. The groundwater in the upper bedrock aquifer is at a higher elevation than the groundwater in the lower bedrock aquifer and there is a downward hydraulic gradient between the two aquifers. The downward hydraulic gradient causes some groundwater to move downward from the upper bedrock aquifer through the Eau Claire confining layer and into the lower bedrock aquifer. The nearest area of discharge from the unlithified and shallow bedrock aquifers is to pumping wells and/or to surface waters (lakes, streams, and wetlands) located north of Unit Well 07. Discharge from the lower bedrock aquifer is primarily to pumping wells.

NORTH-NORTHWEST

SOUTH-SOUTHEAST



--- = INFERRED CONTACT

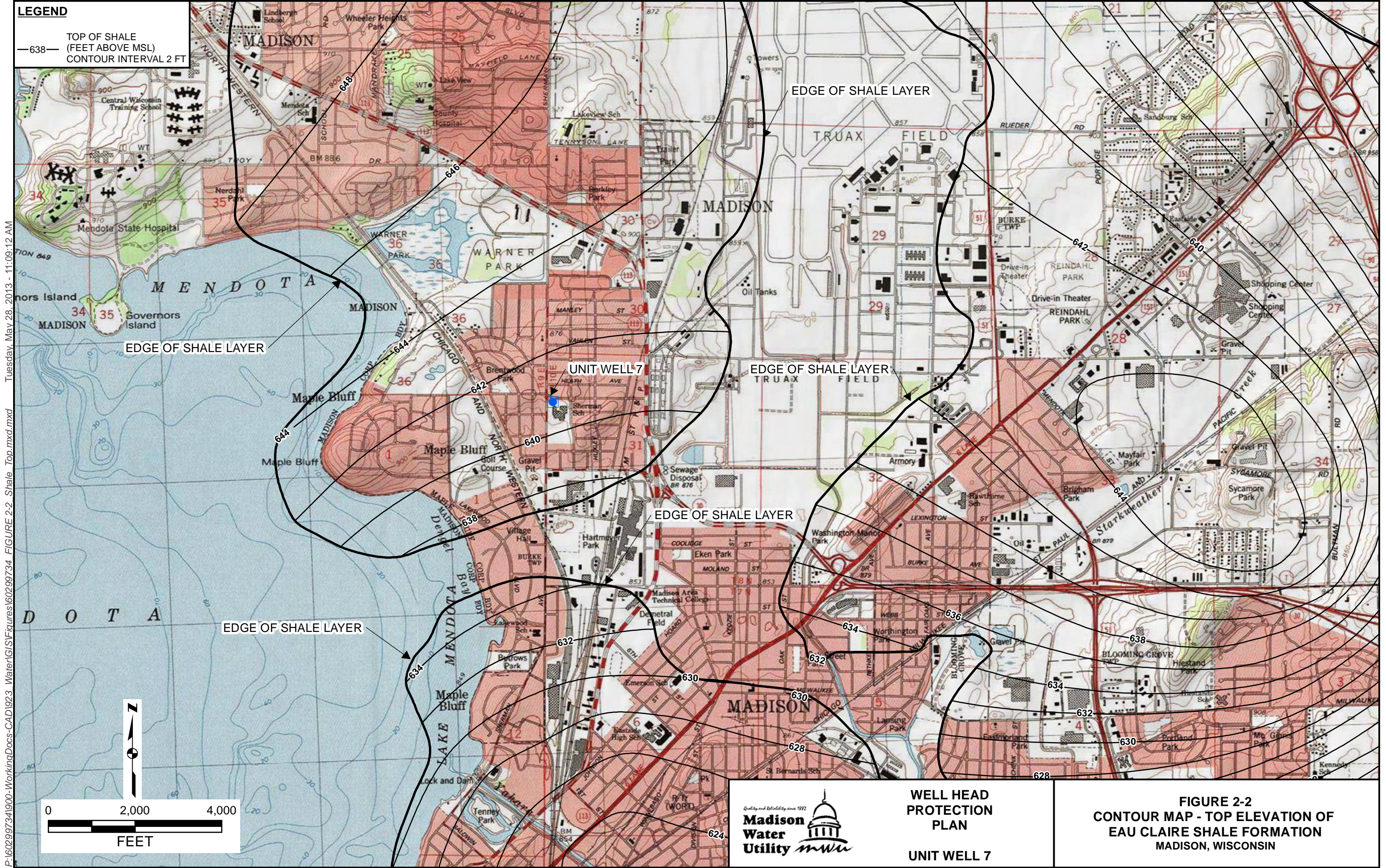
**SCALE**  
 HORIZONTAL: 1"=2,000'  
 VERTICAL: 1"=200'

(SEE FIGURE 1-1 FOR LINE OF CROSS-SECTION A A')



WELLHEAD PROTECTION PLAN  
 UNIT WELL 7

FIGURE 2-1  
 GEOLOGICAL CROSS-SECTION THROUGH  
 MADISON UNIT WELLS 13, 7 and 8  
 MADISON, WISCONSIN



**LEGEND**  
 —638— TOP OF SHALE  
 (FEET ABOVE MSL)  
 CONTOUR INTERVAL 2 FT

EDGE OF SHALE LAYER

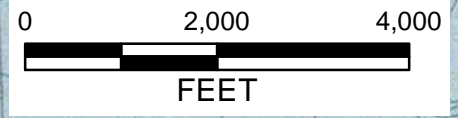
EDGE OF SHALE LAYER

UNIT WELL 7

EDGE OF SHALE LAYER

EDGE OF SHALE LAYER

EDGE OF SHALE LAYER



Quality and Reliability since 1922  
**Madison Water Utility** *mwu*  
**WELL HEAD PROTECTION PLAN**  
 UNIT WELL 7

**FIGURE 2-2**  
**CONTOUR MAP - TOP ELEVATION OF**  
**EAU CLAIRE SHALE FORMATION**  
**MADISON, WISCONSIN**

P:\160299734\1900-WorkingDocs-CAD\1923 Water\GIS\Figures\60299734 FIGURE 2-2\_Shale\_Top.mxd.mxd Tuesday, May 28, 2013 - 11:09:12 AM

### 3.0 WELLHEAD PROTECTION AREA DELINEATION

This chapter describes methodologies used to define the Zone of Influence (ZOI) and Zone of Contribution (ZOC) for Unit Well 07.

#### 3.1 ZONE OF INFLUENCE

The ZOI for Unit Well 07 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 07, to a radius where there is 1 foot of drawdown, is approximately 10.05 miles. The estimated ZOI to a radius of zero drawdown is approximately 25.57 miles. These estimated ZOI are conservatively large, because the Theis equation does not incorporate aquifer recharge or the effects of potential hydraulic boundaries. The calculation assumed that borehole was confined to the lower bedrock aquifer. 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 07. 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 WGNHS, 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. Total City of Madison 2030 pumping is projected to be 44 million gallons per day (MGD) (Bradbury, 1998). For Simulation No. 1, the projected 2030 pumping rate at Unit Well 07 was for an average of 1.24 MGD. Pumping at a rate of 1.24 MGD is equivalent to pumping continuously at a rate of approximately 859 gallons per minute (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 07 is 1.58 MGD. Pumping at a rate of 1.58 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 07 is 3.17 MGD. Pumping at a rate of 3.17 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 07 for the maximum year during the past 14 years (1999-2012). The maximum pumpage year for Unit Well 07 was 1999 when Unit Well 07 was pumped at an average rate of approximately 2.00 MGD. Pumping at a rate of 2.00 MGD is equivalent to pumping continuously at a rate of 1,389 gpm.

PATH3D (Zheng, 1991) was used to determine the time-related ZOCs for Unit Well 07. Particles were input in the model around Unit Well 07 and then tracked backward from the well to points where they enter the groundwater flow system.

### **3.3 ZONE OF CONTRIBUTION**

The area that recharges or contributes water to Unit Well 07 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 07.

Figure 3-1 illustrates the 5-, 50-, and 100-year Time of Travel (TOT) ZOCs for Unit Well 07 based on the projected 2030 pumping rate (Simulation No. 1). Figure 3-2 illustrates the 5-, 50-, and 100-year TOT ZOCs for Unit Well 07 based on the one-half design capacity pumping rate (Simulation No. 2). Figure 3-3

illustrates the 5-, 50-, and 100-year TOT ZOCs for Unit Well 07 based on the full design capacity pumping rate (Simulation No. 3). Figure 3-4 illustrates the 5-, 50-, and 100-year TOT ZOCs for Unit Well 07 based on the average pumping rate for Unit Well 07 for the maximum year (Simulation No. 4).

The capture zones extend radially with slightly further extension toward the north-northeast in the simulated upgradient groundwater flow direction. Table 3-1 provides a summary of the upgradient and downgradient extent of capture zones for the various pumping simulations. The ZOCs delineated with the Simulation No. 3 pumping rates are more conservative and tend to be larger than the ZOCs delineated using the pumping rates in Simulations Nos. 1, 2, and 4.

Figure 2 in Appendix H illustrates ultimate regional ZOCs for Unit Well 07 and for other municipal wells in Dane County. For the ultimate capture zone simulation, groundwater flow pathlines extend upgradient from Unit Well 07 to a groundwater divide located approximately 9 miles northeast of Unit Well 07 and are located entirely within Dane County.

### **3.4 WELLHEAD PROTECTION AREA**

The Wisconsin Administrative Code (Chapter NR 811.12(6)) 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 07. It is possible that Unit Well 07 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 07. Simulation No. 3 was used to generate the long-term capture zones and WHPA for Unit Well 07.

The 5-year TOT ZOC for Unit Well 07 extends up to 1,420 feet northeasterly (upgradient) from the well, and approximately 1,260 feet southwesterly (downgradient) from the well. The 100-year TOT ZOC extends approximately 6,300 feet northeasterly (upgradient) from Unit Well 07 and approximately southwesterly 5,500 feet (downgradient) from the well. The entire 100-year TOT ZOC for Unit Well 07 is too large to be effectively managed to ensure the same level of protection as the area within the 5-year TOT ZOC.

The WHPA for Unit Well 07 is illustrated in Figure 3-5. Two zones of protection are within the WHPA. Zone A is the area around Unit Well 07 that is defined by the 5-year TOT ZOC delineated using Simulation No. 3 (full design capacity pumping rate). Zone B is the area around Unit Well 07, that is defined by a 1,200-foot fixed radius around Unit Well 07. This radius is selected because the Wisconsin



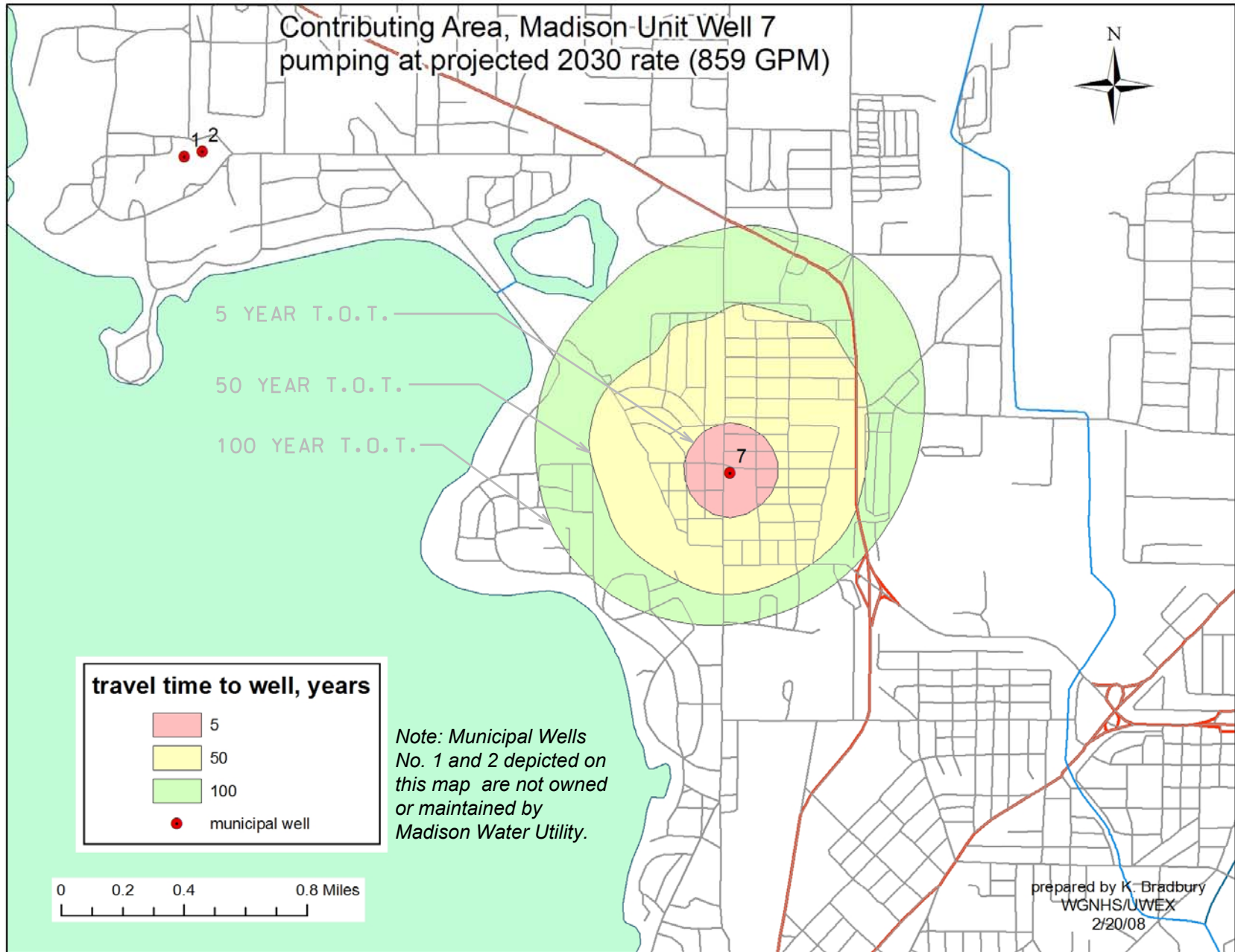


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Administrative Code Chapter NR 811.12(5)(d) requires a 1,200-foot separation distance between a municipal water supply well and certain contamination sources.

As illustrated in Figure 3-5, Zone A extends farther from Unit Well 07 compared to Zone B in all directions. 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; however, the 50-year and 100-year TOT ZOCs extend westward into the Village of Maple Bluff.



T.O.T. - TIME OF TRAVEL  
Z.O.C.s - ZONES OF CONTRIBUTION

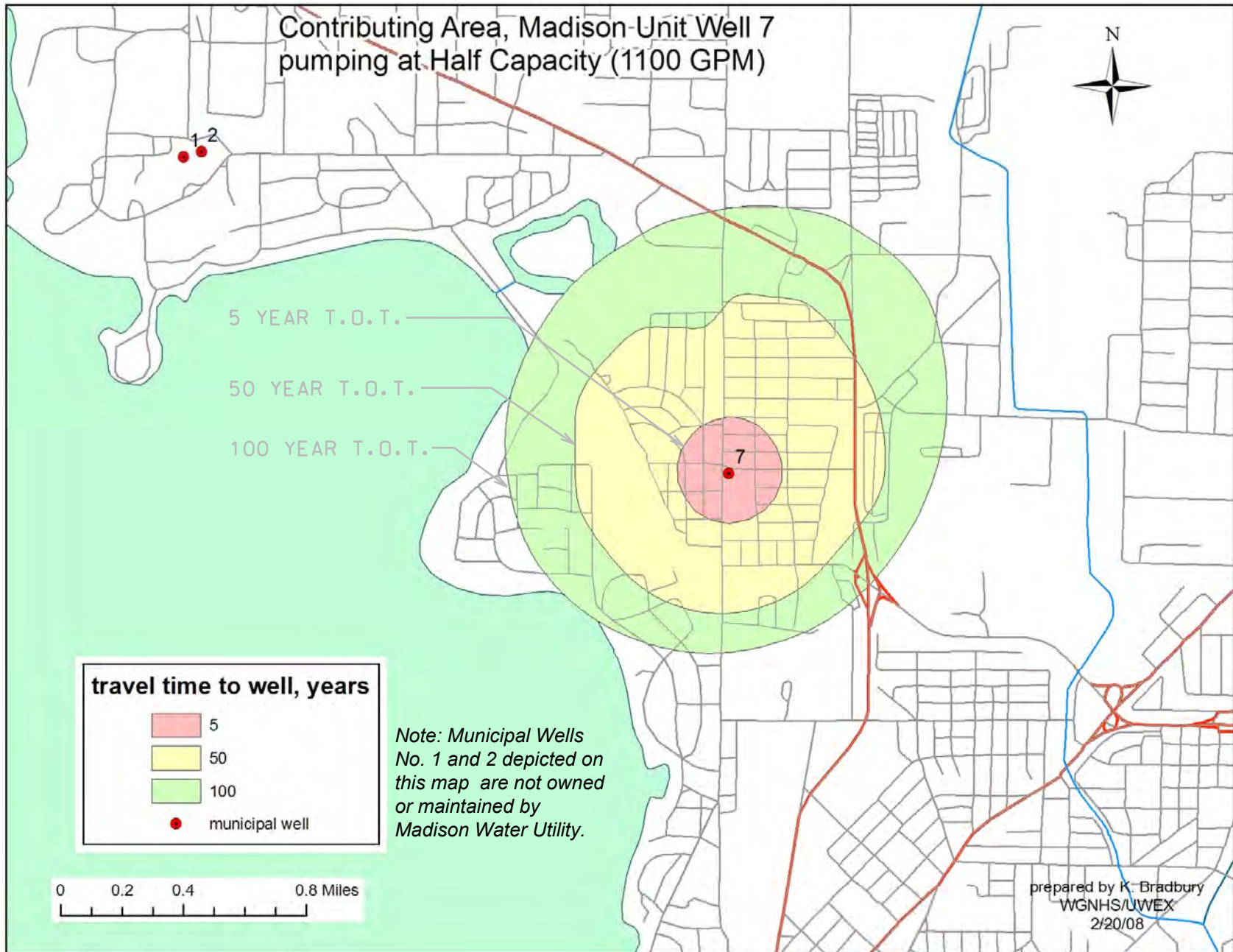


**WELLHEAD  
PROTECTION  
PLAN**

**UNIT WELL 07**

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

**MADISON, WISCONSIN  
JANUARY, 2012**



T.O.T. - TIME OF TRAVEL  
Z.O.C.s - ZONES OF CONTRIBUTION

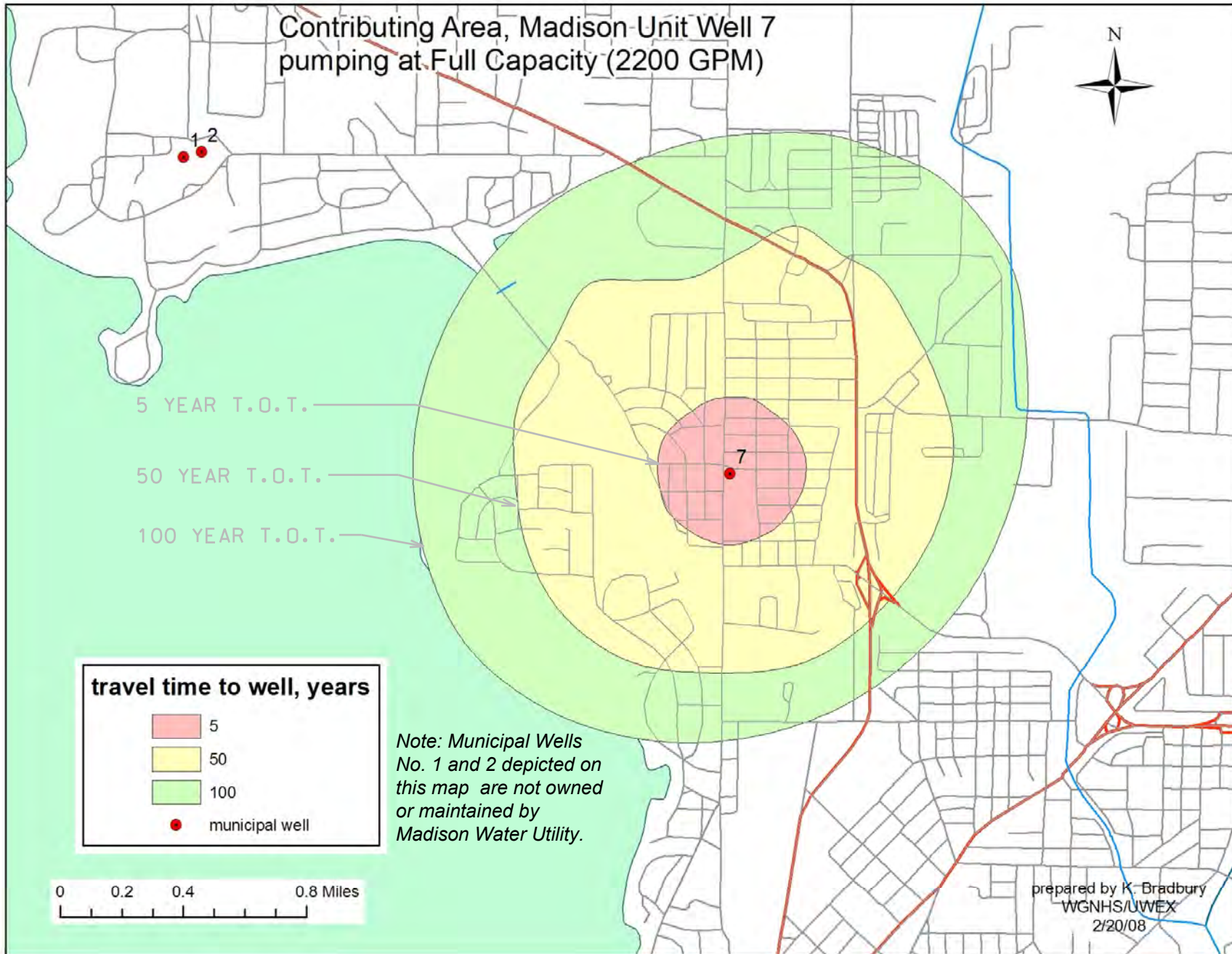


**WELLHEAD  
PROTECTION  
PLAN**

**UNIT WELL 07**

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

**MADISON, WISCONSIN  
JANUARY, 2012**



T.O.T. - TIME OF TRAVEL  
Z.O.C.s - ZONES OF CONTRIBUTION

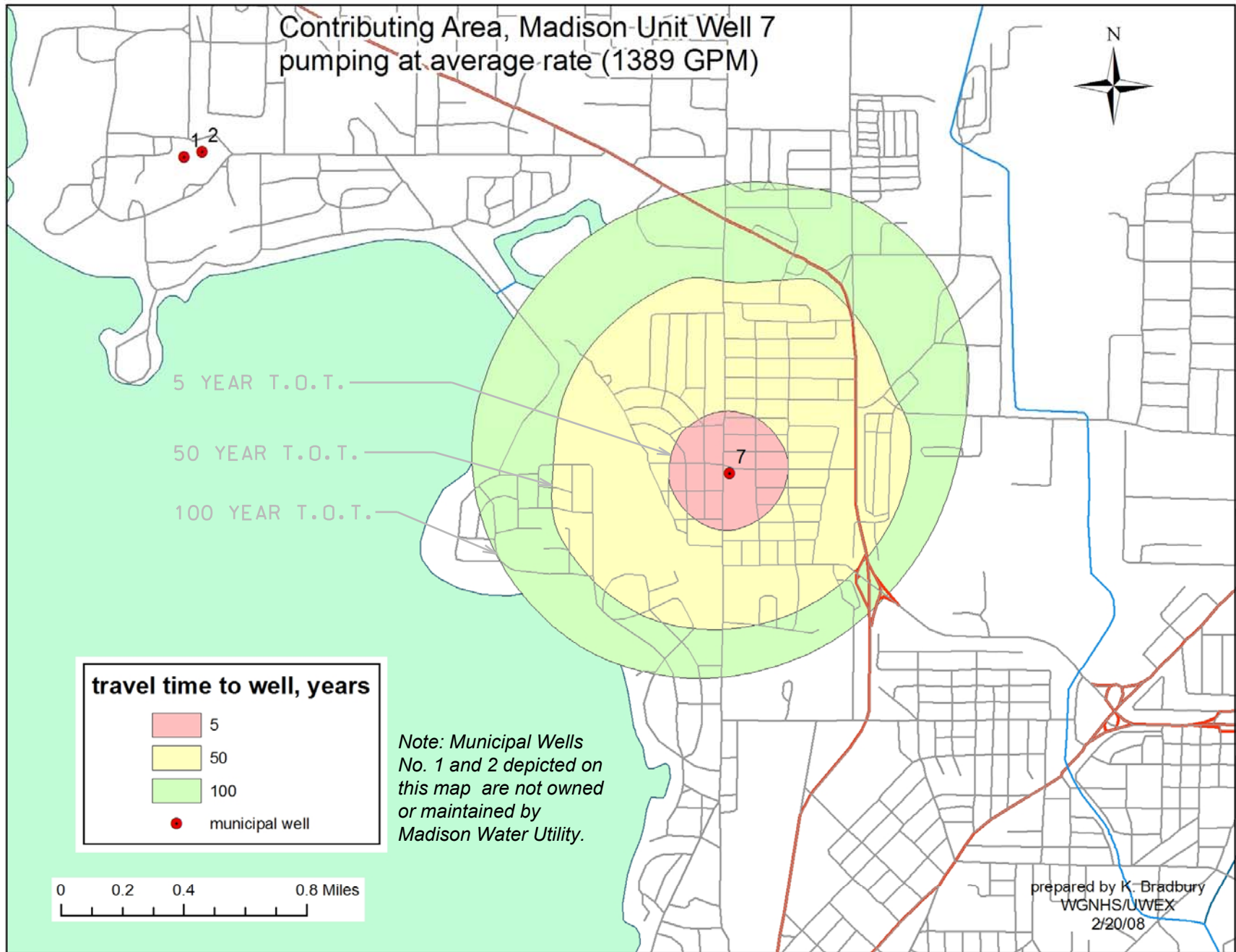


**WELLHEAD  
PROTECTION  
PLAN**

**UNIT WELL 07**

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

MADISON, WISCONSIN  
JANUARY, 2012



T.O.T. - TIME OF TRAVEL  
Z.O.C.s - ZONES OF CONTRIBUTION

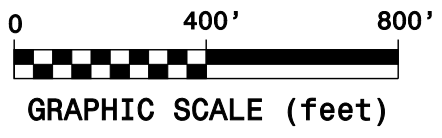
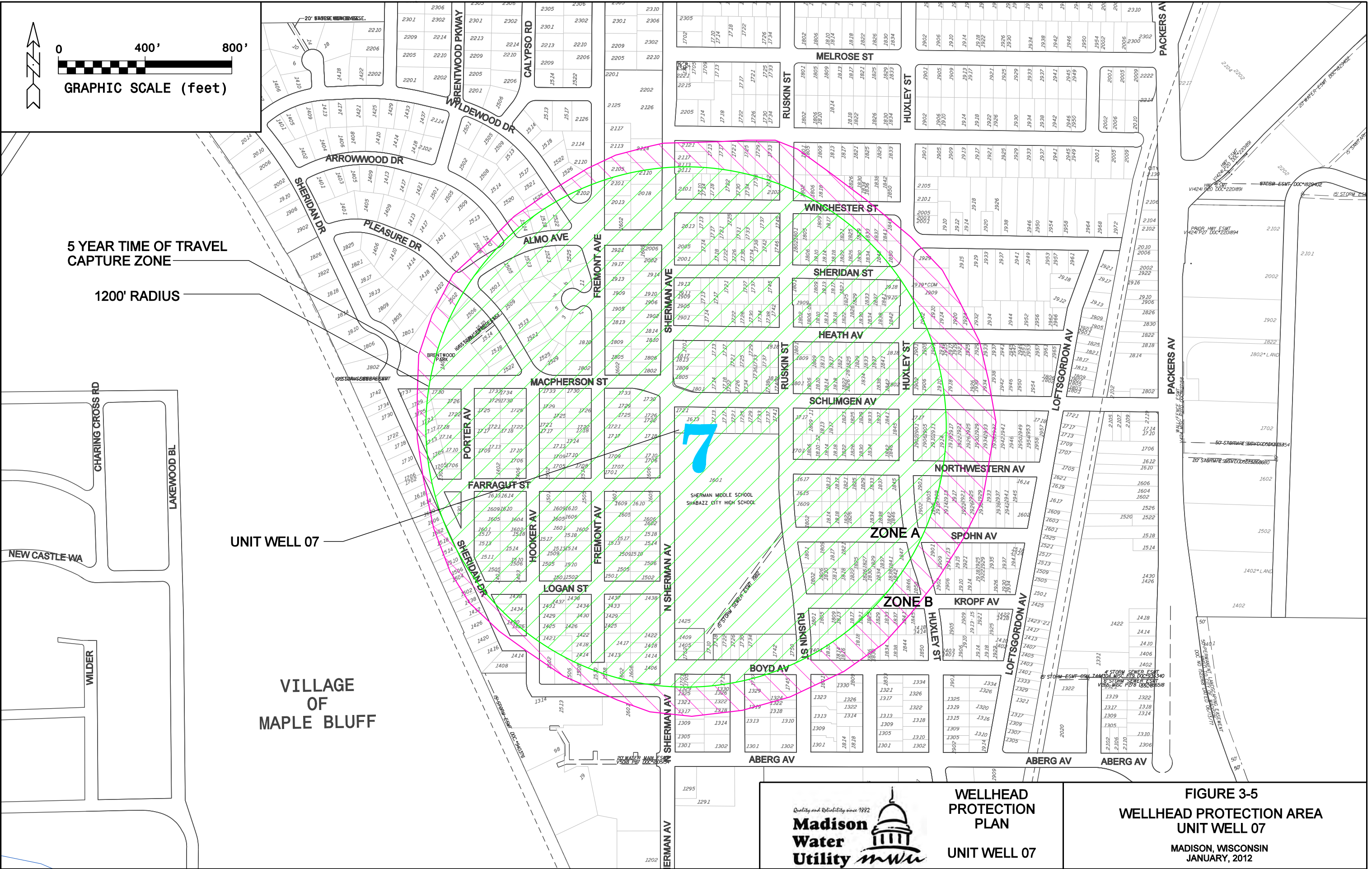


**WELLHEAD  
PROTECTION  
PLAN**

**UNIT WELL 07**

**FIGURE 3-4**  
**5, 50, 100 YEAR T.O.T. Z.O.C.s ASSUMING  
PUMPING AT AVERAGE RATE DURING MAX YEAR**

**MADISON, WISCONSIN  
JANUARY, 2012**



5 YEAR TIME OF TRAVEL  
CAPTURE ZONE

1200' RADIUS

UNIT WELL 07

VILLAGE  
OF  
MAPLE BLUFF



WELLHEAD  
PROTECTION  
PLAN  
UNIT WELL 07

FIGURE 3-5  
WELLHEAD PROTECTION AREA  
UNIT WELL 07  
MADISON, WISCONSIN  
JANUARY, 2012

**TABLE 3-1**  
**SUMMARY OF EXTENT OF ZOCs (CAPTURE ZONE)**  
**WELLHEAD PROTECTION UNIT WELL 7**  
**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) / (GPM)	1.24 MGD 859 GPM	1.58 MGD 1,100 GPM	3.17 MGD 2,200 GPM	2.00 MGD 1,389 GPM
<b>Upgradient Extent of ZOC (feet)</b>				
5-Year TOT	845	1,100	1,420	1,100
50-Year TOT	2,690	3,270	4,540	3,850
100-Year TOT	4,480	4,900	6,300	5,540

Notes:

MGD = Million Gallons per Day

ZOC = Zone of Contribution

TOT = Time of Travel

## 4.0 POTENTIAL CONTAMINANT SOURCES

### 4.1 CONTAMINANT SOURCE INVENTORY

A Contaminant Source Inventory (CSI) was performed for the Unit Well 07 area between October, 2011 and August, 2012. The CSI consisted of a search of government records, database results, maps and a reconnaissance survey of the area within a ½-mile radius and the recharge area equivalent to the delineated 100-year TOT ZOC for Unit Well 07. General land use observations and site reconnaissance were made in November and December, 2011.

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 ZOC for Unit Well 07 are illustrated in Figure 4-1. Table 4-1 presents a summary of potential contaminant sources that were observed and/or reported to be within the WHPA and review area. The WHPA is the protected and actively managed portion of the recharge area while the 100-year ZOC is the most expansive portion of the study area.

Potential, existing, and former contaminant sources and routes identified within the WHPA and ZOCs for Unit Well 07 include, but are not limited to, the following:

- Documented spill sites
- Sanitary and storm sewer systems
- Active or closed underground storage tanks (UST)
- Leaking underground storage tanks (LUST)
- Sites identified in the Wisconsin Environmental Repair Program database (ERP)
- Dry cleaners
- Automotive repair and body work facilities
- Animal hospitals
- Road salt use
- Potential spills along major roadways or rail corridors
- Sites with general environmental interest (referenced in environmental lists/databases)
- Vehicle and large truck storage lots
- Scrap/junk storage piles
- Probable use of pesticide, herbicide, and nutrients on parks, golf courses, 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 07 and within the recharge area equivalent to the delineated 100-year TOT of Unit Well 07:

#### **4.1.1 Sewers**

Sanitary and storm sewers are located within the Unit Well 07 WHPA as well as throughout the entire Unit Well 07 recharge area. The nearest storm sewer is located 100 feet north of Unit Well 07. The nearest sanitary sewer main is located 55 feet west of Unit Well 07.

#### **4.1.2 Private Water Wells**

Water wells are potential pathways to groundwater. A poorly constructed or degraded well may allow contaminants to enter groundwater or to move from one aquifer into another. Madison Water Utility manages the inspection, permitting and documentation of all private wells within the City of Madison. Ongoing efforts are underway to identify, locate, document and abandon all unpermitted, improperly abandoned or inactive private wells in the City of Madison to help protect the groundwater, the source of Madison drinking water.

In 2011, Madison Water Utility staff began surveillance activity in the Unit Well 07 WHPA to identify any unused or improperly abandoned private wells. This activity also involved providing financial assistance to property owners through the City of Madison's Private Well Abandonment & Reimbursement Program. Madison Water Utility initially identified all addresses of known permitted-active or previously abandoned wells in the WHPA. Well records were reviewed from available databases – DNR, WGNHS, Dane County and Madison Water Utility. Additionally, all properties in the WHPA were inspected in-person, on-site and inside the home if a private well was suspected (i.e. home was constructed before water main installed).

In the Unit Well 07 WHPA, Madison Water Utility identified for surveillance approximately 560 properties. Of those, 311 properties were to have inside property inspections. As of March 2014, 545 surveys had been completed including 206 internal inspections. Madison Water Utility found 16 previously abandoned wells and 27 improperly abandoned private wells. All but one of the previously improperly abandoned wells has now been properly filled and sealed by a licensed well driller. A detailed summary of the surveillance activities and list of the address locations of abandoned private wells in the Unit Well 07 WHPA can be found in Appendix L.

Additionally, the WGNHS private well database, Dane County private well list, and the Madison Water Utility private well list were reviewed to identify active private wells located in the vicinity of Unit Well 07.

Three active wells are permitted and tested regularly. Two of the three active private wells are located within the Unit Well 07 WHPA. They are located at 1602 and 1729 Sheridan Dr. The third well is located at 2398 Sheridan Dr, within the 50-year TOT ZOC for Well 07. No other active private wells were observed at properties located in the City of Madison in the Unit Well 07 area during the WHPP site reconnaissance survey.

#### **4.1.3 Private Sewage Disposals**

There are no private sewage disposal systems in the Unit Well 07 WHPA. The nearest private sewage disposal systems are located approximately 2.5 to 3.0 miles north and northeast of Unit Well 07, which are beyond the 100-year TOT ZOC for Well 07. The private sewage disposal systems are considered to be low risk to Unit Well 07.

The Village of Maple Bluff is located 1,500 feet west of Unit Well 07 and provides sewer and water to residents and businesses in the Village of Maple Bluff.

#### **4.1.4 Storage Tanks**

There are two active storage tanks in the Unit Well 07 WHPA. Sherman School is the closest site which contains a 10,000 gallon fuel oil tank. The school is located at 1601 N Sherman Ave, 300 feet south of Unit Well 07. The other active tank in the WHPA is a 500 gallon waste oil tank located at an auto maintenance shop at 2013 N Sherman Ave, 900 feet north of Unit Well 07. Based on the site reconnaissance and a review of the Wisconsin registered storage tank list, 25 active underground storage tank sites with 63 USTs were identified within the 100-year TOT ZOC for Unit Well 07.

There are seven closed UST sites in the Unit Well 07 WHPA consisting of 17 closed/removed USTs. The nearest site with a closed UST is Sherman School, located at 1601 N Sherman Ave, 300 feet south of Unit Well 07 where three 10,000 gallon fuel oil tanks have been closed/removed. Based on the site reconnaissance and a review of the Wisconsin registered storage tank list, 68 closed/removed underground storage tank sites with 151 closed/removed USTs were identified within the 100-year TOT ZOC for Unit Well 07.

There are four closed LUST sites and no open LUST sites within the Unit Well 07 WHPA. The nearest closed LUST site is Sherman School, located at 1601 N Sherman Ave, 300 feet south of Unit Well 07. The next closest closed LUST site is an auto maintenance shop located at 2013 N Sherman Ave, 900 feet north of Unit Well 07. The third closed LUST site is located at 1521 Almo Dr, 1,100 ft northwest of Unit Well 07. The fourth LUST site located within the WHPA is located at 1813 Sheridan St, 1,600 ft

northwest of Unit Well 07. There are a total of 28 LUST sites within the 100-year TOT ZOC for Unit Well 07, comprising 33 individual LUST incidents.

#### **4.1.5 Spills**

Based on the review of the Wisconsin Spills List, no reported spills have occurred within the WHPA of Unit Well 07. The nearest spill occurred in November 2002 at 1801 Aberg Ave, 1700 ft south-southeast of Unit Well 07 within the 50-year TOT ZOC for Unit Well 07. The spill report did not identify the type of release other than a required removal of visibly stained soil. The spill report was closed in February 2012. There have been 55 reported spill incidents between 33 sites within the 100-year TOT ZOC for Unit Well 07. Approximately half of these recorded spill incidents occurred at the Oscar Mayer Foods Corp. located at 910 Mayer Ave, 0.87 miles southeast of Unit Well 07.

#### **4.1.6 Drycleaners**

There are no drycleaner facilities located in the Unit Well 07 WHPA. The nearest location is 1295 N Sherman Ave, 1,700 feet south of Unit Well 07 within the 50-year TOT ZOC for Unit Well 07. Four drycleaner facilities were identified within the 100-year TOT ZOC for Unit Well 07.

#### **4.1.7 Solid Waste Disposal**

There are no active solid waste disposal facilities in the Unit Well 07 WHPA. DNR records show that there are also no active solid waste disposal sites within the 100-year TOT ZOC for Unit Well 07. There is one historical landfill located within the 100-year TOT ZOC for Unit Well 07. Madison Truax Landfill is located 3,300 feet east of Unit Well 07. Also, beyond the 100-year TOT ZOC, about one mile to the south-southeast of Unit Well 07, is another historical landfill located at Demetral Field.

Scrap/junk storage was observed during the site reconnaissance within the 100-year ZOC of Unit Well 07 near the intersection of Packers Ave and Scott St. The scrap/junk storage contained debris, old vehicles, tires, and possibly other materials that could cause groundwater contamination.

#### **4.1.8 Stormwater Detention / Drainage Ways**

There are several stormwater detention ponds, golf course ponds, and drainage ways located within the 100-year TOT ZOC for Unit Well 07. A concern is the accumulation of contaminants in stormwater runoff from streets and parking lots that may concentrate in the drainage ways and ponds and infiltrate into the aquifer. The nearest pond is 2,700 feet west of Unit Well 07 and is within the 50-year TOT ZOC.

#### **4.1.9 Salt Storage**

No bulk salt storage sheds or bulk pesticide, fertilizer storage, and/or mix-load sites were identified within Unit Well 07 recharge area. However, salt is applied as a deicer during the winter to some roadways, parking lots, and sidewalks throughout the 100-year TOT ZOC for Unit Well 07.

#### **4.1.10 Required Separation Distances**

The required separation distances between Unit Well 07 and potential contaminant sources identified in Wisconsin Administrative Code NR 811.12(5)(d) are summarized in Table 4-2. The required separation distances from Unit Well 07 are met for all known contamination sources. The investigation identified and listed all known, existing, or former potential sources. Other regulated sources such as cemeteries, sludge/septage spreading, agricultural lands were not observed in the Unit Well 07 ZOCs.

Although agricultural lands were not observed in the Unit Well 07 ZOCs, golf courses have the potential to introduce nutrients in a similar manner and should be identified as a potential contaminant source. The Maple Bluff Country Club is located approximately 1,400-feet west of Unit Well 07, which is within the 50-year TOT ZOC for Unit Well 07.

### **4.2 LAND USES AND WHP PLANNING**

Unit Well 07 is located in a multi-use area that generally is compatible with WHP planning. The site is generally surrounded by residential land use, with institutional land immediately to the south of the site. Commercial, industrial, park, and vacant lands are present in the Unit Well 07 ZOCs.

Land uses in Unit Well 07 ZOCs that are not compatible with WHP planning, include major roadways (high potential for spills), gas stations, auto maintenance and auto-body facilities, active USTs, industrial processing facilities, vehicle storage and transfer facilities, drycleaners, animal hospitals, stormwater systems and detention ponds (fed by parking lot and street runoff), and debris/junk piles.

Land uses summarized in Table 4-2 should be prohibited in the vicinity of Unit Well 07, within the respective minimum separation distances shown. Also, it is not desirable to have commercial, manufacturing, or industrial districts located in WHPAs. Land uses identified in Appendix I should be prohibited from WHPA Zones A and B. Where any 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. Future uses in these areas should be restricted or prohibited.










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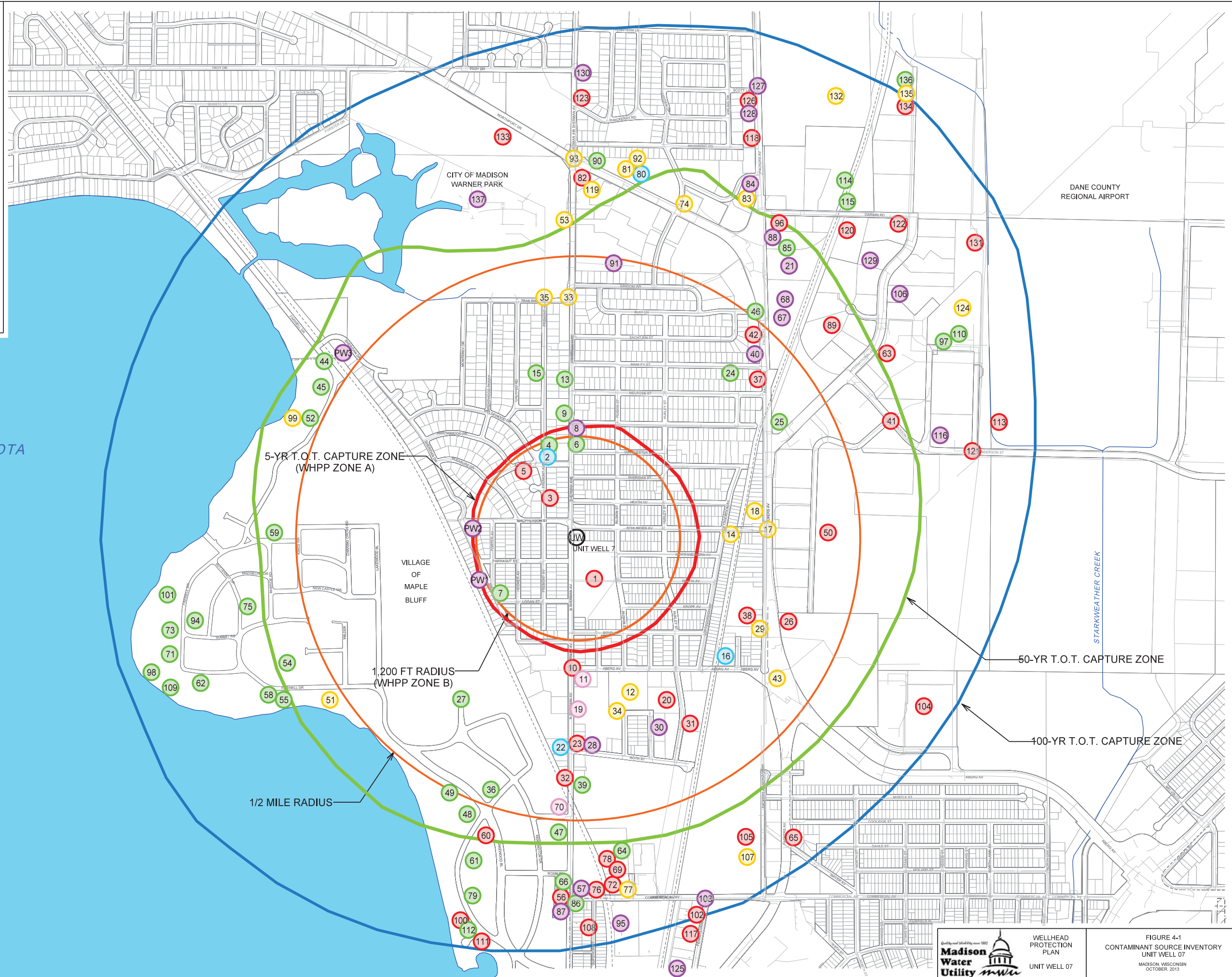
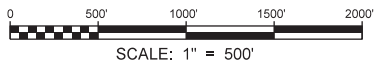
Tables 4-4 and 4-5 in Appendix I summarize several potential sources of groundwater contamination and land uses, and their relative risk to groundwater, respectively.



**LEGEND:**

-  WATER SUPPLY WELL
-  GAS STATIONS, OPEN AND CLOSED LUST SITES, IN USE USTs, OPEN AND CLOSED ERP SITES.
-  CLOSED/REMOVED USTs/ASTs WITHOUT CONTAMINATION REPORTED
-  REPORTED SPILL SITES
-  DRY CLEANERS
-  VEHICLE REPAIR SITES (ENGINE AND BODY)
-  OTHER SITES OF POSSIBLE CONCERN (HAZARDOUS WASTE GENERATION, CEMETERIES, RCRA LISTING, GOLF COURSE, ANIMAL CONFINEMENT AREAS, AGRICULTURAL FIELDS, DRAINAGE/PONDS, RAILROADS, JUNK STORAGE, PRIVATE WELL)

- UTILITY PIPES:
-  - WATER MAIN
  -  - SANITARY SEWER
  -  - STORM SEWER



WELLHEAD PROTECTION PLAN  
UNIT WELL 07

FIGURE 4-1  
CONTAMINANT SOURCE INVENTORY  
UNIT WELL 07  
MADISON, WISCONSIN  
OCTOBER, 2013

**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
UW7	N/A	Madison Water Utility Unit Well 7 1613 N Sherman Ave Madison, WI	Site Reconnaissance	Hydrofluosilicic acid storage and use	Active	0.0 MI	Zone A	Moderate
1	1	Sherman School Madison Metro School Dist. 1601 North Sherman Ave. Madison, WI	FirstSearch Report a-WI-LUST (DNR Activity No. 03-13-001545) b-WI-Registered UST (Facility ID 1314280)	a-LUST discovered 8/4/1992, closed 10/6/1997 b-UST - 4 tanks Fuel Oil, all 10000 gallons, 3 closed/removed and 1 In Use	a- Closed b- In Use	0.12 MI SW	Zone A	High
2	2	Zippy Lube Robert E Moeller 2013 North Sherman Ave Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 147340) b-WI-LUST (DNR Activity No. 03-13-116737)	a-UST-9 tanks 3 tanks leaded gasoline, (2) 3000 gallons, and 560 gallons, closed/removed 2 tanks unleaded gasoline, 4000 and 2000 gallons, closed/removed 1 tank fuel oil, 1000 gallons, closed/removed 2 tanks waste/used motor oil, 1000 and 550 gallons, closed/removed 1 tank waste/used motor oil, 500 gallons, In Use b-LUST discovered 2/6/1997, closed 11/30/1998	a-Closed/In Use b-Closed	0.16 MI NE	Zone A	High
3	3	Zimmer Property Peter Zimmer 1813 Sheridan St. Madison, WI	FirstSearch Report a-WI-LUST (DNR Activity No. 03-13-242024) b-WI-Registered UST (Facility ID 176391)	a-LUST discovered 9/8/1991, closed 12/01/1999 b-UST-2 tanks 1 tank Fuel Oil, 300,closed 1 tank, waste/used motor oil, 500 gallons, closed	a-Closed b-Closed	0.17 MI NE	Zone A	Moderate
4	4	Emma Loomis 2013 North Sherman Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 75660)	UST-Fuel Oil, 500 gallons, closed/removed	Closed	0.18 MI NE	Zone A	Low
5	5	Olaughlin Property Dolores J Olaughlin 1521 Almo Ave Madison, WI	FirstSearch Report a-WI-LUST (DNR Activity No. 03-13-220633) b-WI-Registered UST (Facility ID 170709)	a-LUST discovered 3/26/1999, closed 8/13/1999 b-UST-Fuel Oil, 275 gallons, closed	a-Closed b-Closed	0.19 MI NW	Zone A	Low
6	6	American Family Mutual Insurance Co 2101 North Sherman Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 52542)	UST-Fuel Oil, 500 gallons, closed	Closed	0.20 MI NE	Zone A	Low
7	8	Don Fasske 1505 Sheridan Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 70089)	UST-Fuel Oil, 1000 gallons, closed/removed	Closed	0.22 MI SW	Zone A	Low
8	NA	Northside Animal Hospital 2121 Sherman Ave Madison, WI	Site Reconnaissance	Storage and use of potentially hazardous fluids, animal waste	Animal Hospital - Active	0.22 MI N	Zone A	Low
PW1	NA	Gary Richards 1602 Sheridan Dr Madison, WI	Private Well Database (Madison Water Utility)	Active private well - Permitted (Exp. 3/15/2014)	Active	0.24 MI SW	Zone A	Low
PW2	NA	Debbie Czarniecki 1729 Sheridan Dr Madison, WI	Private Well Database (Madison Water Utility)	Active private well - Permitted (Exp. 5/1/2014)	Active	0.24 MI W	Zone A	Low
9	7	St Paul Lutheran Church 2126 North Sherman Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID E)	UST-Fuel Oil, 1000 gallons, closed/removed	Closed	0.22 MI NW	50-Year Capture Zone	Low
10	9	Valley Bank Property Aberg/ North Sherman Ave Madison, WI	FirstSearch Report -WI-LUST (DNR Activity No. 03-13-0003840)	LUST discovered 2/7/1990, closed 5/21/1990	Closed	0.29 MI SW	50-Year Capture Zone	Low

**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
11	10	Kline Cleaners Sal Troia 1295 North Sherman Ave Madison, WI	FirstSearch Report a-EPA-RCRA GEN (ID: WID988580726) b-WI-Registered UST (WI ID No. 140088) c-EPA-RCRA GEN/NLR (ID: WID988580726) d- WI-DNR Other (Facility ID: 02-130551965)	a-Small Quantity Generator b-UST-2 tanks 1 tank-Fuel Oil, 500 gallons, closed/removed 1 tank-Waste/Used motor oil, 500 gallons, closed/removed c-Hazardous Waste d-Contaminated Site, DNR Notified 7/3/2008	a-SGN b-Closed c-NLR d-Open	0.32 MI SW	50-Year Capture Zone	Low
12	11	MG & E 1801 Aberg Ave Madison, WI	FirstSearch Report -WI-Spills (old Spill ID 04-13-461318)	Spill Incident Occurred, 11/01/2002, unknown extent	Closed	0.32 MI SE	50-Year Capture Zone	Low
13	12	Elaine Borcher 2306 North Sherman Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 74696)	UST-Fuel Oil, 1000 gallons, closed/removed	Closed	0.33 MI NW	50-Year Capture Zone	Low
14	13	MG & E 1721 Loftsgordon Ave Madison, WI	FirstSearch Report -WI-Spills (old Spill ID 04-13-495193)	Spill Incident Occurred, 07/06/2003, unknown extent	Closed	0.33 MI SE	50-Year Capture Zone	Low
15	14	Loren Kowing 2306 Freemont Ave Madison, WI	FirstSearch Report -WI-Registered UST (WI ID No. 105458)	UST-Fuel Oil, 1150 gallons, closed/removed	Closed	0.37 MI NW	50-Year Capture Zone	Low
16	15	Chets Auto Car Care Chet Hermansen 2020 Aberg Ave Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 10642) b-WI-Registered UST (Facility ID 677976) c-WI-Spills (old Spill ID 01-13-050525) d-EPA-RCRA GEN/NLR (ID: WID988605739) e-EPA-RCRA GEN/VGN (ID: WID988605739)	a-UST-2 tanks Waste/Used Motor Oil, 878 gallons each, In Use b-UST- 2 tanks Waste/Used Motor Oil, 878 gallons each, In Use c- Spill Incident Occurred, 03/31/1995, unknown extent d-Small Quantity Generator e-Conditionally Exempt Generator	a-In Use b-In Use c-Closed d-NLR e-VGN	0.41 MI SE	50-Year Capture Zone	Moderate
17	16	Packers and Schlingen Madison, WI	FirstSearch Report -WI-Spills (old Spill ID 04-13-040500)	Historic Spill 07/26/1985, unknown extent	Closed	0.42 MI NE	50-Year Capture Zone	Low
18	18	1814 Packers Ave Madison, WI	FirstSearch Report -WI-Spills (old Spill ID 04-13-051415)	Historic Spill 12/13/1995, unknown extent	Closed	0.42 MI NE	50-Year Capture Zone	Low
19	17/19	Laundryland Cleaners 1131 North Sherman Ave. Madison, WI	FirstSearch Report a-EPA-RCRA GEN/NLR (ID: WID988600144) b-WI-DNR (ID: 02-13-552183)	a-Small Quantity Generator b-Contamination Investigation	a-NLR b-Closed	0.43 MI SW	50-Year Capture Zone	Low
20	20	Madison Gas & Electric/ Heritage Federal Credit Union 1212 Huxley St. Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 677587) b-WI-Registered UST (Facility ID 607437) c-EPA-RCRA GEN/NLR (ID: WID62062310)	a-UST-Diesel, 480 gallons, In Use b-UST-Diesel, 480 gallons, In Use c-Small Quantity Generator	a-In Use b-Unknown c-NLR	0.45 MI SE	50-Year Capture Zone	Moderate
21		Venetian Marble of Wisconsin 1919 Nelson St Madison, WI	FirstSearch Report -EPA-RCRA GEN/NLR (ID: WID041194945)	Small Quality Generator	NLR	0.45 MI NE		
22	23	Gruenbergs Service Center INC Phillip Roth 1102 North Sherman Ave Madison, WI	FirstSearch Report a-EPA-RCRA GEN/NLR (ID: WIR000033225) b-WI-LUST (DNR Activity No. 03-13-167557) c-WI-Registered UST (Facility ID 84991)	a-Small Quantity Generator b-LUST discovered, 8/12/1997, closed 01/30/2004 c-UST-Fuel Oil/Unleaded Gasoline, 4000 and 1000 gallons, closed/removed	a-NLR b-Closed c-Closed	0.46 MI SW	50-Year Capture Zone	Low
23	24	Speedway SuperAmerica 1101 North Sherman Ave Madison, WI	FirstSearch Report a-WI-Spills (old Spill 04-13-045868) (old Spill 04-13-044994) b-WI-LUST (DNR Activity No. 03-13-001981) -WI-LUST (DNR Activity No. 03-13-536305) c-WI-UST (Facility ID 134962) d-EPA-RCRA GEN (ID: WID988642450)	a-Historic Spill 05/30/1991, unknown extent Historic Spill 08/10/1990, unknown extent b-LUST discovered, 09/17/1993, closed 05/02/2003 Lust discovered, 10/18/2004, last action 01/26/2007 c-UST-3 Tanks, unleaded gasoline, 8000, 8000, and 12000 gallons, In Use d-Small Quantity Generator	a-Closed b-Closed c-In Use d-NLR	0.46 MI SE	50-Year Capture Zone	Moderate
24	25	Gladys Meinholz 1945 Manly St. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 83392)	UST-Fuel Oil, 500 gallons, closed/removed	Closed	0.46 MI NE	50-Year Capture Zone	Low
25	26	Langdon Hall Properties 2079 Packers Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 77949)	UST-unknown, 1111 gallons, closed/removed	Closed	0.46 MI NE	50-Year Capture Zone	Low



**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
26	27	Burke Wastewater Treatment Plant 1401 Packers Ave Madison, WI	FirstSearch Report -WI-OTHER	Date contamination reported: 06/11/2002	Continued Investigation	0.47 MI SE	50-Year Capture Zone	Low
27	29,30,32	Maple Bluff Country Club 500 Kensington Road Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 107056) b-EPA-RCRA GEN/NLR (ID: WIR000004838)	a-UST- 7 tanks 2 diesel: 550 and 560 gallons, closed/removed 2 unleaded gasoline: 1500 gallons each, closed/removed 1 leaded gasoline: 300 gallons, closed/removed 1 fuel oil: 1000 gallons, abandoned w/out product 1 content unknown: 250 gallons, closed/removed b-Conditionally Exempt Generator	a-Closed b-NLR	0.48 MI SW	50-Year Capture Zone	Low
28	31	Pollock Auto Body INC 1714 Roth St Madison, WI	FirstSearch Report -EPA-RCRA GEN (ID: WID051218451)	Small Quantity Generator	SGN	0.78 MI SE	50-Year Capture Zone	Low
29	33	1404 Packers Ave. Madison, WI	FirstSearch Report -WI-Spills (old Spill 04-13-050950)	Historic Spill 07/05/1995, unknown extent	Closed	0.49 MI NE	50-Year Capture Zone	Low
30	34	Traffic Signing and Marking INC 1115 Oneil Ave Madison, WI	FirstSearch Report -EPA-RCRA GEN (ID: WID982218406)	Conditionally Exempt Generator	VGN	0.50 MI SE	50-Year Capture Zone	Low
31	35	Kraft Foods Global INC/ Oscar Mayer & Madison Metro North Transfer Point 1201 Huxley St. Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 672621) b-WI-Other (ERP 0213524010)	a-UST-Fuel Oil, 10000 gallons, closed/removed b-ERP, discovered 03/19/2004, closed 02/08/2006	a-Closed b-Closed	0.52 MI SE	50-Year Capture Zone	Low
32	36	Francois Oil Co & Sherman Food Mart 1010 North Sherman Ave Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 62442) UST (Facility ID 674653) b-EPA-RCRA GEN (ID: WIR000041830) c-WI-LUST (DNR Activity No. 03-13-002715)	a-UST-Unleaded Gasoline, 10000 gallons, closed/removed -UST-7 tanks 3 tanks: unleaded gasoline, 10000 gallons each, closed/removed 2 tanks: unleaded gasoline, 15000 & 8000 gallons, In Use 1 tank, diesel, 8000 gallons, In Use 1 tank diesel, 10000 gallons, closed/removed b-Small Quantity Generator c-LUST discovered 09/19/1995	a- Closed or In Use b-SGN c-Open	0.52 MI SW	50-Year Capture Zone	Moderate
33	37	2600 North Sherman Ave Madison, WI	FirstSearch Report -WI-Spills (old Spill ID 04-13-040904)	Historic Spill 2/28/1996, unknown extent	Closed	0.52 MI NE	50-Year Capture Zone	Low
34	373	BTW Aberg Ave and Roth St Madison, WI	FirstSearch Report -WI-Spills (Old Spill ID: 04-13-039572)	Historic Spill, unknown extent	Closed	0.52 MI SE	50-Year Capture Zone	Low
35	359	3715 Freemont Ave Madison, WI	FirstSearch Report -WI-Spills (Old Spill ID: 04-13-049303)	Historic Spill, unknown extent	Closed	0.52 MI NW	50-Year Capture Zone	Low
36	38	Michael F Burke 126 Fisk Place Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 709797)	UST-Fuel Oil, 500 gallons, closed/removed	Closed	0.53 MI SW	50-Year Capture Zone	Low
37	39	BP Products North America INC 2318 Packers Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 52796)	UST-5 tanks, 2 tanks: unleaded gasoline, 8000 and 6000 gallons, closed/removed 1 tank: fuel oil, 550 gallons, In Use 1 tank: leaded gasoline, 6000 gallons, closed/reomed 1 tank: Other, 30 gallons, closed/removed	Closed and In Use	.54 MI NE	50-Year Capture Zone	Moderate
38	40	City View Venture 1422 Packers Ave Madison, WI	FirstSearch Report a-WI-LUST (DNR Activity No. 03-13-221765) b-WI-UST (Facility ID 58337) c-WI-UST (Facility ID 59863)	a-LUST discovered 4/16/1999, closed 01/02/2001 b-UST, 2 tanks, 1 tank leaded gasoline, 1000 gallons, closed/removed 1 tank diesel, 20000 gallons, closed/removed c-UST-unknown content, 20000 gallons, closed/removed 1 tank leaded gasoline, 1000 gallons, closed/removed	a-Closed b-Closed c-Closed	0.55 MI SE	50-Year Capture Zone	Low
39	41	John and Margaret Hartmeyer 1001 North Sherman Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 108342)	UST-4 tanks, empty; 1000, 6000, 10000, 12000, Abandoned w/o prod	Abandoned W/O Prod.	0.58 MI SW	50-Year Capture Zone	Low

**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
40	42	Kales Collision & Sparkle Auto Body 2402 Packers Ave Madison, WI	FirstSearch Report -EPA-RCRA GEN/NLR (ID: WID988596458)	Conditionally Exempt Small Quantity Generator	VGN/NLR	0.58 MI NE	50-Year Capture Zone	Low
41	43	Dane CNTY Truax LF Anderson and Pankratz Madison, WI	FirstSearch Report -WI-Other (ID: 021329768)	Date contamination reported: 02/25/2002	Open	0.58 MI NE	50-Year Capture Zone	Moderate
42	44	Qurban LLC and Clark Oil Station 2412 Packers Ave Madison, WI	FirstSearch Report a-EPA-RCRA GEN (ID: WID9886208110 b-WI-Registered UST (Facility ID 63462) c-WI-LUST (DNR Activity No 03-13-001130)	a-Small Quantity Generator b-UST-5 tanks, 2 tanks, 7500 gallons each, closed/removed 2 tanks, 12000 and 10000 gallons, In Use c-LUST discovered, 09/18/1991, closed 11/07/1994	a-SGN b-In Use and Closed c-Closed	0.59 MI NE	50-Year Capture Zone	Moderate
43	45	WI DOT BRIDGE B13-0237-0238 Packers and Aberg Ave Madison, WI	FirstSearch Report a-EPA-RCRA GEN/NLR (ID: WIR000103531) b-WI-Spills (old spill: 04-13-224803)	a-Large Quantity Generator b-Spill Incident Occurred 08/03/1998, unknown extent	a-LGN/NLR b-Closed	0.59 MI SE	50-Year Capture Zone	Low
44	46	Marianne Smalley 1317 Farwell Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 107402)	UST-2 tanks, fuel oil, 500 gallons each, closed/removed	Closed	0.59 MI SW	50-Year Capture Zone	Low
45	47	Cheryl Weston 1311 Farwell Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 651010)	UST-fuel oil, 500 gallons, closed/removed	Closed	0.60 MI SW	50-Year Capture Zone	Low
46	48	BP Products North America INC 2518 Packers Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 52797)	UST-7 tanks 2 tanks: Waste/Used Motor Oil, 550 gallons each, closed/removed 3 tanks: unleaded gasoline, 6000, 6000, & 8000 gallons, closed/removed 1 tank: leaded gasoline, 550 gallons, closed/removed 1 tank: Other, 30 gallons, closed/removed	Closed	0.62 MI NE	50-Year Capture Zone	Low
47	49	Village of Maple Bluff 18 Oxford Place Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 141120)	UST- unleaded gasoline, 1500 gallons, closed/removed	Closed	0.62 MI SW	50-Year Capture Zone	Low
48	50	John Frautschi 303 Lakewood Blvd Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 95500)	UST-2 tanks, fuel oil, 950 gallons each, closed/removed	Closed	0.63 MI SW	50-Year Capture Zone	Low
49	51	Michael Morey 309 Lakewood Blvd Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 110767)	UST-Fuel Oil, 1000 gallons, closed/removed	Closed	0.63 MI SW	50-Year Capture Zone	Low
50	52	Madison Truax Landfill Aberg Ave. Madison, WI	FirstSearch Report a-WI-Other (ID: 0213001351) b-WI-STATE (ID: HRL000027)	a-Other, discovery of contamination 01/01/1980, closed/removed b-State, revision date 09/20/1993	a-Closed b-Closed	0.64 MI SE	50-Year Capture Zone	Low
51	54	Maple Leaf Inc 403 Farwell Dr Madison, WI	FirstSearch Report -a-WI AG Spill (AG-11402082601) -b-WI Spills (ID:04-13-557579)	a-Historic Spill, Date unknown, unknown extent b-Historic 8/26/2011, unknown extent	a-Closed b-Closed/Removed	0.64 MI SW	50-Year Capture Zone	
52	55	Alice Yost 1173 Farwell Dr Madison WI	FirstSearch Report -WI-Registered UST (Facility ID 775263)	UST-Fuel Oil, 2500 gallons, closed/removed	Closed/Removed	0.66 MI NW	50-Year Capture Zone	
53	53	2900 Block Sherman Ave. Madison, WI	FirstSearch Report -WI-Spills (old Spill 04-13-038826)	Historic Spill, 8/12/1982, unknown extent	Closed	0.67 MI NW	100-Year Capture Zone	Low
54	54	Terry Haller 500 Farwell Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 135799)	UST-fuel oil, 2000 gallons, closed/removed	Closed	0.68 MI NW	50-Year Capture Zone	Low
55	55	Ben Rusy 515 Farwell Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 56187)	UST-fuel oil 1000 gallons, closed/removed	Closed	0.69 MI NW	100-Year Capture Zone	Low

**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
56	56	Pressentin Property Gary G Pressentin 524 North Sherman Ave Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 107159) b-WI-LUST (DNR Acitivity No. 03-13-197088)	a-UST-fuel oil, 300 gallons, closed/removed b-LUST discovered 06/08/1998, closed 2/18/1999	a-Closed b-Closed	0.69 MI SW	100-Year Capture Zone	Low
57	N/A	Madison Cat Clinic 601 Sherman Ave Madison WI	Site Reconnaissance	Storage and use of potentially hazadous fluids, animal waste	Animal Hospital - Active	0.75 MI S	100-Year Capture Zone	
58	57	Robert Fish 523 Farwell Dr Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 174383)	UST-fuel oil, 2000 gallons, closed/removed	Closed	0.69 MI NW	100-Year Capture Zone	Low
59	58	Richard Frohmader 514 Leroy Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 122788)	UST-Fuel Oil, 1000 gallons, closed/removed	Closed	0.70 MI NW	50-Year Capture Zone	Low
60	59	Stege Property Elinor Stege 82 Cambridge Rd Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 74899) b-WI-LUST (DNR Activity No 03-13-002679)	a-UST-fuel oil, 750 gallons, closed/removed b-LUST, discovered 09/13/1995, closed 11/21/1997	a-Closed b-Closed	0.72 MI SW	50-Year Capture Zone	Low
61	529	Jim & Wendy Skinner 74 Cambridge Dr Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 668197)	UST	Closed/Removed	0.72 MI SW	100-Year Capture Zone	Low
62	61	Robert McCoy 639 Farwell Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 125673)	UST-3 tanks: 1 fuel oil, 1000 gallons, closed/removed 1 diesel, 275 gallons, closed/removed 1 leaded gasoline, 275 gallons, closed/removed	Closed	0.73 NW	100-Year Capture Zone	Low
63	62	Madison Gas and Electric Co. & Great Lakes Higher Education 2401 International Lane Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 504227 & 677894) Registered UST (Facility ID 718768)	UST Facility ID 504227 & 677894- diesel, 480 gallons, In Use UST Facility ID 718768-2 tanks 1 tank diesel, 300 gallons, closed/removed 1 tank fuel oil, 500 gallons, In Use	In Use/Closed	0.73 MI NE	100-Year Capture Zone	Low
64	63	Koschkee Transfer 718 Ruskin St. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 637040)	UST-diesel, 10000 gallons, temp. out of service	Temp. out of Service	0.74 MI SE	100-Year Capture Zone	Low
65	64	Madison Gas & Electric 900 Packers Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 712566)	UST-6 tanks, diesel, 1000 gallons each, In Use	In Use	0.75 MI SE	100-Year Capture Zone	Low
66	65	Amoco Petroleum Products Brian Schommer 484 North Sherman Ave Madison, WI	FirstSearch Report a-Registered UST (Facility ID 129981, 52809, & 52808) b-LUST (DNR Activity No 03-13-001057)	UST-10 tanks: 4 tanks unleaded gasoline, (2) 6000 gallons and (2) 8000 gallons, closed/removed 3 tanks Waste/used motor oil, 550, 500, and 30 gallons, closed/removed 2 tanks leaded gasoline, 6000 gallons each, closed/removed 1 tank fuel oil, 500 gallons, closed/removed	Closed	0.75 MI SW	100-Year Capture Zone	Low
67	66	Midwest Warehouse and Langdon Hall Properties 2701 Packers Ave Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 111119) b-EPA-RCRA GEN (ID: WIR000020750)	a-UST-4 tanks: 2 tanks leaded gasoline, 12000 gallons each, closed/removed 1 tank diesel, 6000 gallons, closed/removed 1 tank empty, 12000 gallons, closed/removed b-Conditionally Exempt Generator	a-Closed b-VGN	0.75 MI NE	50-Year Capture Zone	Low
68	67	Resource Solutions Corp. 2701 Packers Ave Madison, WI	FirstSearch Report -EPA-RCRA GEN/NLR (ID: WIR000020750)	Small Quantity Generator	NLR	0.75 MI NE	50-Year Capture Zone	Low
69	68	Koschkee Transfer 702 Ruskin St. Madison, WI	FirstSearch Report a-WI-LUST (DNR Activity No 03-13-524965) b-WI-Spills (old spill ID 04-13-427693)	a-LUST, discovered 10/28/2002, open b-Spill incident occurred 10/30/2002, unknown extent	a-Open b-Closed	0.76 MI SE	100-Year Capture Zone	Low
70	69	Pauls Classic Cleaners 619 North Sherman Ave Madison, WI	FirstSearch Report a-WI-Other (ID: 02-13-227101) b-RCRA GEN (ID: WID981777634)	a-Other, discovery of contamination 09/30/1999, open b-Conditionally Exempt Generator	a-Open b-VGN	0.76 MI SW	100-Year Capture Zone	Low

**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
71	70	Mary Alice Wimmer 731 Farwell Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 174446)	UST-fuel oil, 250 gallons, closed/removed	Closed	0.77 MI SW	100-Year Capture Zone	Low
72	71	Narlock and Steffke Partnership & Foreway Express INC. 1800 Commercial Ave Madison, WI	FirstSearch Report a-EPA-RCRA GEN (ID: WID988602959) b-WI-LUST (DNR Activity No 03-13-002496) c-WI-Registered UST (Facility ID 116174, 679738, & 604652) d-WI-Spills (old Spill 04-13-037581) (old Spill 04-13-045869) e-EPA-ERNS (ID: 219723)	a-Conditionally Exempt Small Quantity Generator b-LUST discovered, 11/15/2003, closed 02/26/2003 c-UST- 3 tanks: 1 tank-leaded gasoline, 10000 gallons, closed 1 tank-diesel, 10000, closed 1 tank-fuel oil, 1000, closed d- Spill ID 04-13-037581-Historic Spill 03/19/1991, unknown extent Spill ID 04-13-045869-Historic Spill, 05/30/1991, unknown extent e-ERNS-waste oil/lubricants, 100 gallons, closed	a-VGN b-Closed c-Closed d-Closed e-Closed	0.77 MI SE	100-Year Capture Zone	Low
73	72	Dr. Paul Herzog 735 Farwell Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 117115)	UST-Fuel Oil, 1000 gallons, closed/removed	Closed	0.77 MI SW	100-Year Capture Zone	Low
74	73	Ronald Ripp 1900 Northport Ave Madison, WI	FirstSearch Report -WI-Spills (old Spill ID 04-13-443692)	Spill Incident Occurred, 01/14/2002, unknown extent	Closed	0.77 MI NE	50-Year Capture Zone	Low
75	74	James Vaccaro 812 Butternut Rd Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 92383)	UST-fuel oil, 1000 gallons, closed/removed	Closed	0.78 MI SW	100-Year Capture Zone	Low
76	75	Taff Property Dennis Taff 601 Sherman Ave Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 201336) b-WI-LUST (DNR Activity No. 03-13-001540) c-WI-Other (ID 02-13-001540)	a-UST-2 tanks, leaded gasoline, 10000 and 8000 gallons, closed/removed b-LUST, discovered 07/27/1993, open c-Co-contamination, risk date 12/01/1999	a-Closed b-Open c-Open	0.79 MI SE	100-Year Capture Zone	Low
77	76	Madison CTY 1834 Commercial Ave Madison, WI	FirstSearch Report -WI-Spills (old Spill ID 04-13-518126)	Spill Incident Occurred 12/10/2003, unknown extent	Closed	0.79 MI SE	100-Year Capture Zone	Low
78	77	Durham School Services 710 Ruskin St. Madison, WI	FirstSearch Report a-WI-LUST (DNR Activity No. 03-13-524955) b-WI-UST (Facility ID 636167) c-WI-Spills (old Spill ID 04-13-543932)	a-LUST discovered 03/08/2004, open b-UST-2 tanks 1 tank-diesel, 6000 gallons, In Use 1 tank-fuel oil, 1000 gallons, closed/removed c-Spill Incident Occurred 01/12/2004, unknown extent	a-Open b-In Use/Closed c-Closed	0.80 MI SE	100-Year Capture Zone	Low
79	78	Jon Lancaster 69 Cambridge Road Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 97111)	UST-fuel oil, 2000 gallons, closed/removed	Closed	0.80 MI SW	100-Year Capture Zone	Low
80	79	Ricks Auto 1740 Northport Dr Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 97111)	UST-waste/used motor oil, 180 gallons, In Use	In Use	0.80 MI SE	100-Year Capture Zone	Low
81	80	1740 Northport Dr. Madison, WI	FirstSearch Report -WI-Spills (Old Spill ID 04-13-050398)	Historic Spill 02/22/1995, unknown extent	Closed	0.81 MI NE	100-Year Capture Zone	Low
82	99	Road Ranger LLC/ Jiffy Stop INC/ Warner Park Quick Mart 3101 Sherman Ave Madison, WI	FirstSearch Report a-EPA-RCRA GEN/NLR (ID: WIR000103846) b-WI-Spills (old Spill 04-13-39002882) c-WI-Registered UST (Facility ID 142699) d-WI-LUST (DNR Activity No 03-13-002882) (DNR Activity No 03-13-001075)	a-Large Quantity Generator b-Spill Incident Occurred 04/15/2001, unknown extent c-UST-7 tanks 5 tanks-unleaded gasoline, 4000 gallons, closed/removed 2 tanks-unleaded gasoline, 10000 gallons and 6000 gallons, In Use d-LUST 03-13-002882 discovered 10/21/1996, open LUST 03-13-001075 discovered 07/05/1991, closed 12/13/1991	a-LGN/NLR b-Closed c-In Use/Closed d-Open/Closed	0.86 MI NE	100-Year Capture Zone	Low
83	81	2017 Londonberry Dr Madison, WI	FirstSearch Report -WI-Spills (Old Spill ID 04-13-050565)	Historic Spill 04/12/1995, unknown extent	Closed	0.81 MI NE	100-Year Capture Zone	Low
84	N/A	Madison Police Department-Vehicle Storage 2033 Londonderry Dr Madison WI	Site Reconnaissance	Vehicle Parking and Storage	Active	0.81 MI NE	100-Year Capture Zone	Low

**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
85	82	Madison Realestate Properties 2957 Packers Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 106811)	UST-4 tanks, unknown contents, (2) 175 gallons, 1000 gallons, and 10000 gallons, Abandoned w/o product	Abandoned W/O Prod.	0.81 MI NE	50-Year Capture Zone	Low
86	83	Gary & Kathleen Suter 525 North Sherman Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 135150)	UST-fuel oil, 360 gallons, closed/removed	Closed	0.81 MI SW	100-Year Capture Zone	Low
87	84	Kirch Appliance INC 464 North Sherman Ave Madison, WI	FirstSearch Report -EPA-RCRA GEN(ID: WIR000104745)	Conditionally Exempt Generator	VGN	0.81 MI SW	100-Year Capture Zone	Low
88	85	Woodland Plastics Co 2955 Packers Ave Madison, WI	FirstSearch Report -EPA-RCRA GEN/NLR(ID WID 988579629)	Small Quantity Generator	NLR	0.81 MI NE	50-Year Capture Zone	Low
89	87	Tasc 2409 American Ln Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 718805)	UST-diesel, 194 gallons, In Use	In Use	0.82 MI NE	50-Year Capture Zone	Low
90	88	Northport APT CORP 1702 Northport Dr. Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID114810)	UST-unleaded gasoline, 550 gallons, closed/closed	Closed	0.82 MI NE	100-Year Capture Zone	Low
91	89	One Hour Cleaners 2821 North Sherman Ave Madison, WI	FirstSearch Report -EPA-RCRA GEN/NLR (ID: WID982613390)	Small Quantity Generator	NLR	0.82 MI NE	50-Year Capture Zone	Low
92	90	Apartment BLDG 1740 Northport Dr Madison, WI	FirstSearch Report -WI-Spills (old Spill 04-13-268994)	Spill incident occurred 10/08/2000, unknown extent	Closed	0.82 MI NE	100-Year Capture Zone	Low
93	91	North Sherman Ave and Northport Dr. Madison, WI	FirstSearch Report -WI-Spills (old Spill 04-13-052369) (old Spill 04-13-041496)	Historic Spill 04-13-052369 02/20/1992, unknown extent Historic Spill 04-13-041496 09/30/1986, unknown extent	Closed	0.83 MI NE	100-Year Capture Zone	Low
94	92	McCormick Co LLC 810 Farwell Dr Madison, WI	FirstSearch Report -WI-Registered UST (Facility UST 158310)	UST-fuel oil, 500 gallons, closed/removed	Closed	0.83 MI SW	100-Year Capture Zone	Low
95	93	Roundhouse Printing 1741 Commercial Ave Madison, WI	FirstSearch Report -EPA-RCRA GEN/NLR(ID: WIR000020149)	Conditionally Exempt Generator	VGN/NLR	0.83 MI SE	100-Year Capture Zone	Low
96	94	Chet Hermansen 2101 Darwin Rd Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 6523)	UST-4 tanks, Waste/Used motor oil, (2) 380 gallons and (2) 500 gallons, In Use	In Use	0.84 MI NE	50-Year Capture Zone	Low
97	95	Four Lakes Aviation Corp 2401 Shaw St Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 152065)	UST-4 tanks, Aviation fuel, (2) 30000 gallons and (2) 20000 gallons, closed/removed	Closed	0.84 MI NE	100-Year Capture Zone	Low
98	96	Turner and Mary Harshaw 825 Farwell Dr Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 139239)	UST-fuel oil, 300 gallons, closed/removed	Closed	0.84 MI SW	100-Year Capture Zone	Low
99	412/413/437	Lake Mendota Madison, WI	FirstSearch Report -WI-Spills (Old Spill ID 04-13-037262)	Historic Spill, unknown extent	Closed	0.84MI NW	50-Year Capture Zone	Low
100	97	Shomberg Property Tony Shomberg 49 Cambridge Rd Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 137998) b-WI-LUST (DNR Activity No 03-13-002433)	a-UST-fuel oil, 1000 gallons, closed/removed b-LUST discovered 08/22/1994, closed 01/07/2005	Closed	0.85 MI SW	100-Year Capture Zone	Low
101	98	Kathleen Hall 725 Farwell Dr Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 659706)	UST-fuel oil, 1000 gallons, closed/removed	Closed	0.85 MI SW	100-Year Capture Zone	Low
102	100	Millvander Property 2530 Pennsylvania Ave Madison, WI	FirstSearch Report -WI-OTHER (ID: 02-13-264455)	OTHER-contamination discovery 01/09/2001, closed 01/22/2001	Closed	0.86 MI SE	100-Year Capture Zone	Low

**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
103	N/A	MG&E Commercial & Pennsylvania	Site Reconnaissance	Electric insulator oil tanks	Active	0.86 MI SE	100-Year Capture Zone	Low
104	101	Shopko Store 034 2602 Shopko Dr Madison, WI	FirstSearch Report a-EPA-RCRA GEN/NLR (ID: WI0000881904) b-WI-OTHER (ID: 02-13-548249)	a-Conditionally Exempt Small Quantity Generator b-OTHER-Contamination discovery 10/25/2006, open	Open	0.86 MI SE	100-Year Capture Zone	Low
105	102	Oscar Mayer Foods Corp 910 Mayer Ave Madison, WI	FirstSearch Report a-EPA-RCRA GEN(ID: WID006105266) b-EPA-Docket (ID: 05-1992-0088) c-WI-LUST (DNR Activity No 03-13-114831) (DNR Activity No 03-13-001744) (DNR Activity No 03-13-000053) d-WI-Registered UST (Facility ID 115912) (Facility ID 673738) e-WI-DNR-SWL (DNR Activity No 11-30-04650)	a-Small Quantity Generator b-settle entered 03/15/1995 c-LUST 03-13-114831 discovered 12/5/1996, closed 5/25/2006 LUST 03-13-001744 discovered 11/13/1992, closed 8/11/1993 LUST 03-13-000053 discovered 2/17/1989, closed 1/23/2008 d-UST 115912-11 tanks 2 tanks, fuel oil, 250 gallons and 250,000 gallons, closed/removed 1 tank, fuel oil, 150,000 gallons, In Use 1 tank, waste/used motor oil, 500 gallons, In Use 1 tank, unleaded gasoline, 9500 gallons, closed/removed 5 tanks, diesel, 1500 gallons each, In Use 1 tank, diesel, 10000 gallons, closed/removed -UST 673738-9 tanks 1 tank, diesel, 12000 gallons, In Use 1 tank, diesel, 10000 gallons, Closed/removed 1 tank, waste/used motor oil, 500 gallons, closed/removed 1 tank, unleaded gasoline 550 gallons, In Use 1 tank, unleaded gasoline, 9500 gallons, In Use 1 tank, leaded gasoline, 10000 gallons, Closed/removed 1 tank, fuel oil, 250 gallons, closed/removed 1 tank, fuel oil, 150000 gallons, In Use 1 tank, fuel oil, 250000 gallons, closed/removed e-Solid Waste Landfill	a-SGN b-ICIS c-Closed d-In Use/Closed e-Operating	0.87 MI SE	100-Year Capture Zone	Moderate
105	102	Oscar Mayer Foods Corp 910 Mayer Ave Madison, WI	f-WI-Other (ID: 02-13-000895) (ID: 02-13-221826) g-WI-Spills (old Spill 04-13-548071) (old Spill 04-13-245306) (old Spill 04-13-248087) (old Spill 04-13-248176) (old Spill 04-13-227043) (old Spill 04-13-264296) (old Spill 04-13-270923) (old Spill 04-13-241160) (old Spill 04-13-230696) (old Spill 04-13-212337) (old Spill 04-13-229872) (old Spill 04-13-262939)	f-Other 02-13-000895, contamination discovered 02/22/1984, unknown extent Other 02-13-221826, contamination discovered 03/04/1999, unknown extent g-Spill 04-13-548071 Incident occurred 04/25/2006, unknown extent Spill 04-13-245306 Incident occurred 12/31/1999, unknown extent Spill 04-13-248087 Incident occurred 02/01/2000, unknown extent Spill 04-13-248176 Incident occurred 03/23/2000, unknown extent Spill 04-13-227043 Incident occurred 10/22/1998, unknown extent Spill 04-13-264296 Incident occurred 08/02/2000, unknown extent Spill 04-13-270923 Incident occurred 12/17/2000, unknown extent Spill 04-13-241160 Incident occurred 07/08/1999, unknown extent Spill 04-13-230696 Incident occurred 09/18/1999, unknown extent Spill 04-13-212337 Incident occurred 08/14/1996, unknown extent Spill 04-13-229872 Incident occurred 12/02/1998, unknown extent Spill 04-13-262939 Incident occurred 01/22/2001, unknown extent	f-Closed g-Closed	0.87 MI SE	100-Year Capture Zone	Moderate

**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
105	102	Oscar Mayer Foods Corp 910 Mayer Ave Madison, WI	g-continued (old Spill 04-13-550150) (old Spill 04-13-548811) (old Spill 04-13-236542) (old Spill 04-13-181521) (old Spill 04-13-385350) (old Spill 04-13-528788) (old Spill 04-13-391430) (old Spill 04-13-271132) (old Spill 04-13-217917) (old Spill 04-13-227692) (old Spill 04-13-051030) (old Spill 04-13-049014) (old Spill 04-13-041208) (old Spill 04-13-052583) (old Spill 04-13-051042) (old Spill 04-13-049245) (old Spill 04-13-048202) (old Spill 04-13-050780) (old Spill 04-13-039771)	g- continued Spill 04-13-550150 Incident occurred 08/17/2007, unknown extent Spill 04-13-548811 Incident occurred 12/31/2006, unknown extent Spill 04-13-236542 Incident occurred 03/01/1991, unknown extent Spill 04-13-181521 Incident occurred 01/15/1998, unknown extent Spill 04-13-385350 Incident occurred 12/23/2001, unknown extent Spill 04-13-528788 Incident occurred 05/15/1993, unknown extent Spill 04-13-391430 Incident occurred 08/22/2002, unknown extent Spill 04-13-271132 Incident occurred 08/09/2000, unknown extent Spill 04-13-217917 Incident occurred 04/05/1999, unknown extent Spill 04-13-227692 Incident occurred 10/22/1998, unknown extent Historic Spill 04-13-051030 07/24/1995, unknown extent Historic Spill 04-13-049014 10/13/1993, unknown extent Historic Spill 04-13-041208 06/13/1986, unknown extent Historic Spill 04-13-052583 07/27/1995, unknown extent Historic Spill 04-13-051042 02/27/1995, unknown extent Historic Spill 04-13-049245 01/19/1994, unknown extent Historic Spill 04-13-048202 03/10/1993, unknown extent Historic Spill 04-13-050780 05/30/1995, unknown extent Historic Spill 04-13-039771 06/02/1984, unknown extent	g-Closed	0.87 MI SE	100-Year Capture Zone	Moderate
106	104	TSA at Dane Co Regional-Truax Field 2701 International Lane Madison, WI	FirstSearch Report -EPA-RCRA GEN(ID: WIR000117838)	Conditionally Exempt Generator	VGN	0.87 NE	100-Year Capture Zone	Low
107	106	Oscar Mayer Foods Corp 910 Mayer Ave Madison, WI	FirstSearch Report -EPA-ERNS(ID: 308019) (ID: 457234)	ERNS 308019, ethylene glycol, 30 gallons, spilled 03/11/1993 ERNS 457234, Hydraulic Oil, 15 gallons, spilled 10/11/1995	ERNS 308019-Fixed Facility ERNS 457234-Highway Related	0.88 MI SE	100-Year Capture Zone	Low
108	107	Crary Estate Property June Carary 2426 Superior St Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 979700 b-WI-LUST (DNR Activity No 03-13-099181)	a-UST-Fuel Oil, 300 gallons, closed/removed b-LUST discovered 03/05/1996, closed 08/26/2004	a-Closed b-Closed	0.88 SE	100-Year Capture Zone	Low
109	109	Graber Residence 659 Farwell Dr Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 185988)	UST-Fuel Oil, 1000 gallons, closed/removed	Closed	0.89 SW	100-Year Capture Zone	Low
110	110	Wisconsin Department of Administration 2602 Shaw St Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 184483)	UST-2 tanks, Aviation Fuel, 10000 gallons each, Abandoned w/out product	Abandoned W/O Prod.	0.91 NE	100-Year Capture Zone	Low
111	111	Bock Property Catherine J Bock 11 Cambridge Rd Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 60693) b-WI-LUST (DNR Activity No 03-13-002669)	a-UST-2 tanks, fuel oil, 1000 and 200 gallons, closed b-LUST discovered 07/18/1995, closed 01/09/1996	a-Closed b-Closed	0.91 MI SW	100-Year Capture Zone	Low
112	114	Anthony Varda 50 Cambridge Rd Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 53403)	UST-Fuel Oil, 1000 gallons, closed/removed	Closed	0.93 MI SW	100-Year Capture Zone	Low
113	115	Four Lakes Aviation Corp Swanson St Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 151535)	UST-10 tanks 4 tanks, Aviation Fuel - 275000, 412500, 550000, 55000 gallons, all Closed 5 tanks, Aviation Fuel - (4) 30000 and 15000 gallons, all In Use 1 tank, Unleaded gasoline, 10000 gallons, In Use	In Use/Closed	0.94 MI NE	100-Year Capture Zone	Low
114	116	Reynolds Transfer and Storage 2320 Darwin Rd Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 646990)	UST-Fuel Oil, 1500 gallons, closed/removed	Closed	0.94 MI NE	100-Year Capture Zone	Low

**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
115	117	Reynolds Transfer and Storage 2302 Darwin Rd Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 64698)	UST-Unknown Content, 295 gallons, closed/removed	Closed	0.94 MI NE	100-Year Capture Zone	Low
116	120	Omnipress 2600 Anderson St Madison, WI	FirstSearch Report -EPA-RCRA GEN(ID: WID982618050)	Small Quantity Generator	SGN	0.95 MI SE	100-Year Capture Zone	Low
117		Union Cab of Madison 2458 Pennsylvania Ave Madison, WI	FirstSearch Report -a-WI LUST (ID: 03-13-553295) -b- WI Registered UST (ID:156341) -c- WI-DNR Site Contamination (ID:02-13-525776)	a-LUST closed 9/1/2009 b-UST-2 tanks 1 tank, waste/used motor oil, 290 gallons, closed/removed 1 tank, unleaded gasoline, 10000 gallons, in use c-contamination discovered 3/22/2004, closed on 8/17/2005	a-closed b-closed/in use c-closed	0.95 MI SE	100-Year Capture Zone	
118	121	Bulk Petroleum Corp 3402 Packers Ave madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 72827) b-WI-LUST (DNR Activity No 03-13-001016) c-EPA-RCRA GEN/NLR (ID: WID988601100)	a-UST-5 tanks 3 tanks, unleaded gasoline, (2) 10000 and 8000 gallons, closed/removed 1 tank, leaded gasoline, 10000 gallons, closed 1 tank, diesel, 8000 gallons, closed/removed b-LUST discovered 07/16/1990, closed 05/08/1997 c-Small Quantity Generator	a-Closed b-Closed c-NLR	0.96 MI NE	100-Year Capture Zone	Low
119	122	3001 Sherman Ave Madison, WI	FirstSearch Report -WI-Spills (Old Spill ID: 04-13-037851)	Historic Spill 12/23/1979, unknown extent	Closed	0.96 MI NE	100-Year Capture Zone	Low
120	123	Construction Products Corp Capital Equipment Corp 2421 Darwin Rd Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 64605) b-WI-LUST (DNR Activity No 03-13-001505) c-WI-Spills (Old Spill ID: 04-13-051275) d-EPA-RCRA GEN/NLR (ID: WID062091301)	a-UST-2 tanks 1 tank-diesel, 8000 gallons, closed/removed 1 tank-leaded gasoline, 1000 gallons, closed/removed b-LUST discovered 04/24/1992, closed 06/09/1992 c-Historic Spill 10/05/1995, unknown extent d-Small Quantity Generator	a-Closed b-Closed c-Closed d-NLR	0.96 MI NE	100-Year Capture Zone	Low
121	126	WI Dept. of Military Affairs 2621 Anderson St Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 69794)	UST-3 tanks 1 tank-Unleaded gasoline, 550 gallons, In Use 1 tank-Fuel Oil, 10000 gallons, closed/removed 1 tank-Diesel, 550 gallons, In Use	In Use/Closed	0.97 MI NE	100-Year Capture Zone	Low
122	127	RSM McGladrey 2445 Darwin Rd Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 717323)	UST-Diesel, 366 gallons, In Use	In Use	0.97 MI NE	100-Year Capture Zone	Low
123	128	Richard M Hill 3517 North Sherman Ave Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 123232)	UST-Fuel Oil, 1000 gallons, In Use	In Use	0.98 MI NE	100-Year Capture Zone	Low
124	129	Vacant Field Swanson St & Shaw St Madison, WI	FirstSearch Report -WI-Spills (Old Spill ID: 04-13-051275)	Spill Incident Occurred 09/04/1997, unknown extent	Closed	0.99 MI SE	100-Year Capture Zone	Low
125		US Army Reserve 139(G) 2410 Pennsylvania Ave Madison, WI	FirstSearch Report -EPA-RCRA GEN/NLR (ID: WI4210090284)	Conditionally Exempt Generator	NLR	1.02 MI SE	100-Year Capture Zone	
126	133	Stop N Go Store 3510 Packers Ave Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 134504) b-WI-LUST (DNR Activity No. 03-13-002740) c-EPA-RCRA GEN/NLR (ID: WIR000045062)	a-UST-unleaded gasoline, 10000 gallons each, In Use b-LUST discovered 11/02/1995, closed 04/11/1997 c-Conditionally Exempt Small Quantity Generator	a-In Use b-Closed c-NLR	1.02 MI NE	100-Year Capture Zone	Low
127	N/A	Mobile Homes-Oak Park Packers Ave & Scott St Madison, WI	Site Reconnaissance	Waste storage, Vehicle Parking	Active	1.02 MI NE	100-Year Capture Zone	Low
128	N/A	Kerry Food Products 3502 Packers Ave Madison WI	Site Reconnaissance	Large Truck Storage	Active	1.01 MI NE	100-Year Capture Zone	Low
129	N/A	Care Wisconsin 2802 International Ln Madison, WI	Site Reconnaissance	Vehicle Parking and Storage	Active	0.96 MI NE	100-Year Capture Zone	Low



**TABLE 4-1  
CONTAMINANT SOURCE INVENTORY SUMMARY  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON WATER UTILITY - MADISON, WI**

Map Site ID No.	FirstSearch Map ID No.	Owner/Location	Database or Reference Source	Existing, Potential, or Former Contaminant Sources	Reported Status	Approximate Distance to Unit Well 07	Location Within Capture Zone	Estimated Threat to Supply Wells
130	137	Madison Gas and Electric 3615 North Sherman Ave Madison, WI	FirstSearch Report -EPA-PADS (ID: TRD-2479)	4 Transformers approved 12/21/1998	Transform REG	1.03 MI NE	100-Year Capture Zone	Low
131	142	Dane County Regional Airport Maintenance BLDG 2601 Darwin Rd Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 679682 & 66371) (Facility ID 153650)	UST 679682 & 66371-4 tanks 2 tanks-Diesel, 10000 and 500 gallons, In Use 1 tank-Waste/used motor oil, 550 gallons, In Use 1 tank-Unleaded gasoline, 10000, In Use UST 153650-Waste/Used motor oil, 550 gallons, In Use	Closed/In Use	1.06 MI NE	100-Year Capture Zone	Low
132	155	512 Blackbird Ln Madison, WI	FirstSearch Report -WI-Spills (Old Spill ID: 04-13-050529)	Historic Spill 04/03/1995, unknown extent	Closed	1.14 MI NE	100-Year Capture Zone	Low
133		Northport Shell 1423 Northport Dr Madison, WI	FirstSearch Report -a-EPA-RCRA GEN/NLR (ID: WIR000131738) -b-WI-DNR Contamination (03-13-002439) -c-WI-Spills (Old Spill ID: 04-13-042868) -d-WI-Registered LUST (03-13-002439)	a-Small Quantity Generator, NLR b-DNR notified 8/4/1994, Closed 5/2/2008 c-Historic Spill, 6/23/1988 d-Discovered 8/4/1994, closed 5/2/2008	a-NLR b-Closed c-Open d-Closed	1.15 MI NW	100-Year Capture Zone	
134	166	Madison Freight Systems Inc Parking Lot 3509 International Ln Madison, WI	FirstSearch Report a-WI-Registered UST (Facility ID 106775) b-WI-LUST (DNR Activity No 03-13-000672) c-WI-Spills (Old Spill ID: 04-13-042609) (Old Spill ID: 04-13-042241) (Old Spill ID: 04-13-040027) (Old Spill ID: 04-13-042246) d-EPA-RCRA GEN/NLR(ID: WID980825731)	a-UST-3 tanks 2 tanks-unleaded gasoline, 10000 gallons each, closed/removed 1 tank-diesel, 10000 gallons, closed/removed b-LUST discovered 12/19/1990, closed 04/25/1997 c- Historic Spill 04-13-042609 03/16/1988, unknown extent Historic Spill 04-13-042241 08/31/1987, unknown extent Historic Spill 04-13-040027 11/12/1984, unknown extent Historic Spill 04-13-042246 09/01/1987, unknown extent d-Conditionally Exempt Small Generator	a-Closed b-Closed c-Closed d-NLR	1.23 MI NE	100-Year Capture Zone	Low
135	167	FMC Corp 3533 International Ln Madison, WI	FirstSearch Report a-WI-Spills (Old Spill ID: 04-13-045301) b-EPA-RCRA GEN(ID: WIR000020974)	a-Historic Spill 12/05/1990, unknown extent b-Small Quantity Generator	a-Closed b-SGN	1.23 MI NE	100-Year Capture Zone	Low
136	170	Northwest Airlines INC 3523 International Ln Madison, WI	FirstSearch Report -WI-Registered UST (Facility ID 114857)	UST-unleaded gasoline, 1000 gallons, closed/removed	Closed	1.23 MI NE	100-Year Capture Zone	Low
137	N/A	City of Madison Warner Park 2930 North Sherman Avenue Madison, WI	Site Reconnaissance	Large vehicle parking area Hydraulic equipment use (carnival rides) Baseball turf maintenance (possible chemicals/fertilizer application) Annual firework debris	Active City Recreation Park	0.83 MI NE	100-Year Capture Zone	Low

**Notes:**

Zone A = Within 5 year TOT ZOC  
Zone B = Beyond Zone A, but within 1200-ft. radius.  
Map Site ID numbers correspond to numbers shown on Figure 4-1.  
Environmental FirstSearch Map ID No.s pertain to  
Environmental Data Resources (EDR) Report No. 07072008 July 2008 (updated July 2012)

**Definitions:**

AST - Aboveground Storage Tank  
AUL - Deed Restriction Data  
BRRTS - Wisconsin Bureau of Remediation & Redevelopment Tracking System  
CERCLIS - Comprehensive Environmental Response, Compensation, & Liability Info System  
COORACTS - Corrective Action Activity  
CRS - Closed Remediation Sites  
DNR - Wisconsin Department of Natural Resources  
EPA - Environmental Protection Agency

ERNS - Emergency Response Notification System  
ERP - Wisconsin Environmental Repair Program Database  
FINDS - Facility Index System/Facility Registry System  
LAST - Leaking Aboveground Storage Tank  
LUST - Leaking Underground Storage Tank  
MANIFEST - Hazardous Waste Manifest Information  
NPL - National Priorities List (NPL)  
SHWIMS - Solid & Hazardous Waste Information Management System  
RCRA-CESQG - Resource Conservation and Recovery Act- Conditionally Exempt Small Quantity Generator  
RCRA-LQG - Resource Conservation and Recovery Act (RCRA) - Large Quantity Generator  
RCRA-SQG - Resource Conservation and Recovery Act- Small Quantity Generator  
SPILLS - Wisconsin DNR Spills Database  
TOT - Time of Travel  
UST - Underground Storage Tank

**TABLE 4-2**  
**MINIMUM SEPARATION REQUIREMENTS**  
**BETWEEN PUBLIC WELLS AND**  
**POTENTIAL CONTAMINANT SOURCES**  
WELLHEAD PROTECTION PLAN, UNIT WELL 7  
MADISON, WISCONSIN

<b>Potential Contamination Source</b>	<b>Minimum Separation Distance</b>
<ul style="list-style-type: none"> <li>- Storm Sewer</li> <li>- Sanitary Sewer (Constructed from Pressure Pipe Materials)</li> </ul>	50 feet
<ul style="list-style-type: none"> <li>- Sanitary Sewer, Manhole, or Liftstation</li> <li>- One or Two Family Residential Fuel Oil Tank</li> <li>- Private Onsite Wastewater Treatment System (Tank, Holding Tank, or Piping)</li> </ul>	200 feet
<ul style="list-style-type: none"> <li>- Double-Wall Underground Storage Tank (Gasoline, Diesel, Bio-Diesel, Ethanol, Other Alternative Fuel, Fuel Oil, Petroleum Product, Motor Fuel, Burner Fuel, Lubricant, Waste Oil, or Hazardous Substances)</li> </ul>	300 feet
<ul style="list-style-type: none"> <li>- Private Onsite Wastewater Treatment System (Dispersal Component with Capacity Less Than 12,000 gpd)</li> <li>- Cemetery</li> <li>- Stormwater Retention or Detention Pond</li> </ul>	400 feet
<ul style="list-style-type: none"> <li>- Double-Wall Above Ground Storage Tank (Gasoline, Diesel, Bio-Diesel, Ethanol, Other Alternative Fuel, Fuel Oil, Petroleum Product, Motor Fuel, Burner Fuel, Lubricant, Waste Oil, or Hazardous Substances)</li> </ul>	600 feet
<ul style="list-style-type: none"> <li>- Land Application of Municipal, Commercial, or Industrial Waste</li> <li>- Land-Spreading of Petroleum Contaminated Soil</li> <li>- Agricultural, Industrial, Commercial, Municipal Waste Water Treatment Plant Units, Lagoons, or Storage Structures.</li> <li>- Private Onsite Wastewater Treatment System (Dispersal Component with Capacity Greater Than 12,000 gpd)</li> </ul>	1,000 feet
<ul style="list-style-type: none"> <li>- Solid Waste Storage, Transportation, Incineration, Air Curtain Destructor, Processing, Wood Burning, One-Time Disposal or Demolition Facility</li> <li>- Sanitary Landfill</li> <li>- Property with Residual Groundwater Contamination Exceeding NR 140 Enforcement Standards</li> <li>- Coal, Salt, or De-Icing Material Storage</li> <li>- Any Single-Wall Underground or Above Ground Storage Tank (Gasoline, Diesel, Bio-Diesel, Ethanol, Other Alternative Fuel, Fuel Oil, Petroleum Product, Motor Fuel, Burner Fuel, Lubricant, Waste Oil, or Hazardous Substances)</li> </ul>	1,200 feet

Reference: Wisconsin Administrative Code, NR 811.12(5)(d); Register, November 2010.

## 5.0 MANAGEMENT ACTIVITIES

### 5.1 ALTERNATIVE MANAGEMENT ACTIVITIES

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

All landowners in the Unit Well 07 area, whether residing in the City of Madison or in surrounding areas, rely on groundwater resources for water supply. Emphasis should be placed on management activities that provide a mutual benefit to the City of Madison residents and other property owners who rely on the groundwater resources.

#### 5.1.1 Category 1 - Existing Programs

##### 5.1.1.1 Hazardous Waste Collection/Disposal Program (Clean Sweep)

Public Health Madison and Dane County operates the Clean Sweep Collection Program. The Clean Sweep Program involves collection and disposal of residential, agricultural, and small business hazardous chemicals and wastes and product exchange of unwanted hazardous products when applicable. Disposal of Dane County household or farm hazardous waste costs \$10.00 per trip (\$75.00 for properties located outside of Dane County, some electronics may require additional fees). Business customers should schedule an appointment prior to bringing hazardous waste materials to the collection facility, and there is a per pound charge for materials. The Clean Sweep website should be consulted about specific items being disposed and hours of operation. As of May 1, 2013, the Clean Sweep site is located at 7102 US Hwy 12, Madison, Wisconsin 53718 (across from the Yahara Hills Golf Course at the Dane County Landfill).

Information about the Clean Sweep Collection Program can be obtained by calling the Dane County Landfill at 608-838-9555 or 608-243-0368. The program website is [www.danecountycleansweep.com](http://www.danecountycleansweep.com)

The Clean Sweep Collection Program is advertised using public service announcements and materials distributed by municipalities including direct mail to select customer groups, press releases, publications and newsletters, television coverage, and brochures. The program also maintains a website as noted above and an informational hotline. Funding for the program is primarily provided by a percentage of tipping fees collected at local landfills. Additional information about the Clean Sweep Collection Program is in Appendix L.

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 Private Onsite Wastewater Treatment Systems Maintenance**

The nearest private sewage disposal systems located approximately 2.5 to 3.0 miles north and northeast of Unit Well 07 are likely low risk to Unit Well 07. However, nutrient loading to groundwater is a regional concern, and it is prudent to be proactive regarding management of private sewage disposal systems.

Public Health Madison and Dane County has an existing program to inventory and service private on-site waste disposal (septic) systems located in Dane County. Data for these systems is recorded in a central database. The purpose of an inventory is to ensure that private systems are maintained and operating correctly, so that they do not endanger the groundwater resources (Public Health Madison, 2010).

Public Health Madison and 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 Request that Public Health Madison and Dane County provide information to owners of private sewage disposal systems located in Dane County, about sewage system maintenance, and the types of waste that should not be disposed of in a septic system.

#### **5.1.1.3 Well Construction and Abandonment**

The proposed activities 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 construction and abandonment (filling and sealing) of unused wells.

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

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Well Abandonment Ordinance and the Dane County ordinance “Relating to Private Water Systems” are in Appendix K. Other information about private wells and well abandonment is in Appendix L. Since 2008, only licensed well drillers and pump installers can fill and seal wells in Wisconsin (Wisconsin DNR, 2010).

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). A DNR notification number is required prior to well construction. Dane County also requires a permit prior to construction. After a well is constructed, Public Health Madison and Dane County sanitarians inspect the well.

Madison General Ordinance Section 13.21 requires an owner of a private well located in the City of Madison, or on premises served by the Madison Water Utility to abandon the private well, or obtain a well operation permit from the Madison Water Utility. Madison Water Utility witnesses the abandonment of unsafe, unused, or non-complying wells located in the City. Dane County oversees the abandonment of unsafe, unused, or non-complying wells that are located in the County outside of the City limits. Public Health Madison and Dane County Environmental Health Division administers a county reimbursement program for abandoning these wells. The City of Madison also offers a partial reimbursement of the cost (up to fifty percent of the cost, up to \$1,000) to abandon a private domestic well.

The following will be completed for this management activity:

1. Public Health Madison and Dane County Environmental Health Division will continue to review well applications and require construction permits for new private water supply wells.
2. Madison Water Utility will continue to require a well operation permit for private wells located in the City of Madison and maintain an inventory of these wells.
3. Madison Water Utility will 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.
4. Madison Water Utility will send information to property owners located within the Unit Well 07 WHPA about proper well abandonment procedures in the event the property owners have an unused well on their property.
5. Madison Water Utility, 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 07 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 (Bureau of Drinking Water and Groundwater) (608) 266-0821) when questions arise about private water supply wells.

#### **5.1.1.4 Land Application of Sludge and Septage**

There are no septage application sites permitted within the Unit Well 07 ZOCs. The Wisconsin DNR issues permits for septage and sludge disposal sites in Wisconsin. Currently approved sludge and septage application sites are low risk to Unit Well 07. 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 ultimate recharge area maps to the Madison Metropolitan Sewerage District and request that sludge and septage not be spread in the Unit Well 07 ultimate recharge areas.
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 07 ultimate recharge area.
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 no known historical spill sites within the Unit Well 07 WHPA. 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 07 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 Unit Well 07 WHPA and request that contaminated site(s) located in the Unit Well 07 WHPA be carefully reviewed before being granted closure.

## 5.1.2 Category 2 - Land Use Controls

### 5.1.2.1 Existing Zoning/Wellhead Protection 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 07 WHPA. A copy of the WHP ordinance is in Appendix O.

The following will be completed for this management activity:

1. The City of Madison will amend Section 28.102(6) of the Madison General Ordinances to revise, as necessary, the existing Zone A boundary for Wellhead Protection District No. 07 to match the Zone A WHPA as delineated in the approved WHPP for Unit Well 07.
2. The City of Madison will provide Dane County with a copy of the WHP ordinance and Unit Well 07 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. Madison Water Utility will provide the Village of Maple Bluff and Dane County with a copy of:
  - a. The WHPP and maps showing the Unit Well 07 WHPA and ZOCs.
  - b. A summary of required separation distances between municipal water supply wells and potential contamination sources (Wisconsin Admin. Code, Chapter NR 811.12(5)(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 and Madison Water Utility will review plan submittals to ensure that re-development complies with separation distances required

- between municipal water supply wells and potential contamination sources (Wisconsin Administrative Code, Chapter NR 811.12(5)(d)).
3. The City of Madison will encourage the Village of Maple Bluff and the Dane County Boards and Councils to review proposed development in the ZOCs in their jurisdiction, with regard to the Unit Well 07 recharge areas to ensure compliance with separation distances to maintain a high-quality water source.
  4. The City of Madison Planning and Development Department will use an Environmental Permits Checklist for site plan review for proposed development in the Unit Well 07 recharge area. 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 at least once every five years.

##### **5.1.4.2 Water Quality Monitoring**

Currently, each City of Madison supply well is tested at least annually for Volatile Organic Compounds (VOCs) and inorganic contaminants. Synthetic Organic Compounds (SOCs) including herbicides and other pesticides are tested every six years. Microbiological tests for coliform bacteria are conducted 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](http://www.madisonwater.org) to look up the wells that serve their address and 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**

Madison Water Utility 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 human activities on the land and in the atmosphere influence the water cycle and affect the quality of our groundwater and surface water resources. 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. In addition, an electronic copy will be posted to the Water Utility website ([www.cityofmadison.com/water/programs/wellheadprotectionprogram.cfm](http://www.cityofmadison.com/water/programs/wellheadprotectionprogram.cfm)).
2. The City of Madison will provide a copy of the WHPP to the Village of Maple Bluff and Dane County.
3. Madison Water Utility will communicate the availability of the plan through a press release or various methods of social media.

#### **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 07 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 media announcing the completion of the plan and its availability.

#### **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 University of Wisconsin 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
2. Madison Water Utility will continue to add WHP planning information to their website homepage ([www.madisonwater.org](http://www.madisonwater.org)).

#### **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 07, 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 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 may include:
  - a. Leaking USTs and ASTs
  - b. Upgrading existing ASTs and USTs systems
  - c. 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**

Madison Water Utility has an existing water conservation program that includes addressing the need for both water accountability in the distribution system and water conservation by the general public. The 2008 Water Conservation Plan (Appendix P) provides further details on the conservation plans developed.

During 2012, the Utility maintained water accountability in the distribution system of 91 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.

Madison Water Utility has information about water conservation at its website, [www.madisonwater.org](http://www.madisonwater.org). Water conservation information is included in Appendix Q.

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

### **5.3 CONTINGENCY PLAN**

Madison Water Utility has formulated a contingency plan for providing water in the event that Unit Well 07 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 07, 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 07 provides reliable supply to the water system and fire protection for several main pressure-zone neighborhoods. In the event of the loss of Unit Well 07, various other wells in the main pressure-zone can 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. In the event of a power failure, several of Madison's supply well pumping stations are equipped with standby generators or power plugs for connecting portable generators. Unit Well 07 is not currently equipped with a standby generator; however a diesel fueled generator will be installed as part of the 2014 facility expansion and water treatment project.

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 07 WHPA. As well, the Wisconsin Contingency Plan for Hazardous Substance Discharges specifically includes protection of potable water system within the plan immediately following prevention of human injury (DNR 1998).

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**

The WHPA Management Plan for Unit Well 07 was formulated to help protect the 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 07 ZOCs include property in the City of Madison and the Village of Maple Bluff. Educational activities will



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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) is also 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 of Madison will provide the Village of Maple Bluff and Dane County with a copy of the WHPP and maps showing the Unit Well 07 WHPA, ZOCs and ultimate capture zones, the separation distances required between municipal water supply wells and potential contamination sources (Wisconsin Admin. Code, Chapter NR 811.12(5)(d)), and a list of potential contamination sources that can threaten groundwater. The City will encourage county, and other city boards and councils to help protect the ZOCs and ultimate upgradient recharge areas when evaluating proposed development. The Madison Planning and Development Department will also consider the Unit Well 07 WHPA and ZOCs when evaluating proposed development in the City of Madison.

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 07 WHPA.

**TABLE 5-1  
SUMMARY OF MANAGEMENT STRATEGIES  
WELLHEAD PROTECTION PLAN - UNIT WELL 07  
MADISON, WISCONSIN**

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Target Date	Action Item
1. Existing Programs	a. Hazardous Waste Collection (CLEAN SWEEP)	<ul style="list-style-type: none"> <li>Hazardous waste collection and disposal. Residential, agricultural, and small business hazardous waste. Commercial with small fee. May through October collections in Madison.</li> <li>Target local property owners and residents to participate.</li> </ul>	<ul style="list-style-type: none"> <li>Dane County Department of Public Works</li> <li>Public Health Madison and Dane County</li> </ul>	<p>1. <b>2014</b></p> <p>2. <b>As needed.</b></p>	<p>1. <b>Madison Water Utility</b> to send information about the Clean Sweep Collection Program to property owners in the WHPA, to encourage participation in the program.</p> <p>2. <b>Dane County</b> sponsors advertising and feature articles.</p>
	b. On Site Waste Disposal System (Septic) Maintenance	<ul style="list-style-type: none"> <li>Maintenance/servicing contract currently required for system owners on record.</li> <li>Orders issued to confirmed failing system owners.</li> <li>Include all property/septic system owners in WHPA in notification database.</li> <li>Conduct Public Education.</li> </ul>	<ul style="list-style-type: none"> <li>Public Health Madison and Dane County</li> </ul>	<p>1. <b>2014, then annually</b></p> <p>2. <b>Every 3 years</b></p>	<p>1. <b>Madison Water Utility</b> request that Public Health Madison and 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.</p> <p>2. <b>Public Health Madison and Dane County Environmental Health Department</b> to ensure that system maintenance and pumping are performed.</p>

**TABLE 5-1 (cont.)**

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Target Date	Action Item
1. Existing Programs (Cont.)	c. Private Well Abandonment	<ul style="list-style-type: none"> <li>Dane County review applications and require construction permits for new private water supply wells.</li> <li>Enforce well abandonment ordinance(s) (Dane County Chapter 45, and City of Madison General Ordinance Sec. 13.21) and review new well construction.</li> <li>Require proper abandonment of unused and unsafe wells.</li> <li>City of Madison require proper abandonment of unused and unsafe wells.</li> <li>Update well inventory in WHPA.</li> <li>Familiarize with WI Admin. Codes, Chapters NR 141, 811, and 812.</li> </ul>	<ul style="list-style-type: none"> <li>Wisconsin DNR</li> <li>Public Health Madison and Dane County</li> <li>City of Madison</li> <li>Madison Water Utility</li> </ul>	<p>1. Ongoing</p> <p>2. Every 5 years in conjunction with well permits review/renewal</p> <p>3. Ongoing</p> <p>4. Ongoing</p> <p>5. 2014</p> <p>6. Ongoing</p>	<p>1. <b>Madison Water Utility</b> to 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.</p> <p>2. <b>Madison Water Utility</b> to 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.</p> <p>3. <b>Madison Water Utility</b> to update the private well inventory for wells located in the WHPA.</p> <p>4. <b>City of Madison and Dane County</b> to enforce existing well abandonment ordinances, to ensure that all private wells are permitted, or properly abandoned if unused.</p> <p>5. <b>Madison Water Utility</b> to request that Dane County consider proximity and depth of proposed private wells relative to Unit Well 07 prior to issuing permits for construction of new private water supply wells.</p> <p>6. <b>Madison Water Utility</b> to 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.</p>

TABLE 5-1 (cont.)

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Target Date	Action Item
1. Existing Programs (cont.)	d. Land Application of Sludge and Septage	<ul style="list-style-type: none"> <li>Enforce existing rules.</li> </ul>	<ul style="list-style-type: none"> <li>Wisconsin DNR</li> <li>Dane County</li> <li>Madison Metropolitan</li> <li>Sewerage District (MMSD)</li> </ul>	1. 2014	1. <b>Madison Water Utility</b> to provide a copy of the WHPA and recharge area maps to the MMSD and request that sludge not be spread in the Unit Well 07 recharge area equivalent to the 50-year TOT capture zone.
				2. 2014	2. <b>Madison Water Utility</b> to 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 07 recharge area equivalent to the 50-year TOT capture zone.
				3. Ongoing	3. <b>Madison Water Utility</b> to encourage development of additional authorized septage discharge points in the City of Madison wastewater treatment system.
				4. Ongoing	4. <b>DNR</b> to enforce rules, particularly in WHPAs.



**TABLE 5-1 (cont.)**

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Target Date	Action Item
1. Existing Programs (cont.)	e. Spill Notification and Awareness of Remedial Investigation and Cleanup	<ul style="list-style-type: none"> <li>Monitor and keep informed of potential contamination sources in the WHPA and recharge areas.</li> <li>Work with DNR to achieve investigation and cleanup of known contamination sources.</li> </ul>	<ul style="list-style-type: none"> <li>Wisconsin DNR</li> <li>Dane County Emergency Management</li> <li>Wisconsin DATCP and COMM</li> <li>City of Madison Fire Department</li> </ul>	1. 2014	1. <b>Madison Water Utility</b> to 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 07 WHPA or in upgradient recharge areas.
				2. 2014, then ongoing	2. <b>Madison Water Utility</b> to 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.
2. Land Use Controls	a. Existing Zoning/Wellhead Protection Overlay Zoning and Ordinance	<ul style="list-style-type: none"> <li>Enforce existing zoning.</li> <li>Discourage conditional uses or zoning changes that increase risk to groundwater.</li> </ul>	<ul style="list-style-type: none"> <li>City of Madison</li> <li>Dane County Planning and Development</li> </ul>	1. 2014	1. <b>City of Madison</b> to amend WHP ordinance and update the WP-07 Wellhead Protection District No.07.
				2. 2014	2. <b>City of Madison</b> to provide Dane County with a copy of the WHP ordinance and WHPA map.
				3. 2014	3. <b>Dane County</b> to consider developing WHP Overlay District ordinance.

TABLE 5-1 (cont.)

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Target Date	Action Item
3. Intergovernmental Cooperation	a. Land Use Planning and Site Plan Review	<ul style="list-style-type: none"> <li>Cooperate in land use planning to protect groundwater resources and WHPAs.</li> <li>Keep appraised of development in WHPA.</li> <li>Ensure development complies with separation distances between the well and potential contamination sources as required by WI Admin. Code, Chapter NR 811.12.</li> </ul>	<ul style="list-style-type: none"> <li>City of Madison Planning and Development Department</li> <li>Dane County Planning and Development Department</li> <li>Wisconsin DNR</li> </ul>	1. 2014	1. <b>City of Madison</b> to provide Dane County and WI-DNR with a copy of: <ol style="list-style-type: none"> <li>The WHPP and maps showing the Well 07 WHPA and ZOCs.</li> <li>Summary of separation distances required between municipal water supply wells and potential contamination sources.</li> <li>List of contamination sources that can threaten groundwater.</li> <li>A list of high risk land uses that should be prohibited in WHPAs.</li> </ol>
				2. 2014, then ongoing	2. <b>City of Madison Planning and Development Department</b> to ensure that development complies with separation distances required between municipal water supply wells and potential contamination sources.
				3. 2014, then ongoing	3. <b>City of Madison</b> to encourage the Village of Maple Bluff and Dane County to review proposed development in the ZOCs in their jurisdiction, with regard to Unit Well 07 recharge area.
				4. 2014	4. <b>City of Madison Planning and Development Department</b> to develop an Environmental Permits Checklist for site plan review. It will help ensure compliance with local, County, and State permits and will raise awareness about groundwater protection.
				5. 2014, then ongoing	5. <b>City of Madison Planning and Development Department</b> to provide the WHPA map and Site Plan Review Environmental Permits Checklist to developers and property owners and require that developers indicate on the 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	
				Target Date	Action Item
<b>4. Monitoring</b>	a. Contaminant Source Inventory (CSI) Maintenance	<ul style="list-style-type: none"> <li>Update CSI and conduct windshield survey</li> </ul>	<ul style="list-style-type: none"> <li>Madison Water Utility</li> </ul>	<b>1. 2018, then every 5 years</b>	<b>1. Madison Water Utility</b> to 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"> <li>Conduct sampling of supply wells.</li> </ul>	<ul style="list-style-type: none"> <li>Madison Water Utility</li> </ul>	<b>1. As required – Ongoing</b>	<b>1. Madison Water Utility</b> to perform water quality monitoring as required by DNR and as otherwise needed.
<b>5. Public Education and Awareness</b>	a. Availability of WHPP	<ul style="list-style-type: none"> <li>Provide copies to Water Utility Office, Public Library, City Hall, Village of Maple Bluff, and Dane County.</li> </ul>	<ul style="list-style-type: none"> <li>City of Madison</li> </ul>	<b>1. 2014</b>  <b>2. 2014</b>  <b>3. 2014</b>	<b>1. City of Madison</b> to provide copies of the WHPP for review by the public at the Water Utility Office, Madison Public Library, and the Water Utility's website.  <b>2. City of Madison</b> to provide copies of the WHPP to Dane County and the Wisconsin DNR.  <b>3. Madison Water Utility</b> to communicate the availability of the plan through a newspaper article.
	b. Public Informational Meetings	<ul style="list-style-type: none"> <li>Perform as part of a City Committee meeting or Common Council Meeting.</li> </ul>	<ul style="list-style-type: none"> <li>City of Madison</li> </ul>	<b>1. 2014</b>  <b>2. 2014</b>	<b>1. City of Madison</b> to conduct a public informational meeting as part of a City committee meeting or the Common Council meeting during the review phase of the WHPP.  <b>2. City of Madison</b> to provide WHPA maps for public review and an information sheet or brochure available for public use.



**TABLE 5-1 (cont.)**

Program Category	Activity	Description	Responsible Unit(s) of Government	Implementation Schedule	
				Target Date	Action Item
5. Public Education and Awareness (cont.)	f. School Programs	<ul style="list-style-type: none"> <li>Participate in school programs.</li> </ul>	<ul style="list-style-type: none"> <li>City of Madison</li> <li>University Extension Office</li> <li>Madison Public Schools</li> </ul>	1. 2014	1. <b>Madison Water Utility</b> to inform schools about the availability of tours at water supply facilities.
				2. 2014	2. <b>Madison Water Utility</b> to prepare a water/groundwater fact sheet for school education.

**TABLE 5-2  
EMERGENCY CONTACT NUMBERS  
WELLHEAD PROTECTION PLAN, UNIT WELL 7  
MADISON, WISCONSIN**

<b>Emergency Contact</b>	<b>Name</b>	<b>Phone No.</b>
Water Utility Emergency Service	On-call 24 Hours	Office: 608-266-4665
General Manager	Tom Heikkinen	Office: 608-266-4652
Water Quality Manager	Joseph Grande	Office: 608-261-9101
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 24 Hours	911
Dane County Emergency Management	Hazardous Materials Planning Office	608-266-4330
Public Health Madison and Dane County – Environmental Health	Office	608-242-6515
DNR Water Supply Engineer	Dave Barkhahn Fitchburg	608-275-3300
DNR Water Supply - Central Office	Mark Harder Madison	608-267-5762
Well Driller & Pump Installer	Municipal Well & Pump Tracy Greenfield	Office: 920-324-3400 Cellular: 262-424-2328
Well Driller & Pump Installer	Layne Northwest	Office: 262-246-4646 After Hours: 262-246-4646
Village of Maple Bluff	Village Hall	608-244-3048
State Patrol	Emergency Administration	911 608-266-3212
Hazardous Material Response Team – Wisconsin Division of Emergency Mgmt.	WI DNR Spills Hotline	1-800-943-0003 (Menu)
Electric Utility – Madison Gas & Electric	Emergency Service	608-252-1111